Hewlett Packard Enterprise

HPE FlexFabric 5930 Switch Series

Fundamentals Command Reference

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Basic CLI commands

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

Predefined user roles

network-admin

Usage guidelines

Configured command keyword aliases take effect only when the command keyword alias function is enabled.

Disabling the command keyword alias function does not delete configured aliases.

Examples

Enable the command keyword alias function.

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

Related commands

- **command-alias mapping**
- **display command-alias**

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

Predefined user roles

network-admin

Parameters

cmdkey: Specifies the first keyword of a non-undo command or the second keyword of an **undo** command. You must enter the keyword in its complete form.

alias: Specifies an alias for the keyword, a string of 1 to 20 characters. It must be different from the first keyword of any non-undo command and the second keyword of any **undo** command.

Usage guidelines

You can configure an alias for the first keyword of a non-undo command or the second keyword of an **undo** command. Then, when you execute a command that starts with the keyword or the **undo** keyword plus the keyword, you can use the alias. For example, if you configure **show** as the alias for the **display** keyword, you can enter **show clock** to execute the **display clock** command.

To use configured command keyword aliases, make sure the **command-alias enable** command is configured.

Examples

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

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

Related commands

- **command-alias enable**
- **display command-alias**

display | { begin | exclude | include }

Use **display |** { **begin** | **exclude** | **include** } to filter the output from a **display** command with a regular expression.

Syntax

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

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

command: Specifies the keywords and arguments of a **display** command. To display available keywords and arguments, enter **display ?**.

begin: Displays the first line matching the specified regular expression and all subsequent lines.

exclude: Displays all lines not matching the specified regular expression.

include: Displays all lines matching the specified regular expression.

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

Usage guidelines

Use the **|** { **begin** | **exclude** | **include** } *regular-expression* option with a **display** command to filter the command output. For more information about regular expressions, see *Fundamentals Configuration Guide*.

Examples

Display the lines that contain **vlan** in the running configuration.

```
<Sysname> display current-configuration | include vlan
vlan 1
vlan 999
 port access vlan 999
```

display | by-linenum

Use **display | by-linenum** to number each output line for a **display** command.

Syntax

display *command* **| by-linenum**

Views

Any view

Predefined user roles

network-admin

Parameters

command: Specifies the keywords and arguments of a **display** command. To display available keywords and arguments, enter **display ?**.

Usage guidelines

By numbering each output line from a **display** command, you can easily identify the lines of interest.

Each line number is displayed as a 5-character string and might be followed by a colon (:) or hyphen (-). If you specify both **| by-linenum** and **| begin** *regular-expression* for a **display** command, a hyphen is displayed for all lines that do not match the regular expression.

Examples

Display CPU usage information, with each output line identified by a number.

```
<Sysname> display cpu-usage | by-linenum
    1:  Slot 1 CPU 0 CPU usage:
    2:        14% in last 5 seconds
    3:        14% in last 1 minute
    4:        13% in last 5 minutes
```

Display the first line that begins with **user-group** in the running configuration and all of the following lines.

```
<Sysname> display current-configuration | by-linenum begin user-group
  114:  user-group system
  115-  #
  116-  return
```

display >

Use **display >** to save the output from a **display** command to a separate file.

Syntax

display *command* **>** *filename*

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

command: Specifies the keywords and arguments of a **display** command. To display available keywords and arguments, enter **display ?**.

filename: Specifies the name of the file that is used to save the output, a string of 1 to 63 characters.

Usage guidelines

The **display** commands show the configuration, statistics, and states of the device. You can use the **display >** command to save the output to a file.

If the specified file does not exist, the system creates the file and saves the output to the file. If the file already exists, the system overwrites the file.

Examples

Save CPU usage information to a separate file named **cpu.txt**.

```
<Sysname> display cpu-usage > cpu.txt
```

Verify the content of the **cpu.txt** file.

```
<Sysname> more cpu.txt
Slot 1 CPU 0 CPU usage:
      13% in last 5 seconds
      13% in last 1 minute
      13% in last 5 minutes
```

display >>

Use **display >>** to append the output from a **display** command to the end of a file.

Syntax

display *command* **>>** *filename*

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

command: Specifies the keywords and arguments of a **display** command. To display available keywords and arguments, enter **display ?**.

filename: Specifies the name of the file that is used to save the output, a string of 1 to 63 characters.

Usage guidelines

The **display** commands show the configuration, statistics, and states of the device. You can use **display >>** to save the output to a file.

If the specified file does not exist, the system creates the file and saves the output to the file. If the file already exists, the system appends the output to the end of the file.

Examples

Append system time information to the end of the **cpu.txt** file.

```
<Sysname> display clock >> cpu.txt
```

Check the content of the **cpu.txt** file.

```
<Sysname> more cpu.txt
Slot 1 CPU 0 CPU usage:
      13% in last 5 seconds
      13% in last 1 minute
      13% in last 5 minutes

02:03:27 UTC Tue 01/01/2013
```

display command-alias

Use **display command-alias** to display the status of the command keyword alias function and the configured command keyword alias.

Syntax

display command-alias

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

Display command keyword alias information.

```
<Sysname> display command-alias
Command alias is enabled
Index Alias               Command key
1     ping1               ping
2     ssh1                ssh
```

Related commands

- **command-alias enable**
- **command-alias mapping**

display history-command

Use **display history-command** to display all commands that are saved in the command history buffer for the current CLI session.

Syntax

display history-command

Views

Any view

Predefined user roles

network-admin

network-operator

Usage guidelines

The system automatically saves commands you have successfully executed to the command history buffer for the current CLI session. You can view them and execute them again.

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 for the current CLI session.

```
<Sysname> display history-command
  system-view
  vlan 2
  quit
```

Related commands

history-command max-size

display history-command all

Use **display history-command all** to display all commands saved in the command history buffer for all CLI sessions.

Syntax

display history-command all

Views

Any view

Predefined user roles

network-admin

network-operator

Usage guidelines

The system automatically saves commands successfully executed by users to the command history buffer for all CLI sessions. Users can view them and execute them again.

Up to 1024 commands can be saved in the command history buffer. When this number is reached, the system deletes the earliest commands to make room for newly executed commands.

Examples

Display all commands saved in the command history buffer for all CLI sessions.

```
<Sysname> display history-command all
  Date       Time      Terminal   Ip            User
  03/16/2012 20:03:33 vty0       192.168.1.26   **
  Cmd:dis his all

  03/16/2012 20:03:29 vty0       192.168.1.26   **
  Cmd:sys
```

Related commands

display history-command

display hotkey

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

Syntax

display hotkey

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

Display hotkey information.

```
<Sysname> display hotkey
---------------- Hotkeys ----------------
          -Defined command hotkeys-
CTRL_G display current-configuration
CTRL_L display ip routing-table
CTRL_O undo debugging all

          -Undefined command hotkeys-
CTRL_T NULL
CTRL_U NULL

          -System-reserved hotkeys-
CTRL_A  Move the cursor to the beginning of the line.
CTRL_B  Move the cursor one character to the left.
CTRL_C  Stop the current command.
CTRL_D  Erase the character at the cursor.
CTRL_E  Move the cursor to the end of the line.
CTRL_F  Move the cursor one character to the right.
CTRL_H  Erase the character to the left of the cursor.
CTRL_K  Abort the connection request.
CTRL_N  Display the next command in the history buffer.
```

```
CTRL_P  Display the previous command in the history buffer.
CTRL_R  Redisplay the current line.
CTRL_V  Paste text from the clipboard.
CTRL_W  Delete the word to the left of the cursor.
CTRL_X  Delete all characters from the beginning of the line to the cursor.
CTRL_Y  Delete all characters from the cursor to the end of the line.
CTRL_Z  Return to the User View.
CTRL_]  Kill incoming connection or redirect connection.
ESC_B   Move the cursor back one word.
ESC_D   Delete all characters from the cursor to the end of the word.
ESC_F   Move the cursor forward one word.
```

Related commands

hotkey

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

Predefined user roles

network-admin

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: Specifies the command to be assigned to the hotkey.

Usage guidelines

The system defines some hotkeys and provides five configurable command hotkeys. Pressing a hotkey executes the command assigned to the hotkey.

To display system-defined and configurable hotkeys, use the **display hotkey** command.

Examples

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

```
<Sysname> system-view
[Sysname] hotkey ctrl_t display tcp status
```

Related commands

    display hotkey

quit

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

Syntax

    quit

Views

    Any view

Predefined user roles

    network-admin

    network-operator

Usage guidelines

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

Examples

    # Return from the view of VLAN-interface 1 to system view and then to user view.

```
[Sysname-vlan1] quit
[Sysname] quit
<Sysname>
```

return

    Use **return** to return to user view from any other view.

Syntax

    return

Views

    Any view except user view

Predefined user roles

    network-admin

    network-operator

Usage guidelines

    Pressing **Ctrl+Z** has the same effect as the **return** command.

Examples

    # Return to user view from the view of VLAN-interface 1.

```
[Sysname-vlan1] return
<Sysname>
```

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

The default varies by settings of the **screen-length** command in user line view.

The following are the default settings for the **screen-length** command:

- Pausing between screens of output.
- Displaying up to 24 lines on a screen.

Views

User view

Predefined user roles

network-admin

Usage guidelines

If you disable pausing between screens of output, all output is displayed. The screen is refreshed continuously until the final screen is displayed.

This command takes effect only for the current session. When you are logged out, the default is restored.

Examples

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

Related commands

screen-length

system-view

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

Syntax

system-view

Views

User view

Predefined user roles

network-admin

network-operator

Examples

Enter system view from user view.
```
<Sysname> system-view
```

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

Login management commands

The device supports 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*.

Some login management commands are available in both user line view and user line class view. For these commands, the device uses the following rules to determine the settings to be activated:

- A setting in user line view is applied only to the user line. A setting in user line class view is applied to all user lines of the class.
- A non-default setting in either view takes precedence over a default setting in the other view. A non-default setting in user line view takes precedence over a non-default setting in user line class view.
- A setting in user line view takes effect immediately and affects the online user. A setting in user line class view does not affect online users. It takes effect only for new login users.

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 *key-string*

undo activation-key

Default

Pressing **Enter** starts a terminal session.

Views

User line view, user line class view

Predefined user roles

network-admin

Parameters

key-string: Specifies the shortcut key. It can be a character (case sensitive), or an ASCII code value in the range of 0 to 127. For example, **activation-key 65** defines the shortcut key **A**. If you configure **activation-key a**, the shortcut key is **a**.

Usage guidelines

This command is not supported in VTY line view or VTY line class view.

This command is available in both user line view and user line class view. A non-default setting in either view takes precedence over a default setting in the other view. A non-default setting in user line view takes precedence over a non-default setting in user line class view.

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

Examples

Configure character **s** as the shortcut key for starting a terminal session on the AUX line.

```
<Sysname> system-view
[Sysname] line aux 0
```

```
[Sysname-line-aux0] activation-key s
```

To verify the configuration:

1. Exit the console session.
    ```
    [Sysname-line-aux0] return
    <Sysname> quit
    ```
2. Log in again through the AUX line.
    The following message appears:
    ```
    Press ENTER to get started.
    ```
3. Press **Enter**.
    Pressing **Enter** does not start a session.
4. Enter **s**.
    A terminal session is started.
    ```
    <Sysname>
    ```

authentication-mode

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

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

Syntax

In non-FIPS mode:

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

undo authentication-mode

In FIPS mode:

authentication-mode scheme

undo authentication-mode

Default

In non-FIPS mode, the authentication mode is **password** for VTY lines, and **none** for the AUX lines.

In FIPS mode, the authentication mode is **scheme**.

Views

User line view, user line class view

Predefined user roles

network-admin

Parameters

none: Disables authentication.

password: Performs local password authentication.

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

Usage guidelines

When the authentication mode is **none**, a user can log in without authentication. To improve device security, use the password or scheme authentication mode.

In VTY line view, this command is associated with the **protocol inbound** command. If you specify a non-default value for only one of the two commands in VTY line view, the other command uses the default setting, regardless of the setting in VTY line class view.

Examples

Enable the **none** authentication mode for user line VTY 0.

```
<Sysname> system-view
[Sysname] line vty 0
[Sysname-line-vty0] authentication-mode none
```

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

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

Enable scheme authentication for user line VTY 0. Configure local user **123** and set the password to **321**. Assign the Telnet service and the user role network-admin to the user.

```
<Sysname> system-view
[Sysname] line vty 0
[Sysname-line-vty0] authentication-mode scheme
[Sysname-line-vty0] quit
[Sysname] local-user 123
[Sysname-luser-manage-123] password simple 321
[Sysname-luser-manage-123] service-type telnet
[Sysname-luser-manage-123] authorization-attribute user-role network-admin
```

Related commands

set authentication password

auto-execute command

△ **CAUTION:**

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

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

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 line view, user line class view

Predefined user roles

network-admin

Parameters

command: Specifies the command to be automatically executed.

Usage guidelines

This command is not supported in AUX line view or AUX line class view.

This command is available in both user line view and user line class view. A non-default setting in either view takes precedence over a default setting in the other view. A non-default setting in user line view takes precedence over a non-default setting in user line class view.

The device automatically executes the specified command when a user logs in through the user line, and closes the user connection after the command is executed. If the command triggers another task, the device does not close the user connection until the task is completed.

Typically, you configure the **auto-execute command telnet** *X.X.X.X* command on the device so the device redirects a Telnet user to the host at X.X.X.X. In this case, the connection to the current device is closed when the user terminates the Telnet connection to X.X.X.X.

Examples

Configure the device to automatically Telnet to 192.168.1.41 after a user logs in through user line VTY 0.

```
<Sysname> system-view
[Sysname] line vty 0
[Sysname-line-vty0] auto-execute command telnet 192.168.1.41
% This action will lead to configuration failure through line-vty0. Are you sure?
[Y/N]:y
[Sysname-line-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) 2010-2017 Hewlett Packard Enterprise Development LP           *
* Without the owner's prior written consent,                                  *
* no decompiling or reverse-engineering shall be allowed.                     *
*******************************************************************************


Trying 192.168.1.41 ...
Press CTRL+K to abort
Connected to 192.168.1.41 ...
*******************************************************************************
* Copyright (c) 2010-2017 Hewlett Packard Enterprise Development LP           *
* 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 through Telnet. When you break the Telnet connection to 192.168.1.41, the Telnet connection to 192.168.1.40 is broken 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 line view, user line class view

Predefined user roles

network-admin

Usage guidelines

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

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

Invalid commands issued by users are not recorded.

If the **command accounting** command is configured in user line class view, command accounting is enabled on all user lines in the class. You cannot configure the **undo command accounting** command in the view of a user line in the class.

Examples

\# Enable command accounting for user line VTY 0.

```
<Sysname> system-view
[Sysname] line vty 0
[Sysname-line-vty0] command accounting
```

Related commands

- **accounting command** (*Security Command Reference*)
- **command authorization**

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 line view, user line class view

Predefined user roles

network-admin

Usage guidelines

When command authorization is enabled, a command is available only if the following requirements are met:

- The user has the commensurate user role.

- The user is authorized to use the command by the AAA scheme.

If the **command authorization** command is configured in user line class view, command authorization is enabled on all user lines in the class. You cannot configure the **undo command authorization** command in the view of a user line in the class.

Examples

Enable command accounting for VTY 0 so the VTY 0 user can execute only authorized commands that are permitted by the user role.

```
<Sysname> system-view
[Sysname] line vty 0
[Sysname-line-vty0] command authorization
```

Related commands

- **authorization command** (*Security Command Reference*)

- **command accounting**

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 line view

Predefined user roles

network-admin

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 not supported in VTY line class view.

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

Examples

Configure AUX 0 to use five data bits for each character.

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

```
[Sysname] line aux 0
[Sysname-line-aux0] databits 5
```

display line

Use **display line** to display user line information.

Syntax

display line [*number1* | { **aux** | **vty** } *number2*] [**summary**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

number1: Specifies the absolute number of a user line, in the range of 0 to 192.

aux: Specifies the AUX line.

vty: Specifies the VTY line.

number2: Specifies the relative number of a user line. The value range is 0 to 128 for the AUX line and 0 to 63 for the VTY line.

summary: Displays summary information about user lines. If you do not specify this keyword, the detailed information is displayed.

Examples

Display user line information.

```
<Sysname> display line 0
  Idx  Type     Tx/Rx     Modem Auth  Int
  0    AUX 0    9600        -    N     -
  +    : Line is active.
  F    : Line is active and in async mode.
  Idx  : Absolute index of line.
  Type : Type and relative index of line.
  Auth : Login authentication mode.
  Int  : Physical port of the line.
  A    : Authentication use AAA.
  N    : No authentication is required.
  P    : Password authentication.
```

Table 1 Command output

Field	Description
Modem	Whether the modem allows calling in or out. By default, this attribute is not configured and a hyphen (-) is displayed.

Display summary information about all user lines.

```
<Sysname> display line summary
  Line type : [AUX]
        0:UXXX XXXX XXXX XXXX
```

18

```
…
        112:XXXX XXXX XXXX XXXX
  Line type : [VTY]
        129:UUXX XXXX XXXX XXXX
…
        176:XXXX XXXX XXXX XXXX


  3 lines used.      (U)
  190 lines not used.  (X)
```

Table 2 Command output

Fields	Description
number.status	The *number* indicates the absolute number of the first user line of the user line class, starting from 0. The *status* indicates whether the user lines of the user line class are being used (**X** for unused and **U** for used).
	For example, if "0:UXXX XXXX XXXX XXXX" is displayed, there are ten user lines of the user line class, which use the absolute numbers 0 through 15. User line 0 is being used. The other user lines are not.

display telnet client

Use **display telnet client** to display the source address or interface for outgoing Telnet packets when the device acts as a Telnet client.

Syntax

display telnet client

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

Display the Telnet client configuration of the device when it acts as a Telnet client.

```
<Sysname> display telnet client
 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 acts as a Telnet client.

Related commands

telnet client source

display user-interface

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

Syntax

display user-interface [*number1* | { **aux** | **vty** } *number2*] [**summary**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

number1: Specifies the absolute number of a user line, in the range of 0 to 192.

aux: Specifies the AUX line.

vty: Specifies the VTY line.

number2: Specifies the relative number of a user line. The value range is 0 to 128 for the AUX line and 0 to 63 for the VTY line.

summary: Displays summary information about user lines. If you do not specify this keyword, the detailed information is displayed.

Usage guidelines

This command is an older version reserved for backward compatibility purposes. As a best practice, use the **display line** command.

Examples

Display user line information.

```
<Sysname> display user-interface 0
  Idx   Type      Tx/Rx       Modem Auth  Int
  0     AUX 0     9600         -     N     -
  +     : Line is active.
  F     : Line is active and in async mode.
  Idx   : Absolute index of line.
  Type  : Type and relative index of line.
  Auth  : Login authentication mode.
  Int   : Physical port of the line.
  A     : Authentication use AAA.
  N     : No authentication is required.
  P     : Password authentication.
```

Table 3 Command output

Field	Description
Modem	Whether the modem allows calling in or out. By default, this attribute is not configured and a hyphen (-) is displayed.

Display summary information about all user lines.

```
<Sysname> display user-interface summary
  Line type : [AUX]
         0:UXXX XXXX XXXX XXXX
…
       112:XXXX XXXX XXXX XXXX
  Line type : [VTY]
       129:UUXX XXXX XXXX XXXX
…
```

```
         176:XXXX XXXX XXXX XXXX


  3 lines used.      (U)
  190 lines not used.  (X)
```

Table 4 Command output

Fields	Description
number.status	The *number* indicates the absolute number of the first user line of the user line class, starting from 0. The *status* indicates whether the user lines of the user line class are being used (**X** for unused and **U** for used).
	For example, if "0:UXXX XXXX XXXX XXXX" is displayed, there are ten user lines of the user line class, which use the absolute numbers 0 through 15. User line 0 is being used. The other user lines are not.

display users

Use **display users** to display online CLI user information.

Syntax

display users [**all**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

all: Displays all user lines supported by the device.

Examples

Display online user information.

```
<Sysname> display users
  Idx   Line     Idle        Time               Pid      Type
  129   VTY 0    00:10:49    Jun 11 11:27:32    320      TEL
+ 130   VTY 1    00:00:00    Jun 11 11:39:40    334      TEL


Following are more details.
VTY 0   :
      Location: 192.168.1.12
VTY 1   :
      Location: 192.168.1.26
 +    : Current operation user.
 F    : Current operation user works in async mode.
```

The output shows that two users have logged in to the device: one is using user line VTY 0 and the other (yourself) is using VTY 1. Your IP address is 192.168.1.26.

Table 5 Command output

Field	Description
Idx	Absolute number of the user line.
Line	Type and relative number of the user line.
Idle	Time elapsed after the user's most recent input, in the format *hh*:*mm*:*ss*.
Time	Login time of the user.
Pid	Process ID of the user session.
Type	User type, such as Telnet, SSH.
+	Indicates the user line you are using.
Location	IP address of the user.

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 a task.

Syntax

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

undo escape-key

Default

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

Views

User line view, user line class view

Predefined user roles

network-admin

Parameters

key-string: Specifies the shortcut key. It can be a character, or an ASCII code value in the range of 0 to 127. For example, **escape-key 65** defines the shortcut key **A**. If you configure **escape-key a**, the shortcut key is **a**.

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

Usage guidelines

Some commands might take a long time to complete in certain situations. Examples include:

- A **ping** command that has 1000 packets to send.
- A **tracert** command that is used for an unreachable destination.

To stop a command, press the shortcut key for terminating tasks.

Whether a command can be terminated by **Ctrl+C** by default depends on the software implementation of the command. For more information, see the description of the command.

As a best practice, use a key sequence as the shortcut key. If you define a single character as the shortcut key, pressing the key while a command is being executed stops the command. If no command is being executed, the result depends on the following situations:

- If you are managing the local device, pressing the key enters the character as a common character.
- If you Telnet to another device and manage the remote device, pressing the key does nothing.

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

This command is available in both user line view and user line class view. A non-default setting in either view takes precedence over a default setting in the other view. A non-default setting in user line view takes precedence over a non-default setting in user line class view.

Examples

Define character **a** as the shortcut key for terminating a task.
```
<Sysname> system-view
[Sysname] line aux 0
[Sysname-line-aux0] 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 is terminated, 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** }

undo flow-control

Default

The flow control mode is **none**.

Views

User line view

Predefined user roles

network-admin

Parameters

hardware: Performs hardware flow control.

none: Disables flow control.

software: Performs software flow control.

Usage guidelines

This command is not supported in VTY line view.

The device supports flow control in both the inbound and outbound directions.

- For flow control in the inbound direction, the local device listens to flow control information from the remote device.
- For flow control in the outbound direction, the local device sends flow control information to the remote device.

The flow control setting takes effect in both directions.

To communicate, two devices must be configured with the same flow control mode.

Examples

Configure software flow control in the inbound and outbound directions for user line AUX 0.

```
<Sysname> system-view
[Sysname] line aux 0
[Sysname-line-aux0] flow-control software
```

free line

Use **free line** to release a user line.

Syntax

free line { *number1* | { **aux** | **vty** } *number2* }

Views

User view

Predefined user roles

network-admin

Parameters

number1: Specifies the absolute number of a user line, in the range of 0 to 192.

aux: Specifies the AUX line.

vty: Specifies the VTY line.

number2: Specifies the relative number of a user line. The value range is 0 to 128 for the AUX line and 0 to 63 for the VTY line.

Usage guidelines

This command does not release the line you are using.

Examples

Release user line VTY 1:

1. Display online users.

```
<Sysname> display users
  Idx  Line    Idle      Time              Pid     Type
  129   VTY 0  00:10:49  Jun 11 11:27:32   320     TEL
+ 130   VTY 1  00:00:00  Jun 11 11:39:40   334     TEL


Following are more details.
```

```
                VTY 0   :
                        Location: 192.168.1.12
                VTY 1   :
                        Location: 192.168.1.26
                 +      : Current operation user.
                 F      : Current operation user works in async mode.
```

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

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

free user-interface

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

Syntax

free user-interface { *number1* | { **aux** | **vty** } *number2* }

Views

User view

Predefined user roles

network-admin

Parameters

number1: Specifies the absolute number of a user line, in the range of 0 to 192.

aux: Specifies the AUX line.

vty: Specifies the VTY line.

number2: Specifies the relative number of a user line. The value range is 0 to 128 for the AUX line and 0 to 63 for the VTY line.

Usage guidelines

This command does not release the line you are using.

This command is an older version reserved for backward compatibility purposes. As a best practice, use the **free line** command.

Examples

Release user line VTY 1:

1. Display online users.

```
                <Sysname> display users
                  Idx   LINE    Idle       Time              Pid     Type
                  129   VTY 0   00:10:49   Jun 11 11:27:32   320     TEL
                + 130   VTY 1   00:00:00   Jun 11 11:39:40   334     TEL


                Following are more details.
                VTY 0   :
                        Location: 192.168.1.12
                VTY 1   :
                        Location: 192.168.1.26
                 +      : Current operation user.
```

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

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

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

history-command max-size

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

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 line saves up to 10 history commands.

Views

User line view, user line class view

Predefined user roles

network-admin

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 line 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 line, press the up or down arrow key, or execute the **display history-command** command.

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

This command is available in both user line view and user line class view. A non-default setting in either view takes precedence over a default setting in the other view. A non-default setting in user line view takes precedence over a non-default setting in user line class view.

Examples

Set the size of the command history buffer to 20 for user line AUX 0.

```
<Sysname> system-view
[Sysname] line aux 0
[Sysname-line-aux0] history-command max-size 20
```

idle-timeout

Use **idle-timeout** to set the CLI connection idle-timeout timer.

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

Syntax

idle-timeout *minutes* [*seconds*]

undo idle-timeout

Default

The idle-timeout interval is 10 minutes.

Views

User line view, user line class view

Predefined user roles

network-admin

Parameters

minutes: Specifies the number of minutes for the timer, in the range of 0 to 35791. The default is 10 minutes.

seconds: Specifies the number of seconds for the timer, in the range of 0 to 59. The default is 0 seconds.

Usage guidelines

The system automatically terminates a user connection if no information interaction occurs on the connection within the idle-timeout interval.

Setting the CLI connection idle-timeout timer to 0 disables the idle-timeout feature.

This command is available in both user line view and user line class view. A non-default setting in either view takes precedence over a default setting in the other view. A non-default setting in user line view takes precedence over a non-default setting in user line class view.

Examples

Set the CLI connection idle-timeout timer to 1 minute and 30 seconds for user line AUX 0.

```
<Sysname> system-view
[Sysname] line aux 0
[Sysname-line-aux0] idle-timeout 1 30
```

line

Use **line** to enter one or multiple user line views.

Syntax

line { *first-number1* [*last-number1*] | { **aux** | **vty** } *first-number2* [*last-number2*] }

Views

System view

Predefined user roles

network-admin

Parameters

first-number1: Specifies the absolute number of the first user line, in the range of 0 to 192.

last-number1: Specifies the absolute number of the last user line. This number cannot be smaller than *first-number1*.

aux: Specifies the AUX line.

vty: Specifies the VTY line.

first-number2: Specifies the relative number of the first user line. The value range is 0 to 128 for the AUX line and 0 to 63 for the VTY line.

last-number2: Specifies the relative number of the last user line. This number cannot be smaller than *first-number2*.

Usage guidelines

To configure settings for a single user line, use this command to enter the user line view.

To configure the same settings for multiple user lines, use this command to enter multiple user line views.

Examples

Enter the view of user line AUX 0.

```
<Sysname> system-view
[Sysname] line aux 0
[Sysname-line-aux0]
```

Enter the views of user lines VTY 0 to VTY 4.

```
<Sysname> system-view
[Sysname] line vty 0 4
[Sysname-line-vty0-4]
```

Related commands

line class

line class

Use **line class** to enter user line class view.

Syntax

line class { **aux** | **vty** }

Views

System view

Predefined user roles

network-admin

Parameters

aux: Specifies the AUX line class view.

vty: Specifies the VTY line class view.

Usage guidelines

To configure the same settings for all user lines of a line class, use this command to enter the user line class view.

Some login management commands are available in both user line view and user line class view. For these commands, the device uses the following rules to determine the settings to be activated:

- A setting in user line view is applied only to the user line. A setting in user line class view is applied to all user lines of the class.
- A non-default setting in either view takes precedence over a default setting in the other view. A non-default setting in user line view takes precedence over a non-default setting in user line class view.
- A setting in user line view takes effect immediately and affects the online user. A setting in user line class view takes effect only for new login users. It does not affect online users.

Examples

Set the CLI connection idle-timeout timer to 15 minutes in VTY line class view.

```
<Sysname> system-view
[Sysname] line class vty
[Sysname-line-class-vty] idle-timeout 15
```

In AUX line class view, configure character **s** as the shortcut key for starting a terminal session.

```
<Sysname> system-view
[Sysname] line class aux
[Sysname-line-class-aux] activation-key s
[Sysname-line-class-aux] quit
```

In AUX line view, restore the default shortcut key for starting a terminal session.

```
[Sysname] line aux 0
[Sysname-line-aux0] undo activation-key
```

Alternatively:

```
[Sysname-line-aux0] activation-key 13
```

To verify the configuration:

1. Exit the console session.
   ```
   [Sysname-line-aux0] return
   <Sysname> quit
   ```
2. Log in again through the AUX line.
   The following message appears:
   ```
   Press ENTER to get started.
   ```
3. Press **Enter**.
   Pressing **Enter** does not start a session.
4. Enter **s**.
   A terminal session is started.
   ```
   <Sysname>
   ```

Related commands

line

lock

Use **lock** to lock the current user line. This method prevents unauthorized users from using the user line.

Syntax

lock

Default

By default, the system does not lock any user lines.

Views

User view

Predefined user roles

network-admin

Usage guidelines

This command is not supported in FIPS mode.

After executing the **lock** command, enter the password for unlocking the user line and confirm the password by entering it again.

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

Examples

Lock the current user line and then unlock it.

```
<Sysname> lock
Please input password<1 to 16> to lock current line:
Password:
Again:


                   locked !
```

// The user line is locked. To unlock it, press **Enter** and enter the password:

```
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 line view

Predefined user roles

network-admin

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 not supported in VTY line view.

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

Examples

Configure user line AUX 0 to perform odd parity check.

```
<Sysname> system-view
[Sysname] line aux 0
[Sysname-line-aux0] parity odd
```

protocol inbound

Use **protocol inbound** to enable a user line to support Telnet, SSH, or both protocols.

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

Syntax

In non-FIPS mode:

protocol inbound { **all** | **ssh** | **telnet** }

undo protocol inbound

In FIPS mode:

protocol inbound ssh

undo protocol inbound

Default

In non-FIPS mode, both protocols are supported.

In FIPS mode, SSH is supported.

Views

VTY line view, VTY line class view

Predefined user roles

network-admin

Parameters

all: Supports both protocols.

ssh: Supports SSH only.

telnet: Supports Telnet only.

Usage guidelines

A protocol change does not take effect for current online users. It takes effect only for new login users.

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

This command is available in both VTY line view and VTY line class view. In VTY line view, this command is associated with the **authentication-mode** command. If you specify a non-default value for only one of the two commands in VTY line view, the other command uses the default setting, regardless of the setting in VTY line class view.

Examples

Enable user lines VTY 0 through VTY 4 to support only SSH.

```
<Sysname> system-view
[Sysname] line vty 0 4
[Sysname-line-vty0-4] authentication-mode scheme
[Sysname-line-vty0-4] protocol inbound ssh
```

Enable SSH support and set the authentication mode to scheme in VTY line class view. Enable user lines VTY 0 through VTY 4 to support all protocols and disable authentication for the user lines.

```
<Sysname> system-view
[Sysname] line class vty
[Sysname-line-class-vty] authentication-mode scheme
[Sysname-line-class-vty] protocol inbound ssh
[Sysname-line-class-vty] line vty 0 4
[Sysname-line-vty0-4] authentication-mode none
```
To verify the configuration:
1. Telnet to the device.
```
<Client> telnet 192.168.1.241
Trying 192.168.1.241 ...
Press CTRL+K to abort
Connected to 192.168.1.241 ...


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<Server>
```
You are logged in without authentication.
2. Display online CLI user information.
```
<Server> display users
  Idx   Line     Idle        Time              Pid      Type
+ 50    VTY 0    00:00:00    Jan 17 15:29:27   189      TEL


Following are more details.
VTY 0   :
        Location: 192.168.1.186
 +    : Current operation user.
 F    : Current operation user works in async mode.
```
The output shows that you are using VTY 0. The configuration in user line view is effective.

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 line view, user line class view

Predefined user roles

    network-admin

Parameters

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

Usage guidelines

    This command sets the maximum number of lines that can be displayed on one screen when the screen pause feature is enabled. If the screen pause feature is disabled, the system displays command output without a pause.

    The actual number of lines that can be displayed on a screen is restricted by the display specification of the configuration terminal. For example, if you set the maximum number of lines for a screen to 40, the device sends 40 lines to the screen at a time. If the display specification is 24 lines, only the last 24 lines are displayed on the screen. To view the previous 16 lines, you must press **PgUp**.

    The screen pause feature is enabled by default. To disable this feature, execute the **screen-length 0** command or the **screen-length disable** command. The **screen-length disable** command is available in user view.

    This command is available in both user line view and user line class view. A non-default setting in either view takes precedence over a default setting in the other view. A non-default setting in user line view takes precedence over a non-default setting in user line class view.

Examples

    # Set the maximum number of lines to be displayed on a screen to 30 for user line AUX 0.

```
<Sysname> system-view
[Sysname] line aux 0
[Sysname-line-aux0] screen-length 30
```

Related commands

    screen-length disable

send

    Use **send** to send messages to user lines.

Syntax

    send { **all** | *number1* | { **aux** | **vty** } *number2* }

Views

    User view

Predefined user roles

    network-admin

Parameters

    all: Specifies all user lines.

    number1: Specifies the absolute number of a user line, in the range of 0 to 192.

    aux: Specifies the AUX line.

    vty: Specifies the VTY line.

    number2: Specifies the relative number of a user line. The value range is 0 to 128 for the AUX line and 0 to 63 for the VTY line.

Usage guidelines

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

Examples

Before you restart the device, send a notification to VTY 1 to inform the user.

```
<Sysname> send vty 1
Input message, end with Enter; abort with CTRL+C:
Your attention, please. I will reboot the system in 3 minutes.
Send message? [Y/N]:y
```

The message should appear on the screen of the user's configuration terminal, as shown in the following example:

```
[Sysname]

***
***
***Message from vty0 to vty1
***
Your attention, 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** | **simple** } *password*

undo set authentication password

Default

No password is set for password authentication.

Views

User line view, user line class view

Predefined user roles

network-admin

Parameters

hash: Sets a hashed password.

simple: Sets a plaintext password.

password: Specifies the password string. This argument is case sensitive. If **simple** is specified, it must be a string of 1 to 16 characters. If **hash** is specified, it must be a string of 1 to 110 characters.

Usage guidelines

This command is not supported in FIPS mode.

For security purposes, the password is hashed before being saved, whether you specify the **hash** or **simple** keyword.

This command is available in both user line view and user line class view. A non-default setting in either view takes precedence over a default setting in the other view. A non-default setting in user line view takes precedence over a non-default setting in user line class view.

Examples

Set the password for password authentication on user line AUX 0 to **hello**.

```
<Sysname> system-view
[Sysname] line aux 0
[Sysname-line-aux0] authentication-mode password
[Sysname-line-aux0] set authentication password simple hello
```

When you log in again through user line AUX 0, you must enter the password **hello** to pass authentication.

Related commands

authentication-mode

shell

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

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

Syntax

shell

undo shell

Default

The terminal service is enabled on all user lines.

Views

User line view, user line class view

Predefined user roles

network-admin

Usage guidelines

The **undo shell** command is not supported in AUX line view or AUX line class view.

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

When the device operates as a Telnet or SSH server, you cannot configure the **undo shell** command.

If the **undo shell** command is configured in user line class view, you cannot configure the **shell** command in the view of a user line in the class.

Examples

Disable the terminal service for user line VTY 0 through VTY 4 so no user can log in to the device through the user lines.

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

speed

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

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

Syntax

speed *speed-value*

undo speed

Default

The transmission rate is 9600 bps on a user line.

Views

User line view

Predefined user roles

network-admin

Parameters

speed-value: Specifies the transmission rate in bps. Supported transmission rates vary by configuration environment. The transmission rates for asynchronous serial interfaces might include:

- 300 bps.
- 600 bps.
- 1200 bps.
- 2400 bps.
- 4800 bps.
- 9600 bps.
- 19200 bps.
- 38400 bps.
- 57600 bps.
- 115200 bps.

Usage guidelines

This command is not supported in VTY line view.

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

Examples

Set the transmission rate to 19200 bps for user line AUX 0.

```
<Sysname> system-view
[Sysname] line aux 0
[Sysname-line-aux0] speed 19200
```

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 line view

Predefined user roles

network-admin

Parameters

1: Uses one stop bit.

1.5: Uses one and a half stop bits. The device does not support using one and a half stop bits. If you specify this keyword, two stop bits are used.

2: Uses two stop bits.

Usage guidelines

This command is not supported in VTY line view.

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 for user line AUX 0.

```
<Sysname> system-view
[Sysname] line aux 0
[Sysname-line-aux0] stopbits 1
```

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* }] [**dscp** *dscp-value*]

Views

User view

Predefined user roles

network-admin

Parameters

remote-host: Specifies the IPv4 address or host name of a remote host. A host name can be a case-insensitive string of 1 to 253 characters. Valid characters for a host name include letters, digits, hyphens (-), underscores (_), and dots (.).

service-port: Specifies the TCP port number for the Telnet service on the remote host. The value range is 0 to 65535 and the default is 23.

vpn-instance *vpn-instance-name*: Specifies the VPN instance to which the remote host belongs, where *vpn-instance-name* is a case-sensitive string of 1 to 31 characters. If the remote host belongs to 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.

dscp *dscp-value*: Specifies the DSCP value for IP to use in outgoing Telnet packets to indicate the packet transmission priority. The value range is 0 to 63. The default is 48.

Usage guidelines

This command is not supported in FIPS mode.

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

The source address or interface specified by this command is applied only 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
```

Related commands

telnet client source

telnet client source

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

Predefined user roles

network-admin

Parameters

interface *interface-type interface-number*: Specifies a 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 a source IPv4 address.

Usage guidelines

This command is not supported in FIPS mode.

The source IPv4 address or source interface that is specified by this command applies 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 acts 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*] [**dscp** *dscp-value*]

Views

User view

Predefined user roles

network-admin

Parameters

remote-host: Specifies the IP address or host name of a remote host. A host name can be a case-insensitive string of 1 to 253 characters. Valid characters for a host name include letters, digits, hyphens (-), underscores (_), and dots (.).

-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. When the destination address is a global unicast address, you cannot specify this option.

port-number: Specifies the TCP port number for the Telnet service on the remote host. The value range is 0 to 65535 and the default is 23.

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

dscp *dscp-value*: Specifies the DSCP value for IPv6 to use in outgoing Telnet packets to indicate the packet transmission priority. The value range is 0 to 63. The default is 48.

Usage guidelines

This command is not supported 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 acl

Use **telnet server acl** to apply an ACL to filter Telnet logins.

Use **undo telnet server acl** to restore the default.

Syntax

telnet server acl *acl-number*

undo telnet server acl

Default

No ACL is used to filter Telnet logins.

Views

System view

Predefined user roles

network-admin

Parameters

acl-number: Specifies an ACL by its number. The following are the value ranges:

- **Basic ACL**—2000 to 2999.
- **Advanced ACL**—3000 to 3999.
- **Ethernet frame header ACL**—4000 to 4999.

Usage guidelines

This command is not supported in FIPS mode.

Only one ACL can be used to filter Telnet logins, and only users permitted by the ACL can Telnet to the device.

This command does not take effect on existing Telnet connections.

You can specify an ACL that has not been created yet in this command. The command takes effect after the ACL is created.

For more information about ACL, see *ACL and QoS Configuration Guide*.

Examples

Permit only the user at 1.1.1.1 to Telnet to the device.

```
<Sysname> system-view
[Sysname] acl number 2001
[Sysname-acl-basic-2001] rule permit source 1.1.1.1 0
[Sysname-acl-basic-2001] quit
[Sysname] telnet server acl 2001
```

telnet server dscp

Use **telnet server dscp** to set the DSCP value for IPv4 to use for outgoing Telnet packets on a Telnet server.

Use **undo telnet server dscp** to restore the default.

Syntax

telnet server dscp *dscp-value*

undo telnet server dscp

Default

IPv4 uses the DSCP value 48 for outgoing Telnet packets on a Telnet server.

Views

System view

Predefined user roles

network-admin

Parameters

dscp-value: Specifies a DSCP value in the range of 0 to 63.

Usage guidelines

This command is not supported in FIPS mode.

The DSCP value is carried in the ToS field of an IP packet, and it indicates the transmission priority of the packet.

Examples

Set the DSCP value for IPv4 to use for outgoing Telnet packets to 30 on a Telnet server.

```
<Sysname> system-view
[Sysname] telnet server dscp 30
```

telnet server enable

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

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

Syntax

telnet server enable

undo telnet server enable

Default

The Telnet server feature is disabled.

Views

System view

Predefined user roles

network-admin

Usage guidelines

This command is not supported in FIPS mode.

Administrators can Telnet to the device only when the Telnet server feature is enabled.

Examples

Enable the Telnet server feature.

```
<Sysname> system-view
[Sysname] telnet server enable
```

telnet server ipv6 acl

Use **telnet server ipv6 acl** to apply an IPv6 ACL to filter IPv6 Telnet logins.

Use **undo telnet server ipv6 acl** to restore the default.

Syntax

telnet server ipv6 acl [**ipv6**] *acl-number*

undo telnet server ipv6 acl

Default

No IPv6 ACL is used to filter IPv6 Telnet logins.

Views

System view

Predefined user roles

network-admin

Parameters

acl-number: Specifies an IPv6 ACL by its number. The following are the value ranges:

- **Basic ACL**—2000 to 2999. The **ipv6** option is required.
- **Advanced ACL**—3000 to 3999. The **ipv6** option is required.
- **Ethernet frame header ACL**—4000 to 4999. Do not specify the **ipv6** option.

Usage guidelines

This command is not supported in FIPS mode.

If the ACL does not exist or does not have a rule, all users are permitted to Telnet to the device.

When the ACL exists and has rules, only users permitted by the ACL can Telnet to the device.

This command is not effective for existing Telnet connections.

If you execute this command multiple times, the most recent configuration takes effect.

For more information about ACL, see *ACL and QoS Configuration Guide*.

Examples

Permit only the user at 2000::1 to Telnet to the device.

```
<Sysname> system-view
[Sysname] acl ipv6 number 2001
[Sysname-acl6-basic-2001] rule permit source 2000::1 128
[Sysname-acl6-basic-2001] quit
[Sysname] telnet server ipv6 acl ipv6 2001
```

telnet server ipv6 dscp

Use **telnet server ipv6 dscp** to set the DSCP value for IPv6 to use for outgoing Telnet packets on a Telnet server.

Use **undo telnet server ipv6 dscp** to restore the default.

Syntax

telnet server ipv6 dscp *dscp-value*

undo telnet server ipv6 dscp

Default

IPv6 uses the DSCP value 48 for outgoing Telnet packets on a Telnet server.

Views

System view

Predefined user roles

network-admin

Parameters

dscp-value: Specifies a DSCP value in the range of 0 to 63.

Usage guidelines

This command is not supported in FIPS mode.

The DSCP value is carried in the Traffic class field of an IPv6 packet, and it indicates the transmission priority of the packet.

Examples

Set the DSCP value for IPv6 to use for outgoing Telnet packets to 30 on a Telnet server.

```
<Sysname> system-view
[Sysname] telnet server ipv6 dscp 30
```

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 line view, user line class view

Predefined user roles

network-admin

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. As a best practice, set the display type to VT100 on both the device and the configuration terminal. If either side uses the ANSI type, a display problem such as cursor positioning error might occur when a command line has more than 80 characters.

Examples

Set the terminal display type to VT100.

```
<Sysname> system-view
[Sysname] line vty 0
[Sysname-line-vty0] terminal type vt100
```

user-interface

Use **user-interface** to enter one or multiple user line views.

Syntax

user-interface { *first-number1* [*last-number1*] | { **aux** | **vty** } *first-number2* [*last-number2*] }

Views

System view

Predefined user roles

network-admin

Parameters

first-number1: Specifies the absolute number of the first user line, in the range of 0 to 192.

last-number1: Specifies the absolute number of the last user line. This number cannot be smaller than *first-number1*.

aux: Specifies the AUX line.

vty: Specifies the VTY line.

first-number2: Specifies the relative number of the first user line. The value range is 0 to 128 for the AUX line and 0 to 63 for the VTY line.

last-number2: Specifies the relative number of the last user line. This number cannot be smaller than *first-number2*.

Usage guidelines

To configure settings for a single user line, use this command to enter the user line view.

To configure the same settings for multiple user lines, use this command to enter multiple user line views.

This command is an older version reserved for backward compatibility purposes. As a best practice, use the **line** command.

Examples

Enter the view of user line AUX 0.

```
<Sysname> system-view
[Sysname] user-interface aux 0
[Sysname-line-aux0]
```

Enter the views of user lines VTY 0 to VTY 4.

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

Related commands

user-interface class

user-interface class

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

Syntax

user-interface class { **aux** | **vty** }

Views

System view

Predefined user roles

network-admin

Parameters

aux: Specifies the AUX line class view.

vty: Specifies the VTY line class view.

Usage guidelines

This command is an older version reserved for backward compatibility purposes. As a best practice, use the **line class** command.

To configure the same settings for all user lines of a line class, you can use this command to enter the user line class view.

Some login management commands are available in both user line view and user line class view. For these commands, the device uses the following rules to determine the settings to be activated:

- A setting in user line view is applied only to the user line. A setting in user line class view is applied to all user lines of the class.

- A non-default setting in either view takes precedence over a default setting in the other view. A non-default setting in user line view takes precedence over a non-default setting in user line class view.

- A setting in user line view takes effect immediately and affects the online user. A setting in user line class view takes effect only for new login users. It does not affect online users.

Examples

Set the CLI connection idle-timeout timer to 15 minutes in VTY line class view.

```
<Sysname> system-view
[Sysname] user-interface class vty
[Sysname-line-class-vty] idle-timeout 15
```

In AUX line class view, configure character **s** as the shortcut key for starting a terminal session.

```
<Sysname> system-view
[Sysname] user-interface class aux
[Sysname-line-class-aux] activation-key s
[Sysname-line-class-aux] quit
```

In AUX line view, restore the default shortcut key for starting a terminal session.

```
[Sysname] line aux 0
[Sysname-line-aux0] undo activation-key
```

Alternatively:

```
[Sysname-line-aux0] activation-key 13
```

To verify the configuration:

1. Exit the console session.
   ```
   [Sysname-line-aux0] return
   <Sysname> quit
   ```
2. Log in again through the AUX line.
   The following message appears:
   ```
   Press ENTER to get started.
   ```
3. Press **Enter**.
   Pressing **Enter** does not start a session.
4. Enter **s**.
   A terminal session is started.
   ```
   <Sysname>
   ```

Related commands

user-interface

user-role

Use **user-role** to assign a user role to a user line so users logged in through the user line get the user role at login.

Use **undo user-role** to remove a user role or restore the default.

Syntax

user-role *role-name*

undo user-role [*role-name*]

Default

An AUX line user is assigned the user role network-admin. Users of other user lines are assigned the user role network-operator.

Views

User line view, user line class view

Predefined user roles

network-admin

Parameters

role-name: Specifies a user role name, a case-sensitive string of 1 to 63 characters. The user role can be user-defined or predefined (network-admin, network-operator, or level-0 to level-15). If you do not specify this argument, the **undo user-role** command restores the default user role.

Usage guidelines

This command is not supported in FIPS mode.

You can assign up to 64 user roles to a user line. A user logged in through the user line gets all the user roles.

For more information about user roles, see "Configuring RBAC."

Examples

Assign user role network-admin through the user line VTY 0.

```
<Sysname> system-view
[Sysname] line vty 0
[Sysname-line-vty0] user-role network-admin
```

RBAC commands

The device supports 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*.

description

Use **description** to configure a description for a user role.

Use **undo description** to delete the description of a user role.

Syntax

description *text*

undo description

Default

A user role does not have a description.

Views

User role view

Predefined user roles

network-admin

Parameters

text: User role description, a case-sensitive string of 1 to 128 characters.

Examples

Configure the description as **labVIP** for user role **role1**.

```
<Sysname> system-view
[Sysname] role name role1
[Sysname-role-role1] description labVIP
```

Related commands

- **display role**
- **role**

display role

Use **display role** to display user role information.

Syntax

display role [**name** *role-name*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

name *role-name*: Specifies a user role name, a case-sensitive string of 1 to 63 characters. If you do not specify a user role name, the command displays information about all user roles, including the predefined user roles.

Examples

Display information about user role **123**.

```
<Sysname> display role name 123
Role: 123
  Description: new role
  VLAN policy: deny
  Permitted VLANs: 1 to 5, 7 to 8
  Interface policy: deny
  Permitted interfaces: FortyGigE1/0/1 to FortyGigE1/0/2, Vlan-interface1 to
Vlan-interface20
  VPN instance policy: deny
  Permitted VPN instances: vpn, vpn1, vpn2
  ----------------------------------------------------------------
  Rule    Perm   Type  Scope         Entity
  ----------------------------------------------------------------
  1       permit RWX   feature-group abc
  2       deny   -W-   feature       ldap
  3       permit       command       system ; radius sc *
  4       permit R--   xml-element   -
  5       permit RW-   oid           1.2.1
  R:Read W:Write X:Execute
```

Table 6 Command output

Field	Description
Role	User role name. Predefined user role names: • network-admin. • network-operator. • level-*n* (where n represents an integer in the range of 0 to 15). • security-audit.
Description	User role description you have configured for easy identification.
VLAN policy	VLAN policy of the user role: • **deny**—Denies access to all VLANs except for permitted VLANs. • **permit (default)**—Default VLAN policy, which enables the user role to access all VLANs.
Permitted VLANs	VLANs accessible to the user role.
Interface policy	Interface policy of the user role: • **deny**—Denies access to all interfaces except for permitted interfaces. • **permit (default)**—Default interface policy, which enables the user role to access all interfaces.
Permitted interfaces	Interfaces accessible to the user role.
VPN instance policy	VPN instance policy of the user role:

Field	Description
	• **deny**—Denies access to all VPN instances except for permitted VPN instances. • **permit (default)**—Default VPN instance policy, which enables the user role to access all VPN instances.
Permitted VPN instances	VPN instances accessible to the user role.
Rule	User role rule number. A user role rule specifies access permissions for items, including commands, feature-specific commands, XML elements, and MIB nodes. Predefined user role rules are identified by sys-n, where n represents an integer.
Perm	Access control type: • **permit**—User role has access to the specified items. • **deny**—User role does not have access to the specified items.
Type	Controlled type: • **R**—Read-only. • **W**—Write. • **X**—Execute.
Scope	Rule control scope: • **command**—Controls access to the command or commands, as specified in the **Entity** field. • **feature**—Controls access to the commands of the feature, as specified in the **Entity** field. • **feature-group**—Controls access to the commands of the features in the feature group, as specified in the **Entity** field. • **xml-element**—Controls access to XML elements. • **oid**—Controls access to MIB nodes.
Entity	Command string, feature name, feature group, XML element, or OID specified in the user role rule: • An en dash (–) represents any feature. • An asterisk (*) represents zero or more characters.

Related commands

role

display role feature

Use **display role feature** to display features available in the system.

Syntax

display role feature [**name** *feature-name* | **verbose**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

name *feature-name*: Displays the commands of a feature. The *feature-name* argument specifies the feature name, and all letters must be in lowercase.

verbose: Displays the commands of each feature.

Usage guidelines

If you specify neither the **name** *feature-name* option nor the **verbose** keyword, the command displays only the list of features available in the system.

Examples

\# Display the list of feature names.

```
<Sysname> display role feature
Feature: device          (Device configuration related commands)
Feature: interface       (Interface related commands)
Feature: syslog          (Syslog related commands)
…
```

\# Display the commands of each feature.

```
<Sysname> display role feature verbose
Feature: device          (Device configuration related commands)
  display clock    (R)
  debugging dev    (W)
  display debugging dev    (R)
  display device *    (R)
  display diagnostic-information    (R)
  display environment *    (R)
  display fan *    (R)
  display power *    (R)
…
```

\# Display the commands of the **aaa** feature.

```
<Sysname> display role feature name aaa
Feature: aaa             (AAA related commands)
  system-view ; domain *    (W)
  system-view ; header *    (W)
  system-view ; aaa *    (W)
  display domain *    (R)
  system-view ; user-group *    (W)
  system-view ; local-user *    (W)
  display local-user *    (R)
  display user-group *    (R)
  display debugging local-server    (R)
  debugging local-server *    (W)
  super *    (X)
  display password-control *    (R)
  reset password-control *    (W)
  system-view ; password-control *    (W)
```

Table 7 Command output (display role feature name aaa)

Field	Description
Feature	Displays the name and brief function description of the feature.
system-view ; domain *	All commands that start with the **domain** keyword in system view, and all commands in ISP domain view.
system-view ; header *	All commands that start with the **header** keyword in system view.
system-view ; aaa *	All commands that start with the **aaa** keyword in system view.
display domain *	All commands that start with the **display domain** keywords in user view.
system-view ; user-group *	All commands that start with the **user-group** keyword in system view, and all commands in user group view.
system-view ; local-user *	All commands that start with the **local-user** keyword in system view, and all commands in local user view.
display user-group *	All commands that start with the **display user-group** keywords in user view.
display debugging local-server	All commands that start with the **display debugging local-server** keywords in user view.
debugging local-server *	All commands that start with the **debugging local-server** keywords in user view.
super *	All commands that start with the **super** keyword in user view.
display password-control *	All commands that start with the **display password-control** keywords in user view.
reset password-control *	All commands that start with the **reset password-control** keywords in user view.
system-view ; password-control *	All commands that start with the **password-control** keyword in system view.
(W)	Command type is Write. A write command configures the system.
(R)	Command type is Read. A read command displays configuration or maintenance information.
(X)	Command type is Execute. An execute command executes a specific function.

Related commands

feature

display role feature-group

Use **display role feature-group** to display feature group information.

Syntax

display role feature-group [**name** *feature-group-name*] [**verbose**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

name *feature-group-name*: Specifies a feature group. The *feature-group-name* argument represents the feature group name, a case-sensitive string of 1 to 31 characters. If you do not specify a feature group, the command displays information about all feature groups.

verbose: Displays the commands of each feature in the specified feature group. If you do not specify a feature group, the keyword enables displaying the commands of each feature in every feature group. If you do not specify this keyword, the command displays only the feature lists of feature groups.

Usage guidelines

Feature groups **L2** and **L3** are predefined feature groups.

Examples

Display the feature lists of feature groups.

```
<Sysname> display role feature-group
Feature group: L2
Feature: igmp-snooping   (IGMP-Snooping related commands)
Feature: mld-snooping    (MLD-Snooping related commands)
Feature: lacp            (LACP related commands)
Feature: stp             (STP related commands)
Feature: lldp            (LLDP related commands)
Feature: dldp            (DLDP related commands)


Feature group: L3
Feature: route           (Route management related commands)
Feature: usr             (Unicast static route related commands)
Feature: ospf            (Open Shortest Path First protocol related commands)
…
```

Display the commands in each feature group. For more information about the wildcards and marks used in the command list, see Table 7.

```
<Sysname> display role feature-group verbose
Feature group: L2
Feature: igmp-snooping   (IGMP-Snooping related commands)
  system-view ; igmp-snooping *    (W)
  system-view ; multicast-vlan *    (W)
  system-view ; vlan * ; igmp-snooping *    (W)
  system-view ; vlan * ; pim-snooping *    (W)
  system-view ; interface * ; igmp-snooping *    (W)
…
```

Display the feature list of the **L3** feature group.

```
<Sysname> display role feature-group name L3
Feature group: L3
Feature: route           (Route management related commands)
Feature: usr             (Unicast static route related commands)
Feature: ospf            (Open Shortest Path First protocol related commands)
```

Related commands

- **feature**

- **role feature-group**

feature

Use **feature** to add a feature to a feature group.

Use **undo feature** to remove a feature from a feature group.

Syntax

feature *feature-name*

undo feature *feature-name*

Default

A user-defined feature group does not have any features.

Views

Feature group view

Predefined user roles

network-admin

Parameters

feature-name: Specifies a feature name. You must enter the feature name as the feature name is displayed, including the case.

Usage guidelines

Repeat the **feature** command to add multiple features to a feature group.

Examples

Add security features AAA and ACL to security group **security-features**.

```
<Sysname> system-view
[Sysname] role feature-group name security-features
[Sysname-featuregrp-security-features] feature aaa
[Sysname-featuregrp-security-features] feature acl
```

Related commands

- **display role feature**
- **display role feature-group**
- **role feature-group**

interface policy deny

Use **interface policy deny** to enter user role interface policy view.

Use **undo interface policy deny** to restore the default user role interface policy.

Syntax

interface policy deny

undo interface policy deny

Default

A user role has access to all interfaces.

Views

> User role view

Predefined user roles

> network-admin

Usage guidelines

> To restrict the interface access of a user role to a set of interfaces, perform the following tasks:
>
> 1. Use **interface policy deny** to enter user role interface policy view.
> 2. Use **permit interface** to specify accessible interfaces.

> **NOTE:**
>
> The **interface policy deny** command denies the access of the user role to all interfaces if the **permit interface** command is not configured.

> To configure an interface, make sure the interface is permitted by the user role interface policy in use. You can perform the following tasks on an accessible interface:
>
> - Create, remove, or configure the interface.
> - Enter the interface view.
> - Specify the interface in feature commands.
>
> The create and remove operations are available only for logical interfaces.
>
> Any change to a user role interface policy takes effect only on users who log in with the user role after the change.

Examples

> # Enter user role interface policy view of **role1**, and deny the user role to access all interfaces.
> ```
> <Sysname> system-view
> [Sysname] role name role1
> [Sysname-role-role1] interface policy deny
> [Sysname-role-role1-ifpolicy] quit
> ```

> # Enter user role interface policy view of **role1**, and deny the user role to access all interfaces except for FortyGigE 1/0/1 to FortyGigE 1/0/5.
> ```
> <Sysname> system-view
> [Sysname] role name role1
> [Sysname-role-role1] interface policy deny
> [Sysname-role-role1-ifpolicy] permit interface fortygige 1/0/1 to fortygige 1/0/5
> ```

Related commands

> - **display role**
> - **permit interface**
> - **role**

permit interface

> Use **permit interface** to configure a list of interfaces accessible to a user role.
>
> Use **undo permit interface** to disable the access of a user role to specific interfaces.

Syntax

> **permit interface** *interface-list*

```
undo permit interface [ interface-list ]
```

Default

No permitted interfaces are configured in user role interface policy view.

Views

User role interface policy view

Predefined user roles

network-admin

Parameters

interface-list: Specifies a space-separated list of up to 10 interface items. Each interface item specifies one interface in the *interface-type interface-number* form or a range of interfaces in the *interface-type interface-number* **to** *interface-type interface-number* form. If you specify an interface range, the end interface must meet the following requirements:

- Be the same type as the start interface.
- Have a higher interface number than the start interface.

Usage guidelines

To permit a user role to access an interface after you configure the **interface policy deny** command, you must add the interface to the permitted interface list of the policy. With the user role, you can perform the following tasks on the interfaces in the permitted interface list:

- Create, remove, or configure the interfaces.
- Enter the interface views.
- Specify the interfaces in feature commands.

The create and remove operations are available only for logical interfaces.

You can repeat the **permit interface** command to add permitted interfaces to a user role interface policy.

The **undo permit interface** command removes the entire list of permitted interfaces if you do not specify an interface.

Any change to a user role interface policy takes effect only on users who log in with the user role after the change.

Examples

1. Configure user role **role1**:

    # Permit the user role to execute all commands available in interface view and VLAN view.

    ```
    <Sysname> system-view
    [Sysname] role name role1
    [Sysname-role-role1] rule 1 permit command system-view ; interface *
    [Sysname-role-role1] rule 2 permit command system-view ; vlan *
    ```

    # Permit the user role to access FortyGigE 1/0/1, and FortyGigE 1/0/5 to FortyGigE 1/0/7.

    ```
    [Sysname-role-role1] interface policy deny
    [Sysname-role-role1-ifpolicy] permit interface fortygige 1/0/1 fortygige 1/0/5 to
    fortygige 1/0/7
    [Sysname-role-role1-ifpolicy] quit
    [Sysname-role-role1] quit
    ```

2. Verify that you cannot use the user role to work on all interfaces except for FortyGigE 1/0/1 and FortyGigE 1/0/5 to FortyGigE 1/0/7:

    # Verify that you can enter FortyGigE 1/0/1 interface view.

    ```
    [Sysname] interface fortygige 1/0/1
    ```

```
[Sysname-FortyGigE1/0/1] quit
```

Verify that you can assign FortyGigE 1/0/5 to VLAN 10. In this example, the user role can access all VLANs because the default VLAN policy of the user role is used.

```
[Sysname] vlan 10
[Sysname-vlan10] port fortygige 1/0/5
[Sysname-vlan10] quit
```

Verify that you cannot enter FortyGigE 1/0/2 interface view.

```
[Sysname] interface fortygige 1/0/2
Permission denied.
```

Related commands

- **display role**
- **interface policy deny**
- **role**

permit vlan

Use **permit vlan** to configure a list of VLANs accessible to a user role.

Use **undo permit vlan** to remove the permission for a user role to access specific VLANs.

Syntax

permit vlan *vlan-id-list*

undo permit vlan [*vlan-id-list*]

Default

No permitted VLANs are configured in user role VLAN policy view.

Views

User role VLAN policy view

Predefined user roles

network-admin

Parameters

vlan-id-list: Specifies a space-separated list of up to 10 VLAN items. Each VLAN item specifies a VLAN by VLAN ID or specifies a range of VLANs in the form of *vlan-id1* **to** *vlan-id2*. The value range for the VLAN IDs is 1 to 4094. If you specify a VLAN range, the value for the *vlan-id2* argument must be greater than the value for the *vlan-id1* argument.

Usage guidelines

To permit a user role to access a VLAN after you configure the **vlan policy deny** command, you must add the VLAN to the permitted VLAN list of the policy. With the user role, you can perform the following tasks on the VLANs in the permitted VLAN list:

- Create, remove, or configure the VLANs.
- Enter the VLAN views.
- Specify the VLANs in feature commands.

You can repeat the **permit vlan** command to add permitted VLANs to a user role VLAN policy.

The **undo permit vlan** command removes the entire list of permitted VLANs if you do not specify a VLAN.

Any change to a user role VLAN policy takes effect only on users who log in with the user role after the change.

Examples

1. Configure user role **role1**:

   # Permit the user role to execute all commands available in interface view and VLAN view.

   ```
   <Sysname> system-view
   [Sysname] role name role1
   [Sysname-role-role1] rule 1 permit command system-view ; interface *
   [Sysname-role-role1] rule 2 permit command system-view ; vlan *
   ```

   # Permit the user role to access VLANs 2, 4, and 50 to 100.

   ```
   [Sysname-role-role1] vlan policy deny
   [Sysname-role-role1-vlanpolicy] permit vlan 2 4 50 to 100
   [Sysname-role-role1-vlanpolicy] quit
   [Sysname-role-role1] quit
   ```

2. Verify that you cannot use the user role to work on all VLANs except for VLANs 2, 4, and 50 to 100:

   # Verify that you can create VLAN 100 and enter the VLAN view.

   ```
   [Sysname] vlan 100
   [Sysname-vlan100] quit
   ```

   # Verify that you can add port FortyGigE 1/0/1 to VLAN 100 as an access port.

   ```
   [Sysname] interface fortygige 1/0/1
   [Sysname-FortyGigE1/0/1] port access vlan 100
   [Sysname-FortyGigE1/0/1] quit
   ```

   # Verify that you cannot create VLAN 101 or enter the VLAN view.

   ```
   [Sysname] vlan 101
   Permission denied.
   ```

Related commands

- **display role**
- **role**
- **vlan policy deny**

permit vpn-instance

Use **permit vpn-instance** to configure a list of VPN instances accessible to a user role.

Use **undo permit vpn-instance** to disable the access of a user role to specific VPN instances.

Syntax

permit vpn-instance *vpn-instance-name*&<1-10>

undo permit vpn-instance [*vpn-instance-name*&<1-10>]

Default

No permitted VPN instances are configured in user role VPN instance policy.

Views

User role VPN instance policy view

Predefined user roles

network-admin

Parameters

vpn-instance-name&<1-10>: Specifies a space-separated list of up to 10 MPLS L3VPN instance names. Each name is a case-sensitive string of 1 to 31 characters.

Usage guidelines

To permit a user role to access an MPLS L3VPN instance after you configure the **vpn-instance policy deny** command, you must add the VPN instance to the permitted VPN instance list of the policy. With the user role, you can perform the following tasks on the VPN instances in the permitted VPN instance list:

- Create, remove, or configure the VPN instances.
- Enter the VPN instance views.
- Specify the VPN instances in feature commands.

You can repeat the **permit vpn-instance** command to add permitted MPLS L3VPN instances to a user role VPN instance policy.

The **undo permit vpn-instance** command removes the entire list of permitted VPN instances if you do not specify a VPN instance.

Any change to a user role VPN instance policy takes effect only on users who log in with the user role after the change.

Examples

1. Configure user role **role1**:

   # Permit the user role to execute all commands available in system view and in the child views of system view.

   ```
   <Sysname> system-view
   [Sysname] role name role1
   [Sysname-role-role1] rule 1 permit command system-view ; *
   ```

   # Permit the user role to access VPN instance **vpn1**.

   ```
   [Sysname-role-role1] vpn policy deny
   [Sysname-role-role1-vpnpolicy] permit vpn-instance vpn1
   [Sysname-role-role1-vpnpolicy] quit
   [Sysname-role-role1] quit
   ```

2. Verify that you cannot use the user role to work on all VPN instances except for **vpn1**:

   # Verify that you can enter the view of **vpn1**.

   ```
   [Sysname] ip vpn-instance vpn1
   [Sysname-vpn-instance-vpn1] quit
   ```

   # Verify that you can specify the primary accounting server at 10.110.1.2 in VPN instance **vpn1** for RADIUS scheme **radius1**.

   ```
   [Sysname] radius scheme radius1
   [Sysname-radius-radius1] primary accounting 10.110.1.2 vpn-instance vpn1
   [Sysname-radius-radius1] quit
   ```

   # Verify that you cannot create a VPN instance named **vpn2** or enter the VPN instance view.

   ```
   [Sysname] ip vpn-instance vpn2
   Permission denied.
   ```

Related commands

- **display role**
- **role**
- **vpn-instance policy deny**

role

Use **role** to create a user role and enter user role view. If the user role has been created, you directly enter the user role view.

Use **undo role** to delete a user role.

Syntax

role name *role-name*

undo role name *role-name*

Default

The system has the following predefined user roles: network-admin, network-operator, level-*n* (where *n* represents an integer in the range of 0 to 15), and security-audit.

Views

System view

Predefined user roles

network-admin

Parameters

name *role-name*: Specifies a username. The *role-name* argument is a case-sensitive string of 1 to 63 characters.

Usage guidelines

You can create up to 64 user roles in addition to the predefined user roles.

To change the permissions assigned to a user role, you must first enter the user role view.

You cannot delete the predefined user roles or change the permissions assigned to network-admin, network-operator, level-15, or security-audit.

You cannot assign the security-audit user role to non-AAA authentication users.

The access permissions of the level-0 to level-14 user roles can be modified through user role rules and resource access policies. However, you cannot make changes on the predefined access permissions of these user roles. For example, you cannot change the access permission of these user roles to the **display history-command all** command.

Examples

Create user role **role1** and enter user role view.

```
<Sysname> system-view
[Sysname] role name role1
[Sysname-role-role1]
```

Related commands

- **display role**
- **interface policy deny**
- **rule**
- **vlan policy deny**

role default-role enable

Use **role default-role enable** to enable the default user role feature for remote AAA users.

Use **undo role default-role enable** to restore the default.

Syntax

role default-role enable [*role-name*]

undo role default-role enable

Default

The default user role feature is disabled. AAA users who do not have a user role cannot log in to the device.

Views

System view

Predefined user roles

network-admin

Parameters

role-name: Specifies a user role as the default user role. The user role must already exist. The *role-name* argument is a case-sensitive string of 1 to 63 characters. If you do not specify this argument, the default user role is network-operator.

Usage guidelines

The default user role feature assigns the default user role to AAA-authenticated users if the authentication server does not assign any user roles to the users. These users are allowed to access the system with the default user role.

If AAA users have been assigned user roles, they log in with the user roles.

Examples

\# Enable the default user role feature.

```
<Sysname> system-view
[Sysname] role default-role enable
```

Related commands

role

role feature-group

Use **role feature-group** to create a user role feature group and enter user role feature group view.

Use **undo role feature-group** to delete a user role feature group.

Syntax

role feature-group name *feature-group-name*

undo role feature-group name *feature-group-name*

Default

Two user role feature groups, **L2** and **L3**, are created.

Views

System view

Predefined user roles

network-admin

Parameters

name *feature-group-name*: Specifies a feature group name. The *feature-group-name* argument is a case-sensitive string of 1 to 31 characters.

Usage guidelines

The **L2** feature group includes all Layer 2 feature commands, and the **L3** feature group includes all Layer 3 feature commands. These predefined feature groups are not user configurable.

In addition to the predefined feature groups **L2** and **L3**, you can create up to 64 user role feature groups.

After you create a user role feature group, you can use the **display role feature** command to display the features available in the system. Then you can use the **feature** command to add features to the feature group.

Examples

Create feature group **security-features**.

```
<Sysname> system-view
[Sysname] role feature-group name security-features
[Sysname-featuregrp-security-features]
```

Related commands

- **display role feature-group**
- **display role feature**
- **feature**

rule

Use **rule** to create or change a user role rule for controlling command, XML element, or MIB node access.

Use **undo rule** to delete a user role rule.

Syntax

rule *number* { **deny** | **permit** } { **command** *command-string* | { **execute** | **read** | **write** } * { **feature** [*feature-name*] | **feature-group** *feature-group-name* | **oid** *oid-string* | **xml-element** [*xml-string*] } }

undo rule { *number* | **all** }

Default

A user-defined user role does not have any rules and cannot access all commands, XML elements, or MIB nodes.

Views

User role view

Predefined user roles

network-admin

Parameters

number: Specifies a rule number in the range of 1 to 256.

deny: Denies access to the specified commands, XML elements, or MIB nodes.

permit: Permits access to the specified commands, XML elements, or MIB nodes.

command *command-string*: Specifies a command string. The *command-string* argument is a case-sensitive string of 1 to 128 characters, including the following characters:

- The wildcard asterisk (*).
- The delimiters space and tab.
- All printable characters.

execute: Specifies the execute commands, XML elements, or MIB nodes. An execute command (for example, **ping**), XML element, or MIB node executes a specific function or program.

read: Specifies the read commands, XML elements, or MIB nodes. A read command (for example, **display**, **dir**, **more**, or **pwd**), XML element, or MIB node displays configuration or maintenance information.

write: Specifies the write commands, XML elements, or MIB nodes. A write command (for example, **ssh server enable**), XML element, or MIB node configures the system.

feature [*feature-name*]: Specifies one or all features. The *feature-name* argument specifies a feature name. If you do not specify a feature name, you specify all the features in the system. When you specify a feature, the feature name must be the same, including the case, as the name displayed by the **display role feature** command.

feature-group *feature-group-name*: Specifies a user-defined or predefined feature group. The *feature-group-name* argument represents the feature group name, a case-sensitive string of 1 to 31 characters. If the feature group has not been created, the rule takes effect after the group is created. To display the feature groups that have been created, use the **display role feature-group** command.

oid *oid-string*: Specifies an OID of a MIB node. The *oid-string* argument represents the OID, a case-insensitive string of 1 to 255 characters. The OID is a dotted numeric string that uniquely identifies the path from the root node to this node. For example, 1.3.6.1.4.1.25506.8.35.14.19.1.1.

xml-element [*xml-string*]: Specifies an XML element. The *xml-string* argument represents the XPath of the XML element, a case-insensitive string of 1 to 512 characters. Use the forward slash (/) to separate Xpath items, for example, Interfaces/Index/Name. If you do not specify an XML element, the rule applies to all XML elements.

all: Deletes all the user role rules.

Usage guidelines

You can define the following types of rules for different access control granularities:

- **Command rule**—Controls access to a command or a set of commands that match a regular expression.
- **Feature rule**—Controls access to the commands of a feature by command type.
- **Feature group rule**—Controls access to the commands of a group of features by command type.
- **XML element rule**—Controls access to XML elements.
- **OID rule**—Controls access to the specified MIB node and its child nodes.

A user role can access the set of permitted commands, XML elements, and MIB nodes specified in the user role rules. User role rules include predefined (identified by sys-n) and user-defined user role rules.

The following guidelines apply to non-OID rules:

- If two user-defined rules of the same type conflict, the rule with the higher ID takes effect. For example, the user role can use the **tracert** command but not the **ping** command if the user role contains rules configured by using the following commands:
  - **rule 1 permit command ping**
  - **rule 2 permit command tracert**
  - **rule 3 deny command ping**
- If a predefined user role rule and a user-defined user role rule conflict, the user-defined user role rule takes effect.

The following guidelines apply to OID rules:

- The system compares an OID with the OIDs specified in rules, and it uses the longest match principle to select a rule for the OID. For example, a user role cannot access the MIB node with

OID 1.3.6.1.4.1.25506.141.3.0.1 if the user role contains rules configured by using the following commands:

- o **rule 1 permit read write oid 1.3.6**
- o **rule 2 deny read write oid 1.3.6.1.4.1**
- o **rule 3 permit read write oid 1.3.6.1.4**

- If the same OID is specified in multiple rules, the rule with the higher ID takes effect. For example, the user role can access the MIB node with OID 1.3.6.1.4.1.25506.141.3.0.1 if the user role contains rules configured by using the following commands:

- o **rule 1 permit read write oid 1.3.6**
- o **rule 2 deny read write oid 1.3.6.1.4.1**
- o **rule 3 permit read write oid 1.3.6.1.4.1**

You can configure up to 256 user-defined rules for a user role. The total number of user-defined user role rules cannot exceed 1024.

Any rule modification, addition, or removal for a user role takes effect only on the users who log in with the user role after the change.

Access to the file system commands is controlled by both the file system command rules and the file system feature rule.

A command with output redirection to the file system is permitted only when the command type write is assigned to the file system feature.

When you specify a command string, follow the guidelines in Table 8.

Table 8 Command string configuration rules

Rule	Guidelines
Semicolon (;) is the delimiter.	Use a semicolon to separate the command of each view that you must enter before you access a command or a set of commands. However, do not use a semicolon to separate commands available in user view or any view, for example, **display** and **dir**.
	Each semicolon-separated segment must have a minimum of one printable character.
	To specify the commands in a view but not the commands in the view's subviews, use a semicolon as the last printable character in the last segment. To specify the commands in a view and the view's subviews, the last printable character in the last segment must not be a semicolon.
	For example, you must enter system view before you enter interface view. To specify all commands starting with the **ip** keyword in any interface view, you must use the "system ; interface * ; ip * ;" command string.
	For another example, the "system ; radius scheme * ;" command string represents all commands that start with the **radius scheme** keywords in system view. The "system ; radius scheme *" command string represents all commands that start with the **radius scheme** keywords in system view and all commands in RADIUS scheme view.
Asterisk (*) is the wildcard.	An asterisk represents zero or multiple characters.
	In a non-last segment, you can use an asterisk only at the end of the segment.
	In the last segment, you can use an asterisk in any position of the segment. If the asterisk appears at the beginning, you cannot specify a printable character behind the asterisk.
	For example, the "system ; *" command string represents all commands available in system view and all subviews of the system view. The "debugging * event" command string represents all event debugging commands available in user view.

Rule	Guidelines
Keyword abbreviation is allowed.	You can specify a keyword by entering the first few characters of the keyword. Any command that starts with this character string matches the rule.
	For example, "rule 1 deny command dis mpls lsp protocol static " denies access to the commands **display mpls lsp protocol static** and **display mpls lsp protocol static-cr**.
To control the access to a command, you must specify the command immediately after the view that has the command.	To control access to a command, you must specify the command immediately behind the view to which the command is assigned. The rules that control command access for any subview do not apply to the command.
	For example, the "rule 1 deny command system ; interface * ; *" command string disables access to any command that is assigned to interface view. However, you can still execute the **acl number** command in interface view, because this command is assigned to system view rather than interface view. To disable access to this command, use "rule 1 deny command system ; acl *;".
Do not include the vertical bar (|), greater-than sign (>), or double greater-than sign (>>) when you specify **display** commands in a user role command rule.	The system does not treat the redirect signs and the parameters that follow the signs as part of command lines. However, in user role command rules, these redirect signs and parameters are handled as part of command lines. As a result, no rule that includes any of these signs can find a match.
	For example, "rule 1 permit command display debugging > log" can never find a match. This is because the system has a **display debugging** command but not a **display debugging > log** command.

Examples

Permit user role **role1** to execute the **display acl** command.

```
<Sysname> system-view
[Sysname] role name role1
[Sysname-role-role1] rule 1 permit command display acl
```

Permit user role **role1** to execute all commands that start with the **display** keyword.

```
[Sysname-role-role1] rule 2 permit command display *
```

Permit user role **role1** to execute the **radius scheme aaa** command in system view and use all commands assigned to RADIUS scheme view.

```
[Sysname-role-role1] rule 3 permit command system ; radius scheme aaa
```

Deny the access of **role1** to all read or write commands of all features.

```
[Sysname-role-role1] rule 4 deny read write feature
```

Deny the access of **role1** to all read commands of the **aaa** feature.

```
[Sysname-role-role1] rule 5 deny read feature aaa
```

Permit **role1** to access all read, write, and execute commands of feature group **security-features**.

```
[Sysname-role-role1] rule 6 permit read write execute feature-group security-features
```

Permit **role1** to access all read and write MIB nodes starting from the node with OID 1.1.2.

```
[Sysname-role-role1] rule 7 permit read write oid 1.1.2
```

Related commands

- **display role**
- **display role feature**
- **display role feature-group**
- **role**

super

Use **super** to obtain another user role without reconnecting to the device.

Syntax

super [*rolename*]

Views

User view

Predefined user roles

network-admin

Parameters

rolename: Specifies a user role, a case-sensitive string of 1 to 63 characters. The user role must exist in the system. If you do not specify a user role, you obtain the default target user role.

Usage guidelines

The obtained user role is a temporary user role, because this command is effective only on the current login. The next time you are logged in with the user account, the original user role settings take effect.

To enable users to obtain another user roles without reconnecting to the device, you must configure user role authentication.

- If no local password is configured in the local password authentication (**local**), an AUX user can obtain user role authorization by either entering a string or not entering anything.
- If no local password is configured in the local-then-remote authentication (**local scheme**), the following rules apply:
  - ○ A VTY user performs remote authentication.
  - ○ An AUX user can obtain user role authorization by either entering a string or not entering anything.

Examples

Obtain the network-operator user role.

```
<Sysname> super network-operator
Password:
User privilege role is network-operator, and only those commands can be used that authorized
to the role.
```

Related commands

- **authentication super** (*Security Command Reference*)
- **super authentication-mode**
- **super password**

super authentication-mode

Use **super authentication-mode** to set an authentication mode for temporary user role authorization.

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

Syntax

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

undo super authentication-mode

Default

Local password authentication applies.

Views

System view

Predefined user roles

network-admin

Parameters

local: Enables local password authentication.

scheme: Enables remote AAA authentication.

Usage guidelines

For local password authentication, use the **super password** command to set a password.

For remote AAA authentication, set the username and password on the RADIUS or HWTACACS server.

If you specify both **local** and **scheme** keywords, the keyword first entered in the command takes precedence.

- **scheme local**—Enables remote-then-local authentication mode. The device first performs AAA authentication to obtain a temporary user role. Local password authentication is performed if the remote HWTACACS or RADIUS server does not respond, or if the AAA configuration on the device is invalid.
- **local scheme**—Enables local-then-remote authentication mode. The device first performs local password authentication. If no password is configured for the user role, the device performs remote authentication.

For more information about AAA, see *Security Configuration Guide*.

Examples

Enable local-only authentication for temporary user role authorization.

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

Enable remote-then-local authentication for temporary user role authorization.

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

Related commands

- **authentication super** (*Security Command Reference*)
- **super password**

super default role

Use **super default role** to specify the default target user role for temporary user role authorization.

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

Syntax

super default role *rolename*

undo super default role

Default

The default target user role is network-admin.

Views

System view

Predefined user roles

network-admin

Parameters

rolename: Specifies the name of the default target user role, a case-sensitive string of 1 to 63 characters. The user role must exist in the system.

Usage guidelines

The default target user role is applied to the **super** or **super password** command when you do not specify a user role for the command.

Examples

Specify the default target user role as **network-operator** for temporary user role authorization.
```
<Sysname> system-view
[Sysname] super default role network-operator
```

Related commands

- **super**
- **super password**

super password

Use **super password** to set a password for a user role.

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

Syntax

In non-FIPS mode:

super password [**role** *rolename*] [{ **hash** | **simple** } *password*]

undo super password [**role** *rolename*]

In FIPS mode:

super password [**role** *rolename*]

undo super password [**role** *rolename*]

Default

No password is set for a user role.

Views

System view

Predefined user roles

network-admin

Parameters

role *rolename*: Specifies a user role, a case-sensitive string of 1 to 63 characters. The user role must exist in the system. If you do not specify a user role, the command sets a password for the default target user role.

hash: Sets a hashed password.

simple: Sets a plaintext password. This password will be saved in hashed text for security purposes.

password: Specifies the password string. This argument is case sensitive.

- In non-FIPS mode:
  - If the **simple** keyword is specified, the password must be a string of 1 to 63 characters.
  - If the **hash** keyword is specified, the password must be a string of 1 to 110 characters.
- In FIPS mode, the password must be a string of 15 to 63 characters. The string must contain four character types including digits, uppercase letters, lowercase letters, and special characters.

Usage guidelines

If you do not specify any parameters, you specify a plaintext password in the interactive mode.

The FIPS mode supports only the interactive mode for setting a password.

Set a password if you configure local password authentication for temporary user role authorization.

It is a good practice to specify different passwords for different user roles.

Examples

Set the password to **123456TESTplat&!** for the network-operator user role.

```
<Sysname> system-view
[Sysname] super password role network-operator simple 123456TESTplat&!
```

Set the password to **123456TESTplat&!** in the interactive mode for the network-operator user role.

```
<Sysname> system-view
[Sysname] super password role network-operator
Password:
Confirm :
```

Related commands

- **super authentication-mode**
- **super default role**

vlan policy deny

Use **vlan policy deny** to enter user role VLAN policy view.

Use **undo vlan policy deny** to restore the default user role VLAN policy.

Syntax

vlan policy deny

undo vlan policy deny

Default

A user role has access to all VLANs.

Views

User role view

Predefined user roles

network-admin

Usage guidelines

To restrict the VLAN access of a user role to a set of VLANs, perform the following tasks:

1. Use **vlan policy deny** to enter user role VLAN policy view.
2. Use **permit vlan** to specify accessible VLANs.

The **vlan policy deny** command denies the access of the user role to all VLANs if the **permit vlan** command is not configured.

To configure a VLAN, make sure the VLAN is permitted by the user role VLAN policy in use. You can perform the following tasks on an accessible VLAN:

- Create, remove, or configure the VLAN.
- Enter the VLAN view.
- Specify the VLAN in feature commands.

Any change to a user role VLAN policy takes effect only on users who log in with the user role after the change.

Examples

Enter user role VLAN policy view of **role1**, and deny the access of **role1** to all VLANs.

```
<Sysname> system-view
[Sysname] role name role1
[Sysname-role-role1] vlan policy deny
[Sysname-role-role1-vlanpolicy] quit
```

Enter user role VLAN policy view of **role1**, and deny the access of **role1** to all VLANs except for VLANs 50 to 100.

```
<Sysname> system-view
[Sysname] role name role1
[Sysname-role-role1] vlan policy deny
[Sysname-role-role1-vlanpolicy] permit vlan 50 to 100
```

Related commands

- **display role**
- **permit vlan**
- **role**

vpn-instance policy deny

Use **vpn-instance policy deny** to enter user role VPN instance policy view.

Use **undo vpn-instance policy deny** to restore the default user role VPN instance policy.

Syntax

vpn-instance policy deny

undo vpn-instance policy deny

Default

A user role has access to all VPN instances.

Views

User role view

Predefined user roles

network-admin

Usage guidelines

To restrict the VPN instance access of a user role to a set of VPN instances, perform the following tasks:

1. Use **vpn-instance policy deny** to enter user role VPN instance policy view.
2. Use **permit vpn-instance** to specify accessible VPN instances.

NOTE:

The **vpn-instance policy deny** command denies the access of the user role to all VPN instances if the **permit vpn-instance** command is not configured.

To configure a VPN instance, make sure the VPN instance is permitted by the user role VPN instance policy in use. You can perform the following tasks on an accessible VPN instance:

- Create, remove, or configure the VPN instance.
- Enter the VPN instance view.
- Specify the VPN instance in feature commands.

Any change to a user role VPN instance policy takes effect only on users who log in with the user role after the change.

Examples

Enter user role VPN instance policy view of **role1**, and deny the access of **role1** to all VPN instances.

```
<Sysname> system-view
[Sysname] role name role1
[Sysname-role-role1] vpn-instance policy deny
[Sysname-role-role1-vpnpolicy] quit
```

Enter user role VPN instance policy view of **role1**, and deny the access of **role1** to all VPN instances except for **vpn2**.

```
<Sysname> system-view
[Sysname] role name role1
[Sysname-role-role1] vpn-instance policy deny
[Sysname-role-role1-vpnpolicy] permit vpn-instance vpn2
```

Related commands

- **display role**
- **permit vpn-instance**
- **role**

FTP commands

The device supports 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*.

FTP is not supported in FIPS mode.

FTP server commands

display ftp-server

Use **display ftp-server** to display FTP server configuration and status information.

Syntax

display ftp-server

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

Display FTP server configuration and status information.

```
<Sysname> display ftp-server
FTP server is running.
User count:                       1
Idle-timeout timer (in minutes):  30
```

Table 9 Command output

Field	Description
User count	Number of the current logged-in users.
Idle-timeout timer (in minutes)	If no packet is exchanged between the FTP server and client during this period, the FTP connection is broken.

Related commands

- **ftp server enable**
- **ftp timeout**

display ftp-user

Use **display ftp-user** to display detailed information about logged-in FTP users.

Syntax

display ftp-user

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

\# Display detailed information about logged-in FTP users.

```
<Sysname> display ftp-user
UserName     HostIP          Port    HomeDir
root         192.168.20.184  46539   flash:
```

A field value is wrapped if its length exceeds the limit. The wrapped value is right justified.

The limits for fields are as follows:

- **UserName**—10 characters.

- **HostIP**—15 characters.

- **HomeDir**—37 characters.

```
<Sysname> display ftp-user
UserName     HostIP          Port    HomeDir
user2        2000:2000:2000: 1499    flash:/user2
             2000:2000:2000:
                  2000:2000
administra   100.100.100.100 10001   flash:/123456789/123456789/123456789/
     tor                             123456789/123456789/123456789/1234567
                                                                89/123456789
```

Table 10 Command output

Field	Description
UserName	Name of the user.
HostIP	IP address of the user.
Port	Port number of the user.
HomeDir	Authorized directory for the user.

free ftp user

Use **free ftp user** to manually release the FTP connections established by using a specific user account.

Syntax

free ftp user *username*

Views

User view

Predefined user roles

network-admin

Parameters

username: Specifies a username. You can use the **display ftp-user** command to display FTP user information.

Examples

Release the FTP connections established by using the user account **ftpuser**.

```
<Sysname> free ftp user ftpuser
Are you sure to free FTP connection? [Y/N]:y
<Sysname>
```

free ftp user-ip

Use **free ftp user-ip** to manually release the FTP connections established from a specific IPv4 address.

Syntax

free ftp user-ip *ipv4-address* [**port** *port*]

Views

User view

Predefined user roles

network-admin

Parameters

ipv4-address: Specifies the source IP address of an FTP connection. You can use the **display ftp-user** command to view the source IP addresses of FTP connections.

port *port*: Specifies the source port of an FTP connection. You can use the **display ftp-user** command to view the source ports of FTP connections.

Examples

Release the FTP connections established from IP address 192.168.20.184.

```
<Sysname> free ftp user-ip 192.168.20.184
Are you sure to free FTP connection? [Y/N]:y
<Sysname>
```

free ftp user-ip ipv6

Use **free ftp user-ip ipv6 to** manually release the FTP connections established from a specific IPv6 address.

Syntax

free ftp user-ip ipv6 *ipv6-address* [**port** *port*]

Views

User view

Predefined user roles

network-admin

Parameters

ipv6-address: Specifies the source IPv6 address of an FTP connection. You can use the **display ftp-user** command to view the source IPv6 addresses of FTP connections.

port *port*: Specifies the source port of an FTP connection. You can use the **display ftp-user** command to view the source ports of FTP connections.

Examples

Release the FTP connections established from IPv6 address 2000::154.

```
<Sysname> free ftp user-ip ipv6 2000::154
Are you sure to free FTP connection? [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* | **ipv6** *acl-number6* }

undo ftp server acl [**ipv6**]

Default

No ACL is used to control FTP clients' access to the FTP server.

Views

System view

Predefined user roles

network-admin

Parameters

acl-number: Specifies an IPv4 ACL number in the range of 2000 to 3999.

ipv6 *acl-number6*: Specifies an IPv6 ACL number in the range of 2000 to 3999.

Usage guidelines

You can use this command to permit only FTP requests from specific FTP clients. This configuration takes effect only for FTP connections to be established. It 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 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 dscp

Use **ftp server dscp** to set the DSCP value for IPv4 to use for outgoing FTP packets on an FTP server.

Use **undo ftp server dscp** to restore the default.

Syntax

>**ftp server dscp** *dscp-value*
>
>**undo ftp server dscp**

Default

>IPv4 uses the DSCP value 0 for outgoing FTP packets on an FTP server.

Views

>System view

Predefined user roles

>network-admin

Parameters

>*dscp-value*: Specifies a DSCP value in the range of 0 to 63.

Usage guidelines

>The DSCP value is carried in the ToS field of an IP packet, and it indicates the transmission priority of the packet.

Examples

># Set the DSCP value for IPv4 to use for outgoing FTP packets to 30 on an FTP server.
>```
><Sysname> system-view
>[Sysname] ftp server dscp 30
>```

ftp server enable

>Use **ftp server enable** to enable the FTP server.
>
>Use **undo ftp server enable** to disable the FTP server.

Syntax

>**ftp server enable**
>
>**undo ftp server enable**

Default

>The FTP server is disabled.

Views

>System view

Predefined user roles

>network-admin

Examples

># Enable the FTP server.
>```
><Sysname> system-view
>[Sysname] ftp server enable
>```

ftp server ipv6 dscp

>Use **ftp server ipv6 dscp** to set the DSCP value for IPv6 to use for outgoing FTP packets on an FTP server.

Use **undo ftp server ipv6 dscp** to restore the default.

Syntax

ftp server ipv6 dscp *dscp-value*

undo ftp server ipv6 dscp

Default

IPv6 uses the DSCP value 0 for outgoing FTP packets on an FTP server.

Views

System view

Predefined user roles

network-admin

Parameters

dscp-value: Specifies a DSCP value in the range of 0 to 63.

Usage guidelines

The DSCP value is carried in the Traffic class field of an IPv6 packet, and it indicates the transmission priority of the packet.

Examples

Set the DSCP value for IPv6 to use for outgoing FTP packets to 30 on an FTP server.

```
<Sysname> system-view
[Sysname] ftp server ipv6 dscp 30
```

ftp server ssl-server-policy

Use **ftp server ssl-server-policy** to associate an SSL server policy with the FTP server.

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

Syntax

ftp server ssl-server-policy *policy-name*

undo ftp server ssl-server-policy

Default

No SSL server policy is associated with the FTP server.

Views

System view

Predefined user roles

network-admin

Parameters

policy-name: Specifies an SSL server policy by its name, a string of 1 to 31 characters.

Usage guidelines

After you associate an SSL server policy with the FTP server, a client that supports SFTP will establish a secure connection to the device to ensure data security.

Examples

Associate SSL server policy **myssl** with the FTP server.

```
<Sysname> system-view
[Sysname] ftp server ssl-server-policy myssl
```

Related commands

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

ftp timeout

Use **ftp timeout** to set the FTP connection idle-timeout timer.

Use **undo ftp timeout** to restore the default.

Syntax

ftp timeout *minute*

undo ftp timeout

Default

The FTP connection idle-timeout timer is 30 minutes.

Views

System view

Predefined user roles

network-admin

Parameters

Minute: Specifies an idle-timeout interval in the range of 1 to 35791 minutes.

Usage guidelines

If no data transfer occurs on an FTP connection within the idle-timeout interval, the FTP server closes the FTP connection to release resources.

Examples

Set the FTP connection idle-timeout timer to 36 minutes.

```
<Sysname> system-view
[Sysname] ftp timeout 36
```

FTP client commands

Before executing FTP client configuration commands, make sure you have configured authorization settings for users on the FTP server. Authorized operations include viewing the files in the working directory, reading/downloading/uploading/renaming/removing files, and creating directories.

The FTP client commands in this section are supported by the device, but whether they can be executed successfully depends on the FTP server.

The output in the examples of this section varies by FTP server.

append

Use **append** to add the content of a file on the FTP client to a file on the FTP server.

Syntax

append *localfile* [*remotefile*]

Views

FTP client view

Predefined user roles

network-admin

Parameters

localfile: Specifies a local file on the FTP client.

remotefile: Specifies a remote file on the FTP server.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

Examples

Append the content of the local **a.txt** file to the **b.txt** file on the FTP server.

```
ftp> append a.txt b.txt
local: a.txt remote: b.txt
150 Connecting to port 50190
226 File successfully transferred
1657 bytes sent in 0.000736 seconds (2.15 Mbyte/s)
```

ascii

Use **ascii** to set the file transfer mode to ASCII.

Syntax

ascii

Default

The file transfer mode is binary.

Views

FTP client view

Predefined user roles

network-admin

Usage guidelines

You can perform this operation only after you log in to the FTP server.

The carriage return characters vary by operating system. For example, HP and Windows use **/r/n**, and Linux uses **/n**. To transfer files between two systems that use different carriage return characters, select the FTP transfer mode according to the file type.

FTP transfers files in either of the following modes:

- **Binary mode**—Transfers image files or pictures. This mode is also called flow mode.
- **ASCII mode**—Transfers text files.

Examples

Set the file transfer mode to ASCII.

```
ftp> ascii
200 TYPE is now ASCII
```

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 file transfer mode is binary.

Views

FTP client view

Predefined user roles

network-admin

Usage guidelines

You can perform this operation only after you log in to the FTP server.

The carriage return characters vary by operating system. For example, HP and Windows use **/r/n**, and Linux uses **/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 program file or pictures. This mode is also called flow mode.
- **ASCII mode**—Transfers text files.

Examples

Set the file transfer mode to binary.

```
ftp> binary
200 TYPE is now 8-bit binary
```

Related commands

> **ascii**

bye

Use **bye** to terminate the connection to the FTP server and return to user view.

If no connection is established between the device and the FTP server, use this command to return to user view.

Syntax

> **bye**

Views

FTP client view

Predefined user roles

network-admin

network-operator

Examples

Terminate the connection to the FTP server and return to user view.

```
ftp> bye
221-Goodbye. You uploaded 2 and downloaded 2 kbytes.
221 Logout.
<Sysname>
```

Related commands

quit

cd

Use **cd** to change the current working directory to another directory on the FTP server.

Syntax

cd { *directory* | **..** | **/** }

Views

FTP client view

Predefined user roles

network-admin

Parameters

directory: Specifies the name of the target directory in the format [*drive*:][/]*path,* where *drive* represents the storage medium name, typically flash or cf. 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.

/: Returns to the FTP root directory.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

The directory that can be accessed must be authorized by the FTP server.

Examples

Change the working directory to the subdirectory **logfile** of the current directory.

```
ftp> cd logfile
250 OK. Current directory is /logfile
```

Change the working directory to the subdirectory **folder** of the FTP root directory.

```
ftp> cd /folder
250 OK. Current directory is /folder
```

Change the working directory to the upper directory of the current directory.

```
ftp> cd ..
250 OK. Current directory is /
```

Change the working directory to the FTP root directory.

```
ftp> cd /
```

```
250 OK. Current directory is /
```

Related commands

- **cdup**
- **pwd**

cdup

Use **cdup** to enter the upper directory of the FTP server.

This command does not change the working directory if the current directory is the FTP root directory.

Syntax

cdup

Views

FTP client view

Predefined user roles

network-admin

Usage guidelines

You can perform this operation only after you log in to the FTP server.

Examples

Change the working directory to the upper directory.

```
ftp> pwd
257 "/ftp/subdir" is your current location
ftp> cdup
250 OK. Current directory is /ftp
ftp> pwd
257 "/ftp" is your current location
```

Related commands

- **cd**
- **pwd**

close

Use **close** to terminate the connection to the FTP server without exiting FTP client view.

Syntax

close

Views

FTP client view

Predefined user roles

network-admin

Usage guidelines

You can perform this operation only after you log in to the FTP server.

Examples

Terminate the connection to the FTP server without exiting the FTP client view.

```
ftp> close
221-Goodbye. You uploaded 0 and downloaded 0 kbytes.
221 Logout.
ftp>
```

Related commands

disconnect

debug

Use **debug** to enable or disable FTP client debugging.

Syntax

debug

Default

FTP client debugging is disabled.

Views

FTP client view

Predefined user roles

network-admin

Usage guidelines

When FTP client debugging is enabled, executing this command disables FTP client debugging.

When FTP client debugging is disabled, executing this command enables FTP client debugging.

Examples

Enable and then disable FTP client debugging.

```
ftp> debug
Debugging on (debug=1).
ftp> debug
Debugging off (debug=0).
```

When the device acts as the FTP client, enable FTP client debugging and download file **a.txt** from the current directory of the FTP server.

```
ftp> debug
Debugging on (debug=1).
ftp> get a.txt
local: a.txt remote: a.txt
---> EPRT |2|8::124|50198|
200 PORT command successful
---> RETR a.txt
150 Connecting to port 50198
226 File successfully transferred
1569 bytes received in 0.0104 seconds (147.2 kbyte/s)
```

Table 11 Command output

Field	Description
---> EPRT |2|8::124|50198|	FTP command. • **2**—IPv6 (1 for IPv4). • **8::124**—IPv6 address of the FTP server. • **50198**—Port number of the FTP server.
200 PORT command successful	Received FTP reply code. 200 represents the reply code, defined in RFC 959.
---> RETR a.txt	Downloads file **a.txt**.

delete

Use **delete** to permanently delete a file on the FTP server.

Syntax

delete *remotefile*

Views

FTP client view

Predefined user roles

network-admin

Parameters

remotefile: Specifies the name of a file on the FTP server.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

To perform this operation, you must have delete permission on the FTP server.

Examples

Delete file **b.txt**.

```
ftp> delete b.txt
250 Deleted b.txt
```

dir

Use **dir** to display detailed information about the files and subdirectories in the current directory on the FTP server.

Use **dir** *remotefile* to display detailed information about a file or directory on the FTP server.

Use **dir** *remotefile localfile* to save detailed information about a file or directory on the FTP server to a local file.

Syntax

dir [*remotefile* [*localfile*]]

Views

FTP client view

Predefined user roles

network-admin

Parameters

remotefile: Specifies the name of a file or directory on the FTP server.

localfile: Specifies the name of the local file used for saving the displayed information.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

In FTP client view, executing the **dir** command is the same as executing the **ls** command.

Examples

Display detailed information about the files and subdirectories in the current directory on the FTP server.

```
ftp> dir
150 Connecting to port 50201
-rwxr-xr-x    1 0          0                  1481 Jul  7 15:36 a.txt
-rwxr-xr-x    1 0          0                     0 Sep 27  2010 base.bin
drwxr-xr-x    2 0          0                  8192 Jul  2 14:33 diagfile
drwxr-xr-x    3 0          0                  8192 Jul  7 15:21 ftp
-rwxr-xr-x    1 0          0                     0 Sep 27  2010 kernel.bin
drwxr-xr-x    2 0          0                  8192 Jul  5 09:15 logfile
drwxr-xr-x    2 0          0                  8192 Jul  2 14:33 seclog
-rwxr-xr-x    1 0          0              40808448 Jul  2 14:33 simware-cmw710-sys
tem-a1801.bin
-rwxr-xr-x    1 0          0                  3050 Jul  7 12:26 startup.cfg
-rwxr-xr-x    1 0          0                 54674 Jul  4 09:24 startup.mdb
-rwxr-xr-x    1 0          0                  1481 Jul  7 12:34 x.cfg
226 11 matches total
```

Save detailed information about file **a.txt** to **s.txt**.

```
ftp> dir a.txt s.txt
output to local-file: s.txt ? [Y/N]y
150 Connecting to port 50203
226-Glob: a.txt
```

Display the content of file **s.txt**.

```
ftp> bye
221-Goodbye. You uploaded 0 and downloaded 2 kbytes.
221 Logout.
<Sysname> more s.txt
-rwxr-xr-x    1 0          0                  1481 Jul  7 12:34 a.txt
```

Related commands

ls

disconnect

Use **disconnect** to terminate the connection to the FTP server without exiting FTP client view.

Syntax

disconnect

Views

> FTP client view

Predefined user roles

> network-admin

Usage guidelines

> You can perform this operation only after you log in to the FTP server.

Examples

> # Terminate the connection to the FTP server without exiting the FTP client view.
> ```
> ftp> disconnect
> 221-Goodbye. You uploaded 0 and downloaded 0 kbytes.
> 221 Logout.
> ftp>
> ```

Related commands

> **close**

display ftp client source

> Use **display ftp client source** to display the source address settings on the FTP client.

Syntax

> **display ftp client source**

Views

> Any view

Predefined user roles

> network-admin
>
> network-operator

Examples

> # Display the source address settings on the FTP client.
> ```
> <Sysname> display ftp client source
> The source IP address of the FTP client is 1.1.1.1.
> The source IPv6 address of the FTP client is 2001::1.
> ```

ftp

> Use **ftp** to log in to an FTP server and enter FTP client view.

Syntax

> **ftp** [*ftp-server* [*service-port*] [**vpn-instance** *vpn-instance-name*] [**dscp** *dscp-value* | **source** { **interface** *interface-type interface-number* | **ip** *source-ip-address* }]] *

Views

> User view

Predefined user roles

> network-admin

Parameters

ftp-server: Specifies the IPv4 address or host name of an FTP server. A host name can be a case-insensitive string of 1 to 253 characters. Valid characters for a host name include letters, digits, hyphens (-), underscores (_), and dots (.).

service-port: Specifies the 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 VPN instance to which the FTP server belongs. The *vpn-instance-name* argument is a case-sensitive string of 1 to 31 characters. If the FTP server belongs to the public network, do not specify this option.

dscp *dscp-value*: Specifies the DSCP value for IPv4 to use in outgoing FTP packets to indicate the packet transmission priority. The value range is 0 to 63. The default is 0.

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 an interface by its type and number. The device will use the interface's primary IPv4 address as the source address. To establish the FTP connection successfully, make sure the interface is up and has the primary IPv4 address configured.
- **ip** *source-ip-address*: Specifies an IPv4 address. To establish the FTP connection successfully, make sure this address is the IPv4 address of an interface in up state on the device.

Usage guidelines

This command is only applicable to IPv4 networks.

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 enter the username and password for logging in to the FTP server.

Examples

Log in to the FTP server 192.168.0.211. Use the source IPv4 address of 192.168.0.212 for outgoing FTP packets.

```
<Sysname>ftp 192.168.0.211 source ip 192.168.0.212
Press CTRL+C to abort.
Connected to 192.168.0.211 (192.168.0.211).
220 WFTPD 2.0 service (by Texas Imperial Software) ready for new user
User (192.168.0.211:(none)): abc
331 Give me your password, please
Password:
230 Logged in successfully
Remote system type is MSDOS.
ftp>
```

ftp client ipv6 source

Use **ftp client ipv6 source** to specify the source IPv6 address for FTP packets sent to the IPv6 FTP server.

Use **undo ftp client ipv6 source** to restore the default.

Syntax

ftp client ipv6 source { **interface** *interface-type interface-number* | **ipv6** *source-ipv6-address* }

undo ftp client ipv6 source

Default

No source address is specified for FTP packets sent to the IPv6 FTP server. The device automatically selects a source IPv6 address as defined in RFC 3484.

Views

System view

Predefined user roles

network-admin

Parameters

interface *interface-type interface-number*: Specifies an interface by its type and number. The device will use the interface's IPv6 address as the source address. For successful FTP packet transmission, make sure the interface is up and is configured with an IPv6 address.

ipv6 *source-ipv6-address*: Specifies an IPv6 address. For successful FTP packet transmission, make sure this address is the IPv6 address of an interface in up state on the device.

Usage guidelines

If you execute this command multiple times, the most recent configuration takes effect.

The source address specified with the **ftp ipv6** command takes precedence over the source address specified with the **ftp client ipv6 source** command.

The source address specified with the **ftp client ipv6 source** command applies to all FTP connections. The source address specified with the **ftp ipv6** command applies only to the current FTP connection.

Examples

Specify the source IPv6 address of 2000::1 for outgoing FTP packets.

```
<Sysname> system-view
[Sysname] ftp client ipv6 source ipv6 2000::1
```

Related commands

ftp ipv6

ftp client source

Use **ftp client source** to specify the source IPv4 address for FTP packets sent to the IPv4 FTP server.

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

No source IPv4 address is specified for FTP packets sent to the IPv4 FTP server. The device uses the primary IPv4 address of the output interface for the route to the server as the source address.

Views

System view

Predefined user roles

network-admin

Parameters

interface *interface-type interface-number*: Specifies an interface by its type and number. The device will use the interface's primary IPv4 address as the source address. For successful FTP packet transmission, make sure the interface is up and has the primary IPv4 address configured.

ip *source-ip-address*: Specifies an IPv4 address. For successful FTP packet transmission, make sure this address is the IPv4 address of an interface in up state on the device.

Usage guidelines

If you execute this command multiple times, the most recent configuration takes effect.

The source address specified with the **ftp** command takes precedence over the source address specified with the **ftp client source** command.

The source address specified with the **ftp client source** command applies to all FTP connections. The source address specified with the **ftp** command applies only to the current FTP connection.

Examples

Specify the source IPv4 address of 192.168.20.222 for outgoing FTP packets.

```
<Sysname> system-view
[Sysname] ftp client source ip 192.168.20.222
```

Related commands

ftp

ftp ipv6

Use **ftp ipv6** to log in to an FTP server and enter FTP client view.

Syntax

ftp ipv6 [*ftp-server* [*service-port*] [**vpn-instance** *vpn-instance-name*] [**dscp** *dscp-value* | **source** { **ipv6** *source-ipv6-address* | **interface** *interface-type interface-number* }] * [**-i** *interface-type interface-number*]]

Views

User view

Predefined user roles

network-admin

Parameters

ftp-server: Specifies the IPv6 address or host name of an FTP server. A host name can be a case-insensitive string of 1 to 253 characters. Valid characters for a host name include letters, digits, hyphens (-), underscores (_), and dots (.).

service-port: Specifies the TCP port number of the FTP server, in the range of 0 to 65535. The default value is 21.

dscp *dscp-value*: Specifies the DSCP value for IPv6 to use in outgoing FTP packets to indicate the packet transmission priority. The value range is 0 to 63. The default is 0.

source { **ipv6** *source-ipv6-address* | **interface** *interface-type interface-number* }: Specifies the source address used to establish the FTP connection.

- **interface** *interface-type interface-number*: Specifies an interface by its type and number. The device will use the interface's IPv6 address as the source address. To establish the FTP connection successfully, make sure the interface is up and is configured with an IPv6 address.

- **ipv6** *source-ipv6-address*: Specifies an IPv6 address. To establish the FTP connection successfully, make sure this address is the IPv6 address of an interface in up state on the device.

vpn-instance *vpn-instance-name*: Specifies the VPN instance to which the FTP server belongs. The *vpn-instance-name* argument is a case-sensitive string of 1 to 31 characters. If the FTP server belongs to the public network, do not specify this option.

-i *interface-type interface-number*: Specifies an output interface by its type and number. This option 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 more information about link local addresses, see *Layer 3—IP Services Configuration Guide*.

Usage guidelines

This command is only applicable to IPv6 networks.

If no parameters are specified, this command enters the FTP client view.

If the FTP server parameters are specified, you are prompted to enter the username and password for logging in to the FTP server.

Examples

Log in to the FTP server 2000::154.

```
<Sysname>ftp ipv6 2000::154
Press CTRL+C to abort.
Connected to 2000::154 (2000::154).
220 FTP service ready.
User (2000::154): root
331 Password required for root.
Password:
230 User logged in
Remote system type is HP
```

get

Use **get** to download a file from the FTP server and save the file.

Syntax

get *remotefile* [*localfile*]

Views

FTP client view

Predefined user roles

network-admin

Parameters

remotefile: Specifies the name of the file to be downloaded.

localfile: Specifies a name for the downloaded file.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

To save the downloaded file to the working directory accessed by the **ftp** command, the *localfile* argument must specify a file name such as a.cfg. If you do not provide the *localfile* argument, the downloaded file uses its original name.

To save the downloaded file to some other directory, the *localfile* argument must specify the target directory plus the file name such as flash:/subdirectory/a.cfg. Otherwise, the command fails to take effect.

Examples

Download file **a.txt** and save it as **b.txt** in the working directory accessed by the **ftp** command.

```
ftp> get a.txt b.txt
```

Download file **a.txt** to the folder **test** from the working directory accessed by the **ftp** command.

```
ftp> get a.txt flash:/test/b.txt
```

Download file **a.txt** to the Flash root directory of member device 1 and save it as **c.txt**.

```
ftp> get a.txt slot1#flash:/c.txt
```

Related commands

put

help

Use **help** to display all commands supported by an FTP client.

Use **help** *command-name* to display the help information of a command.

Syntax

help [*command-name*]

Views

FTP client view

Predefined user roles

network-admin

network-operator

Parameters

command-name: Specifies a command supported by the FTP client.

Usage guidelines

In FTP client view, executing the **help** command is the same as entering **?**.

Examples

Display all commands supported by the FTP client.

```
ftp> help
Commands may be abbreviated.  Commands are:

append          delete          ls              quit            rmdir
ascii           debug           mkdir           reget           status
binary          dir             newer           rstatus         system
bye             disconnect      open            rhelp           user
cd              get             passive         rename          verbose
cdup            help            put             reset           ?
close           lcd             pwd             restart
```

Display the help information for the **dir** command.

```
ftp> help dir
dir             list contents of remote directory
```

Related commands

    ?

lcd

Use **lcd** to display the local working directory of the FTP client.

Use **lcd** *directory* to change the local working directory of the FTP client to the specified directory.

Use **lcd** / to change the local working directory of the FTP client to the local root directory.

Syntax

    lcd [*directory* | /]

Views

    FTP client view

Predefined user roles

    network-admin

Parameters

    directory: Specifies a local directory of the FTP client. There must be a slash sign (/) before the name of the storage medium, for example, /flash:/logfile.

    /: Specifies the root directory of the FTP client.

Examples

    # Display the local working directory.
```
ftp> lcd
Local directory now /flash:
```
    # Change the local working directory to **flash:/logfile**.
```
ftp> lcd /flash:/logfile
Local directory now /flash:/logfile
```

ls

Use **ls** to display detailed information about the files and subdirectories under the current directory on the FTP server.

Use **ls** *remotefile* to display detailed information about a file or directory on the FTP server.

Use **ls** *remotefile localfile* to save detailed information about a file or directory on the FTP server to a local file.

Syntax

    ls [*remotefile* [*localfile*]]

Views

    FTP client view

Predefined user roles

    network-admin

Parameters

    remotefile: Specifies the file name or directory on the FTP server.

localfile: Specifies the local file used to save the displayed information.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

In FTP client view, executing the **ls** command is the same as executing the **dir** command.

Examples

\# Display detailed information about the files and subdirectories under the current directory on the FTP server.

```
ftp> ls
150 Connecting to port 50201
-rwxr-xr-x    1 0          0                    1481 Jul  7 15:36 a.txt
-rwxr-xr-x    1 0          0                       0 Sep 27  2010 base.bin
drwxr-xr-x    2 0          0                    8192 Jul  2 14:33 diagfile
drwxr-xr-x    3 0          0                    8192 Jul  7 15:21 ftp
-rwxr-xr-x    1 0          0                       0 Sep 27  2010 kernel.bin
drwxr-xr-x    2 0          0                    8192 Jul  5 09:15 logfile
drwxr-xr-x    2 0          0                    8192 Jul  2 14:33 seclog
-rwxr-xr-x    1 0          0                40808448 Jul  2 14:33 simware-cmw710-sys
tem-a1801.bin
-rwxr-xr-x    1 0          0                    3050 Jul  7 12:26 startup.cfg
-rwxr-xr-x    1 0          0                   54674 Jul  4 09:24 startup.mdb
-rwxr-xr-x    1 0          0                    1481 Jul  7 12:34 x.cfg
226 11 matches total
```

\# Save detailed information about file **a.txt** to **s.txt**.

```
ftp> ls a.txt s.txt
output to local-file: s.txt ? [Y/N]y
150 Connecting to port 50203
226-Glob: a.txt
```

\# Display the content of file **s.txt**.

```
ftp> bye
221-Goodbye. You uploaded 0 and downloaded 2 kbytes.
221 Logout.
<Sysname> more s.txt
-rwxr-xr-x    1 0          0                    1481 Jul  7 12:34 a.txt
```

Related commands

dir

mkdir

Use **mkdir** to create a subdirectory in the current directory on the FTP server.

Syntax

mkdir *directory*

Views

FTP client view

Predefined user roles

network-admin

Parameters

directory: Specifies the name of the directory to be created.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

You must have permission to perform this operation on the FTP server.

Examples

Create subdirectory **newdir** in the current directory of the remote FTP server.

```
ftp> mkdir newdir
257 "newdir" : The directory was successfully created
```

newer

Use **newer** to update a local file by using a remote file on the FTP server.

Syntax

newer *remotefile* [*localfile*]

Views

FTP client view

Predefined user roles

network-admin

Parameters

remotefile: Specifies the name of the remote file on the FTP server.

localfile: Specifies the name of the local file to be updated.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

If the local file does not exist, this command downloads the file from the FTP server and saves it locally.

If the remote file on the FTP server is not newer than the local file, this command does not update the local file.

Examples

Update the local file with the file **a.txt** on the FTP server.

```
ftp> newer a.txt
local: a.txt remote: a.txt
150 Connecting to port 63513
226 File successfully transferred
1573 bytes received in 0.0293 seconds (52.3 kbyte/s)
```

open

Use **open** to log in to the FTP server in FTP client view.

Syntax

open *server-address* [*service-port*]

Views

FTP client view

Predefined user roles

network-admin

Parameters

server-address: Specifies the IP address or host name of the FTP server.

service-port: Specifies the TCP port number of the FTP server, in the range of 0 to 65535. The default value is 21.

Usage guidelines

After you issue this command, the system will prompt you to enter the username and password.

After you log in to one FTP server, you must disconnect from the server before you can use the **open** command to log in to another server.

Examples

In FTP client view, log in to the FTP server 192.168.40.7.

```
<Sysname>ftp
ftp> open 192.168.40.7
Press CTRL+C to abort.
Connected to 192.168.40.7 (192.168.40.7).
220 FTP service ready.
User (192.168.40.7:(none)): root
331 Password required for root.
Password:
230 User logged in.
Remote system type is HP.
ftp>
```

passive

Use **passive** to set the FTP operation mode to **passive**.

Syntax

passive

Default

The FTP operation mode is **passive**.

Views

FTP client view

Predefined user roles

network-admin

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.

You can use this command multiple times to change between active and passive modes.

This command is mainly used together with a firewall to control FTP session establishment between private network users and public network users.

Examples

Set the FTP operation mode to **passive**.

```
ftp> passive
Passive mode on.
ftp> passive
Passive mode off.
```

put

Use **put** to upload a file on the client to the remote FTP server.

Syntax

put *localfile* [*remotefile*]

Views

FTP client view

Predefined user roles

network-admin

Parameters

localfile: Specifies the name of the local file to be uploaded.

remotefile: Specifies the file name for saving the uploaded file on the FTP server.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

To upload a file in the working directory accessed by the **ftp** command, the *localfile* argument must specify a file name such as a.cfg.

To upload a file in some other directory, the *localfile* argument must specify the target directory plus the file name such as flash:/subdirectory/a.cfg. Otherwise, the command fails to take effect.

Examples

Upload the file **a.txt** in the working directory accessed by the **ftp** command. Save the file as **b.txt** on the FTP server.

```
ftp> put a.txt b.txt
```

Upload the file **a.txt** in the folder **test** from the working directory accessed by the **ftp** command. Save the file as **b.txt** on the FTP server.

```
ftp> put flash:/test/a.txt b.txt
```

Upload the file **a.txt** in the root directory of the storage medium of member device 2. Save the file as **b.txt** on the FTP server.

```
ftp> put slot2#flash:/test/a.txt b.txt
```

Related commands

get

pwd

Use **pwd** to display the currently accessed directory on the FTP server.

Syntax

pwd

Views

FTP client view

Predefined user roles

network-admin

Usage guidelines

You can perform this operation only after you log in to the FTP server.

Examples

Display the currently accessed directory on the remote FTP server.

```
ftp> cd subdir
250 OK. Current directory is /subdir
ftp> pwd
257 "/subdir" is your current location
```

quit

Use **quit** to terminate the connection to the FTP server and return to user view.

Syntax

quit

Views

FTP client view

Predefined user roles

network-admin

network-operator

Examples

Terminate the connection to the FTP server and return to user view

```
ftp> quit
221-Goodbye. You uploaded 0 and downloaded 0 kbytes.
221 Logout.
<Sysname>
```

Related commands

bye

reget

Use **reget** to get the missing part of a file from the FTP server.

Syntax

reget *remotefile* [*localfile*]

Views

FTP client view

Predefined user roles

network-admin

network-operator

Parameters

remotefile: Specifies the name of the file on the FTP server.

localfile: Specifies the name of the local file.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

If a file download is not completed due to network or storage space problems, use this command to get the part that has not been downloaded yet.

Examples

Get the part of the **s.bin** file that is missing due to transmission interruption.

```
ftp> reget s.bin
```

rename

Use **rename** to rename a file.

Syntax

rename [*oldfilename* [*newfilename*]]

Views

FTP client view

Predefined user roles

network-admin

Parameters

oldfilename: Specifies the original file name.

newfilename: Specifies the new file name.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

Examples

Rename the file **a.txt** as **b.txt**.

- Method 1:
```
ftp> rename
(from-name) a.txt
(to-name) b.txt
350 RNFR accepted - file exists, ready for destination
250 File successfully renamed or moved
```

- Method 2:
```
ftp> rename a.txt
(to-name) b.txt
350 RNFR accepted - file exists, ready for destination
```

```
                250 File successfully renamed or moved
```
- Method 3:
```
ftp> rename a.txt b.txt
350 RNFR accepted - file exists, ready for destination
250 File successfully renamed or moved
```

reset

Use **reset** to clear the reply information received from the FTP server in the buffer.

Syntax

reset

Views

FTP client view

Predefined user roles

network-admin

Examples

\# Clear the reply information received from the FTP server.
```
ftp> reset
```

restart

Use **restart** to specify the file retransmission offset.

Syntax

restart *marker*

Views

FTP client view

Predefined user roles

network-admin

Parameters

marker: Specifies the retransmission offset, in bytes.

Usage guidelines

The file retransmission starts from the (offset+1)th byte.

You can perform this operation only after you log in to the FTP server.

Support for this command depends on the FTP server.

Examples

\# Set retransmission offset to 2 bytes and retransmit the file **h.c**. The file has 82 bytes in total.
```
ftp> restart 2
restarting at 2. execute get, put or append to initiate transfer
ftp> put h.c h.c
local: h.c remote: h.c
350 Restart position accepted (2).
150 Ok to send data.
```

```
226 File receive OK.

80 bytes sent in 0.000445 seconds (175.6 kbyte/s)

ftp> dir

150 Here comes the directory listing.

-rw-r--r--    1 0         0             80 Jul 18 02:58 h.c
```

rhelp

Use **rhelp** to display the FTP-related commands supported by the FTP server.

Use **rhelp** *protocol-command* to display the help information of an FTP-related command supported by the FTP server.

Syntax

rhelp [*protocol-command*]

Views

FTP client view

Predefined user roles

network-admin

Parameters

protocol-command: Specifies an FTP-related command.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

Examples

Display the FTP-related commands supported by the FTP.

```
ftp> rhelp

214-The following FTP commands are recognized

 USER PASS NOOP QUIT SYST TYPE

 HELP CWD  XCWD PWD  CDUP XCUP

 XPWD LIST NLST MLSD PORT EPRT

 PASV EPSV REST RETR STOR APPE

 DELE MKD  XMKD RMD  XRMD ABOR

 SIZE RNFR RNTO

4 UNIX Type: L8
```

Table 12 Command output

Field	Description
USER	Username, corresponding to the xx command in FTP client view.
PASS	Password.
NOOP	Null operation.
SYST	System parameters.
TYPE	Request type.
CWD	Changes the current working directory.
XCWD	Extended command with the meaning of CWD.

Field	Description
PWD	Prints the working directory.
CDUP	Changes the directory to the upper directory.
XCUP	Extended command with the meaning of CDUP.
XPWD	Extended command with the meaning of PWD.
LIST	Lists files.
NLST	Lists brief file description.
MLSD	Lists file content.
PORT	Active mode (IPv4).
EPRT	Active mode (IPv6).
PASV	Passive mode (IPv4).
EPSV	Passive mode (IPv6).
REST	Restarts.
RETR	Downloads files.
STOR	Uploads files.
APPE	Appends uploading.
DELE	Deletes files.
MKD	Creates folders.
XMKD	Extended command with the meaning of MKD.
RMD	Removes folders.
XRMD	Extended command with the meaning of RMD.
ABOR	Aborts the transmission.
SIZE	Size of the transmission file.
RNFR	Original name.
RNTO	New name.

rmdir

Use **rmdir** to permanently delete a directory on the FTP server.

Syntax

rmdir *directory*

Views

FTP client view

Predefined user roles

network-admin

Parameters

directory: Specifies the name of a directory on the remote FTP server.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

To perform this operation, you must have delete permission on the FTP server.

Delete all files and subdirectories in a directory before you delete the directory. For more information about how to delete files, see the **delete** command.

Executing the **rmdir** command also deletes the files in the recycle bin of the specified directory.

Examples

Delete the empty directory **subdir1**.

```
ftp>rmdir subdir1
250 The directory was successfully removed
```

Related commands

delete

rstatus

Use **rstatus** to display FTP server status.

Use **rstatus** *remotefile* to display detailed information about a directory or file on the FTP server.

Syntax

rstatus [*remotefile*]

Views

FTP client view

Predefined user roles

network-admin

Parameters

remotefile: Specifies a directory or file on the FTP server.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

Support for this command depends on the FTP server.

Examples

Display FTP server status.

```
ftp> rstatus
211-FTP server status:
     Connected to 192.168.20.177
     Logged in as root
     TYPE: ASCII
     No session bandwidth limit
     Session timeout in seconds is 300
     Control connection is plain text
     Data connections will be plain text
     At session startup, client count was 1
     vsFTPd 2.0.6 - secure, fast, stable
211 End of status
```

Table 13 Command output

Filed	Description
211-FTP server status:	Beginning of the display of FTP server status, where 211 specifies the FTP command.
Connected to 192.168.20.177	IP address of the FTP client.
Logged in as root	Login username root.
TYPE: ASCII	File transfer mode ASCII.
Session timeout in seconds is 300	Timeout interval is 300 seconds.
Control connection is plain text	Control connection type is plain text.
Data connections will be plain text	Data connection type is plain text.
At session startup, client count was 1	FTP connection number is 1.
vsFTPd 2.0.6 - secure, fast, stable	FTP version is 2.0.6.
211 End of status	End of the display of FTP server status.

Display file **a.txt**.

```
ftp> rstatus a.txt
213-Status follows:
-rw-r--r--    1 0        0              80 Jul 18 02:58 a.txt
213 End of status
```

Table 14 Command output

Field	Description
213-Status follows:	Beginning of the display of the file, where 213 specifies the FTP command.
-rw-r--r--	The first bit specifies the file type. • **-**—Common. • **B**—Block. • **c**—Character. • **d**—Directory. • **l**—Symbol connection file. • **p**—Pipe. • **s**—socket. The second bit through the tenth bit are divided into three groups. Each group contains three characters, representing the access permission of the owner, group, and other users. • **-**—No permission. • **r**—Read permission. • **w**—Write permission. • **x**—Execution permission.
1	Number of connections.
0	Name of the file owner.
0	Group number of the file owner.
80	File size, in bytes.
Jul 18 02:58	Date and time when the file was most recently modified.
a.txt	File name.

Field	Description
213 End of status	End of the display of the file information.

status

Use **status** to display FTP status.

Syntax

status

Views

FTP client view

Predefined user roles

network-admin

Examples

Display FTP status.

```
ftp> status
Connected to 192.168.1.56.
No proxy connection.
Not using any security mechanism.
Mode: stream; Type: ascii; Form: non-print; Structure: file
Verbose: on; Bell: off; Prompting: on; Globbing: off
Store unique: off; Receive unique: off
Case: off; CR stripping: on
Ntrans: off
Nmap: off
Hash mark printing: off; Use of PORT cmds: on
```

Table 15 Command output

Field	Description
Connected to 192.168.1.56.	IP address of the FTP server that is connected to the FTP client.
Verbose: on; Bell: off; Prompting: on; Globbing: off	Displays debugging information.
Store unique: off; Receive unique: off	The name of the file on the FTP server is unique and the name of the local file is unique.
Case: off; CR stripping: on	Does not support obtaining multiple files once and deletes "\r" when downloading text files.
Ntrans: off	Does not use the input-output transmission table.
Nmap: off	The file name does not use the input-to-output mapping template.
Hash mark printing: off; Use of PORT cmds: on	Does not end with a pound sign (#) and uses "PORT" data transmission.

system

Use **system** to display the system information of the FTP server.

Syntax

system

Views

FTP client view

Predefined user roles

network-admin

Usage guidelines

You can perform this operation only after you log in to the FTP server.

Examples

Display the system information of the FTP server.

```
ftp> system
215 UNIX Type: L8
```

user

Use **user** to change to another user account after login.

Syntax

user *username* [*password*]

Views

FTP client view

Predefined user roles

network-admin

Parameters

username: Specifies the username of the target user account.

password: Specifies the password of the target user account.

Usage guidelines

You can perform this operation only after you log in to the FTP server.

The username and password of the target user account must have already been configured. Otherwise, the user account change operation fails and the FTP connection is closed.

Examples

After logging in to the FTP server, use the username **ftp** and password **123456** to log in again to the FTP server.

- Method 1:
  ```
  ftp> user ftp 123456
  331 Password required for ftp.
  230 User logged in.
  ```
- Method 2:
  ```
  ftp> user ftp
  331 Password required for ftp.
  Password:
  230 User logged in.
  ```

verbose

Use **verbose** to enable or disable the device to display detailed information about FTP operations.

Syntax

verbose

Default

The device displays detailed information about FTP operations.

Views

FTP client view

Predefined user roles

network-admin

Usage guidelines

This command takes effect only for the current session. When you log in again, the command restores to the default setting.

Examples

Disable the device from displaying detailed information about FTP operations.

```
ftp> verbose
Verbose mode off.
```

Execute the **get** command.

```
ftp> get a.cfg 1.cfg
```

Enable the device to display detailed information about FTP operations.

```
ftp> verbose
Verbose mode on.
```

Execute the **get** command.

```
ftp> get a.cfg 2.cfg
227 Entering Passive Mode (192,168,1,58,68,14)
150-Accepted data connection
150 The computer is your friend. Trust the computer
226 File successfully transferred
3796 bytes received in 0.00762 seconds (486.5 kbyte/s)
```

?

Use **?** to display all commands supported by an FTP client.

Use **?** *command-name* to display the help information for a command.

Syntax

? [*command-name*]

Views

FTP client view

Predefined user roles

network-admin

Parameters

command-name: Specifies a command supported by the FTP client.

Usage guidelines

In FTP client view, entering **?** is the same as executing the **help** command.

Examples

Display all commands supported by the FTP client.

```
ftp> ?
Commands may be abbreviated.  Commands are:

append          delete          ls              quit            rmdir
ascii           debug           mkdir           reget           status
binary          dir             newer           rstatus         system
bye             disconnect      open            rhelp           user
cd              get             passive         rename          verbose
cdup            help            put             reset           ?
close           lcd             pwd             restart
```

Display the help information for the **dir** command.

```
ftp> ? dir
dir             list contents of remote directory
```

Related commands

help

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TFTP commands

The device supports 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*.

TFTP is not supported in FIPS mode.

tftp

Use **tftp** to download a file from a TFTP server or upload a file to a TFTP server in an IPv4 network.

Syntax

tftp *tftp-server* { **get** | **put** | **sget** } *source-filename* [*destination-filename*] [**vpn-instance** *vpn-instance-name*] [**dscp** *dscp-value* | **source** { **interface** *interface-type interface-number* | **ip** *source-ip-address* }] *

Views

User view

Predefined user roles

network-admin

Parameters

tftp-server: Specifies the IPv4 address or host name of a TFTP server. The host name can be a case-insensitive string of 1 to 253 characters and can contain only letters, digits, hyphens (-), underscores (_), and dots (.).

get: Downloads a file and writes the file directly to the destination file. If the destination file already exists, the system deletes the existing file before starting the download operation. The existing file is permanently deleted even if the download operation fails.

put: Uploads a file.

sget: Downloads a file and saves the file to memory before writing it to the destination file. The system starts to write the downloaded file to the destination file only after the downloaded file is saved to memory successfully. If the destination file already exists, the downloaded file overwrites the existing file. If the download or save-to-memory operation fails, the existing file is not overwritten.

source-filename: Specifies the source file name, a case-insensitive string of 1 to 1 to 255 characters.

destination-filename: Specifies the destination file name, a case-insensitive string of 1 to 255 characters. If this argument is not specified, the file uses the source file name.

vpn-instance *vpn-instance-name*: Specifies the VPN instance to which the TFTP server belongs. The *vpn-instance-name* argument is a case-sensitive string of 1 to 31 characters. If the TFTP server belongs to the public network, do not specify this option.

dscp *dscp-value*: Specifies the DSCP value for IPv4 to use for outgoing TFTP packets to indicate the packet transmission priority. The value range is 0 to 63. The default is 0.

source { **interface** *interface-type interface-number* | **ip** *source-ip-address* }: Specifies the source address for outgoing TFTP packets. If you do not specify this option, the device uses the primary IPv4 address of the output interface for the route to the TFTP server as the source address.

- **interface** *interface-type interface-number*: Specifies an interface by its type and number. The device will use the interface's primary IPv4 address as the source IPv4 address. For successful TFTP packet transmission, make sure the interface is up and has the primary IPv4 address configured.

- **ip** *source-ip-address*: Specifies an IPv4 address. For successful TFTP packet transmission, make sure this address is the IPv4 address of an interface in up state on the device.

Usage guidelines

The source address specified with the **tftp** command takes precedence over the source address specified with the **tftp client source** command.

The source address specified with the **tftp client source** command applies to all TFTP connections. The source address specified with the **tftp** command applies only to the current TFTP connection.

Examples

Download the **new.bin** file from the TFTP server at 192.168.1.1 and save it as **new.bin**.

```
<Sysname> tftp 192.168.1.1 get new.bin
Press CTRL+C to abort.
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 13.9M  100 13.9M    0     0  1206k      0  0:00:11  0:00:11 --:--:-- 1206k
<System>
```

Table 16 Command output

Field	Description
%	Percentage of file transmission progress.
Total	Size of files to be transmitted, in bytes.
%	Percentage of received file size to total file size.
Received	Received file size, in bytes.
%	Percentage of sent file size to total file size.
Xferd	Sent file size, in bytes.
Average Dload	Average download speed, in bps.
Speed Upload	Average upload speed, in bps.

Related commands

tftp client source

tftp client ipv6 source

Use **tftp client ipv6 source** to specify the source IPv6 address for TFTP packets sent to the IPv6 TFTP server.

Use **undo tftp client ipv6 source** to restore the default.

Syntax

tftp client ipv6 source { **interface** *interface-type interface-number* | **ipv6** *source-ipv6-address* }

undo tftp client ipv6 source

Default

No source address is specified for TFTP packets sent to the IPv6 TFTP server. The device automatically selects a source IPv6 address as defined in RFC 3484.

Views

System view

Predefined user roles

network-admin

Parameters

interface *interface-type interface-number*: Specifies an interface by its type and number. The device will use the interface's IPv6 address as the source address. For successful TFTP packet transmission, make sure the interface is up and is configured with an IPv6 address.

ipv6 *source-ipv6-address*: Specifies an IPv6 address . For successful TFTP packet transmission, make sure this address is the IPv6 address of an interface in up state on the device.

Usage guidelines

If you execute this command multiple times, the most recent configuration takes effect.

The source address specified with the **tftp ipv6** command takes precedence over the source address specified with the **tftp client ipv6 source** command.

The source address specified with the **tftp client ipv6 source** command applies to all TFTP connections. The source address specified with the **tftp ipv6** command applies only to the current TFTP connection.

Examples

Specify the source IPv6 address of 2000::1 for outgoing TFTP packets.
```
<Sysname> system-view
[Sysname] tftp client ipv6 source ipv6 2000::1
```

Related commands

tftp ipv6

tftp client source

Use **tftp client source** to specify the source IPv4 address for TFTP packets sent to the IPv4 TFTP server.

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

No source IPv4 address is specified for TFTP packets sent to the IPv4 TFTP server. The device uses the primary IPv4 address of the output interface for the route to the server as the source address.

Views

System view

Predefined user roles

network-admin

Parameters

interface *interface-type interface-number*: Specifies an interface by its type and number. The device will use the interface's primary IPv4 address as the source address. For successful TFTP packet transmission, make sure the interface is up and has the primary IPv4 address configured.

ip *source-ip-address*: Specifies an IPv4 address. For successful TFTP packet transmission, make sure this address is the IPv4 address of an interface in up state on the device.

Usage guidelines

If you execute this command multiple times, the most recent configuration takes effect.

The source address specified with the **tftp** command takes precedence over the source address specified with the **tftp client source** command.

The source address specified with the **tftp client source** command applies to all TFTP connections. The source address specified with the **tftp** command applies only to the current TFTP connection.

Examples

Specify the source IP address of 192.168.20.222 for outgoing TFTP packets.

```
<Sysname> system-view
[Sysname] tftp client source ip 192.168.20.222
```

Related commands

tftp

tftp ipv6

Use **tftp ipv6** to download a file from a TFTP server or upload a file to a TFTP server in an IPv6 network.

Syntax

tftp ipv6 *tftp-server* [**-i** *interface-type interface-number*] { **get** | **put** | **sget** } *source-filename* [*destination-filename*] [**vpn-instance** *vpn-instance-name*] [**dscp** *dscp-value* | **source** { **interface** *interface-type interface-number* | **ipv6** *source-ipv6-address* }] *

Views

User view

Predefined user roles

network-admin

Parameters

tftp-server: Specifies the IPv6 address or host name of a TFTP server. The host name can be a case-insensitive string of 1 to 253 characters and can contain only letters, digits, hyphens (-), underscores (_), and dots (.).

-i *interface-type interface-number*: Specifies an output interface by its type and number. This option 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 link local address configuration, see *Layer 3—IP Services Configuration Guide*.

get: Downloads a file and writes the file directly to the destination file. If the destination file already exists, the system deletes the existing file before starting the download operation. The existing file is permanently deleted even if the download operation fails.

put: Uploads a file.

sget: Downloads a file and saves the file to memory before writing it to the destination file. The system starts to write the downloaded file to the destination file only after the downloaded file is saved to memory successfully. If the destination file already exists, the downloaded file overwrites the existing file. If the download or save-to-memory operation fails, the existing file is not overwritten.

source-file: Specifies the source file name, a case-insensitive string of 1 to 255 characters.

destination-file: Specifies the destination file name, a case-insensitive string of 1 to 255 characters. If this argument is not specified, the file uses the source file name.

vpn-instance *vpn-instance-name*: Specifies the VPN instance to which the TFTP server belongs. The *vpn-instance-name* argument is a case-sensitive string of 1 to 31 characters. If the TFTP server belongs to the public network, do not specify this option.

dscp *dscp-value*: Specifies the DSCP value for IPv6 to use in outgoing TFTP packets to indicate the packet transmission priority. The value range is 0 to 63. The default is 0.

source { **interface** *interface-type interface-number* | **ipv6** *source-ipv6-address* }: Specifies the source address for outgoing TFTP packets. If you do not specify this option, the device uses the primary IPv6 address of the route for the route to the TFTP server as the source address.

- **interface** *interface-type interface-number*: Specifies an interface by its type and number. The device will use the interface's IPv6 address as the source IPv6 address. For successful TFTP packet transmission, make sure the interface is up and is configured with an IPv6 address.

- **ipv6** *source-ipv6-address*: Specifies an IPv6 address. For successful TFTP packet transmission, make sure this address is the IPv6 address of an interface in up state on the device.

Usage guidelines

The source address specified with the **tftp ipv6** command takes precedence over the source address specified with the **tftp client ipv6 source** command.

The source address specified with the **tftp client ipv6 source** command applies to all TFTP connections. The source address specified with the **tftp ipv6** command applies only to the current TFTP connection.

Examples

Download the **new.bin** file from the TFTP server at 2001::1 and save it as **new.bin**.

```
<Sysname> tftp ipv6 2001::1 get new.bin new.bin
Press CTRL+C to abort.
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 13.9M  100 13.9M    0     0  1206k      0  0:00:11  0:00:11 --:--:-- 1206k
```

For more information about the command output, see Table 16.

tftp-server acl

Use **tftp-server acl** to use an ACL to control the device's access to TFTP servers in an IPv4 network.

Use **undo tftp-server acl** to restore the default.

Syntax

tftp-server acl *acl-number*

undo tftp-server acl

Default

No ACL is used to control the device's access to TFTP servers.

Views

System view

Predefined user roles

network-admin

Parameters

acl-number: Specifies the 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 specific TFTP servers.

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
```

tftp-server ipv6 acl

Use **tftp-server ipv6 acl** to use an ACL to control the device's access to TFTP servers in an IPv6 network.

Use **undo tftp-server ipv6 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 TFTP servers.

Views

System view

Predefined user roles

network-admin

Parameters

acl-number: Specifies the 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 specific TFTP servers.

Examples

Allow the device to access only the TFTP server at 2001::1.

```
<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
```

File system management commands

> **! IMPORTANT:**
> - Before managing storage media, files, and directories, make sure you know the possible impacts.
> - A file or directory whose name starts with a period (.) is considered a hidden file or directory. Do not give a common file or directory a name that starts with a period.
> - Some system files and directories are hidden.

A file name must be specified in one of the file name formats allowed. For more information, see *Fundamentals Configuration Guide*.

Before you use the **copy**, **delete**, **fixdisk**, **format**, **gunzip**, **gzip**, **mkdir**, **move**, **rename**, **rmdir**, or **undelete** command on a USB disk, make sure the disk is not write protected.

You cannot access a storage medium while another user is repairing, formatting, or partitioning the medium.

To access a storage medium after the medium is repaired, formatted, or partitioned, use one of the following methods:

- Specify the storage medium name for the command. For example, use **dir flash:/** to display all files and folders on the flash memory.
- Use the **cd** command to change to the storage medium before using the command. For example, use **cd flash:/** to change to the root directory of the flash memory, and then use **dir** to display all files and folders.

The device supports 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*.

cd

Use **cd** to change the current working directory.

Syntax

cd { *directory* | **..** }

Views

User view

Predefined user roles

network-admin

Parameters

directory: Specifies the name of the destination directory, in the format [*drive*:/]*path.* For more information about how to enter 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.

..: Specifies the parent directory. If the current working directory is the root directory, an error message appears when you execute the **cd ..** command. No online help information is available for this keyword.

Examples

Access the **test** folder after logging in to the device.

```
<Sysname> cd test
```

Return to the upper directory.

```
<Sysname> cd ..
```

Access the flash root directory of the subordinate member with the member ID 2 after you log in to the master.

```
<Sysname> cd slot2#flash:/
```

Change back to the flash root directory of the master.

```
<Sysname> cd flash:/
```

copy

Use **copy** to copy a file.

Syntax

In non-FIPS mode:

copy *fileurl-source fileurl-dest* [**vpn-instance** *vpn-instance-name*] [**source interface** *interface-type interface-number*]

In FIPS mode:

copy *fileurl-source fileurl-dest*

Views

User view

Predefined user roles

network-admin

Parameters

fileurl-source: Specifies the name or URL of the file to be copied in non-FIPS mode, and specifies the name of the file to be copied in FIPS mode. If the file resides on a remote file server rather than on the device, specify the URL of the file. Whether a URL is case sensitive depends on the server.

fileurl-dest: Specifies the name or URL of the destination file or directory in non-FIPS mode, and specifies the name of the destination file or directory in FIPS mode. To copy the source file to a remote file server, specify a URL. If you specify a directory, the device copies the specified file to the directory and saves it with its original file name. Whether a URL is case sensitive depends on the server.

vpn-instance *vpn-instance-name*: Specifies the VPN instance to which the destination file server belongs. The *vpn-instance-name* argument is a case-sensitive string of 1 to 31 characters. If the server belongs to the public network, do not specify this option.

source interface *interface-type interface-number*: Specifies the source interface used to connect to the server. After you specify the source interface, the device uses the primary IP address of the source interface as the source IP address for outgoing packets. If you do not specify this option, the device uses the outgoing interface as the source interface.

Usage guidelines

In non-FIPS mode, you can use the **copy** command to perform the following tasks:

- Copy a local file and save it locally.
- Copy a local file and save it to a remote file server.
- Copy a file on a remote file server and save it locally.

The file server can be an FTP server, TFTP server, or HTTP server.

To specify a file or directory, use the following guidelines:

Location	Name format	Remarks
On the device	Use the file name guidelines in *Fundamentals Configuration Guide*.	N/A
On an FTP server	Enter the URL in the format ftp://*FTP username*[:*password*]@*server address*[:*port number*]/*file path*[/*file name*].	The username and password must be the same as those configured on the FTP server. If the server authenticates users only by the username, you are not required to enter the password. For example, to use the username 1 and password 1 and specify the startup.cfg file in the authorized working directory on FTP server 1.1.1.1, enter ftp://1:1@1.1.1.1/startup.cfg. To specify an IPv6 address, enclose the IPv6 address in square brackets ([ ]), for example, ftp://test:test@[2001::1]:21/test.cfg.
On a TFTP server	Enter the URL in the format tftp://*server address*[:*port number*]/*file path*[/file *name*].	For example, to specify the startup.cfg file in the working directory on TFTP server 1.1.1.1, enter the URL tftp://1.1.1.1/startup.cfg. To enter an IPv6 address, enclose the IPv6 address in square brackets ([ ]), for example, ftp://test:test@[2001::1]:21/test.cfg.
On an HTTP server	Enter the URL in the format http://*username*[:*password*]@*server address*[:*port number*]/*file path*[/file *name*].	The username and password must be the same as those configured on the HTTP server. If the server authenticates users only by the username, you are not required to enter the password. For example, to use the username 1 and password 1 and specify the startup.cfg file in the authorized working directory on HTTP server 1.1.1.1, enter http://1:1@1.1.1.1/startup.cfg. If authentication is not required, you do not need to enter the username or password. For example, to specify the startup.cfg file in the authorized working directory on HTTP server 1.1.1.1, enter http://1.1.1.1/startup.cfg.

In FIPS mode, you can only use the **copy** command to copy a local file and save it locally.

Examples

Copy the **test.cfg** file in the current folder and save it to the current folder as **testbackup.cfg**.

```
<Sysname> copy test.cfg testbackup.cfg

Copy flash:/test.cfg to flash:/testbackup.cfg?[Y/N]:y

Copying file flash:/test.cfg to flash:/testbackup.cfg...Done.
```

Copy the **1.cfg** file from the **test** folder of the flash memory to the USB disk. Save the copy to the **testbackup** folder on the first partition with the file name **1backup.cfg**.

```
<Sysname> copy flash:/test/1.cfg usba0:/testbackup/1backup.cfg

Copy flash:/test/1.cfg to usba0:/testbackup/1backup.cfg?[Y/N]:y

Copying file flash:/test/1.cfg to usba0:/testbackup/1backup.cfg...Done.
```

Copy **test.cfg** from the working directory on FTP server 1.1.1.1. Save the copy to the local current folder as **testbackup.cfg**. In this example, the FTP username and password are **user** and **private**, respectively

```
<Sysname> copy ftp://user:private@1.1.1.1/test.cfg testbackup.cfg

Copy ftp://user:private@1.1.1.1/test.cfg to flash:/testbackup.cfg?[Y/N]:y

Copying file ftp://user:private@1.1.1.1/test.cfg to flash:/testbackup.cfg... Done.
```

Copy **test.cfg** from the current folder. Save the copy to the working directory on FTP server 1.1.1.1 as **testbackup.cfg**. In this example, the FTP username and password are **user** and **private**.

```
<Sysname> copy test.cfg ftp://user:private@1.1.1.1/testbackup.cfg

Copy flash:/test.cfg to ftp://user:private@1.1.1.1/testbackup.cfg?[Y/N]:y

Copying file flash:/test.cfg to ftp://user:private@1.1.1.1/testbackup.cfg... Done.
```

Copy **test.cfg** from the working directory on TFTP server 1.1.1.1. Save the copy to the local current folder as **testbackup.cfg**.

```
<Sysname> copy tftp://1.1.1.1/test.cfg testbackup.cfg

Copy tftp://1.1.1.1/test.cfg to flash:/testbackup.cfg?[Y/N]:y

Copying file tftp://1.1.1.1/test.cfg to flash:/testbackup.cfg... Done.
```

Copy **test.cfg** from the current folder. Save the copy to the working directory on TFTP server 1.1.1.1 as **testbackup.cfg**.

```
<Sysname> copy test.cfg tftp://1.1.1.1/testbackup.cfg

Copy flash:/test.cfg to tftp://1.1.1.1/testbackup.cfg?[Y/N]:y

Copying file flash:/test.cfg to tftp://1.1.1.1/testbackup.cfg... Done.
```

Copy **test.cfg** from the working directory on FTP server 1.1.1.1. Save the copy to the local current folder as **testbackup.cfg**. In this example, the FTP username and password are **user** and **private**, and the FTP server belongs to VPN instance vpn1.

```
<Sysname> copy ftp://user:private@1.1.1.1/test.cfg testbackup.cfg vpn-instance vpn1

Copy ftp://user:private@1.1.1.1/test.cfg to flash:/testbackup.cfg?[Y/N]:y

Copying file ftp://user:private@1.1.1.1/test.cfg to flash:/testbackup.cfg... Done.
```

Copy **test.cfg** from the working directory on TFTP server 1.1.1.1. Save the copy to the local current folder as **testbackup.cfg**. In this example, the TFTP server belongs to VPN instance vpn1.

```
<Sysname> copy tftp://1.1.1.1/test.cfg testbackup.cfg vpn-instance vpn1

Copy tftp://1.1.1.1/test.cfg to flash:/testbackup.cfg?[Y/N]:y

Copying file tftp://1.1.1.1/test.cfg to flash:/testbackup.cfg... Done.
```

Copy **test.cfg** from the working directory on FTP server 2001::1. Save the copy to the local current folder as **testbackup.cfg**. In this example, the FTP username and password are **user** and **private**, respectively.

```
<Sysname> copy ftp://user:private@[2001::1]/test.cfg testbackup.cfg

Copy ftp://user:private@[2001::1]/test.cfg to flash:/testbackup.cfg?[Y/N]:y

Copying file ftp://user:private@[2001::1]/test.cfg to flash:/testbackup.cfg... Done.
```

Copy **test.cfg** from the working directory on TFTP server 2001::1. Save the copy to the local current folder as **testbackup.cfg**.

```
<Sysname> copy tftp://[2001::1]/test.cfg testbackup.cfg

Copy tftp://[2001::1]/test.cfg to flash:/testbackup.cfg?[Y/N]:y

Copying file tftp://[2001::1]/test.cfg to flash:/testbackup.cfg... Done.
```

Copy the master's configuration file **test.cfg** to the subordinate member with the member ID 2. Save the copy to the root directory of the flash memory.

```
<Sysname> copy test.cfg slot2#flash:/

Copy flash:/test.cfg to slot2#flash:/test.cfg?[Y/N]:y

Copying file flash:/test.cfg to slot2#flash:/test.cfg...Done.
```

delete

Use **delete** to delete a file.

Syntax

delete [**/unreserved**] *file-url*

Views

User view

Predefined user roles

network-admin

Parameters

/**unreserved**: Permanently deletes the specified file. If you do not specify this keyword, the command moves the file to the recycle bin.

file-url: Specifies the name of the file to be deleted. Asterisks (*) are acceptable as wildcards. For example, to remove files with the **.txt** extension in the current directory, enter **delete *.txt**.

Usage guidelines

Use the **delete** /**unreserved** *file-url* command with caution. You cannot restore a file that was deleted with this command.

The **delete** *file-url* command (without /**unreserved**) moves the specified file to the recycle bin, except in the following situation, where the file is permanently deleted:The device is running out of storage space.

A file moved to the recycle bin can be restored by using the **undelete** command.

Do not use the **delete** command to delete files from the recycle bin. To delete files from the recycle bin, use the **reset recycle-bin** command.

If you delete two files that have the same name but reside in different directories, both files are retained in the recycle bin. If you successively delete two files that have the same name from the same directory, only the file deleted last is retained in the recycle bin.

Examples

Remove file **1.cfg** from the root directory of the master's storage medium.

```
<Sysname> delete 1.cfg
Delete flash:/1.cfg?[Y/N]:y
Deleting file flash:/1.cfg...Done.
```

Permanently delete file **2.cfg** from the root directory of the master's storage medium.

```
<Sysname> delete /unreserved 2.cfg
The file cannot be restored. Delete flash:/2.cfg?[Y/N]:y
Deleting the file permanently will take a long time. Please wait...
Deleting file flash:/2.cfg...Done.
```

Remove file **1.cfg** from the root directory of the storage medium on the subordinate member with the member ID 2.

- Method 1:
  ```
  <Sysname> delete slot2#flash:/1.cfg
  Delete slot2#flash:/1.cfg?[Y/N]:y
  Deleting file delete slot2#flash:/1.cfg...Done.
  ```
- Method 2:
  ```
  <Sysname> cd slot2#flash:/
  <Sysname> delete 1.cfg
  Delete slot2#flash:/1.cfg?[Y/N]:y
  Deleting file slot2#flash:/1.cfg...Done.
  ```

Related commands

- **undelete**
- **reset recycle-bin**

dir

Use **dir** to display files or folders.

Syntax

dir [/**all**] [*file-url* | /**all-filesystems**]

Views

User view

Predefined user roles

network-admin

Parameters

/all: Displays all files and folders in the current directory, visible or hidden. If you do not specify this option, only visible files and folders are displayed.

file-url: Displays a specific file or folder. The *file-url* argument can use the asterisk (*) as a wildcard. For example, to display files with the **.txt** extension in the current directory, enter **dir *.txt**.

/**all-filesystems**: Displays files and folders in the root directory of all storage media on the device.

Usage guidelines

If no option is specified, the command displays all visible files and folders in the current directory.

The folder name of the recycle bin is **.trash**. To display files in the recycle bin, use either of the following methods:

- Execute the **dir** /**all .trash** command.
- Execute the **cd .trash** command and then the **dir** command.

Examples

\# Display information about all files and folders in the storage medium of the master.

```
<Sysname> dir /all
Directory of flash:/
...
```

\# Display files and folders in the root directory of all storage media on the IRF fabric.

```
<Sysname> dir /all-filesystems
Directory of flash:/
...


Directory of slot1#flash:/
...
```

\# Display information about all files and folders in the storage medium of the subordinate member with the member ID 2.

```
<Sysname> cd slot2#flash:/
<Sysname> dir /all
Directory of slot2#flash:/
...
```

Table 17 Command output

Field	Description
Directory of	Current directory.

Field	Description
0 -rwh 3144 Apr 26 2008 13:45:28 xx.xx	File or folder information: • **0**—File or folder number, which is automatically allocated by the system. • **-rwh**—Attributes of the file or folder. The first character is the folder indicator (**d** for folder and **–** for file). The second character indicates whether the file or folder is readable (**r** for readable). The third character indicates whether the file or directory is writable (**w** for writable). The fourth character indicates whether the file or directory is hidden (**h** for hidden, **-** for visible). Modifying, renaming, or deleting hidden files might affect functions. • **3144**—File size in bytes. For a folder, a hyphen (-) is displayed. • **Apr 26 2008 13:45:28**—Last date and time when the file or folder was modified. • **xx.xx**—File or folder name.

fdisk

Use **fdisk** to partition a storage medium.

Syntax

fdisk *medium-name* [*partition-number*]

Views

User view

Predefined user roles

network-admin

Parameters

medium-name: Specifies the name of the storage medium to be partitioned. The value varies by device model.

partition-number: Specifies the number of partitions, in the range of 1 to 4.

Usage guidelines

The flash memory cannot be partitioned.

If the *partition-number* argument is specified, the storage medium is divided into the specified number of partitions. Otherwise, partitioning is performed in an interactive way.

It is normal that the specified partition size and the actual partition size have an error less than 5% of the total memory.

A partition cannot be partitioned.

Before partitioning a USB disk, perform the following tasks:

- Back up the files in the storage medium. The partition operation clears all data in the medium.
- If you are partitioning a USB disk, make sure the disk is not write protected. Otherwise, the partition operation will fail, and you must remount or reinstall the disk to restore access to the USB disk.
- Make sure no other users are accessing the medium. Otherwise, the partition operation fails.

Examples

Divide the USB disk on the device evenly into three partitions in simple mode.

```
<Sysname> fdisk usba: 3
Capacity of usba: : 256M bytes
```

```
usba: will be divided into the following partitions:
DeviceName      Capacity
usba0:              85MB
usba1:              85MB
usba2:              86MB
All data on usba: will be lost, continue? [Y/N]:y
Partitioning usba:...Done.
```

Divide the USB disk on the device into one partition in an interactive way.

```
<Sysname> fdisk usba:
The capacity of usba: : 256M bytes
Partition 1 (32MB~224MB, 256MB. Press CTRL+C to quit or Enter to use all available space):
```

// Press **Enter** or enter **256**.

```
usba: will be divided into the following partition(s):
DeviceName    Capacity
usba0:          256MB
All data on usba: will be lost, continue? [Y/N]:y
Partitioning usba:...Done.
```

Divide the USB disk on the device into three partitions and specify the size for each partition:

```
<Sysname> fdisk usba:
The capacity of usba: : 256M bytes
Partition 1 (32MB~224MB, 256MB, Press CTRL+C to quit or Enter to use all available
space):128
```

// Enter **128** to set the size of the first partition to 128 MB.

```
Partition 2 (32MB~96MB, 128MB, Press CTRL+C to quit or Enter to use all available space):31
```

// Enter **31** to set the size of the second partition to 31 MB.

```
The partition size must be greater than or equal to 32MB.
Partition 2 (32MB~96MB, 128MB, Press CTRL+C to quit or Enter to use all available
space):1000
```

// Enter **1000** to set the size of the second partition to 1000 MB.

```
The partition size must be less than or equal to 128MB.
Partition 2 (32MB~96MB, 128MB, Press CTRL+C to quit or Enter to use all available space):127
```

// Enter **127** to set the size of the second partition to 127 MB.

```
The remaining space is less than 32MB. Please enter the size of partition 2 again.
Partition 2 (32MB~96MB, 128MB, Press CTRL+C to quit or Enter to use all available space):
```

// Enter **56** to set the size of the second partition to 56 MB.

```
Partition 3 (32MB~40MB, 72MB, Press CTRL+C to quit or Enter to use all available space):
```

// Press **Enter** to assign the remaining space to the third partition.

```
usba: will be divided into the following partition(s):
DeviceName      Capacity
usba0:          128MB
usba1:           56MB
usba2:           72MB
All data on usba: will be lost, continue? [Y/N]:y
Partitioning usba:...Done.
```

file prompt

Use **file prompt** to set the operation mode for files and folders.

Use **undo file prompt** to restore the default.

Syntax

file prompt { **alert** | **quiet** }

undo file prompt

Default

The operation mode is **alert**. The system prompts for confirmation when you perform a destructive file or folder operation.

Views

System view

Predefined user roles

network-admin

Parameters

alert: Prompts for confirmation when a destructive file or folder operation is being performed.

quiet: Gives no confirmation prompt for file or folder operations.

Usage guidelines

In quiet mode, the system does not prompt for confirmation when a user performs a file or folder operation. The **alert** mode provides an opportunity to cancel a disruptive operation.

Examples

Set the file and folder operation mode to **alert**.

```
<Sysname> system-view
[Sysname] file prompt alert
```

fixdisk

Use **fixdisk** to check a storage medium for damage and repair any damage.

Syntax

fixdisk *medium-name*

Views

User view

Predefined user roles

network-admin

Parameters

medium-name: Specifies the name of a storage medium name. The value varies by device model.

Usage guidelines

Use this command to fix a storage medium when space on the medium cannot be used or released due to abnormal operations.

Before you repair a storage medium, make sure no other users are accessing the medium. Otherwise, the repair operation fails.

Examples

Restore the space of the flash memory.

```
<Sysname> fixdisk flash:
Restoring flash: may take some time...
Restoring flash:...Done.
```

format

Use **format** to format a storage medium.

Syntax

format *medium-name*

Views

User view

Predefined user roles

network-admin

Parameters

medium-name: Specifies the name of a storage medium. The value varies by device model.

Usage guidelines

Formatting a storage medium permanently deletes all files on the storage medium. If a startup configuration file exists on the storage medium, back it up if necessary.

To format a storage medium that has been partitioned, you must format all the partitions individually, instead of formatting the medium as a whole.

You can format a storage medium only when no one is accessing the medium.

Examples

Format the flash memory.

```
<Sysname> format flash:
All data on flash: will be lost, continue? [Y/N]:y
Formatting flash:... Done.
```

Format the third partition on the USB disk.

```
<Sysname> format usba2:
All data on usba2: will be lost, continue? [Y/N]:y
Formatting usba2:... Done.
```

gunzip

Use **gunzip** to decompress a file.

Syntax

gunzip *filename*

Views

User view

Predefined user roles

network-admin

Parameters

filename: Specifies the name of the file to be decompressed. This argument must have .gz as the extension.

Usage guidelines

This command deletes the specified file after decompressing it.

Examples

Decompress the file **system.bin.gz**:

1. Before decompressing the file, you can display files whose names start with the **system.** string.

```
<Sysname> dir system.*
Directory of flash:
   1 -rw-          20 Jun 14 2012 10:18:53   system.bin.gz
472972 KB total (472840 KB free)
```

2. Decompress the file **system.bin.gz**.

```
<Sysname> gunzip system.bin.gz
Decompressing file flash:/system.bin.gz... Done.
```

3. Verify the decompress operation.

```
<Sysname> dir system.*
Directory of flash:
   1 -rw-           0 May 30 2012 11:42:25   system.bin
472972 KB total (472844 KB free)
```

gzip

Use **gzip** to compress a file.

Syntax

gzip *filename*

Views

User view

Predefined user roles

network-admin

Parameters

filename: Specifies the name of the file to be compressed. The compressed file will be saved to file *filename*.gz.

Usage guidelines

This command deletes the specified file after compressing it.

Examples

Compress the file **system.bin**:

1. Before compressing the file, you can display files whose names start with **system**.

```
<Sysname> dir system.*
Directory of flash:
   1 -rw-           0 May 30 2012 11:42:24   system.bin
472972 KB total (472844 KB free)
```

2. Compress the file **system.bin**.

```
<Sysname> gzip system.bin
Compressing file flash:/system.bin... Done.
```

3. Verify the compress operation.
```
<Sysname> dir system.*
Directory of flash:
   1 -rw-          20 Jun 14 2012 10:18:53   system.bin.gz
472972 KB total (472840 KB free)
```

md5sum

Use **md5sum** to use the MD algorithm to calculate the digest of a file.

Syntax

    md5sum *file-url*

Views

    User view

Predefined user roles

    network-admin

    network-operator

Parameters

    file-url: Specifies the name of a file.

Usage guidelines

    The digest can be used to verify the integrity of the file.

Examples

    # Use the MD5 algorithm to calculate the digest of file **system.bin**.
```
<Sysname> md5sum system.bin
MD5 digest:
4f22b6190d151a167105df61c35f0917
```

mkdir

Use **mkdir** to create a folder in the current directory.

Syntax

    mkdir *directory*

Views

    User view

Predefined user roles

    network-admin

Parameters

    directory: Specifies the name of a folder.

Usage guidelines

    The name of the folder to be created must be unique in the specified directory.

To use this command to create a folder, the specified directory must already exist. For example, to create the **flash:/test/mytest** folder, the **test** folder must already exist. Otherwise, the **mytest** folder is not created.

Examples

Create the **test** folder in the current directory.

```
<Sysname> mkdir test
Creating directory flash:/test... Done.
```

Create the **test/subtest** folder in the current directory.

```
<Sysname> mkdir test/subtest
Creating directory flash:/test/subtest... Done.
```

Create the **test** folder on the subordinate member with the member ID 2.

```
<Sysname> mkdir slot2#flash:/test
Creating directory slot2#flash:/test... Done.
```

more

Use **more** to display the contents of a text file.

Syntax

more *file-url*

Views

User view

Predefined user roles

network-admin

Parameters

file-url: Specifies a file name.

Examples

Display the contents of the **test.txt** file.

```
<Sysname> more test.txt
Have a nice day.
```

Display the contents of the **testcfg.cfg** file.

```
<Sysname> more testcfg.cfg


#
 version 7.1.045, ESS 2415
#
 sysname Sysname
#
vlan 2
#
return
<Sysname>
```

Display the contents of the **testcfg.cfg** file on the subordinate member with the member ID 2.

```
<Sysname> more slot2#flash:/testcfg.cfg
#
 version 7.1.045, ESS 2415
```

```
#
 sysname Sysname
#
  ---- More ----
```

mount

Use **mount** to mount a hot swappable storage medium.

Syntax

mount *medium-name*

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

Predefined user roles

network-admin

Parameters

medium-name: Specifies the name of a storage medium. The value varies by device model.

Usage guidelines

To avoid file system corruption, do not perform the following tasks while the system is mounting a storage medium:

- Install or remove storage media.
- Perform a master/subordinate switchover.

To mount a partitioned storage medium, you must mount all the partitions individually, instead of mounting the USB disk as a whole.

Examples

Mount a USB disk on the master.

```
<Sysname> mount usba0:
```

Mount a USB disk on the subordinate member with the member ID 2.

```
<Sysname> mount slot2#usba0:
```

Related commands

umount

move

Use **move** to move a file.

Syntax

move *fileurl-source fileurl-dest*

Views

User view

Predefined user roles

network-admin

Parameters

fileurl-source: Specifies the name of the source file.

fileurl-dest: Specifies the name of the destination file or folder.

Usage guidelines

If you specify a destination folder, the system moves the source file to the specified folder without changing the file name.

Examples

Move the **flash:/test/sample.txt** file 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
Moving file flash:/test/sample.txt to flash:/1.txt ...Done.
```

Move the **b.cfg** file to the folder **test2**.

```
<Sysname> move b.cfg test2
Move flash:/b.cfg to flash:/test2/b.cfg?[Y/N]:y
Moving file flash:/b.cfg to flash:/test2/b.cfg... Done.
```

pwd

Use **pwd** to display the current working directory.

Syntax

pwd

Views

User view

Predefined user roles

network-admin

Examples

Display the current working directory.

```
<Sysname> pwd
flash:
```

rename

Use **rename** to rename a file or folder.

Syntax

rename *fileurl-source fileurl-dest*

Views

User view

Predefined user roles

network-admin

Parameters

fileurl-source: Specifies the name of the source file or folder.

fileurl-dest: Specifies the name of the destination file or folder.

Usage guidelines

This command is not executed if the destination file or folder name is already used by an existing file or folder in the current working directory.

Examples

Rename the **copy.cfg** file as **test.cfg**.

```
<Sysname> rename copy.cfg test.cfg
Rename flash:/copy.cfg as flash:/test.cfg?[Y/N]:y
Renaming flash:/copy.cfg as flash:/test.cfg... Done.
```

reset recycle-bin

Use **reset recycle-bin** to delete files from the recycle bin.

Syntax

reset recycle-bin [**/force**]

Views

User view

Parameters

/force: Deletes all files in the recycle bin without prompting for confirmation. If you do not specify this option, the command prompts you to confirm the deletion.

Usage guidelines

The **delete** *file-url* command only moves a file to the recycle bin. To permanently delete the file, use the **reset recycle-bin** command to clear the recycle bin.

If a file is corrupted, you might not be able to delete the file by using the **reset recycle-bin** command. In this case, use the **reset recycle-bin /force** command.

Examples

Empty the recycle bin. (In this example there are two files in the recycle bin.)

```
<Sysname> reset recycle-bin
Clear flash:/a.cfg?[Y/N]:y
Clearing file flash:/a.cfg... Done.
Clear flash:/b.cfg?[Y/N]:y
Clearing file flash:/b.cfg... Done.
```

Delete the **b.cfg** file from the recycle bin. (In this example there are two files in the recycle bin.)

```
<Sysname> reset recycle-bin
Clear flash:/a.cfg?[Y/N]:n
Clear flash:/b.cfg?[Y/N]:y
Clearing file flash:/b.cfg... Done.
```

Related commands

delete

rmdir

Use **rmdir** to remove a folder.

Syntax

rmdir *directory*

Views

User view

Predefined user roles

network-admin

Parameters

directory: Specifies a folder name.

Usage guidelines

To remove a directory, you must delete all files and subfolders in the directory permanently or move them to the recycle bin. If you move them to the recycle bin, executing the **rmdir** command permanently deletes them.

Examples

Remove the **subtest** folder.

```
<Sysname>rmdir subtest/
Remove directory flash:/test/subtest and the files in the recycle-bin under this directory
will be deleted permanently. Continue?[Y/N]:y
Removing directory flash:/test/subtest... Done.
```

sha256sum

Use **sha256sum** to use the SHA-256 algorithm to calculate the digest of a file.

Syntax

sha256sum *file-url*

Views

User view

Predefined user roles

network-admin

Parameters

file-url: Specifies the name of a file.

Usage guidelines

The digest of a file can be used to verify file integrity.

Examples

Use the SHA-256 algorithm to calculate the digest of file **system.bin**.

```
<Sysname> sha256sum system.bin
SHA256 digest:
0851e0139f2770e87d01ee8c2995ca9e59a8f5f4062e99af14b141b1a36ca152
```

Related commands

md5sum

tar create

Use **tar create** to archive files and folders.

Syntax

tar create [**gz**] **archive-file** *fileurl-dest* [**verbose**] **source** *fileurl-source-list*&<1-5>

Views

User view

Predefined user roles

network-admin

Parameters

gz: Uses gzip to compress the files and folders before archiving them.

archive-file *fileurl-dest*: Specifies the archive file name. If you specified the **gz** keyword, the suffix of this argument must be **.tar.gz**. If you did not specify the **gz** keyword, the suffix of this argument must be **.tar**.

verbose: Displays the names of the successfully archived files and folders.

source *fileurl-source-list*&<1-5>: Specifies the files and folders to be archived. The *fileurl-source-list* argument can be a space-separated list of up to five items. Each item can be a file or folder name.

Examples

Archive file **a.cfg** to file **a.tar**.

```
<Sysname> tar create archive-file a.tar source a.cfg
Creating archive a.tar …… Done.
```

Compress file **a.cfg** and archive the file to **a.tar.gz**.

```
<Sysname> tar create gz archive-file a.tar.gz source a.cfg
Creating archive a.tar.gz Done.
```

Compress and archive files and folders, and display the successfully archived files and folders.

```
<Sysname> tar create gz archive-file a.tar.gz verbose source a.cfg a.dbm ./core
a.cfg
a.dbm
./core
```

Related commands

- **tar extract**
- **tar list**

tar extract

Use **tar extract** to extract files and folders.

Syntax

tar extract archive-file *fileurl-dest* [**verbose**] [**screen** | **to** *directory-name*]

Views

User view

Predefined user roles

network-admin

Parameters

archive-file *fileurl-dest*: Specifies the archive file name. The suffix can be **.tar** or **.tar.gz**.

verbose: Displays the names of the successfully extracted files and folders.

screen: Displays the content of the extracted files and folders on the screen. The extracted files are not saved.

to *directory-name*: Saves the extracted files and folders to a path.

Usage guidelines

If you do not specify the **screen** keyword or the **to** *directory-name* option, the command extracts the archived files and folders and saves them to the same folder as the archive file.

Examples

Extract files and folders, and save them to the same folder as the archive file.

```
<Sysname> tar extract archive-file a.tar.gz
Extracting archive a.tar.gz …… Done.
```

Extract files and folders, and display their content on the screen.

```
<Sysname> tar extract archive-file a.tar.gz verbose screen
a.cfg
#
version 7.1.045, ESS 2415
#
sysname Sysname
#
```

Extract files and folders, save them to the same folder as the archive file, and display the names of the archived files and folders.

```
<Sysname> tar extract archive-file a.tar.gz verbose
a.txt
```

Extract files and folders, and save them to the path **flash:/a**.

```
<Sysname> tar extract archive-file a.tar.gz to flash:/a
Extracting archive a.tar.gz ......Done.
```

Related commands

- **tar create**
- **tar list**

tar list

Use **tar list** to display the names of archived files and folders.

Syntax

tar list archive-file *fileurl-dest*

Views

User view

Predefined user roles

network-admin

Parameters

archive-file *fileurl-dest*: Specifies the archive file name. The suffix can be **.tar** or **.tar.gz**.

Examples

Display the names of archived files and folders.

```
<Sysname> tar list archive-file a.tar.gz
a.cfg
```

Related commands

- **tar create**
- **tar extract**

umount

Use **umount** to unmount a hot swappable storage medium.

Syntax

umount *medium-name*

Default

A storage medium is automatically mounted and placed in mounted state.

Views

User view

Predefined user roles

network-admin

Parameters

medium-name: Specifies the name of a storage medium. The value varies by device model.

Usage guidelines

Before you remove a mounted storage medium from the system, first unmount it to avoid damaging the medium.

Before you unmount a storage medium, make sure no other users are accessing the medium. Otherwise, the unmount operation fails.

When a storage medium is connected to a lower version system, the system might not be able to automatically recognize the device. In this case, you must first execute the **mount** command for the storage medium to function correctly.

To avoid file system corruption, do not perform the following tasks while the system is mounting or unmounting a storage medium:

- Install or remove storage media.
- perform a master/subordinate switchover.

Examples

Unmount a USB disk from the master.

```
<Sysname> umount usba0:
```

Unmount a USB disk from the subordinate member with the member ID 2.

```
<Sysname> umount slot2#usba0:
```

Related commands

mount

undelete

Use **undelete** to restore a file from the recycle bin.

Syntax

undelete *file-url*

Views

User view

Predefined user roles

network-admin

Parameters

file-url: Specifies the name of the file to be restored.

Usage guidelines

If a file with the same name already exists in the directory, the system prompts whether or not you want to overwrite the existing file. If you enter **Y**, the existing file is overwritten. If you enter **N**, the command is not executed.

Examples

Restore the **copy.cfg** file, which was moved from the **flash:** directory to the recycle bin.

```
<Sysname>undelete copy.cfg
Undelete flash:/copy.cfg?[Y/N]:y
Undeleting file flash:/copy.cfg... Done.
```

Restore the **startup.cfg** file, which was moved from the **flash:/seclog** directory to the recycle bin.

- Method 1:

```
<Sysname>undelete seclog/startup.cfg
Undelete flash:/seclog/startup.cfg?[Y/N]:y
Undeleting file flash:/seclog/startup.cfg... Done.
<Sysname>
```

- Method 2:

```
<Sysname> cd seclog
<Sysname> undelete startup.cfg
Undelete flash:/seclog/startup.cfg?[Y/N]:y
Undeleting file flash:/seclog/startup.cfg... Done.
```

Configuration file management commands

The device supports 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*.

archive configuration

Use **archive configuration** to manually archive the running configuration to the configuration archive directory.

Syntax

archive configuration

Views

User view

Predefined user roles

network-admin

Usage guidelines

Before manually archiving the running configuration, you must use the **archive configuration location** command to specify a directory and a name prefix for the configuration archives.

Configuration archive facilitates configuration rollback. It provides manual and automatic methods for saving the running configuration. For more information about the archiving mechanism, see the section about configuration rollback in *Fundamentals Configuration Guide*.

Examples

Archive the running configuration.

```
<Sysname> archive configuration
Save the running configuration to an archive file. Continue? [Y/N]: Y
The archive configuration file myarchive_1.cfg is saved.
```

Related commands

- **archive configuration interval**
- **archive configuration location**
- **archive configuration max**
- **display archive configuration**

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

Predefined user roles

network-admin

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, use the **archive configuration location** command to specify the configuration archive directory and archive file name prefix.

Configuration archive is a feature that facilitates configuration rollback. It provides manual and automatic methods for saving the running configuration.

Automatic configuration archiving enables the system to save the running configuration to the archive directory at the specified interval. For more information about the archiving mechanism, see the section about configuration rollback in *Fundamentals Configuration Guide*.

Change the archiving interval depending on the amount of 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
Archive files will be saved every 60 minutes.
```

Related commands

- **archive configuration**
- **archive configuration location**
- **archive configuration max**
- **display archive configuration**

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

Predefined user roles

network-admin

Parameters

directory: Specifies the archive directory, a case-insensitive string of 1 to 63 characters. The directory name must take the format of *storage-medium-name***:/***folder-name*. This directory must already exist on the master.

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.

In an IRF fabric, the configuration archive feature saves the running configuration only on the master device. To ensure that the system can archive the running configuration after a master/subordinate switchover, create the directory on all IRF members.

Configuration archives take the file name format of *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.

If you change the file directory or file name prefix, or reboot the device, the following events occur:

● The old configuration archives change to common configuration files.

● The configuration archive counter is reset.

● The **display archive configuration** command no longer displays the old configuration archives.

● The serial number for new configuration archives starts at 1.

The **undo archive configuration location** command removes the configuration archive directory and file name prefix settings. The command also performs the following operations:

● Disables the configuration archive feature (both manual and automatic methods).

● Restores the default settings of the **archive configuration interval** and **archive configuration max** commands.

● Clears the configuration archive information displayed by using the **display archive configuration** command.

Examples

Configure the configuration archive directory as **flash:/archive** and the archive file name prefix as **my_archive**.

```
<Sysname> mkdir flash:/archive
Creating directory flash:/archive... Done.
<Sysname> system-view
[Sysname] archive configuration location flash:/archive filename-prefix my_archive
```

Related commands

● **archive configuration**

● **archive configuration location**

● **archive configuration max**

● **display archive configuration**

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

Up to five configuration archives can be saved.

Views

System view

Predefined user roles

network-admin

Parameters

file-number: Sets the maximum number of configuration archives that can be saved. The value range is 1 to 10. Adjust the setting depending on the amount of storage space available.

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 excess archives. Instead, the configuration archive feature deletes the oldest *n* files when a new archive is manually or automatically saved, where *n* = current archive count – 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**
- **archive configuration location**
- **archive configuration interval**
- **display archive configuration**

backup startup-configuration

Use **backup startup-configuration** to back up the main next-startup configuration file to a TFTP server.

Syntax

backup startup-configuration to *tftp-server* [*dest-filename*]

Views

User view

Predefined user roles

network-admin

Parameters

tftp-server: Specifies a TFTP server by its IPv4 address or host name. The host name is a case-insensitive string of 1 to 253 characters. Valid characters include letters, digits, hyphens (-), underscores (_), and dots (.).

dest-filename: Specifies the target file name used for saving the file on the server. The file name must use the .cfg extension. 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.

Examples

Back up the main 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> 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
```

Related commands

restore startup-configuration

configuration commit

Use **configuration commit** to commit the settings configured after the configuration commit delay timer was set.

Syntax

configuration commit

Views

System view

Predefined user roles

network-admin

Usage guidelines

You must execute the **configuration commit delay** command to set the configuration delay timer before executing this command.

The settings you made during the commit delay interval are automatically removed if you have not manually committed them before the configuration commit delay timer expires.

As a best practice, configure the information center to output logs to the console. Use the logs to determine whether you want to commit the settings. For more information about the information center, see *Network Management and Monitoring Configuration Guide*.

Examples

Set the configuration commit delay timer to 10 minutes.

```
<Sysname> system-view

[Sysname] configuration commit delay 10
```

Commit the settings configured after the configuration commit delay timer was set and before the delay timer expires.

```
[Sysname] configuration commit
```

Commit the settings after the configuration commit delay timer has expired. The commit operation will fail and the system will roll back the configuration.

```
[Sysname] configuration commit
The system is rolling back configuration. Please wait…
```

configuration commit delay

Use **configuration commit delay** to start the configuration commit delay timer.

Syntax

configuration commit delay *delay-time*

Views

System view

Predefined user roles

network-admin

Parameters

delay-time: Sets the configuration commit delay interval. The value range is 1 to 65535 minutes.

Usage guidelines

The configuration commit delay feature automatically removes the settings you made during the commit delay interval if you have not manually committed them before the configuration commit delay timer expires.

This feature prevents a misconfiguration from causing the inability to access the device and is especially useful when you configure the device remotely.

You can reconfigure the configuration commit delay timer before it expires to shorten or extend the commit delay interval. The settings made during the delay interval will be removed if you have not committed them before the new timer expires.

When you use this feature, follow these restrictions and guidelines:

- In a multi-user context, make sure no one else is configuring the device.
- You cannot perform any operations during the configuration rollback.
- The configuration commit delay feature is a one-time setting. The feature is disabled when the commit delay timer expires or after a manual commit operation is performed.

Examples

Set the configuration commit delay timer to 10 minutes.

```
<Sysname> system-view
[Sysname] configuration commit delay 10
```

Change the configuration commit delay timer to 60 minutes before the old delay timer expires.

```
[Sysname] configuration commit delay 60
The commit delay already set 10 minutes, overwrite it? [Y/N]:y
```

Attempt to set the configuration commit delay timer to 20 minutes while the system is rolling back the configuration upon expiration of the old delay timer.

```
[Sysname] configuration commit delay 20
The system is rolling back configuration. Please wait…
```

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

Predefined user roles

network-admin

Parameters

private-key: Encrypts configuration with a private key. All HPE devices running Comware 7 software use the same private key.

public-key: Encrypts configuration with a public key. All HPE devices running Comware 7 software use the same public key.

Usage guidelines

Configuration encryption enables the device to automatically encrypt a configuration file when saving the running configuration to the file.

Only HPE devices running Comware 7 software can decrypt the encrypted configuration file.

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

Predefined user roles

network-admin

Parameters

filename: Specifies the name of the replacement configuration file suffixed with the .cfg extension. Excluding the .cfg extension, the file name is a case-insensitive string of 1 to 191 characters and can include path information. Valid characters include letters, digits, hyphens (-), underscores (_), and dots (.). If the file path includes a folder name, the folder must already exist.

Usage guidelines

To replace the running configuration with the configuration in a configuration file without rebooting the device, use the configuration rollback feature. This feature helps you revert to a previous configuration state or adapt the running configuration to different network environments.

To ensure a successful rollback:

- Make sure the replacement configuration file is created by using the configuration archive feature or the **save** command on the device.
- If the configuration file is not created on the device, make sure the command lines in the configuration file are fully compatible with the device.
- Make sure 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
Now replacing the current configuration. Please wait...
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

Views

Any view

Predefined user roles

network-admin

network-operator

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   Wed Jan 15 14:20:18 2012   my_archive_1.cfg
  2   Wed Jan 15 14:33:10 2012   my_archive_2.cfg
# 3   Wed Jan 15 14:49:37 2012   my_archive_3.cfg
'#' indicates the most recent archive file.
Next archive file to be saved: my_archive_4.cfg
```

Table 18 Command output

Field	Description
Location	Absolute path of the directory for saving running-configuration archives.

Field	Description
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.
Maximum number of archive files	Maximum number of configuration archives that can be saved.
Saved archive files	Configuration archives that have been saved.
TimeStamp	Time when the configuration archive was created.

Related commands

- **archive configuration**

- **archive configuration interval**

- **archive configuration location**

- **archive configuration max**

display current-configuration

Use **display current-configuration** to display the running configuration.

Syntax

display current-configuration [**configuration** [*module-name*] | **interface** [*interface-type* [*interface-number*]]]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

configuration [*module-name*]: Displays feature configuration. The *module-name* argument specifies a feature module. If no feature module is specified, this command displays all feature settings you have made. Available feature modules depend on the device configuration.

interface [*interface-type* [*interface-number*]]: Displays interface configuration, where the *interface-type* argument represents the interface type and the *interface-number* argument represents the interface number.

Usage guidelines

Use this command to verify the configuration you have made.

If the system has automatically changed the setting you have made for a parameter, this command displays the effective setting instead of the configured one. An automatic change typically occurs because of system restrictions.

Typically, this command does not display parameters that are using the default settings.

Examples

Display local user configuration.

```
<Sysname> display current-configuration configuration local-user
```

```
#
local-user ftp
 password hash
$h$6$4UDOXMkpPwLyMwIX$ohXVbEb+YPMceuyB1A9k+MBoylujMQSAedf+fskEIkYFqcIBXvAqvdbzgqFK2az
da3BAtLeHakQe9hepn8ejsA==
 service-type ftp
 authorization-attribute user-role network-operator
#
local-user root
 password hash
$h$6$zSWYxJ3Oj01iR7x1$a5BIEHfcqTUKrVkd6HB9vVLh8abWLm9sy/FW8J0ypdnqtH/Du6IU+9UlM8W5OM+
ihHJAWXUkTEAoMuJKBwcogw==
 service-type ssh telnet terminal
 authorization-attribute user-role network-admin
#
return
```

Display Ethernet interface configuration.
```
<Sysname> display current-configuration interface fortygige 1/0/1
#
interface FortyGigE1/0/1
port link-mode route
#
return
```

display current-configuration diff

Use **display current-configuration diff** to display the differences that the running configuration has as compared with the next-startup configuration.

Syntax

display current-configuration diff

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

Display the differences that the running configuration has as compared with the next-startup configuration.
```
<TEST1> display current-configuration diff
--- Startup configuration
+++ Current configuration
@@ -6,7 +6,7 @@
 #
  stp global enable
 #
- sysname TEST
+ sysname TEST1
```

```
 #
  telnet server enable
 #
```

Table 19 Command output

Field	Description
- - - *A* +++ *B*	• *A* represents the source configuration for comparison, which can be **Startup configuration**, **Current configuration**, or the name of the source configuration file with its directory information. • *B* represents the target configuration for comparison, which can be **Current configuration**, **Startup configuration**, or the name of the target configuration file with its directory information. In this example, the startup configuration and the current configuration are the source and target, respectively.
@@ -*linenumber1*,*number1* +*linenumber2*,*number2* @@	Location summary for sections that contain command line differences: • -*linenumber1*,*number1*—Source configuration section that contains differences. The *linenumber1* argument represents the start line of the section. The *number1* argument represents the number of lines between the start line and the end line of the section. • +*linenumber2*,*number2*—Target configuration section that contains differences. The *linenumber2* argument represents the start line of the section. The *number2* argument represents the number of lines between the start line and the end line of the section.
cmd1 - *cmd2* + *cmd3* *cmd4*	Displays command differences. • *cmd1* and *cmd4*—Command lines are contained in both source and target configurations if they are not prefixed with a minus (-) or plus (+) sign. They provide a context for locating command line differences. • - *cmd2*—Command lines are prefixed with a minus sign if they are contained in the source configuration but not in the target configuration. • + *cmd3*—Command lines are prefixed with a plus sign if they are contained in the target configuration but not in the source configuration. In this example, the sample output shows that the **stp global enable** and **telnet server enable** commands are contained in both configurations, the **sysname TEST1** command is contained only in the running configuration, and the **sysname TEST** command is contained only in the next-startup configuration.

Related commands

- **display current-configuration**
- **display diff**
- **display saved-configuration**

display default-configuration

Use **display default-configuration** to display the factory defaults.

Syntax

display default-configuration

Views

Any view

Predefined user roles

network-admin

network-operator

Usage guidelines

Factory defaults are product-specific default settings that are different from initial settings. These default settings ensure that the device can start up and run correctly when it does not have a startup configuration file or the configuration file is corrupt.

Examples

Display the factory defaults.

```
<Sysname> display default-configuration
...
```

display diff

Use **display diff** to display differences between configurations.

Syntax

display diff configfile *file-name-s* { **configfile** *file-name-d* | **current-configuration** | **startup-configuration** }

display diff current-configuration { **configfile** *file-name-d* | **startup-configuration** }

display diff startup-configuration { **configfile** *file-name-d* | **current-configuration** }

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

configfile *file-name-s*: Specifies the source configuration for comparison.

configfile *file-name-d*: Specifies the target configuration for comparison.

current-configuration: Specifies the running configuration. In the **display diff current-configuration** command, this keyword specifies the source configuration for comparison. In the **display diff configfile** *file-name-s* and **display diff startup-configuration** commands, this keyword specifies the target configuration.

startup-configuration: Specifies the next-startup configuration. In the **display diff startup-configuration** command, this keyword specifies the source configuration for comparison. In the **display diff configfile** *file-name-s* and **display diff current-configuration** commands, this keyword specifies the target configuration.

Examples

Display the differences between **test.cfg** and **testsys.cfg**.

```
<Sysname> display diff configfile test.cfg configfile testsys.cfg
--- flash:/test.cfg
+++ flash:/testsys.cfg
@@ -6,7 +6,7 @@
 #
  stp global enable
 #
- sysname test
+ sysname test1
```

```
 #
  telnet server enable
 #
```

Display the differences between **test.cfg** and **testsys.cfg** on the master and subordinate devices.

```
<Sysname>display diff configfile slot1#flash:/test.cfg configfile
slot2#flash:/testsys.cfg
--- flash:/test.cfg
+++ slot2#flash:/testsys.cfg
@@ -6,7 +6,7 @@
 #
  stp global enable
 #
- sysname TEST
+ sysname TEST1
 #
  telnet server enable
 #
```

Display the differences between the running configuration and the next-startup configuration.

```
<TEST> display diff current-configuration startup-configuration
--- Current configuration
+++ Startup configuration

@@ -6,7 +6,7 @@
 #
  stp global enable
 #
- sysname TEST
+ sysname TEST1
 #
  telnet server enable
 #
```

For the command output description, see Table 19.

Related commands

- **display current-configuration**
- **display current-configuration diff**
- **display saved-configuration**

display saved-configuration

Use **display saved-configuration** to display the contents of the configuration file for the next system startup.

Syntax

display saved-configuration

Views

Any view

Predefined user roles

network-admin

network-operator

Usage guidelines

Use this command to verify that important settings have been saved to the configuration file for the next system startup.

This command selects the configuration file to display in the following order:

1. If the main startup configuration file is available, this command displays the contents of the main startup configuration file.
2. If only the backup startup configuration file is available, this command displays the contents of the backup file.
3. If both the main and backup startup configuration files are not available, this command displays nothing.

Examples

Display the contents of the configuration file for the next system startup.

```
<Sysname> display saved-configuration
#
 version 7.1.045, ESS 2415
#
 sysname Sysname
#
 ftp server enable
#
 telnet server enable
#
 domain default enable system
#
vlan 1
#
domain system
#
  ---- More ----
```

Related commands

- **reset saved-configuration**
- **save**

display startup

Use **display startup** to display the names of the current startup configuration file and the next-startup configuration files.

Syntax

display startup

Views

Any view

Predefined user roles

network-admin

network-operator

Usage guidelines

Current startup configuration file is the configuration file that has been loaded. Next-startup configuration file is the configuration file used at the next startup.

All IRF members use the same current startup configuration file as the master. After a master/subordinate switchover, it is normal that the current startup configuration files on them are displayed as NULL. This is because the new master continues to run with the running configuration rather than rebooting with a startup configuration file.

Examples

Display names of the startup configuration files.

```
<Sysname> display startup
MainBoard:
 Current startup saved-configuration file: flash:/startup.cfg
 Next main startup saved-configuration file: flash:/startup.cfg
 Next backup startup saved-configuration file: NULL
Slot 1:
 Current startup saved-configuration file: flash:/startup.cfg
 Next main startup saved-configuration file: flash:/startup.cfg
 Next backup startup saved-configuration file: NULL
```

Table 20 Command output

Field	Description
MainBoard	Displays the startup configuration files on the master device.
Current startup saved-configuration file	Configuration file that the device has started up with.
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.
Slot *n*	Displays the startup configuration files on member device *n*.

Related commands

startup saved-configuration

display this

Use **display this** to display the running configuration in the current view.

Syntax

display this

Views

Any view

Predefined user roles

network-admin

network-operator

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.

Some parameters can be successfully configured even if their dependent features are not enabled. For these parameters, this command displays their settings after the dependent features are enabled.

This command can be executed in any user line view to display the running configuration of all user lines.

Examples

Display the running configuration on interface FortyGigE 1/0/1.

```
<Sysname> system-view
[Sysname] interface fortygige 1/0/1
[Sysname-FortyGigE1/0/1] display this
#
interface FortyGigE1/0/1
 port link-mode route
#
return
```

Display the running configuration on user lines.

```
<Sysname> system-view
[Sysname]line vty 0
[Sysname-line-vty0] display this
#
line aux 0
 user-role network-admin
#
line vty 0 63
 authentication-mode none
 user-role network-admin
 user-role network-operator
#
return
```

reset saved-configuration

Use **reset saved-configuration** to delete a next-startup configuration file.

Syntax

reset saved-configuration [**backup** | **main**]

Views

User view

Predefined user roles

network-admin

Parameters

backup: Deletes the backup next-startup configuration file.

main: Deletes the main next-startup configuration file.

Usage guidelines

⚠ **CAUTION:**

This command permanently deletes the specified next-startup configuration file from all IRF member devices.

Delete a next-startup configuration file if it does not match the software version or is corrupt.

You can delete the main, the backup, or both.

To delete a file that is set as both main and backup next-startup configuration files, you must execute both the **reset saved-configuration backup** command and the **reset saved-configuration main** command. Using only one of the commands removes the specified file attribute instead of deleting the file.

For example, if the **reset saved-configuration backup** command is executed, the backup next-startup configuration file setting is set to NULL. However, the file is still used as the main file. To delete the file, you must also execute the **reset saved-configuration main** command.

If no configuration file attribute is specified, the **reset saved-configuration** command deletes the main next-startup configuration file.

Examples

Delete the backup next-startup configuration file.

```
<Sysname> reset saved-configuration backup
The saved configuration file will be erased. Are you sure? [Y/N]:y
Configuration file in flash: is being cleared.
Please wait ...
..
MainBoard:
Configuration file is cleared.
Slot 2:
Erase next configuration file successfully
```

Related commands

display saved-configuration

restore startup-configuration

Use **restore startup-configuration** to download a configuration file from a TFTP server and specify it as the main next-startup configuration file.

Syntax

restore startup-configuration from *tftp-server src-filename*

Views

User view

Predefined user roles

network-admin

Parameters

tftp-server: Specifies a TFTP server's IPv4 address or host name. The host name is a case-insensitive string of 1 to 253 characters. Valid characters include letters, digits, hyphens (-), underscores (_), and dots (.).

src-filename: Specifies the file name of the configuration file to be downloaded. The name is suffixed with the .cfg extension. Excluding the .cfg extension, the file name is a case-insensitive string of 1 to 191 characters. Valid characters include letters, digits, hyphens (-), underscores (_), and dots (.).

Usage guidelines

This command is not supported in FIPS mode.

Before restoring the configuration file for the next startup, make sure the following requirements are met:

- The server is reachable.
- The server is enabled with TFTP service.
- You have read and write permissions to the server.

This command downloads the configuration file to the root directory of the default storage medium on each member device and specifies the file as the main next-startup configuration file. If a partitioned USB disk is used as the default storage medium, the configuration file is saved on the first partition.

Make sure all IRF members use the same type of default storage medium. If a subordinate device uses a different type of default storage medium than the master, the command cannot propagate the configuration file to the subordinate device. For example, the subordinate device uses a USB disk, but the master uses a flash memory. In this situation, you must manually restore the main next-startup configuration file on the subordinate device.

Examples

Download **config.cfg** from the TFTP server at 2.2.2.2 and specify the file as the main next-startup configuration file.

```
<Sysname> restore startup-configuration from 2.2.2.2 config.cfg
Restoring the next startup-configuration file from 2.2.2.2. Please wait...finished.
Now restoring the next startup-configuration file from main board to backup board. Please
wait...finished.
```

Related commands

backup startup-configuration

save

Use **save** *file-url* [**all** | **slot** *slot-number*] 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 a file in the root directory of the default storage medium. This command automatically saves the file on each IRF member device and specifies the file as a next-startup configuration file.

Syntax

save *file-url* [**all** | **slot** *slot-number*]

save [**safely**] [**backup** | **main**] [**force**]

Views

Any view

Predefined user roles

network-admin

Parameters

file-url: Saves the running configuration to the specified file suffixed with the .cfg extension, without specifying the file as a next-startup configuration file. Excluding the .cfg extension, the file name is a case-insensitive string of 1 to 191 characters and can include path information. Valid characters

include letters, digits, hyphens (-), underscores (_), and dots (.). If you specify the **all** keyword or a member ID, the file path cannot include a member ID. If the file path includes a folder name, the folder must already exist.

all: Saves the running configuration to all member devices. If you do not specify this keyword or the **slot** *slot-number* option, the command saves the running configuration only to the master.

slot *slot-number*: Saves the running configuration to a subordinate device. The *slot-number* argument represents the IRF member ID of the device. If you do not specify this option or the **all** keyword, the command saves the running configuration only to the master.

safely: Saves the configuration file in safe mode. If this keyword is not specified, the device saves the configuration file in fast mode. Safe mode is slower than fast mode, but more secure.

backup: Saves the running configuration to a configuration file, and specifies the file as the backup next-startup configuration file. If you do not specify this keyword or the **main** keyword, the command specifies the saved file as the main next-startup configuration file.

main: Saves the running configuration to a configuration file, and specifies the file as the main next-startup configuration file. If you do not specify this keyword or the **backup** keyword, the command specifies the saved file as the main next-startup configuration file.

force: Saves the running configuration without prompting for confirmation. Without this keyword, the system asks you to confirm the operation. If you do not confirm the 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 target file name during the process.

Usage guidelines

Make sure all MPUs use the same type of storage medium as the default storage medium.

If the file specified for this command does not exist, the system creates the file before saving the configuration. If the file already exists, the system prompts you to confirm whether to overwrite the file. If you choose to not overwrite the file, the system cancels the save operation.

This command saves the running configuration to an .mdb binary file as well as a .cfg text file. The two files use the same file name. An .mdb file takes less time to load than a .cfg file.

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, power failure, or out of memory event occurs during the save operation, the next-startup configuration file is retained.

In fast mode, the device directly overwrites the target next-startup configuration file. If a reboot, power failure, or out of memory event occurs during this process, the next-startup configuration file is lost.

As a best practice, specify the **safely** keyword for the command.

Examples

Save the running configuration to **backup.cfg**, without specifying the file as the next-startup configuration file.
```
<Sysname> save backup.cfg

The current configuration will be saved to flash:/backup.cfg. Continue? [Y/N]:y

Now saving current configuration to the device.

Saving configuration

flash:/backup.cfg. Please wait...

Configuration is saved to flash successfully.
```

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.
```

Save the running configuration to a file in the root directory of the default storage medium, and specify the file as the main next-startup configuration file.

```
<Sysname> save

The current configuration will be written to the device. Are you sure? [Y/N]:y

Please input the file name(*.cfg)[flash:/startup.cfg]

(To leave the existing filename unchanged, press the enter key):

Validating file. Please wait...

Saved the current configuration to mainboard device successfully.

Slot 1:

Save next configuration file successfully.
```

Related commands

- **display current-configuration**

- **display saved-configuration**

startup saved-configuration

Use **startup saved-configuration** to specify a file as a next-startup configuration file.

Use **undo startup saved-configuration** to configure the system to start up with the factory defaults at the next startup.

Syntax

startup saved-configuration *cfgfile* [**backup** | **main**]

undo startup saved-configuration

Default

No next-startup configuration files are specified.

Views

User view

Predefined user roles

network-admin

Parameters

cfgfile: Specifies the name of a configuration file suffixed with the .cfg extension. Excluding the .cfg extension, the file name is a case-insensitive string of 1 to 191 characters. Valid characters include letters, digits, hyphens (-), underscores (_), and dots (.). This .cfg file must already exist in the root directory of the default storage medium.

backup: Specifies the configuration file as the backup next-startup configuration file.

main: Specifies the configuration file as the main next-startup configuration file. This is the primary configuration file that the device attempts to load at startup. If the loading attempt fails, the device tries the backup next-startup configuration file.

Usage guidelines

> △ **CAUTION:**
>
> In an IRF fabric, the **undo startup saved-configuration** command can cause an IRF split after the IRF fabric or an IRF member reboots.

In an IRF fabric, the **startup saved-configuration** command applies to all IRF members. To successfully execute this command, make sure the specified file has been saved in the root directory

of the default storage medium on each member device. In addition, make sure all IRF member devices use the same type of storage medium as the default storage medium.

If the startup configuration file is on a USB disk, do not remove the USB disk during the startup process. If you remove the USB disk, one of the following events will occur:

- In a single-chassis IRF fabric, the device will start up with the factory defaults.
- In a multichassis IRF fabric, the device will leave the IRF fabric at startup and run the factory defaults.

If you do not specify the **backup** or **main** keyword, the **startup saved-configuration** command specifies the main next-startup configuration file.

As a best practice, specify different files as the main and backup next-startup configuration files.

The **undo startup saved-configuration** command changes the file attribute of the main and backup next-startup configuration files to NULL. The command does not delete the two configuration files.

You can also specify a configuration file as a next-startup file when you use the **save** command to save the running configuration.

Examples

Specify the main next-startup configuration file.

```
<Sysname> startup saved-configuration testcfg.cfg
Please wait ....
... Done.
```

Related commands

display startup

Software upgrade commands

The switch can start up from the built-in flash memory or a removable USB disk. As a best practice, store the startup images in the built-in flash memory. If you store the startup images on a USB disk, do not remove the USB disk before the startup is complete.

boot-loader file

Use **boot-loader file** to specify startup software image files.

Syntax

boot-loader file boot *boot-package* **system** *system-package* [**feature** *feature-package*&<1-30>] { **all** | **slot** *slot-number* } { **backup** | **main** }

boot-loader file *ipe-filename* { **all** | **slot** *slot-number* } { **backup** | **main** }

Views

User view

Predefined user roles

network-admin

Parameters

boot *boot-package*: Specifies the file path of a .bin boot image file, a case-insensitive string. The file must be stored in the root directory of a storage medium in the system. The maximum length is 63 characters for the *storage-medium***:/**base-filename**.bin** segments of the file path. This length limit does not include the IRF member ID or slot number in front of the storage medium segment. For more information about specifying a file path, see "Managing the file system."

system *system-package*: Specifies the file path of a .bin system image file, a case-insensitive string. The file must be stored in the root directory of a storage medium in the system. The maximum length is 63 characters for the *storage-medium***:/**base-filename**.bin** segments of the file path. This length limit does not include the IRF member ID or slot number information in front of the storage medium segment. For more information about specifying a file path, see "Managing the file system."

feature *feature-package*: Specifies a space-separated list of up to 30 .bin feature image file paths. The file paths are case insensitive. The files must be stored in the root directory of a storage medium in the system. The maximum length is 63 characters for the *storage-medium***:/**base-filename**.bin** segments of a file path. This length limit does not include the IRF member ID or slot number information in front of the storage medium segment. For more information about specifying a file path, see "Managing the file system."

ipe-filename: Specifies the file path of an .ipe image package file. The file must be stored in the root directory of a storage medium in the system. The maximum length is 63 characters for the *storage-medium***:/**base-filename**.ipe** segments of the file path. This length limit does not include the IRF member ID or slot number information in front of the storage medium segment. The storage medium name must be entered in lower case, and the file name is case insensitive.

all: Specifies startup images for all devices. If you specify this keyword, the system copies device-specific images automatically to the root directory of the storage medium on each device. For a successful upgrade, make sure the specified files include the upgrade images for all devices.

slot *slot-number*: Specifies the IRF member ID of the device for which the startup images are specified.

backup: Specifies the files as backup startup files. Backup startup images are used only when main images are not available.

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main: Specifies the files as main startup files. The device always first attempts to start up with main images.

Usage guidelines

Use this command to upgrade the startup software images on each member device. To upgrade only the subordinate devices, you can also use the **boot-loader update** command.

Before specifying a startup software image file, save the upgrade file to the root directory of a storage medium on any one of the IRF member devices. The system automatically copies the upgrade file to the flash memory on the IRF member device you are upgrading, and sets images in the file as startup images. If a file with the same name as the upgrade file already exists, you must choose whether to overwrite the existing file.

When an .ipe image package file is used for upgrade, you must choose whether to delete the file after the system decompresses the file.

The **boot-loader file** command overwrites the entire startup software image list. To add new startup feature images, specify all feature image files in the old startup image list, including feature image files. The new startup software image list will contain only the feature image files that are specified in the command.

Examples

Specify **flash:/all.ipe** as the backup startup image file for IRF member device 1.

```
<Sysname>boot-loader file flash:/all.ipe slot 1 backup
Verifying the IPE file and the images.....Done.
all images in IPE:
  boot.bin
  system.bin
This command will set the backup startup software images. Continue?[Y/N]:y
Do you want to overwrite files without prompt? [Y/N]:y
Specify the backup startup software images for Switch.
Add images to slot 1.
File flash:/boot.bin already exists on slot 1.
File flash:/system.bin already exists on slot 1.
Decompressing file boot.bin to flash:/ boot.bin..............Done.
Decompressing file system.bin to flash:/ system.bin.....Done
The images that have passed all examinations will be used as the backup startup
software images at the next reboot on slot 1.
Decompression completed.
Do you want to delete flash:/all.ipe now? [Y/N]:Y
```

Related commands

display boot-loader

boot-loader update

Use **boot-loader update** to synchronize startup images from the master to a subordinate device.

Syntax

boot-loader update { **all** | **slot** *slot-number* }

Views

User view

Predefined user roles

network-admin

Parameters

all: Upgrades all the subordinate devices.

slot: Specifies the IRF member ID of a subordinate device.

Usage guidelines

You can use this command to synchronize startup images after adding new member devices.

The startup images synchronized to the subordinate device are set as main startup images, regardless of whether the source startup images are main or backup.

If the master device has started up with main startup images, its main startup images are synchronized to the subordinate device, regardless of whether any main startup image has been respecified.

If the master device has started up with backup startup images, its backup startup images are synchronized to the subordinate device, regardless of whether any backup startup image has been respecified.

Startup image synchronization fails if any software image being synchronized is not available or has been corrupted.

If an ISSU patch installation or software upgrade has been performed, use the **install commit** command to update the set of main startup images on the master before software synchronization for startup image consistency between the master and the subordinate device.

Examples

Synchronize startup images from the master device to subordinate device 2.

```
<Sysname> boot-loader update slot 2
This command will update the specified standby MPU. Continue? [Y/N]:y
Updating. Please wait...
Verifying the file flash:/boot.bin on slot 2.......Done.
Verifying the file flash:/system.bin on slot 2...............................Done.
Copying main startup software images to slot 2. Please wait...............Done.
Setting copied images as main startup software images for slot 2...
Done.
Successfully updated the startup software images of slot 2.
```

Related commands

- **display boot-loader**
- **install commit**

bootrom update

Use **bootrom update** to load the Boot ROM image in the flash to the Normal area of Boot ROM.

Syntax

bootrom update file *file-url* **slot** *slot-number-list*

Views

User view

Predefined user roles

network-admin

Parameters

file *file-url*: Specifies the file that contains the Boot ROM image in the flash. The *file-url* argument represents the file name, a string of 1 to 63 characters.

slot *slot-number-list*: Specifies a space-separated list of up to seven IRF member ID items. For each item, you can specify an IRF member device or a range of IRF member devices.

- Specify an IRF member device by its member ID.
- Specify a range of IRF member devices in the form of *start-member-id* **to** *end-member-id*.

For example, the list can be **slot 0 to 2 3**.

Usage guidelines

If a software upgrade requires upgrading the Boot ROM image, you can use this command to preload the new Boot ROM image to the Boot ROM before upgrading Comware images. This command helps shorten the subsequent upgrade time, reducing the risk of upgrade failure caused by unexpected electricity failure.

To complete the upgrade, reboot the device.

To save space, you can delete the Boot ROM image in the flash after completing the Boot ROM image upgrade.

Examples

Use the file **a.bin** to upgrade the Boot ROM image.

```
<Sysname> bootrom update file a.bin
   This command will update the Boot ROM file on the specified board(s), Continue? [Y/N]:y
   Now updating the Boot ROM, please wait...
.............Done.
```

Related commands

boot-loader file

display boot-loader

Use **display boot-loader** to display current software images and startup software images.

Syntax

display boot-loader [**slot** *slot-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies the member ID of an IRF member device. If you do not specify a member device, the command displays the software images on each IRF member device.

Examples

Display current software images and startup software images.

```
<Sysname> display boot-loader
Software images on slot 0:
Current software images:
  flash:/simware-cmw710-boot-a1701.bin
```

```
  flash:/simware-cmw710-system-a1701.bin
Main startup software images:
  flash:/simware-cmw710-boot-a1701.bin
  flash:/simware-cmw710-system-a1701.bin
  flash:/simware-cmw710-ssh-a1701.bin
Backup startup software images:
  flash:/simware-cmw710-boot-a1701.bin
  flash:/simware-cmw710-system-a1701.bin
```

Table 21 Command output

Field	Description
Software images on slot *slot-number*	This field displays the Comware images on the IRF member device. The slot number represents the device's member ID.
Current software images	Comware images that have been loaded.
Main startup software images	Main Comware images for the next startup.
Backup startup software images	Backup Comware images for the next startup.

Related commands

boot-loader file

warm-reboot

Use **warm-reboot** to upgrade Comware software through a warm reboot.

Syntax

warm-reboot [**file** { **boot** *boot-package* | **system** *system-package* | **feature** *feature-package* &<1-30> }]

warm-reboot [**file ipe** *ipe-filename*]

Views

User view

Predefined user roles

network-admin

Parameters

boot *boot-package*: Specifies a .bin boot image file, a case-insensitive string of up to 63 characters. The file path specified for the *boot-package* argument uses the *storage-medium***:/***base-filename***.bin** format, for example, flash:/startup-boot.bin.

system *system-package*: Specifies a .bin system image file, a case-insensitive string of up to 63 characters. The file path specified for the *system-package* argument uses the *storage-medium***:/***base-filename***.bin** format, for example, flash:/startup-system.bin.

feature *feature-package*: Specifies a space-separated list of up to 30 .bin feature image files. Each feature image file name must be a case-insensitive string of up to 63 characters. In addition, the file names must use the *storage-medium***:/***base-filename***.bin** format, for example, flash:/startup-a.bin.

ipe-filename: Specifies an .ipe Comware image file name, a string of up to 63 characters. The file path must use the *storage-medium***:/***base-filename***.ipe** format, for example, flash:/startup.ipe. The storage medium name must be entered in lower case, and the file name is case insensitive.

Usage guidelines

If you do not specify upgrade software images, the switch reboots without upgrading software.

If you specify upgrade software images, this command adds the specified images to the main startup software image list and performs a warm reboot.

Use this command in the following situations:

- Upgrade Comware images without upgrading the Boot ROM. The warm-reboot method directly loads and executes Comware software images in the memory instead of booting the Comware images from the Boot ROM. Compared to upgrading software through the **boot-loader** command, warm reboot reduces the service downtime.

- Upgrade only a specific image, for example, upgrade only the system image. When you upgrade feature images through warm reboot, you only need to specify upgrade images for features you are upgrading. The warm-reboot method replaces the old images for the specific features instead of overwriting the entire software list as does the **boot-loader** command.

Before you specify startup software image files, save the upgrade files to the root directory of the flash memory. If the flash memory is partitioned, save the files to the root directory of the first partition.

This command can upgrade software only between compatible software versions. When the system executes the command, it verifies the compatibility between the current and upgrade software versions. If the software versions are incompatible, you must use the reboot method to upgrade the software from the CLI. For more information about the reboot method for software upgrade, see the fundamental configuration guide for the switch.

Examples

Perform a warm reboot to upgrade the feature image.

```
<Sysname> warm-reboot file feature flash:/feature.bin
This operation will delete the rollback point information for the previous upgrade and
maybe get unsaved configuration lost. Continue? [Y/N]:Y
Upgrade summary according to following table:


flash:/feature.bin
  Running Version              New Version
  Alpha 7122                   Alpha 7123


  Slot                         Upgrade Way
  1                            Warm Reboot
Upgrading software images to compatible versions. Continue? [Y/N]:y
```

Table 22 Command output

Field	Description
Running Version	Version of the current software images.
New Version	Version of the upgrade software images.
Slot	Device ID. It is fixed at 1.

ISSU commands

display install active

Use **display install active** to display active software images.

Syntax

display install active [**slot** *slot-number*] [**verbose**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies an IRF member by its member ID. If you do not specify this option, the command is applied to all IRF members.

verbose: Displays detailed information. If you do not specify this keyword, the command displays only the names of the active software images.

Examples

Display active software images.

```
<Sysname> display install active
Active packages on slot 1:
  flash:/boot.bin
  flash:/system.bin
```

Display detailed information about active software images.

```
<Sysname> display install active verbose
Active packages on slot 1:
flash:/boot.bin
 [Package]
 Vendor: HPE
 Product: xxxx
 Service name: boot
 Platform version: 7.1.022
 Product version: Test 2201
 Supported board: mpu
 [Component]
 Component: boot
 Description: boot package

flash:/system.bin
 [Package]
 Vendor: HPE
 Product: xxxx
 Service name: system
 Platform version: 7.1.022
```

```
 Product version: Test 2201
 Supported board: mpu
[Component]
 Component: system
 Description: system package
```

Table 23 Command output

Field	Description
Active packages on slot *n*	Active software images on the specified member. The argument *n* indicates the member ID of the member.
[Package]	Detailed information about the software image.
Service name	Image type: • **boot**—Boot image. • **system**—System image. • **boot-patch**—Patch image for the boot image. • **system-patch**—Patch image for the system image. • Any other value indicates a feature image.
Supported board	Cards supported by the software image. The **mpu** string indicates a member device.
[Component]	Information about components included in the image file.

Related commands

> **install active**

display install backup

Use **display install backup** to display backup startup software images.

Syntax

> **display install backup** [**slot** *slot-number*] [**verbose**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies an IRF member by its member ID. If you do not specify this option, the command is applied to all IRF members.

verbose: Displays detailed information. If you do not specify this keyword, the command displays only the names of the software images.

Usage guidelines

Backup startup images are used only when the main boot or system image is missing or corrupt. For more information, see *Fundamental Configuration Guide*.

To modify the backup startup image list, you must use the **boot-loader file** command.

Examples

Display the backup startup software images.

```
<Sysname> display install backup
Backup startup software images on slot 1:
  flash:/boot-a0201.bin
  flash:/system-a0201.bin
```

Display detailed information about backup startup software images.

```
<Sysname> display install backup verbose
Backup startup software images on slot 1:
 flash:/boot-a0201.bin
 [Package]
 Vendor: HPE
 Product: xxxx
 Service name: boot
 Platform version: 7.1.022
 Product version: Beta 1330
 Supported board: mpu
 [Component]
 Component: boot
 Description: boot package

 flash:/system-a0201.bin
 [Package]
 Vendor: HPE
 Product: xxxx
 Service name: system
 Platform version: 7.1.022
 Product version: Beta 1330
 Supported board: mpu
 [Component]
 Component: system
 Description: system package
```

For command output descriptions, see Table 23.

Related commands

- **boot-loader file**
- **display install committed**

display install committed

Use **display install committed** to display main startup software images.

Syntax

display install committed [**slot** *slot-number*] [**verbose**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies an IRF member by its member ID. If you do not specify this option, the command is applied to all IRF members.

verbose: Displays detailed information. If you do not specify this keyword, the command displays only the names of the software images.

Usage guidelines

After you execute the **install commit** command, use the **display install committed** command to verify that the main startup image list has been updated with the software image change.

Both the **install commit** and **boot-loader file** commands modify the main startup software image list.

For more information about main and backup startup images, see *Fundamental Configuration Guide.*

Examples

Display the main startup software images.

```
<Sysname> display install committed
Committed packages on slot 1:
 flash:/boot-a0201.bin
 flash:/system-a0201.bin
 flash:/system-patch.bin
```

Display detailed information about main startup software images.

```
<Sysname> display install committed verbose
Committed packages on slot 1:
 flash:/boot-a0201.bin
 [Package]
 Vendor: HPE
 Product: xxxx
 Service name: boot
 Platform version: 7.1.022
 Product version: Beta 1330
 Supported board: mpu
 [Component]
 Component: boot
 Description: boot package

 flash:/system-a0201.bin
 [Package]
 Vendor: HPE
 Product: xxxx
 Service name: system
 Platform version: 7.1.022
 Product version: Beta 1330
 Supported board: mpu
 [Component]
```

```
Component: system
Description: system package
```

For command output descriptions, see Table 23.

Related commands

- **boot-loader file**
- **display install backup**
- **install commit**

display install inactive

Use **display install inactive** to display inactive software images.

Syntax

display install inactive [**slot** *slot-number*] [**verbose**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies an IRF member by its member ID. If you do not specify this option, the command is applied to all IRF members.

verbose: Displays detailed information. If you do not specify this keyword, the command displays only the names of the software images.

Usage guidelines

This command displays inactive images in the root directories of the storage media.

Examples

Display brief information about inactive software images in the root directory of each storage medium.

```
<Sysname> display install inactive
Inactive packages on slot 1:
 flash:/ssh-feature.bin
```

Display detailed information about inactive software images in the root directory of each storage medium.

```
<Sysname> display install inactive verbose
Inactive packages on slot 1:
flash:/ssh-feature.bin
 [Package]
 Vendor: HPE
 Product: XXXX
 Service name: ssh
 Platform version: 7.1.022
 Product version: Beta 1330
 Supported board: mpu
 [Component]
```

```
Component: ssh
Description: ssh package
```

For information about the command output, see Table 23.

Related commands

    install deactivate

display install ipe-info

Use **display install ipe-info** to display the software images included in an .ipe file.

Syntax

    display install ipe-info *ipe-filename*

Views

    Any view

Predefined user roles

    network-admin

    network-operator

Parameters

    ipe *ipe-filename*: Specifies the name of an .ipe file in one of the following formats: *storage-medium***:/***base-filename***.ipe** (on the master) or **slot***n***#***storage-medium***:/***base-filename***.ipe** (on a subordinate member), for example, slot1#flash:/a.ipe. The value string starting from the storage medium name can have a maximum of 63 characters. The storage medium name must be entered in lower case. The file name is case insensitive.

Usage guidelines

    An .ipe file contains one or more software images. You can use the software images for a software upgrade.

    The specified file must be saved in the root directory of the storage medium.

Examples

    # Display information about the .ipe file **flash:/test.ipe**.

```
<Sysname> display install ipe-info flash:/test.ipe
Verifying image file...Done.
Verifying the IPE file and the images.....Done.
Images in IPE:
  boot.bin
  system.bin
```

Related commands

    display install package

display install job

Use **display install job** to display ongoing ISSU activate, deactivate, and rollback operations.

Syntax

    display install job

Views

>Any view

Predefined user roles

>network-admin

>network-operator

Examples

># Display ongoing ISSU activate, deactivate, and rollback operations.

```
<Sysname> display install job
 JobID:5
   Action:install activate flash:/ssh-feature.bin on slot 1
```

>The output shows that the device is executing the **install activate flash:/ssh-feature.bin slot 1** command.

display install log

>Use **display install log** to display ISSU log information.

Syntax

>**display install log** [**verbose**]

Views

>Any view

Predefined user roles

>network-admin

>network-operator

Parameters

>**verbose**: Displays detailed ISSU log information. If you do not specify this keyword, the command displays brief ISSU log information.

Usage guidelines

>The device creates one log entry for each ISSU operation to track the process and operation result.

>The ISSU log can contain a maximum of 50 entries. The latest entry overwrites the oldest entry if the log is full.

Examples

># Display all ISSU log entries.

```
<Sysname> display install log
Install job 1 started by user admin at 01/01/2011 04:53:40.
 Job 1 completed successfully at 01/01/2011 04:53:46.
------------------------------------------------------------------
 Install job 2 started by user admin at 01/01/2011 04:55:23.
 Job 2 completed successfully at 01/01/2011 04:55:29.
```

># Displays detailed information about ISSU log entry 1.

```
<Sysname> display install log 1 verbose
Install job 1 started by user admin at 01/01/2011 04:53:40.
 Job 1 completed successfully at 01/01/2011 04:53:46.
```

```
      Detail of activating packages on slot 1.
         Got upgrade policy successfully.
      -------------------------------------------------------------------
      Install job 2 started by user admin at 01/01/2011 04:55:23.
      Job 2 completed successfully at 01/01/2011 04:55:29.

      Detail of activating packages on slot 1.
         Got upgrade policy successfully.

      Detail of activating packages on slot 1.
         Updated active package list successfully.

      Detail of activating packages on slot 1.
         Set startup software images successfully.

      Detail of activating packages on slot 1.
         Start ISSU Reboot successfully.
```

Related commands

reset install log-history oldest

display install package

Use **display install package** to display software image file information.

Syntax

display install package { *filename* | **all** } [**verbose**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

filename: Specifies the name of a .bin file in one of the following formats: *storage-medium***:/***base-filename***.bin** (on the master) or **slot***n***#***storage-medium***:/***base-filename***.bin** (on a subordinate member), for example, slot1#flash:/a.bin. The value string starting from the storage medium name can have a maximum of 63 characters. The storage medium name must be entered in lower case. The file name is case insensitive.

all: Specifies all software image files in the root directories of the master's storage media.

verbose: Displays detailed information. If you do not specify this keyword, the command displays only basic software image information.

Usage guidelines

The specified file must be saved in the root directory of the storage medium.

Examples

Display information about software image file **system.bin**.

```
<Sysname> display install package flash:/system.bin
  flash:/system.bin
```

```
[Package]
Vendor: HPE
Product: xxxx
Service name: system
Platform version: 7.1.022
Product version: Beta 1330
Supported board: mpu
```

Display detailed information about software image file **system.bin**.

```
<Sysname> display install package flash:/system.bin verbose
  flash:/system.bin
  [Package]
  Vendor: HPE
  Product: xxxx
  Service name: system
  Platform version: 7.1.022
  Product version: Beta 1330
  Supported board: mpu
  [Component]
  Component: system
  Description: system package
```

For more information about the command output, see Table 23.

display install rollback

Use **display install rollback** to display rollback point information.

Syntax

display install rollback

Views

Any view

Predefined user roles

network-admin

network-operator

Usage guidelines

Use this command to identify available rollback points during an ISSU that uses **install** commands. The system does not record rollback points during an ISSU that uses **issu** commands.

Examples

Display all rollback points.

```
<Sysname> display install rollback
Install rollback information 1 on slot 1:
    Updating from flash:/boot-a2403.bin
            to flash:/boot-a2404.bin.
    Updating from flash:/system-a2403.bin
            to flash:/system-a2404.bin.
```

The output shows that the device has one rollback point. At this rollback point, **flash:/boot-a2403.bin** and **system-a2403.bin** were upgraded to **flash:/boot-a2404.bin** and **system-a2404**, respectively.

Related commands

- **install rollback**
- **reset install rollback oldest**

display install which

Use **display install which** to display all software image files that include a specific component or file.

Syntax

display install which { **component** *name* | **file** *filename* } [**slot** *slot-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

component *name*: Specifies a component name.

file *filename*: Specifies a file name, a case-insensitive string of up to 63 characters. It cannot contain path information.

slot *slot-number*: Specifies an IRF member by its member ID. If you do not specify this option, the command is applied to all IRF members.

Usage guidelines

A component is a collection of features. The features of a component are installed or uninstalled at the same time.

When the system displays a component or file error, use this command to identify the relevant image files before you make a software upgrade decision.

This command searches only the root directory of the storage medium.

Examples

Display all software image files that include file **sshc.cli**.

```
<Sysname> display install which file sshc.cli
File sshc.cli is in following packages on slot 1:
  flash:/system-1330.bin
  [Package]
  Vendor: xxx
  Product: xxxx
  Service name: ssh
  Platform version: 7.1.022
  Product version: Beta 1330
  Supported board: mpu
```

For more information about the command output, see Table 23.

display issu rollback-timer

Use **display issu rollback-timer** to display automatic rollback timer information.

Syntax

display issu rollback-timer

Views

Any view

Predefined user roles

network-admin

network-operator

Usage guidelines

Change to the automatic rollback interval does not take effect on the ongoing ISSU process. The current remaining rollback time might be greater than the configured automatic rollback interval.

Examples

Display automatic rollback timer information after the **issu run switchover** command is executed.

```
<Sysname> display issu rollback-timer
Rollback timer: Working
Rollback interval: 45 minutes
Rollback time remaining : 40 minutes
```

Display automatic rollback timer information after the **issu accept** command is executed.

```
<Sysname> display issu rollback-timer
Rollback timer: Not working
Rollback interval: 30 minutes
```

Display automatic rollback timer information when no ISSU process is taking place.

```
<Sysname> display issu rollback-timer
Rollback timer: Not working
Rollback interval: 45 minutes
```

Related commands

issu rollback-timer

display issu state

Use **display issu state** to display ISSU status information.

Syntax

display issu state

Views

Any view

Predefined user roles

network-admin

network-operator

Usage guidelines

During an ISSU that uses **issu** commands, you can use this command to verify the ISSU status and determine what to do next.

This command does not apply to an ISSU that uses **install** commands, because the ISSU state machine is not involved.

Examples

Display ISSU status information when no upgrade is taking place.

```
<Sysname> display issu state
ISSU state: Init
Compatibility: Unknown
Work state: Normal
Upgrade method: Card by card
Upgraded slot: None
Current upgrading slot: None
Current version list:
  boot: 7.1.041, Demo 2402
  system: 7.1.041, Demo 2402
Current software images:
  flash:/boot.bin
  flash:/system.bin
```

Display ISSU status information while the **issu load** command is being executed.

```
<Sysname> display issu state
ISSU state: Loading
Compatibility: Incompatible
Work state: Normal
Upgrade method: Card by card
Upgraded slot: None
Current upgrading slot:
  slot 1
Previous version list:
  boot: 7.1.041, Demo 2402
  system: 7.1.041, Demo 2402
Previous software images:
  flash:/boot.bin
  flash:/system.bin
Upgrade version list:
  boot: 7.1.041, Demo 2403
  system: 7.1.041, Demo 2403
Upgrade software images:
  flash:/boot02.bin
  flash:/system04.bin
```

Table 24 Command output

Field	Description
ISSU state	ISSU status: • **Init**—The ISSU process has not started or has finished. • **Loading**—The system is executing the **issu load** command.

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Field	Description
	• **Loaded**—The **issu load** command is completed.
	• **Switching**—The system is executing the **issu run switchover** command.
	• **Switchover**—The **issu run switchover** command is completed.
	• **Accepted**—The **issu accept** command is completed.
	• **Committing**—The system is executing the **issu commit** command.
	• **Rollbacking**—A rollback is in process.
Compatibility	Version compatibility: • **Compatible**. • **Incompatible**. • **Unknown**—No upgrade is in process.
Work state	Operating state of the device: • **Normal**—The device is operating correctly. • **Independent active**—When you perform an ISSU for an incompatible version, the member devices that have been upgraded enter this state. In this state, the member devices of the IRF fabric are running different software versions.
Upgrade method	Upgrade mode. If this field displays **Card by card**, the upgrade is performed on a member-by-member basis.
Upgraded slot	Upgraded member device.
Current upgrading slot	Member devices that are being upgraded.
Previous version list	Software versions running on the device before the ISSU.
Previous software images	Software images running on the device before the ISSU.
Upgrade version list	Software versions to upgrade to.
Upgrade software images	Software images used for the upgrade.

Related commands

- **issu accept**
- **issu commit**
- **issu load**
- **issu rollback**
- **issu run switchover**

display version comp-matrix

Use **display version comp-matrix** to display version compatibility information.

Syntax

display version comp-matrix

display version comp-matrix file { **boot** *filename* | **system** *filename* | **feature** *filename*&<1-30> } *

display version comp-matrix file ipe *ipe-filename*

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

boot: Specifies a boot image file.

system: Specifies a system image file.

feature: Specifies feature image files. You can specify a space-separated list of up to 30 feature image files.

filename: Specifies the name of a .bin file in one of the following formats: *storage-medium***:/**base-filename***.**bin** (on the master) or **slot***n***#**storage-medium***:/**base-filename***.**bin** (on a subordinate member), for example, slot1#flash:/a.bin. The value string starting from the storage medium name can have a maximum of 63 characters. The storage medium name must be entered in lower case. The file name is case insensitive.

ipe *ipe-filename*: Specifies the name of an .ipe file in one of the following formats: *storage-medium***:/**base-filename***.**ipe** (on the master) or **slot***n***#**storage-medium***:/**base-filename***.**ipe** (on a subordinate member), for example, slot1#flash:/a.ipe. The value string starting from the storage medium name can have a maximum of 63 characters. The storage medium name must be entered in lower case. The file name is case insensitive.

Usage guidelines

The specified image files must be saved in the root directory of the storage medium.

If you do not specify any image files, the command displays compatibility information for the running software images.

If you specify file names, the command displays compatibility information for the specified images and the recommended ISSU methods for upgrade the running images to the specified images.

Examples

Display compatibility information for the running software images.

```
<Sysname> display version comp-matrix
Boot image: flash:/boot-r2208p01.bin
  Version:
  7.1.035P05


System image: flash:/system-r2208p01.bin
  Version:
  R2208P01
  Version compatibility list:
  E2206P02
  R2207
  R2208
  R2208P01
  Version dependency boot list:
  7.1.035P02
  7.1.035P03
  7.1.035P04
  7.1.035P05
```

Display compatibility information for **flash:/boot-a2403.bin** and **flash:/system-a2403.bin**, and the recommended ISSU method. (In this example, the specified versions are incompatible with the running versions.)

```
<Sysname> display version comp-matrix file boot flash:/boot-a2403.bin system
flash:/system-a2403.bin
Boot image: flash:/boot-a2403.bin
  Version:
  7.1.046


System image: flash:/system-a2403.bin
  Version:
  A2403
  Version compatibility list:
  A2403
  Version dependency boot list:
  7.1.046
Incompatible upgrade.
```

Display compatibility information for **flash:/boot-f2209.bin** and **flash:/system-f2209.bin**, and the recommended ISSU method. (In this example, the specified versions are compatible with the running versions.)

```
<Sysname> display version comp-matrix file boot flash:/boot-f2209.bin system
flash:/system-f2209.bin
Boot image: flash:/boot-f2209.bin
  Version:
  7.1.035P08


System image: flash:/system-f2209.bin
  Version:
  F2209
  Version compatibility list:
  E2206P02
  R2207
  R2208
  R2208P01
  F2209
  Version dependency boot list:
  7.1.035P02
  7.1.035P03
  7.1.035P04
  7.1.035P05
  7.1.035P07
  7.1.035P08


  Slot                      Upgrade Way
  1                         ISSU Reboot
  2                         ISSU Reboot
```

Table 25 Command output

Field	Description
Version compatibility list	- Under a system image, this field shows all system image versions that are compatible with the system image. - Under a feature image, this field shows all feature image versions that

Field	Description
	are compatible with the feature image.
Version dependency boot list	Boot image versions that support the system image. To install the system image, you must install one of the boot image versions that is in the list.
Version dependency system list	System image versions that support the feature image. To install the feature image, you must install one of the system image versions that is in the list.
Influenced service according to following table	Services that will be affected by the upgrade. This field is displayed only for compatible versions.
Incompatible upgrade	You are upgrading the software to an incompatible version.
Slot	Member ID of the device in the IRF fabric. This field is displayed only for compatible versions.
Upgrade Way	ISSU method to be used for a compatible version: • **Service Upgrade**—Service-level incremental upgrade. • **File Upgrade**—File-level incremental upgrade. • **ISSU Reboot**—Reboots CPUs to complete the upgrade. • **Reboot**—Reboots the entire device to complete the upgrade. For more information about ISSU methods, see *Fundamentals Configuration Guide*.

Related commands

issu load

install abort

Use **install abort** to abort an ISSU operation.

Syntax

install abort

Views

User view

Predefined user roles

network-admin

Usage guidelines

The system creates a software image management job each time you use the **install activate**, **install add**, **install commit**, **install deactivate**, **install remove**, or **install rollback to** command. Each job represents one command and is assigned a unique job ID. You can abort only ongoing activate and deactivate operations.

To obtain the ID of a job, use the **display install job** command.

Examples

Abort a software image operation.

```
<Sysname> install abort
```

Related commands

display install job

install activate

Use **install activate** to activate software images, or identify the ISSU method and the possible impact on the device.

Syntax

install activate { **boot** *filename* | **system** *filename* | **feature** *filename*&<1-30> } * **slot** *slot-number* [**test**]

install activate patch *filename* { **all** | **slot** *slot-number* }

Views

User view

Predefined user roles

network-admin

Parameters

all: Specifies all IRF members.

boot: Specifies a boot image file. For more information about software images, see *Fundamental Configuration Guide*.

system: Specifies a system image file.

feature: Specifies feature image files. You can specify a space-separated list of up to 30 feature image files.

patch: Specifies a patch image file.

filename: Specifies the name of a .bin file in one of the following formats: *storage-medium***:/***base-filename***.bin** (on the master) or **slot***n***#***storage-medium***:/***base-filename***.bin** (on a subordinate member), for example, slot1#flash:/a.bin. The value string starting from the storage medium name can have a maximum of 63 characters. The storage medium name must be entered in lower case. The file name is case insensitive.

slot *slot-number*: Specifies an IRF member by its member ID.

test: Only checks for the ISSU method to be used for the upgrade. If you do not specify this keyword, the command activates the specified software images.

Usage guidelines

The specified files must be saved in the root directory of the storage medium.

An image runs in memory immediately after it is activated. However, an activated image cannot stay activated after a reboot unless it meets the following requirements:

- It is a patch image.
- It was activated on all IRF members by using the **install activate patch** *filename* **all** command.

For activated images that cannot stay activated after a reboot, you must execute the **install commit** command to commit the software changes.

If you specify a subordinate member for the command, the command copies the images to the subordinate member automatically.

At reboot, a subordinate device automatically synchronizes the master device's configuration and status data. You must wait for the synchronization to complete before using the **install activate** command on the subordinate device. To check the synchronization progress, use the **display device** command. The synchronization is completed when all member devices are in normal state.

You can install up to 32 .bin files on the device, including one boot image file, one system image file, and up to 30 feature or patch image files.

Examples

Identify the ISSU method for feature upgrade with **ssh2.bin** on subordinate member 2 and the upgrade impact on the device.

```
<Sysname> install activate feature flash:/ssh2.bin slot 2 test
Copying file flash:/ssh2.bin to slot2#flash:/ssh2.bin......Done.
Upgrade summary according to following table:


flash:/ssh2.bin
  Running Version              New Version
  Beta 1330                    Beta 1331


  Slot                         Upgrade Way
  2                            Service Upgrade


Influenced service according to following table:
flash:/ssh2.bin
     SSH       IFMGR    CFA       LAGG
```

The output shows that a service upgrade is recommended. The SSH, IFMGR, CFA, and LAGG modules will be rebooted during the upgrade.

Activate the patch image **system-patch.bin** on member device 1.

```
<Sysname> install activate system-patch.bin slot 1
```

Activate the system image in file **system.bin** and feature images in file **feature.bin** on member device 2.

```
<Sysname> install activate system flash:/system.bin feature flash:/feature.bin slot 2
Copying file flash:/system.bin to slot2#flash:/system.bin......Done.
Copying file flash:/feature.bin to slot2#flash:/feature.bin......Done.
Upgrade summary according to following table:


flash:/system.bin
  Running Version              New Version
  Beta 1330                    Beta 1331


flash:/feature.bin
  Running Version              New Version
  None                         Beta 1330


  Slot                         Upgrade Way
  2                            Service Upgrade
Upgrading software images to compatible versions. Continue? [Y/N]:y
This operation might take several minutes, please wait......Done.
```

Table 26 Command output

Field	Description
Upgrade summary according to following table	Upgrade summary.
Running Version	Version number of the running software.

Field	Description
New Version	Version number of the new software.
Slot	Member ID of the device in the IRF fabric.
Upgrade Way	ISSU methods: • **Service Upgrade**—Service-level incremental upgrade. • **File Upgrade**—File-level incremental upgrade. The upgrade involves only hidden program files and does not affect the operation of the system or services. • **ISSU Reboot**—Reboots CPUs to complete the upgrade. • **Reboot**—Reboots the entire device to complete the upgrade. This field is displayed only for an upgrade to a compatible version.
Influenced service according to following table	Services influenced by the upgrade.

Related commands

- **display install active**
- **install commit**
- **install deactivate**

install add

Use **install add** to decompress an .ipe file.

Syntax

install add *ipe-filename medium-name***:**

Views

User view

Predefined user roles

network-admin

Parameters

ipe-filename: Specifies the name of an .ipe file on the master, in the format *storage-medium***:/***base-filename***.ipe**. It can be a string of up to 63 characters and cannot contain slot information. The storage medium name must be entered in lower case. The file name is case insensitive.

medium-name: Specifies the name of the storage medium for saving the software images. If the storage medium is on a subordinate member, use the **slot***n*#*storage-medium* format, for example, slot1#flash.

Usage guidelines

The .ipe file must be saved in the root directory of the storage medium.

To use **install** commands for upgrade, you must use .bin image files. If the upgrade file is an .ipe file, use this command to decompress the .ipe file before you start the upgrade.

The images decompressed from the .ipe file will be saved to the root directory of the specified medium.

To identify software images that are included in an .ipe file, use the **display install ipe-info** command.

Examples

Decompress **all.ipe** to the flash memory.

```
<Sysname> install add flash:/all.ipe flash:
Verifying image file...........................Done.
Decompressing file boot.bin to flash:/boot.bin.......................Done.
Decompressing file system.bin to lash:/system.bin...............................Done.
```

install commit

Use **install commit** to commit software changes.

Syntax

install commit

Views

User view

Predefined user roles

network-admin

Usage guidelines

This command revises the main startup software image list to be the same as the committed image list. Software changes take effect at the next startup.

You must execute this command after using the following commands:

- The **install activate** command in an incremental upgrade.
- The **install deactivate** command.
- The **install rollback** command.

In a reboot or ISSU reboot upgrade, the **install activate** command revises both the current and startup software image lists. You do not need to commit software changes.

Both the **install commit** and **boot-loader file** commands change main startup software images. To change backup startup images or add inactive images as main startup images, however, you must use the **boot-loader file** command.

For more information about main and backup startup software images, see *Fundamental Configuration Guide*.

Examples

Commit software changes.

```
<Sysname> install commit
```

Related commands

- **install activate**
- **install deactivate**
- **install rollback**

install deactivate

Use **install deactivate** to deactivate feature or patch images.

Syntax

install deactivate feature *filename*&<1-30> **slot** *slot-number*

install deactivate patch *filename* { **all** | **slot** *slot-number* }

Views

User view

Predefined user roles

network-admin

Parameters

all: Specifies all IRF members.

feature: Specifies feature image files. You can specify a space-separated list of up to 30 feature image files.

patch: Specifies a patch image file.

filename: Specifies the name of a .bin file in one of the following formats: *storage-medium***:/***base-filename***.bin** (on the master) or **slot***n***#***storage-medium***:/***base-filename***.bin** (on a subordinate member), for example, slot1#flash:/a.bin. The value string starting from the storage medium name can have a maximum of 63 characters. The storage medium name must be entered in lower case. The file name is case insensitive.

slot *slot-number*: Specifies an IRF member by its member ID.

Usage guidelines

The specified files must be saved in the root directory of the storage medium.

You can deactivate only active feature and patch images.

An image stops running in memory immediately after it is deactivated. However, a deactivated image becomes active again after a reboot unless it meets the following requirements:

- It is a patch image.
- It was deactivated on all IRF members by using the **install deactivate patch** *filename* **all** command.

To prevent deactivated images from running again after a reboot, execute the **install commit** command to commit the software changes.

At reboot, a subordinate device automatically synchronizes the master device's configuration and status data. You must wait for the synchronization to complete before using the **install deactivate** command on the subordinate device. To check the synchronization progress, use the **display device** command. The synchronization is completed when all member device are in normal state.

Examples

Deactivate the patch images in file **route-patch.bin** on IRF member 1.

```
<Sysname> install deactivate patch flash:/route-patch.bin slot 1
```

Related commands

- **display install active**
- **display install inactive**

install remove

Use **install remove** to remove inactive software images.

Syntax

install remove [**slot** *slot-number*] { *filename* | **inactive** }

Views

User view

Predefined user roles

network-admin

Parameters

slot *slot-number*: Specifies an IRF member by its member ID. If you do not specify this option, the command is applied to all IRF members.

filename: Specifies the name of a software image file on the master, in the format *storage-medium***:/***base-filename***.bin**. It can be a string of up to 63 characters and cannot contain slot information. The storage medium name must be entered in lower case. The file name is case insensitive.

inactive: Removes all inactive software image files in the root directories of the specified storage media.

Usage guidelines

The specified files must be saved in the root directory of the storage medium.

This command deletes only inactive software image files saved in the root directories of the specified storage media.

Removing a software image deletes the image file from the device permanently. You cannot use the **install rollback to** command to revert the operation, or use the **install abort** command to abort the operation.

Examples

Remove inactive software image file **flash:/ssh-feature.bin**.

```
<Sysname> install remove flash:/ssh-feature.bin
```

Remove inactive patch package **flash:/ssh-patch.bin**.

```
<Sysname> install remove flash:/ssh-patch.bin
```

install rollback to

Use **install rollback to** to roll back the software to an earlier rollback point.

Syntax

install rollback to { *point-id* | **original** }

Views

User view

Predefined user roles

network-admin

Parameters

point-id: Specifies a rollback point ID. This option is supported only when there are two or more rollback points. To view available rollback points, use the **display install rollback** command.

original: Rolls back to the software images that were running before the ISSU.

Usage guidelines

The system creates a rollback point for each service or file upgrade performed through activate or deactivate operation. The rollback points are retained until any of the following events occur:

● An ISSU reboot or reboot upgrade is performed.

● The **install commit** command is executed.

After an ISSU reboot or reboot upgrade is performed, you can roll back the running software images only to the status before any activate or deactivate operations were performed.

After a commit operation is performed, you cannot perform a rollback.

For a rollback to take effect after a reboot, you must perform a commit operation to update the main startup software image list.

A maximum of 50 rollback points are available for service and file upgrades. The earliest rollback point is removed if this limit has been reached when a rollback point is created.

Patch images do not support rollback.

Examples

Roll back the software to rollback point 1.

```
<Sysname>install rollback to 1
```

Roll back the software to the original software versions and observe the change made by the rollback.

```
<Sysname> display install active
Active packages on slot 1:
  flash:/boot-a0201.bin
   flash:/system-a0201.bin
   flash:/ssh-feature-a0201.bin
<Sysname> display install rollback
Install rollback information 1 on slot 1:
  Update from no package
        to flash:/ssh-feature-a0201.bin.
```

The output shows that currently three images are active but only two of them are confirmed. Image flash:/ssh-feature-a0201.bin is not confirmed yet.

```
<Sysname> install rollback to original
<Sysname> display install active
Active packages on slot 1:
  flash:/boot-a0201.bin
  flash:/system-a0201.bin
<Sysname> display install committed
Committed packages on slot 1:
  flash:/boot-a0201.bin
  flash:/system-a0201.bin
```

The output shows the SSH feature has been rolled back to the original version. Image flash:/ssh-feature-a0201.bin has been removed.

Related commands

display install rollback

install verify

Use **install verify** to verify the software change confirmation status and software image integrity and consistency.

Syntax

install verify

Views

User view

Predefined user roles

network-admin

Usage guidelines

To ensure a successful ISSU and make sure the system can start up and operate correctly after an ISSU, execute this command to verify the following items:

- **Integrity**—Verify that the boot, system, and feature images are integral.
- **Consistency**—Verify that the same active images are running across the entire system.
- **Software commit status**—Verify that the active images are committed as needed.

If a software image fails the verification, perform the following tasks to resolve the problem:

- To ensure software integrity, download and install the software images again.
- To guarantee software image consistency or change software commit status, use the **install activate**, **install deactivate**, and **install commit** commands as appropriate.

Examples

Verify the software change confirmation status and software image integrity and consistency on member devices.

```
<Sysname> install verify
Active packages on slot 1 are the reference packages.
Packages will be compared with the reference packages.
This operation will take several minutes, please wait...
  Verifying packages on slot 1:
  Start to check active package completeness.
    flash:/boot-a0101.bin verification successful.
    flash:/system-a0101.bin verification successful.
  Start to check active package consistency.
    Active packages are consistent with committed packages on their own board.
    Active packages are consistent with the reference packages.
  Verifying packages on slot 2:
  Start to check active package completeness.
    flash:/boot-a0101.bin verification successful.
    flash:/system-a0101.bin verification successful.
  Start to check active package consistency.
    Active packages are consistent with committed packages on their own board.
    Active packages are consistent with the reference packages.
Verification is done.
```

issu accept

Use **issu accept** to accept the upgrade to a compatible version and delete the automatic rollback timer.

Syntax

issu accept

Views

User view

Predefined user roles

network-admin

Usage guidelines

The system cannot perform automatic rollback for the ISSU process after you execute this command. However, you can still use the **issu rollback** command to perform a manual rollback.

You can execute the **issu commit** command to finish the ISSU process without executing this command.

The **issu accept** command does not apply to the ISSU to an incompatible version. The system will display an error message if you execute this command during this type of ISSU.

Examples

Accept the upgrade to a compatible version.

```
<Sysname> issu accept
```

Related commands

- **issu load**
- **issu run switchover**

issu commit

Use **issu commit** to upgrade subordinate members (including the original master) during an ISSU to a compatible version.

Syntax

issu commit slot *slot-number*

Views

User view

Predefined user roles

network-admin

Parameters

slot *slot-number*: Specifies the member ID of the original master or a subordinate member that has not been upgraded.

Usage guidelines

For a multichassis IRF fabric, use this command to upgrade subordinate members one by one. You must wait for the upgraded subordinate member to start up again and join the IRF fabric before upgrading another subordinate member. After all members are upgraded, the ISSU status changes to Init, and the ISSU process ends and cannot be rolled back.

For an IRF fabric with a single member, this command ends the ISSU process. When this command is completed, the ISSU status changes to Init, and the ISSU process cannot be rolled back.

At reboot, a subordinate device automatically synchronizes the master device's configuration and status data. You must wait for the synchronization to complete before using the **issu commit** command on the subordinate device. To check the synchronization progress, use the **display device** command. The synchronization is completed when all member device are in normal state.

Examples

After member 2 is upgraded and becomes the new master, upgrade the original master (member 3) and the other subordinate members that have not been upgraded (member 4 and member 1).

```
<Sysname> issu commit slot 3
Upgrade summary according to following table:


flash:/feature.bin
```

```
  Running Version            New Version
  Alpha 7122                 Alpha 7123


  Slot                       Upgrade Way
  3                          Service Upgrade
Upgrading software images to compatible versions. Continue? [Y/N]: y
This operation might take several minutes, please wait.....done
<Sysname> issu commit slot 4
Copying file flash:/feature.bin to slot4#flash:/feature.bin...Done.
Upgrade summary according to following table:

flash:/feature.bin
  Running Version            New Version
  Alpha 7122                 Alpha 7123


  Slot                       Upgrade Way
  4                          Service Upgrade
Upgrading software images to compatible versions. Continue? [Y/N]:y
This operation might take several minutes, please wait.....done
<Sysname> issu commit slot 1
Copying file flash:/feature.bin to slot1#flash:/feature.bin...Done.
Upgrade summary according to following table:

flash:/feature.bin
  Running Version            New Version
  Alpha 7122                 Alpha 7123


  Slot                       Upgrade Way
  1                          Service Upgrade
Upgrading software images to compatible versions. Continue? [Y/N]:y
This operation might take several minutes, please wait.....done
```

For field descriptions, see Table 25.

Related commands

- **issu accept**
- **issu load**
- **issu run switchover**

issu load

Use **issu load** to upgrade the software images of subordinate members and configure the upgrade images as the main startup software images for the subordinate members.

Syntax

issu load file { **boot** *filename* | **system** *filename* | **feature** *filename*&<1-30> } * **slot** *slot-number*&<1-9>

issu load file ipe *ipe-filename* **slot** *slot-number*&<1-9>

Views

User view

Predefined user roles

network-admin

Parameters

boot: Specifies a boot image file.

system: Specifies a system image file.

feature: Specifies feature image files. You can specify a space-separated list of up to 30 feature image files.

filename: Specifies the name of a .bin file on the master in the *storage-medium***:/***base-filename***.bin** format. It can be a string of up to 63 characters and cannot contain slot information. The storage medium name must be entered in lower case. The file name is case insensitive.

ipe *ipe-filename*: Specifies the name of an .ipe file on the master in the *storage-medium***:/***base-filename***.ipe** format. It can be a string of up to 63 characters and cannot contain slot information. The storage medium name must be entered in lower case. The file name is case insensitive.

slot *slot-number*: Specifies the member ID of a subordinate member. For a compatible upgrade, you can specify only one member ID. For an incompatible upgrade, you can specify a space-separated list of up to three member IDs. If the IRF fabric has only one member, enter the member ID of this member to upgrade the entire fabric.

Usage guidelines

The specified files must be saved in the root directory of the storage medium.

On a single-chassis IRF fabric, specify the member ID of the member for this command.

On a multichassis IRF fabric, specify one or more subordinate members for this command. If the member devices of the IRF fabric are connected into a ring topology, specify half of the subordinate members for this command to reduce service interruption. Make sure the specified subordinate members are physically connected.

This command performs the following tasks:

- Examines the compatibility of the specified images with the running images. The result might be compatible or incompatible.
- Determines the ISSU methods.

  The ISSU methods available for a compatible version include:

  o Incremental upgrade. During the upgrade, the involved processes will be upgrade.

  o ISSU reboot. During the upgrade, CPUs will be rebooted.

  o Reboot. During the upgrade, the specified member devices will be rebooted.

  The ISSU method for an incompatible version is always reboot.

- Uses the ISSU methods to upgrade the specified member devices, and configures the upgrade software images as the main startup software images for the specified member devices.

At reboot, a subordinate device automatically synchronizes the master device's configuration and status data. You must wait for the synchronization to complete before using the **issu load** command on the subordinate device. To check the synchronization progress, use the **display device** command. The synchronization is completed when all member device are in normal state.

For more information about ISSU methods, see *Fundamentals Configuration Guide*.

Examples

Upgrade member device 2 (subordinate member) with the feature image file **flash:/feature.bin**. (In this example, the image is compatible with the running images.)

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```
<Sysname> issu load file feature flash:/feature.bin slot 2
This operation will delete the rollback point information for the previous upgrade and
maybe get unsaved configuration lost. Continue? [Y/N]:Y
Copying file flash:/feature.bin to slot2#flash:/feature.bin......Done.
Upgrade summary according to following table:

flash:/feature.bin
  Running Version            New Version
  Alpha 7122                 Alpha 7123


  Slot                       Upgrade Way
  2                          Service Upgrade
Upgrading software images to compatible versions. Continue? [Y/N]:y
This operation might take several minutes, please wait.....done
```

\# Upgrade member device 3 and 4 (subordinate members) with the feature image file **flash:/feature.bin**. (In this example, the image is incompatible with the running images.)

```
<Sysname> issu load file feature flash:/feature.bin slot 3 4
This operation will delete the rollback point information for the previous upgrade and
maybe get unsaved configuration lost. Continue? [Y/N]:Y
Copying file flash:/feature.bin to slot3#flash:/feature.bin......Done.
Copying file flash:/feature.bin to slot4#flash:/feature.bin......Done.
Upgrade summary according to following table:

flash:/feature.bin
  Running Version            New Version
  Alpha 7122                 Alpha 7123


  Slot                       Upgrade Way
  3                          Reboot
  4                          Reboot
Upgrading software images to incompatible versions. Continue? [Y/N]:y
This operation might take several minutes, please wait.....done
```

Table 27 Command output

Field	Description
Slot	Member ID of the device in the IRF fabric.
Upgrade Way	ISSU method: • **Service Upgrade**—Service-level incremental upgrade. • **File Upgrade**—File-level incremental upgrade. • **ISSU Reboot**—Reboots CPUs to complete the upgrade. • **Reboot**—Reboots the entire device to complete the upgrade. For more information about ISSU methods, see *Fundamentals Configuration Guide*.

issu rollback

Use **issu rollback** to cancel the ISSU and roll back to the original software versions.

Syntax

> **issu rollback**

Views

> User view

Predefined user roles

> network-admin

Usage guidelines

> The device supports automatic rollback and manual rollback. This command performs a manual rollback.
>
> You can perform a manual rollback while an ISSU is in one of the following states:
>
> - Loaded.
> - Switching (during an upgrade to a compatible version).
> - Switchover (during an upgrade to a compatible version).
> - Accepted.
>
> If you perform a manual rollback while an ISSU is in Loading state, the ISSU process ends without changing the original software versions.
>
> When an ISSU to an incompatible version is in Switching state, you cannot perform a manual rollback.
>
> When an ISSU is in Committing state, rollback is not supported.
>
> If the IRF fabric has multiple members, a rollback performed after you execute the **issu run switchover** command cancels all operations performed during the ISSU process, including the master/subordinate switchover operation.

Examples

> # Roll back to the original software versions.
>
> ```
> <Sysname> issu rollback
> This command will quit the ISSU process and roll back to the previous version. Continue?
> [Y/N]:y
> ```

Related commands

> - **issu accept**
> - **issu commit**
> - **issu load**
> - **issu run switchover**

issu rollback-timer

> Use **issu rollback-timer** to set the automatic rollback timer.
>
> Use **undo issu rollback-timer** to restore the default.

Syntax

> **issu rollback-timer** *minutes*
>
> **undo issu rollback-timer**

Default

> The automatic rollback interval is 45 minutes.

Views

System view

Predefined user roles

network-admin

Parameters

minutes: Specifies the automatic rollback interval in minutes, in the range of 0 to 120. Setting it to 0 disables the automatic rollback feature.

Usage guidelines

The automatic software version rollback feature is only available on a multichassis IRF fabric during an ISSU to a compatible version.

The system starts the automatic rollback timer when you execute the **issu run switchover** command in a scenario where automatic rollback is supported. If you do not execute the **issu accept** or **issu commit** command before the timer expires, the system automatically rolls back to the software versions before the ISSU.

Change to the automatic rollback interval does not take effect on the ongoing ISSU process.

Examples

Set the automatic rollback timer to 50 minutes.

```
<Sysname> system-view
[Sysname] issu rollback-timer 50
```

Related commands

issu rollback

issu run switchover

Use **issu run switchover** to perform a master/subordinate switchover. If the new and old versions are incompatible, this command also upgrades all members that have not been upgraded.

Syntax

issu run switchover

Views

User view

Predefined user roles

network-admin

Usage guidelines

Use this command on multichassis IRF fabrics.

- For a compatible version, this command performs tasks depending on the ISSU method:
  - **Incremental upgrade**—Performs a process-level master/subordinate switchover for the processes to be upgraded.
  - **Reboot** upgrade or **ISSU upgrade**—Reboots the current master with the old software version, causing the upgraded subordinate member to be elected as the new master.
- For an incompatible version, the **issu load** command splits the IRF fabric into two fabrics, with the upgraded members forming a new fabric. The **issu run switchover** command reboots the members in the old IRF fabric with the upgrade images. After startup, the members join the new IRF fabric as subordinate members.

At reboot, a subordinate device automatically synchronizes the master device's configuration and status data. You must wait for the synchronization to complete before using the **issu run switchover** command on the subordinate device. To check the synchronization progress, use the **display device** command. The synchronization is completed when all member device are in normal state.

Examples

On a multichassis IRF fabric, perform a master/subordinate switchover during an ISSU to a compatible version.

```
<Sysname> issu run switchover
Upgrade summary according to following table:


flash:/feature.bin
  Running Version            New Version
  Alpha 7122                Alpha 7123


  Slot                      Switchover Way
  1                         Active standby process switchover
Upgrading software images to compatible versions. Continue? [Y/N]:y
This operation might take several minutes, please wait......Done.
```

On a multichassis IRF fabric, perform a master/subordinate switchover and upgrade members that have not been upgraded (member 1 and member 2) during an ISSU to an incompatible version.

```
<Sysname> issu run switchover
Copying file flash:/feature.bin to slot2#flash:/feature.bin...Done.
Upgrade summary according to following table:


flash:/feature.bin
  Running Version            New Version
  Alpha 7122                Alpha 7123


  Slot                      Upgrade Way
  1                         Reboot
  2                         Reboot
Upgrading software images to incompatible versions. Continue? [Y/N]:y
This operation might take several minutes, please wait......Done.
```

Table 28 Command output

Field	Description
Switchover Way	Switchover method: • **Active standby process switchover**—Switch from the active process to the standby process. • **Master subordinate switchover**—Switch from the master to a subordinate member.

For descriptions of other fields, see Table 25.

Related commands

issu load

reset install log-history oldest

Use **reset install log-history oldest** to clear ISSU log entries.

Syntax

reset install log-history oldest *log-number*

Views

User view

Predefined user roles

network-admin

Parameters

log-number: Specifies the number of ISSU log entries to be deleted.

Usage guidelines

This command clears the specified number of log entries, beginning with the oldest log entry.

Examples

Clear the two oldest ISSU log entries.

```
<Sysname> reset install log-history oldest 2
```

Related commands

display install log

reset install rollback oldest

Use **reset install rollback oldest** to clear ISSU rollback points.

Syntax

reset install rollback oldest *point-id*

Views

User view

Predefined user roles

network-admin

Parameters

point-id: Specifies a rollback point by its ID.

Usage guidelines

This command clears the specified rollback point and all rollback points older than the specified rollback point.

Examples

Clear rollback point 2 and all rollback points older than rollback point 2.

```
<Sysname> reset install rollback oldest 2
```

Related commands

display install rollback

Device management commands

clock datetime

Use **clock datetime** to set the UTC time.

Syntax

clock datetime *time date*

Default

The UTC time is the factory-default time.

Views

User view

Predefined user roles

network-admin

Parameters

time: Specifies a time in the *hh:mm:ss* format. The value range for *hh* is 0 to 23. The value range for *mm* is 0 to 59. The value range for *ss* is 0 to 59. The leading zero in a segment can be omitted. If the seconds segment is 0 (*hh:mm*:00), you can omit it. If both the minutes and seconds segments are 0 (*hh*:00:00), you can omit both of the segments. For example, to specify 08:00:00, you can enter 8.

date: Specifies a date in the *MM/DD/YYYY* or *YYYY/MM/DD* format. The value range for *YYYY* is 2000 to 2035. The value range for *MM* is 1 to 12. The value range for *DD* varies by month.

Usage guidelines

When the system time source is the local system time, the system time varies by the following items:

- Local time zone.
- UTC time.
- Daylight saving time.

To view the system time, use the **display clock** command.

The correct system time setting is essential to network management and communication. To run a device on a network, you must perform one of the following tasks on the device:

- Set the system time correctly.
- Use NTP to synchronize the device with a trusted time source.

Examples

Set the UTC time to 08:08:08 01/01/2012.

```
<Sysname> clock datetime 8:8:8 1/1/2012
```

Set the UTC time to 08:10:00 01/01/2012.

```
<Sysname> clock datetime 8:10 2012/1/1
```

Related commands

- **clock protocol**
- **clock summer-time**
- **clock timezone**
- **display clock**

clock protocol

Use **clock protocol** to specify the system time source.

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

Syntax

clock protocol { **none** | **ntp** }

undo clock protocol

Default

The device uses the NTP time source.

Views

System view

Predefined user roles

network-admin

Parameters

none: Uses the local system time configured by using the **clock datetime**, **clock timezone**, and **clock summer-time** commands.

ntp: Uses the NTP time source. When the device uses the NTP time source, you cannot change the system time manually. For more information about NTP, see *Network Management and Monitoring Configuration Guide*.

Usage guidelines

If you configure this command multiple times, the most recent configuration takes effect.

Examples

Configure the device to use the local system time.

```
<Sysname> system-view
[Sysname] clock protocol none
```

clock summer-time

Use **clock summer-time** to configure the device to use daylight saving time during a specific period of time.

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

Syntax

clock summer-time *name start-time start-date end-time end-date add-time*

undo clock summer-time

Default

Daylight saving time is disabled.

Views

System view

Predefined user roles

network-admin

Parameters

name: Specifies a name for the daylight saving time schedule, a case-sensitive string of 1 to 32 characters.

start-time: Specifies the start time in the *hh:mm:ss* format. The value range for *hh* is 0 to 23. The value range for *mm* is 0 to 59. The value range for *ss* is 0 to 59. The leading zero in a segment can be omitted. If the seconds segment is 0 (*hh:mm*:00), you can omit it. If both the minutes and seconds segments are 0 (*hh*:00:00), you can omit both of the segments. For example, to specify 08:00:00, you can enter 8.

start-date: Specifies the start date in one of the following formats:

- *MM/DD*. The value range for *MM* is 1 to 12. The value range for *DD* varies by month.
- *month week date*, where:
  - *month*—Takes **January**, **February**, **March**, **April**, **May**, **June**, **July**, **August**, **September**, **October**, **November** or **December**.
  - *week*—Represents week of the month. It takes **first**, **second**, **third**, **fourth**, **fifth**, or **last**.
  - *day*—Takes **Sunday**, **Monday**, **Tuesday**, **Wednesday**, **Thursday**, **Friday**, or **Saturday**.

end-time: Specifies the end time in the *hh:mm:ss* format. The value range for *hh* is 0 to 23. The value range for *mm* is 0 to 59. The value range for *ss* is 0 to 59. The leading zero in a segment can be omitted. If the seconds segment is 0 (*hh:mm*:00), you can omit it. If both the minutes and seconds segments are 0 (*hh*:00:00), you can omit both of the segments. For example, to specify 08:00:00, you can enter 8.

end-date: Specifies the end date in one of the following formats:

- *MM/DD*. The value range for *MM* is 1 to 12. The value range for *DD* varies by month.
- *month week date*, where:
  - *month*—Takes **January**, **February**, **March**, **April**, **May**, **June**, **July**, **August**, **September**, **October**, **November** or **December**.
  - *week*—Represents week of the month. It takes **first**, **second**, **third**, **fourth**, **fifth**, or **last**.
  - *day*—Takes **Sunday**, **Monday**, **Tuesday**, **Wednesday**, **Thursday**, **Friday**, or **Saturday**.

add-time: Specifies the time to be added to the standard time, in the *hh:mm:ss* format. The value range for *hh* is 0 to 23. The value range for *mm* is 0 to 59. The value range for *ss* is 0 to 59. The leading zero in a segment can be omitted. If the seconds segment is 0 (*hh:mm*:00), you can omit it. If both the minutes and seconds segments are 0 (*hh*:00:00), you can omit both of the segments. For example, to specify 08:00:00, you can enter 8.

Usage guidelines

When the system time source is the local system time, the system time varies by the following items:

- Local time zone.
- UTC time.
- Daylight saving time.

To view the system time, use the **display clock** command.

The correct system time setting is essential to network management and communication. Set the system time correctly or use NTP to synchronize the device with a trusted time source before you run it on the network.

Examples

Set the system time ahead 1 hour for the period between 06:00:00 on 08/01 and 06:00:00 on 09/01.

```
<Sysname> system-view
[Sysname] clock summer-time PDT 6 08/01 6 09/01 1
```

Related commands

- **clock datetime**
- **clock timezone**
- **display clock**

clock timezone

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

Use **undo clock timezone** to restore the default.

Syntax

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

undo clock timezone

Default

The local time zone is the UTC time zone.

Views

System view

Predefined user roles

network-admin

Parameters

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

add: Adds an offset to the UTC time.

minus: Decreases the UTC time by an offset.

zone-offset: Specifies an offset to the UTC time, in the *hh:mm:ss* format. The value range for *hh* is 0 to 23. The value range for *mm* is 0 to 59. The value range for *ss* is 0 to 59. The leading zero in a segment can be omitted. If the seconds segment is 0 (*hh*:*mm*:00), you can omit it. If both the minutes and seconds segments are 0 (*hh*:00:00), you can omit both of the segments. For example, to specify 08:00:00, you can enter 8.

Usage guidelines

When the system time source is the local system time, the system time varies by the following items:

- Local time zone.
- UTC time.
- Daylight saving time.

To view the system time, use the **display clock** command.

The correct system time setting is essential to network management and communication. Set the system time correctly or use NTP to synchronize the device with a trusted time source before you run it on the network.

Examples

Set the name of the local time zone to **Z5**, and add 5 hours to the UTC time.

```
<Sysname> system-view
[Sysname] clock timezone Z5 add 5
```

Related commands

- **clock datetime**

- **clock summer-time**
- **display clock**

command

Use **command** to assign a command to a job.

Use **undo command** to revoke a command.

Syntax

command *id command*

undo command *id*

Default

No command is assigned to a job.

Views

Job view

Predefined user roles

network-admin

Parameters

id: Specifies an ID for the command, in the range of 0 to 4294967295. A command ID uniquely identifies a command in a job. Commands in a job are executed in ascending order.

command: Specifies the command to be assigned to the job.

Usage guidelines

If a command uses the ID of an existing command, the existing command is replaced.

A job cannot contain the **telnet**, **ftp**, **ssh2**, or **monitor process** command.

The system does not check the validity of the *command* argument. You must make sure the command is supported by the device, is input in the correct format, and uses valid values. If these requirements are not met, the command cannot be executed automatically.

Examples

Assign commands to the **backupconfig** job to back up configuration file **startup.cfg** to the TFTP server at 192.168.100.11.

```
<Sysname> system-view
[Sysname] scheduler job backupconfig
[Sysname-job-backupconfig] command 2 tftp 192.168.100.11 put flash:/startup.cfg
backup.cfg
```

Related commands

scheduler job

copyright-info enable

Use **copyright-info enable** to enable copyright statement display.

Use **undo copyright-info enable** to disable copyright statement display.

Syntax

copyright-info enable

undo copyright-info enable

197

Default

Copyright statement display is enabled.

Views

System view

Predefined user roles

network-admin

Examples

Enable copyright statement display.

```
<Sysname> system-view
[Sysname] copyright-info enable
```

- When a Telnet user logs in, the following statement appears:

```
******************************************************************************
* Copyright (c) 2010-2017 Hewlett Packard Enterprise Development LP          *
* Without the owner's prior written consent,                                 *
* no decompiling or reverse-engineering shall be allowed.                    *
******************************************************************************


<Sysname>
```

- When a console user quits user view, the device automatically restarts the console session and displays the following message:

```
******************************************************************************
* Copyright (c) 2010-2017 Hewlett Packard Enterprise Development LP          *
* Without the owner's prior written consent,                                 *
* no decompiling or reverse-engineering shall be allowed.                    *
******************************************************************************


User interface aux0 is available.




Press ENTER to get started.
```

Disable copyright statement display.

```
<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 aux0 is available.



Press ENTER to get started.
```

display clock

Use **display clock** to display the system time, date, local time zone, and daylight saving time.

Syntax

display clock

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

Display the system time and date when the local time zone is not specified.

```
<Sysname> display clock
10:09:00 UTC Fri 03/16/2012
```

Display the system time and date when the local time zone Z5 is specified.

```
<Sysname> display clock
15:10:00 Z5 Fri 03/16/2012
Time Zone : Z5 add 05:00:00
```

Display the system time and date when the local time zone Z5 and daylight saving time PDT are specified.

```
<Sysname> display clock
15:11:00 Z5 Fri 03/16/2012
Time Zone : Z5 add 05:00:00
Summer Time : PDT 06:00:00 08/01 06:00:00 09/01 01:00:00
```

Related commands

- **clock datetime**
- **clock timezone**
- **clock summer-time**

display copyright

Use **display copyright** to display the copyright statement, including software and hardware copyright statements.

Syntax

display copyright

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

Display the copyright statement.

```
<Sysname> display copyright
...
```

display cpu-usage

Use **display cpu-usage** to display CPU usage statistics.

Syntax

display cpu-usage [**slot** *slot-number* [**cpu** *cpu-number*]]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command displays the CPU usage statistics for all IRF member devices.

cpu *cpu-number*: Displays the CPU usage statistics. The *cpu-number* argument must be 0.

Usage guidelines

After startup, the device tracks the average CPU usage at the following intervals:

- 5 seconds.
- 1 minute.
- 5 minutes.

This command displays the average CPU usage values during the last 5-second, 1-minute, and 5-minute intervals.

Examples

Display the current CPU usage statistics for all member devices.

```
<Sysname> display cpu-usage
Slot 1 CPU 0 CPU usage:
       6% in last 5 seconds
      10% in last 1 minute
       5% in last 5 minutes
```

Table 29 Command output

Field	Description
6% in last 5 seconds	Average CPU usage during the last 5-second interval.
10% in last 1 minute	Average CPU usage during the last 1-minute interval.
5% in last 5 minutes	Average CPU usage during the last 5-minute interval.
Slot *x* CPU *y* CPU usage	Usage statistics for CPU y of member device x.

display cpu-usage configuration

Use **display cpu-usage configuration** to display CPU usage monitoring settings.

Syntax

display cpu-usage configuration [**slot** *slot-number* [**cpu** *cpu-number*]]

Views

Any view

Predefined user roles

network-admin

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command displays the CPU usage monitoring settings for the master device in the IRF fabric.

cpu *cpu-number*: Displays the CPU usage monitoring settings. The *cpu-number* argument must be 0.

Examples

Display the CPU usage monitoring settings.

```
<Sysname> display cpu-usage configuration
CPU usage monitor is enabled.
Current monitor interval is 60 seconds.
Current monitor threshold is 99%.
```

Related commands

- **monitor cpu-usage enable**
- **monitor cpu-usage interval**
- **monitor cpu-usage threshold**

display cpu-usage history

Use **display cpu-usage history** to display the historical CPU usage statistics in charts.

Syntax

display cpu-usage history [**job** *job-id*] [**slot** *slot-number* [**cpu** *cpu-number*]]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

job *job-id*: Specifies a process by its ID. If you do not specify this option, the command displays the historical CPU usage statistics for the entire system. To view the IDs and names of the running processes, use the **display process** command. For more information, see *Network Management and Monitoring Configuration Guide*.

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command displays the historical CPU usage statistics for the master device in the IRF fabric.

cpu *cpu-number*: Displays the historical CPU usage statistics. The *cpu-number* argument must be 0.

Usage guidelines

After CPU usage monitoring is enabled, the system regularly samples CPU usage and saves the samples to the history record buffer. This command displays the most recent 60 samples in a coordinate system as follows:

- 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. 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 pound sign at a specific time represents the CPU usage at that time.

Examples

Display the historical CPU usage statistics for the entire system.

```
<Sysname> display cpu-usage history
100%|
 95%|
 90%|
 85%|
 80%|
 75%|
 70%|
 65%|
 60%|
 55%|
 50%|
 45%|
 40%|
 35%|
 30%|
 25%|
 20%|
 15%|            #
 10%|          ###  #
  5%|         ########
     ------------------------------------------------------------
             10        20        30        40        50        60  (minutes)
                   cpu-usage (Slot 1 CPU 0) last 60 minutes (SYSTEM)
```

The output shows the historical CPU usage statistics for the entire system (with the name **SYSTEM**) in the last 60 minutes.

- 12 minutes ago: Approximately 5%.
- 13 minutes ago: Approximately 10%.
- 14 minutes ago: Approximately 15%.
- 15 minutes ago: Approximately 10%.
- 16 and 17 minutes ago: Approximately 5%.
- 18 minutes ago: Approximately 10%.
- 19 minutes ago: Approximately 5%.
- Other time: 2% or lower than 2%.

Display the historical CPU usage statistics for process 1.

```
<Sysname> display cpu-usage history job 1
100%|
```

```
95%|
90%|
85%|
80%|
75%|
70%|
65%|
60%|
55%|
50%|
45%|
40%|
35%|
30%|
25%|
20%|
15%|
10%|
 5%|                         #
    --------------------------------------------------------
          10        20        30        40        50        60  (minutes)
              cpu-usage (Slot 1 CPU 0) last 60 minutes (scmd)
```
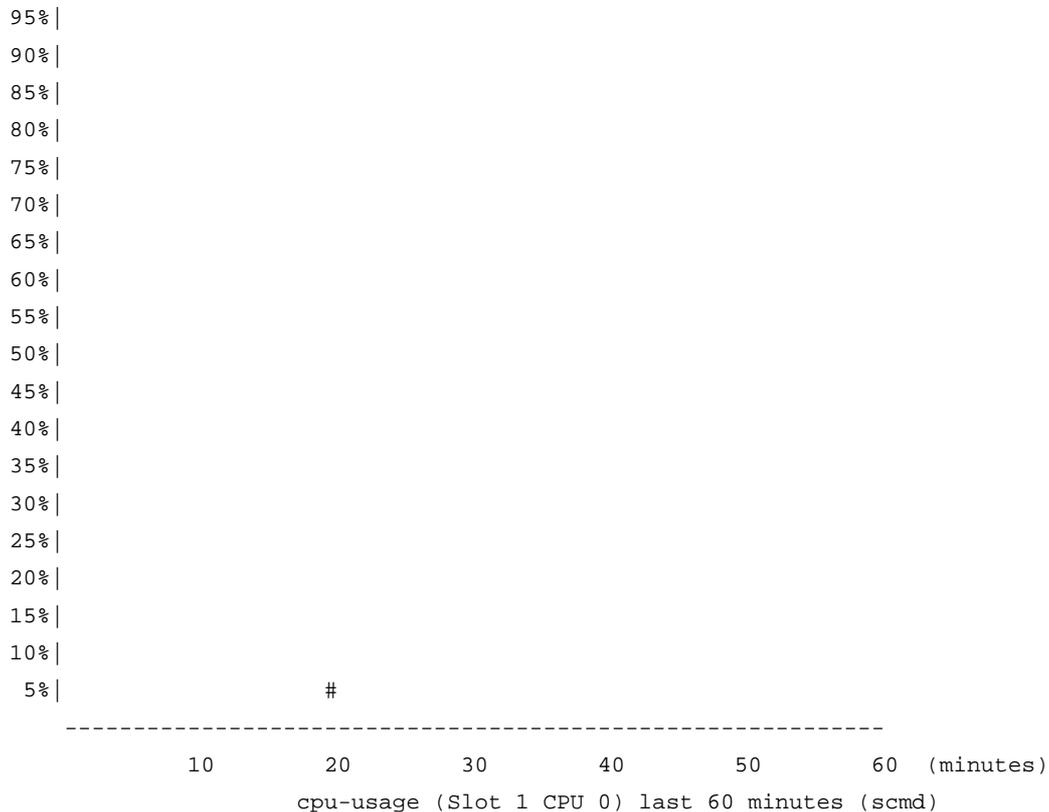
The output shows the historical CPU usage statistics of process 1 (with the process name **scmd**) in the last 60 minutes. A process name with square brackets ([ ]) means that the process is a kernel process.

- 20 minutes ago: Approximately 5%.
- Other time: 2% or lower than 2%.

Related commands

- **monitor cpu-usage enable**
- **monitor cpu-usage interval**

display device

Use **display device** to display device information.

Syntax

display device [**flash** | **usb**] [**slot** *slot-number* [**subslot** *subslot-number*] | **verbose**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

flash: Specifies the flash memory.

usb: Specifies the device connected to the USB interface.

slot *slot-number*: Specifies an IRF member device by its member ID.

subslot *subslot-number*: Specifies a subcard by its subslot number.

verbose: Displays detailed hardware information. Without this keyword, the command displays brief information.

Examples

Display device information for all IRF member devices in the IRF fabric.

```
<Sysname> display device
Slot Type            State    Subslot  Soft Ver          Patch Ver
1    HPE FlexFabirc  Master   0        2422              None
     5930-32QSFP+
     Switch
```

Table 30 Command output

Field	Description
Slot	ID of the IRF member device.
Type	Type of the switch.
State	Status of the switch.
Subslot	Subslot number of the subcard.
Soft Ver	Software version.
Patch Ver	Patch version.

display device manuinfo

Use **display device manuinfo** to display the electronic label information for the device.

Syntax

display device manuinfo [**slot** *slot-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command displays electronic label information for all IRF member devices.

Usage guidelines

An electronic label is a profile of a device or card. It 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.

Examples

Display the electronic label information for the device.

```
<Sysname>display device manuinfo
 Slot 1 CPU 0:
DEVICE_NAME          : HP FlexFabirc 5930-32QSFP+ Switch JG726A
DEVICE_SERIAL_NUMBER : CN43GG2001
```

```
MAC_ADDRESS           : 00E0-FC00-5800
MANUFACTURING_DATE    : 2008-05-08
VENDOR_NAME           : HPE
Fan 1
DEVICE_NAME           : LSWM1HFANSC
DEVICE_SERIAL_NUMBER  : CN43GG2002
MANUFACTURING_DATE    : 2011-11-12
VENDOR_NAME           : HPE
Fan 2
DEVICE_NAME           : LSWM1HFANSC
DEVICE_SERIAL_NUMBER  : CN43GG2003
MANUFACTURING_DATE    : 2011-11-13
VENDOR_NAME           : HPE
Power 2
DEVICE_NAME           : LSVM1AC650
MANU SERIAL NUMBER    : CN43GG2004
MANUFACTURING_DATE    : 2011-11-14
VENDOR_NAME           : HPE
```

Table 31 Command output

Field	Description
Slot *x* CPU *y*	Slot number of the card and number of the CPU.
DEVICE_SERIAL_NUMBER	Serial number.
MAC_ADDRESS	MAC address.
MANUFACTURING_DATE	Manufacturing date.
VENDOR_NAME	Vendor name.

display device manuinfo fan

Use **display device manuinfo fan** to display electronic label information for a fan.

Syntax

display device manuinfo slot *slot-number* **fan** *fan-id*

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID.

fan-id: Specifies a fan by its ID.

Examples

Display the electronic label information for fan 1.

```
<Sysname> display device manuinfo slot 1 fan 1
```

```
Fan 1:
DEVICE_NAME            : LSWM1HFANSC
DEVICE_SERIAL_NUMBER : CN43GG2002
MANUFACTURING_DATE    : 2011-11-12
VENDOR_NAME            : HPE
```

display device manuinfo power

Use **display device manuinfo power** to display the electronic label information for a power supply.

Syntax

display device manuinfo slot *slot-number* **power** *power-id*

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID.

fan-id: Specifies a fan by its ID.

power-id: Specifies a power supply by its ID.

Examples

Display the electronic label information for power supply 1.

```
<Sysname> display device manuinfo slot 1 power 1
Power 1:
DEVICE_NAME            : LSVM1AC650
MANU SERIAL NUMBER    : CN43GG2004
MANUFACTURING_DATE    : 2011-11-14
VENDOR_NAME            : HPE
```

display diagnostic-information

Use **display diagnostic-information** to display or save operating information for multiple feature modules in the system.

Syntax

display diagnostic-information [**hardware** | **infrastructure** | **l2** | **l3** | **service**] [**key-info**] [*filename*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

hardware: Specifies hardware-related operating information.

infrastructure: Specifies operating information for the fundamental modules.

l2: Specifies operating information for the Layer 2 features.

l3: Specifies operating information for the Layer 3 features.

service: Specifies operating information for upper-layer features.

key-info: Displays or saves only critical operating information. The device might have a large amount of operating information if an exception occurs or after the device runs a long period of time. Specifying this keyword reduces the command execution time and helps you focus on critical operating information. If you do not specify this keyword, the command displays or saves both critical and non-critical operating information.

filename: Specifies a .tar.gz file to save the information to the file.

Usage guidelines

You can use one of the following methods to collect data for diagnostics and troubleshooting:

● Use separate **display** commands to collect running status data module by module.

● Use the **display diagnostic-information** command to bulk collect running data for multiple modules.

To save storage space, this command automatically compresses information before saving information to a file. To view the file content:

1. Use the **tar extract** command to extract the file.

2. Use the **more** command to view the file content.

For more information about the **more** and **tar extract** commands, see *Fundamentals Command Reference.*

If you do not specify any feature parameters, this command displays or saves the operating information for all features and modules.

If you do not specify a file name for the command, the system prompts you to choose whether to display or save the information. If you choose to save the information, the system automatically assigns a file name and displays the file name in brackets. For file name uniqueness, the file name includes the device name and the current system time. If the device name contains any of the following special characters, the system uses an underscore (_) to replace each special character: forward slashes (/), backward slashes (\), colons (:), asterisks (*), question marks (?), less than signs (<), greater than signs (>), pipeline signs (|), and quotation marks ("). For example, if the device name is **A/B**, the device name in the file name will be **A_B**, as in **flash:/diag_A_B_20160101-000438.tar.gz**.

This **display** command does not support the **| by-linenum** option, the **>** *filename* option, or the **>>** *filename* option.

Examples

Display the operating statistics for multiple feature modules in the system.

```
<Sysname> display diagnostic-information
Save or display diagnostic information (Y=save, N=display)? [Y/N]:n
=============================================
  =============display clock==============
14:03:55 UTC Thu 01/05/2012
===============================================
  =============display version==============
…
```

display environment

Use **display environment** to display the temperature statistics for the temperature sensors, including the current temperature and temperature alarm thresholds.

Syntax

display environment [**slot** *slot-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command displays the temperature statistics for all temperature sensors in the IRF fabric.

Examples

Display the temperature statistics for all temperature sensors on the device.

```
<Sysname>display environment
System temperature information (degree centigrade):
 --------------------------------------------------------------------
 Slot   Sensor      Temperature  Lower   Warning   Alarm   Shutdown
 1       hotspot 1 38             0       62       75      NA
 1       hotspot 2 36             0       62       75      NA
1       hotspot 3 36             0       52       55      NA
 1       hotspot 4 42             0       77       87      NA
```

Table 32 Command output

Field	Description
System temperature information (degree centigrade)	Temperature information (°C).
sensor	Temperature sensor, **hotspot** for a hotspot sensor.
Slot *x*	ID of the IRF member device.
Temperature	Current temperature.
Lower	Low-temperature threshold.
Warning	High-temperature warning threshold.
Alarm	High-temperature alarming threshold.
Shutdown	High-temperature shutdown threshold.

display fan

Use **display fan** to display the operating states of fans.

Syntax

display fan [**slot** *slot-number* [*fan-id*]]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command displays the operating states of fans on all IRF member devices.

fan-id: Specifies a fan by its ID. If you do not specify this argument, the command displays the operating states of all fans on the specified member device.

Examples

Display the operating states of all fans.

```
<Sysname> display fan
 Slot 1:
 Fan 1:
 State    : Normal
 Airflow Direction: Port-to-power
 Prefer Airflow Direction: Port-to-power
 Fan 2:
 State    : Normal
 Airflow Direction: Port-to-power
 Prefer Airflow Direction: Port-to-power
```

Table 33 Command output

Field	Description
Slot *x*	ID of the IRF member device.
Fan 1	ID of the Fan.
State	Fan status: • **Absent**—No fan is installed in the position. • **Normal**—The fan is operating correctly. • **Fault**—The fan has a problem. • **FanDirectionFault**—The current air direction is different from the preferred airflow direction.
Airflow Direction	Current airflow direction: • **Port-to-power**—From the port side to the power supply side. • **Power-to-port**—From the power supply side to the port side.
Prefer Airflow Direction	Preferred airflow direction: • **Port-to-power**—From the port side to the power supply side. • **Power-to-port**—From the power supply side to the port side.

display memory

Use **display memory** to display memory usage.

Syntax

display memory [**slot** *slot-number* [**cpu** *cpu-number*]]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command displays memory usage for all member devices.

cpu *cpu-number*: Specifies a CPU by its number. The *cpu-number* argument must be 0.

Examples

Display memory usage.

```
<Sysname>display memory
The statistics about memory is measured in KB:
Slot 10:
                Total      Used      Free    Shared   Buffers    Cached   FreeRatio
Mem:          3854876    651188   3203688         0       740    157844      83.3%
-/+ Buffers/Cache:        492604   3362272
Swap:               0         0         0
LowMem:        709152    303772    405380        --        --        --      57.2%
HighMem:      3145724    347416   2798308        --        --        --      89.0%
```

Table 34 Command output

Field	Description
Slot	ID of an IRF member device.
Mem	Memory usage information.
LowMem	Low-memory usage information.
HighMem	High-memory usage information.
Total	Total size of the physical memory space that can be allocated. The memory space is virtually divided into two parts. Part 1 is solely used for kernel codes, kernel management, and ISSU functions. Part 2 can be allocated and used for such tasks as running service modules and storing files. The size of part 2 equals the total size minus the size of part 1.
Used	Used physical memory.
Free	Free physical memory.
Shared	Physical memory shared by processes. If this field is not supported, two hyphens (--) are displayed.
Buffers	Physical memory used for buffers. If this field is not supported, two hyphens (--) are displayed.
Cached	Physical memory used for caches. If this field is not supported, two hyphens (--) are displayed.
FreeRatio	Free memory ratio.

Field	Description
-/+ Buffers/Cache	-/+ Buffers/Cache:Used = Mem:Used – Mem:Buffers – Mem:Cached, which indicates the physical memory used by applications.
	-/+ Buffers/Cache:Free = Mem:Free + Mem:Buffers + Mem:Cached, which indicates the physical memory available for applications.
Swap	Swap memory.

display memory-threshold

Use **display memory-threshold** to display memory usage thresholds and memory usage notification statistics.

Syntax

display memory-threshold [**slot** *slot-number* [**cpu** *cpu-number*]]

Views

Any view

Predefined user roles

network-admin

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command displays the memory usage thresholds and memory usage notification statistics for the master device.

cpu *cpu-number*: Specifies a CPU by its number. The *cpu-number* argument must be 0.

Usage guidelines

For more information about memory usage notifications, see log information containing **MEM_EXCEED_THRESHOLD** or **MEM_BELOW_THRESHOLD**.

Examples

Display memory usage thresholds and memory usage notification statistics.

```
<Sysname>display memory-threshold
Memory usage threshold:  100%
Free memory threshold:
    Minor: 96M
    Severe: 64M
    Critical: 48M
    Normal: 128M
Current memory state: Normal
Event statistics:
 [Back to normal state]
    First notification: 0.0
    Latest notification: 0.0
    Total number of notifications sent: 0
 [Enter minor low-memory state]
    First notification at: 0.0
    Latest notification at: 0.0
    Total number of notifications sent: 0
 [Back to minor low-memory state]
```

```
      First notification at: 0.0
      Latest notification at: 0.0
      Total number of notifications sent: 0
  [Enter severe low-memory state]
      First notification at: 0.0
      Latest notification at: 0.0
      Total number of notifications sent: 0
  [Back to severe low-memory state]
      First notification at: 0.0
      Latest notification at: 0.0
      Total number of notifications sent: 0
  [Enter critical low-memory state]
      First notification at: 0.0
      Latest notification at: 0.0
      Total number of notifications sent: 0
```

Related commands

- **memory-threshold**

- **memory-threshold usage**

display power

Use **display power** to display power supply information.

Syntax

display power [**slot** *slot-number* [*power-id*]]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID.

power-id: Specifies a power supply by its ID. If you do not specify this option, the command displays information about all power supplies on the specified member device.

Examples

Display power supply information.

```
<Sysname> display power
Slot 1:
 Input Power: 244(W)
 PowerID State     Mode    Current(A)  Voltage(V)  Power(W)
 1       Absent    --      --          --          --
 2       Normal    AC      --          --          --
```

display scheduler job

Use **display scheduler job** to display job configuration information.

Syntax

display scheduler job [*job-name*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

job-name: Specifies a job by its name, a case-sensitive string of 1 to 47 characters. If you do not specify this option, the command displays all jobs' configuration information.

Examples

Display all jobs' configuration information.

```
<Sysname> display scheduler job
Job name: saveconfig
 copy startup.cfg backup.cfg


Job name: backupconfig


Job name: creat-VLAN100
 system-view
 vlan 100
```

// The output shows that the device has three jobs: the first has one command, the second has no command, and the third has two commands. Jobs are separated by blank lines.

display scheduler logfile

Use **display scheduler logfile** to display log information for executed jobs.

Syntax

display scheduler logfile

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

Display job execution log information.

```
<Sysname> display scheduler logfile
Logfile Size: 1902 Bytes.


Job name        : shutdown
Schedule name   : shutdown
Execution time  : Tue Dec 27 10:44:42 2011
Completion time : Tue Dec 27 10:44:47 2011
------------------------------- Job output ---------------------------------
```

```
<Sysname>system-view
System View: return to User View with Ctrl+Z.
[Sysname]interface range fortygige 1/0/1 to fortygige 1/0/2
[Sysname-if-range]shutdown
```

Table 35 Command output

Field	Description
Logfile Size	Size of the log file, in bytes.
Schedule name	Schedule to which the job belongs.
Execution time	Time when the job was started.
Completion time	Time when the job was completed. If the job has never been executed or the job has no commands, this field is blank.
Job output	Commands in the job and their output.

Related commands

reset scheduler logfile

display scheduler reboot

Use **display scheduler reboot** to display the automatic reboot schedule.

Syntax

display scheduler reboot

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

Display the automatic reboot schedule.
```
<Sysname> display scheduler reboot
System will reboot at 16:32:00 05/23/2011 (in 1 hours and 39 minutes).
```

Related commands

- **scheduler reboot at**
- **scheduler reboot delay**

display scheduler schedule

Use **display scheduler schedule** to display schedule information.

Syntax

display scheduler schedule [*schedule-name*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

schedule-name: Specifies a schedule by its name, a case-sensitive string of 1 to 47 characters. If you do not specify this option, the command displays information about all schedules.

Examples

Display information about all schedules.

```
<Sysname> display scheduler schedule
Schedule name        : shutdown
Schedule type        : Run once after 0 hours 2 minutes
Start time           : Tue Dec 27 10:44:42 2011
Last execution time  : Tue Dec 27 10:44:42 2011
Last completion time : Tue Dec 27 10:44:47 2011
Execution counts     : 1
----------------------------------------------------------------------
Job name                                      Last execution status
shutdown                                      Successful
```

Table 36 Command output

Field	Description
Schedule type	Execution time setting of the schedule. If no execution time is specified, this field is not displayed.
Start time	Time to execute the schedule for the first time. If no execution time is specified, this field is not displayed.
Last execution time	Last time when the schedule was executed. If no execution time is specified, this field is not displayed. If the schedule has never been executed, "Yet to be executed" is displayed for this field.
Last completion time	Last time when the schedule was completed. If no execution time is specified, this field is not displayed.
Execution counts	Number of times the schedule has been executed. If the schedule has never been executed, this field is not displayed.
Job name	Name of a job under the schedule.
Last execution status	Result of the most recent execution: • **Successful**. • **Failed**. • **Waiting**—The device is executing the schedule and the job is waiting to be executed. • **In process**—The job is being executed. • **-NA-**—The execution time has not arrived yet. To view information about whether the commands in the job has been executed and the execution results, execute the **display scheduler logfile** command.

display system stable state

Use **display system stable state** to display system stability and status information.

Syntax

display system stable state

Views

Any view

Predefined user roles

network-admin

network-operator

Usage guidelines

Before performing an ISSU or a master/subordinate switchover, use this command to verify that the system is stable. If the **System State** field does not display **Stable**, you cannot perform an ISSU. If the **Redundancy Stable** filed does not display **Stable**, you cannot perform a master/subordinate switchover.

At startup, an IRF fabric takes some time to enter **Stable** state. If an IRF fabric cannot enter **Stable** state, use this command to locate the member device that is not in **Stable** state. To locate the instability problem, also use the following commands:

- **display device**—Displays device information to locate member devices that are faulty.
- **display ha service-group**—Displays service group status information to locate the service groups in **Batch Backup** state.

You can use these commands multiple times to observe status changes.

Examples

Display system stability and status information.

```
<Sysname> display system stable state
System state    : Stable
Redundancy state: No redundance
  Slot   CPU   Role      State
  1      0     Active    Stable
```

Table 37 Command output

Field	Description
System state	IRF status: • **Stable**—The IRF fabric is operating stably. • **Not ready**—The IRF fabric is not stable. You cannot perform an ISSU.
Redundancy state	Redundancy status: • **Stable**—The IRF fabric is operating stably. You can perform a master/subordinate switchover. • **No Redundance**—The IRF fabric has only one member device. You cannot perform a master/subordinate switchover. • **Not ready**—The IRF fabric is not stable. You cannot perform a master/subordinate switchover.
Role	Role of the member device in the IRF fabric: • **Active**—Master member. • **Standby**—Subordinate member.

Field	Description
State	Status of the member device: • **Stable**—The member device is operating stably. • **Board Inserted**—The member device has just been installed. • **Kernel Init**—The member device kernel is being initialized. • **Service Starting**—Services are starting on the member device. • **Service Stopping**—Services are stopping on the member device. • **HA Batch Backup**—An HA batch backup is in progress on the member device. • **Interface Data Batch Backup**—An interface data batch backup is in progress on the member device.
*	The member device is not operating stably.

Related commands

display ha service-group (*High Availability Command Reference*)

display system-working-mode

Use **display system-working-mode** to display system working mode information.

Syntax

display system-working-mode

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

Display system working mode information.

```
<Sysname> display system-working-mode
The current system working mode is standard.
The next system working mode is advance.
```

display switch-mode status

Use **display switch-mode status** to display table capacity mode information.

Syntax

display switch-mode status

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

Display table capacity mode information.

```
<Sysname> display switch-mode status
Switch-mode in use: 1--MAC table is 224K, L3 host table is 56K, LPM Table is 16K
Switch-mode at the next reboot: 0--MAC table is 288K, L3 host table is 16K, LPM
Table is 16K
```

Table 38 Command output

Field	Description
Switch-mode in use	Current table capacity mode.
Switch-mode at the next reboot	Table capacity mode for the next reboot.
MAC table is 288K	Capacity of the MAC address table.
L3 host table is 16K	Capacity of the ARP or ND table.
LPM Table is 16K	Capacity of the routing table.

display transceiver alarm

Use **display transceiver alarm** to display transceiver alarms.

Syntax

display transceiver alarm interface [*interface-type interface-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface [*interface-type interface-number*]: Specifies an interface by its type and number. If no interface is specified, this command displays the alarms present on every transceiver module.

Usage guidelines

Table 39 shows the common transceiver alarms. If no error occurs, "None" is displayed.

Table 39 Common transceiver alarms

Field	Description
SFP/SFP+:	
RX loss of signal	Signal loss occurred in the inbound direction.
RX power high	The received optical power is high.
RX power low	The received optical power is low.
TX fault	Transmission error.
TX bias high	The transmitted bias current is high.
TX bias low	The transmitted bias current is low.
TX power high	The transmitted optical power is high.
TX power low	The transmitted optical power is low.
Temp high	The temperature is high.

Field	Description
Temp low	The temperature is low.
Voltage high	The voltage is high.
Voltage low	The voltage is low.
Transceiver info I/O error	Transceiver information read/write error.
Transceiver info checksum error	Transceiver information checksum error.
Transceiver type and port configuration mismatch	The type of the transceiver module does not match the port configuration.
Transceiver type not supported by port hardware	The port does not support this type of transceiver modules.
QSFP+:	
RX signal loss in channel x	Signal loss occurred in the inbound direction of the specified channel.
TX fault in channel x	Transmission error occurred in the specified channel.
TX signal loss in channel x	Transmitted signals were lost in the specified channel.
RX power high in channel x	The received optical power is high in the specified channel.
RX power low in channel x	The received optical power is low in the specified channel.
TX bias high in channel x	The transmitted bias current is high in the specified channel.
TX bias low in channel x	The transmitted bias current is low in the specified channel.
Temp high	The temperature is high.
Temp low	The temperature is low.
Voltage high	The voltage is high.
Voltage low	The voltage is low.
Transceiver info I/O error	Transceiver information read/write error.
Transceiver info checksum error	Transceiver information checksum error.
Transceiver type and port configuration mismatch	The type of the transceiver module does not match the port configuration.
Transceiver type not supported by port hardware	The port does not support this type of transceiver module.

Examples

Display the alarms present on the transceiver module in interface FortyGigE 1/0/1.

```
<Sysname> display transceiver alarm interface fortygige 1/0/1
FortyGigE1/0/1 transceiver current alarm information:
  Temp high
```

Table 40 Command output

Field	Description
transceiver current alarm information	Alarms present on the transceiver module.
RX loss of signal	Received signals are lost.

Field	Description
RX power low	Received power is low.
Temp high	Temperature is high.

display transceiver diagnosis

Use **display transceiver diagnosis** to display the current values of the digital diagnosis parameters on transceiver modules.

Syntax

display transceiver diagnosis interface [*interface-type interface-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface [*interface-type interface-number*]: Specifies an interface by its type and number. If no interface is specified, this command displays the current values of the digital diagnosis parameters on every transceiver module.

Usage guidelines

This command cannot display information about some transceiver modules.

Examples

Display the current values of the digital diagnosis parameters on the transceiver module in interface FortyGigE 1/0/2.

```
<Sysname> display transceiver diagnosis interface fortygige 1/0/2
FortyGigE1/0/2 transceiver diagnostic information:
  Current diagnostic parameters:
    Temp.(°C) Voltage(V)  Bias(mA)  RX power(dBm)  TX power(dBm)
    43         3.31        6.23       -6.50          -2.15
  Alarm thresholds:
         Temp(°C)  Voltage(V)  Bias(mA)  RX power(dBM)  TX power(dBM)
    High  75        -63         10.50      2.00           1.50
    Low   -5        2.97        2.00      -13.90         -11
```

Table 41 Command output

Field	Description
transceiver diagnostic information	Digital diagnosis information of the transceiver module in the interface.
Temp.(°C)	Temperature in °C, accurate to 1°C.
Voltage(V)	Voltage in V, accurate to 0.01 V.
Bias(mA)	Bias current in mA, accurate to 0.01 mA.
RX power(dBm)	RX power in dBm, accurate to 0.01 dBm.
TX power(dBm)	TX power in dBm, accurate to 0.01 dBm.

display transceiver interface

Use **display transceiver interface** to display the key parameters of transceiver modules.

Syntax

display transceiver interface [*interface-type interface-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type interface-number: Specifies an interface by its type and number. If you do not specify this option, the command displays the key parameters of every transceiver module.

Examples

Display the key parameters of the transceiver module in interface FortyGigE 1/0/3.

```
<Sysname> display transceiver interface fortygige 1/0/3
FortyGigE1/0/3 transceiver information:
  Transceiver Type          : 40G_BASE_LR4_QSFP_PLUS
  Connector Type            : LC
  Wavelength(nm)            : 1301
  Transfer Distance(km)     : 10(SMF)
  Digital Diagnostic Monitoring : YES
  Vendor Name               : HPE
```

Table 42 Command output

Field	Description
transceiver information	Transceiver information.
Transceiver Type	Transceiver type.
Connector Type	Connector type options: • **MPO**—Multi-fiber Push On. • **LC**—1.25 mm/RJ-45 fiber connector developed by Lucent. • **RJ-45**.
Wavelength(nm)	• 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. • Copper cable: Displayed as N/A.
Transfer Distance(xx)	Transfer distance, with "xx" representing the distance unit: km (kilometers) for single-mode transceiver modules and m (meters) for other transceiver modules. If the transceiver module supports multiple transfer media, the transfer distances are separated by commas. The transfer medium is included in the bracket following the transfer distance value. The following are the transfer media: • **9 um**—9/125 um single-mode fiber. • **50 um**—50/125 um multi-mode fiber. • **62.5 um**—62.5/125 um multi-mode fiber. • **TP**—Twisted pair. • **CX4**—CX4 cable.

Field	Description
Digital Diagnostic Monitoring	Support for digital diagnosis: • **YES**—Supported. • **NO**—Not supported.

display transceiver manuinfo

Use **display transceiver manuinfo** to display electronic label information for transceiver modules.

Syntax

display transceiver manuinfo interface [*interface-type interface-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface [*interface-type interface-number*]: Specifies an interface by its type and number. If no interface is specified, this command displays electronic label information for the transceiver modules on all interfaces.

Usage guidelines

This command displays only part of the electronic label information.

Examples

Display the electronic label information for the transceiver module in interface FortyGigE 1/0/4 .

```
<Sysname> display transceiver manuinfo interface fortygige 1/0/4
FortyGigE1/0/4 transceiver manufacture information:
  Manu. Serial Number  : 213410A0000054000251
  Manufacturing Date   : 2012-09-01
  Vendor Name          : HPE
```

Table 43 Command output

Field	Description
Manu. Serial Number	Serial number generated during production of the transceiver module.
Manufacturing Date	Date when the electronic label information was written to the transceiver module.

display version

Use **display version** to display system version information.

Syntax

display version

Views

Any view

Predefined user roles

network-admin

network-operator

Examples

Display system version information.

```
<Sysname> display version
...
```

display version-update-record

Use **display version-update-record** to display the startup software image upgrade history records of the master device.

Syntax

display version-update-record

Views

Any view

Predefined user roles

network-admin

network-operator

Usage guidelines

The device records its current startup software version information and all subsequent version update information. Such information can survive reboots.

The maximum number of records is 10.

Examples

Display the startup software image upgrade history records.

```
<Sysname>display version-update-record
Name                                    Version               Compile time
Record 1  (updated on Oct 25 2014 at 00:25:04):
* HPE5930-cmw710-boot-r2422.bin         7.1.045 Release 2422  Oct 24 2014 17:45:29
* HPE5930-cmw710-system-r2422.bin       7.1.045 Release 2422  Oct 24 2014 17:45:29
```

Table 44 Command output

Field	Description
Name	Software image file name.
*	The new software image is different from the old one.

Related commands

reset version-update-record

fan prefer-direction

Use **fan prefer-direction** to configure the preferred airflow direction.

Use **undo fan prefer-direction** to restore the default.

Syntax

fan prefer-direction slot *slot-number* { **power-to-port** | **port-to-power** }

undo fan prefer-direction slot *slot-number*

Default

The default preferred airflow direction is from the power supply side to the port side.

Views

System view

Predefined user roles

network-admin

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID.

power-to-port: Specifies the airflow direction from the power supply side to the port side.

port-to-power: Specifies the airflow direction from the port side to the power supply side.

Examples

\# Set the preferred airflow direction to **port-to-power** for member device 1.

```
<Sysname> system-view
[Sysname] fan prefer-direction slot 1 port-to-power
```

Related commands

display fan

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** }

Default

The device does not have any banner.

Views

System view

Predefined user roles

network-admin

Parameters

incoming: Configures the banner to be displayed before a modem dial-up user accesses user view. If authentication is required, the incoming banner appears after the authentication is passed.

legal: Configures the banner to be displayed before a user inputs the username and password to access the CLI.

login: Configures the banner displayed to be before password or scheme authentication is performed for a login user.

motd: Configures the greeting banner to be displayed before the legal banner appears.

shell: Configures the banner to be displayed before a non-modem dial-in user accesses user view.

text: Specifies the banner message. You can enter the message on the same line as the keywords or on different lines. For more information, see *Fundamentals Configuration Guide*.

Examples

Create the incoming banner, legal banner, login banner, MOTD banner, and shell banner.

```
<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 legal (header legal)%
[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 character of the *text* argument. Entering the percentage sign after the text quits the **header** command. Because it is the starting and ending character, the percentage sign is not included in the banner.

Test the configuration by using Telnet. The login banner appears only when password or scheme login authentication has been configured.

```
*****************************************************************************
* Copyright (c) 2010-2017 Hewlett Packard Enterprise Development LP         *
* 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 login(header login)


Password:



Welcome to motd(header motd)



Welcome to shell(header shell)
```

job

Use **job** to assign a job to a schedule.

Use **undo job** to revoke a job.

Syntax

job *job-name*

undo job *job-name*

Default

No job is assigned to a schedule.

Views

Schedule view

Predefined user roles

network-admin

Parameters

job-name: Specifies the job name, a case-sensitive string of 1 to 47 characters.

Usage guidelines

You can assign multiple jobs to a schedule. The jobs in a schedule are executed concurrently.

The jobs to be assigned to a schedule must already exist. To create a job, use the **scheduler job** command.

Examples

Assign job **save-job** to schedule **saveconfig**.

```
<Sysname> system-view
[Sysname] scheduler schedule saveconfig
[Sysname-schedule-saveconfig] job save-job
```

Related commands

- **scheduler job**
- **scheduler schedule**

memory-threshold

Use **memory-threshold** to set free-memory thresholds.

Use **undo memory-threshold** to restore the defaults.

Syntax

memory-threshold [**slot** *slot-number* [**cpu** *cpu-number*]] **minor** *minor-value* **severe** *severe-value* **critical** *critical-value* **normal** *normal-value*

undo memory-threshold [**slot** *slot-number* [**cpu** *cpu-number*]]

Default

- Minor alarm threshold: 96 MB.
- Severe alarm threshold: 64 MB.
- Critical alarm threshold: 48 MB.
- Normal state threshold: 128 MB.

Views

System view

Predefined user roles

network-admin

Parameters

minor *minor-value*: Specifies the minor alarm threshold in the range of 0 to 1742. This threshold must be equal to or less than the normal state threshold. Setting this threshold to 0 disables the minor alarm feature.

severe *severe-value*: Specifies the severe alarm threshold in the range of 0 to 1742. This threshold must be equal to or less than the minor alarm threshold. Setting this threshold to 0 disables the severe alarm feature.

critical *critical-value*: Specifies the critical alarm threshold in the range of 0 to 1742. This threshold must be equal to or less than the severe alarm threshold. Setting this threshold to 0 disables the critical alarm feature.

normal *normal-value*: Specifies the normal state threshold in the range of 0 to 1742. This threshold must be equal to or less than the total memory size.

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command sets free-memory thresholds for the master device.

cpu *cpu-number*: Specifies a CPU by its number. The *cpu-number* argument must be 0.

Usage guidelines

To ensure correct operation and improve memory utilization, the system monitors the amount of free memory space in real time. When a threshold is exceeded, the system sends an alarm notification or an alarm-removed notification to affected feature modules or processes so they can take countermeasures. For more information about the thresholds, see *Fundamentals Configuration Guide*.

Examples

Set the minor alarm, severe alarm, critical alarm, and normal state thresholds to 64 MB, 48 MB, 32 MB, and 96 MB, respectively.

```
<Sysname> system-view
[Sysname] memory-threshold minor 64 severe 48 critical 32 normal 96
```

Related commands

- **display memory-threshold**

- **memory-threshold usage**

memory-threshold usage

Use **memory-threshold usage** to set the memory usage threshold.

Use **undo memory-threshold usage** to restore the default.

Syntax

memory-threshold [**slot** *slot-number* [**cpu** *cpu-number*]] **usage** *memory-threshold*

undo memory-threshold [**slot** *slot-number* [**cpu** *cpu-number*]] **usage**

Default

The memory usage threshold is 100%.

Views

System view

Predefined user roles

network-admin

Parameters

memory-threshold: Specifies the memory usage threshold in percentage. The value range is 0 to 100.

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command sets the memory usage threshold for the master device.

cpu *cpu-number*: Specifies a CPU by its number. The *cpu-number* argument must be 0.

Usage guidelines

The device samples memory usage at an interval of 1 minute, and compares the sample with the memory usage threshold. If the sample is greater, the device sends a trap.

Examples

Set the memory usage threshold to 80%.

```
<Sysname> system-view
[Sysname] memory-threshold threshold 80
```

Related commands

- **display memory-threshold**

- **memory-threshold**

monitor cpu-usage enable

Use **monitor cpu-usage enable** to enable CPU usage recording.

Use **undo monitor cpu-usage enable** to disable CPU usage recording.

Syntax

monitor cpu-usage enable [**slot** *slot-number* [**cpu** *cpu-number*]]

undo monitor cpu-usage enable [**slot** *slot-number* [**cpu** *cpu-number*]]

Default

CPU usage recording is enabled.

Views

System view

Predefined user roles

network-admin

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command enables CPU usage recording for the master device.

cpu *cpu-number*: Specifies a CPU by its number. The *cpu-number* argument must be 0.

Examples

Enable CPU usage recording.

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

```
[Sysname] monitor cpu-usage enable
```

Related commands

- **display cpu-usage configuration**
- **display cpu-usage history**
- **monitor cpu-usage enable**
- **monitor cpu-usage threshold**

monitor cpu-usage interval

Use **monitor cpu-usage interval** to set the CPU usage sampling interval.

Syntax

monitor cpu-usage interval *interval-value* [**slot** *slot-number* [**cpu** *cpu-number*]]

Default

The CPU usage sampling interval is 1 minute.

Views

System view

Predefined user roles

network-admin

Parameters

interval-value: Specifies the CPU usage sampling interval. Valid values include **5Sec** for 5 seconds, **1Min** for 1 minute, and **5Min** for 5 minutes.

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command sets the CPU usage sampling interval for the master device.

cpu *cpu-number*: Specifies a CPU by its number. The *cpu-number* argument must be 0.

Examples

Set the CPU usage sampling interval to 5 seconds.

```
<Sysname> system-view
[Sysname] monitor cpu-usage interval 5Sec
```

Related commands

- **display cpu-usage configuration**
- **display cpu-usage history**
- **monitor cpu-usage enable**
- **monitor cpu-usage threshold**

monitor cpu-usage threshold

Use **monitor cpu-usage threshold** to set CPU usage thresholds.

Use **undo monitor cpu-usage threshold** to restore the defaults.

Syntax

monitor cpu-usage threshold *cpu-threshold* [**slot** *slot-number* [**cpu** *cpu-number*]]

undo monitor cpu-usage threshold [**slot** *slot-number* [**cpu** *cpu-number*]]

Default

The CPU usage threshold is 99%.

Views

System view

Predefined user roles

network-admin

Parameters

cpu-threshold: Specifies a CPU usage threshold in percentage. The value range is 0 to 100.

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command sets the CPU usage threshold for the master device.

cpu *cpu-number*: Specifies a CPU by its number. The *cpu-number* argument must be 0.

Usage guidelines

The device samples CPU usage at an interval of 1 minute, and compares the sample with the CPU usage threshold. If the sample is greater than the CPU usage threshold, the device sends a trap.

Examples

Set the CPU usage threshold to 80%.

```
<Sysname> system-view
[Sysname] monitor cpu-usage threshold 80
```

Related commands

- **display cpu-usage**
- **display cpu-usage configuration**
- **display cpu-usage history**
- **monitor cpu-usage enable**
- **monitor cpu-usage interval**

parity-error monitor log enable

Use **parity-error monitor log enable** to enable parity error logging for entries on forwarding chips.

Use **undo parity-error monitor log enable** to disable parity error logging for entries on forwarding chips.

Syntax

parity-error monitor log enable

undo parity-error monitor log enable

Default

Parity error logging is disabled for entries on forwarding chips.

Views

System view

Predefined user roles

network-admin

Usage guidelines

The device detects parity errors in entries on forwarding chips. The parity error logging feature generates logs for the detected parity errors.

Examples

Enable parity error logging for entries on forwarding chips.

```
<Sysname> system-view
[Sysname] parity-error monitor log enable
```

parity-error monitor period

Use **parity-error monitor period** to set the parity error statistics interval for entries on forwarding chips.

Use **undo parity-error monitor period** to restore the default.

Syntax

parity-error monitor period *value*

undo parity-error monitor period

Default

The parity error statistics interval is 60 seconds.

Views

System view

Predefined user roles

network-admin

Parameters

value: Specifies the parity error statistics interval in the range of 1 to 86400 seconds.

Usage guidelines

The device detects parity errors in entries on forwarding chips, and collects parity error statistics at the interval set by using this command.

Examples

Set the parity error statistics interval to 120 seconds.

```
<Sysname> system-view
[Sysname] parity-error monitor period 120
```

Related commands

parity-error monitor threshold

parity-error monitor threshold

Use **parity-error monitor threshold** to set the parity error alarm threshold for entries on forwarding chips.

Use **undo parity-error monitor threshold** to restore the default.

Syntax

parity-error monitor threshold *value*

undo parity-error monitor threshold

Default

The parity error alarm threshold is 5000.

Views

System view

Predefined user roles

network-admin

Parameters

value: Specifies the parity error alarm threshold in the range of 1 to 1000000.

Usage guidelines

The device detects and collects statistics for parity errors in entries on forwarding chips. If the number of parity errors in a parity error statistics interval reaches the parity error alarm threshold, the system issues an alarm.

Examples

Set the parity error alarm threshold to 8000.

```
<Sysname> system-view
[Sysname] parity-error monitor threshold 8000
```

Related commands

parity-error monitor period

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

Predefined user roles

network-admin

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.

Availability of Boot ROM menu options varies by the password recovery capability setting. For more information, see the release notes.

Examples

Disable password recovery capability.

```
<Sysname> system-view
[Sysname] undo password-recovery enable
```

reboot

Use **reboot** to reboot an IRF member device or all IRF member devices.

Syntax

reboot [**slot** *slot-number*] [**force**]

Default

The default setting varies by device model.

Views

User view

Predefined user roles

network-admin

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify this option, the command reboots all member devices.

force: Reboots the device immediately without performing any software check. If this keyword is not specified, the system first checks whether the reboot might result in data loss or a system failure. For example, the system checks whether the main system software image file exists and whether a write operation is in progress on a storage medium. If the reboot might cause problems, the system does not reboot the device.

Usage guidelines

△ **CAUTION:**
- A device reboot might interrupt network services.
- If the main startup software images are corrupted or missing, you must re-specify a set of main startup software images before executing the **reboot** command.

For data security, the device does not reboot if you reboot the device while the device is performing file operations.

Use the **force** keyword only when you cannot reboot the device without using it.

Examples

Reboot the device when no configuration change has occurred since the last time you saved the running configuration.

```
<Sysname> reboot
Start to check configuration with next startup configuration file, please
wait.........DONE!
This command will reboot the device. Continue? [Y/N]:y
Now rebooting, please wait...
```

If any configuration has changed, reboot the device and save the configuration.

```
<Sysname> reboot
```

```
Start to check configuration with next startup configuration file, please
wait.........DONE!
Current configuration may be lost after the reboot, save current configuration? [Y/N]:y
Please input the file name(*.cfg)[flash:/startup.cfg]
(To leave the existing filename unchanged, press the enter key):
flash:/startup.cfg exists, overwrite? [Y/N]:y
Validating file. Please wait...
Configuration is saved to flash successfully.
This command will reboot the device. Continue? [Y/N]:y
Now rebooting, please wait...
```
If any configuration has changed, reboot the device but do not save the configuration.
```
<Sysname> reboot
Start to check configuration with next startup configuration file, please
wait.........DONE!
Current configuration may be lost after the reboot, save current configuration? [Y/N]:n
This command will reboot the device. Continue? [Y/N]:y
Now rebooting, please wait...
```
Reboot the device immediately without performing any software check.
```
<Sysname> reboot force
A forced reboot might cause the storage medium to be corrupted. Continue? [Y/N]:y
Now rebooting, please wait...
```

reset scheduler logfile

Use **reset scheduler logfile** to clear job execution log information.

Syntax

reset scheduler logfile

Default

None

Views

User view

Predefined user roles

network-admin

Examples

Clear job execution log information.
```
<Sysname> reset scheduler logfile
```

Related commands

display scheduler logfile

reset version-update-record

Use **reset version-update-record** to clear the startup software image upgrade history records of the master device.

Syntax

reset version-update-record

Views

System view

Predefined user roles

network-admin

Examples

Clear the startup software image upgrade history records.

```
<Sysname> system-view
[Sysname] reset version-update-record
This command will delete all records of version update. Continue? [Y/N]:y
```

Related commands

display version-update-record

restore factory-default

Use **restore factory-default** to restore the factory-default settings and states.

Syntax

restore factory-default

Views

User view

Predefined user roles

network-admin

Usage guidelines

⚠ **CAUTION:**

This command is disruptive. Use this command only when you cannot troubleshoot the device by using other methods, or you want to use the device in a different scenario.

If a device fails or you want to use it in a different scenario, you can restore the factory-default settings and states for the device.

This command performs the following tasks:

- Deletes all configuration files (.cfg files) in the root directories of the storage media.
- Deletes all log files (.log files in the folder /logfile).
- Clears all log information (in the log buffer), trap information, and debugging information.
- Restores the parameters for the BootWare to the factory-default settings.
- Deletes all files on an installed hot-swappable storage medium, such as a USB disk.

Before this operation, remove all hot-swappable storage media from the device.

Examples

Restore the factory-default settings and states for the device.

```
<Sysname> restore factory-default
This command will restore the system to the factory default configuration and clear the
operation data. Continue [Y/N]:y
Restoring the factory default configuration. This process might take a few minutes. Please
wait........................................................................................
........................Done.
```

```
Please reboot the system to place the factory default configuration into effect.
```

Related commands

reboot

scheduler job

Use **scheduler job** to create a job and enter job view. If the job already exists, you enter job view directly.

Use **undo scheduler job** to delete a job.

Syntax

scheduler job *job-name*

undo scheduler job *job-name*

Default

No job exists.

Views

System view

Predefined user roles

network-admin

Parameters

job-name: Specifies the job name, a case-sensitive string of 1 to 47 characters.

Usage guidelines

A job can be referenced by multiple schedules. In job view, you can assign commands to the job.

Examples

Create a job named **backupconfig** and enter job view.

```
<Sysname> system-view
[Sysname] scheduler job backupconfig
[Sysname-job-backupconfig]
```

Related commands

- **command**
- **scheduler schedule**

scheduler logfile size

Use **scheduler logfile size** to set the size of the job execution log file.

Syntax

scheduler logfile size *value*

Default

The size of the job execution log file is 16 KB.

Views

System view

Predefined user roles

network-admin

Parameters

value: Sets the size of the job execution log file, in KB. The value range is 16 to 1024.

Usage guidelines

The job execution log file saves the execution information of jobs. If the file is full, old records are deleted to make room for new records. If the size of the log information is greater than the file size, the excessive information is not written to the file.

Examples

Set the size of the job execution log file to 32 KB.

```
<Sysname> system-view
[Sysname] scheduler logfile size 32
```

Related commands

display scheduler logfile

scheduler reboot at

Use **scheduler reboot at** to specify the reboot date and time.

Use **undo scheduler reboot** to remove the reboot schedule configuration.

Syntax

scheduler reboot at *time* [*date*]

undo scheduler reboot

Default

No reboot date or time is specified.

Views

User view

Predefined user roles

network-admin

Parameters

time: Specifies the reboot time in the *hh:mm* format. The value range for *hh* is 0 to 23. The value range for *mm* is 0 to 59.

date: Specifies the reboot date in the *MM/DD/YYYY* or *YYYY/MM/DD* format. The value range for *YYYY* is 2000 to 2035. The value range for *MM* is 1 to 12. The value range for *DD* varies by month.

Usage guidelines

△ **CAUTION:**

Device reboot interrupts network services.

When the *date* argument is not specified, the system uses the following rules to determine the reboot time:

- 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.

For data security, if you are performing file operations at the reboot time, the system does not reboot.

The device supports only one device reboot schedule. If you configure both the **schedule reboot delay** and **schedule reboot delay** commands or configure one of the commands multiple times, the most recent configuration takes effect.

Examples

Configure the device to reboot at 12:00 p.m. This example assumes that the current time is 11:43 a.m. on June 6, 2011.

```
<Sysname> scheduler reboot at 12:00
Reboot system at 12:00:00 06/06/2011 (in 0 hours and 16 minutes). Confirm? [Y/N]:
```

Related commands

scheduler reboot delay

scheduler reboot delay

Use **scheduler reboot delay** to specify the reboot delay time.

Use **undo scheduler reboot** to remove the reboot schedule configuration.

Syntax

scheduler reboot delay *time*

undo scheduler reboot

Default

No reboot delay time is specified.

Views

User view

Predefined user roles

network-admin

Parameters

time: Specifies the reboot delay time in the *hh:mm* or *mm* format. This argument can consist up to six characters. When in the *hh:mm* format, *mm* must be in the range of 0 to 59.

Usage guidelines

△ **CAUTION:**

Device reboot interrupts network services.

For data security, if you are performing file operations at the reboot time, the system does not reboot.

The device supports only one device reboot schedule. If you configure both the **schedule reboot delay** and **schedule reboot delay** commands or configure one of the commands multiple times, the most recent configuration takes effect.

Examples

Configure the device to reboot after 88 minutes. This example assumes that the current time is 11:48 a.m. on June 6, 2011.

```
<Sysname> scheduler reboot delay 88
Reboot system at 13:16 06/06/2011(in 1 hours and 28 minutes). Confirm? [Y/N]:
```

scheduler schedule

Use **scheduler schedule** to create a schedule and enter schedule view. If the schedule already exists, you enter schedule view directly.

Use **undo scheduler schedule** to delete a schedule.

Syntax

scheduler schedule *schedule-name*

undo scheduler schedule *schedule-name*

Default

No schedule exists.

Views

System view

Predefined user roles

network-admin

Parameters

schedule-name: Specifies the schedule name, a case-sensitive string of 1 to 47 characters.

Usage guidelines

You can schedule a job to have the device automatically run a command or a set of commands without administrative interference.

To configure a schedule:

1.   Use the **scheduler job** command to create a job.
2.   In job view, use the **command** command to assign commands to the job.
3.   Use the **scheduler schedule** command to create a schedule.
4.   In schedule view, use the **job** command to assign the job to the schedule. You can assign multiple jobs to a schedule. The jobs must already exist.
5.   In schedule view, use the **user-role** command to assign user roles to the schedule. You can assign up to 64 user roles to a schedule.
6.   In schedule view, use the **time at**, **time once**, or **time repeating** command to specify an execution time for the schedule. You can specify only one execution time per schedule.

Examples

Create a schedule named **saveconfig**.

```
<Sysname> system-view
[Sysname] scheduler schedule saveconfig
```

Related commands

- **job**
- **time at**
- **time once**

shutdown-interval

Use **shutdown-interval** to set the detection timer.

Use **undo shutdown-interval** to restore the default.

Syntax

shutdown-interval *time*

undo shutdown-interval

Default

The detection interval is 30 seconds.

Views

System view

Predefined user roles

network-admin

Parameters

time: Specifies a detection timer in seconds. The value range is 0 to 300. Setting it to 0 disables the detection feature.

Usage guidelines

The device starts a detection timer when a port is shut down by a protocol. Once the timer expires, the device brings up the port so the port status reflects the port's physical status.

If you change the timer during port detection, the device compares the new setting (T1) with the time that elapsed since the port was shut down (T).

- If T<T1, the port will be brought up after T1-T seconds.
- If T>=T1, the port is brought up immediately.

For example, if you change the timer from 30 seconds to 10 seconds two seconds after the port is shut down, the port will come up 8 seconds later. If you change the timer from 30 seconds to 2 seconds ten seconds after the port is shut down, the port comes up immediately.

Examples

\# Set the detection timer to 100 seconds.

```
<Sysname> system-view
[Sysname] shutdown-interval 100
```

switch-mode

Use **switch-mode** to set the table capacity mode.

Syntax

switch-mode { **0** | **1** | **2** | **3** | **4** }

Default

The table capacity mode is **0**.

Views

System view

Predefined user roles

network-admin

Parameters

0: Sets the table capacity mode to **0**.

1: Sets the table capacity mode to **1**.

2: Sets the table capacity mode to **2**.

3: Sets the table capacity mode to **3**.

4: Sets the table capacity mode to **4**.

Usage guidelines

The switch supports multiple table capacity modes. The capacities of the MAC address table, ARP/ND table, and routing table vary by the following items:

- Table capacity mode.

- Whether the **switch-routing-mode ipv6-128** command is configured. For more information about the **switch-routing-mode ipv6-128** command, see *Layer 3—IP Routing Command Reference*.

For table capacities in different scenarios, see *Fundamentals Configuration Guide*.

Mode 4 and the **switch-routing-mode ipv6-128** command are mutually exclusive.

This setting takes effect after a reboot. Before rebooting the switch, make sure you know the possible impact on the network.

Examples

Set the table capacity mode to **2**.

```
<Sysname> system-view
[Sysname] switch-mode 2
Reboot device to make the configuration take effect.
```

sysname

Use **sysname** to set the device name.

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

Syntax

sysname *sysname*

undo sysname

Default

The default device name is **HPE**.

Views

System view

Predefined user roles

network-admin

Parameters

sysname: Specifies a name for the device, a string of 1 to 64 characters.

Usage guidelines

A device name identifies a device in a network and is used 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-working-mode

Use **system-working-mode** to set the system operating mode.

Use **undo system-working-mode** to restore the default.

Syntax

system-working-mode { **advance** | **standard** | **expert** }

undo system-working-mode

Default

The device operates in standard mode.

Views

System view

Predefined user roles

network-admin

Parameters

advance: Sets the system operating mode to advanced.

standard: Sets the system operating mode to standard.

expert: Sets the system operating mode to expert.

Usage guidelines

After changing the operating mode, you must reboot the device to make the device operate in the new mode.

In different operating modes, the device supports different features, and might have different specifications for the supported features. For more information about the operating modes, see device management in *Fundamentals Configuration Guide*.

If the prompt "Not enough hardware resources available." appears after you set the system operating mode, perform the following tasks:

1. Use the **display qos-acl resource** command to display ACL resource usage.

2. Use the **undo acl** command to release ACL resources as required.

3. Set the system operating mode again.

For more information about the **display qos-acl resource** and **undo acl** commands, see *ACL and QoS Command Reference*.

Examples

Set the system operating mode to advanced.

```
<Sysname> system-view
[Sysname] system-working-mode advance
Do you want to change the system working mode? [Y/N]:y
The system working mode is changed, please save the configuration and reboot the system
to make it effective.
```

temperature-limit

Use **temperature-limit** to set the temperature alarm thresholds for the device.

Use **undo temperature-limit** to restore the default.

Syntax

temperature-limit slot *slot-number* **hotspot** *sensor-number lowlimit warninglimit* [*alarmlimit*]

undo temperature-limit slot *slot-number* **hotspot** *sensor-number*

Default

To view the default settings, execute the **undo temperature-limit** and **display environment** commands in turn.

Views

System view

Predefined user roles

network-admin

Parameters

slot *slot-number*: Specifies an IRF member device by its member ID.

hotspot: Configures temperature alarm thresholds for hotspot sensors. A hotspot sensor is typically near the chip that generates a great amount of heat and used to monitor the chip.

sensor-number: Specifies a sensor by its number, an integer starting from 1. Each number represents a temperature sensor on the device.

lowlimit: Specifies the low-temperature threshold in Celsius degrees.

warninglimit: Specifies the high-temperature warning threshold in Celsius degrees. This threshold must be greater than the low-temperature threshold.

alarmlimit: Specifies the high-temperature alarming threshold in Celsius degrees. This threshold must be greater than the warning threshold.

Usage guidelines

The value ranges for the sensor number and thresholds vary by device model. To view the value ranges, use the CLI online help.

When the device temperature drops below the low-temperature threshold or reaches the high-temperature warning threshold, the device sends a log message.

When the device temperature reaches the high-temperature alarming threshold, the device sends log messages repeatedly and sets LEDs on the device panel.

Examples

Set temperature alarm thresholds for Hotspot 1 on member device 1.

```
<Sysname> system-view
[sysname] temperature-limit slot 1 hotspot 1 -10 70 100
```

time at

Use **time at** to specify an execution date and time for a non-periodic schedule.

Use **undo time** to delete the execution date and time configuration for a non-periodic schedule.

Syntax

time at *time date*

undo time

Default

No execution time or date is specified for a non-periodic schedule.

Views

Schedule view

Predefined user roles

network-admin

Parameters

time: Specifies the schedule execution time in the *hh:mm* format. The value range for *hh* is 0 to 23. The value range for *mm* is 0 to 59.

date: Specifies the schedule execution date in the *MM/DD/YYYY* or *YYYY/MM/DD* format. The value range for *YYYY* is 2000 to 2035. The value range for *MM* is 1 to 12. The value range for *DD* varies by month.

Usage guidelines

The specified time (date plus time) must be later than the current system time.

The **time at** command, the **time once** command, and the **time repeating** command overwrite one another. The most recently configured command takes effect.

Examples

Configure the device to execute schedule **saveconfig** at 01:01 a.m. on May 11, 2011.

```
<Sysname> system-view
[Sysname] scheduler schedule saveconfig
[Sysname-schedule-saveconfig] time at 1:1 2011/05/11
```

Related commands

scheduler schedule

time once

Use **time once** to specify one or more execution days and the execution time for a non-periodic schedule.

Use **undo time** to delete the execution day and time configuration for a non-periodic schedule.

Syntax

time once at *time* [**month-date** *month-day* | **week-day** *week-day*&<1-7>]

time once delay *time*

undo time

Default

No execution time or day is specified for a non-periodic schedule.

Views

Schedule view

Predefined user roles

network-admin

Parameters

at *time*: Specifies the execution time in the *hh:mm* format. The value range for *hh* is 0 to 23. The value range for *mm* is 0 to 59.

month-date *month-day*: Specifies a day in the current month, in the range of 1 to 31. If you specify a day that does not exist in the current month, the configuration takes effect on that day in the next month.

week-day *week-day*&<1-7>: Specifies a space-separated list of up to seven week days for the schedule. Valid values include **Mon**, **Tue**, **Wed**, **Thu**, **Fri**, **Sat**, and **Sun**.

delay *time*: Specifies the delay time for executing the schedule, in the *hh:mm* or *mm* format. This argument can consist up to six characters. When in the *hh:mm* format, *mm* must be in the range of 0 to 59.

Usage guidelines

If the specified time has already occurred, the schedule will be executed at the specified time the following day.

If the day in the month has already occurred, the schedule will be executed at the specified day in the following month.

If the specified day in a week has already occurred, the schedule will be executed at the specified day in the following week.

The **time at** command, the **time once** command, and the **time repeating** command overwrite one another. The most recently configured command takes effect.

Examples

\# Configure the device to execute schedule **saveconfig** once at 15:00.

```
<Sysname> system-view
[Sysname] scheduler schedule saveconfig
[Sysname-schedule-saveconfig] time once at 15:00
Schedule starts at 15:00 5/11/2011.
```

\# Configure the device to execute schedule **saveconfig** once at 15:00 on the coming 15th day in a month.

```
<Sysname> system-view
[Sysname] scheduler schedule saveconfig
[Sysname-schedule-saveconfig] time once at 15:00 month-date 15
```

\# Configure the device to execute schedule **saveconfig** at 12:00 p.m. on the coming Monday and Friday.

```
<Sysname> system-view
[Sysname] scheduler schedule saveconfig
[Sysname-schedule-saveconfig] time once at 12:00 week-day mon fri
```

\# Configure the device to execute schedule **saveconfig** after 10 minutes.

```
<Sysname> system-view
[Sysname] scheduler schedule saveconfig
[Sysname-schedule-saveconfig] time once delay 10
```

Related commands

scheduler schedule

time repeating

Use **time repeating** to specify an execution time table for a periodic schedule.

Use **undo time** to delete the execution time table configuration for a periodic schedule.

Syntax

time repeating [**at** *time* [*date*]] **interval** *interval-time*

time repeating at *time* [**month-date** [*month-day* | **last**] | **week-day** *week-day*&<1-7>]

undo time

Default

No execution time table is specified for a periodic schedule.

Views

Schedule view

Predefined user roles

network-admin

Parameters

at *time*: Specifies the execution time in the *hh:mm* format. The value range for *hh* is 0 to 23. The value range for *mm* is 0 to 59. If you do not specify this option, the current system time is used as the execution time.

date: Specifies the start date for the periodic schedule, in the *MM/DD/YYYY* or *YYYY/MM/DD* format. The value range for *YYYY* is 2000 to 2035. The value range for *MM* is 1 to 12. The value range for *DD* varies by month. If you do not specify this argument, the execution start date is the first day when the specified time arrives.

interval *interval-time*: Specifies the execution time interval in the *hh:mm or mm* format. This argument can consist up to six characters. When in the *hh:mm* format, *mm* must be in the range of 0 to 59. When in the *mm* format, this argument must be equal to or greater than 1 minute.

month-date [*month-day* | **last**]: Specifies a day in a month, in the range 1 to 31. The **last** keyword indicates the last day of a month. If you specify a day that does not exist in a month, the configuration takes effect on that day in the next month.

week-day *week-day*&<1-7>: Specifies a space-separated list of up to seven week days. Valid values include **Mon**, **Tue**, **Wed**, **Thu**, **Fri**, **Sat**, and **Sun**.

Usage guidelines

The **time repeating** [**at** *time* [*date*]] **interval** *interval-time* command configures the device to execute the schedule regularly from the specified time on.

The **time repeating at** *time* [**month-date** [*month-day* | **last**] | **week-day** *week-day*&<1-7>] command configures the device to execute the schedule at the specified time on every specified day in a month or week.

The **time at** command, the **time once** command, and the **time repeating** command overwrite one another, whichever is configured most recently takes effect.

Examples

Configure the device to execute schedule **saveconfig** once an hour from 8:00 a.m. on.

```
<Sysname> system-view
[Sysname] scheduler schedule saveconfig
[Sysname-schedule-saveconfig] time repeating at 8:00 interval 60
```

Configure the device to execute schedule **saveconfig** at 12:00 p.m. every day.

```
<Sysname> system-view
[Sysname] scheduler schedule saveconfig
[Sysname-schedule-saveconfig] time repeating at 12:00
```

Configure the device to execute schedule **saveconfig** at 8:00 a.m. on the 5th of every month.

```
<Sysname> system-view
[Sysname] scheduler schedule saveconfig
[Sysname-schedule-saveconfig] time repeating at 8:00 month-date 5
```

Configure the device to execute schedule **saveconfig** at 8:00 a.m. on the last day of every month.

```
<Sysname> system-view
[Sysname] scheduler schedule saveconfig
```

```
[Sysname-schedule-saveconfig] time repeating at 8:00 month-date last
```

\# Configure the device to execute schedule **saveconfig** at 8:00 a.m. every Friday and Saturday.

```
<Sysname> system-view
[Sysname] scheduler schedule saveconfig
[Sysname-schedule-saveconfig] time repeating at 8:00 week-day fri sat
```

Related commands

> **scheduler schedule**

transceiver phony-alarm-disable

Use **transceiver phony-alarm-disable** to disable transceiver module source alarm.

Use **undo transceiver phony-alarm-disable** to restore the default.

Syntax

> **transceiver phony-alarm-disable**
>
> **undo transceiver phony-alarm-disable**

Default

> Transceiver module source alarm is enabled.

Views

> System view

Predefined user roles

> network-admin

Usage guidelines

> The device regularly checks transceiver modules for their vendor names. If a transceiver module does not have a vendor name or the vendor name is not **HPE**, the device repeatedly outputs traps and log messages. Disable transceiver module source alarm if the transceiver modules were manufactured or sold by Hewlett Packard Enterprise.

Examples

> \# Disable transceiver module source alarm.
> ```
> <Sysname> system-view
> [Sysname] transceiver phony-alarm-disable
> ```

usb disable

Use **usb disable** to disable all USB interfaces.

Use **undo usb disable** to enable all USB interfaces.

Syntax

> **usb disable**
>
> **undo usb disable**

Default

> All USB interfaces are enabled.

Views

> System view

Predefined user roles

network-admin

Usage guidelines

You can use USB interfaces to upload or download files. By default, all USB interfaces are enabled.

Before executing this command, use the **umount** command to unmount all USB partitions.

Examples

Unmount all USB partitions before disabling USB interfaces.

```
<Sysname> umount slot1#usba0:
<Sysname> system-view
[Sysname] usb disable
```

Enable all USB interfaces.

```
<Sysname> system-view
[Sysname] undo usb disable
```

user-role

Use **user-role** to assign user roles to a schedule.

Use **undo user-role** to remove user roles from a schedule.

Syntax

user-role *role-name*

undo user-role *role-name*

Default

A schedule has the user roles of the schedule creator.

Views

Schedule view

Predefined user roles

network-admin

Parameters

role-name: Specifies a user role name, a case-sensitive string of 1 to 63 characters. The user role can be user-defined or predefined. Predefined user roles include network-admin, network-operator, level-0 to level-15, and security-audit.

Usage guidelines

By assigning user roles to and removing user roles from a schedule, you can control the commands to be executed in the schedule. A command in a schedule can be executed if it is permitted by one or more user roles of the schedule.

A schedule must have one or more user roles, and can have a maximum of 64 user roles. After the upper limit is reached, you cannot assign additional user roles to the schedule.

Assigning the security-audit user role to a schedule removes all the other user role assignments for the schedule. Assigning any other user role to a schedule removes the security-audit user role assignment for the schedule.

For more information about user roles, see the RBAC configuration in *Fundamentals Configuration Guide*.

Examples

Assign user role **rolename** to schedule **test**.

```
<Sysname> system-view
[Sysname] scheduler schedule test
[Sysname-schedule-test] user-role rolename
[Sysname-schedule-test] display this
#
scheduler schedule test
 user-role network-admin
 user-role network-operator
 user-role rolename
#
return
```

Related commands

- **command**
- **scheduler schedule**

Tcl commands

cli

Use **cli** to enable a Comware command to be executed in Tcl configuration view when it conflicts with a Tcl command.

Syntax

> **cli** *command*

Views

> Tcl configuration view

Predefined user roles

> network-admin

Parameters

> *command*: Specifies the commands to be executed. They must be complete command lines.

Usage guidelines

> In Tcl configuration view, if a Comware command conflicts with a Tcl command, the Tcl command will be executed. To execute the Comware command when a conflict occurs, execute the **cli** command.

Examples

> # Perform the following steps to execute a Comware command that conflicts with a Tcl command in Tcl configuration view.
>
> 1. Execute a Comware command in Tcl configuration view. The output shows that the Comware command cannot be executed because it conflicts with a Tcl command.
>    ```
>    <Sysname> tclsh
>    <Sysname-tcl> system-view
>    [Sysname-tcl] route-policy 1 permit node 10
>    [Sysname-tcl-route-policy-1-10] apply cost 10
>    can't interpret "cost" as a lambda expression
>    [Sysname-tcl-route-policy-1-10]
>    ```
> 2. Configure the **cli** command to execute the Comware command again.
>    ```
>    [Sysname-tcl-route-policy-1-10] cli apply cost 10
>    [Sysname-tcl-route-policy-1-10]
>    ```
>
> # Execute multiple Comware commands in one operation to enter OSPF area view.
>
> Method 1:
> ```
> [Sysname-tcl] cli "ospf 100 ; area 0"
> [Sysname-tcl-ospf-100-area-0.0.0.0]
> ```
>
> Method 2:
> ```
> [Sysname-tcl] cli ospf 100 ; cli area 0
> [Sysname-tcl-ospf-100-area-0.0.0.0]
> ```

tclquit

Use **tclquit** to return from Tcl configuration view to user view.

Syntax

> **tclquit**

Views

> Tcl configuration view

Predefined user roles

> network-admin

Usage guidelines

> To return from Tcl configuration view to user view, you can also use the **quit** command.

> To return to the upper-level view from system view or a Comware feature view, use the **quit** command.

Examples

> # Return from Tcl configuration view to user view.
> ```
> <Sysname-tcl> tclquit
> <Sysname>
> ```

Related commands

> **tclsh**

tclsh

> Use **tclsh** to enter Tcl configuration view from user view.

Syntax

> **tclsh**

Views

> User view

Predefined user roles

> network-admin

Usage guidelines

> In Tcl configuration view, you can execute the following commands:
> - All Tcl 8.5 commands.
> - Comware commands. The Tcl configuration view is equivalent to the user view. You can use Comware commands in Tcl configuration view in the same way they are used in user view.

Examples

> # Enter Tcl configuration view from user view.
> ```
> <Sysname> tclsh
> <Sysname-tcl>
> ```

Related commands

> **tclquit**

Python commands

python

Use **python** to enter the Python shell.

Syntax

python

Views

User view

Predefined user roles

network-admin

Usage guidelines

In the Python shell, you can use the following items:

- Python 2.7 commands.
- Python 2.7 standard API.
- Comware 7 extended API.

To return to user view from the Python shell, enter **exit()**.

Examples

\# Enter the Python shell.

```
<Sysname> python
Python 2.7.3 (default, Dec 22 2014, 11:39:05)
[GCC 4.4.1] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>>
>>> exit()
<Sysname>
```

python *filename*

Use **python** *filename* to execute a Python script.

Syntax

python *filename* [*param*]

Views

User view

Predefined user roles

network-admin

Parameters

filename: Specifies the name of a Python script on a storage medium (flash memory or USB) of the device. The script name is case sensitive and must use the extension .py. The extension .py is case insensitive.

param: Specifies the parameters to be passed to the script. To enter multiple parameters, use spaces as the delimiter.

Usage guidelines

You cannot perform any operation while a Python script is being executed by your command.

Make sure the statements in the script meet the syntax requirements. The system stops executing a Python script if it finds a statement with syntax errors.

When executing a script, the system uses the defaults for interactive statements. The system does not stop for human input.

Examples

Execute Python script **test.py**.

```
<Sysname> python test.py 1 2
['/flash:/test.py', '1', '2']
```

Preprovisioning commands

display provision failed-config

Use **display provision failed-config** to display preprovisioned-commands application failure records.

Syntax

display provision failed-config

Views

Any view

Predefined user roles

network-admin

network-operator

Usage guidelines

A preprovisioned command cannot be applied if it conflicts with the running configuration.

Use this command to verify the application result of preprovisioned commands except for the following commands:

- **duplex**

- **speed**

- **sflow**

To verify the application result of the listed commands, use the **display current-configuration** command. The **display provision failed-config** command might display incorrect application results for the listed commands.

Examples

Display preprovisioned-commands application failure records.

```
<Sysname> display provision failed-config
Configuration applied at: Sat Jun 14 06:06:00 2014

Slot information: slot 1
Commands that failed to be applied:
#
interface FortyGigE1/1/0/1
 speed 40000
#
```

Related commands

provision

reset provision failed-config

provision

Use **provision** to enable preprovisioning.

Use **undo provision** to disable preprovisioning.

Syntax

> **provision model** *model*
>
> **undo provision model**
>
> **provision subslot** *subslot-number* **model** *model*
>
> **undo provision subslot** *subslot-number* **model**

Default

> Preprovisioning is disabled.

Views

> Slot view

Predefined user roles

> network-admin

Parameters

> **subslot** *subslot-number*: Specifies a subslot. The *subslot-number* argument represents the subslot number. If you do not specify a subslot, preprovisioning is enabled on the slot. To specify a subslot, you must first enable provisioning on the slot and make sure the provisioned IRF member device has subslots.
>
> **model** *model*: Specifies the IRF member device or subcard model to be preprovisioned. To obtain available models, enter a question mark (?) for the *model* argument.

Usage guidelines

> This command allows you to preconfigure an offline module and interfaces on the module. Modules include IRF member devices and subcards.
>
> The device automatically creates interfaces when preprovisioning is enabled for a module. The **display interface** command does not display these interfaces until the module comes online.
>
> When you disable preprovisioning on a slot, the device removes all preconfigured settings for the slot, including the preconfigured settings for the subslots.
>
> When you disable preprovisioning on a subslot, the device removes preconfigured settings for the subslot.

Examples

> # Enable preprovisioning on slot 2.
>
> ```
> <Sysname> system-view
> [Sysname] slot 2
> [Sysname-slot-2] provision model 5930-32QSFP+
> ```

Related commands

> **display provision failed-config**
>
> **slot**
>
> **reset provision failed-config**

reset provision failed-config

> Use **reset provision failed-config** to clear preprovisioned-commands application failure records.

Syntax

> **reset provision failed-config**

Views

User view

Predefined user roles

network-admin

Usage guidelines

The following events might result in a number of preprovisioned-commands application failure records in memory:

- A preprovisioned subcard repeatedly comes online and goes offline.
- A preprovisioned IRF member device repeatedly joins and leaves the IRF fabric.

To release the occupied memory space, execute the **reset provision failed-config** command.

Examples

Clear preprovisioned-commands application failure records.

```
<Sysname> reset provision failed-config
```

Related commands

display provision failed-config

provision

slot

Use **slot** to select a slot to provision and enter slot view.

Syntax

slot *slot-number*

Views

System view

Predefined user roles

network-admin

Parameters

slot-number: Specifies an IRF member device by its member ID.

Examples

Enter the view of a slot.

```
<Sysname> system-view
[Sysname] slot 2
[Sysname-slot-2]
```

Related commands

provision

Document conventions and icons

Conventions

This section describes the conventions used in the documentation.

Command conventions

Convention	Description
Boldface	**Bold** text represents commands and keywords that you enter literally as shown.
Italic	*Italic* 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 at least 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
Boldface	Window names, button names, field names, and menu items are in Boldface. For example, the **New User** window opens; click **OK**.
>	Multi-level menus are separated by angle brackets. For example, **File** > **Create** > **Folder**.

Symbols

Convention	Description
⚠ WARNING!	An alert that calls attention to important information that if not understood or followed can result in personal injury.
△ CAUTION:	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.
ⓘ IMPORTANT:	An alert that calls attention to essential information.
NOTE:	An alert that contains additional or supplementary information.
☀ TIP:	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.

Support and other resources

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:

  www.hpe.com/assistance

- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:

  www.hpe.com/support/hpesc

Information to collect

- Technical support registration number (if applicable)

- Product name, model or version, and serial number

- Operating system name and version

- Firmware version

- Error messages

- Product-specific reports and logs

- Add-on products or components

- Third-party products or components

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.

- To download product updates, go to either of the following:

  o Hewlett Packard Enterprise Support Center **Get connected with updates** page:

    www.hpe.com/support/e-updates

  o Software Depot website:

    www.hpe.com/support/softwaredepot

- To view and update your entitlements, and to link your contracts, Care Packs, and warranties with your profile, go to the Hewlett Packard Enterprise Support Center **More Information on Access to Support Materials** page:

  www.hpe.com/support/AccessToSupportMaterials

ⓘ **IMPORTANT:**

Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HP Passport set up with relevant entitlements.

Websites

Website	Link
Networking websites	
Hewlett Packard Enterprise Information Library for Networking	www.hpe.com/networking/resourcefinder
Hewlett Packard Enterprise Networking website	www.hpe.com/info/networking
Hewlett Packard Enterprise My Networking website	www.hpe.com/networking/support
Hewlett Packard Enterprise My Networking Portal	www.hpe.com/networking/mynetworking
Hewlett Packard Enterprise Networking Warranty	www.hpe.com/networking/warranty
General websites	
Hewlett Packard Enterprise Information Library	www.hpe.com/info/enterprise/docs
Hewlett Packard Enterprise Support Center	www.hpe.com/support/hpesc
Hewlett Packard Enterprise Support Services Central	ssc.hpe.com/portal/site/ssc/
Contact Hewlett Packard Enterprise Worldwide	www.hpe.com/assistance
Subscription Service/Support Alerts	www.hpe.com/support/e-updates
Software Depot	www.hpe.com/support/softwaredepot
Customer Self Repair (not applicable to all devices)	www.hpe.com/support/selfrepair
Insight Remote Support (not applicable to all devices)	www.hpe.com/info/insightremotesupport/docs

Customer self repair

Hewlett Packard Enterprise customer self repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience. Some parts do not qualify for CSR. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider or go to the CSR website:

www.hpe.com/support/selfrepair

Remote support

Remote support is available with supported devices as part of your warranty, Care Pack Service, or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which will initiate a fast and accurate resolution based on your product's service level. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

For more information and device support details, go to the following website:

www.hpe.com/info/insightremotesupport/docs

Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback (docsfeedback@hpe.com). When submitting your feedback, include the document title,

part number, edition, and publication date located on the front cover of the document. For online help content, include the product name, product version, help edition, and publication date located on the legal notices page.

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