DES-7200

Basic Configuration Command Reference Guide

Version 10.4(3)

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Copyright Statement

Preface

Version Description

This manual matches the firmware version 10.4(3).

Target Readers

This manual is intended for the following readers:

- Network engineers

- Technical salespersons

- Network administrators

Conventions in this Document

1. Universal Format Convention

Arial: Arial with the point size 10 is used for the body.

Note: A line is added respectively above and below the prompts such as caution and note to separate them from the body.

Format of information displayed on the terminal: Courier New, point size 8, indicating the screen output. User's entries among the information shall be indicated with bolded characters.

2. Command Line Format Convention

Arial is used as the font for the command line. The meanings of specific formats are described below:

Bold: Key words in the command line, which shall be entered exactly as they are displayed, shall be indicated with bolded characters.

Italic: Parameters in the command line, which must be replaced with actual values, shall be indicated with italic characters.

[ ]: The part enclosed with [ ] means optional in the command.

{ x | y | ... }: It means one shall be selected among two or more options.

[x | y | ...]: It means one or none shall be selected among two or more options.

//:Lines starting with an exclamation mark "//" are annotated.

3. Signs

Various striking identifiers are adopted in this manual to indicate the matters that special attention should be paid in the operation, as detailed below:

⚠ **Caution**	Warning, danger or alert in the operation.

✎ **Note**	Descript, prompt, tip or any other necessary supplement or explanation for the operation.

✎ **Note**	The port types mentioned in the examples of this manual may not be consistent with the actual ones. In real network environments, you need configure port types according to the support on various products. The display information of some examples in this manual may include the information on other series products, like model and description. The details are subject to the used equipments.

1 CLI Authorization Configuration Commands

1.1 alias

You can use the **alias** command to configure an alias of a command in the global configuration mode. Use the **no** form of the command to remove the alias of a specified command or all the aliases under one mode.

alias *mode command-alias original-command*

no alias *mode command-alias*

Parameter description

Parameter	Description
mode	Mode of the command represented by the alias
command-alias	Alias of the command
original-command	Syntax of the command represented by the alias

Default Settings

Some commands in the privileged EXEC mode have default alias names.

Command mode

Global configuration mode.

Usage guidelines

The following table lists the default alias of the commands in the privileged EXEC mode.

Alias	Actual Command
h	**help**
p	**ping**
s	**show**

un	**undebug**

The default alias cannot be deleted by the **no alias exec** command.

By setting the alias, you can use a word to replace a command. For example, you can create an alias to represent the first part of a command, and then type the rest part of the command.

The mode of the command represented by the alias is the command mode existing in the current system. In the global configuration mode, you can use **alias ?** to list all the modes under which you can configure alias for commands.

```
DES-7200(config)# alias ?
  aaa-gs             AAA server group mode
  acl                acl configure mode
  bgp                Configure bgp Protocol
  config             globle configure mode
......
```

The alias also has its help information that is displayed after * in the following format:

**command-alias=original-command*

For example, in the privileged EXEC mode, the default alias **s** stands for **show**. You can enter **s?** to query the key words beginning with **s** and the help information of the alias.

```
DES-7200#s?
*s=show  show  start-chat  start-terminal-service
```

If an alias represents more than one word, the command will be displayed in brackets. For example, if you set **sv** stand for **show version** in the privileged EXEC mode, then:

```
DES-7200#s?
*s=show  *sv="show version" show  start-chat
start-terminal-service
```

The alias must begin with the first letter of the command. The first letter of the command cannot be a space. The space before the command cannot be used as a valid alias.

```
DES-7200# s?
show  start-chat  start-terminal-service
```

The command alias also has its help information. For example, if the alias **ia** represents **ip address** in the interface configuration mode, then:

```
DES-7200(config-if)#ia ?
  A.B.C.D  IP address
  dhcp    IP Address via DHCP
DES-7200(config-if)# ip address
```

The above help information lists the parameters of **ip address** and shows the actual command name.

You must enter an entire alias; otherwise it cannot be recognized.

Use the **show aliases** command to show the aliases setting in the system.

Examples

In the global configuration mode, use **def-route** to represent the default route setting of **ip route 0.0.0.0 0.0.0.0 192.168.1.1:**

```
DES-7200# configure terminal
DES-7200(config)# alias config def-route ip route 0.0.0.0
0.0.0.0 192.168.1.1
DES-7200(config)#def-route?
*def-route="ip route 0.0.0.0 0.0.0.0 192.168.1.1"
DES-7200(config)# end
DES-7200# show aliases config
globle configure mode alias:
def-route          ip route 0.0.0.0 0.0.0.0
192.168.1.1
```

Related commands

Command	Description
show aliases	Show the aliases settings.

1.2 privilege

To attribute the execution rights of a command to a command level, use **privilege** in the global configuration mode. The **no** form of this command recovers the execution rights of a command to the default setting.

privilege *mode* [**all**] [**level** *level* **|** **reset**] *command-string*

no privilege *mode* [**all**] [**level** *level*] *command-string*

Parameter description

Parameter	Description
mode	CLI mode of the command to which the execution rights are attributed.
all	Alias of the command
level	Specify the execution right levels

	(0–15) of a command or sub-commands
reset	Restore the command execution rights to its default level
command-string:	Command string to be authorized

Default Settings

N/A.

Command mode

Global configuration mode.

Usage guidelines

The following table lists some key words that can be authorized by command **privilege** in the CLI mode. The number of command modes that can be authorized may vary with different devices. In the global configuration mode, you can use **privilege ?** to list all CLI command modes that can be authorized.

Mode	Descripton
config	Global configuration mode.
exec	Privileged EXEC mode
interface	Interface configuration mode
ip-dhcp-pool	DHCP address pool configuration mode
keychain	KeyChain configuration mode
keychain-key	KeyChain-key configuration mode
time-range	Time-Range configuration mode

Examples

Set the password of CLI level 1 as **test** and attribute the **reload** rights to reset the device:

```
DES-7200(config)#enable secret level 1 0 test
DES-7200(config)#privilege exec level 1 reload
```

After the above setting, you can access the CLI window as level-1 user to use the **reload** command:

```
DES-7200>reload ?
  LINE    Reason for reload
  <cr>
```

You can use the key word **all** to attribute all sub-commands of reload to level-1 users:

```
DES-7200(config)# privilege exec all level 1 reload
```

After the above setting, you can access the CLI window as level-1 user to use all sub commands of the **reload** command:

```
DES-7200>reload ?
  LINE    Reason for reload
  at                  reload at a specific time/date
  cancel              cancel pending reload scheme
  in                  reload after a time interval
<cr>
```

Related commands

Command	Description
enable secret	Set CLI-level password

1.3 show aliases

To display all the command aliases or aliases in special command modes, run the **show aliases** command in the privileged EXEC mode.

show aliases [*mode*]

Parameter description

Parameter	Description
mode	Mode of the command represented by the alias.

Default Settings

N/A.

Command mode

EXEC mode.

Usage guidelines

Show all the configuration of aliases if the command mode has not been input.

Examples

Following example shows the command alias in the EXEC mode:

```
DES-7200#show aliases exec
```

```
exec mode alias:
h                 help
p                 ping
s                 show
u                 undebug
un                undebug
```

Related commands

Command	Description
alias	Set the alias of a command.

2 Switch Management Configuration Commands

2.1 User Management Related Commands

2.1.1 disable

To exit from privileged user mode to normal user mode or lower the privilege level, execute the privileged user command **disable**.

disable [*privilege-level*]

Parameter description

Parameter	Description
privilege-level	Privilege level

Command mode

Privileged mode.

Usage guidelines

Use this command to return to user mode from privileged mode. If a privilege level is added, the current privilege level will be lowered to the specified level.

Note

The privilege level following the **disable** command must be lower than the current level.

Examples

The example below lowers the current privilege level of the device down to level 10:

```
DES-7200# disable 10
```

Related commands

Command	Description
enable	From user mode enter to the privileged mode or log on the higher level of authority.

2.1.2 enable

To enter into the privileged user mode, execute the normal user configuration command **enable**.

For the details of the command, see the *Security Configuration Command Reference*.

2.1.3 enable password

To configure the password for different privilege level, execute the global configuration command **enable password**. The **no** form of this command is used to delete the password of the specified level.

enable password [**level** *level*] {*password* | [**0**|**7**] *encrypted-password*}

no enable password [**level** *level*]

	Parameter	Description
Parameter description	*Password*	Password for user to enter into the EXEC configuration layer
	Level	User's level.
	0|7	Password encryption type, "0" for no encryption, "7" for simple encryption
	encrypted-password	Password text.

Command mode	Global configuration mode.

Usage guidelines

No encryption is required in general. The encryption type is required generally when the password that has been encrypted with the command for the device are to be copies and pasted.

The effective password is defined as below:

- Consists of 1 ~ 26 letter in upeer/lower case and numerals
- Leading spaces are allowed but ignored. Spaces in between or at the end are regarded as part of the password.

Caution

If an encryption type is specified and then a plaintext password is entered, it is impossible to enter into the privileged EXEC mode. A lost password that has been encrypted with any method cannot be restored. The only way is to reconfigure the device password.

Examples

The example below configures the password as **pw10**:

```
DES-7200(config)# enable password pw10
```

Related commands

Command	Description
enable secret	Set the security password

2.1.4 enable secret

To configure the security password for different privilege level, execute the global configuration command **enable secret**. The **no** form of this command is used to delete the password of the specified level.

enable secret [**level** *level*] {*secret* **|** [**0|5**] *encrypted-secret*}

no enable secret

Parameter description

Parameter	Description
secret	Password for user to enter into the EXEC configuration layer
level	User's level.
0|5	Password encryption type, "0" for no encryption, "5" for security encryption
encrypted-password	Password text

Command mode

Global configuration mode.

Usage guidelines

The password falls into "password" and "security" passwords. The "password" is simple encryption password, which can be set only for level 15. The "security" means the security encryption password, which can be set for level 0 ~ 15. If the two kinds of passwords exist in the system at the same time, the "password" type password will not take effect. If a "password" type password is set for a level other than 15, an alert is provided and the password is automatically converted into the "security" password. If "password" type password is set for level 15 and the same as the "security" password, an alert is provided. The password must be saved in encrypted manner, with simple encryption for the "password" type password and security encryption for the "security" type password.

Examples

The example below configures the security password as pw10:

```
DES-7200(config)# enable secret 0 pw10
```

Related commands

Command	Description
enable password	Set passwords for different privilege levels.

2.1.5 enable service

To enable or disable the specified service such as **SSH Server/Telnet Server/Web Server/SNMP Agent**, use the **enable service** command in the global configuration mode:

enable service { **ssh-sesrver** | **telnet-server** | **web-server** | **snmp-agent**}

Parameter description

Keyword	Description
ssh-server	Enable SSH Server, and the IPv4 and IPv6 services are enabled at the same time.
telnet-server	Enable Telnet Server, and the IPv4 and IPv6 services are enabled at the same time.

	web-server	Enable HTTP Server, and the IPv4 and IPv6 services are enabled at the same time.
	snmp-agent	Enable SNMP Agent, and the IPv4 and IPv6 services are enabled at the same time.

Command mode Global configuration mode.

Usage guidelines This command is used to enable the specified service. Use the **no enable service** command to disable the specified service.

Examples The example below enables the SSH Server:

```
DES-7200(Config)# enable service ssh-sesrver
```

Related commands

Command	Description
show service	View the service status of the current system.

2.1.6 execute

To execute the commands in the batch files, use the privileged EXEC mode command **execute**.

execute [**flash:**] *filename*

Parameter description

Parameter	Description
flash:	Parent directory of the batch file
filename	Name of the batch file

Default configuration N/A

Command mode Privileged EXEC mode.

Usage guidelines

This command is used to execute the commands in the batch files. Users could self-specify the filename and content of the batch file. In general, after finishing editting the batch files on the user PC , the files are transmit to the Flash of the device through the TFTP. The content of batch files completely imitates the user entering, so the content should be edited in order of CLI command configuration. Besides, for some interactive commands , the response message should be pre-wrote into the batch files to ensure the commands can be normally executed.

Caution: The size of the batch file shall not exceed 128K, otherwise the execution of batch files may fail. For the over-sized batch files, you can divide them into several small files with size less than 128K to complete the execution.

Examples

The example below executes the batch file line_rcms_script.text ,which is used to enable the reverse **Telnet** function for all asynchronous Interfaces, and whose contents are as follows:

```
configure terminal
line tty 1 16
transport input all
no exec
end
```

The execution result is as below:

```
DES-7200# execute flash:line_rcms_script.text
executing script file line_rcms_script.text ......
executing done
DES-7200# configure terminal
Enter configuration commands, one per line.  End with
CNTL/Z.
DES-7200(config)# line tty 1 16
DES-7200(config-line)# transport input all
DES-7200(config-line)# no exec
DES-7200(config-line)# end
```

2.1.7 ip http authentication

When using the Http Server, it needs to perform the logon authentication to enter the Web page. Use this command to set the mode of Web logon authentication.

ip http authentication {enable | local }

Parameter description

Keyword	Description
enable	Use the password set by the **enable password** or **enable secret**, the password must be of the level15.
local	Use the username and password set by the local **username** command. The user must bind to the privilege of level15.

Default **enable**

Command mode Global configuration mode.

Usage guidelines This command is used to set the mode of Web logon authentication. Use the **no ip http authentication** command to restore it to the default setting.

Examples The example below sets the mode of Web logon authentication as local:

```
DES-7200(Config)# ip http authentication local
```

Related commands

Command	Description
enable service	Enable or disable the specified service.

2.1.8 ip http port

To set the port of the HTTP service ,use this command in the global configuration mode:

ip http port *number*

Parameter description

Keyword	Description
number	Port number of the HTTP server, the default value is 80.

Default configuration

80

Command mode

Global configuration mode.

Usage guidelines

This command is used to set the port of the HTTP service. Use the **no ip http port** command to restore it to the default setting.

Examples

The example below set the port of the HTTP service as 8080:

```
DES-7200(Config)# ip http port 8080
```

Related commands

Command	Description
enable service	Enable or disable the specified service

2.1.9 ip http source-port

This command is used to configure the port for HTTPS services in the global configuration mode.

ip http source-port *number*

Parameter description

Parameter	Description
number	Configure the port for HTTPS services, and the default value is 443.

Default configuration

443

Command mode

Global configuration mode.

Usage guidelines

This command is used to configure the port for HTTPS services. The no form of this command is used to restore the default port configuration.

Examples

The example below sets the port for HTTPS services as 4443.

```
DES-7200(config)# ip http secure-port 4443
```

Related commands

Command	Description
enable service	Enable or disable the specified service.
show web-server status	Show the status of the web server.

2.1.10 ip telnet source-interface

To specify the IP address of one interface as the source address for the Telnet connection, use the **ip telnet source-interface** command in the global configuration mode:

ip telnet source-interface *interface-name*

Parameter description

Keyword	Description
interface-name	Name of the specified interface

Command mode

Global configuration mode.

Usage guidelines

This command is used to specify the IP address of one interface as the source address for the global Telnet connetction. When using the telnet command to log in a Telnet server, if no source interface or source address is specified for this connnetcion, the global setting is used.Use the **no ip telnet source-interface** command to restore it to the default setting.

Examples

The example below specifies the IP address of the interface *Loopback1* as the source address for the global Telnet connection.

```
DES-7200(Config)# ip telnet source-interface Loopback 1
```

Related commands

Command	Description
telnet	log in a Telnet server

2.1.11 lock

To set a temporary password at the terminal, execute the EXEC mode command **lock**.

lock

Parameter description

N/A.

Command mode

Privileged mode.

Usage guidelines

You can lock the terminal interface but maintain the continuity of session, to prevent it from being accessed by setting the temporary password.The terminal interface can be locked by the steps below:

1. Enter the **lock** command, and the system will prompt you to enter the password:
2. Enter the password, which may be any string.The system will prompt you to confirm the entered password, and then clear the screen as well as show the "Locked" information.
3. To enter into the terminal, enter the set temporary password.

To use the terminal locked function at the terminal, execute the **lockable** command in the line configuration mode, and enable the characteristic to support the terminal lock in corresponding line.

Examples

The example below locks a terminal interface:

```
DES-7200(config-line)# lockable
DES-7200(config-line)# end
DES-7200# lock
Password: <password>
Again: <password>

Locked
Password: <password>
DES-7200#
```

Related commands

Command	Description
lockable	Set to support the terminal lock function in the line.

2.1.12 lockable

To support the use of the **lock** command at the terminal, execute the **lockable** command in the line configuration mode. The terminal doesn't support the **lock** command, by default.Use the **no** command to cancel the setting.

lockable

no lockable

Parameter description

N/A.

Command mode

Line configuration mode.

Usage guidelines

This command is used to support the terminal lock function in corresponding line. To lock the terminal, execute the **lock** command in the EXEC mode.

Examples

The example below enables the terminal lock function at the console port and locks the console:

```
DES-7200(config)# line console 0
DES-7200(config-line)# lockable
DES-7200(config-line)# end
DES-7200# lock
Password: <password>
Again: <password>

Locked

Password: <password>
DES-7200#
```

Related commands

Command	Description
lock	Lock the terminal.

2.1.13 login

In case the AAA is disabled, to enable simple logon password authentication on the interface, execute the interface configuration command **login**. The **no** form of this command is used to delete the line logon password authentication.

login

no login

Parameter description N/A.

Command mode Line configuration mode.

Usage guidelines If the AAA security server is not enabled, this command is used for the simple password authentication at logon. The password here is the one configured for VTY or console interface.

Examples The example below shows how to set the logon password authentication on VTY.

```
DES-7200(config)# no aaa new-model
DES-7200(config)# line vty 0
DES-7200(config-line)# password 0  normatest
DES-7200(config-line)# login
```

Related commands

Command	Description
password	Configure the line logon password

2.1.14 login authentication

In case the AAA is enabled, the authentication with the AAA server must be performed for logon. Use this command to associate logon authentication method list. The **no** form of this command is used to delete the logon authentication method list.

login authentication {**default |** *list-name*}

no login authentication {**default |** *list-name*}

Parameter description

Parameter	Description
default	Name of the default authentication method list
list-name	Name of the method list available

Command mode

Line configuration mode.

Usage guidelines

If the AAA security server is enabled, this command is used for the logon authentication with the specified method list.

Examples

The example below shows how to associate method list on VTY and perform logon authentication with radius.

```
DES-7200(config)# aaa new-model
DES-7200(config)# aaa authentication login default radius
DES-7200(config)# line vty 0
DES-7200(config-line)# login authentication default
```

Related commands

Command	Description
aaa new-model	Enable the AAA security service
aaa authentication login	Configure the logon authentication method list

2.1.15 login local

In case the AAA is disabled, to enable local user authentication on the interface, execute the interface configuration command **login local**. The **no** form of this command is used to delete the line local user authentication.

login local

no login local

Parameter description

N/A.

Command mode

Line configuration mode.

Usage guidelines

If the AAA security server is not enabled, this command is used for the local user authentication at logon. The user here means the one configured with the **username** command.

Examples

The example below shows how to set the local user authentication on VTY.

```
DES-7200(config)# no aaa new-model
DES-7200(config)# username  test password 0 test
DES-7200(config)# line vty 0
DES-7200(config-line)# login local
```

Related commands

Command	Description
username	Configure the local user information.

2.1.16 password

To configure the password for line logonexecute the line configuration command **password**. The **no** form of this command is used to delete the line logon password.

password {*password* **|** [**0**|**7**] *encrypted-password*}

no password

Parameter description

Parameter	Description
password	Password for line of remote user
0|7	Password encryption type, "0" for no encryption, "7" for simple encryption
encrypted-password	Password text

Command mode

Line configuration mode.

Usage guidelines

This command is used to configure the authentication password for the line logon of remote user.

Examples

The example below configures the line logon password as "red":

```
DES-7200(config)# line  vty 0
DES-7200(config-line)# password red
```

Related commands

Command	Description
login	From user mode enter to the privileged mode or log on the higher level of authority.

2.1.17 privilege mode

Please refer to the *chapter of configure CLI authorization commands.*

Default configuration Please refer to the *chapter of configure CLI authorization commands.*

Command mode Please refer to the *chapter of configure CLI authorization commands.*

Usage guidelines Please refer to the *chapter of configure CLI authorization commands.*

Examples Please refer to the *chapter of configure CLI authorization commands.*

2.1.18 service password-encryption

To encrypt the password, execute this command. The **no** form of this command restores to the default value, but the password in cipher text cannot be restored to plain text.

service password-encryption

no service password-encryption

Parameter description N/A.

Command mode Global configuration mode.

Usage guidelines

This command is disabled by default. Various passwords are displayed in form of plain text, unless it is directly configured in cipher text form. After you execute the **service password-encryption** and **show running** or **write** command to save the configuration, the password transforms into cipher text. If you disable the command, the password in cipher text cannot be restored to plain text.

Examples

The example below encrypts the password:

```
DES-7200(config)# service password-encryption
```

Related commands

Command	Description
enable password	Set passwords of different privileges.

2.1.19 telnet

To log in one server which supports the telnet connection, use the **telnet** command to log on in the EXEC (privileged) mode.

telnet *host* [*port*] [**/source** {**ip** *A.B.C.D* **|** **ipv6** *X:X:X:X::X* **|** **interface** *interface-name}*] [**/vrf** *vrf-name*]

Parameter description

Parameter	Description
host	The IP address of host or host name to be logged in.
port	Select the TCP port number to be used for the login, 23 by default.
/source	Specify the source IP or source interface used by the Telnet client.
ip *A.B.C.D*	Specify the source IPv4 address used by the Telnet client.
ipv6 *X:X:X:X::X*	Specify the source IPv6 address used by the Telnet client.
interface *interface-name*	Specify the source interface used by the Telnet client.
/vrf *vrf-name*	Specify the VRF routing table to be queried.

Command mode

Privileged mode.

Usage guidelines

This command is used to log in a telnet server.

Caution

The /**ipv6** keyword is only applied to the IPv6 supported devices.

Examples

The example below commands telnet to 192.168.1.11, the port uses the default value, and the source interface is specified as Gi 0/1, the queried VRF route table is specified as vpn1.

```
DES-7200# telnet 192.168.1.11 /source-interface
gigabitEthernet 0/1 /vrf vpn1
```

The example below commands telnet to 2AAA:BBBB::CCCC

```
DES-7200# telnet 2AAA:BBBB::CCCC
```

Related commands

Command	Description
Ip telnet source-interface	Specify the IP address of the interface as the source address for the Telnet connection.
show sessions	Show the currently established Telnet sessions.
exit	Exit current connection.

2.1.20 username

To set the local username, execute the global configuration mode command **username**.

username *name* {**nopassword | password** { *password* | [**0|7**]

encrypted-password }} **username** *name* **privilege** *privilege-level*

no username *name*

Parameter description

Parameter	Description
name	Username
password	User password
0|7	Password encryption type, 0 for no encryption, 7 for simple encryption
encrypted-password	Password text
privilege-level	User bound privilege level

Command mode

Global configuration mode.

Usage guidelines

This command is used to establish local user database for the purpose of authentication.

Note

If the type of encryption is specified as 7, the length of the entered legal cipher text should be even.

In general, it is not necessary to specify the type of encryption as 7.

Commonly, it is necessary to specify the type of encryption as 7 only when the encrypted password is copied and pasted.

Examples

The example below configures a username and password and bind the user to level 15.

```
DES-7200(config)# username test privilege 15 password 0
pw15
```

Related commands

Command	Description
login local	Enable local authentication

2.2 Basic System Management Related Commands

2.2.1 banner login

To configure the login banner, execute the **banner login** command in the global configuration mode. You can use the **no banner login** command to remove the configuration.

banner login *c message c*

Parameter description

Parameter	Description
c	Separator of the message of logging banner. Delimiters are not allowed in the MOTD.
message	Contents of login banner

Command mode

Global configuration mode.

Usage guidelines

This command sets the logging banner message, which is displayed upon login. All characters behind the terminating symbol will be discarded by the system.

Examples

The following example shows the configuration of logging banner:

```
DES-7200(config)# banner login $ enter your password $
```

2.2.2 banner motd

To set the Message-of-the-Day (MOTD), run the **banner motd** command in the global configuration mode. To delete the MOTD setting, run the **no banner motd** command.

banner motd *c message c*

Parameter description

Parameter	Description
c	Separator of the MOTD. Delimiters are not allowed in the MOTD.
message	Contents of an MOTD

Command mode

Global configuration mode.

Usage guidelines

This command sets the MOTD, which is displayed upon login. The letters entered after the separator will be discarded.

Examples

The following example shows the configuration of MOTD:

```
DES-7200(config)
DES-7200(config)# banner motd $ hello,world $
```

2.2.3 boot config

This command is used to set the boot configuration filename for the device. The **no** form of this command is used to delete the configured boot configuration filename.

boot config *prefix:/[directory/]filename*

no boot config

Parameter description

Parameter	Description
prefix:	Prefix of file system type. Note that prefix can be used to locate and access files in V10.4(2) or later versions. Refer to *File System Configuration Guide* for details.
/[directory/]filename	File directory and filename

Default configuration

None

Command mode

Global configuration mode.

Usage guidelines

This command is used to specify the device's boot configuration filename. When booting the device, the system loads configuration file according to the following principles:

- If the service config command is not configured, the sequence of loading configuration files is as follows: boot configuration filenames configured using the boot config command, flash:/config.text, network boot configuration filenames configured using the boot network command, and the default factory-delivered configuration (null configuration).
- If the service config command is configured, the sequence of loading the configuration file is as follows: network boot configuration filename configured using the boot network command, boot configuration filename configured using the boot config command, flash:/config.text, and the default factory-delivered configuration (null configuration).
- When loading the files in sequence, the system will not load the other configuration files as long as one configuration file is successfully loaded.

This function can be used for fast failure recovery when the device's main configuration file is damaged.

⚠ **Caution**

As this command configuration is used by the system in the early boot stage, the configuration is saved in the device Boot ROM instead of the configuration file.

Examples

The following example sets the device's boot configuration filename as "flash:/config_main.text":

```
DES-7200(config)# boot config flash:/config_main.text
```

Related commands

Command	Description
boot network	Set the device's network boot configuration filename.
service config	Allow the device to first download the boot configuration file from a remote network server.
show boot	Show the device's boot configuration.

2.2.4 boot ip

This command is used to configure a local IP for TFTP transmission during device booting. The **no** form of this command is used to delete the configuration.

boot ip *local-ip* [**gateway** *gateway-ip* **mask** *mask-ip*]

no boot ip

Parameter description

Parameter	Description
local-ip	Local IP for TFTP transmission during device booting.
gateway-ip	Gateway IP for TFTP transmission during device booting.
mask-ip	Mask IP for TFTP transmission during device booting.

Default configuration

None

Command mode

Global configuration mode.

Usage guidelines

This command is used to configure a local IP for TFTP transmission during device booting. When the device is booting, the system uses this IP as the local IP for TFTP transmission. If a gateway and mask are also configured, and the local IP and gateway IP are not in the same network segment, TFTP uses the gateway for file transmission during system booting.

⚠ **Caution**

Only when the **boot ip** command is correctly configured, can the system download the remote TFTP file configured by the **boot network** or **boot system** command during system booting.

As this command configuration is used by the system in the early boot stage, the configuration is saved in the device Boot ROM instead of the configuration file.

Examples

The following example configures a local IP for TFTP transmission during device booting:

```
DES-7200(config)# boot ip 192.168.7.11
```

Related commands

Command	Description
show boot	Show the boot related configuration of the device.

2.2.5 boot network

This command is used to set the network boot configuration filename for the divice. The **no** form of this command is used to delete the configured network boot configuration filename.

boot network tftp:// l*ocation* / *filename*

no boot network

Parameter description

Parameter	Description
location	Address of the TFTP server.
filename	Filename on the TFTP server.

Default configuration

None

Command mode

Global configuration mode.

Usage guidelines

This command is used to specify the device's network boot configuration filename. When booting the device, the system loads the configuration file according to the following principles:

- If the service config command is not configured, the sequence of loading the configuration file is as follows: boot configuration filename configured using the boot config command, flash:/config.text, network boot configuration filename configured using the boot network command, and the default factory-delivered configuration (null configuration).
- If the service config command is configured, the sequence of loading the configuration file is as follows: network boot configuration filename configured using the boot network command, boot configuration filename configured using the boot config command, flash:/config.text, and the default factory-delivered configuration (null configuration).
- When loading the files in sequence, the system will not load the other configuration files as long as one configuration file is successfully loaded.

This function can be used for fast failure recovery when the device's master configuration file is damaged accidentally.

Caution

You should use the **boot ip** command to correctly configure the local IP address used by the device during booting, before the system can get the remote file through TFTP. Otherwise any TFTP transmission will fail during booting.

As this command configuration is used by the system in the early boot stage, the configuration is saved in the device Boot ROM instead of the configuration file.

Examples

The following example configures the network boot configuration filename for the device:

```
DES-7200(config)# boot network tftp://192.168.7.24/config.text
```

Related

Command	Description

	show boot	Show the boot related configuration of the device.
	boot config	Set the device's boot configuration filename.
	boot ip	Configure the local IP for TFTP transmission during device booting.
	service config	Allow the device to first download the boot configuration file from a remote network server.

2.2.6 boot system

This command is used to set a filename for the device's startup main program and specify the boot priority. The **no** form of this command is used to delete the filename of the main program corresponding to the priority.

boot system *priority* prefix:/[directory/]filename

no boot system [*priority*]

	Parameter	Description
Parameter description	*priority*	Boot priority of a main program, in the range of 1 to 10, and 1 is for the highest priority.
	prefix:	Prefix of the file system. Note that prefix can be used to locate and access files in V10.4(2) or later versions. Refer to *File System Configuration Guide* for details.
	/[directory/]filename	Filename of a main program used for booting. Note that when the prefix is used to locate a file, the directory following ":" should be the absolute path.

Default configuration The default filename of the main boot program is *flash:/ firmware.bin*, with the priority being 5.

Command mode Global configuration mode.

Usage guidelines	This command can be used to set filenames for multiple main programs used for booting and specify the booting priority. The system will attempt to boot the main programs according to their priority levels in the descending order (1 as the top priority and 10 as the lowest priority) during the boot stage. This function can be used for fast failure recovery when the device's main program is damaged. **Caution** You should use the **boot ip** command to correctly configure the local IP address used by the device during booting, before the system can get the remote file through TFTP. Otherwise any TFTP transmission will fail during booting. When using TFTP to transmit the boot file, make sure the device's built-in flash has enough space for the boot file. The boot file is saved in the built-in flash as a hidden file during booting and it will be deleted prior to the next booting. The **no boot system** *[priority]* command can be used to delete the configured name of the main program corresponding to the boot priority level. If the priority parameter is not set, the configured filenames of all boot main programs will be deleted. If the **no boot system** command is used to delete all the configured filenames of boot main programs and no filenames of boot main programs are configured, then the system will automatically recover the default configuration (filename of the main program is "flash:/firmware.bin" with the priority level of 5) during the next booting. As this command configuration is used by the system in the early boot stage, the configuration is saved in the device Boot ROM instead of the configuration file.

Examples

Example 1: Configure the name of the main program to “flash:/firmware.bin” and the name of the backup main program to “flash:/ firmware_bak.bin”.

```
DES-7200(config)# boot system 5 flash:/firmware.bin
DES-7200(config)# boot system 8 flash:/firmware_bak.bin
```

As “flash:/firmware.bin” is of a higher priority lever, the device will first boot this file. If “flash:/firmware.bin” is damaged accidentally, which results in booting failure, the system will automatically boot “flash:/firmware_bak.bin” of a lower priority level.

Example 2: Configure to boot the file from a TFTP server.

```
DES-7200(config)#        boot        system        9
tftp://192.168.7.24/firmware.bin
```

Example 3: Configure to boot the file from a USB drive.

```
DES-7200(config)# boot system 1 usb1:/firmware.bin
```

Example 4: Delete the configured filename of the main program corresponding to priority level 8.

```
DES-7200(config)# no boot system 8
Delete boot system config: [Priority: 8; File Name:
flash:/firmware_bak.bin]? [no] yes
```

Example 5: Delete all configured filenames of boot main programs.

```
DES-7200(config)# no boot system
Clear ALL boot system config? [no] yes
```

Related commands

Command	Description
show boot	Show the boot related configuration of the device.
boot ip	Configure the local IP for TFTP transmission during device booting.

Platform description

N/A

2.2.7 clock set

To configure system clock manually, execute one of the two formats of the privileged user command **clock set**:

clock set *hh:mm:ss month day year*

Parameter description

Parameter	Description
hh:mm:ss	Current time, in the format of Hour (24-hour): Minute: Second
day	Date (1-31) of month
month	Month (1-12) OF year
year	Year (1993-2035), abbreviation is not allowed.

Command mode

Privileged mode.

Usage guidelines

Use this command to set the system time to facilitate the management.

For devices without hardware clock, the time set by the **clock set** command takes effect for only the current setting. Once the device powers off, the manually set time becomes invalid.

Examples

The example below configures the current time as 10:20:30AM March 17th 2003.

```
DES-7200# clock set 10:20:30 Mar 17 2003
DES-7200# show clock
clock: 2003-3-17 10:20:32
```

Related commands

Command	Description
show clock	Show current clock.

2.2.8 clock update-calendar

In the privileged EXEC mode, you can execute command **clock update-calendar** to overwrite the value of hardware clock by software clock.

clock update-calendar

Parameter description	N/A.

Command mode	Privileged EXEC mode.

Usage guidelines

Some platforms use hardware clock to complement software clock. Since battery enables hardware clock to run continuously, even though the device is closed or restarts, hardware clock still runs.

If hardware clock and software clock are asynchronous, then software clock is more accurate. Execute clock update-calendar command to copy date and time of software clock to hardware clock.

Examples

The example below copies the current time and date of software clock to hardware clock:

```
DES-7200# clock update-calendar
```

Related commands

Command	Description
clock read-calendar	Set the softwar clock with the hardware clock value.

2.2.9 exec-timeout

To configure the connection timeout to this equipment in the LINE, use the **exec-timeout** command.Once the connection timeout in the LINE is cancelled by the **no exec-timeout** command, the connection will never be timeout.

exec-timeout *minutes [seconds]*

no exec-timeout

Parameter description

Parameter	Description
minutes	The minutes of specified timeout.
seconds	(optional parameter) The seconds of

	specified timeout.

Default configuration

The default timeout is 10min.

Command mode

Line configuration mode.

Usage guidelines

If there is no input/output information for this connection within specified time, this connection will be interrupted, and this LINE will be restored to the free status.

Examples

The example below specifies the connection timeout is 5’30“.

```
DES-7200(config-line)#exec-timeout 5  30
```

2.2.10 hostname

To specify or modify the hostname of the device, execute the global configuration command **hostname**.

hostname *name*

Parameter description

Parameter	Description
name	Device hostname, the string, numeral or hyphen are supported only. The maximum length is 63 characters.

Default configuration

The default hostname is DES-7200.

Command mode

Global Configuration Mode.

Usage guidelines

This hostname is mainly used to identify the device and is taken as the username for the local device in the dialup and CHAP authentication.

Examples

The example below configures the hostname of the device as BeiJingAgenda:

```
DES-7200(config)# hostname BeiJingAgenda
BeiJingAgenda(config)#
```

2.2.11 prompt

To set the **prompt** command, run the **prompt** command in the global configuration mode. To delete the prompt setting, run the **no prompt** command.

prompt string

Parameter description

Parameter	Description
string	Character string of the **prompt** command. The maximum length is 32 letters.

Command mode

Global configuration mode.

Usage guidelines

If you have not set the prompt string, the prompt string is the system name, which varies with the system name. The **prompt** command is valid only in the EXEC mode.

Examples

Set the prompt string to DES-7210:

```
DES-7200(config)# prompt des-7210
DES-7210(config)# end
DES-7210#
```

2.2.12 reload

To restart the device system, execute the privileged user command **reload**.

reload [*text* **|** **in** [*hh:*] *mm* [*text*] **|** **at** *hh:mm* [*month day year*] [*text*] **|** **cancel**]

Parameter description

Parameter	Description
text	Cause to restart, 1-255 bytes
in *mmm hh:mm*	The system is restarted after specified time interval.
at *hh:mm month day year*	The system is restarted at the specified time. Up to 200 days is supported
month	Month in the range January to December
day	Date in the range 1 to 31
year	Year in the range 1993 to 2035

cancel	Cancel scheduled restart.

Command mode

Privileged mode.

Usage guidelines

This command is used to restart the device at specified time, which may facilitate the management.

2.2.13 service config

This command is used to enable the device to first download the boot configuration file from a remote network server. The **no** form of this command is used to disable this function.

service config

no service config

Parameter description

Parameter	Description
-	-

Default configuration

Disabled.

Command mode

Global configuration mode.

Usage guidelines

This command needs to be used in combination with the boot config and boot network commands. When booting the device, the system loads the configuration file according to the following principles:

- If the service config command is not configured, the sequence of loading the configuration file is as follows: boot configuration filename configured using the boot config command, flash:/config.text, network boot configuration filename configured using the boot network command, and the default factory-delivered configuration (null configuration).
- If the service config command is configured, the sequence of loading the configuration file is as follows: network boot configuration filename configured using the boot network command, boot configuration filename configured using the boot config command, flash:/config.text, and the default factory-delivered configuration (null configuration).
- When loading the files in sequence, the system will not load the other configuration files as long as one configuration file is successfully loaded.

⚠ **Caution**

As this command configuration is used by the system in the early boot stage, the configuration is saved in the device Boot ROM instead of the configuration file.

Examples

The example below enables the device to first download the boot configuration file from a remote network server and configure the network boot configuration filename:

```
DES-7200(config)# service config
DES-7200(config)# boot network tftp://192.168.7.24/config.text
```

Related commands

Command	Description
boot config	Set the boot configuration filename for the device.
boot network	Set the network boot configuration filename for the device.

2.2.14 session-timeout

To configure the session timeout for the remote terminal established in current LINE, use the **session-timeout** command.When the session timeout for the remote terminal in the LINE is cancelled, the session will never be timeout.

session-timeout *minutes* [**output**]

no session-timeout

Parameter description

Parameter	Description
minutes	The minutes of specified timeout.
output	Regard data output as the input to determine whether timeouts.

Default configuration

The default timeout is 0 min.

Command mode

LINE configuration mode.

Usage guidelines

If there is no input/output information for the session to the remote terminal established in current LINE within specified time, this connection will be interrupted, and this LINE will be restored to the free status.

Examples

The example below specifies the timeout of session is 5 minutes.

```
DES-7200(config-line)#exec-timeout 5 output
```

2.2.15 speed

To set speed at which the terminal transmits packets, execute the **speed** *speed* command in the line configuration mode. To restore the speed to its default value, run the **no speed** command.

speed *speed*

Parameter description

Parameter	Description
speed	Transmission rate (bps) on the terminal. For serial ports, the optional rates are 9600, 19200, 38400, 57600, and 115200 bps. The default rate is 9600 bps.

Command mode

Global configuration mode.

Default Configuration

The default rate is 9600.

Usage guidelines

This command sets the speed at which the terminal transmits packets.

Examples

The following example shows how to configure the rate of the serial port to 57600 bps:

```
DES-7200(config)#
DES-7200(config)# line console 0
DES-7200(config-line)# speed 57600
DES-7200(config-line)#
```

2.2.16 write

To perform the read/write operation for the device configurations (startup configuration or system configuration), execute the privileged user command **write**.

write [**memory | network | terminal**]

Parameter description

Parameter	Description
memory	Write the system configuration (running-config) into NVRAM, which is equivalent to **copy running-config startup-config**.
network	Save the system configuration into the TFTP server, which is equivalent to **copy running-config tftp**.
terminal	Show the system configuration, which is equivalent to **show running-config**.

Command mode

Privileged mode.

Usage guidelines

Despite of the alternative command, these commands have been widely used and accepted, so they are reserved to facilitate user's operation.

The **no** form with the command is equivalent to add the **memory** operation.

Examples

The example below saves the device configuration:

```
DES-7200# write
Building configuration...
[OK]
```

Related commands

Command	Description
show running-config	View the system configuration.
copy	Copy the device configuration files.

2.3 Showing Related Commands

2.3.1 show boot

Use this command to show the boot related configuration of the device.

show boot {config | network |system | ip}

Parameter description

Parameter	Description
config	Show the configuration of the startup-config filename.
network	Show the configuration of the network startup-config filename.
system	Show the configuration of the startup main program filename.
ip	Show the configuration of local IP address used in the device starting.

Command mode

Privileged mode

Usage guidelines

This command is used to show current boot related configuration of the device.

Note

The size and modified time of the files in the remote TFTP servers are shown as “N/A”. When perform the **show boot system** command, if the corresponding main program does not exist, the size and modified time of the file are also shown as “N/A”

Examples

1.The example below shows the configuration of the startup-config filename:

```
DES-7200# show boot config
Boot config file: [/config_main.text]
Service config: [Disabled]
```

2.The example below shows the configuration of network startup-config filename:

```
DES-7200# show boot network
Network config file: [tftp://192.168.7.24/config.text]
Service config: [Enabled]
```

3.The example below shows the configuration of the main program filename and boot priority:

```
DES-7200# show boot system
Boot system config:
==================================================
Prio     Size            Modified  Name
---- --------- ------------------ -----------------
 1
 2
 3
 4
5     3205120 2008-08-26 05:22:46 flash:/firmware.bin
6
7
8     3205120 2008-08-26 05:25:09 flash:/firmware_bak.bin
9           N/A                 N/A
tftp://192.168.7.24/
                                  firmware.bin
10
==================================================
```

4.The example below shows the configuration of local IP address that used in the device starting:

```
DES-7200# show boot ip
System boot ip: [192.168.7.11]
```

2.3.2 show mainfile

This command is used to show the current filename of the boot main program.

show mainfile

Parameter description

Parameter	Description
-	-

Command mode

Privileged mode

Usage guidelines

This command is used to show the current filename of the boot main program.

Examples

```
DES-7200# show mainfile
MainFile name: /firmware.bin
```

Related commands

Command	Description
boot system	Set the filename of the boot main program.

2.3.3 show clock

To view the system time, execute the privileged user command **show clock**.

show clock

Parameter description

Parameter	Description
-	-

Command mode

Privileged mode

Usage guidelines

This command is used to view current system clock.

Examples

The example below is an execution result of the **show clock** command:

```
DES-7200# show clock
clock: 2003-3-17 10:27:21
```

Related commands

Command	Description
clock set	Set the system clock.

2.3.4 show line

To show the configuration of a line, execute the **show line** command in the privileged mode.

show line {**console** *line-num* **|** **vty** *line-num* **|** *line-num*}

Parameter description

Parameter	Description
console	Show the configuration of a console line.

vty	Show the configuration of a vty line.
line-num	Number of the line

Command mode

Privileged mode.

Usage guidelines

This command shows the configuration information of a line.

Examples

The following example shows the configuration of console port:

```
DES-7200# show line console 0
CON    Type    speed   Overruns
* 0    CON    9600    45927
Line 0, Location: "", Type: "vt100"
Length: 24 lines, Width: 79 columns
Special Chars: Escape  Disconnect  Activation
             ^^x    none       ^M
Timeouts:     Idle EXEC   Idle Session
             never      never
History is enabled, history size is 10.
Total input: 53564 bytes
Total output:  395756 bytes
Data overflow:  27697 bytes
stop rx interrupt:  0 times
```

2.3.5 show reload

To show the restart settings of the system, execute the **show reload** command in the privileged EXEC mode.

show reload

Parameter description

N/A.

Command mode

Privileged mode.

Usage guidelines

Use this command to show the restart settings of the system.

Examples

The following example shows the restart settings of the system:

```
DES-7200# show reload
Reload scheduled in 595 seconds.
At 2003-12-29 11:37:42
Reload reason: test.
```

2.3.6 show running-config

To show the configuration information current device system is running, execute the privileged user command **show running-config**.

show running-config

Command mode	Privileged mode.

2.3.7 show startup-config

To view the configuration of device stored in the Non Volatile Random Access Memory (NVRAM), execute the privileged user command **show startup-config**.

show startup-config

Command mode	Privileged mode.

Usage guidelines	The configuration of device stored in the NVRAM is that executed when the device is startup.

2.3.8 show version

To view the information of the system, execute the command **show version** in the privileged mode.

show clock [**slots | devices| module**]

	Parameter	Description
Parameter description	**slots**	Current slot information of the device.
	module	Current module information of the device.
	devices	Current device information

Command mode

Privileged mode

Usage guidelines

This command is used to view current system information, mainly including the system start time, version information, device information, serial number ,etc.

Examples

The example below shows the system information.

```
DES-7200# show clock detail
clock: 2003-3-17 10:27:21
Clock read from calendar when system boot.
DES-7200# show version
System description : DES-7200 Dual Stack Multi-Layer
Switch By D-Link Corporation
System start time: 1970-6-14 11:49:53
System uptime: 3:17:1:17
System hardware version: 2.0
System software version: 10.3.00(4), Release(34679)
System boot version: 10.2.34077
System CTRL version: 10.2.24136
System serial number: 1234942570001
```

2.3.9 show web-server status

This command is used to show the configuration and status of a web server.

show web-server status

Parameter description

Parameter	Description
-	-

Command mode

Privileged mode

Usage guidelines

N/A

Examples

The example below is an execution result of the **show web-server status** command:

```
DES-7200# show web-server status
http server status : enabled
http server port : 80
```

```
https server status:  enabled

https server port: 443
```

3 SSH Configuration Commands

3.1 Related Configuration Commands

3.1.1 crypto key generate

In global configuration mode, use this command to generate a public key on the SSH server:

crypto key generate {**rsa|dsa**}

Parameter description

Parameter	Description
rsa	Generate an RSA key.
dsa	Generate a DSA key.

Default configuration

By default, the SSH server does not generate a public key.

Command mode

Global configuration mode.

Usage guidelines

When you need to enable the SSH Server service, use this command to generate a public key on the SSH server and enable the SSH SERVER service by command **enable service ssh-server** at the same time. SSH 1 uses the RSA key; SSH 2 uses the RSA or DSA key. Therefore, if a RSA key has been generated, both SSH1 and SSH2 can use it. If only a DSA key is generated, only SSH2 can use it.

⚠ **Caution**

A key can be deleted by using the **crypto key zeroize** command. The **no crypto key generate** command is not available.

Examples

```
DES-7200# configure terminal
DES-7200(config)# crypto key generate rsa
```

Related commands

Command	Description
show ip ssh	Show the current status of the SSH Server.
crypto key zeroize {rsa | dsa}	Delete DSA and RSA keys and disable the SSH Server function.

3.1.2 crypto key zeroize

In global configuration mode, use this command to delete the public key on the SSH server.

crypto key zeroize {**rsa | dsa**}

Parameter description

Parameter	Description
rsa	Delete the RSA key.
dsa	Delete the DSA key.

Default configuration

N/A.

Command mode

Global configuration mode.

Usage guidelines

This command deletes the public key of the SSH Server. After the key is deleted, the SSH Server state becomes DISABLE. If you want to disable the SSH Server, run the **no enable service ssh-server** command.

Examples

```
DES-7200# configure terminal
DES-7200(config)# crypto key zeroize rsa
```

Related commands

Command	Description
show ip ssh	Show the current status of the SSH Server.
crypto key generate {rsa|dsa}	Generate DSA and RSA keys.

3.1.3 ip ssh authentication-retries

Use this command to set the authentication retry times of the SSH Server. Use the **no** form of this command to restore it to the default setting.

ip ssh authentication-retries *retry times*

no ip ssh authentication-retries

Parameter description

Parameter	Description
retry times	Authentication retry times

Default configuration

The default authentication retry times are 3.

Command mode

Global configuration mode.

Usage guidelines

User authentication is considered failed if authentication is not successful when the configured authentication retry times on the SSH server is exceeded. Use the **show ip ssh** command to view the configuration of the SSH Server.

Examples

The following example sets the authentication retry times to 2:

```
DES-7200# configure terminal
DES-7200(config)# ip ssh authentication-retries 2
```

Related commands

Command	Description
show ip ssh	Show the current status of the SSH Server.

3.1.4 ip ssh time-out

Use this command to set the authentication timeout for the SSH Server. Use the **no** form of this command to restore it to the default setting.

ip ssh time-out *time*

no ip ssh time-out

Parameter description

Parameter	Description
time	Authentication timeout

Default configuration

The timeout value is 120s by default.

Command mode

Global configuration mode.

Usage guidelines

The authentication is considered timeout and failed if the authentication is not successful within 120s starting from receiving a connection request. Use the **show ip ssh** command to view the configuration of the SSH server.

Examples

The following example sets the timeout value as 100s:

```
DES-7200# configure terminal
DES-7200(config)# ip ssh time-out 100
```

Related commands

Command	Description
show ip ssh	Show the current status of the SSH Server.

3.1.5 ip ssh version

Use this command to set the version of the SSH server. Use the **no** form of this command to restore it to the default setting.

ip ssh version {**1** | **2**}

no ip ssh version

Parameter description

Parameter	Description
1	Support the SSH1 client connection request.
2	Support the SSH2 client connection request.

Default configuration

SSH1 and SSH2 are compatible by default. When a version is set, the connection sent by the SSH client of this version is accepted only. The **no ip ssh version** command can also be used to restore it to the default setting.

Command mode

Global configuration mode.

Usage guidelines

This command is used to configure the SSH connection protocol version supported by SSH Server. By default, the SSH Server supports SSH1 and SSH2. If Version 1 or 2 is set, only the SSH client of this version can connect to the SSH Server. Use the **show ip ssh** command to show the current status of SSH Server.

Examples

The following example sets the version of the SSH Server:

```
DES-7200# configure terminal
DES-7200(config)# ip ssh version 2
```

Related commands

Command	Description
show ip ssh	Show the current status of the SSH Server.

3.2 Showing Related Commands

3.2.1 disconnect ssh

Use this command to disconnect the established SSH connection.

disconnect ssh [vty] *session-id*

Parameter description

Parameter	Description
session-id	ID of the established SSH connection session.

Default configuration

N/A.

Command mode

Privileged EXEC mode.

Usage guidelines

You can disconnect a SSH connection by entering the ID of the SSH connection or disconnect a SSH connection by entering the specified VTY connection ID. Only connections of the SSH type can be disconnected.

Examples

```
DES-7200# disconnect ssh 1  Or
DES-7200# disconnect ssh vty 1
```

Related commands

Command	Description
show ssh	Show the information about the established SSH connection.
clear line vty *line_number*	Disconnect the current VTY connection.

3.2.2 show crypto key mypubkey

Use this command to show the information about the public key part of the public key on the SSH Server.

show crypto key mypubkey {rsa/dsa}

Parameter description

Parameter	Description
rsa	Show the public key part of the RSA key.
dsa	Show the public key part of the DSA key.

Default configuration

N/A.

Command mode

Privileged EXEC mode.

Usage guidelines

This command is used to show the information about the public key part of the generated public key on the SSH Server, including key generation time, key name, contents in the public key part, etc.

Examples

```
DES-7200# show crypto key mypubkey rsa
```

Related commands

Command	Description
crypto key generate {rsa | dsa}	Generate DSA and RSA keys.

3.2.3 show ip ssh

Use this command to show the information of the SSH Server.

show ip ssh

Parameter description

N/A.

Default configuration

N/A.

Command mode

Privileged EXEC mode.

Usage guidelines

This command is used to show the information of the SSH Server, including version, enablement state, authentication timeout, and authentication retry times.

Note: If no key is generated for the SSH Server, the SSH version is still unavailable even if this SSH version has been configured.

Examples

```
DES-7200# show ip ssh
```

Related commands

Command	Description
ip ssh version {**1** | **2**}	Configure the version for the SSH Server.
ip ssh time-out time	Set the authentication timeout for the SSH Server.
ip ssh authentication-retries	Set the authentication retry times for the SSH Server.

3.2.4 show ssh

Use this command to show the information about the SSH connection.

show ssh

Parameter description N/A.

Default configuration N/A.

Command mode Privileged EXEC mode.

Usage guidelines This command is used to show the information about the established SSH connections, including VTY number of connection, SSH version, encryption algorithm, message authentication algorithm, connection status, and user name.

Examples

```
DES-7200# show ssh
```

Related commands N/A.

4 LINE Configuration Commands

4.1 Configuration Related Commands

4.1.1 access-class

Set the applied ACL (Access Control List) in Line. Use the **access-class** { *access-list-number* | *access-list-name* } **{ in | out }** command to configure the ACL in Line. Use the **no access-class** {*access-list-number* | *access-list-name*} {**in | out}** command to cancel the ACL configuration in LINE.

access-class { *access-list-number* | *access-list-name* } {**in | out**}

no access-class { *access-list-number* | *access-list-name* } {**in | out**}

Parameter description

Parameter	**Description**
access-list-number| *access-list-name*	Specify the ACL defined by access-list
in	Perform access control over the incoming connections
out	Perform access control over the outgoing connections

Default configuration

By default, no ACL is configured under Line. All connections are accepted, and all outgoing connections are allowed.

Command mode

Line configuration mode.

Usage guidelines

This command is used to configure ACLs under Line. By default, all the incoming and outgoing connections are allowed, and no connection is filtered. After **access-class** is configured, only the connections that pass access list filtering can be established successfully. Use the **show running** command to view configuration information under Line.

Examples

In line vty 0 4, configure access-list for the accepted connections to 10:

```
DES-7200# configure terminal
DES-7200(config)# line vty 0 4
DES-7200(config-line)# access-class  10  in
```

Related commands

Command	Description
show running	Show status information

4.1.2 line

To enter the specified LINE mode, use the following command:

line [**console | vty**] *first-line* [*last-line*]

Parameter description

Parameter	Description
console	Console port
vty	Virtual terminal line, applicable for telnet/ssh connection.
first-line	Number of first-line to enter
last-line	Number of last-line to enter

Default configuration

N/A.

Command mode

Global configuration mode.

Usage guidelines

Access to the specified LINE mode.

Examples

Enter the LINE mode from LINE VTY 1 to 3:

```
DES-7200(config)# line vty 1 3
```

Related

N/A.

commands

4.1.3 line vty

This command can be used to increase the number of VTY connections currently available. The number of currently available VTY connections can be decreased by using the **no** form of this command.

line vty *line-number*

no line vty *line-number*

Default configuration By default, there are five available VTY connections, numbered 0--4.

Command mode Global configuration mode.

Usage guidelines When you need to increase or decrease the number of available VTY connections, use the above commands.

Examples

Increase the number of available VTY connections to 20. The available VTY connections are numbered 0--19.

```
DES-7200(config)# line vty 19
```

Decrease the number of available VTY connections to 10. The available VTY connections are numbered 0-9.

```
DES-7200(config)# line vty 10
```

Related commands N/A.

4.1.4 transport input

To set the specified protocol under Line that can be used for communication, use the **transport input** command. Use **default transport input** to restore the protocols under Line that can be used for communication to the default value.

transport input {all | ssh | telnet | none}

default transport input

Parameter description

Parameter	Description
all	Allow all the protocols under Line to be used for communication
ssh	Allow only the SSH protocol under Line to be used for communication
telnet	Allow only the Telnet protocol under Line to be used for communication
none	Allow none of protocols under Line to be used for communication

Default configuration

By default, VTY allows all the protocols to be used for communication. The default value of other types of TTYs is NONE, indicating that no protocols are allowed for communication. After some protocols are set to be available for communication, use the **default transport input** command to restore the setting to the default value.

Command mode

Line configuration mode.

Usage guidelines

This command is used to set the protocols in the Line mode that are available for communication. By default, VTY allows all the protocols for communication. After protocols available for communication are set, only these protocols can connect on the specific VTY successfully. Use the **show running** command to view configuration information under Line.

Note: You can restore the default configuration by using the **default transport input** command. The **no transport input** command is used to disable all the communication protocols in the LINE mode. The setting result is the same as that of **transport input none**.

Examples

Specify that only the Telnet protocol is allowed to login in line vty 0 4:

```
DES-7200# configure terminal
DES-7200(config)# line vty 0 4
DES-7200(config-line)# transport input telnet
```

Related commands

Command	Description
show running	Show status information

5 Network Connectivity Test Tool Configuration Commands

5.1 Configuration Related Commands

5.1.1 ping

Use this command to test the connectivity of a network to locate the network connectivity problem. The command format is as follows:

ping [vrf *vrf-name* | ip] [*ip-address* [length *length*] [ntimes *times*] [timeout *seconds*] [data *data*] [source *source*] [df-bit] [validate]]

	Parameter	Description
Parameter description	*vrf-name*	VRF name
	ip-address	Specifies an IPv4 address.
	length	Specifies the length of the packet to be sent.
	times	Specifies the number of packets to be sent.
	seconds	Specifies the timeout time.
	data	Specifies the data to fill in.
	seconds	Specifies the source IPv4 address or the source interface. The loopback interface address(for example: 127.0.0.1) is not allowed to be the source address.
	df-bit	Sets the DF bit for the IP address. DF bit=1 indicates not to segmentate the datagrams. By default, the DF bit is 0.
	validate	Sets whether to validate the reply packets or not.

Default	Five packets with 100Byte in length are sent to the specified IP address within specified time (2s by default).

Command mode

Privileged mode.

Usage guidelines

The ping command can be used in the ordinary user mode and the privileged mode. In the ordinary mode, only the basic functions of ping are available. In the privileged mode, in addition to the basic functions, the extension functions of the ping are also available. For the ordinary functions of ping, five packets of 100Byte in length are sent to the specified IP address within the specified period (2s by default). If response is received, '!' is displayed. If no response is received, '.' displayed, and the statistics is displayed at the end. For the extension functions of ping, the number, quantity and timeout time of the packets to be sent can be specified, and the statistics is also displayed in the end. To use the domain name function, configure the domain name server firstly. For the concrete configuration, refer to the DNS Configuration section.

Examples

The example below shows the ordinary ping.

```
DES-7200# ping 192.168.5.1
Sending 5, 100-byte ICMP Echoes to 192.168.5.1, timeout
is 2 seconds:
  < press Ctrl+C to break >
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max
= 1/2/10 ms
```

The example below shows the extension ping.

```
DES-7200# ping 192.168.5.197 length 1500 ntimes 100
timeout 3
Sending 100, 1500-byte ICMP Echoes to 192.168.5.197,
timeout is 3 seconds, data ffff source 192.168.4.10:
  < press Ctrl+C to break >
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip
min/avg/max = 2/2/3 ms
DES-7200#
```

Platform description

The command is supported by all equipments.

5.1.2 ping ipv6

Use this command to test the connectivity of a network to locate the network connectivity problem. The command format is as follows:

ping [ipv6] [*ipv6-address* [length *length*] [ntimes *times*] [timeout *seconds*] [data *data*] [source *source*]

Parameter description

Parameter	Description
Ipv6-address	Specifies an IPv6 address.
length	Specifies the length of the packet to be sent.
times	Specifies the number of packets to be sent.
seconds	Specifies the timeout time.
data	Specifies the data to fill in.
source	Specifies the source IPv6 address or the source interface. The loopback interface address(for example: 127.0.0.1) is not allowed to be the source address.

Default

Five packets with 100Byte in length are sent to the specified IP address within specified time (2s by default).

Command mode

Privileged mode.

Usage guidelines

The ping ipv6 command can be used in the ordinary user mode and the privileged mode. In the ordinary mode, only the basic functions of ping ipv6 are available. In the privileged mode, in addition to the basic functions, the extension functions of the ping ipv6 are also available. For the ordinary functions of ping ipv6, five packets of 100Byte in length are sent to the specified IP address within the specified period (2s by default). If response is received, '!' is displayed. If no response is received, '.' displayed, and the statistics is displayed at the end. For the extension functions of ping ipv6, the number, quantity and timeout time of the packets to be sent can be specified, and the statistics is also displayed in the end. To use the domain name function, configure the domain name server firstly. For the concrete configuration, refer to the DNS Configuration section.

Examples

The example below shows the ordinary ping ipv6.

```
DES-7200# ping ipv6 2000::1
Sending 5, 100-byte ICMP Echoes to 2000::1, timeout is
2 seconds:
  < press Ctrl+C to break >
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max
= 1/2/10 ms
```

The example below shows the extension ping ipv6.

```
DES-7200# ping  ipv6 2000::1  length 1500 ntimes 100
timeout 3 data ffff source 192.168.4.10:
Sending 100, 1500-byte ICMP Echoes to 2000::1, timeout
is 3 seconds
  < press Ctrl+C to break >
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip
min/avg/max = 2/2/3 ms
```

Platform description

The command is supported by all ipv6 equipments.

5.1.3 traceroute

Execute the traceroute command to show all gateways passed by the test packets from the source address to the destination address.

traceroute [**vrf** *vrf-name* **|** **ip**] [*ip-address* [**probe** *number*] [**source** *source*] [**timeout** *seconds*] [**ttl** *minimum maximum*]]

Parameter description

Parameter	Description
vrf-name	VRF name
ip-address	Specifies an IPv4 address.
number	Specifies the number of probe packets to be sent.
source	Specifies the source IPv4 address or the source interface. The loopback interface address(for example: 127.0.0.1) is not allowed to be the source address.
seconds	Specifies the timeout time.
minimum maximum	Specifies the minimum and maximum TTL values.

Command mode

Privileged mode.

Usage guidelines

Use the **traceroute** command to test the connectivity of a network to exactly locate the network connectivity problem when the network failure occurs. To use the function domain name, configure the domain name server. For the concrete configuration, refer to the DNS Configuration part.

Examples

The following is two examples of the application bout traceroute, the one is of the smooth network, and the other is the network in which some gateways aren’t connected successfully.

1. When the network is connected smoothly:

```
DES-7200# traceroute 61.154.22.36
  < press Ctrl+C to break >
Tracing the route to 61.154.22.36

1     192.168.12.1        0 msec   0 msec   0 msec
2     192.168.9.2         4 msec   4 msec   4 msec
3     192.168.9.1         8 msec   8 msec   4 msec
4      192.168.0.10       4 msec   28 msec  12 msec
5      192.168.9.2        4 msec   4 msec   4 msec
6      202.101.143.154    12 msec  8 msec   24 msec
7      61.154.22.36       12 msec  8 msec   22 msec
```

From above result, it’s clear to know that the gateways passed by the packets sent to the host with an IP address of 61.154.22.36 (gateways 1~6) and the spent time are displayed. Such information is helpful for network analysis.

2. When some gateways in the network fail:

```
DES-7200# traceroute 202.108.37.42
  < press Ctrl+C to break >
Tracing the route to 202.108.37.42

1      192.168.12.1      0 msec    0 msec  0 msec
2      192.168.9.2       0 msec    4 msec  4 msec
3      192.168.110.1     16 msec  12 msec  16 msec
4      *  *  *
5      61.154.8.129      12 msec   28 msec  12 msec
6      61.154.8.17       8 msec    12 msec  16 msec
7      61.154.8.250      12 msec   12 msec  12 msec
8      218.85.157.222    12 msec   12 msec  12 msec
9       218.85.157.130   16 msec   16 msec  16 msec
10      218.85.157.77    16 msec   48 msec  16 msec
11      202.97.40.65     76 msec   24 msec  24 msec
12      202.97.37.65     32 msec   24 msec  24 msec
13      202.97.38.162    52 msec   52 msec  224 msec
14      202.96.12.38     84 msec   52 msec  52 msec
15      202.106.192.226  88 msec   52 msec  52 msec
16      202.106.192.174    52 msec   52 msec  88 msec
17      210.74.176.158   100 msec  52 msec  84 msec
18      202.108.37.42    48 msec   48 msec  52 msec
```

The above result clearly shown that the gateways passed by the packets sent to the host with an IP address of 202.108.37.42 (gateways 1~17) and the spent time are displayed, and gateway 4 fails.

```
DES-7200# traceroute www.ietf.org

Translating "www.ietf.org"...[OK]
  < press Ctrl+C to break >
Tracing the route to 64.170.98.32

 1      192.168.217.1      0 msec  0 msec  0 msec
 2      10.10.25.1         0 msec  0 msec  0 msec
 3      10.10.24.1         0 msec  0 msec  0 msec
 4      10.10.30.1         10 msec 0 msec  0 msec
 5      218.5.3.254        0 msec  0 msec  0 msec
 6      61.154.8.49        10 msec 0 msec  0 msec
 7      202.109.204.210    0 msec  0 msec  0 msec
 8      202.97.41.69       20 msec 10 msec 20 msec
 9      202.97.34.65       40 msec 40 msec 50 msec
 10      202.97.57.222     50 msec 40 msec 40 msec
 11      219.141.130.122   40 msec 50 msec 40 msec
```

```
12    219.142.11.10     40 msec 50 msec 30 msec
13    211.157.37.14     50 msec 40 msec 50 msec
14    222.35.65.1       40 msec 50 msec 40 msec
15    222.35.65.18      40 msec 40 msec 40 msec
16    222.35.15.109     50 msec 50 msec 50 msec
17    *      *      *
18    64.170.98.32   40 msec 40 msec 40 msec
```

Platform description

The command is supported by all equipments.

5.1.4 traceroute ipv6

Use this command to show all gateways passed by the test packets from the source address to the destination address.

traceroute [**ipv6**] [*ip-address* [**probe** *number*] [**timeout** *seconds*] [**ttl** *minimum maximum*]]

Parameter description

Parameter	Description
Ipv6-address	Specifies an IPv6 address.
number	Specifies the number of probe packets to be sent.
seconds	Specifies the timeout time.
minimum maximum	Specifies the minimum and maximum TTL values.

Command mode

Privileged mode.

Usage guidelines

Use the **traceroute ipv6** command to test the connectivity of a network to exactly locate the network connectivity problem when the network failure occurs. To use the function domain name, configure the domain name server. For the concrete configuration, refer to the DNS Configuration part.

Examples

The following is two examples of the application bout traceroute ipv6, the one is of the smooth network, and the other is the network in which some gateways aren’t connected successfully.

1. When the network is connected smoothly:

```
DES-7200# traceroute ipv6 3004::1
  < press Ctrl+C to break >
Tracing the route to 3004::1
1      3000::1        0 msec  0 msec  0 msec
2      3001::1        4 msec  4 msec 4 msec
3      3002::1        8 msec  8 msec  4 msec
4      3004::1        4 msec  28 msec  12 msec
```

From above result, it's clear to know that the gateways passed by the packets sent to the host with an IP address of 3004::1 (gateways 1~4) and the spent time are displayed. Such information is helpful for network analysis.

2. When some gateways in the network fail:

```
DES-7200# traceroute ipv6 3004::1
 < press Ctrl+C to break >
Tracing the route to 3004::1
1      3000::1        0 msec  0 msec  0 msec
2      3001::1        4 msec  4 msec 4 msec
3      3002::1        8 msec  8 msec  4 msec
4      * * *
5      3004::1        4 msec  28 msec  12 msec
```

The above result clearly shown that the gateways passed by the packets sent to the host with an IP address of 3004::1 (gateways 1~5) and the spent time are displayed, and gateway 4 fails.