ZXR10
Router/Ethernet Switch

Command Manual (Basic Configuration Volume I)

Version 4.8.22

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About This Manual

Purpose

This manual provides procedures and guidelines that support the operation of ZXR10 router and Ethernet switch.

Intended Audience

This manual is intended for engineers and technicians who perform operation activities on ZXR10 router and Ethernet switch.

What Is in This Manual

This manual contains the following chapters:

Chapter	Summary
Chapter 1, Command Introduction	This describes the use method of the command manual, command description, format convention, auxiliary function and mode.
Chapter 2 Basic System Management	Describes the basic system management commands, including the configuration and viewing commands
Chapter 3 File System Management	Describes the operation and management commands for the file system
Chapter 4 User Interface Management	Describes the operation and management commands for the user interfaces
Chapter 5 System Log/Statistics Management	Describes the operation and management commands for the system log and statistics
Chapter 6 FTP/TFTP Server	Describes the operation and management commands for the FTP/TFTP server
Chapter 7 IPV4 Basic Protocols	Describes the configuration and view commands of IPV4 basic protocols, including the ARP, IP, TCP, DHCP, NAT and VRRP

Related Documentation

The following documentation is related to this manual:

- ZXR10 Router/Ethernet Switch Command Manual (Command Index Volume)
- ZXR10 Router/Ethernet Switch Command Manual (Ethernet Switch Volume)
- ZXR10 Router/Ethernet Switch Command Manual (Basic Configuration Volume II)
- ZXR10 Router/Ethernet Switch Command Manual (Basic Configuration Volume III)
- ZXR10 Router/Ethernet Switch Command Manual (Remote Access Volume)
- ZXR10 Router/Ethernet Switch Command Manual (IPv4 Routing Volume I)

- ZXR10 Router/Ethernet Switch Command Manual (IPv4 Routing Volume II)
- ZXR10 Router/Ethernet Switch Command Manual (MPLS Volume)
- ZXR10 Router/Ethernet Switch Command Manual (QoS Volume)
- ZXR10 Router/Ethernet Switch Command Manual (Security Volume)
- ZXR10 Router/Ethernet Switch Command Manual (Network Management Volume)
- ZXR10 Router/Ethernet Switch Command Manual (Multicast Volume)
- ZXR10 Router/Ethernet Switch Command Manual (IPv6 Volume)
- ZXR10 Router/Ethernet Switch Command Manual (Voice and Video Service Volume)

Chapter 1

Command Introduction

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Manual Use Guide 1
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Manual Use Guide

The commands in other volumes are classified by functional modules, and each functional module corresponds to a chapter and the commands in the chapter are organized in the form of level 2 directory and in the order of a–z.

To search a command, do as follows:

1. Find the desired command by referring to ZXR10 Router/Ethernet Switch Command Manual — Command Index.
2. Find command details by the volume, chapter/section and page of the obtained command.

Description of Man-Machine Commands

Each MML command is described by the following items:

- Function

  It describes the function implemented by this command.

- Command Mode

  It describes the mode in which this command can be executed.

- Format

  It describes the complete format of this command, including the no format if possible.

- Parameter Description

  It describes parameters in this command in the form and prescribes the range and default value. If different products have

different parameter ranges or default values, an additional form is used for description.

- Default

  The default value is available in the case that this command is not set. The default parameter value is not described here for value selection.

  Additional description shall be given if different products have different default values.

- Instructions

  First describes the platform version information about this command. For example, "The platform version X.X.XX or later supports this command" indicates this command is provided from the beginning of the platform version X.X.XX. This command is provided from the platform version 2.6 by default.

  Second describes the use method and precautions of this command.

- Example

  It describes the use of this command in an example.

- Related Commands

  Lists the command(s) related to this command.

- History Command

  It describes history version information related to this command if a command is changed after version upgrade.

Do not describe the history command if this entry does not exist.

Auxiliary Function

The auxiliary function for ZXR10 devices is as follows.

1. In any command mode, enter a question mark (?) after the DOS prompt of the system, a list of available commands in the command mode will be displayed. With the context-sensitive help function, the keywords and parameter lists of any commands can be obtained.

   i. In any command mode, enter a question mark "?" after the DOS prompt of the system, and a list of all commands in the mode and the brief description of the commands will be displayed.

   ii. Input the question mark behind a character or character string to view the list of commands or keywords beginning with this character or character string. Note that there is no space between the character (string) and the question mark.

   iii. Press **TAB** behind the character string. If the command or keyword beginning with this character string is unique, it shall be completed with a space at the end. Note that there is no space between the character string and the **TAB**.

iv. Input a question mark after a command, a keyword or a parameter, the next keyword or parameter to be input will be listed, and also a brief explanation will be given. Note that a space must be entered before the question mark.

2. If incorrect command, keyword or parameter is input, the error isolation is offered with ^ in the user interface after you press ENTER. The ^ is below the first character of the input incorrect command, keyword or parameter.
3. ZXR10 router/Ethernet switch allows the command or keyword to be abbreviated into a character or character string that uniquely identifies this command or keyword. For example, the **show** command can be abbreviated to **sh** or **sho**.
4. The user interface supports the function of recording input commands. A maximum of ten history commands can be recorded. The function is very useful in re-invocation of a long or complicated command or ingress.

   To re-invoke a command from the record buffer, conduct one of the following operations, as shown below.

Command	Function
Press **CTRL-P** or the up arrow key	Re-invokes the latest command in the record buffer. Repeat these keys to invoke old commands forwards.
Press **CTRL-N** or the down arrow key	Rolls the commands downward. When the last command line is reached, one more operation will roll the commands from the begging of the buffer cyclically.

   In any mode, execute the **show history** command to list the latest commands input in this mode.

Command Mode

The command modes in this manual are shown below.

Mode	Prompt	Admission Mode	Entry Command	Functions
Exec mode	`ZXR10>`		enters directly after logging the system	Views simple information
Privileged mode	`ZXR10#`	Exec mode	**enable**	Configures system parameters
Global configuration mode	`ZXR10(config)#`	Privileged mode	**configure terminal**	Configures global service parameters

Mode	Prompt	Admission Mode	Entry Command	Functions
Interface configuration mode	ZXR10(config-if)#	Global configuration mode	**interface**	Configures port parameters and selects a port type depending on the keyword
Subinterface mode	ZXR10 (config-subif)#	Global configuration mode	**interface**	Configures subinterface parameters of the NPCI/NPCT
VLAN database configuration mode	ZXR10(vlan-db)#	Privileged mode	**vlan database**	Creates or deletes VLANs in batches
VLAN configuration mode	ZXR10(config-vlan)#	Global configuration mode	**vlan**	Configures VLAN parameters
MSTP configuration mode	ZXR10(config-mstp)#	Global configuration mode	**spanning-tree mst configuration**	Configures MSTP parameters
Basic ACL configuration mode	ZXR10(config-basic-acl)#	Global configuration mode	**acl basic**	Defines basic ACL rule
Extended ACL configuration mode	ZXR10(config-ext-acl)#	Global configuration mode	**acl extend**	Defines extended ACL rule
Line configuration mode	ZXR10(config-line)#	Global configuration mode	**line console 0** **line** *<1~64>*(GAR)	Configures parameters related to serial port and telnet connection
Layer 2 ACL configuration mode	ZXR10(config-link-acl)#	Global configuration mode	**acl link**	Defines layer 2 ACL rule

Mode	Prompt	Admission Mode	Entry Command	Functions
Hybrid ACL configuration mode	ZXR10(config-hybd-acl)#	Global configuration mode	**acl hybrid**	Defines hybrid ACL rule
Router standard ACL mode	ZXR10 (config-std-nacl)#	Global configuration mode	**ip access-list**	Defines router standard ACL rule
Router extended ACL mode	ZXR10 (config-ext-nacl)#	Global configuration mode	**ip access-list**	Defines router extended ACL rule
Route configuration mode	ZXR10(config-router)#	Global configuration mode	**router rip**	Configures RIP parameters
			router ospf	Configures OSPF parameters
			router isis	Configures IS-IS parameters
			router bgp	Configures BGP parameters
			router pimsm	Configures PIM-SM parameters
			ipv6 router rip	Configures RIPng parameters.
			ipv6 router ospf	Configures OSPFv3 parameters
VRF configuration mode	ZXR10(config-vrf)#	Global configuration mode	**ip vrf**	Configures VRF parameters
VFI configuration mode	ZXR10(config-vfi)#	Global configuration mode	**vfi**	Configures VPLS related parameters

Mode	Prompt	Admission Mode	Entry Command	Functions
IPv4 address family configuration mode	ZXR10(config-router-af)#	Route configuration mode (RIP)	**address-family ipv4 vrf**	Configures RIP VRF parameters
		Route configuration mode (BGP)	**address-family vpnv4** **address-family ipv4 vrf**	Configures BGP VPN and VRF parameters
IPv6 unicast address family configuration mode	ZXR10(config-router-af)#	Route configuration mode (BGP4+)	**address-family ipv6**	Configures BGP4+ unicast address family
		Route configuration mode (IS-ISv6)	**address-family ipv6**	Configures IS-ISv6 address family
Route map configuration mode	ZXR10(config-route-map)#	Global configuration mode	**route-map**	Configures route map matching item and operation
Channelization configuration mode	ZXR10(config-control)#	Global configuration mode	**control**	Configures channelization for ce1, ce3 and cpos3
Dial peer configuration mode	ZXR10(config-voip100)#	Global configuration mode	**dial-peer voice**	Configures business related to integrated service
Voice port configuration mode	ZXR10(config-voice-port)#	Global configuration mode	**voice-port**	Configures voice service
IPSec configuration mode	ZXR10(config-ipsec)#	Global configuration mode	**ipsec**	Configures IPv6 IPSec protection
Diagnosis mode	ZXR10(diag)#	Privileged mode	**diagnose**	Tests CPU and memory usage

Chapter 2

Basic System Management

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auto-download config

Purpose Use this command to enable downloading the configuration file automatically.

Command Modes Global Configuration

Syntax **auto-download config**

no auto-download config

Instructions This command is to enable downloading configuration file automatically. If the configuration files(startrun and config) already exist, delete them and reboot the rack to download them automatically. When this function is disabled, if the downloading is in the process, then it informs the TFTP module about shutting the downloading.

Defaults It is enabled by default and the configuration is writting into NVRAM. It supports 52a.

Example This example describes how to enable downloading the configuration file automatically.

```
ZXR10(config)#auto-download config
```

Related Commands **boot config-file**

show auto-download-config

banner incoming

Function Use this command to set the greeting for the system startup.

Command mode Global configuration

Format **banner incoming** <*end-char*><*TEXT*><*end-char*>

Syntax Description

<*end-char*>	End character, with one character
<*TEXT*>	Greeting: text including spaces and ENTER. It does not exceed 253 characters at most and end with<*end-char*>

Default Default welcome prompt.

Instructions

1. Set the user-defined <*end-char*>, with only one character: **banner incoming #**. After you press ENTER, the system prompts the following information:

   ```
   Enter TEXT message.  End with the character ' #' .
   ```

2. Enter the formal greeting text, which may include special characters (except?) such as space and ENTER. It ends with '#'.

Note:

The special character? is regarded as the help prompt by default. As a result, all the command parameters (text-type) or the password cannot include?.

Example This example describes how to set the greeting to welcome.

```
ZXR10(config)#banner incoming #
Enter TEXT message.  End with the character ' #' .
welcome
#
```

boot config-file

Purpose Use this command to set the path for config file.

Command Modes Global Configuration

Syntax **boot config-file** *<filename>*

Syntax Description

<filename>	Sets the path for config file.

Instructions This command is to specify the path for config file. The configuration is writting into NVRAM. It only supports 52a currently.

Defaults It is enabled by default and the configuration is writting into NVRAM. It supports 52a.

Example This example describes how to set the path for configuration file to cfg/config.dat

```
ZXR10(config)#boot config-file cfg/config.dat
ZXR10(config)#
```

Related Commands

auto-download config

show auto-download-config

clock set

Purpose Use this command to configure the system clock in standard time format.

Command Modes Privileged EXEC

Syntax **clock set** *<current-time><month><day><year>*

Syntax Description

<*current-time*>	The current time in the format: hh:mm:ss.
<*month*>	Month, jan~dec
<*day*>	Date, 1~31
<*year*>	Year, 2001~2098

Example This example describes how to set the system time to 12 minutes 1 second past 23 o'clock on Feb. 23, 2001 with the following command.

```
ZXR10#clock set 23:12:01 feb 23 2001
```

Related Commands **show clock**

clock timezone

Purpose Use this command to configure time zone information.

Command Modes Privileged EXEC

Syntax **clock timezone** <*name-of-time-zone*><*hours-offset*>[<*minutes-offset*>]

Syntax Description

<*name-of-time-zone*>	Name of time zone
<*hours-offset*>	Hours offset from UTC
<*minutes-offset*>	Minutes offset from UTC

Instructions The parameter <*minutes-offset*> is added in versions 4.8.21 and above.

Example This example describes how to configure time zone as Beijing and the <*hours-offset*> as 8.

```
ZXR10#clock timezone Beijing 8 0
```

Related Commands **show clock**

configure terminal

Purpose Use this command to change from the privileged EXEC to the global configuration mode.

Command Modes Privileged EXEC

Syntax **configure terminal**

Example This example describes how to change from the privileged EXEC to the global configuration mode.

```
ZXR10#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ZXR10(config)#
```

Related Commands

end

exit

disable

Function Use this command to return from the privileged mode to exec mode. Lower the current authority level.

Command Mode EXEC, Privileged EXEC

Syntax

disable

disable [<*level*>]

Syntax Description

<*level*>	Authority level, 0~15, the default value is 1.

Instruction **disable** [<*level*>] is only applicable to ZXR10 T64E/T128 T600/T1200.

Example This example describes how to return from the privileged mode to EXEC mode and lower the authority level to 1.

```
ZXR10#disable 1
ZXR10>
ZXR10>show privilege
Current privilege level is 1
ZXR10>
```

Related Commands

enable

show privilege

enable

Function Use this command to enter from the EXEC to privilege EXEC mode. Heighten the current authority level.

Command Mode EXEC, Privilege EXEC

Format

enable

enable [<*level*>]

Parameter Description

Parameter	Description
<*level*>	Authority level, the default value is 15.

Instructions

- Password is required when entering into each authority level. If the passwords have not been configured, then entering into the authority level is not permitted.

- The command **enable** <*level*> is only applicable to ZXR10 T64E/T128, T600/T1200.

Note:

This password is not displayed on the screen while it is entered, and is case sensitive.

Example This example describes how to heighten authority level to 2; enter from the EXEC to privilege EXEC mode.

```
ZXR10>enable 2
Password:
ZXR10#
ZXR10#show privilege
Current privilege level is 2
ZXR10#
```

Related Commands

disable

show privilege

enable secret

Function Use this command to set the password for each mode. Use the **no** command to cancel this set.

Command Mode Global configuration

Syntax

enable secret {**0** <*password*>| **5** <*password*>|<*password*>}

enable secret [**level** <*level-number*>]{**0** <*password*>| **5** <*password*>|<*password*>}

no enable secret level <*1~14*>

Syntax Description

level < *level-number* >	Designates authority level, the default value is 15
0 <*password*>	Sets the privileged password with 3–16 characters to enter the privileged mode
5 <*password*>	Sets encrypted privileged password with 3–24 characters
<*password*>	Sets privileged password with 3–16 characters by default

Instructions

- The enable password displayed in show running-config is the encrypted privileged password, while the password that is used for enable to enter the privileged mode is unencrypted privileged password.
- The command **enable secret** [**level** <*1~15*>]{**0** <*password*>| **5** <*password*>|<*password*>} is only applicable to ZXR10 T64E/T128.

Note:

Both commands **enable secret 0** <*password*> and **enable secret** <*password*> are used to enter an unencrypted password. Set the password with the **enable secret 5** <*password*> command. The configured password is not an encrypted privileged password unless the length of **<***password*> is 24.

Example This example describes how to set the privilege password to ZXR10.

```
ZXR10(config)#enable secret ZXR10
```

Related Command **enable**

end

Purpose Use this command to return to the privileged EXEC mode.

Command Modes The command is available for all modes other than the EXEC and privileged EXEC mode.

Syntax **end**

Example This example describes how to return from the global configuration mode to the privileged EXEC mode.

```
ZXR10(config)#end
ZXR10#
```

Related Commands **configure terminal**

interface

router bgp

router ospf

router rip

exit

Purpose Use this command to quit the login router or return to the last mode.

Command Modes All modes

Syntax **exit**

Instructions When it is executed under the EXEC mode or privileged EXEC mode, it means exiting the login router. While in other modes, it means returning to the last mode.

Example This example describes how to exit from the global configuration mode to the privileged EXEC mode.

```
ZXR10(config)#exit
ZXR10#
```

Related Commands

configure terminal

login

logout

flah-protect power-off

Purpose Use this command to confirm the power-off.

Command Modes Privileged EXEC

Syntax **flash-protect power-off** [**force**]

Syntax Description

force	Forces the power-off manually.

Instructions The platform version 4.8.22 supports this command. The command with the parameter **force** means forcing power-off manually and being related to flash-protect. If the command is with the parameter **force** , regardless of whether the Flash is in usage or not, unload the Flash device and power-off manually. Or, if the Flash is in usage, it can not power-off manually.

Example

- This example describes how to set force power-off manually.

```
ZXR10# flash-protect  power-off force
Are you sure to power off the machine?
If you execute the command successfully,
any other operation is invalid except power-off.
[yes/no]:y
.. OK!You can power off the machine later.
ZXR10#
```

- This example describes how to set power-off manually.

```
ZXR10# flash-protect  power-off
Are you sure to power off the machine?
If you execute the command successfully,
any other operation is invalid except power-off.
[yes/no]:y
.. OK!You can power off the machine later.
ZXR10#
```

hostname

Purpose Use this command to set the network name of the system. cancel the network name with the **no** command.

Command Modes Global configuration

Syntax **hostname** *<network-name>*

no hostname

Syntax Description

<network-name>	Network name, with 1~32 characters

Defaults By default, the default system network name is ZXR10.

Instructions The modified hostname takes effect immediately.

Example This example describes how to set the network name of the router to ZXR10_router.

```
ZXR10(config)#hostname ZXR10_router
ZXR10_router(config)#
```

help message

Function Use this command to set whether to display all command comments.

Command Mode Global configuration mode

Format **help message** [**full** | **partial**]

Syntax Description

Full	Display all comments
Partial	Omit some comments

Instruction By default, the comments are displayed in partial mode.

Example This example describes how to set help message to full.

```
ZXR10(config)#help message full
```

more

Purpose Use this command to display the flash ascii text such as log, dead halt.

Command Modes Privileged EXEC

Syntax **more** <*word*>[**ascii** | **binary** [**width**]]

Syntax Description

<*word*>	The path for this file
<*ascii* >	The display mode of the text
<*binary* >	The binary display mode
<*width*>	The byte width of the unit

Instructions The platform version 4.8.22 supports this command. The command with the parameter **force** means forcing power-off manually and being related to flash-protect. If the command is with the parameter **force** , regardless of whether the Flash is in usage or not, unload the Flash device and power-off manually. Or, if the Flash is in usage, it can not power-off manually.

Example

- This example describes how to set force power-off manually.

```
ZXR10# flash-protect  power-off force
Are you sure to power off the machine?
```

```
If you execute the command successfully,
any other operation is invalid except power-off.
[yes/no]:y
.. OK!You can power off the machine later.
ZXR10#
```

- This example describes how to set power-off manually.

```
ZXR10# flash-protect  power-off
Are you sure to power off the machine?
If you execute the command successfully,
any other operation is invalid except power-off.
[yes/no]:y
.. OK!You can power off the machine later.
ZXR10#
```

multi-user configure

Function Use this command to permit multiple users to enter the configuration mode. Configure the single user configuration mode with the **no** command.

Command Mode Global configuration

Format **multi-user configure**

no multi-user configure

Instructions By default, only a user can enter the global configuration mode. Use this command to permit other users enter into the global configuration mode. The no command is used to configure the single user to enter into configuration mode. Make sure that other users have exited configuration mode, then use no command.

Note:

When multiple users are configuring, their configurations should not conflict.

Example

- This example describes how to enter the configuration mode and allow multiple user configurations when there is no user in the configuration mode.

```
ZXR10#configure terminal
ZXR10(config)#multi-user configure
%Warning: allow others configure, must avoid conflict.
ZXR10(config)#
```

- This example describes how to enter the single user configuration mode when there is one user in the configuration mode.

```
ZXR10#configure terminal
%Simultaneous configs not allowed. Locked from 168.1.168.168
ZXR10#
```

- This example describes how to do when other users have not exited the configuration mode.

```
ZXR10(config)#no multi-user conf
%Someone has entered the configure mode,
cannot set single-user configure!
ZXR10(config)#
```

Related Command **configure terminal**

nvram boot-password

Function Use this command to start the FTP download setting for the mapping file and specify the password of the FTP server for download.

Command Mode Global configuration

Format **nvram boot-password** <*password*>

Syntax Description

<*password*>	FTP password, with 3~16 characters

Instructions

- Valid characters are as follows: 0123456789abcdefghijklmnopqrstuvwxyz_ABCDEFGHIJKLMNOPQRSTUVWXYZ`*-=~!@#$%^& () _+[]{}|;':,./<>\\
- This command works with such commands as **nvram boot-server**, **nvram boot-username**, **nvram imgfile-location** and **nvram default-gateway**.

Example This example describes how to Set the login password for the mapping file download FTP to pass.

```
ZXR10(config)#nvram boot-password pass
```

Related Commands

nvram boot-server

nvram boot-username

nvram default-gateway

nvram imgfile-location

nvram boot-server

Function Use this command to enable the FTP download settings for mapping files and specify the IP address of the FTP server for download.

Command Mode Global configuration

Syntax **nvram boot-server** <*ip-address*>

Syntax Description

<*ip-address*>	IP address in the dotted decimal notation

Instruction This command works with these commands: nvram boot-password, nvram boot-usernam, nvram imgfile-location and nvram default-gateway.

Example This example describes how to set the IP address for the mapping download FTP to 168.1.1.1.

```
ZXR10(config)#nvram bootserver 168.1.1.1
```

Related Commands

nvram boot-password

nvram boot-username

nvram default-gateway

nvram imgfile-location

nvram boot-username

Function Use this command to enable the FTP download setting for mapping files and specify the username of the FTP server for download.

Command Mode Global configuration

Syntax **nvram boot-username** <*username*>

Syntax Description

<*username*>	Login user name, with 1~16 characters

Instructions

- The valid characters include the letters, numerals and underline, case insensitive for the letters.
- This command works with these commands: **nvram boot-password, nvram boot-server, nvram imgfile-location and nvram default-gateway.**

Example This example describes how to set the user name for the mapping file download FTP to ZXR10.

```
ZXR10(config)#nvram boot-username ZXR10
```

Related Command

nvram boot-password.

nvram boot-server

nvram default-gateway

nvram imgfile-location

nvram default-gateway

Function Use this command to set the IP address of the default gateway.

Command Mode Global configuration

Syntax **nvram default-gateway** <*ip-address*>

Syntax Description

<*ip-address*>	IP address of the gateway in the dotted decimal notation

Instruction This command works with these commands: **nvram boot-password**, **nvram boot-server**, **nvram imgfile-location** and **nvram boot-username**.

Example This example describes how to set the default gateway as 168.1.1.1.

```
ZXR10(config)#nvram default-gateway 168.1.1.1
```

Related Commands

nvram boot-password

nvram boot-server

nvram boot-username

nvram imgfile-location

nvram imgfile-location

Purpose Use this command to set the location for booting the mapping file.

Command Modes Global configuration

Syntax **set ethernet-oam link-monitor frame-seconds threshold** <*xxx*> **window** <*yyy*>

nvram imgfile-location {**local** {**flash** | **sd**}<*filename*>}| **network** <*filename*>}

Syntax Description

local	The mapping file is located locally.
flash	If the version reboots from local, the storage device type is flash.
sd	If the version reboots from local, the storage device type is sd card.
network	The mapping file is located in the network.
<*filename*>	File name, with 1~80 characters.

Instructions

- The valid characters for the filename are as follows.

  0123456789abcdefghijklmnopqrstuvwxyz_ABCDEFGHI-JKLMNOPQRSTUVWXYZ/.;,-=+$#~@% () !&[]{}

  If it is specified as network boot, the filename can include the path of the specified FTP directory. For example, the specified FTP directory is sysm and now it is in the nets directory under sysm of the FTP server, and the file name can also include the path under the sysm/nets directory. Note that the path sysm/nets cannot be included repeatedly.
- This command works with these commands: **nvram boot-password**, **nvram boot-server**, **nvram boot-username** and **nvram default-gateway**.
- The platform version 4.8.22 supports rebooting from SD card when the version starts from local.

Example

- This example describes how to reset the card in slot 3.

```
ZXR10#reload slot 3
Proceed with reload? [yes/no]:y
ZXR10#
```

- This example describes how to reset the right sfc.

```
ZXR10#reload sfc 2
Proceed with reload? [yes/no]:y
ZXR10#
```

- This example describes how to reset the slave MP.

```
ZXR10#reload mp slave
Proceed with reload? [yes/no]:y
ZXR10#
```

nvram mng-ip-address

Function Set the IP address of the router MNG (management interface).

Command Mode Global configuration

Syntax **nvram mng-ip-address** *<ip-address><net-mask>*

Syntax Description

<ip-address>	IP address of the MNG in the dotted decimal notation
<net-mask>	Subnet mask in the dotted decimal notation

Instruction This address can be used to log in to the router from an internal network port.

Note:

The configured interface address and this address cannot be in the same network segment.

Example This example describes how to set the MNG IP address to 168.1.1.1 and the subnet mask to 255.255.0.0.

```
ZXR10(config)#nvram mng-ip-address 168.1.1.1 255.255.0.0
```

privilege

Function Use this command to set command authority level. Use no command to recover default authority level.

Command Mode Global configuration

Syntax **privilege** *<logic-mode>*[**all**] **level** *<0~15><command-keywords>* **no privilege** *<logic-mode>*[**all**] **reset** *<command-keywords>*

Syntax Description

<logic-mode>	Logic mode type
all	Supports all the commands that this command key word appears head
level *<0~15>*	Authority level
<command-keywords>	l Command keywords

Example This example describes how to set all write appears ahead in privilege exec command authority level to 7.

```
ZXR10(config)#privilege exec all level 7 write
```

Related Command **show privilege**

reload

Purpose Use this command to reboot the system or reset the board in a specific slot.

Command Modes Privileged EXEC

Syntax **reload** [**slot** <*slot-number*>| **sfc** <*slot-number* >| **mp slave**]

reload [**mp slave**][**force**]

Syntax Description

<*slot-number*>	Slot number, in the range of 1~8.
sfc <*slot-number*>	Flag of sfc (1: left sfc; 2 right sfc).
mp slave	Restarts the slave board.
force	Restarts the device or slave board by force.

Instructions

- The platform version 4.6.02 and upgrade versions support this command.
- The command without parameter is used to reboot the whole system.
- The command with parameter slot is used to reset the board in a specific slot.
- The command with parameter sfc is used to reset a specific sfc board.

Example

- This example describes how to reset the card in slot 3.

```
ZXR10#reload slot 3
Proceed with reload? [yes/no]:y
ZXR10#
```

- This example describes how to reset the right sfc.

```
ZXR10#reload sfc 2
Proceed with reload? [yes/no]:y
ZXR10#
```

- This example describes how to reset the slave MP.

```
ZXR10#reload mp slave
Proceed with reload? [yes/no]:y
ZXR10#
```

service password-encryption

Function Use this command to set user password encryption display function.

Command Mode Global configuration mode

Format **service password-encryption**

no service password-encryption

Instruction All user password display in encryption after this command is configured.

Related command **username**

show auto-download-config

Purpose Use this command to display the related configuration when starting auto-download-configuration.

Command Modes Privileged EXEC

Syntax **show auto-download-config**

Instructions This command supports 52a.

Example

- This example describes how to reset the card in slot 3.

```
ZXR10# show auto-download-config
Config file           : flash:/config.text
auto download config  : yes
```

Related Commands **boot config-file**

auto-download config

show clock

Purpose Use this command to display the system clock.

Command Modes All modes

Syntax **show clock**

Instructions When the time zone is configured with this command, the local time will be displayed.

Related Commands **clock set**

show diagnostic information

Purpose Use this command to display all the system information, when there is fault in the system or in a functional module. It is used to analyze the fault cause. This command contains **show version**, **show processor**, **show privilege**, **show running-config**, **show logfile** and other information.

Command Modes Privileged EXEC

Syntax **show diagnostic information** [{[**detail** [{[**module** <*module-name*>[|{**begin** | **exclude** | **include**}]][|{**begin** | **exclude** | **include**}]}]]|[**module** <*module-name*>[|{**begin** | **exclude** | **include**}]]|[**save**]}]

Syntax Description

detail	Displays detailed information of system.
module <*module-name*>	Displays information of a specified module.
begin	Displays the configuration information starting with the line including the specified character or character string.
exclude	Displays the configuration information exclusive of the line including the specified character or character string.
include	Displays the configuration information inclusive of the line including the specified character or character string.
save	Saves the current system information to flash.

Defaults By default, brief system information is displayed in pagination, but not saved.

Instructions

- The platform version 4.8.21 and upgrade versions support this command.
- Display the system information in command mode.
- Execute this command only on single terminal, otherwise an error occurs.
- Cannot perform this operation when saving the configuration using Write command, otherwise an error occurs.
- The **terminal length 0** command needs to be used in privileged mode when contents needs to be displayed in one page.

Example This example describes how to use **show diagnostic information**.

```
ZXR10#show diagnostic information
ZXR10 T128 Software, Version V2.08.21, RELEASE SOFTWARE
Copyright (c) 2000-2007 by ZTE Corporation
Compiled Feb 20 2008, 09:38:17
ZXR10 Router Operating System Software,ZTE Corporation
ZXR10 ROS Version V4.08.21
System image files from net
<ftp://192.168.3.111/zxr10.zar>
System uptime is 0 days, 0 hours, 5 minutes

[RPU, Panel 2, master]
Main processor: X86-2 with 512M bytes of memory
ROM: System Bootstrap, Version: Copyright 1984-1996 Wi,
RELEASE SOFTWARE

[MPU2, Panel 2, master]
Main processor: X86-2 with 512M bytes of memory
8K bytes of non-volatile configuration memory
64M bytes of processor board System flash (Read/Write)
ROM: System Bootstrap, Version: Copyright 1984-1996 Wi,
RELEASE SOFTWARE
System serial: 6

[SFC2, Panel 1, master]
Main processor: Power pc-2 with 32M bytes of memory
ROM: System Bootstrap, Version: ZXR10 BOOT V2.6.02-003,
RELEASE SOFTWARE

[SFC, Panel 2, slave]
```

```
Main processor: Power pc-1 with 64M bytes of memory
ROM: System Bootstrap, Version: , RELEASE SOFTWARE

[NPCT, Panel 5]
Main processor: XSCALE with 512M bytes of memory in slot 5
System with multiple processors (2 Network processors)
Every network processor with 512M bytes of memory
ROM(4M): System Bootstrap, Version:ZXR10 T128 BOOT 2.6.02,
RELEASE SOFTWARE
FPGA Version(Switch) : V42
CPLD Version(Np) : V65

CPLD Version(Interface) : V18

[NPCT, Panel 7]
Main processor: XSCALE with 512M bytes of memory in slot 7
System with multiple processors (2 Network processors)
Every network processor with 512M bytes of memory
ROM(4M): System Bootstrap, Version:ZXR10 T128 BOOT 2.6.02,
 RELEASE SOFTWARE
FPGA Version(Switch) : V42
CPLD Version(Np) : V23
CPLD Version(Interface) : V17
M: Master processor
S: Slave processor
PhyMem: Physical memory (megabyte)

      Panel    CPU(5s) CPU(1m) CPU(5m)  PhyMem  Buffer  Memory

SP(M)   1      5%      5%      4%       32      1%      40.637%
RP(M)   2      7%      7%      7%       511     0%      48.950%
MP(M)   2      4%      5%      17%      511     0%      40.383%
SP(S)   2      9%      9%      7%       64      1%      23.153%
NP(M)   5      16%     20%     57%      382     0%      39.983%
NP(M)   7      19%     22%     56%      382     0%      39.981%
Current privilege level is 15
Building configuration...
!**********Before interface -- show run on RP start!*********
!
!
urpf log off
!
eoam disable
no eoam authentication-key
!
!
protect
protect cpu-protect disable
protect slot 1 token 400
protect slot 2 token 400
protect slot 3 token 400
!
!
interface null1

  out_index 1
!
interface fei_5/1
  physical-layer mode npct
  out_index 3
  negotiation auto
  protect interface token 25
!
interface gei_7/1
  physical-layer mode npct
  out_index 19
  negotiation auto
  protect interface token 100
!
!**********After interface -- show run on RP start!**********
!
ip nat stop
ip nat translation timeout class a 20
ip nat translation timeout class b 60
ip nat translation timeout class c 150
```

```
ip nat translation timeout class d 300
ip nat translation timeout class e 1200
ip nat translation timeout protocol icmp a
ip nat translation timeout protocol ip d
ip nat translation timeout protocol tcp d
ip nat translation timeout protocol tcp port 80 a
ip nat translation timeout protocol udp c
ip nat translation timeout protocol udp port 4000 d
ip nat translation maximal default 65535
!
!
time-range disable
!
bfd-version 1
!
!
version V4.08.21
!
nvram mng-ip-address 192.168.3.12 255.255.0.0
!
nvram boot-username wby
!

nvram boot-password 123456
!
nvram boot-server 192.168.3.111
!
nvram default-gateway 192.168.3.111
!
nvram imgfile-location network zxr10.zar
!
hostname ZXR10
!
enable secret level 15 5 RcMLuUKvnFZX9kNAV6A/UA==
!
!
user-authentication-type local
user-authorization-type local
!
line console 0
  no login authentication
!
banner incoming @
 ************************************************
 Welcome to ZXR10 Carrier-Class High-end Router of
 ************************************************

*****************
 ZTE Corporation
*****************@
!
!
lfap disable
lfap max-send-fun-size 100
lfap update-interval 60
lfap server-retry-interval 60
lfap message-response-interval 60
lfap ka-interval 60
lfap flow-expired-time 600
!
!
!
snmp-server location No.68 Zijinghua Rd. Yuhuatai District,
 Nanjing, China
snmp-server contact +86-25-52870000

snmp-server packetsize 1400
snmp-server engine-id 830900020300010289d64401
snmp-server view AllView internet included
snmp-server view DefaultView system included
!
!
!
protect
tcp synflood-protect disable
```

```
tcp synflood-protect defence 0 waittime 30 num 1
tcp synflood-protect max-connect high 90 low 60
tcp synflood-protect one-minute high 80 low 50
!
no ftp-server enable listen 21
ftp-server top-directory  /flash/
!
logging on
logging buffer 200
logging mode fullcycle
logging console notifications
logging level notifications
logging cmdlog-interval 2880
logging timestamps datetime localtime
syslog-server facility local0
!
environ
  alarm cpuload on
  alarm temper on
  alarm fan on
  alarm power on
  check cpuload interval 3
  check temper interval 3
  check fan interval 3
  check power interval 3
  cpuload-threshold high-grade 95 middle-grade 85 low-grade 75
  temper-threshold BIC local lowthreshold -20
first-highthreshold 55 second-high
threshold 70
  temper-threshold UPC master local lowthreshold -20
first-highthreshold 55 seco
nd-highthreshold 70
!

line console idle-timeout 120
line console absolute-timeout 1440
line telnet idle-timeout 120
line telnet absolute-timeout 1440
!
ssh server authentication ispgroup 1
ssh server authentication mode local
ssh server authentication type chap
no ssh server only
ssh server version 2
!
!
radius auto-change off
!
!
tacacs disable
tacacs-server timeout 5
tacacs-server packet 1024
!
!
!
end
  con0  19:59:24 01/29/2001 UTC  show running-config
  con0  19:59:24 01/29/2001 UTC  show privilege
  con0  19:59:24 01/29/2001 UTC  show processor
  con0  19:59:19 01/29/2001 UTC  show version
  con0  19:59:19 01/29/2001 UTC  show diag inf
  con0  19:58:43 01/29/2001 UTC  dir cfg

  con0  19:58:32 01/29/2001 UTC  dir data
  con0  19:58:30 01/29/2001 UTC  end
  con0  19:58:06 01/29/2001 UTC  show run | begin tem
  con0  19:57:39 01/29/2001 UTC  show run | begin tem
  con0  19:57:33 01/29/2001 UTC  show temperature
  con0  19:57:27 01/29/2001 UTC  show temperature

  con0  19:57:24 01/29/2001 UTC  con t
  con0  19:57:22 01/29/2001 UTC  en
  con0  19:56:12 01/29/2001 UTC

ZXR10#
```

Related Commands **show run**

show privilege

Purpose Use this command to display the current terminal authority level and command authority configuration information.

Command Modes All modes

Syntax **show privilege** [{**cur-mode** | **show-mode**}{**detail** | **level** <*level*>| **node** <*command-keywords*>}]

Syntax Description

cur-mode	Displays the current command mode authority information.
show-mode	Displays show command mode authority information.
detail	Displays all commands authority level.
level <*level*>	Displays specified authority level command.
<*command-keywords*>	Displays specific command authority level.

Instructions The command **show privilege** in EXEC mode is without parameters .

Example This example describes how to display all commands that authority level is 6 in privileged mode.

```
ZXR10#show privilege cur-mode level 6
```

Related Commands **privilege**

show running-config

Function Use this command to display the current configuration information of the system or a specified interface.

Command Mode All modes except exec

Format **show running-config** [**interface** <*interface-name*>| **voice-port** <*voice-port*>]

show running-config [{**begin** | **exclude** | **include**}<*line*>

Syntax Description

interface <*interface-name*>	Interface name
voice-port <*voice-port*>	Voice interface name, only supporting the GAR with the tone board

begin	Displays the configuration information starting with the line including the specified character or character string
exclude	Displays the configuration information exclusive of the line including the specified character or character string
include	Displays the configuration information inclusive of the line including the specified character or character string
<*line*>	Specifies a character or character string

Instructions

- This command displays the active system configuration.
- For ZXR10 GAR with the tone board, this command can be used to specify the tone interface. The other model routers have no tone interface parameter since they do not support VOIP.

show start running-config

Function Use this command to display the saved system configuration information.

Command Mode All modes except exec

Syntax **show start running-config** [{**begin** | **exclude** | **include**}<*line*>]

Syntax Description

begin	Displays the configuration information starting with the line including the specified character or character string
exclude	Displays the configuration information exclusive of the line including the specified character or character string
include	Displays the configuration information inclusive of the line including the specified character or character string
<*line*>	Specifies a character or character string

Instructions

- This command shows the saved system configuration information.
- This command is used with the show running-config command to check whether all the saved contents take effect after system startup.

Related Command **show running-config**

show system-group

Function Use this command to display the system information.

Command Mode All

Syntax **show system-group**

Example This example describes how to display the system information of GAR.

```
ZXR10#show system-group
System Description: ZXR10 Router Operating System Software ZTE Corporation
ZXROS V4.6.01. ZXR10_GAR V2.6.01. Compiled:
System ObjectId: .iso.org.dod.internet.private.enterprises.zte.3.100.6
Started before: 23374 Seconds
Contact with: +86-25-52870000
System name:  ZXR10
Location: No.68 Zijinghua Rd. Yuhuatai District, Nanjing, China
This system primarily offers a set of 78 services
ZXR10#
```

show username

Function Use this command to display the list of the usernames who are authorized for login, the passwords and authority level.

Command Mode All modes except exec

Syntax **show username**

Example This example describes how to display the list of the usernames, who are authorized for login, the passwords and authority level.

```
ZXR10#show username
Username Password      Privilege
user1  abcd           6
user2  cdef           15
```

Related Command **username**

show users

Function Use this command to display the terminal user information.

Command Mode All

Syntax **show users**

Example This example describes how to display the terminal user information.

```
ZXR10#show users
   Line       User   Host(s) Idle      Location
 * 66 vty 0   who    idle    00:00:00  170.1.1.16
ZXR10#
```

The descriptions of the result fields are displayed below.

Line	Number of the virtual terminal with the user login Login user name ress
User	Login user name
Host	IP address of the login server when this router logs in to another telnet server as a client
Idle	Idle time
Location	Client address

show user-group

Function Use this command to display the configured user account information.

Command Mode All modes except exec

Syntax **show user-group** [**default** | **special** <*usergroup-name*>]

Syntax Description

default	Specifies to configure the public account group
special	Specifies to configure the private account group
<*usergroup-name*>	Name of the private account group, with 1~16 characters

Insturction It is only applicable to ZXR10 GAR, ZXR10 ZSR.

Related Commands **show username**

user-group

username

show version

Function Use this command to display the software and hardware versions of the system.

Command Mode All

Syntax **show version**

show version hardware

Function Use this command to display the software version of the system.

Command Mode All modes except exec

Syntax **show version hardware**

Example This example shows how to display the hardware version of the system.

```
ZXR10#show version hardware

[RPU, Panel 2, master]
Main processor: X86-2 with 512M bytes of memory
ROM: System Bootstrap, Version: Copyright 1984-1996 Wi, RELEASE SOFTWARE
[MPU2, Panel 2, master]
Main processor: X86-2 with 512M bytes of memory
8K bytes of non-volatile configuration memory
64M bytes of processor board System flash (Read/Write)
ROM: System Bootstrap, Version: Copyright 1984-1996 Wi, RELEASE SOFTWARE
System serial: 30000
[SFC2, Panel 2, master]
Main processor: Power pc-2 with 32M bytes of memory
ROM: System Bootstrap, Version: ZXR10 BOOT V2.6.02-003, RELEASE SOFTWARE
[NPCT, Panel 2]
Main processor: XSCALE with 512M bytes of memory in slot 2
System with multiple processors (2 Network processors)
Every network processor with 512M bytes of memory
ROM(4M): System Bootstrap, Version:ZXR10 BOOT 2.6.03-001, RELEASE SOFTWARE
FPGA Version(Switch) : V43
CPLD Version(Np) : V65
CPLD Version(Interface) : V18
[NPCT, Panel 6]
Main processor: XSCALE with 512M bytes of memory in slot 6
System with multiple processors (2 Network processors)
Every network processor with 512M bytes of memory
ROM(4M): System Bootstrap, Version:ZXR10 T128 BOOT 2.6.02, RELEASE SOFTWARE
FPGA Version(Switch) : V43
CPLD Version(Np) : V65
CPLD Version(Interface) : V16
```

show version mec

Purpose Use this command to display hardware version information of MEC board. ZXR10 6900 series rack supports this command.

Command Modes Privileged EXEC

Syntax **show version mec** *<1~2>*

Syntax Description

1~2	The panel no of UPC board

Example This example describes how to show mec version information.

```
ZXR10#show version mec 2
  PanelNo 2  MEC (Master) version information:
    PCB   Version: 040100
    FPGA  Version: 0x41
    CPLD  Version: 0x00
  Processor version information:
    Boot  Version: Copyright 1984-1996 Wi
    DRAM memory size: 512M Bytes
    Flash memory size: 64M Bytes
    NVRAM  memory size: 8K Bytes
```

Related Commands **boot config-file**

auto-download config

show version midplane

Function Use this command to display the slot information.

Command Mode All modes except exec

Syntax **show version midplane**

Example This example shows how to display the slot information.

```
ZXR10#show version midplane
  Midplane  information:
    Midplane WID: 01
    PCB Version : 050401
    UPC Slot quantity: 2
    SFC Slot quantity: 2
    NPC Slot quantity: 16
    LIC Slot quantity: 16
    BIC Slot quantity: 1
```

show version npc

Function Use this command to display the hardware version of npc board

Command Mode All modes except exec

Syntax **show version npc** *<1~16>*

Syntax Description The panel No. of npc board

Example This example shows how to display the hardware version of npc board.

```
ZXR10#show version npc 2
  PanelNo 2 NPCT main version information:
    PCB  Version: 040100
    FPGA  Version: 0x2b
    CPLD  Version: 0x41
  Processor1 (Master NP) version information:
    PCB Version: 040100
    CPLD Version: 0x13
    Boot  Version: ZXR10 BOOT 2.6.03-001
    SRAM  memory  size: 32M Bytes
    DRAM  memory  size: 512M Bytes
  Processor2 (Slave NP) version information:
    PCB Version: 040100
    CPLD Version: 0x13
    Boot  Version: ZXR10 BOOT 2.6.03-001
    SRAM  memory  size: 32M Bytes
    DRAM  memory  size: 512M Bytes
```

show version software

Function Use this command to display the software version of the system.

Command Mode All modes except exec

Syntax **show version software**

Example This example shows how to display the software version of the system.

```
ZXR10#show version software
ZXR10 T128 Software, Version V2.08.21.B.04, RELEASE SOFTWARE
Copyright (c) 2000-2007 by ZTE Corporation
Compiled Apr 10 2008, 10:04:31
ZXR10 Router Operating System Software, ZTE Corporation
ZXR10 ROS Version V4.08.21
System image files from net: ftp://192.168.3.201/zxr10.zar
```

show version sfc

Function Use this command to display the hardware version of sfc board.

Command Mode Use this command to display the hardware version of sfc board.

Syntax **show version upc** *<1~2>*

Syntax Description The panel No. of sfc board

Example This example shows how to display the hardware version of sfc board.

```
ZXR10#show version sfc 2
  PanelNo 2 SFC version information:
    PCB Version: 040100
    FPGA Version: 0x21
    CPLD Version: 0x00
    Boot Version: ZXR10 BOOT V2.6.02-003
    DRAM memory size: 32M Bytes
```

show version upc

Function Use this command to display the hardware version of upc board.

Command Mode All modes except exec

Syntax **show version upc** *<1~2>*

Syntax Description **The panel No. of upc board**

Example This example shows how to display the hardware version of upc boar

```
ZXR10#show version upc 2
  PanelNo 2  UPC (Master) version information:
    PCB   Version: 040100
    FPGA  Version: 0x41
    CPLD  Version: 0x00
  Processor1 (MPU) version information:
    Boot  Version: Copyright 1984-1996 Wi
    DRAM memory size: 512M Bytes
    Flash memory size: 64M Bytes
    NVRAM  memory size: 8K Bytes
  Processor2 (RPU) version information:
    Boot Version : Copyright 1984-1996 Wi
    DRAM memory size: 512M Bytes
  ESC version information:
    PCB Version:  050403
    Band Type:  1
```

username

Function Use this command to configure the login user name and password. Cancel the user name with the no command.

Command Mode Global configuration mode

Syntax **username** <*username*> **password** <*password*>

username <*username*> **password** {**encrypted** <*encrypted-password*>|<*password*>}[**privilege** <*0~15*>]

Syntax Description

<*username*>	User name, with 1~16 characters and space not allowed
<*encrypted-password*>	Encrypted password, with 64 characters and space not allowed
<*password*>	Password, with 3~32 characters and space not allowed
privilege <*0~15*>	Authority level that binds with this user ,the default value is 1

Instructions

- The valid characters for the parameter**<***username*> are as follows,

  0123456789abcdefghijklmorqrstuvwxyz_

  The valid characters for the parameter **<***password*>

  0123456789abcdefghijklmnopqrstuvwxyz_ABCDEFGHI-JKLMNOPQRSTUVWXYZ`*-=~!@#$%^&()_+[]{}|;':,./<> \\
- **username** <*username*> **password** <*password*>[**privilege** <*0~15*>]is only applicable to ZXR10 T64E/T128.

Example This example describes how to set the login password for the user tom to pass and authority level is 6.

```
ZXR10(config)#username tom password pass privilege 6
```

Related Command **show username**

user-group

Function Use this command to configure the user account information. Delete the user account with the no command.

Command Mode Global configuration

Syntax **user-group** {**default** | **special** <*usergroup-name*>}<*username*><*password*>

no user-group {**default** | **special** <*usergroup-name*>}[<*username*>]

Syntax Description

default	Specifies to configure the public account group
special	Specifies to configure the private account group
<*usergroup-name*>	Name of the private account group, with 1~16 characters
<*username*>	Account name, with 1~16 characters
<*password*>	Account password, with 3~16 characters

Instructions

- The public account group can also be configured with the **user name** command with the same effect.
- Here, account group name and account name is not case-sensitive, but password is case-sensitive.
- This command is only applicable to ZXR10 GARZXR10 ZSR.

Example

- This example describes how to configure a public account group,

```
ZXR10(config)#user-group default who who
```

- This example describes how to configure the user account of the private account group zxr10.

```
ZXR10(config)#user-group special zxr10 who who
```

Related Commands

show user-group

username

who

Function Use this command to display the list of the current login users.

Command Mode Privileged

Syntax **who**

Example This example describes how to display the list of the current login users.

```
ZXR10#who
Line       User Host(s)   Idle  Location
* 66 vty 0  who idle  00:00:00  168.1.200.57
67 vty 1   abc  idle  00:00:00  168.1.200.58
```

The descriptions of the result fields are displayed below.

Field	Description
Line	Number of the virtual terminal with the user login
User	Login user name

Field	Description
Host	IP address of the login server when this router logs in to another telnet server as a client
Idle	Idle time
Location	Client address

Chapter 3

File System Management

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cd

Function Use this command to enter a specific file device or the file directory of the current file device.

Command Mode Privileged configuration

Syntax **cd** <*directory*>

Syntax Description

<*directory*>	Two types are available: file directory name or file device name, with 1~80 characters

Instructions

- Types of the device name fixed in the system include flash, usb1, usb2, sd and so on. Note that the file device name must be entered completely when enter into a specified file device.
- To enter the upper-level directory, the "." and ".." directory declarators are supported.
- The file systems of ZXR10 series data products vary with the model. ZXR10 GER file name should be not more than 32 characters. For the file system only supporting other data products in 8.3 format, its file name should be not more than eight characters.

Example

- This example describes how to enter the flash file device of the system.

```
ZXR10#cd flash:
```

- This example describes how to enter the bin directory of the current file device.

```
ZXR10#cd /bin
```

- This example describes how to enter the upper-level directory. Note that the space between "cd" and ".." can not be omitted.

```
ZXR10#cd .
```

Related Commands

dir

mkdir

pwd

rmdir

check dev-using

Function Use this command to check the status of the specified storage device.

Command Mode Privileged configuration

Syntax **check dev-using** {**flash** | **usb1** | **usb2** | **cf** | **sd**}

Syntax Description

flash	Inbuilt Flash storage device
Usb	Peripheral storage device: usb 1
Usb	Peripheral storage device: usb 2
cf	Peripheral storage device: compact device
sd	Peripheral storage device: Secure Disk

Instruction Only support USB, CF and SD in racks of specifc products

Example This example describes how to check the use stuts of inbuilt FLASH in current rack

```
ZXR10#check dev-using flash
```

Related Commands

copy

format

copy

Function Use this command to copy files from a specified directory of the source file system to a specified directory of the destination file system.

Commnand Mode Privileged configuration

Syntax **copy** *<source-device><source-file><destination-device><destination-file>*

Syntax Description

<source-device>	Source device name
<source-file>	Source directory and file name, with 1~80 characters
<destination-device>	Destination device name
<destination-file>	Destination directory and file name, with 1~80 characters

Instructions

- The device name is of the fixed type in the system: flash:, tftp: and ftp. Add mng command when copying through network management interface.
- Since high-end routers such as t12869 support peripheral storage device, flash and other peripheral storage cards such as sd, cf can be used as local storage device.
- Since high-end routers such as t12869 support peripheral storage device, flash and other peripheral storage cards such as sd, cf can be used as local storage device.
- The total length of the directory name and file name cannot exceed 80 characters. ZXR10 GER file name should be not more than 32 characters. For the file system only supporting other data products in 8.3 format, its file name should be not more than eight characters.

Example This example describes how to copy the sys.dat file under the img directory of the flash device into the root directory of the FTP server with IP address 168.1.1.1, user name test and password pass.

```
ZXR10#copy flash: img/sys.dat ftp: //168.1.1.1/sys.dat@test:pass
```

Related Command **delete**

delete

Function Use this command to delete the files in a specified directory of the current file device.

Command Mode Privileged configuration

Syntax **delete** *<filename>*

Syntax Description

<*filename*>	Directory name and file name, with 1~80 characters

Instruction

- The total length of the directory name and file name cannot exceed 80 characters. The ZXR10 GER file name should be not more than 32 characters. For the file system only supporting other data products in 8.3 format, its file name should be not more than eight characters.
- The "." and ".." directory declarators are supported.

Example This example describes how to delete the sys.dat file in the current directory.

```
ZXR10#delete sys.dat
```

Related Commands

copy

rename

dir

Function Use this command to display the files in the root directory of a specified file device. Display the files in a specified directory or the current directory of the current file device.

Command Mode Privileged configuration

Syntax **dir** [<*directory*>]

Syntax Description

<*directory*>	Directory name or device name, with 1~80 characters

Instructions If the device name is input, it should be of the fixed type in the system:cf, flash, usb1, usb2, sd.

The total length of the directory name and file name cannot exceed 80 characters. The ZXR10 GER file name should be not more than 32 characters. For the file system only supporting other data products in 8.3 format, its file name should be not more than eight characters.

Example This example describes how to show the img directory exists in flash,

```
\ZXR10#cd flash:
ZXR10#cd img
ZXR10#dir
Directory of flash:/img/
  attribute size    date       time     name
1  -rwx  9135845   AUG-01-2002  14:26:02  gar.zar
32007616 bytes total (40509440 bytes free)
```

The displayed field descriptions are shown below.

Field	Description
Attribute	File attributes: d: directory, r: readable, w: writeable, x: executable

Field	Description
Size	File size
Date	File created date
Time	File created time
Name	File name

Related Commands

cd

mkdir

pwd

rmdir

format

Function Use this command to format the storage device.

Command Mode Privileged configuration

Syntax **format** {**flash** | **usb1** | **usb2** | **cf** | **sd**}

Syntax Description

flash	Inbuilt Flash storage device
usb1	Peripheral storage device: usb 1
usb2	Peripheral storage device: usb 2
cf	Peripheral storage device: compact device
sd	Peripheral storage device: Secure Disk

Instruction Only support USB, CF and SD in racks of specifc products

Example This example describes how to format inbuilt FLASH in current rack.

```
ZXR10#format flash
```

Related Commands

check dev-using

mkdir

Function Use this command to create a new sub-file directory under the current directory.

Command Mode Privileged configuration

Syntax **mkdir** <*directory*>

Syntax Description

<directory>	Created directory name, with 1~80 characters

Instruction The total length of the directory name and file name cannot exceed 80 characters. ZXR10 GER file name should be not more than 32 characters. For the file system only supporting other data products in 8.3 format, its file name should be not more than eight characters.

Example This example describes how to create a sub-directory named test under the current directory.

```
ZXR10#mkdir test
```

Related Commands

cd

dir

pwd

rmdir

pwd

Function Use this command to display the current directory path.

Command Mode Privileged configuration

Syntax **pwd**

Example These examples describe how to display the current directory path.

- The current directory is the root directory in the system.

```
ZXR10#pwd
root:/
```

- The current directory is the root directory of flash file device.

```
ZXR10#pwd
flash:/
```

- The current directory is the cfg directory of flash file device

```
ZXR10#pwd
flash:/cfg
```

Related Commands

cd

dirr

mkdir

rmdir

rename

Function Use this command to modify the name of a specified file directory.

Command Mode Privileged configuration

Syntax **rename** *<source-filename><destination-filename>*

Syntax Description

<source-filename>	Source file name or directory, with 1~80 characters
<destination-filename>	Modified file name, with 1~12 characters

Instructions

- The total length of the directory name and file name cannot exceed 80 characters. ZXR10 GER file name should be not more than 32 characters. For the file system only supporting other data products in 8.3 format, its file name should be not more than eight characters.
- The source file name can include the path, but the second parameter only includes the modified name for the file name in the directory specified in the first parameter.

Example This example describes how to rename the sys.da file in config directory into back.dat.

```
ZXR10#rename config/sys.dat back.dat
```

Related Commands

copy

delete

rmdir

rmdir

Function Use this command to delete the specified file directory.

Command Mode Privileged configuration

Syntax **rmdir** *<directory>*

Syntax Description

<directory>	Directory name, with 1~80 characters

Related Commands

cd

copy

dir

mkdir

pwd

show flash-check

Purpose Use this command to check whether Flash space is matching or not.

Command Modes Privileged EXEC

Syntax **show flash-check**

Instructions The platform version 4.8.22 and the upgrade versions support this command. Check whether Flash is matching or not. If the sum of free space and usage space in Flash is greater than Flash space, then it will display that Flash memory check result is too large. Or, it will display that Flash memory check result is too small.

Example This example describes how to check whether Flash space is full or not.

```
ZXR10#show flash-check
Master MP flash is loaded.
Master MP flash checked OK.
Slave MP flash is loaded.
Slave MP flash checked OK.
ZXR10#
```

unmount

Purpose Use this command to uninstall a memory device.

Command Modes Privileged EXEC

Syntax **unmount sd** [**slave**]

Syntax Description

sd	Uninstalls sd card.
slave	Only uninstalls memory device on slave control.

Instructions The platform version 4.8.22 and the upgrade versions support this command. It is used on ZXR10 6900 and ZXR10 8900. Only supports SD card currently. Other memory devices need to be extended by adding command parameter.

Example This example describes how to uninstall sd card.

```
ZXR10# unmount sd
SD device will be removed.Continue to unmount? [yes/no]: y
Starting unmount SD about several minutes, please wait...
... Unmount SD device successfully!
ZXR10#
```

update-imgfile

Function Use this command to replace the version files in /system/ with files in /flash/img in current directory.

Command Mode Privileged configuration

Syntax **update-imgfile**

Example Use this command to replace the version files in /system/ with files in /flash/img in current directory.

```
ZXR10#update-imgfile
Updating the imgfile in system: ...
[ok]
```

write

Purpose Use this command to write configuration information of the current router into the flash, or write the current router-related system parameters into the nvram.

Command Modes Privileged EXEC

Syntax **write**

write [{**master**|**slave**}][**sd**]

Syntax Description

master	Master device
slave	Slave device
sd	Uninstalls sd card

Instructions It is equivalent to the execution of both write flash and write nvram commands.

The platform version 4.8.22 and the upgrade versions support writing configuration to SD card.

Example

- This example describes how to save the current router information.

```
ZXR10#write
Building configuration...
[ok]
```

- This example describes how to save the current router information to SD card on master and slave devices.

```
ZXR10#write sd
Building configuration...
............Write config result on the sd:
    UPC      Status
   master    Successfully
```

Related commands **write flash**

write nvram

write flash

Function Use this command to write the configuration information of the current router into the flash.

Command Mode Privileged configuration

Syntax **write flash**

Instruction When the equipment is started the next time, the configuration in the flash will take effect automatically.

Example This example describes how to write the configuration information of the current router into the flash.

```
ZXR10#write flash
Building configuration FLASH: ...
[ok]
```

Related Commands **write**

write nvram

write imgfile

Purpose Use this command to write the current running version into the flash.

Command Modes Privileged EXEC

Syntax **write imgfile** [{**master** | **slave**}][**sd**]

Syntax Description

master	Writes version file to master board.
slave	Writes version file to slave board.
sd	Writes version file to sd card.

Instructions When using the command **write imgfile** takes a long time, save the configuration to the master and slave boards respectively by adding parameters (master, slave) in environments supporting master/slave racks(69, t128). In this way to execute **write imgfile** will not take a long time.

The platform version 4.8.22 and the upgrade versions support writing configuration to SD card.

Example

- This example describes how to save the current router information.

```
ZXR10#write
Building configuration...
[ok]
```

- This example describes how to save the current router information to SD card on master and slave devices.

```
ZXR10#write sd
Building configuration...
............Write config result on the sd:
    UPC      Status
   master    Successfully
```

Related commands **write flash**

write nvram

write nvram

Function Use this command to write the current router-related system parameters into the nvram.

Command Mode Privileged configuration

Syntax **write nvram**

Example This example describes how to write the current router-related system parameters into the nvram.

```
ZXR10#write nvram
Building configuration...
[ok]
```

Related Commands **write**

write flash

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Chapter 4

User Interface Management

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answer-manual

Function When remote access is configured as manual answer in the router, this command is input to allow the user to log in remotely and manage the router.

Command Mode Privileged configuration

Syntax **answer-manual**

Instruction It is only applicable to ZXR10 GER, ZXR10 GAR and ZXR10 ZSR.

Related Commands answer-remote

answer-remote

Function Use this command to configure the remote access mode as automatic answer or manual answer with the answer-manual command in the router.

Command Mode Global configuration

Syntax **answer-remote** {**manual** | **auto**}

Syntax Description

manual	Manual answer
auto	Automatic answer

Instruction It is only applicable to ZXR10 GER, ZXR10 GAR and ZXR10 ZSR.

Related command **answer-manual**

line console 0

Function Use this command to enter into LINE configuration mode

Command Mode Global configuration

Syntax **line console 0**

Example This example describes how to enter LINE configuration mode.

```
ZXR10(config)#line console 0
ZXR10(config-line)#
```

Related Command **login authentication**

line console absolute-time out

Function Use this command to configure the total using time of the login serial interface terminal. After this command is executed, the total using time of the console terminal is specified. After this specified time, the serial interface terminal session will be closed. Cancel the restriction with the no command

Command Mode Global configuration

Syntax **line console absolute-timeout** <*absolute-timeout*> **no line console absolute-timeout**

Syntax Description

<*absolute-timeout*>	Total use time of the terminal (unit: minute), in the range of 1~10000. The default value is one day.

Instruction It can work with the**line console idle-timeout**command to close the serial interface terminal session after a specified period.

Example This example describes how to set the total use time of the serial interface terminal to 30 minutes.

```
ZXR10(config)#line console absolute-timeout 30
```

Related Command **line console idle-timeout**

line console idle-timeout

Function Use this command to configure the idle time of the login serial interface terminal. After this command is executed, if there is no keyboard input in the specified period, the serial interface terminal session will be closed. Cancel the restriction with the no command.

Command Mode Global configuration

Syntax **line console idle-timeout** <*idle-timeout*>

no line console idle-timeout

Syntax Description

<*idle-timeout*>	Idle time of the terminal (unit: minute), in the range of 1~1000. The default value is 2 hours.

Instruction It can work with the line console absolute-timeout command to close the serial interface terminal session after a specified period.

Example This example describes how to set the idle time of the serial interface terminal to 30 minutes.

```
ZXR10(config)#line console idle-timeout 30
```

Related Command **line console absolute-timeout**

line telnet absolute-timeout

Function Use this command to configure the total using time of the Telnet terminal. After this command is executed, the total using time of the Telnet terminal is specified. After this specified time, the Telnet terminal session will be closed and the connection will be disconnected. Cancel the restriction with the no command.

Command Mode Global configuration

Syntax **line telnet absolute-timeout** <*absolute-timeout*>

no line telnet absolute-timeout

Syntax Description

<absolute-timeout>	Total use time of the terminal (unit: minute), in the range of 1~10000. The default value is one day.

Instruction It can work with the line telnet idle-timeout command to close the Telnet terminal session after a specified period.

Example This example describes how to set the total use time of the Telnet terminal as 30 minutes.

```
ZXR10(config)#line telnet absolute-timeout 30
```

Related Command **line telnet idle-timeout**

line telnet access-class

Function Use this command to set the login IP restriction of the Telnet terminal. This command is used to allow or refuse the login from some IP addresses. Cancel the restriction with the no command.

Command Mode Global configuration

Syntax **line telnet access-class** *<access-list-number>*

no line telnet access-class

Syntax Description

<access-list-number>	Access address list, in the range of 1~199

Default There is no login address restriction.

Instruction It can work with the access-list command to accept or reject the login from some IP addresses.

Example This example describes how to refuse the login from the address 168.1.16.118.

```
ZXR10(config)#access-list 2 deny 168.1.16.118 0.0.0.0
ZXR10(config)#access-list 2 permit any
ZXR10(config)#line telnet access-class 2
```

Related Command **access-list**

line telnet idle-timeout

Function Use this command to configure the idle time of the Telnet terminal. After this command is executed, if there is no keyboard input in the specified period, the Telnet terminal session will be closed and the connection is disconnected. Cancel the restriction with the no command.

Command Mode Global configuration

Syntax **line telnet idle-timeout** *<idle-timeout>*

no line telnet idle-timeout

Syntax Description

<idle-timeout>	Idle time of the terminal (unit: minute), in the range of 1~1000. The default value is 2 hours.

Instruction It can work with the line telnet absolute-timeout command to close the Telnet terminal session after a specified period.

Example This example describes how to set the idle time of the Telnet terminal to 30 minutes.

```
ZXR10(config)#line telnet idle-timeout 30
```

Related Command line telnet absolute-timeout

login

Function Use this command to enable another username to log in to the router.

Command Mode Command Mode Exec mode / privileged

Syntax **login**

Instruction Exec mode and privileged mode are returned to the exec mode after this command is executed.

Example This example describes how to enable to login the router with the user name zxr10.

```
ZXR10>login Username:zxr10 Password: ZXR10>
```

Related Commands **logout**

quit

login authentication

Function Use this command to set to enable serial port authentication. Close authentication with the no command.

Command Mode Line configuration

Syntax **login authentication**

login authentication no login authentication

Example This example describes how to enable serial port authentication.

```
ZXR10(config)#line console 0
ZXR10(config-line)#login authentication
Warning:
Please make sure local or remote authentication is correctly configured.
Are you sure to configure console authentication?[yes/no]:yes
```

Related Commands **logout**

quit

logout

Function Use this command to quit the login router.

Command Mode Exec mode / privileged

Syntax **logout**

Instruction Disconnect from the router proactively.

Related Commands **login**

quit

quit

Function Use this command to quit the login router.

Command Mode Exec mode / privileged

Syntax **quit**

Instruction Disconnect the login router proactively.

Related Commands **login**

logout

session

Function Use this command to make members in the stackable system access each other.

Command Mode priviledged

Syntax **session** <*stack-id*>

Syntax Description

<*stack-id*>	Device ID of members in the stackable system, in the range of 1-9

Instruction Use this command to make members in the stackable system access each other.

Example Log in the stackable device 2 from the stackable master device.

```
ZXR10#session 2
ZXR10(stack-2)#
```

show console-info

Function Use this command to display configuration condition of AUX interface of the current router.

Command Mode All modes except exec

Syntax **show console-info**

Instruction It is only applicable to ZXR10 GER, ZXR10 GAR and ZXR10 ZSR.

show history

Function Use this command to display the history records of the input commands. It can be used to view the commands entered before.

Command Mode All

Syntax **show history**

Instruction This command can be used to view the commands entered recently, 10 at most.

Example This example describes how to view the commands entered recently.

```
ZXR10>show history
who
show ip route
en
dir
```

show terminal

Function Use this command to display the status of the current user terminal.

Command Mode All

Syntax **show terminal**

Instruction This command can be used to view the information of the login terminal, including the terminal number, terminal type, and terminal window size and login restrictions.

Example This example describes how to view the information of the current login terminal.

```
ZXR10#show terminal
Line 66, Location: "", Type: "vt100"
Length: 24 lines, Width: 80 columns
Telnet idle-timeout is: 02:00:00
Telnet absolute-timeout is: 1d00h00m
Baud rate (TX/RX) is 9600/9600
Capabilities: none
Time since activation: 00:07:55
Editing is enabled.
History is enabled, history size is 10.
Telnet access-class is: 2
```

telnet

Function Use this command to open a Telnet connection.

Command Mode All modes

Syntax **telnet** <*ip-address*>[**vrf** <*vrf-name*>]

Syntax Description

<*ip-address*>	Destination IP address in the dotted decimal notation
source < *ip-address* >	Source IP address, in the dotted decimal notation
vrf <*vrf-name*>	VPF name, with 1~16 characters

Instruction This command can be used to login into other switches, routers or Telnet servers.

Example

- This example describes how to log in the server with address 168.1.200.77.

```
ZXR10#telnet 168.1.200.77
```

- This example describes how to log in the server with address 168.1.200.77. The source address is local address 168.1.200.78.
- This example describes how to log in the server with address 168.1.200.77 in the vpn1 VPN.

```
ZXR10#telnet 168.1.200.77 vrf vpn1
```

telnet mng

Function Use this command to open a Telnet connection starting from the management interface.

Command Mode Exec mode and privileged

Syntax **telnet mng** <*ip-address*>

Syntax Description

<*ip-address*>	Destination IP address in the dotted decimal notation

Instruction This command can be used to log in from the management interface to other routers or Telnet servers.

Example This example describes how to log in from the management interface to the server with address 168.1.200.77.

```
ZXR10#telnet mng 168.1.200.77
```

terminal length

Function Use this command to set the line length of terminal.

Command Mode Privileged

Syntax **terminal length** <*length*>

Syntax Description

<*length*>	Line Length of terminal, in the range of 0~512, 24 by default.

Example This example describes how to set the line length of the terminal is 1.

```
ZXR10#terminal length 1
```

user-authentication-type

Function Use this command to specify the user authentication mode for the Telnet login.

Command mode Global configuration mode

Syntax **user-authentication-type** {**local** | **radius** <*group*>[{**chap** | **pap**}]| **tacacs+**}

Syntax Description

local	Local authentication
radius <*group*>	Radius authentication and group number, in the range of 1~10
chap | **pap**	Pap authentication mode and Chap authentication mode
tacacs+	Perform authentication using AAA authentication list

Default Local authentication is the default setting.

Instuction In order to meet the requirements of service, the range of Radius authentication and group number is 1~2000 in UAS V4.8.01.

Example This example describes how to configure the local authentication.

```
ZXR10(config)#user-authentication-type local
```

Related Commands **radius server**

telnet

user-authorization-type

Function Use this command to specify the user authorization type for the Telnet login.

Command Mode Global configuration mode

Syntax **user-authorization-type** {**local** | **tacacs+**}

Syntax Description

local	Local authentication
tacacs+	Perform authorization using TACACS+ authorization list

Default Local authorization is the default setting..

Example This example describes how to configure the TACACS+ authorization.

```
ZXR10(config)#user-authorization-type tacacs+
```

Related Commands **user-authentication-type**

Chapter 5

System Log/Statistics Management

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alarm

Function Use this command to open environment alarm. Close this alarm with no command.

Command Mode Global configuration

Syntax **alarm** <*type*> **on**

Syntax Description

<*type*>	Environment alarm types all all kinds of environment alarm types cpuload CPU load alarm fan fan alarm power power alarm temperature temperature alarm memory memory alarm

Instruction For ZXR10 T128, ZXR10 T1200 only CPU load alarm is enabled. Temperature alarm and memory alarm take effect.

Example This example describes how to enable CPU load alarm.

```
ZXR10(config)#environ
ZXR10(config-environ)#alarm cpuload on
```

alarm cpuload-interval

Function Use this command to set CPU load alarm test time interval. Recover default value with no command.

Command Mode Global configuration

Syntax **alarm cpuload-interval** <*30~120*>

no alarm cpuload-interval

Syntax Description

<*30~120*>	CPU load alarm test time interval, the range is from 30 to 120 (unit: second).

Default CPU load alarm test time interval is 30s by default.

Instructions

- Make sure that alarm cpuload-on is used before using this command.
- In ZXR10 T128, ZXR10 T1200, this command is included in check command in environment configuration mode. See check command in environment configuration mode for more information.

Example This example describes how to set CPU load alarm test time interval to 60s.

```
ZXR10(config)#alarm cpuload-interval 60
```

alarm cpuload-on

Function Use this command to open/close cpu load alarm. Close this alarm with no command.

Command Mode Global configuration

Syntax **alarm cpuload-on**

no alarm cpuload-on

Instructions

- **alarm cpuload-on**has the effect on the following commands:

  alarm cpuload-interval,alarm cpuload-threshold.

- When run**no alarm cpuload-on**command, the above commands are invalid.

Example This example describes how to close CPU load alarm.

```
ZXR10(config)#no alarm cpuload-on
```

alarm cpuload-threshold

Function Use this command to set CPU load alarm threshold. Recover default value with no command.

Command Mode Global configuration

Syntax **alarm cpuload-threshold** {[**low-grade** < *percent*>]|[**middle-grade** < *percent*>]|[**high-grade** < *percent*>]}

no alarm cpuload-threshold

Syntax Description

<*percent*>	Cpu utility, the range is from 0 to 100 (unit :%)

Default By default, low-grade is 75%, middle-grade is 85% and high-grade is 95%.

Instruction

- Low-grade middle-grade high-grade can be set at the same time also can be set one, the prerequistie is low-grade middle-grade high-grade.
- Make sure use command alarm cpuload-on firstly.
- In ZXR10 T128, ZXR10 T1200, this command is replaced by cpuload-threshold See cpuload-threshold command in environment configuration mode for more information

Example This example describes how to set alarm cpuload-threshold low-grade to 20%.

```
ZXR10(config)#alarm cpuload-threshold low-grade 20
```

alarm level-change

Function Use this command to modify the corresponding alarm level of the alarm code.

Command Mode Global configuration

Syntax **alarm level-change** *<alarm-code><level>*

Syntax Description

<alarm-code>	Alarm code, in the range of 1~65535. It is only allowed to modify the alarm code for levels 4~8.
<level>	Alarm level(4: errors; 5: warnings; 6: notifications; 7: informational; 8: debugging)

Instructions

- Only the alarm codes for levels 4- 8 can be modified.
- For the explanations of the alarm codes, see ZXR10 Router/Ethernet Switch Information Manual.

Example This example describes how to change the alarm level of alarm code 18720 as 7.

```
ZXR10(config)#alarm level-change 18720 informational
```

check

Function Use this command to set environment alarm check interval. Recover default value with no command.

Command Mode Environment configuration

Syntax **check** *<type>* **interval** *< second>*

Syntax Description

<type>	Environment alarm types all all kinds of environment alarm types cpuload CPU load alarm fan fan alarm power power alarm temperature temperature alarm memory memory alarm
<second>	Interval: 10s by default, in the range of 3-20

Instruction

- For ZXR10 T128 and ZXR10 T1200 only cpuload alarm is enabled. Temperature alarm and memory alarm take effect Make sure alarm switch is on before set an alarm check interval.
- The default value is 3.

Example This example describes how to set CPU load check interval to 5s.

```
ZXR10(config)#environ
ZXR10(config-environ)#check cpuload interval 5
```

clear logging

Function Use this command to clear the contents in the alarm log buffer.

Command Mode Privileged

Syntax **clear logging**

Example This example describes how to clear the contents in the alarm log buffer.

```
ZXR10#clear logging
```

clear processor

Function Use this command to clear the CPU maximum utilization in the system resource statistics information.

Command Mode Privileged

Syntax **clear processor** [<*cpu-type*><*panel-number*>]

Description Syntax

<*cpu-type*>	CPU type, such as MP, RP, NP and SP.
<*panel-number*>	Slot No.

Instruction This command is used to clear the CPU utilization peak in the resource statistics information of the specified CPU.

Example This example describes how to clear the CPU utilization peak in the resource statistics information of the specified CPU.

```
ZXR10#clear processor mp 1
```

cpuload-threshold

Function Use this command to set the CPU alarm threshold. Recover default value with no command.

Command Mode Environment configuration

Syntax **cpuload-threshold** {[**low-grade** <*percent*>]|[**middle-grade** <*percent*>]|[**high-grade** <*percent*>]}

no cpuload-threshold

Syntax Description

<*percent*>	CPU utilization, in the range of 0~100 (unit:%)

Instruction This command is used to clear the CPU utilization peak in the resource statistics information of the specified CPU.

Example This example describes how to clear the CPU utilization peak in the resource statistics information of the specified CPU.

```
ZXR10#clear processor mp 1
```

environ

Function Use this command to enter environment mode.

Command Mode Global configuration

Syntax **environ**

Example This example describes how to enter the environment configuration mode.

```
ZXR10(config)#environ
```

filter

Function Use this command to configure the filter-map function which is created. Cancel this configuration with the no command.

Command Mode Alarm-filter configuration

Syntax **filter** {**disable-all** | **enable-all** | **(disable-all** <*alarmtype*>**)** | **(enable-all** <*alarmtype*>}}[**except** <*range*>]

no filter {**disable-all** | **enable-all** | **(disable-all** <*alarmtype*>**)** | **(enable-all** <*alarmtype*>}

Syntax Description

disable-all	Disable all alarm filter types
enable-all	Enable all alarm filter types
<*alarmtype*>	Alarm type
except	The specified alarm code which is not included in this configuration.
<*range*>	The range of alarm code

Instruction Use the logging filter-map command to enter into alarm-filter configuration mode, and then configure the created filter-map.

Example This example describes how to enable the alarm function which alarm type is OAM.

```
ZXR10(config)# logging filter-map zte
ZXR10(config-alarm-filter)filter enable oam
```

logging alarmlog-interval

Purpose Use this command to set time interval and peripheral equipment of alarm log. Delete the configuration with the **no** command.

Command Modes Global Configuration

Syntax **logging alarmlog-interval** <*minute*>{**flash** | **sd**}

no logging alarmlog-interval

Syntax Description

<*minute*>	Time interval(in minutes), 10~65535.
flash	The storage device for alarm log is flash.
sd	The storage device for alarm log is sd.

Instructions Only the T128/T1200 support this function. At present T128/T1200 only supports the flash peripheral device. Document way and document name is data/alarm001.log. Document name circulates from alarm001.log to alarm010.log. After each configuration, starts writting from alarm001.log to cover.

After alarm log buffer is full, write alarm log to peripheral device according to log peripheral. The path and file name are the same as this command. No alarm log if this command is not set.

Example This example describes how to set writting alarm interval to 100 minutes and write it to flash.

```
ZXR10(config)#logging alarmlog-interval 100 flash
```

logging buffer

Function Use this command to set the size of the alarm log buffer. Cancel the setting and restore default with the no command.

Command Mode Global configuration

Syntax **logging buffer** <*buffer-size*>

no logging buffer

Syntax Description

<*buffer-size*>	Size of the alarm buffer (unit: KB), in the range of 100~1000, and 200 KB by default

Instruction Run the **logging on** command before this command.

Example This example describes how to set the size of the alarm log buffer as 100 K.

```
ZXR10(config)#logging buffer 100
```

logging cmd ftp

Function Use this command to set to send cmd log to remote FTP server. Cancel this setting with the no command.

Command Mode Global configuration

Syntax **logging cmd ftp** [**vrf** <*vrf-name*>]<*ftp-server*><*username*><*password*><*time*><*filename*><*interval*>]

no logging cmd ftp

Syntax Description

Vrf <*vrf-name*>	VPF name, with 1~16 characters
<*ftp-server*>	Destination IP address of the FTP server in the dotted decimal notation
<*username*>	Login username for the FTP server, with 1~31 characters
<*password*>	Login password for the FTP server, with 1~31 characters Specify time for updating the log file name
<*time*>	Specify time for updating the log file name
<*filename*>	File name prefix of storing alarm messages, with 1~31 characters Interval period (in day).
<*interval*>	In the specified time for updating log file name, generate a new file on the FTP server in the format of configured file name prefix + current date, such as lognat_20050802.log, and send the generated NAT log to a new file.

Instruction Run the**logging on** command before this command.

Example This example describes how to set to send the cmd log to the 168.1.1.111 FTP server. The login username for FTP server is target, and the password is target. The file name prefix of storing alarm messages is cmdlog. And specify the time for updating the log file name is 2 days. The updating time is 11:11:11.

```
ZXR10(config)# logging cmd ftp 168.1.1.111 target target cmdlog 11:11:11 2
```

logging cmdlog-interval

Function Use this command to set the interval time of writing cmd log. To reset this setting to the default value 2880 use the no command.

Command Mode Global configuration

Syntax **logging cmdlog-interval** <*10~65535*>

no logging cmdlog-interval

Syntax Description

<*minute*>	The time interval(in minute), in the range of 10~65535. By default, it is 2880 minutes.

Example This example describes how to set the interval time of writing cmd log to 100 minutes.

```
ZXR10(config)#logging cmdlog-interval 100
```

logging console

Function Use this command to send the alarm messages to the console COM interface or telnet terminal. Cancel the setting with the no command.

Command Mode Global configuration

Syntax **logging console** <*level*>

no logging console

Syntax Description

<*level*>	Alarm level (1: emergencies; 2: alerts; 3: critical; 4: errors; 5: warnings; 6: notifications; 7: informational; 8: debugging)
<*map-name*>	Alarm filter table name

Instructions

- After the system initialization, the alarm messages with the level of notifications are sent to the COM interface.
- Run the logging on command before this command. The no command stops sending the alarm messages to the COM interface. The alarm message output can be opened (closed) with the (no) terminal monitor command on the console COM interface or telnet terminal.
- **filter** <*map-name*>command can be used after this command, which filters a certain alarms. To configure**filter** <*map-name* >use command **logging filter-map**

Example This example describes how to send the alarm messages with level 5 and above to the console serial interface,

```
ZXR10(config)#logging console warnings
```

logging filesavetime

Function Use this command to set the time for writing alarm log into file and sending to the FTP server. Cancel the setting with the no command.

Command Mode Global configuration

Syntax **logging filesavetime interval** <*time*>| **everyday** <*time*>| **week** <*weekday*><*time*>| **month** <*mothday*><*time*> [**vrf**

<vrf-name>| **mng**]*<ftp-server><username><password>*[*<file name>*]

no logging filesavetime

Description

interval *<time>*	Time interval for saving alarm log file, no less than 1 hour with the accuracy of 1 minute
everyday *<time>*	Time when the alarm log file is saved everyday
week *<weekday><time>*	Date and time for saving alarm log file every week (the range of the weekday is from Monday to Sunday)
month *<mothday><time>*	Date and time for saving alarm log file every month, the range of the monthday is from 1~31
vrf *<vrf-name>*	VPF name, with 1~16 characters
mng	Management interface
<ftp-server>	Saved IP address of the FTP server in the dotted decimal notation
<username>	Login username for the FTP server, with 1~31 characters
<password>	Login password for the FTP server, with 1~31 characters
<filename>	Prefix of the file name saved in the FTP server, being ZXR10AlarmLog by default, and with 1~31 characters

Instruction Run the **logging on** command before this command.

Example This example describes how to save the alarm log file at 0'clock everyday and send it to the FTP server at 168.1.70.100 FTP, where the login username is target, the password is target and the file prefix is zxrt64log.

```
ZXR10(config)#logging filesavetime everyday 0:0:0 168.1.70.100
 target target zxrt64log
```

logging filter-map

Function Use this command to create filter-map to filter alarm type. Delete filter-map with the no command.

Command Mode Global configuration

Syntax **logging filter-map** *<map-name>*

no logging filter-map *<map-name>*

Syntax Description

<map-name>	Filter-map name, with 1~20 characters

Instruction Use this command to enter into alarm-filter configuration mode, and configure filter-map.

Example This example describes how to create a filter-map, and the name is zte.

```
ZXR10(config)#logging filter-map zte
```

logging ftp

Purpose Use this command to set the alarm level for the alarm messages sent to the FTP server. Cancel the setting with the **no** command.

Command Modes Global configuration

Syntax **logging ftp** <*level*>[**vrf** <*vrf-name*>| **mng**]<*ftp-server*><*username*><*password*>[<*filename*>]

no logging ftp

Syntax Description

<*level*>	Alarm level (1: emergencies; 2: alerts; 3: critical; 4: errors; 5: warnings; 6: notifications; 7: informational; 8: debugging)
vrf <*vrf-name*>	VPF name, with 1~16 characters
mng	Management interface
<*ftp-server*>	Destination IP address of the FTP server in the dotted decimal notation
<*username*>	Login username for the FTP server, with 1~31 characters
<*password*>	Login password for the FTP server, with 1~31 characters
<*filename*>	File name of storing alarm messages, with 1~31 characters. The default value is Zxr10Alarm.log.

Instructions Run the **logging on** command before this command. In addition, the filename configured in this command must exist in the corresponding FTP server directory and must be writeable (Zxr10Alarm.log by default).

Example This example describes how to send the alarm messages above level 6 to the FTP server at 168.1.70.100, where the login username is target, the password is target and the saving file is zxralarm.log.

```
ZXR10(config)#logging ftp notificational 168.1.70.100
target target zxralarm.log
```

logging level

Function Use this command to set the alarm message level recorded in the alarm log file. Cancel the setting with the no command: notifications.

Command Mode Global configuration

Syntax **logging level** <*level*>

no logging level

Syntax Description

<*level*>	Alarm level (1: emergencies; 2: alerts; 3: critical; 4: errors; 5: warnings; 6: notifications)

Instruction Run the **logging on** command before this command.

Example This example describes how to record the alarm message in level 4 and above in the alarm log file.

```
ZXR10(config)#logging level errors
```

logging mode

Function Use this command to set the clearing mode of the alarm log when it is full. Cancel the setting with the no command:fullcycle.

Command Mode Global configuration mode

Syntax **logging mode** <*mode*>[<*interval*>]

no logging mode

Syntax Description

<*mode*>	The clearing mode when the alarm buffer is full. FULLEND: discarded alarm message. FULLCLEAR: Clear all alarm messages in an alarm cache. FULLCYCLE: Clear alarm messages in the first 1/3 part in an alarm cache. The default value is FULLCYCLE.
<*interval*	Time interval for timing storing alarms in log (in minute), in the range of 10~65535

Instruction Run the **logging on**command before this command.

Example This example describes how to select the **clear all existing alarm messages** when the buffer is full.

```
ZXR10(config)#logging mode FULLCLEAR
```

logging nat ftp

Function Use this command to set to send NAT log to the FTP server. Cancel the setting with the no command.

Command Mode Global configuration

Syntax **logging nat ftp** [**vrf** <*vrf-name*>| **mng**]<*ftp-server*><*username*><*password*><*time*><*filename*><*interval*>

no logging nat ftp

vrf <*vrf-name*>	VPF name, with 1~16 characters Management interface
mng	Management interface
<*ftp-server*>	Destination IP address of the FTP server in the dotted-decimal notation
<*username*>	Login username for the FTP server, with 1~31 characters
<*password*>	Login password for the FTP server, with 1~31 characters
<*time*>	Specify time for updating the log file name
<*filename*>	File name prefix of storing alarm messages, with 1~31 characters
<*interval*>	Interval period (in day). In the specified time for updating log file name, generate a new file on the FTP server in the format of configured file name prefix + current date, such as lognat_20050802.log, and send the generated NAT log to a new file.

Instruction Run the**logging on** command before this command. Moreover, it is necessary to enable NAT log recording function. Refer to the **ip nat logging**command. A lot of NAT will be generated. This command is used to configure interval time (in day) and precise time. Generate a new file according to the current date and configured file name prefix on the FTP server and se

Example This example describes how to set to send NAT log to the 168.1.70.100 FTP server. The login user name is target, and the password is target, file name prefix is natlog, time interval is two days, specified time of 08:00:00. Generate a new log file.

```
ZXR10(config)#logging nat ftp 168.1.70.100 target target 08:00:00 natlog 2
```

logging on

Function Use this command to enable the system log function. Disable the function with the no command.

Command Mode Global configuration

Syntax **logging on**

no logging on

Default Enable the system log function.

Instructions

- The **logging on** command affects the following commands, logging mode, logging console, logging buffer, logging level, logging ftp, logging trap and logging file savetime.
- When the **no logging on** command is executed, the above commands cannot be configured, and will not take effect.

logging synchronize

Function Use this command to set the function which execute enter action automatically after use debug information every time. Cancel this configuration with no command.

Command Mode Global configuration

Syntax **logging synchronize**

Example This example describes how to set the function which execute enter action automatically after use debug information every time.

```
ZXR10(config)#logging synchronize
```

logging timestamps

Function Use this command to set the time display format of alarm.

Command Mode Global configuration

Syntax **logging timestamps** {**localtime** | **datatime** | **uptime**}

Syntax Description

datetime	The time display format is date
localtime	The time display format is local date
uptime	The time display format is the time of rack up.

Example This example describes how to set the time display format is local date.

```
ZXR10(config)#logging timestamps datetime localtime
```

logging trap-enable

Function Use this command to set the alarm level for the alarm messages sent to the trap server. Cancel the settings with the no command.

Command Mode Global configuration mode

Syntax **logging trap-enable** <*level*>[**filter** <*map-name*>]

no logging trap-enable

Syntax Description

<*level*>	Alarm level (1: emergencies; 2: alerts; 3: critical; 4: errors; 5: warnings; 6: notifications; 7: informational; 8: debugging)
<*map-name*>	Alarm filter table name

Instructions

- Run the**logging on**command before this command.
- This command works with**filter** <*map-name*>command to filter alarms. To configure **filter** <*map-name*>command, use**logging filter-map**command

Example This example describes how to send the alarm messages above level 6 to the syslog server.

```
ZXR10(config)#logging trap-enable notifications
```

memory-threshold

Function Use this command to set memory alarm threshold. Recover default value with no command.

Command Mode Environment configuration

Syntax **memory-threshold** <*1-100*>

Syntax Description

<*1-100*>	threshold, the range 0~100(unit:%)

Default The default value is 60.

Instruction Confirm **alarm memory**on before configuring this command. Only support this command.

Example This example describes how to set the memory alarm threshold as 70.

```
ZXR10(config-environ)#memory-threshold 70
```

show alarm-level

Function Use this command to show the level of alarm code.

Command Mode All modes except exec

Syntax **show alarm level** [<*alarm-code*>]

Syntax Description

<alarm-code>	Alarm code, the range 0~65535. Only the alarm codes which belong to alarm level 4-8 are permitted to modify.

Instruction The command without parameter, that means the information of all alarm codes are displayed.

Example This example describes how to show the alarm level which with alarm code 512.

```
ZXR10(config)#show alarm-level 512
```

show logfile

Function Use this command to display the records of the history configuration operation commands stored in the command log buffer.

Command Mode All modes except exec

Syntax **show logfile** {[**username** *<string>*][**start-time** *<date><time>*][**end-time** *<date><time>*][**vtyno** *<string>*][**ipaddress** *<ip-address>*]}

Syntax Description

username *<string>*	Login user name, with 1~32 characters
start-time *<date><time>*	Start time of configuration command
end-time *<date><time><time><date>*	End time of configuration command
vtyno *<string>*	Login vty terminal number
ipaddress *<ip-address>*	IP address of the host used when login, in the dotted decimal notation. It supports IPv4 and IPv6.

Default All the records in the command log buffer are displayed.

Example This example describes how to show all command logs.

```
ZXR10#show logfile
```

show logging alarm

Function Use this command to display the alarm information records in the alarm log buffer.

Command Mode All modes except exec

Syntax **show logging alarm** {[**typeid** *<type>*][**start-date** *<date>*][**end-date** *<date>*][**level** *<level>*]}

Syntax Description

typeid <*type*>	Alarm type of the alarm message to be shown
start-date <*date*>	Alarm message to be shown is created after this date (including this date)
end-date <*date*>	Alarm message to be shown is created before this date (including this date)
level <*level*>	Level of alarm messages to be displayed (1: emergencies; 2: alerts; 3: critical; 4: errors; 5: warnings; 6: notifications)

Instruction Now, the supported alarm message types are as follows:

ENVIRON, BOARD, PORT, ROS, DATABASE, OAM, SECURITY, OSPF, RIP, BGP,DRP, TCP-UDP, IP, IGMP, TELNET, ARP, ISIS, ICMP, SNMP, RMON, NAT, URPF, VSWITCH, ACL, VRRP, PPP, SCAN, MAC, ALG, LOOPDETECT, SESSION, DHCP, MLD, STP, VLAN, LOCAL-ACCOUNTING, RADIUS, LDP, AMAT, L2VPN, RSVP, ZESR, IGMP-SNOOPING, FR, ATM, SSH, TDM, QOS, TACACS, AAA, IPV6, PIM, MUX and BFD

Example This example describes how to display the alarm information that is the IP type from May.22, 2002.

```
ZXR10#show logging alarm typeid ip start-time 5-22-2002
```

show logging configure

Function Use this command to display the configuration information of the statistics alarm functional module.

Command Mode All modes except exec

Syntax **show logging configure**

Example This example describes how to display the configuration information of the statistics alarm functional module.

```
ZXR10#show logging configure
```

show processor

Function Use this command to display the system resource statistics, such as CPU utilization and memory utilization.

Syntax **show processor** [**(mp** <*1~2*>**)** | **(rp** <*1~2*>**)** | **(sp** <*1~2*>**)** | **(np** <*1~num*>**)**]

Syntax Description

num	The maximum number of each board, vary with rack type. In order to obtain the number of MP boards, execute show processor mp. The value of num is displayed.
mp	Resource statistics information of mp
<1~2>	mp slot no.
rp	Resource statistics information of rp
<1~2>	rp slot no
sp	Resource statistics information of sp
<1~2>	sp slot no
np	Resource statistics information of np
<1~num>	np slot no.

Instructions

- This command display the resource statistics of the specified CPU, such as the CPU utilization (at 5 s, 1 minutes, 5 minutes period), memory size, memory utilization and system buffer utilization.
- This command display the resource statistics of the specified CPU, such as the CPU utilization (at 5 s, 1 minutes, 5 minutes period), memory size, memory utilization and system buffer utilization.

Example

This example describes how to display the resource statistics information of mp 1.

```
ZXR10(config)#show process mp 1
M: Master processor
S: Slave processor
PhyMem: Physical memory (megabyte)

  Panel    CPU(5s) CPU(1m) CPU(5m)  PhyMem  Buffer  Memory

MP(M)  1    17%     17%     16%      512     0%      55.585%
```

The displayed information is described below.

Panel	Panel number where the board locates
CPU(5s)	CPU utilization at 5 s period
CPU(1m)	CPU utilization at 1 minute period
CPU(5m	CPU utilization at 5 minute period
PhyMem	Physical memory size (mb)
Buffer	System buffer utilization
Memory	Memory utilization

show processor details

Function Use this command to display the history CPU utilization rate record.

Syntax

Command Mode All modes except exec

Syntax **show processor details** [**mp** *<1~2>*| **rp** *<1~2>*| **sp** *<1~2>*| **np** *<1~num>*]

Syntax Description

num	The maximum number of each board, vary with rack type. In order to obtain the number of MP boards, execute show processor mp ?. The value of num is displayed.
mp	Display the history CPU utilization rate record of mp
<1~2>	mp slot no.
rp	Display the history CPU utilization rate record of rp
<1~2>	rp slot no
sp	Display the history CPU utilization rate record of sp
<1~2>	sp slot no
np	Display the history CPU utilization rate record of np
<1~2>	np slot no.

Instruction This command is used to show the history CPU utilization rate record of the specified single board, or show all of working boards by default.

Example This example describes how to display the history CPU utilization rate record.

show temperature

Function Use this command to display local end and remote end temperature of board for ZXR10 T128 series. Use this command to display rack temperature of board for ZXR10 69 series.

Command Mode All except exec

Syntax For ZXR10 T128 series,**show temperature** [{**bic** | **upc** {**master** | **slave**}| **sfc** {**master** | **slave**}| **np** <*variable*>}]

For ZXR10 69 series,**show temperature** {**environment** | **mec** {**master** | **slave**}}

Syntax Description

environment	Display rack temperature
upc	Display upc temperature
sfc	Display sfc temperature
mec	Display mec temperature
np	Display np temperature
master	Display upc, sfc temperature, select master board
slave	Display upc, sfc temperature, select slave board
bic	Display bic temperature
<*variable*>	slot number of np board

Instructions

- The format for ZXR10 T128 series is shown below.

```
Panel  Local (℃/℉) Remote (℃/℉)
BIC         20      68      18      64
UPC 2       21      69      27      80
SFC 2       22      71      36      96
```

  - The first colume is board type.
  - Panel: board number.
  - Local (℃/℉): local end temperature(C refers to Celsius, F refers to Fahrenheit).
  - Remote (℃/℉): remote end temperature (C refers to Celsius, F refers to Fahrenheit).

- The format for ZXR10 T6900 series is shown below.

```
Temperature:30C/86F
```

  C refers to Celsius F refers to Fahrenheit.

Example This example describes how to display the temperature of SFC master board.

```
ZXR10#show temperature sfc master
```

syslog-server facility

Function Use this command to set syslog type. Cancel the settings with the no command.

Command Mode Global configuration mode

Syntax **syslog-server facility** <*facility*>

no syslog-server facility

Syntax Description

<*facility*>	Facility type24 types (0: kern; 1: user; 2: mail; 3: daemon; 4: auth; 5: syslog; 6: lpr; 7: news; 8: uucp; 9: sys9; 10: sys10; 11: sys11; 12: sys12; 13: sys13; 14: sys14; 15: cron; 16: local0; 17: local1; 18: local2; 19: local3; 20: local4; 21: local5; 22: local6; 23: local7.)

Default The default value is local0

Example This example describes how to display set syslog type as news.

```
ZXR10(config)#syslog-server facility news
```

syslog-server host

Function Use this command to set the host address of syslog server. Cancel this setting with the no command.

Command Mode Global configuration

Syntax **syslog-server host** [**vrf** <*vrf-name*>]<*ip-address*>[**(alarmlog level** <*level*>**)**][**cmdlog**][**debugmsg**][**(fport** <*port number*>**)**][**(lport** <*port number*>**)**]

no syslog-server host [**vrf** <*vrf-name*>]<*ip-address*>[**alarmlog**][**cmdlog**][**debugmsg**]

Syntax Description

vrf <*vrf-name*>	VRF name. with 1-16 characters
<*ip-address*>	Specify the host IP address
alarmlog	Enable the alarm log send to syslog server
level <*level*>	Alarm level. 1emergencies2alerts3critical4errors5warnings6notifications7informational8debugging
cmdlog	Enable the cmd log send to syslog server
debugmsg	Enable debug information send to syslog server
fport	The port of server
lport	Local port
<*port number*>	Port number,0 ~ 65535

Instruction The port number of **fport**and **lport** is 514 by default, and set to send **alarmlog, cmdlog, debugmsg**to syslog server by default. The alarm level is notifications by default.

Example This example describes how to display configure the IP address of 168.1.1.111 syslog server only send alarmlog to syslog server. Alarm level is errors.

```
ZXR10(config)#syslog-server host 168.1.1.111 alarmlog level errors
```

syslog-server source

Function Use this command to set syslog source address. Cancel the settings with the no command.

Command Mode Global configuration

Syntax **syslog-server source** <*ip-address*>

no syslog-server source

Syntax Description

<*ip-address*>	Syslog source address in the dotted decimal notation

Example This example describes how to display set syslog source address as 10.40.56.19.

```
ZXR10(config)#syslog-server source 10.40.56.19
```

temper-threshold

Purpose Use this command to set board temperature alarm threshold. Recover default value with **no** command.

Command Modes Environment configuration

Syntax **temper-threshold** {{**bic** | **(upc** {**master** | **slave**}**)** | **(sfc** {**master** | **slave**}**)** | **(np** <*variable*>**)**}}{**remote** | **local**}{[**lowthreshold** <*temperature*>]|[**first-highthreshold** < *temperature*>]|[**second-highthreshold** < *temperature*>]}

no temper-threshold {{**bic** | **(upc** {**master** | **slave**}**)** | **(sfc** {**master** | **slave**}**)** | **(np** <*variable*>**)**}}{**remote** | **local** }

Syntax Description

< *temperature*>	Temperature range, -65 ~ 127(unit: ℃)
<*variable*>	NP slot number
lowthreshold	lowthreshold value
first-highthreshold	first-highthreshold value
second-highthreshold	second-highthreshold value

Defaults

Board type	Local end temperature			Remote end temperature		
	Low threshold	first-high threshold	second-high threshold	Low threshold	first-high threshold	second-high threshold

ENVI-RON_UPC3	-20	55	70	-20	100	120
ENVI-RON_SFC	-20	55	70	-20	70	90
ENVI-RON_SFC2	-20	55	70	-20	100	120
ENVI-RON_SFC3	-20	55	70	-20	100	120
ENVI-RON_BIC	-20	55	70	-20	55	75
ENVI-RON_NPCIX	-20	55	70	-20	85	100
ENVI-RON_NPCH	-20	55	70	-20	65	75
ENVI-RON_NPCT	-20	55	70	–20	65	75

Instructions

- Lowthreshold, first-highthreshold second-highthreshold can be set at the same time, also can be set onethe prerequistie is **lowthreshold** , **lowthreshold** , **first-highthreshold** lowthreshold
- The platform version 4.8.22 and the upgrade versions support writing configuration to SD card.
- first-highthreshold, second-highthreshold are high temperature thresholds. When the tempurature is higher than them, the rack occurs alarm.
- Before configuring this command, make sure **alarm tempera ture on** already be open.
- Only ZXR10 T128, ZXR10 T1200 support this command.

Example This example describes how to set the lowthreshold on local end of sfc board to -40.

```
ZXR10(config)#environ
ZXR10(config-environ)#temper-threshold sfc master local lowthreshold -40
```

write

Function Use this command to write configuration information of the current router into the flash, or write the current router-related system parameters into the nvram.

Command Mode Privileged configuration m

Syntax **write**

Instruction Instructions It is equivalent to the execution of both **write flash** and **write nvram** commands.

Example This example describes how to save the current router information.

```
ZXR10#write
Building configuration...
[ok]
```

Related Commands

write flash

write nvram

write cmdlog

Function Use this command to save the contents in the alarm log buffer in a file under flash:data/log.dat

Command mode Privileged

Syntax **write cmdlog**

Instruction File name is cmdxxx..log, the range xxx is 001-040. When the value reaches cmd040, it will begin from cmd001.

Example This example describes how to write log files.

```
ZXR10(config)#write cmdlog
```

write logging

Function Use this command to save the contents in the alarm log buffer in a file under flash:data/log.dat.

Command Mode Privileged

Format **write logging**

Instruction Write alarm messages at the following level in the alarm buffer into a file with this command: 1: emergencies; 2: alerts; 3: critical; 4: errors

Example This example describes how to write alarm log files.

```
ZXR10(config)#write logging
```

Chapter 6

FTP/TFTP Server

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copy(FTP Client)

Function Use this command to copy a specified file in/out of the specified remote host in FTP mode with the specified username and login password. If no username and password are specified, the default username and password will be used. If there are no default username and password, error information will be reported.

Command Mode Privileged mode

Format **copy ftp:** [**vrf** <*vrf-name*>|**mng**] **// remote host address or host name/file path/filename**[**@username**[**:password**]] **root: path/filename**

copy flash: path/filename ftp: [**vrf** <*vrf-name*>|**mng**] **//remote host address or host name/file path/filename**[**@username** [**:password**]]

Instructions

- In ZXR10 GAR and ZXR10 ZSR, the management interface parameter mng is not supported.
- In some devices the local directory might not be flash, such as:it is root in ZXR10 T128.

Examples

- This example describes how to copy the file db.dat under the cfg directory of the flash into the working directory of the FTP user zxr10 on the host 168.1.1.1.

```
ZXR10#copy flash: /cfg/db.dat ftp: //168.1.1.1/db.dat@zxr10:zxr10
```

- This example describes how to copy the file db.dat under the working directory of the FTP user zxr10 on the host 168.1.1.1 into the root directory of the router FLASH.

```
ZXR10#copy ftp: //168.1.1.1/db.dat@zxr10:zxr10 root db.dat
```

copy TFTP Client

Function Use this command to copy the specified file to or from the specified remote host in the TFTP mode.

Command Mode Privileged

Syntax **copy tftp:** [**vrf** <*vrf-name*>|**mng**] **//remote host address or host name/file path/filename root: path/filename**

copy flash: path/filename tftp: [**vrf** <*vrf-name*>|**mng**] **//remote host address or host name/file path/filename**

Instructions

- In ZXR10 GAR and ZXR10 ZSR, the management interface parameter mng is not supported.
- In some devices the local directory might not be flash, such as:it is root in ZXR10 T128.

Example

- This example describes how to copy the file db.dat under the cfg directory of the flash into the working directory of the TFTP server on the host 168.1.1.1.

```
ZXR10#copy root /cfg/db.dat tftp: //168.1.1.1/db.dat
```

- This example describes how to copy the file db.dat under the working directory of the TFTP server on the host 168.1.1.1 into the root directory of the router FLASH.

```
ZXR10#copy tftp: //168.1.1.1/db.dat root db.dat
```

ftp-server enable

Function Use this command to enable FTP-SERVER function. Close FTP-SERVER with the no command.

Command Mode Global configuration

Syntax **ftp-server enable** [**listen** <*port*>]

no ftp-server enable

Syntax Description

listen < *port*>	Enable FTP Server to monitor specified port, in the range of 2401-2420

Instruction Only the unused port can be monitored, including local port and remote port. Monitor port 21 by default.

Example This example describes how to enable FTP SERVER on 2405 port

```
ZXR10(config)# ftp-server enable listen 2405
```

ftp-server tick-user

Function Use this command to disconnect current user.

Command Mode Global configuration

Syntax **ftp-server tick-user** <*user id*>

Syntax Description

<*user id*>	On-line user ID, the valid user is 1

Instruction **show ftp-server**can be used to view whether the user is on-line.

Example This example describes how to delete current on-line user

```
ZXR10(config)# ftp-server tick-user 1
```

Related Commands **show ftp-server**

ftp-server top-directory

Function Use this command to set FTP SERVER. Allow user to log in the top directory. Users only can access files in this directory and operate in the directory.

Command Mode Global configuration

Syntax **ftp-server top-directory** <*directory*>

Syntax Description

<*directory*>	The user directory name must a complete path. The directory must exist.

Instruction

- The directories in ZXR10 should be /flash/, /cf, /bd, /bd1, /bd2…(number of USB devices vary with routers)
- Only directories beginning with /system/ are valid.

Example This example describes how to set the top working directory to /flash/cfg/.

```
ZXR10(config)#ftp-server top-directory /flash/cfg/
```

ip ftp password

Function Use this command to set the default login password of the FTP client. Use no command to cancel client default login password.

Command Mode Global configuration

Syntax **ip ftp password** <*password*>

no ip ftp password

Syntax Description

<*password*>	Default login password at the FTP client, with 3~16 characters

Instruction The password is case sensitive.

Example This example describes how to set the FTP login password as zxr10.

```
ZXR10(config)#ip ftp password zxr10
```

Related Command ip ftp username

ip ftp username

Function Use this command to set the default login username of the FTP client. Use no command to cancel client default login password.

Command Mode Global configuration

Syntax **ip ftp usrname** <*username*>

no ip ftp usrname

Syntax Description

<*username*>	Default username at the FTP client, with 1~16 characters

Instruction The valid characters include the letters, numerals and underline, case insensitive for the letters.

Example This example describes how to set the FTP login username as zxr10.

```
ZXR10(config)#ip ftp username zxr10
```

Related Command **ip ftp password**

show ftp-server

Function Use this command to show FTP server-related configuration information.

Synate **show ftp-server**

Example This example describes how to show FTP server-related configuration information.

```
ZXR10(config)#show ftp-server
```

Related Command **ftp-server top-directory**

ftp-server enable

show ftp-server-user

Function Use this command to show on-line users of FTP server.

Command Mode All modes execept exec

Syntax **show ftp-server-user** <*user id*>

Syntax Description

<user id>	On-line user ID, the valid value is 1

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Chapter 7

IPV4 Basic Protocols

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address

Function Use this command to configure the IP address range of subnet segment in multi-net segment pool. Delete IP address range with no command.

Command Mode NAT address pool configuration

Syntax **address** *<start-address><end-address>*

no address *<start-address><end-address>*

Syntax Description

<start-address>	The start address of subnet segment in NAT multi-net segment pool, in dotted decimal notation.
<end-address>	The end address of subnet segment in NAT multi-net segment pool, in dotted decimal notation.

Example This example describes how to configure two subnet segments in NAT multi-net segment pool. The **<***start-address***>** and**<***end-address***>**of one .sub-network segment are 70.70.70.1, 70.70.70.10 respectively. Those of another subnet segment are 80.80.80.1 and 80.80.80.5.

```
ZXR10(config)ip nat multipool zte prefix-length 24
ZXR10(config-ipnat-pool)#address 70.70.70.1 70.70.70.10
ZXR10(config-ipnat-pool)#address 80.80.80.1 80.80.80.5
```

Related Command **ip nat multipool**

arp timeout

Function Use this command to configure the ARP entry aging time in the ARP buffer. Restore the default ARP entry aging time with the no command.

Command Mode Interface configuration mode

Syntax **arp timeout** <*timeout*>

no arp timeout

Syntax Description

<*timeout*>	Aging time of the ARP entry in the ARP buffer in second, ranging 1 ~ 2147483. 300 seconds on switches by default, and 600 seconds on routers by default

Instruction This command is ignored on non-Ethernet interfaces. The show **running-config** command shows the ARP aging time configured on the Ethernet interface.

Example This example describes how to configure the ARP aging time of interface fei_1/1 to 1200s.

```
ZXR10(config)#interface fei_1/1
ZXR10(config-if)#arp timeout 1200
```

clear arp

Function Use this command to delete the ARP entry bound in the ARP cache of the specified Ethernet interface.

Command Mode Privileged mode

Syntax **clear arp-cache** [**interface** <*interface-name*>][**dynamic** | **static** | **permanent** |<*ip-address*>]

Syntax Description

interface	Delete ARP entry from specified interface
interface <*interface-name*>	Specified interface name
dynamic	Deletes dynamic ARP entry
static	Deletes the statically bound ARP entry
permanent	Deletes the permanent bound ARP entry
<*ip-address*>]	IP address in the dotted decimal notation

Example This example describes how to delete the statically bound ARP entry on the fei_1/1 interface.

```
ZXR10#clear arp in fei_1/1 permanent
```

Related Commands **set arp**

show arp

clear ip traffic-statistics

Function Use this command to clear the statistics on IP transmission.

Command Mode Privileged

Syntax **clear ip traffic-statistics**

Example This example describes how to clear the statistics on IP transmission.

```
ZXR10#clear ip traffic-statistics
```

Related Command **show ip traffic**

clear tcp connect

Function Use this command to clear TCP connections, including Telnet, FTP and BGP connections.

Command Mode Privileged

Syntax **clear tcp connect** [**mng** | **vrf** <*vrf-name*>]<*local-host-address*><*local-port*><*remote-ip-address*><*remote-port*>

Syntax Description

mng	The local IP address is the address of the management port. There is no such parameter in the ZXR10 GAR.
vrf <*vrf-name*>	VRF of the IP address, 1 ~ 16 characters
<*local-host-address*>	Local IP address in the dotted decimal notation
<*local-port*>	Local port number, 1 ~ 65535
<*remote-ip-address*>	Remote IP address in the dotted decimal notation
<*remote-port*>	Remote port number, 1 ~ 65535

Example This example describes how to clear the Telnet connections.

```
ZXR10#clear tcp connect 168.1.168.168 23 168.1.16.140 1456
```

clear tcp line

Function Use this command to clear TCP connection, but only clear Telnet connection.

Command Mode Privileged

Syntax **clear tcp line** *<line-number>*

Syntax Description

<line-number>	Ranges 66 ~ 81

Example This example describes how to clear the Telnet connection.

```
ZXR10#clear tcp line 66
```

clear tcp statistics

Function Use this command to clear TCP statistic information.

Command Mode Privileged

Syntax **clear tcp statistics**

Example This example describes how to clear TCP statistic information.

```
ZXR10#clear tcp statistics
```

clear tcp tcb

Function Use this command to clear TCP connections, including Telnet, FTP and BGP connections.

Command Mode Privileged

Syntax **clear tcp tcb** *<tcb-address>*

Syntax Description

<tcb-address>	Ranges 0 ~ 4294967295

Example This example describes how to clear TCP connections.

```
ZXR10#clear tcp tcb 3261896
```

clear tcp tty

Use this command to clear the Telnet connection only.

Command Mode Privileged

Syntax **clear tcp tty** *<tty-number>*

Syntax Description

<tty-number>	Ranges 66 ~ 81

Example This example describes how to clear the Telnet connection.

```
ZXR10#clear tcp tty 66
```

clear tcp vty

Function Use this command to clear the Telnet connection, but only clear Telnet connection

Command mode Privileged mode

Syntax **clear tcp vty** *<vty-number>*

Syntax Description

<vty-number>	Ranges 0 ~ 3

Example This example describes how to clear the Telnet connection.

```
ZXR10#clear tcp vty 0
```

detect loop-time

Function Use this command to set the automatic detect loop-time. That is to say detect all objects at certain interval.

Command Mode Detect group configuration

Syntax **loop-time** *<loop-time>*

no loop-time

Syntax Description

<loop-time>	In unit of seconds, in the range of 1-86400. By default, it is 15 seconds.

Example This example describes how to configure the loop time as 10 seconds.

```
ZXR10(config)#detect-group 1
ZXR10(config-detect)#loop-time 10
```

detect option

Function Use this command to set the logic relationship between objects to detect in automatic detect group.

Command Mode Detect group configuration

Syntax **option** {**and** | **or**}

Syntax Description

and	When the relationship between detect objects is and: if can not PING to one IP, the detect group is unreachable, other IP addresses will not be detected
or	When the relationship is or, if PING one IP address, then the detect group is reachable, other IP addresses will not be detected

Instruction The default relationship is and. Recover the relationship between objects to detect to the default value with no command.

Example This example describes how to set the relationship between objects to detect to or.

```
ZXR10(config)#detect-group 1 ZXR10(config-detect)#option or
```

detect try-times

Function Use this command to set the maximum retry times in one detect of the detect group.

Command Mode Detect group configuration

Syntax **try-times** <*try-times*>

no try-times

Syntax Description

<*try-times*>	Retry times in one detect, in the range of 010

Instruction The default value is 2. Set the maximum retry times to 2 with no command.

Example This example describes how to set the maximum retry times of detect group to 8.

```
ZXR10(config)#detect-group 1
ZXR10(config-detect)#try-times 8
```

detcet time-out

Function Use this command to set the detect time-out limit.

Command Mode Detect group configuration

Syntax **time-out** <*time-out*>

Syntax Description

time-out	Time-out time(in seconds), in the range of 0-86400. By default, it is 15 seconds.

Instruction The default value is 15s. Set the detect group to default time-out time.

Example This example describes how to set the time-out time of detect group to 8 seconds.

```
ZXR10(config)#detect-group 1
ZXR10(config-detect)#time-out 8
```

detect-group

Function Use this command to enter detect group configuration mode. Create detect. Delete configuration related to detect group with no command.

Command Mode Detect group configuration

Syntax **detect-group** <*group-number*>

no detect-group <*group-number*>

Syntax Description

<*group-number*>	Detect number group, in the range of 1~10

Example This example describes how to enter the detect group 1.

```
ZXR10(config)#detect-group 1
```

detect-list

Function Use this command to set IP addresses to detect and the detect order.

Command Mode Detect group configuration

Syntax **detect-list** <*list-number*><*ip-address*><*next-hop-address*>

no detect-list

Syntax Description

<*list-number*>	Serial numbers of IP addresses in detect group, the range relates to device
<*ip-address*>	Automatically detected Ip addresses
<*next-hop-address*>	Specify an IP address in the next hop automatically detect(the start address of automatic detect)

Example This example describes how to configure IP address of serial number 2 in detect group to 1.1.1.1, the next hop address is 2.2.2.2.

```
ZXR10(config)#detect-group 1
ZXR10(config-detect)#detect-list 2 1.1.1.1 2.2.2.2
```

ip address

Function Use this command to configure the interface IP address of the interface. Delete the interface IP address with the no command.

Command Mode Interface configuration

Syntax **ip address** <*ip-address*><*net-mask*>[<*broadcast-address*>][**secondary**]

no ip address [<*ip-address*><*net-mask*>]

Syntax Description

<*ip-address*>	IP address in the dotted decimal notation
<*net-mask*>	IP subnet mask in the dotted decimal notation
<*broadcast-address*>	Broadcast address correlated with this interface, in dotted decimal notation.
secondary	Secondary address of the interface

Default The interface is not configured with any IP address.

Instructions

- **<***broadcast-address***>**means the interface associated broadcast address that is used for forwarding broadcast datagram directly, and a broadcast route will be added in the routing table. By default, the subnet.ones/32 broadcast route is added in the routing table.
- **<***broadcast-address***>**may be one of 255.255.255.255, subnet.ones, subnet.zeros and 0.0.0.0, and the others are ignored. When it is 255.255.255.255 or subnet.ones, the subnet.ones/32 broadcast route is added into the routing table, which is the same as the default case. When it is subnet.zeros or 0.0.0.0, the subnet.zeros/32 and subnet.ones/32 are regarded as the broadcast routes and added into the routing table.
- **secondary** is used to indicate that the configured interface address is a secondary address. If the parameter is not attached, the configured interface address is the primary address of the interface. One interface can be configured with only one primary address but with several secondary addresses.
- In the no command, the parameters are optional. If there is no parameter, all the configured interface addresses of this interface will be deleted.

Example This example describes how to set the fei_1/1 interface IP address to 168.1.10.100 and the subnet mask to 255.255.0.0.

```
ZXR10(config)#interface fei_1/1
ZXR10(config-if)#ip address 168.1.10.100 255.255.0.0
```

ip forwarding-mode

Function Use this command to set the forwarding mode of the interface.

Command Mode Interface configuration

Syntax **ip forwarding-mode** {**vlan-switch** | **normal** | **mix**}

no ip forwarding-mode

Syntax Description

vlan-switch	The IP packets on the interface are forwarded through V_switch The IP packets on the interface are forwarded through IP routing Both modes are supported on the interface
normal	The IP packets on the interface are forwarded through IP routingBoth modes are supported on the interface
mix	

Instructions

- In case of the mix mode, packets are forwarded through V_switch first, and then through IP routing if the forwarding fails.
- It is applicable only to ZXR10 GER.

Related Command **vlan-forwarding ingress**

ip load-sharing

Function Use this command to implement load balancing, also known as load sharing in packet forwarding. Set the policies for load balancing on the interface. Remove the policies with the no command.

Command Mode Interface configuration

Syntax **ip load-sharing** {**per-destination** | **per-packet**}

no ip load-sharing per-packet

Syntax Description

per-destination	Performs load balancing on destination addresses of packets
per-packet	Performs load balancing on the number of datagrams in the packets

Instructions

- Load balancing on the destination address of the packets ensures the packets to the same destination use the same path. However, when there are only a limited number of destination addresses, the traffic may concentrate on a few number of paths. Load balancing on the number of datagram can make a full use of bandwidth, but it can not ensure the arrival sequence of the datagram.
- To implement load balancing on the number of datagram, all interfaces (that can forward the packets to the same destination address) shall be set with ip load-sharing per-packet. Otherwise, load sharing is based on the destination addresses of packets.

Example

- This example describes how to perform load balancing on the number of diagrams on interface fei_1/1.

```
ZXR10(config)#interface fei_1/1
ZXR10(config-if)# ip load-sharing per-packet
```

- This example describes how to perform load balancing on the destination addresses of packets on interface fei_1/1.

```
ZXR10(config)#interface fei_1/1
ZXR10(config-if)# ip load-sharing per-destination
```

Related Command **ip route**

ip local policy route-map

Purpose Use this command to set local policy route.

After setting local policy route but not route-map, all local PING and TRACE packets will be transmitted by local policy route.

Cancel local policy route with the **no** command.

Command Modes Global configuration

Syntax **ip local policy route-map** <*map-tag*>

no ip local policy route-map

Syntax Description

<*map-tag*>	route-map name, in length of 1~16 characters

Instructions

- After setting local policy route but not route-map, all local PING and TRACE packets will be transmitted by local policy route.
- Only the platform version 4.8.22 supports this command.

Example This example describes how to set ip local policy route-map named rmp1.

```
ZXR10(config)# ip local policy route-map rmp1
ZXR10(config)# no ip local policy route-map
```

Related Commands **route-map**

ip mtu

Purpose Use this command to configure the MTU value of the IP packets that the interface can process. Restore the default MTU value with the **no** command.

Command Modes Interface configuration

Syntax **ip mtu** <*bytes*>

ip mtu

Syntax Description

<bytes>	MTU of the interface in byte, ranging 128 ~ 1500, 1500 by default

Instructions Every interface has a default MTU, 1,500 bytes by default. The tunnel interface has a default value of 1,476. The MTU value may vary with the network segment. To avoid fragmentation and improve network performance, the **ip mtu** command can be used to change the MTU value.

Example This example describes how to configure the MTU value of the fei_1/1 interface to 1,000.

```
ZXR10(config)#interface fei_1/1
ZXR10(config-if)#ip mtu 1000
```

ip policy route-map

Function Use this command to configure policy route-based fast forwarding for the incoming packets on the interface. Cancel the policy route-based fast forwarding with the no command.

Command Mode Interface configuration

Syntax **ip policy route-map** *<map-tag>*

no ip policy route-map

Syntax Description

<map-tag>	Name of the route map, 1 ~ 16 characters

Instruction The route is mapped to the interface through binding. When the incoming packet is to be forwarded, firstly the route map is matched. And policy route forwarding is performed according to the result of the route map matching. If the route map cannot be matched, normal routing based on the destination address is performed.

Example This example describes how to bind the route map named rmp1 to the fei_1/1 interface.

```
ZXR10(config)#interface fei_1/1
ZXR10(config-if)#ip policy route-map rmp1
```

Related Command **route-map**

ip proxy-arp

Function Use this command to enable the ARP proxy on the port. Disable such function with the no command.

Command Mode Interface configuration

Syntax **ip proxy-arp**

no ip proxy-arp

Defaults ARP proxy is disabled.

Instruction If ARP proxy is enabled on an interface, it is better to configure ARP source address filtering at the same time to filter ARP packets of different network segments. Show running-config can display the setting of the interface. The default setting will not be displayed.

Example This example describes how to enable ARP proxy on the fei_1/1 interface.

```
ZXR10(config)#interface fei_1/1
ZXR10(config-if)#ip proxy-arp
```

Related Command **show run**

ip redirect

Function Use this command to enable the router to transmit redirecting packets. Disable the function with the no command.

Command Mode Interface configuration

Syntax **ip redirect**

no ip redirect

Defaults Enabled

Instruction The route may not be optimized enough. For example, the router may be forced to forward a packet through the same receiving port. In this case, the router software sends an ICMP redirecting message to the packet sender and tells it to send the packet to another router in the same subnet.

Example This example describes how to enable the router to transmit redirecting packets function on the fei_1/1 interface.

```
ZXR10 (config) # interface feie_6/1
ZXR10(config-if)#ip redirect
```

ip route

Function Use this command to set up a static route. Delete the static route with the no command.

Command Mode Global configuration

Syntax **ip route** [**mng** | **vrf** <*vrf-name*>]<*prefix*><*net-mask*>{<*forwarding-router's-address*>|<*interface-name*>}[<*distance-metric*>][**tag** <*tag*>][**global**]

no ip route [**vrf** <*vrf-name*>]<*prefix*><*net-mask*>[<*distance-metric*>][**tag** <*tag*>]

Syntax Description

mng	Configure the static route in management interface
vrf *<vrf-name>*	Name of the specified VRF where the static route is, 1 ~ 16 characters. The ZXR10 3900/3200 does not provide this parameter
<prefix>	Prefix of IP address in the dotted decimal notation
<net-mask>	Network mask in the dotted decimal notation
<forwarding-router's-address>	Next-hop IP address in the dotted decimal notation
<interface-name>	Name of the interface
<distance-metric>	Administrative distance, 1 ~ 255
tag *<tag>*	Tag value, used as the match value and to control the route re-allocation, 150 ~ 255, 3 by default
global	Specify global static route

Instructions

- ***<distance-metric>***is equivalent to the priority of the routing protocol. The smaller it is, the higher the priority. By default, the priority of static routes is higher than that of dynamic routes. However, it can be configured that the dynamic router has higher priority.
- ***<tag>*** corresponds to the tag value in the IP routing table of the routing protocol, 3 by default. Two static routes to the same destination network (with different next hop addresses) cannot have the same tag value.

Example

- This example describes how to route the packets sent to the network 131.108.0.0 to the router of 131.108.6.6.

```
ZXR10(config)#ip route 131.108.0.0 255.255.0.0 131.108.6.6
```

- This example describes how to set the administrative distance of static route to 110. In this way, if dynamic route with management distance is less than 110 administrative distance cannot be obtained; the packets sent to the network 10.0.0.0 will be routed to the router 131.108.3.4.

```
ZXR10(config)#ip route 10.0.0.0 255.0.0.0 131.108.3.4 110
```

ip source-route

Function Use this command to set the router to handle packets with IP source route options. Discard the packets with the IP source route options with the no command.

Command Mode Global configuration

Syntax **ip source-route**

no ip source-route

Defaults Enabled

Instruction

- The router checks the IP header option of every packet and supports such header options as Strict Source Route, Loose Source Route, and Record Route and Time stamp. If the software finds that one of the options is valid, it will execute the proper operation. If it finds the packet with invalid option, it will send an ICMP parameter problem message to the source of the packet and discard the packet.
- The IP allows the source host to pre-specify a path through the IP network, which is called source route. If the source route is specified, the software will forward the packet according the specified source path. When it is required to force a packet to go through a specified path, this function can be used. By default, the packets are processed according to the source route.

Example This example describes how to enable the processing of the IP packets with the source route header option.

```
ZXR10(config)#ip source-route
```

ip stream cache

Function Use this command to set the ip stream cache parameter, including cache size, flow active and inactive aging time.

Command Mode Global configuration

Syntax **ip stream cache** {**entries** <*size*>| **timeout** {**active** <*minute*>| **in_active** <*10-600*>}}

no ip stream cache {**entries** | **timeout** {**active** | **in_active**}}

Syntax Description

entries	Configure the size of ip stream cache
<*size*>	The size of cache, the unit is number of stream records, ranging 1024-65535. 4096 by default
timeout	Set the active time and inactive time of stream records in ip stream cache
active <*minute*>	Set the active time and inactive time of stream records in ip stream cache, unit is minute, ranging 1-60, 30 by default
in_active <*second*>	Set the active time and inactive time of stream records in ip stream cache, unit is second, 15 by default

Instructions

- This command is only supported by ZXR10 T128 and ZXR10 T1200.
- After ip stream cache entries are upgraded, it will not take effect immediately. It takes effect after ip stream is enabled. Recover to the default value with no command.

Example

- This example describes how to configure the ip stream cache size to 2048 stream records.

```
ZXR10(config)#ip stream cache entries 2048
```

- This example describes how to configure the active aging time of stream record to 45 minutes.

```
ZXR10(config)#ip stream cache timeout active 45
```

- This example describes how to configure the active aging time of stream record to 60 seconds.

```
ZXR10(config)#ip stream timeout in_active 60
```

ip stream enable

Function Use this command to enable IP stream sampling function.

Command Mode Global configuration

Syntax **ip stream enable**

Instruction This command is only supported by ZXR10 T128 and ZXR10 T1200.

Example

- This example describes how to enable IP stream sampling function.

```
ZXR10(config)#ip stream enable
```

- This example describes how to disable IP stream sampling function.

```
ZXR10(config)#no ip stream enable
```

ip stream export

Function Use this command to set ip stream export, including collector address and communication port, ip stream version and v9 template output parameter

Command Mode Global configuration

Syntax **ip stream export** {**destination** <*des-ipaddress*><*udp port number*>| **source** <*source-ipaddress*>| **template** {**refresh-rate** <*1-600*>| **timeout-rate** <*minute*>}| **version** <*version number*>

no ip stream export {**destination** <*des-ipaddress*>|<*source-ip address*>| **template** {**refresh-rate** | **timeout-rate**}| **version**}

Syntax Description

destination	Configure the collector address and communication port of ip stream
<*des-ipaddress*>	Configure the collector address and of ip stream
<*udp port number*>	Configure remote port of collector UDP of ip stream, in the range of <1-65535>

<*source-ipaddress*>	Configure source address of ip stream
A.B.C.D	Configure source address of ip stream
template	Configure ip stream v9 template output mode
refresh-rate <*1-600*>	Refresh template by number of sent messages, , in the range of <1-600>, 20 by default
timeout-rate<*minute*>	Refresh template by interval, unit: minute, in the range of <1-3600>, 30 minutes by default
version	Configure ip stream version
<*version number*>	If 5 is set, the version is v5, if 9 is set the version is v9. Only these two versions are supported.

Instructions

- This command is only supported by ZXR10 T128 and ZXR10 T1200.
- Two values can be configured in ip stream export destination, distinguished by address. If addresses are same, configure udp port to update the remote communication port.
- Recover the default value for ip stream export template with no command.

Example

- This example describes how to set the collector address of ip stream to 10.60.80.99, the communication port is 2056

```
ZXR10(config)#ip stream export destination 10.60.80.99 2056
```

- This example describes how to set the source address of ip stream to 10.60.45.21.

```
ZXR10(config)#ip stream export source 10.60.45.21
```

- This example describes how to set the template of ip stream to be refreshed every 100 messages.

```
ZXR10(config)#ip stream export template refresh-rate 100
```

- This example describes how to set the template of ip stream to be refreshed every 60 minutes.

```
ZXR10(config)# ip stream export template timeout-rate 60
```

- This example describes how to set the version to be v9

```
ZXR10(config)#ip stream export version 9
```

ip tcp finwait-time

Function Use this command to set the wait time for TCP disconnection. Restore the default with the no command.

Command Mode Global configuration

Syntax **ip tcp finwait-time** <*seconds*>

no ip tcp finwait-time

Syntax Description

<seconds>	Time to wait for TCP disconnection in second, 300 ~ 600, 600 seconds by default

Example This example describes how to configure the wait time for TCP disconnection to 400 seconds.

```
ZXR10(config)#ip tcp finwait-time 400
```

ip tcp queuemax

Function Use this command to configure the maximum length of TCP outgoing queue. This command is ineffective for the Telnet that has been established. Restore the default queue length with the no command.

Command Mode Global configuration

Syntax **ip tcp queuemax** *<packets>*

no ip tcp queuemax

Syntax Description

<packets>	Number of packets, 5 ~ 50, 5 by default

Example This example describes how to configure the maximum packets in the queue to 40.

```
ZXR10(config)#ip tcp queuemax 40
```

ip tcp synwait-tim

Function Use this command to configure the wait time for TCP connection attempt. It is effective for subsequent TCP connections to be established. Restore the default with the no command.

Command Mode Global configuration

Syntax **ip tcp synwait-time** *<seconds>*

no ip tcp synwait-time

Syntax Description

<seconds>	Time to wait for the connection in second, 30 ~ 80, 30 by default

Example This example describes how to configure the time to wait for a TCP connection to 50 seconds.

```
ZXR10(config)#ip tcp synwait-time 50
```

ip tcp window-size

Function Use this command to configure the maximum length of TCP outgoing queue. This command is ineffective for the Telnet that has been established. Restore the default queue length with the no command

Command Mode Global configuration

Syntax **ip tcp queuemax** <*packets*>

no ip tcp queuemax

Syntax Description

<*packets*>	Number of packets, 5 ~ 50, 5 by default

Example This example describes how to configure the maximum packets in the queue to 40.

```
ZXR10(config)#ip tcp queuemax 40
```

ip unnumbered

Function Function Use this command to adopt the specified interface IP address as this interface IP address. Cancel this function with the no command.

Command Mode Interface configuration

Syntax **ip unnumbered** <*interface-name*>

no ip unnumbered

Syntax Description

<*interface-name*>	Name of the interface

Defaults Invalid.

Instructions

- The interface may be POS, E1 or serial port and cannot be configured with an IP address.
- To configure the IP address for an interface, the **no ip unnumbered** command must executed before the **ip address** command.

Example This example describes how to configure the IP address of the fei_1/1 interface (with configured address 168.1.1.1/24) as the address of the pos_3/1. ZXR10(config)#interface pos_3/1

```
ZXR10(config-if)#ip unnumbered fei_1/1
```

ip unreachable

Function Use this command to enable the router interface to send ICMP unreachable packets. Cancel this function with the no command.

Command Mode Command Mode Interface configuration

Syntax **ip unreachable**

no ip unreachable

Defaults Enable

Instruction When the router receives a non-broadcast packet that is sent with an unknown protocol, it will return an ICMP unreachable message to the source address. Similarly, if the router receives a packet that cannot be delivered to the destination (route with unknown destination address), it will return an ICMP host unreachable message to the source address.

Example This example describes how to enable the fei_1/1 interface to send ICMP unreachable packets.

```
ZXR10(config)#interface fei_1/1
ZXR10(config-if)#ip unreachable
```

netflow-sample-rate

Purpose Use this command to set ip stream sampling rate.

Command Modes Interface configuration

Syntax **netflow-sample-rate** {**ingress** | **egress**}{**unicast** | **multicast** | **mpls**| **acl** <*word*>}<*number*>

no netflow-sample-rate {**ingress** | **egress**}{**unicast** | **multicast** | **mpls** | **acl** <*word*>}

Syntax Description

ingress | **egress**	Configures the sampling direction of ip stream.
unicast | **multicast** | **mpls**	Configures the sampling type of ip stream.
acl <*word*>	Samples based on ACL(sample when ACL rules are matching.)ACL can be named ACL or numberd.
number	Configures the sampling rate of ip stream, in the range of 1~65535.

Instructions

- This command is only supported by ZXR10 T128 and ZXR10 T1200.
- Ip stream sampling can be set in two directions at the same time. The sampling and service in two directions are independent. Services are sampled randomly according to the set sampling rate.

- Only Ethernet and POS port interfaces support this command.

Example This example describes how to set the ingress unicast sampling rate on gei_7/23 to 2000 and set the egress multicast sampling rate to 1000.

```
ZXR10(config)#interface gei_7/23
ZXR10(config-if)#netflow-sample-rate ingress uincast 2000
ZXR10(config-if)#netflow-sample-rate egress multicast 1000
```

ntp authenticate

Function Use this command to enable the NTP authentication function. Disable the authentication with the no command.

Command mode Global configuration mode

Syntax **ntp enable**

no ntp enable

Instruction This command is like the switch of the NTP authentication function. The NTP packets will not be checked with key unless this authentication is enabled.

Related Commands **ntp authentication-key** <*key number*> **md5** <*key word*>

ntp trusted-key <*key number*>

ntp authentication-key

Function Use this command to set the NTP authentication key number and corresponding key word. Cancel the key with the no command.

Command Mode Global configuration

Syntax **ntp authentication-key** <*key number*> **md5** <*key word*>

no ntp authentication-key < *key number* >

Syntax Description

<*key number*>	Key number, in the range of 1~255
<*key word*>	Key word

Instruction Instruction Use this command to set key number and the corresponding key word. At most 255 check codes can be set.

Related Commands **ntp authenticate**

ntp trusted-key <*key number*>

ntp enable

Function Use this command to enable the NTP function. Disable it with the no command.

Command Mode Global configuration

Syntax **ntp enable**

no ntp enable

Instruction This command is like the switch of the NTP function. The other NTP commands cannot be enabled unless this command is configured.

Related Commands **ntp server**

show ntp status

ntp server

Function Use this command to configure the IP address and the NTP version number of the time server that needs to synchronize time. Delete the configured time server with the no command.

Command Mode Global configuration

Syntax **ntp server** <*ip-address*>[**version** <*number*>][**key** <*number*>]

no ntp server <*ip-address*>

Syntax Description

<*ip-address*>	IP address of the time server in the dotted decimal notation
version <*number*>	NTP version number, 1 ~ 3
key <*number*>	Valid key number, in the range of 1~255

Instructions

- At present, the time can be synchronized from only one time server. If multiple commands are configured, the new command will overwrite the previous one. The last key is valid. If no key is set, the enabled authentication is invalid.
- After the configuration of this command, configure the ntp enable command to start time synchronization from the time server.

Related Commands **ntp enable**

show ntp status

ntp source

Function Use this command to set ntp protocol sending message source address. Delete protocol sending message source address with no command.

Command Mode Global configuration

Syntax **ntp source** <*ip-address*>

no ntp source <*ip-address*>

Syntax Description

<*ip-address*>	Source address of NTP packets in the dotted decimal notation

Related Commands **ntp enable**

ntp server

show ntp status

ntp trusted-key

Function Use this command to set ntp trusted key. Delete ntp trusted key with no command.

Command Mode Global configuration

Syntax **ntp trusted-key** <*key number*>

no ntp trusted-key <*key number*>

Syntax Description

<*key number*>	Key number, in the range of 1~255

Instruction More than one trusted keys can be set. At most 255 trusted keys can be set. Only after set keys, which have been set by **ntp authentication-key**, to trusted keys, the authentication will not be valid

Related Command **ntp authenticate**

ping

Function Check the reachability and connectivity of the host.

Command Mode Exec mode / privileged

Syntax **ping** [**vrf** <*vrf-name*>]<*ip-addr*>[**option** {**repeat** <*repeat-count*>| **size** <*datagram-size*>| **timeout** <*timeout*>| **source** <*source-address*>| **tos** <*tos*>| **ttl** <*ttl*>| **df-bit** |<*DON'T-FRAG*>| **limit** <*limit*>| **pattern** <*pad*>}][**extcom** {{**loose** | **strict**}{<*source-r*

oute-IP-address>}| **record** <*record-hops*>| **timestamp** <*record -timestamps*>| **none**}}]

Syntax Description

<*key number*>	IP address of the host to be checked, in the dotted decimal notation
vrf <*vrf-name*>	VRF of the IP address, 1 ~ 16 characters
repeat<*repeat-cou nt*>	Times of repeated tests, 1 ~ 4294967295, 5 by default
size <*datagram-size*>	Size of the Ping packet, 36 ~ 8192 bytes, 100 by default
timeout<*timeout*>	Timeout in second, 1 ~ 60
source<*source-addre ss*>	Source address in the dotted decimal notation
tos<*tos*>	Service type of the packet to be sent, 0 ~ 255, 0 by default
ttl<*ttl*>	ttl value, 1 ~ 255
df-bit<*don't-frag*>	Fragment tag, 0 or 1. 0 by default, which means no fragment
pattern <*pad*>	The pad field value in message
limite<*limite-num*>	Number of packets sent in one second
option	Whether to set IP option, when 1 is set, IP option can be set
none	No IP option is necessary, and it is the default value
{**loose** | **strict**}<*sour ce-route-IP-address*>	Specified source site routing path, in the dotted decimal notation
record <*record-ho ps*>	Maximum number of routes to be recorded, 1 ~ 9, 9 by default
timestamp <*record-timestamps*>	Maximum timestamps to be recorded, 1 ~ 9

Instruction The ping command will send the ICMP Echo packet. If the destination receives an ICMP Echo message, it will send an ICMP Echo Reply message to the source address of the Echo message. As a result, this command is used to diagnose network interconnection.

Example This example describes how to check whether 168.1.10.10 is reachable.

```
ZXR10#ping 168.1.10.100
sending 5,100-byte ICMP echos to 168.1.10.100,timeout is 2 seconds.
!!!!!
Success rate is 100 percent(5/5),round-trip min/avg/max= 0/8/20 ms.
```

ping mng

Function Use this command to check the reachability and interconnection of the system management interface.

Command Mode Exec mode / privileged

Syntax For exec mode,**ping mng** *<ip-address>*

For privileged mode,**ping mng** *<ip-address>*[**option** *<repeat-count><datagram-size><timeout>*]

Syntax Description

<ip-address>	IP address of the management interface to be checked, in the dotted decimal notation.

Instructions

- The ping mng command will send the ICMP Echo packet to the management interface. If the destination receives an ICMP Echo message, it will send an ICMP Echo Reply message to the source address of the Echo message. As a result, this command is used to diagnose the interconnection problems of the router management interface.
- Since the management interface of ZXR10 GAR participates in the forwarding, ZXR10 GAR does not support this command.

Example This example describes how to check whether the 192.168.0.1 management interface is reachable.

```
ZXR10#ping mng 192.168.0.1 sending 5,100-byte ICMP
echos to 168.1.10.100,timeout is 2 seconds.
!!!!!
Success rate is 100 percent(5/5),round-trip min/avg/max= 0/8/20 ms.
```

ping mpls

Function Use this command to check the connectivity of LDP of IPv4 and LSP of RSVP.

Command Mode Privileged

Syntax **ping mpls** {**ipv4** *<ip-address><destination-mask>*| **pseudowire** *<ip-address><vc-id>*| **traffic-eng** *<tunnel-interface>*}[**repeat** *<repeat-count>*][**size** *<datagram-size>*][**timeout** *<timeout>*]

Syntax Description

<ip-address>	Destination address prefix
<destination-masks>	Subnet mask length of destination address
<vc-id>	vc-id of VC
<tunnel-interface>	MPLS TE tunnel
repeat *<repeat-count>*	Number of repeated tests, in the range of 1~65535, 5 by default

size <*datagram-size*>	Ping mpls packet size
timeout <*timeout*>	Timeout time in second, in the range of 1~60

Example This example describes how to check whether the specified LDP LSP:173.13.13.8/32 is reachable.

```
ZXR10#ping mpls ipv4 173.13.13.8 32
sending 5,90-byte MPLS echos to 173.13.13.8,timeout is 2 seconds.

Codes: ' !'  - success,    ' Q'  - request not transmitted,
       ' .'  - timeout,    ' U'  - unreachable,
       ' R'  - downstream router but not target

!!!!!
Success rate is 100 percent(5/5),round-trip min/avg/max= 0/16/20 ms.
```

set arp

Function Use this command to bind the IP address to the MAC address.

Command Mode Interface configuration

Syntax **set arp** {**static** | **permanent**}<*ip-address*><*hardware-address*><*vlanId*>

Syntax Description

static	Static binding, only valid at present, invalid after switch reset
permanent	Permanent binding, only valid at present, still valid after switch reset
<*ip-address*>	IP address in the dotted decimal notation
<*hardware-address*>	MAC address in the dotted division format.
<*vlanId*>	VLAN or external VLAN of the configured item
<*internal_vlanId*>	Internal VLAN

Instruction This command is ignored on non-Ethernet interfaces. The show **running-config** command can show the binding of the IP and MAC address on the Ethernet interface.

Example This example describes how to bind IP address 10.1.1.1 to MAC address 000a.010c.e2c6 on the Ethernet interface.

```
ZXR10(config)#interface fei_1/1
ZXR10(config-if)#set arp static 10.1.1.1 000a.010c.e2c6
```

Related Commands

set arp

show arp

show arp

Purpose Use this command to display the ARP table entry on the Ethernet interface.

Command Modes All modes

Syntax **show arp** [<*ip-addr*>| **dynamic** | **static** | **arp-to-static** | **inter face**]<*interface-name*>[<*ip-addr*>|<*mac-addr*>][**detail**]]]]

Syntax Description

dynamic	Displays the dynamic ARP entry
static	Displays the static ARP entry
arp-to-static	Displays the arp-to-static ARP entry
interface	Displays specified interface
detail	Displays ARP entry-related attributes
<*ip-addr*>	IP address
<*interface-name*>	Name of the Ethernet interface
<*mac-addr*>	MAC address

Instructions The **show arp** command without parameters can show the corresponding relations between the IP address and MAC address in the ARP buffer of the Ethernet interface. If it is attached with the interface name, the ARP table of the specified Ethernet interface will be displayed.

Example This example describes how to display the ARP table of the fei_1/1 interface.

```
ZXR10#show arp interface fei_1/1
Arp protect interface is disabled
The count is 2
IP             Hardware     External Internal   Sub
  Address      Age(min)    Address   Interface   VlanID VlanID  Interface
-------------------------------------------------------------------------
192.168.3.99     -     00d0.d0c5.eb80  fei_1/1   N/A  N/A       N/A
192.168.3.192    0     0019.21bf.c956  fei_1/1   N/A   N/A     fei_1/1
```

The displayed field descriptions are shown below.

Field	Description
IP Address	IP address mapped to the MAC address
Age (min)	Time interval from the last ARP update message received by the entry to the execution of this command in minute. If it is "-", the address is an interface address and shall be valid forever.
hardware add	The MAC address, in dotted division format
interface	Name of the Ethernet interface
External VlanID	External VLAN flag of the ARP

Field	Description
Internal VlanID	Internal VLAN flag of the ARP
Sub Interface	Subinterface of the ARP

Related Commands

clear arp

clear arp-cache

show detect-group

Function Use this command to display the current automatic detect group information.

Command Mode All

Syntax **show detect-group** <*group-number*>

Syntax Description

<*group-number*>	Detect group No. in the range of 1~10

Instruction The show detect-group command without parameters can show all configuration of automatic detect group. The command with parameters can show the specified detect group configuration.

Example This example describes how to view the detect group

```
XR10#show detect-group 1
====================================
Information about group 1:
protocol in_use  opt  retry  state  loop_time(s)  timeout(s)
NOT BIND   NO     AND    2   UNKNOWN       1               5

Items in this group:
====================================
listNo     destIP            next_hop            state
2          1.1.1.1           2.2.2.2            UNKNOWN
```

The displayed field descriptions are shown below.

Information about group 1	Information of detect group 1
protocol	The bound protocol
in_use	Whether it is in use (Yes/No)
opt	Relationship between objects in the group (AND/OR) The maximum retry times (1-10)
retry	The maximum retry times (1-10)
state	The detect group state
loop_time(s)	Periodic check time in second
timeout(s)	Timeout period in second

Items in this group:	Detect object information
listNo	Detect object No.
destIP	Detect destination IP addresses
next_hop	The next hop
state	State of the detect object

show ip forwarding

Function Use this command to show the entries in the unicast forwarding table.

Command Mode All

Syntax **show ip forwarding** {**hostrt** <*ip-address*>[<*end-ip-address*>]| **subnetrt** <*ip-address*><*mask*>| **summary**}

Syntax Description

<*ip-address*>	Network segment address or host address, the initial host address of a segment(255 in total) in case of host routing
<*end-ip-address*>	End host address of a segment(255 in total) in case of host routing (optional)
<*mask*>	Mask of the host address (optional), or mask of the network segment address
summary	Summary of the unicast forwarding table

Instructions

- The unicast forwarding table includes host routes, subnet routes and summary of the forwarding table. This content of the unicast forwarding table will be displayed.
- To display the host routes, **<***ip-address*>is mandatory, and**<***end-ip-address*>is optional. When**<***end-ip-address*>is not specified, only one entry corresponding to the IP address will be displayed. Otherwise, all entries (no more than 255) within **<***ip-address*> and**<***end-ip-address*> will be displayed.

show ip protocol routing

Function Use this command to display protocol stack route-related information.

Command Mode All

Syntax **show ip protocol routing** [**network** <*ip-address*>[**mask** <*net-mask*>]]

Syntax Description

network <*ip-address*>	Network number in the dotted decimal notation
mask <*net-mask*>	Network mask in the dotted decimal notation

Instruction By default all protocol stack routes will be displayed. If the network number parameter is used, the network matched in the routing table will be displayed. If the network number and network mask parameters are used, the protocol routes that match the address/mask will be displayed.

show ip protocol routing summary

Function Use this command to show the quantities of all kinds of protocol routes.

Command Mode All

Syntax **show ip protocol routing summary**

show ip route

Function Use this command to display the global routing table.

Command Mode All

Syntax **show ip route** [<*ip-address*>[<*net-mask*>]|<*protocol*>]

show ip route vpn

show ip route vrf <*vrf-name*>[**network** <*ip-address*>[**mask** <*net-mask*>]]

show ip route vrf-summary <*vrf-name*>

show ip route other

Syntax Description

<*vrf-name*>	Name of the VRF where the route entries are, 1 ~ 16 characters
<*ip-address*>	Prefix of the network where the routes are, in the dotted decimal notation
<*net-mask*>	Network mask of the routes, in dotted decimal notation.
<*protocol*>	Name of the route protocol or keyword, which may be static, connected, BGP, OSPF, RIP, address or ISIS.

Instructions

- **show ip route** displays all routes.
- **show ip route** <*protocol*>displays the routes of the specified protocol or keyword.
- **show ip route vpn**shows the routes in all VPNs.
- **show ip route vrf** <*vrf-name*>shows specific VPN route.
- **show ip route vrf** <*vrf-name*> **network** <*ip-address*>[**mask** <*net-mask*>]displays the specified routes in the specified VPN.
- **show ip route vrf-summary** <*vrf-name*>shows the number of routes in the specified VPN.
- **show ip route other**displays the routes produced after the configuration of NAT, NAT-PT and VRRP.
- As ZXR10 3900/3200 does not support MPLS VPNs, it does not provide commands **show ip route vpn, show ip route vrf, and show ip route vrf-summary**

Example This example describes how to display the global routing table.

```
ZXR10#show ip route
IPv4 Routing Table:
Dest   Mask     Gw      Interface  Owner  pri  metric
120.1.1.0 255.255.255.0  120.1.1.1  pos3_2/1  direc  0    0
120.1.1.1 255.255.255.255 120.1.1.1  pos3_2/1 addre  0    0
120.2.4.0 255.255.255.0   120.1.1.2  pos3_2/1  stati  1   0
130.1.2.0 255.255.255.0   150.1.1.2  pos48_5/1 ospf   110 2
```

The displayed field descriptions are shown below.

Field	Description
Dest	Address of the destination IP network
Mask	Network mask
Gw	Next-hop IP address.
Interface	Specified interface
Owner	Source of the route, that is, the routing protocol or keyword ospf: routes generated by the ospf rip: routes generated by the RIP bgp: routes generated by the BGP Isis: routes generated by the IS-IS Direc: directly-connected routes Stati: static routes Adder: interface address route
pri	Administrative distance of the information source, that is, the priority
metric	Metric of the route

show ip traffic

Function Use this command to display the statistics of IP transmission.

Command Mode All

Syntax **show ip traffic**

Instructions

- Display all the statistics information of all the protocols (including the dynamic routing protocol) on the IP layer.
- The statistics of the IP layer protocol packets include the following contents:
  - IP statistics: number of received packets, number of sent packets, fragment statistics, and broadcast packet statistics.
  - ICMP statistics: packets received, and packet sent.
  - ARP statistics: Number of received packets and number of sent packets.
  - TCP statistics: number of packets received, number of packets with checksum errors, and the number of packets sent.
  - UDP statistics: number of packets received, number of packets with checksum errors, and number of erroneous packets on the receiving port.
  - URPF statistics: number of packets that are dropped for not passing the URPF check.
- ZXR10 GAR, ZXR10 ZSR, ZXR10 GER, ZXR10 T128 and ZXR10 T1200 support the display of URPF counter.

Example This example describes how to display the statistics on IP transmission.

show ntp status

Function Use this command to display the NTP running status.

Command Mode All modes except exec

Syntax show ntp status

Related Commands **ntp enable**

ntp server

show tcp

Function Use this command to display the relevant parameters of all TCP connections.

Command Mode All

Syntax **show tcp**

Example This example describes how to display the relevant parameters of all the TCP connections.

show tcp brief

Function Use this command to display the brief descriptions of all the TCP connections.

Command Mode All

Syntax **show tcp brief**

Example This example describes how to display the brief descriptions of all the TCP connections.

```
ZXR10#show tcp brief
TCB  Local Address  Foreign Address   (state)
2843616  168.1.200.100.23  168.1.15.168.1037  ESTAB
2843176  168.1.200.100.23  168.1.12.102.1282  ESTAB
2843176  202.119.21.202.23 202.119.21.2.1265  ESTAB
```

show tcp config

Function Use this command to display the TCP configuration parameter information.

Command Mode All

Syntax **show tcp config**

Example This example describes how to display the TCP configuration parameter information.

```
ZXR10#show tcp config TCP SYNWAIT:    50 TCP FINWAIT:
400 TCP QUEUEMAX:       40 TCP WINDOWSIZE:     2000
```

show tcp line

Function Use this command to display the relevant TCP connection parameters of the corresponding connection in the specified row.

Command Mode All

Syntax **show tcp line** <*line-number*>

Syntax Description

<*line-number*>	66 ~ 81

Example This example describes how to display the TCP connection parameters in row 66.

```
ZXR10#show tcp line 66
tty 66,virtual tty from host 10.40.53.2
Connection state is ESTAB, I/O status: 1, unread input bytes: 1
Local host: 10.40.88.18, Local port: 23
Foreign host: 10.40.53.2, Foreign port: 1047
Enqueued packets for retransmit: 10, input: 195
mis-ordered: 0 (0 bytes)

Event Timers (Current time is 0x9ff0268):
Timer   Starts   Wakeups
```

```
Retrans   84    10
TimeWait  0     0
AckHold   52    18
KeepAlive  0    0
Persist   0     0
SynWait   1     0
FinWait   0     0

iss:2410219336 snduna:2410222919 sndnxt:2410222919 sndwnd:8576
irs: 927547  rcvnxt: 927671  rcvwnd: 2021
SRTT: 1962 ms, RTTO:  751 ms, KRTT: 751 ms
minRTT: 40 ms,  maxRTT: 2164 ms,  ACK hold: 200 ms
Flags:Passive open,higher precedence,retransmission timeout

Datagrams (max data segment is 536 bytes):
Rcvd:195 (out of order:0),with data:79, total data bytes:123
Sent:100 (retransmit:10),with data:73, total data bytes:3040
```

show tcp statistics

Function Use this command to display the statistic parameters of the TCP layer.

Command Mode All

Syntax show tcp statistics

Example This example describes how to display the statistic parameters of the TCP layer.

```
ZXR10#show tcp statistics Rcvd: 2966 Total,
 0 no port 0 checksum error, 0 bad offset, 0 too short 2955
packets (12107 bytes) in sequence 0 out-of-order packets (0 bytes)
0 packets (0 bytes) with data after window 0 packets after close
0 window probe packets, 2058 window update packets 38 dup ack
packets, 0 ack packets with unsend data 2960 ack packets
 (12123 bytes) Sent:  2420 Total, 0 urgent packets 172 control
 packets (including 126 retransmitted) 2124 data packets
(70207 bytes) 468 data packets (10748 bytes) retransmitte)
30 ack only packets (0 delayed) 0 window probe packets,
64 window update packets 42 Connections initiated,
 4 connections accepted, 4 connections established,
 41 Connections closed , 594 Total rxmt timeout, 0 connections
 dropped in rxmt timeout 0 Keepalive timeout, 0 keepalive probe,
 0 Connections dropped in keepalive
```

show tcp tcb

Function Use this command to display the relevant parameters of the connection corresponding to the specified TCB.

Command Mode All

Syntax **show tcp tcb** *<tcb-address>*

Syntax Description

<tcb-address>	0 ~ 4294967295

Example This example describes how to display the relevant parameters of the connection corresponding to the TCB 3507808.

```
ZXR10#show tcp tcb 3507808
Stand-alone TCP connection from host 168.1.16.140
Connection state is ESTAB, I/O status: 1, unread input bytes: 1
Local host: 168.1.168.168, Local port: 21
Foreign host: 168.1.16.140, Foreign port: 1804
Enqueued packets for retransmit: 0, input: 3
mis-ordered: 0 (0 bytes)

Event Timers (Current time is 0x39f490):
Timer   Starts  Wakeups
Retrans   2   0
TimeWait  0   0
AckHold   0   0
KeepAlive  0   0
Persist   0   0
SynWait   0   0
FinWait   0   0

iss: 911535000 snduna: 911535060 sndnxt: 911535060 sndwnd: 16557
irs: 3109854539  rcvnxt: 3109854540  rcvwnd: 2144
SRTT: 258 ms, RTTO:  1973 ms, KRTT: 1973 ms
minRTT: 0 ms,  maxRTT: 20 ms,  ACK hold: 200 ms
Flags: Passive open, higher precedence, retransmission timeout

Datagrams (max data segment is 536 bytes):
Rcvd: 3 (out of order: 0), with data: 0, total data bytes: 0
Sent: 2 (retransmit: 0), with data: 1, total data bytes: 59
```

show tcp tty

Function Use this command to display the relevant parameters of the connections whose terminal type is tty.

Command Mode All

Syntax **show tcp tty** <*tty-number*>

Syntax Description

<*tty-number*>	66 ~ 81

Example This example describes how to display the related parameters of the connection of tty terminal 67.

```
ZXR10#show tcp tty 67
tty 67,virtual tty from host 168.1.16.140
Connection state is ESTAB, I/O status: 1, unread input bytes: 1
Local host: 168.1.168.168, Local port: 23
Foreign host: 168.1.16.140, Foreign port: 1803
Enqueued packets for retransmit: 5, input: 1664
mis-ordered: 0 (0 bytes)

Event Timers (Current time is 0x616d40):
Timer   Starts  Wakeups
Retrans   1054  5
TimeWait  0   0
AckHold   605   12
KeepAlive  0   0
Persist   0   0
SynWait   0   0
FinWait   0   0

iss:602165000  snduna:602227443  sndnxt:602227443 sndwnd: 16116
irs:2800883239  rcvnxt: 2800884272  rcvwnd: 1112
SRTT: 1580 ms, RTTO:  361 ms, KRTT: 361 ms
minRTT: 0 ms,  maxRTT: 1667 ms,  ACK hold: 200 ms
Flags:Passive open, higher precedence,retransmission timeout
```

```
Datagrams (max data segment is 536 bytes):
Rcvd:1664 (out of order: 0), with data: 915,total
data bytes: 1035
Sent:1100 (retransmit: 5), with data: 1083,total
 data bytes: 62442
```

show tcp vty

Function Use this command to display the relevant parameters of the connections whose terminal type is vty and display TCP connection information of telnet.

Command Mode All

Syntax **show tcp vty** <*vty-number*>

Syntax Description

<*vty-number*>	Quantity of the vtys, 0 ~ 15.

Example This example describes how to display the related parameters of the connection of the vty terminal.

```
ZXR10#show tcp vty 1
tty 67,virtual tty from host 168.1.16.140
Connection state is ESTAB, I/O status: 1, unread input bytes: 1
Local host: 168.1.168.168, Local port: 23
Foreign host: 168.1.16.140, Foreign port: 1803
Enqueued packets for retransmit: 7, input: 1734
mis-ordered: 0 (0 bytes)

Event Timers (Current time is 0x631f50):
Timer   Starts   Wakeups
Retrans   1100   7
TimeWait  0    0
AckHold   629    14
KeepAlive  0    0
Persist   0    0
SynWait   0    0
FinWait   0    0

iss:602165000 snduna:602230281 sndnxt:602230295 sndwnd:16592
irs: 2800883239  rcvnxt: 2800884316  rcvwnd: 1068
SRTT: 1462 ms, RTTO:  297 ms, KRTT: 297 ms
minRTT: 0 ms,  maxRTT: 1667 ms,  ACK hold: 200 ms
Flags: Passive open, higher precedence, retransmission timeout

Datagrams (max data segment is 536 bytes):
Rcvd: 1734 (out of order: 0),with data: 954,
total data bytes: 1079
Sent: 1148 (retransmit: 7), with data: 1128,
total data bytes: 65294
```

show vlan-forwarding

Function Use this command to display the VLAN forwarding table.

Command Mode All modes except exec

Syntax **show vlan-forwarding** [**ingress** <*interface-name*>| **all**]

Syntax Description

ingress <*interface-name*>	Name of the interface

trace

Function Use this command to trace the path to the destination.

Command Mode Exec and Privileged

Syntax **trace** [**vrf** <*vrf-name*>]<*ip-address*>**(Exec mode)**

trace [**vrf** <*vrf-name*>]<*ip-address*>[**option** <*source-address*><*ttl*>]**Privileged mode**

Syntax Description

<*ip-address*>	Destination IP address in the dotted decimal notation
vrf <*vrf-name*>	VPF name, with 1~16 characters
<*source-address*>	Source address in the dotted decimal notation
<*ttl*>	Set ttl value,the range 1~255

Instruction The trace command works on ICMP error messagethis occurred on data packet not more than TTL value. If the timer stops before the response arrives, the trace will print a "*".

Example This example describes how to trace the path to 168.1.10.100.

```
ZXR10#trace 168.1.10.100
tracing the route to 168.1.10.100
1    168.1.10.100    2 ms  3 ms  5 ms
[finished]
```

The displayed information descriptions are shown below.

1	Route sequence number of the router to the destination route.
168.1.10.100	IP address of a hop router in the route. The last one is the destination IP address.
2ms 3 ms 5 ms	Wrap time of each of the three detections to be sent

trace mpls

Function Use this command to trace the LSP path to the destination.

Command Mode Privileged

Syntax **trace mpls** {**ipv4** <*ip-address*><*destination-mask*>| **traffic-eng** <*tunnel-interface*>}[**revision** <*revision*>][**timeout** <*timeout*>][**ttl** <*ttl*>]

Syntax Description

<*ip-address*	Destination IP address in the dotted decimal notation
<*destination-mask*	Length of LDP LSP destination address masks
<*tunnel-interface*	MPLS TE tunnel
<*revision*<	revision draft
<*timeout*>	Timeout period in second, in range 1~60. By default, it is 2 seconds.
<*ttl*>	Set ttl value,the range 1~255

Instruction The **trace mpls**command works on specified FEC forwarding packets and verifies the integrity of LSP(from Ingress LSR to Egress LSR) belonging to this FEC. MPLS traceecho request message contains information of the FEC. MPLS trace packet is encapsulated in UDP packet, containing serial No. and time parameter. When processing MPLS trace request, MPLS adopts the same forwarding policy as FEC packet. When trace mpls is used to check the connectivity, the packet is sent to LSP egress. In the egress LSR control plane checks packets to verify whether the LSP is the real egress of the FEC. If the timer stops before the response arrives, the trace mpls will print a ".".

Example This example describes how to trace the path to 173.13.13.8/32.

```
ZXR10#trace mpls ipv4 173.13.13.8 32
 tracing mpls to 173.13.13.8
 Codes: '!'  - success,    'Q'  - request not transmitted,
        '.'  - timeout,    'U'  - unreachable,
        'R'  - downstream router but not target
0   4.15.4.7 MRU 1500 [label 0 ]
!  1   4.15.4.8  1 ms
[finished]
```

The displayed information descriptions are shown below.

1	Route sequence number of the router to the destination route.
4.15.4.8	IP address of a hop router in the route. The last one is the destination IP address.
1 ms 3 ms 5 ms	Wrap time of each of the three detections to be sent

vlan arp-mode

Function Use this command to set the transparent transmission mode of ARP packets between VLANs.

Command Mode Interface configuration

Syntax **vlan arp-mode** {**discard** | **forwarding**}

Syntax Description

discard	Discards ARP packets between VLANs
forwarding	Transparently forwards ARP packets between VLANs

Defaults ARP packet is discarded.

Instruction

- This command can be used when the forwarding mode of the interface is set to vlan-switch with the ip forwarding-mode command.
- It is applicable only to ZXR10 GER.

Related Command **ip forwarding-mode**

vlan-forwarding

Function Use this command to set the VLAN forwarding table.

Command Mode Global configuration

Syntax **vlan-forwarding ingress** <*interface-name*><*vlan-id*> **egress** <*interface-name*><*vlan-id*>[**range** <*range*>][**dual** | **single**]

no vlan-forwarding ingress <*interface-name*><*vlan-id*>

Syntax Description

<*interface-name*>	Name of the interface
<*vlan-id*>	VLAN ID, 0 ~ 4095
range <*range*>	VLAN ID range, 0 ~ 4095
dual	Dual-direction V_Switch forwarding table, the default
single	Single-direction V_Switch forwarding table

Instruction It is applicable only to ZXR10 GER.

Related Command **ip forwarding-mode**