User Manual

---Apply to WLINK Series Industrial 4G/3G Router

V1.0

http://www.wlink-tech.com

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Preface

Summary

This document introduces the common function and command of router CLI.

Product Version

Product name	Version
Router	V1.0

Reading Object

This document applies to the following readers:

- R&D Engineer
- FAE
- Customer

This document mainly introduces the router configuration by CLI mode, and the router supports WEB configuration in the WLINK industrial router user manual for reference. The CLI configuration commands relative to the WEB more intuitive and instructive, so R&D engineers, FAE to master the basic operation method of the CLI command in order to maintain and configure parameters.

Content Abstract

Chapter	Content
错误!未找到引用源。Overview	This chapter mainly introduces the concept and usage mode of CLI. It focus on the common function and usage specification of router CLI.
错误!未找到引用源。Login CLI	This chapter mainly introduces how to log in to CLI.
错误!未找到引用源。CLI	This chapter describes all CLI commands and their

Chapter	Content
command reference	comments. Introduce the configuration examples of the main application functions of router.

Protocol

The Protocol of Symbol

The following symbol may appear in this document.

Symbols	Instruction
	The text begins with this symbol indicates a potential risk. If you ignore these text may lead to device damage, loss of date, performance degradation, or unpredictable results.
	The text begins with this symbol can help you solve a problem or save your time.
	The text begins with this symbol is the additional information of the text.

The Protocol of Command Line Format

Formats	Instruction
Bold	The command-line keywords (Remain the same and must be input part of the command) are bold.
Italic	The command-line parameters (In the command must be replaced by actual value) are in italics.
[ ]	The part that indicates “[ ]” is optional when the command is configured.
{ x | y | ... }	Select one from two or more options.
[x | y | ...]	Select one or none from two or more options.
{ x | y | ... } *	Select multiple from two or more options, select at least one option.
[x | y | ...] *	Select multiple or none from two or more options.

The Protocol of GUI

Formats	Instruction
“ ”	The format with “” indicates the various interface control names and data tables, such as click “OK”.

Formats	Instruction
>	Multilevel menu with the “>”. Such as choose “File>New>Folder”, means the “Folder” menu item under the “New” submenu under the “File” menu.

The Protocol of Keyboard Operation

Formats	Instruction
Add “” character	The key name. Such as “Enter”, “Tab”, “Backspace”, ”a” and so on.
“Key1+key2”	Press multiple keys on the keyboard at the same time. Such as “Ctrl + Alt + A” means press the “Ctrl”, “Alt”, “A” these three keys at the same time.
“Key1, key2”	First press the first key and release, then press the second key. Such as “Alt, F” that first press “Alt” key, release and then press “F” key.

The Protocol of Mouse Operation

Formats	Instruction
Click	Quickly press and release a button on the mouse.
Double-click	Press and release the mouse button twice in a row.
Drag the mouse	Hold down a mouse button and drag it.

Contents

1 Overview

1.1 CLI Introduction

CLI (Command Line Interface) is the standard for router. The command line has the characteristics of clear command notes and convenient human-computer interaction, making the command configuration easy to understand. It can also quickly batch command operation, greatly enhance the maintainability and operability of the device. The command line also has advantages of small amount of interactive date and fast loading. This makes it highlights the advantages of remote maintenance in wireless router.

1.2 CLI Parameter Specification

Table 1-1 CLI parameter specification

Parameter Type	Ranges
Word	Contains numbers, letters, special characters(@ _ \ / - :). Others are illegal characters.
Letters and numbers	Contains letters, numbers. Others are illegal characters.
CODE	Any characters other than spaces, such as “svc-code”.
LINE	Any characters that contains spaces, such as “description, password (The password that does not allow spaces is CODE)”.
A.B.C.D	0.0.0.0 ～ 255.255.255.255， which “ABCD” contains 0~255，such as the configuration of IP address.
“A.B.C.D” interface type	Such as these “0.x.x.x, 127.x.x.x, 169.254.x.x, 255.x.x.x, 224.x.x.x, x.x.x.255, x.x.x.0” types are illegal.
“A.B.C.D/M”	0.0.0.0/0～255.255.255.255/32, which “ABCD” contains 0~255, which “M” contains 0 ～ 32， such as the configuration of subnet.
“A.B.C.D/M” interface type	Such as these “0.x.x.x, 127.x.x.x, 169.254.x.x, 255.x.x.x, 224.x.x.x, x.x.x.255, x.x.x.0” types are illegal. It is illegal when “M” values are 0 and 32, such as the configuration

Parameter Type	Ranges
	of IP address.
Numeric range	Such as the “1~512” means all the numbers within the range (Contains 1 and 512).
Specified range (Drop down or radio button)	It specifies the characters type parameter, such as the VPDN protocol configuration: PPTP, L2TP.

1.3 Usage Mode

In general, the CLI has three modes: user mode, privileged mode and configuration mode.

User Mode

Using telnet or serial access to enter CLI, and then type a password to log in to the user mode (If the password is not configured, the user mode is entered directly). User mode can only perform simple network test commands, cannot check the system parameters and system configuration, the system can enter the privileged mode using the command.

Privileged Mode

In the user mode using the command (usually “enable”) can enter the special mode password authentication status, then type the password to enter the privileged mode (If the password is not configured, the privileged mode is entered directly). Privileged mode allow you to perform commands outside the system parameter configuration command, which can be exited to the user mode or enter the configuration mode using command.

Configuration Mode

In the privileged mode using the command (usually “configure terminal”) can enter the global configuration mode. In the configuration mode, you can configure the system parameters of the device, back to privilege mode by commands and shortcut keys. The configuration mode usually has a multi-level directory, which can be returned to the previous directory by commands and shortcut keys. You can configure the parameters of the first level in any configuration directory of the configuration mode so that the multi-level parameters can be configured with multiple commands at once, and without need to manually add a one-time jump command. The

configuration mode is also called the global configuration mode.

1.4 Common Functions and Commands

CLI provides a good interactive man-machine interface, it allows users to quickly operate and maintain, which are effective in it has a good command and shortcut keys design. The command line functions and commands of the router mainly includes CLI shortcut keys, command prompts and note, normative information prompts, network function commands, and interface commands.

1.4.1 The Shortcut Keys

The shortcut keys contains the shortcut jump command and the keyboard shortcuts, which can make the CLI configuration more quickly and easily. The router CLI also designed a set of shortcut keys. See Table 1-2 for details.

Table 1-2 the shortcut keys

Shortcut keys	Instruction
enable	Enter the privileged mode from the user mode command.
disable	Drop from privileged mode command to user mode.
exit	Go back to the previous directory.
quit	Go back to the previous directory.
list	Lists all command line combinations that are currently executable.
Ctrl+C	• 1. Return to the privileged mode; • 2. Interrupt the currently executed command or interrupt the screen output display.
Ctrl+Z	• 1. Return to the privileged mode; • 2. Interrupt the currently executed command or interrupt the screen output display.
Ctrl+D	• Global configuration mode: Go back to the previous directory. • The user mode and privileged: Disconnect the CLI connection.
Ctrl+P	Displays the previous command.
Ctrl+J	Execute the command for the current line.
?	List the command list under the current conditions.
“Tab”	1. When you type one or more characters, the command can be automatically completed by Tab. 2. When there are multiple commands, list the qualified commands.

Shortcut keys	Instruction
<Enter>	Execute the command for current line.
<Space>	Multi-screen output display for the next screen, when there are multi-screen output will prompt “more”.
↑	The cursor up key to displays the previous command.
↓	The cursor down key is used to display the next executed command, provided that there are two history commands and the cursor is up.
help	View CLI operation reference help information.

1.4.2 Function Commands

Router CLI system in addition to providing the CLI parameter configuration, system operation and network testing also provides interactive commands. The privileged mode can use all of function. The user mode allows only some function commands. The global configuration mode allows only “show run” and “write”. The specific commands are shown in Table 1-3.

Table 1-3 function commands

Command-Line Combinations	Instruction	Usage Mode
nslookup WORD	View the corresponding host domain name and IP address.	
ps	View the current process.	-
ping *(A.B.C.D|HOSTNAME)*	The ping test can specify source address or source host address.	
reboot	Reboot system	
show cpu utilization	View the current occupancy of system	-
show date	View the current time of system	-
show history	View the history commands that current user uses for this login.	
show ip dns	View the current DNS address of system.	-
show ip arp	View the current ip arp table of system.	-
show ip kernel route	View the routing table of system.	-
show iptables	View the IP rules.	

Command-Line Combinations	Instruction	Usage Mode
show ipv6 forwarding	View the message of ipv6.	
show netstat	View the status of network connection.	
show ppp_stat	View the PPP interface status.	
show route	View the routing table.	
show kernellog	View the kernel log of system.	-
show modem-information	View the status of wireless module.	-
show running-config?	View all the parameters that the CLI currently running.	
show running-config interface (br0|eth0|wlan|modem|vpn)	View the system settings parameters.	-
show running-config service (m2m|dtu|snmp|gps)	View the module settings parameters.	
show systemlog	View the system log.	-
show version	View the system version and product information.	-
terminal length <0-512>	Terminal display length.	
terminal monitor	Copy the current output.	
terminal no (monitor|length)	Set to default	
uptime	View the router startup time.	
viewlog n <1-512>	View a few lines of message files.	
df	View the file system information.	-
arp	View the arp table of the system.	-
traceroute *WORD*	Route tracking.	
who	View all login CLI IP information.	-
write nvram	Save the current parameters as the system startup parameter.	-

1.4.3 Command-Line Prompt

The command line interface has complete prompts for command and parameters.

There are two main types of router prompt: command annotation and command completion.

Usually two types of prompts can be displayed by typing a question mark or the “table” key.

Command Annotation Prompt

You can type “?” in any directory to get all the commands and annotation information.

```
Router>?
  enable      Turn on privileged mode command
  exit        Exit current mode and down to previous mode
  ftp         File transfer protocol
  help        Description of the interactive help system
  list        Print command list
  ping        Send icmp echo message
  reboot      Reboot system
  show        Show running system information
  telnet      Open a telnet connection
  terminal    Set terminal line parameters
  traceroute  Trace route to destination
  who         Display who is on vty
```

Type a legal command, and then type “?”. If the command contains a sub command, listing all the sub commands and annotation information.

```
Router> show ?
  history    Display the session command history
  interface  Show interface status
  ip         IP information
  kernellog  Show kernel log information
  memory     Memory statistics
  systemlog  Show system log information
  table      Default routing table to use for all clients
  version    Displays CLI version
```

Command Completion Prompt

Main command prompt: Type a string, followed type “?” or press “Tab” key to list all the commands that begin with the string.

```
Router> t?
telnet      open a telnet connection
terminal    Set terminal line parameters
traceroute  Trace route to destination
```

Sub command prompt: Type a legal main command, type a string when entering a subcommand, followed type “?” or press “Tab” key to list all the subcommands that begin with the string.

```
Router> show i?
  interface  Interface status and configuration
  ip         IP information
```

Unique command: Type a string and press “Tab” key. If the command at beginning of the string is unique, the command is completed and complete command is displayed.

```
Router> show int press “Tab” key
Router> show interface
```

CAUTION

If the command is unique, then the command can be abbreviated to execute, when user is very familiar with the CLI can save “Tab” key operation. Eg: The “conf t” command is equivalent to “configure terminal”.

1.4.3 Normative Information

The router CLI system will validity check the commands entered by user. If the command is non-conformity with the specifications, the system will report error to user through the CLI interface. Refer to table 1-5 for normative information.

Table 1-4 Command-line normative information

Error Message	Cause
Ambiguous command	Vague command (There are usually multiple commands with the beginning of entered key string.).
Unknown command	• Unknown • Complete wrong command (Completely do not meet any command.). • A command entered incorrectly. • Enter the illegal command and enter “?”, prompt the command error.
Unrecognized command	The command was not found.
	The entered command keyword was not found.
	The command type entered in command is incorrect.
	The length of parameter command typed is exceed specified range.
Incomplete command	The command type is incomplete. (The error is usually reported without typed a subcommand.)

Too many parameters	A command parameter exceed the system limit.

2 Login CLI

Summary

In this chapter, we introduce the preconditions of login CLI command interface and operation steps.

Preconditions

- The current system supports telnet client functionality.
- The current system can communicate with router.
- The network of current system is in the CLI allow list (Allow all by default).

Operation Steps

This chapter takes the windows system as an example to introduce the CLI login step in the LAN environment. Because the CLI is provided to more professional and technical engineers, the basic network communication configuration steps are not reflected in this document. If there is any issue about the basic network communication configuration, please refer to the product user manual.

CAUTION

If you regularly use the CLI to maintain the device, in order to better save the operation process, it is recommended to use Secure CRT tool login.

User mode can be the basic system and network test command operation, the privileged mode can be all functional commands, please pay attention to configuration and protection of the two-level password.

Step 1: Configure local connection so that the PC with Router in the same network segment.

Step 2: In the “Start > Run”, type “cmd” and press Enter. Open the Windows command line interface.

Step 3: In the command line interface, type the following command and enter the login CLI. (If you change LAN IP, please enter the changed IP address.)

telnet*192.168.1.1*

Step 4: Login successful, the terminal displays “Password”, type the login password.

```
Router CLI
User Access Verification
Password:
```

Step 5: Type the correct login password (default admin) to enter the user mode. (Prompt host name + “>”, such as Router>)

```
Router CLI
User Access Verification
Password:
Router>
```

Step 6: Type “enable” to enter privileged password authentication, and correct (default is empty) password can enter the privileged mode. (The host name + “#”, such as Router#)

```
Router>enable
Password:
Router#
```

Step 7: Login successful, then you can configure and maintain the CLI, type “configure terminal” can enter the configuration mode. (The host name + “(config)#”, such as Router(config)#)

```
Router>enable
Password:
Router#configure terminal
Router(config)#
```

CAUTION

If the user configures privileged password in privileged mode, the next login requires a privileged password.

3 CLI Command Reference

Summary

This chapter introduces the main function modules of CLI, parameter meaning and configuration example. In this section, the specification of CLI is no longer described. Please refer to “Table 1-1 CLI parameter specification” for command specification. The common interface command has been introduced in the second chapter (Table 1-4).

3.1 WAN Configuration

The WAN corresponds to CLI configuration is “interface eth0”. Ethernet IP can be configured as PPPOE dialing, DHCP client, static address, 3G/4G dialing, PPTP client and L2TP client. When configured as a static IP, you can configure multiple IP and network segments for Ethernet. The Ethernet interface configuration commands are shown in table 3-1.

Table 3-1 Ethernet interface configuration commands

Command-Line Combinations	Instruction	Note
ip (dhcp|dns|l2tp|ppp3g|pppoe|pptp|static)	The WAN interface type.	PPTP and L2TP are dual-SIM single-mode configuration.
wan mlppp (disable|enable)	Configure multi-link overlay enable.	
wan pppoe cnntmode（always|ondemand）	The PPPOE dialing mode.	Keep link or dial on demand
wan pppoe mtu <576-1500>	MTU value configuration.	Default 1500
wan pppoe passwd WORD	Configure the user name.	

Command-Line Combinations	Instruction	Note
wan pppoe username WORD	Configure the password.	
wan pppoe service WORD	Configure the server name.	
ip dns A.B.C.D A.B.C.D	Configure the primary DNS server and secondary DNS server.	
wan to lan (disable|enable)	Configure the WAN port to a LAN port.	
show interface eth0	View the configuration information of WAN port.	
wan restart	Reboot the WAN port.	

【Example】

```
interface eth0    // Enter the WAN port configuration
 ip dhcp client     // Set the WAN IP address to DHCP
```

NOTE

3.2 Cellular Network Configuration

The router configuration of cellular network is mainly related to modem dialing. The modem parameter configuration is an indispensable part of the 3G dialing. It is one of the most core modules of whole system. Without it, router will only work in the Ethernet environment, and cannot communicate with the operator's 3G network.

Modem configuration is divided into the basic configuration and advanced configuration, usually only need to configure the basic configuration. The CLI can be configured in 9 modem interface, and the modem interface name is an alphanumeric combination with a maximum length of 12 bytes.

Table 3-2 Modem basic configuration commands

Command-Line combination	Instruction	Note
icmp check (on|off)	Configure ICMP link detection enabled.	
icmp check ip1 A.B.C.D	Configure ICMP link detection IP address.	
icmp check ip2 A.B.C.D	Configure ICMP link detection IP address.	Optional

Command-Line combination	Instruction	Note
icmp interval WORD	Configure ICMP link detection interval.	seconds
icmp retry <1-1440>	Configure ICMP detection retry times.	
icmp fail action (reboot | reconnect | switch-usim)	Configure ICMP exception handling actions.	
traffic check (on|off)	Traffic detection enabled.	
traffic check mode (rx | rx&tx | tx)	Traffic detection mode.	
traffic interval <1-1440>	Traffic detection interval.	minutes
traffic fail action (reboot | reconnect | switch-usim)	Traffic detection exception handling actions.	
cimi server WORD port <1-65535>	Configure CIMI to send to address and port.	
sms code WORD	Configure SMS code.	
dualsim mode (failover|onlysim1|onlysim2|backup)	Configure dual-SIM mode.	Dual-SIM single-mode configuration
(sim1|sim2) pin-code CODE	Configure the PIN code of SIM card.	For single-SIM single-mode：**pin-code CODE**
custom options WORD		Dual-SIM single-mode configuration
svc-code CODE		Dual-SIM single-mode configuration
(sim1|sim2) network-type (auto|lte|3g-wcdma|3g-cdma|gsm)	Configure SIM mode	
(sim1|sim2) network-type (auto|pre-lte|pre-td|only-lte|only-td)	Configure SIM mode	
(sim1|sim2) network-type (auto|3g|2g)	Configure SIM mode	Not 4G module

Command-Line combination	Instruction	Note
(sim1|sim2) username WORD password CODE	Configure user name and password of the SIM.	For dual-SIM single-mode ：**username WORD password CODE**
(sim1|sim2) ppp advance authernication (auto|pap|chap|ms-chap|ms-chap2)	Configure SIM authentication type.	
(sim1|sim2) access-point-name WORD	Configure APN of the SIM.	
show interface modem	View the cellular network configuration.	
modem restart	Reboot the cellular network module.	
operator lock WORD	Configure operator lock.	Dual-SIM single-mode configuration
local ip A.B.C.D	Configure local IP address.	Dual-SIM single-mode configuration

【Example】

```
interface modem     //Enter the modem configuration mode
```

CAUTION

Multi-mode configuration also refer to the interface modem configuration.

3.3 LAN Configuration

The single-SIM single-mode version configure a LAN port, dual-SIM single-mode version support configure multiple LAN port.

Table 3-3 LAN configuration commands

Command-Line combination	Instruction	Note
(ip1|ip2|ip3|ip4) A.B.C.D netmask A.B.C.D	Configure IP address and subnet mask.	Ip1, ip2, ip3, ip4 correspond to lan1, lan2, lan3, lan4.

Command-Line combination	Instruction	Note
dhcp (disable|enable)	Configure DHCP server enabled.	
dhcp start_ip A.B.C.D end_ip A.B.C.D lease <1-2880>	Configure the IP address range and lease time.	The lease time units for minutes, default value 1440.

【Example】

```
interface br0 // Enter LAN port configuration
dhcp start_ip 192.168.2.1 end_ip 192.168.2.50 lease 55
```

3.4 DDNS Configuration

DDNS (Dynamic Domain Name Server) is the user's dynamic IP address redirecting to a fixed domain resolution service, each user connected to network that the client program will be through information transmission of the host dynamic IP address to server host program. And then the server program is responsible for providing DNS services and dynamic domain name resolution. The DDNS is to capture the user every time the IP address changes, and then correspond to the domain name, so that other Internet users can communicate through the domain name.
The DDNS configuration mainly includes server DNS, server port, local DNS, user name and password, update interval.

Table 3-4 DDNS configuration commands

Command-Line combination	Instruction	note
update interval <0-65536>	Refresh time automatically.	
local ip A.B.C.D	Custom IP address.	
save state (enable|disable)	Save state when the IP changes	
(ddns1|ddns2) hostname WORD	Configure host name.	
(ddns1|ddns2) server domain (3322|3322-static|dnsexit|dnsomatic|dyndns|dyndns-static|dyndns-custom|sdyndns|sdyndns-static|sdyndns-custom|dyns|easydns|seasydns|editdns|everydns|minidns|enom|afraid|heipv6tb|ieserver|namecheap|noip|opendns|tzo|zoneedit|szoneedit|custom)	Configure service operator.	

Command-Line combination	Instruction	note
(ddns1|ddns2) username WORD password CODE	Configure user name and password.	
(ddns1|ddns2) wildcard (enable|disable)	Configure wildcard enabled.	
(ddns1|ddns2) backup mx (enable|disable)	Configure backup MX enabled.	

【Example】

```
service ddns // Enter ddns mode configuration
```

3.5 Routing settings

Table 3-5 Routing setting commands

Command-Line Combination	Instruction	Note
ip route mode (gateway|router)	Router network mode configuration.	
ip route rip (both|disable|lan|wan)	RIPv1 & v2 mode configuration.	
ip route forward (disable|enable)	Configure efficient multicast forwarding enabled.	
ip route dhcp (disable|enable)	Configure DHCP routing enabled.	
ip route spanning-tree (disable|enable)	Configure spanning tree protocol enabled.	The configuration parameter can be port or IP address.
ip static route destination A.B.C.D gateway A.B.C.D mask A.B.C.D metric <0-10> interface (lan|wan|vpn) description WORD	Static routing table configuration.	
no ip static route destination A.B.C.D gateway A.B.C.D mask A.B.C.D metric <0-10> interface (lan|wan|vpn) description WORD	Remove static routing table.	
show static ip route table	View the static routing table.	

【Example】

```
ip route gateway // Set the router as gateway mode
```

3.6 IPv6 Configuration

Table 3-6 IPv6 configuration commands

Command-Line Combination	Instruction	Note
ipv6 service (disable|6rd|6rd-pd|6to4|native|native-pd|other|sit)	Configure ipv6 service type.	
ipv6 router prefix WORD	Configure prefix.	
ipv6 router prefix length <3-64>	Configure prefix length.	
ipv6 6rd router prefix WORD	Configure router prefix.	
ipv6 6rd router prefix length <3-64>	Configure router prefix length.	
ipv6 address WORD	Configure ipv6 address.	
ipv6 static dns WORD WORD WORD	Configure static ipv6 DNS.	
ipv6 relay anycast address <1-254>	Configure anycast address.	
ipv6 mtu <1280-1480>	MTU value.	
ipv6 ttl <0-255>	TTL value.	
ipv6 endpoint A.B.C.D	Configure endpoint.	
ipv6 6rd endpoint A.B.C.D	Configure 6RD endpoint.	
ipv6 6rd mask length <0-255>	Configure 6rd mask length.	
ipv6 tunnel address WORD length <0-255>	Configure tunnel address and length.	
ipv6 isp config (disable|enable)	The ISP configuration enabled.	
ipv6 wan interface WORD	Configure WAN interface.	
ipv6 accept (wan|lan) (enable|disable)	Whether accept the RA for LAN or WAN interface.	

【Example】

ipv6 service 6rd // Configure the ipv6 service type to 6rd.

3.7 WLAN Settings

Table 3-7 WLAN configuration commands

Command-Line Combination	Instruction	Note
ssid (enable|disable)	Enable wireless function.	
mode (ap|sta|apwds|wet|wds)	Configure wireless mode.	
protocol (auto|n-only|b-only|g-only|bg-mixed)	Configure work mode.	
ssid WORD	Configure SSID.	
broadcast (enable|disable)	Configure broadcast SSID.	
channel <0-13>	Configure channel.	<0-4> for automatic
channel width (20MHz|40MHz)	Configure channel width	
sideband (lower|upper)	Configure control sideband.	
security disabled	Configure security option to disable.	
security wep encription (64bits|128bits) key WORD	Configure security option.	
security (wpa-personal|wpa2-personal|wpa/wpa2-personal) encription (tkip|aes|tkip+aes) key WORD renew-interval <60-7200>	Configure security option.	
security (wpa-enterprise|wpa2-enterprise|wpa/wpa2-enterprise) encription (tkip|aes|tkip+aes) key WORD renew-interval <60-7200> radius A.B.C.D port <1-65535>	Configure security option.	
wlan filter mode (disable|allow|deny)	Configure wireless client filter.	
wlan filter mac address WORD descript WORD	Configure filter rule.	
no wlan filter mac address WORD descript WORD	Remove filter rule.	
show wlan filter table	View the wireless client rule.	

【Example】

```
interface wlan// Enter wl0
interface wlan1// Enter wl0.1
interface wlan2// Enter wl0.2
interface wlan3// Enter wl0.3
```

3.8 Port Forwarding

Table 3-78port forwarding configuration commands

Command-Line Combination	Instruction	Note
ip nat outside source (udp|tcp|all) (WORD|null) WORD to A.B.C.D (WORD|null) description (WORD|null)	Configure port forwarding rule.	Null is empty.
no ip nat outside source (udp|tcp|all) (WORD|null) WORD to A.B.C.D (WORD|null) description (WORD|null)	Remove port forwarding rule.	Null is empty.
show port forward table	View the status of port forwarding rule.	

3.9 Port Redirecting

Table 3-9 port redirecting configuration commands.

Command-Line Combination	Instruction	Note
port redirect protocol (tcp|udp|tcp/udp) inport <1-65535> dstaddr A.B.C.D export <1-65535> description WORD	Configure port redirecting rule.	Null is empty.
no port redirect protocol (tcp|udp|tcp/udp) inport <1-65535> dstaddr A.B.C.D export <1-65535> description WORD	Remove port redirecting rule.	Null is empty.
show port redirect table	View the status of port redirecting rule.	

3.10 DMZ

Table 3-10 DMZ configuration commands

Command-Line Combination	Instruction	Note
dmz (enable|disable)	Configure the DMZ enable	

Command-Line Combination	Instruction	Note
	option.	
ip inside A.B.C.D	Configure internal IP address.	
ip ouside WORD	Configure outside IP limit.	Eg: "1.1.1.1", "1.1.1.0/24", "1.1.1.1 - 2.2.2.2" or "me.example.com"
dmz remote (enable|disable)	Configure remote IP to access.	

CAUTION

After configuring these commands, you need to enter the “write nvram” command to save it to the configuration file, so that the DMZ settings will work.

3.11 Port Triggering

Table 3-11 Port triggering configuration commands

Command-Line Combination	Instruction	Note
port triger protocol (tcp|udp|tcp/udp) triger port <1-65535> forward port <1-65535> description WORD	Configure port trigger rule.	Null is empty.
no port triger protocol (tcp|udp|tcp/udp) triger port <1-65535> forward port <1-65535> description WORD	Remove port trigger rule	Null is empty.
show port trigerred table	View the port trigger rule	

CAUTION

After configuring these commands, you need to enter the “write nvram” command to save it to the configuration file, so that the trigger settings will work.

3.12 Serial App.

Table 3-12 serial App setting configuration commands

Commands-Line Combination	Instruction	Note
serial mode (serial|modbus)	Configure serial mode.	

Commands-Line Combination	Instruction	Note
dtu mode (disable|server|client)	Configure serial application network mode.	
modbus mode (disable|enable|server|client)	Configure Modbus protocol enabled.	
destination (A.B.C.D|WORD)	Configure server IP.	
server port <1-65535>	Configure server port.	
local port <1-65535>	Configure local port.	
protocol (udp|tcp)	Configure network communication protocol.	
net receive timeout <1-65535>	Configure network side to receive timeout	
heartbeat hinterval <1-65535> hdata LINE	Configure heartbeat content and interval.	
serial packet max length <1-1048>	Configure protocol packet size.	
serial baud rate (1200|2400|4800|9600|19200|38400|57600|115200|230400)	Configure serial baud rate.	
serial parity (even|none|odd)	Configure a parity bit.	
serial data bits (5|6|7|8)	Configure date bits.	
serial stop bits (1|2)	Configure stop bit.	
serial receive timeout <1-1440>	Configure serial side to receive timeout.	
dtu restart	Reboot DTU service.	

【Example】

```
service dtu// Enter dtu configuration mode
```

CAUTION

After configuring these commands, you need to enter the “write nvram” command to save it to the configuration file, so that the settings will work.

3.13 UPnP

Table 3-13 upnp configuration commands

Command-Line Combination	Instruction	note
upnp (enable|disable)	Configure upnp enabled	
nat-pmp (enable|disable)	Configure NAT-PMP enabled.	
upnp clean (enable|disable)	Configure to automatically remove invalid rules.	
upnp clean (interval|threshold) <60-65535>	Configure to remove interval and threshold value.	
upnp secure (enable|disable)	Configure security option.	
upnp mnp (enable|disable)	Display in my network neighborhood.	

3.14 Bandwidth Limit

Table 3-14 bandwidth limit configuration commands

Command-Line Combination	Instruction	Note
bandwidth limit (enable|disable)	Enable the bandwidth limit	
bandwidth max (upload|download) WORD	Configure the total download rate or total upload rate.	Unit: kb/s
default class (enable|disable)	Enable default class.	
default download (rate|ceil) WORD	Configure the download rate or max download rate.	Unit: kb/s
default upload (rate|ceil) WORD	Configure the upload rate or max upload rate.	Unit: kb/s
bandwidth WORD dlrate <1-9999> dlceil <1-9999> ulrate <1-9999> ulceil <1-9999> priority (highest|high|normal|low|lowest)	Configure the bandwidth limit rule.	
no bandwidth WORD dlrate <1-9999> dlceil <1-9999> ulrate <1-9999> ulceil <1-9999> priority (highest|high|normal|low|lowest)	Remove the bandwidth limit rule.	
show bandwidth limit table	View the bandwidth limit rule.	

3.15 VRRP

Table 3-15 VRRP configuration commands

Command-Line Combination	Instruction	Note
vrrp (enable|disable)	Configure to enable VRRP.	

Command-Line Combination	Instruction	Note
vrrp mode (master|backup)	Configure network mode.	
vrrp virtual ip A.B.C.D	Configure virtual IP address.	
vrrp router id <0-255>	Configure virtual router ID.	
vrrp priority <0-255>	Configure the priority.	
vrrp auth (enable|disable)	Configure authentication.	
vrrp password WORD	Configure the password.	
vrrp script type (default|icmp)	Configure script type.	
vrrp scritp domain WORD	Configure ICPM detection address.	
vrrp check interval <0-86400>	Configure the check interval.	
vrrp weight WORD	Configure the weight	

3.16 Static DHCP Configuration

Table 3-16 Static DHCP configuration commands

Command-Line Combination	Instruction	Note
static dhcp mac WORD (WORD|null) ip A.B.C.D hostname (WORD|null) description (WORD|null)	Configure static DHCP rule.	Null is empty
no static dhcp mac WORD (WORD|null) ip A.B.C.D hostname (WORD|null) description (WORD|null)	Remove the static DHCP rule.	Null is empty
sshow static dhcp table	View the static DHCP rule.	

3.17 Firewall IP/URL Filtering

Table 3-17 firewall IP/URL filtering configuration commands

Command-Line combination	Instruction	Note
firmwall srcmac (WORD|null) srcip (A.B.C.D|null) dstip (A.B.C.D|null) protocol (none|tcp|udp|icmp) srcport (<1-65535>|null) dstport	Configure IP/MAC/Port filtering rule.	Null is empty.

Command-Line combination	Instruction	Note
(<1-65535>|null) policy (drop|accept) description (WORD|null)		
no firmwall srcmac (WORD|null) srcip (A.B.C.D|null) dstip (A.B.C.D|null) protocol (none|tcp|udp|icmp) srcport (<1-65535>|null) dstport (<1-65535>|null) policy (drop|accept) description (WORD|null)	Remove the IP/MAC/Port filtering rule.	Null is empty.
show firmwall ipport table	View the IP/MAC/Port filtering rule.	
firmwall keyword WORD description (WORD|null)	Configure the keyword filtering.	Null is empty.
no firmwall keyword WORD description (WORD|null)	Remove the keyword filtering setting.	Null is empty.
show firmwall keyword table	View the keyword filtering setting.	
firmwall url WORD description (WORD|null)	Configure the URL filtering setting.	Null is empty.
no firmwall url WORD description (WORD|null)	Remove the URL filtering setting.	Null is empty.
show firmwall url table	View the URL filtering setting.	

3.18 Domain Filtering

Table 3-18 domain filtering configuration commands

Command-Line Combination	Instruction	Note
firmwall domain (enable|disable)	Configure domain filtering enable.	
firmwall domain policy (whitelist|blacklist)	Configure the default policy.	
firmwall domain WORD description (WORD|null)	Configure domain filtering rule.	Null is empty.
no firmwall domain WORD description （WORD|null）	Remove domain filtering rule.	Null is empty.
show firmwall domain table	View domain filtering rule.	

3.19 GRE Configuration

Table 3-19 GRE configuration commands

Command-Line Combination	Instruction	Note
gre index <1-8> tunnel A.B.C.D source (A.B.C.D|null) dest A.B.C.D keepalive (on|off) interval (<0-255>|null) retry (<0-255>|null) description (WORD|null)	Configure GRE rule.	
no gre index <1-8> tunnel A.B.C.D source (A.B.C.D|null) dest A.B.C.D keepalive (on|off) interval (<0-255>|null) retry (<0-255>|null) description (WORD|null)	Remove GRE rule.	
show gre tunnel table	View GRE rule.	

3.20 L2TP/PPTP Client（Dual-SIM Single-Mode）

Table 3-20 L2TP/PPTP client (dual-SIM single-mode) commands

Command-Line Combination	Instruction	Note
vpn basic protocol (l2tp|pptp) name WORD server WORD username WORD passsword WORD firewall (on|off) localip A.B.C.D	Configure L2TP/PPTP basic setup.	
vpn basic protocol (l2tp|pptp) name WORD server WORD username WORD passsword WORD firewall (on|off)	Configure L2TP/PPTP basic setup.	The “localip” is empty.
no vpn basic protocol (l2tp|pptp) name WORD server WORD username WORD passsword WORD firewall (on|off) caliph A.B.C.D	Remove L2TP/PPTP basic setup.	
no vpn basic protocol (l2tp|pptp) name WORD server WORD username WORD passsword WORD firewall (on|off)	Remove L2TP/PPTP basic setup.	The “localip” is empty.
show vpn basic table	View the L2TP/PPTP basic setup.	
vpn l2tp advanced name WORD dns (yes|no) mtu <128-16384> mru <128-16384> auth (on|off) password WORD options WORD	Configure L2TP advanced settings.	

Command-Line Combination	Instruction	Note
vpn l2tp advanced name WORD dns (yes|no) mtu <128-16384> mru <128-16384> auth (on|off) password WORD	Configure L2TP advanced settings.	The options is empty.
no vpn l2tp advanced name WORD dns (yes|no) mtu <128-16384> mru <128-16384> auth (on|off) password WORD options WORD	Remove L2TP advanced settings.	
no vpn l2tp advanced name WORD dns (yes|no) mtu <128-16384> mru <128-16384> auth (on|off) password WORD	Remove L2TP advanced settings.	The options is empty.
show vpn l2tp advanced table	View the L2TP advanced settings.	
vpn pptp advanced name WORD dns (yes|no) mtu <128-16384> mru <128-16384> mppe (on|off) stateful (on|off) options WORD	Configure PPTP advanced settings.	
vpn pptp advanced name WORD dns (yes|no) mtu <128-16384> mru <128-16384> mppe (on|off) stateful (on|off)	Configure PPTP advanced settings.	The options is empty.
no vpn pptp advanced name WORD dns (yes|no) mtu <128-16384> mru <128-16384> mppe (on|off) stateful (on|off) options WORDv	Remove PPTP advanced settings.	
no vpn pptp advanced name WORD dns (yes|no) mtu <128-16384> mru <128-16384> mppe (on|off) stateful (on|off)	Remove PPTP advanced settings.	The options is empty.
show vpn pptp advanced table	View the PPTP advanced settings.	
vpn schedule name1 WORD name2 WORD policy (failover|backup) description (WORD|null)	Configure SCHEDULE rule.	Null is empty.
no vpn schedule name1 WORD name2 WORD policy (failover|backup) description (WORD|null)	Remove SCHEDULE rule.	Null is empty.
show vpn schedule table	View the SCHEDULE rule.	

【Example】

Interface vpn // Enter the status of VPN.

3.21 L2TP/PPTP Client（Single-SIM Single-Mode）

Table 3-21 L2TP/PPTP client (single-SIM single-mode) commands

Command-Line Combination	Instruction	Note
vpn (enable|disable)	Configure to enable VPN.	
destination A.B.C.D	Configure server address.	
protocol (l2tp|pptp)	Configure VPN mode.	
username WORD password CODE	Configure user name and password.	
ppp advance local-ip A.B.C.D	Configure local IP address.	
ppp advance mru <128-16384>	Configure the MRU value.	
ppp advance mtu <128-16384>	Configure the MTU value.	
ppp advance usepeerdns (disable|enable|exclusive)	Accept remote DNS configuration.	
ppp advance peer-ip A.B.C.D netmask A.B.C.D	Configure remote subnet mask.	
encryption (auto|none|maximum|required)	Configure the encryption type.	
vpn mppe (enable|disable)	Configure stateless MPPE connection.	
vpn rit (enable|disable)	Accept DNS configuration	
vpn nat (enable|disable)	Create NAT on tunnel	
vpn custom WORD	Custom configuration	
vpn as firewall (disable|enable)	Configure as firewall rule	
show interface vpn	View VPN configuration rule.	

3.22 IPSec

Table 3-21 IPSec configuration commands

Command-Line Combination	Instruction	Note
group	Configure phase 1 DH group	

Command-Line Combination	Instruction	Note
(modp768|modp1024|modp1536)	or phase 2 DH group.	
encryption (3des|aes128|aes192|aes256)	Configure phase 1 or phase 2 encryption.	
hash (md5|sha|sha256|sha384|aes512)	Configure authentication to phase 1 or phase 2.	
lifetime <1-86400>	Configure life time to phase 1 or phase 2.	单位为秒
pre-shared-key CODE	Configure pre-shared-key	
ipsec (enable|disable)	Enable the IPSec.	
extension (normal|gre|l2tp)	Configure IPSec extension	
local security firewall (on|off)	Configure local security firewall.	
remote security firewall (on|off)	Configure remote security firewall.	
local-subnet A.B.C.D/M	Configure local security subnet / netmask.	
remote-subnet A.B.C.D/M	Configure remote security subnet / netmask.	
remote security gateway WORD	Configure remote security gateway IP / domain.	
aggressive mode (enable|disable)	Configure aggressive mode.	
compress (enable|disable)	Configure compress (IP load)	
dpd (enable|disable)	Configure DPD function.	
(dpd|icmp) period time <1-86400>	Configure detection period to DPD or ICMP.	
dpd timeout <1-86400>	Configure detection timeout interval to DPD or ICMP.	
icmp check (enable|disable)	Configure ICMP link check.	
icmp timeout count <1-86400>	Configure detection timeout count to ICMP.	
icmp check ip A.B.C.D	Configure the ICMP check the IP address.	
ipsec custom (options1|options2|options3|options4) WORD	Configure the IPSec custom	

【Example】

```
crypto first isakmp ipsec1// Enter ipsec1 phase 1 setting
crypto second isakmp ipsec1// Enter ipsec1 phase 2 setting
crypto advanced ipsec1// Enter ipsec1 advanced setting
```

3.23 Router Identification

Table 3-23 router identification configuration commands

Command-Line Combination	Instruction	Note
wan hostname WORD	The hostname configuration.	
routname WORD	The router name.	
domain WORD	Configure the domain.	

3.24 SNMP

Table 3-24 SNMP configuration commands

Command-Line Combination	Instruction	Note
snmp (enable|disable)	Enable the SNMP.	
community WORD	Configure read-only the Community	
snmp port <1-65535>	Configure the SNMP port.	
snmp remote access (enable|disable)	Configure remote access.	
snmp remote ip WORD	Allowed remote IP address.	
snmp location WORD	Location	
snmp contact WORD	Configure contact.	

3.25 M2M Platform

Table 3-25 M2M Platform management configuration

Command-Line Combination	Instruction	Note
m2m restart	Reboot m2m service.	
destination (A.B.C.D|WORD)	Configure M2M platform server.	

heartbeat interval <1-65535>	Configure heartbeat interval.	seconds
heartbeat retry <10-1000>	Configure heartbeat failed count.	
m2m port <1-65535>	Configure M2M platform port	
m2m device LINE	Device ID	
m2m (disable|enable)	Enable M2M platform.	
m2m failaction (restart|reconnect|reboot)	Exception handing.	

【Example】

```
service m2m // Enter m2m configuration
```

3.26 Syslog

Table 3-26 Syslog management configuration commands

Command-Line Combination	Instruction	Note
log internally (enable|disable)	Log to local system.	
log remote system (enable|disable)	Log to remote system	
log server WORD port <1-65535>	Configure port to host or IP address.	
log marker (0|30|60|120|360|720|1440|10080)	Create MARK interval.	
log limit <0-2400>	The log limit.	The count “0” is no limit.

3.27 GPS

Table 3-27 GPS configuration commands

Command-Line Combination	Instruction	Note
gps restart	Reboot GPS service.	
mode (disable|server|client)	Configure GPS mode.	
data format (relay|m2m_fmt)	The date transmission mode of GPS.	
destination A.B.C.D	The main host or IP address.	

Command-Line Combination	Instruction	Note
server port <1-65535>	The main host or server port.	
local port <1-65535>	Local port configuration	
protocol (tcp|udp)	Transmission protocol configuration	
net receive timeout <1-65535>	Configure network side receive timeout.	
heartbeat hinterval <1-65535> hdata LINE	Configure heartbeat content and transmission interval.	
serial packet max length <1-1048>	The protocol packet length.	
serial baud rate (1200|2400|4800|9600|19200|38400|57600|115200|230400)	Baud rate configuration.	
serial parity (even|none|odd)	Checkout and parity configuration.	
serial data bits (5|6|7|8)	Date bits configuration.	
serial stop bits (1|2)	Stop bits configuration	
serial receive timeout <1-1440>	Serial receive timeout configuration.	

【Example】

```
service gps    // GPS mode configuration
```

3.28 System time

In order to facilitate the user to check the system time, and ensure that the system has time related services, support NTP (Network Time Protocol).

The system time configuration is mainly used to configure the system time related parameters. It mainly includes the NTP synchronization primary / secondary server, the time zone of the system time and the NTP synchronization interval. The system time corresponds to the CLI configuration command is “service ntp”.

Table 3-28 system time configuration commands

Command-Line Combination	Instruction	Note
primary destination*WORD*	NTP synchronization primary server address configuration.	Max length: 64 bytes
secondary destination*WORD*	NTP synchronization secondary server address configuration.	Max length: 64 bytes
time zone	System time zone configuration.	Support 24 time

Command-Line Combination	Instruction	Note
		zones and custom time zone.
update interval<*1-65535*>	NTP synchronization interval configuration.	seconds

【Example】

```
service ntp    // Eenter the system time configuration.
 description NTP Configuration       // Add description information to system time.(optional).
update interval 60       // NTP synchronization interval configuration.
 primary destination ntp.sjtu.edu.cn       // NTP synchronization primary server configuration
 secondary destination ntp.nasa.gov       // NTP synchronization secondary server configuration
 time zone beijing/kuala-lumpur/singapore       // System time zone configuration
```

NOTE

System time supports custom time zone，such as **time zone***custom -3.*