

GW110X series
Modbus Gateway CLI User Manual

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Shenzhen 3onedata Technology Co., Ltd

www.3onedata.com

Statement

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Revision History

Version No.	Date	Reason
V1.0.0	2015-07	Creating Documents
V1.0.1	2015-11	Added document content

Notes

In reading this manual, please pay attention to the following symbols,



: Information necessary to explain.



: Special attention.

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Chapter 1 Access to MODBUS Gateway

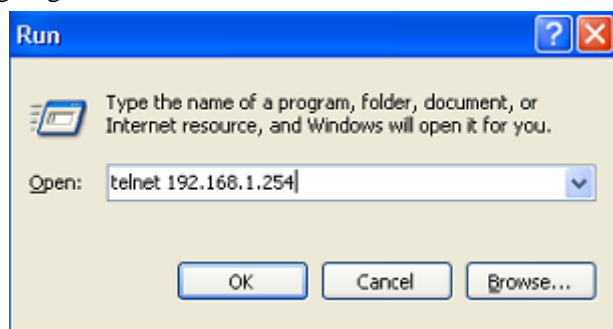
1.1 Configuration through Telnet

Terminal device use telnet connect to Modbus gateway through PC, the requirements are as follows:

1. The IP address of Modbus gateway can get it by search or modify (Use IP command under the system management view).
2. If PC and Modbus gateway device in the same local area network, the IP address must in a same network segment, otherwise, PC and Modbus gateway device must cross-router.

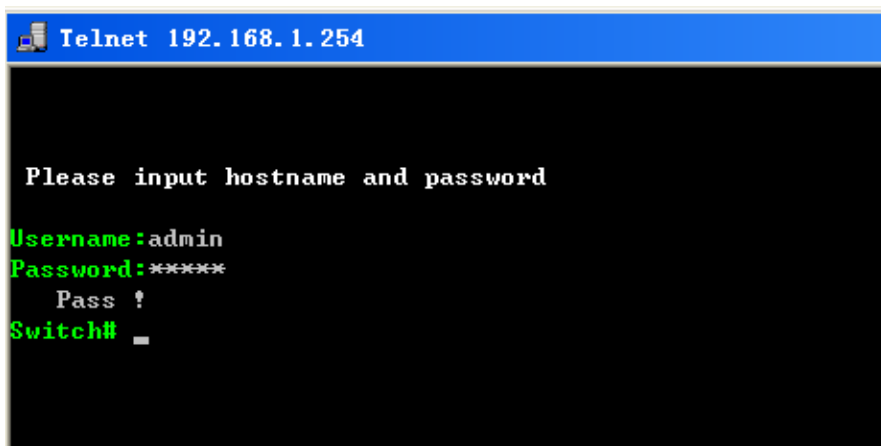
If satisfied these two requirements, can use telnet access to Modbus gateway device, and configure the Modbus gateway device.

- 1) After establish configuration environment, just connect PC's Ethernet port connect to Modbus gateway device's Ethernet port through Local area network.
- 2) Before access Modbus gateway through Telnet, need to input “**Telnet+ Space+ Modbus gateway's IP address**” for checking, Figure 1.1.1 as follows:



(Figure 1.1.1)

- 3) Hit “Enter”, checkout successful and till PC show“Please input hostname and password”, ask user to input user name and password, default is admin, figure 1.1.2 as follows:



(Figure 1.1.2)

- 4) Use command to configure Modbus gateway and check the running statues, if need help, please input“?” at any time. Specific configuration command please reference “Modbus Gateway CLI user manual”.

1.2 Agreement

1. Command line format agreement table 1.2.1 as follow:

Table 1.2.1

Format	Description
<i>italic</i>	Parameter of the command show <i>italic type</i> .
[]	It shows part in “[]” is optical when command configuration is need.
{ x y ... }	It shows to pick up one from two or more items.
[x y ...]	It shows to pick up one or no one from two or more items.
{ x y ... }	It shows to pick up one at least, all at most from two or more items.
Bold	Key words of the command show by bold type.

2. Format agreement of figure interface Table 1.2.2 as follows:

Table 1.2.2

Format	Description
< >	“< >” shows press name, like “click<OK>”
[]	“[]” shows windows name, menu name and data list. like “eject [create user]window”
/	Multilevel is separated by “/”. Like [file/create/folder] means[create] a [folder] under the menu of [file]

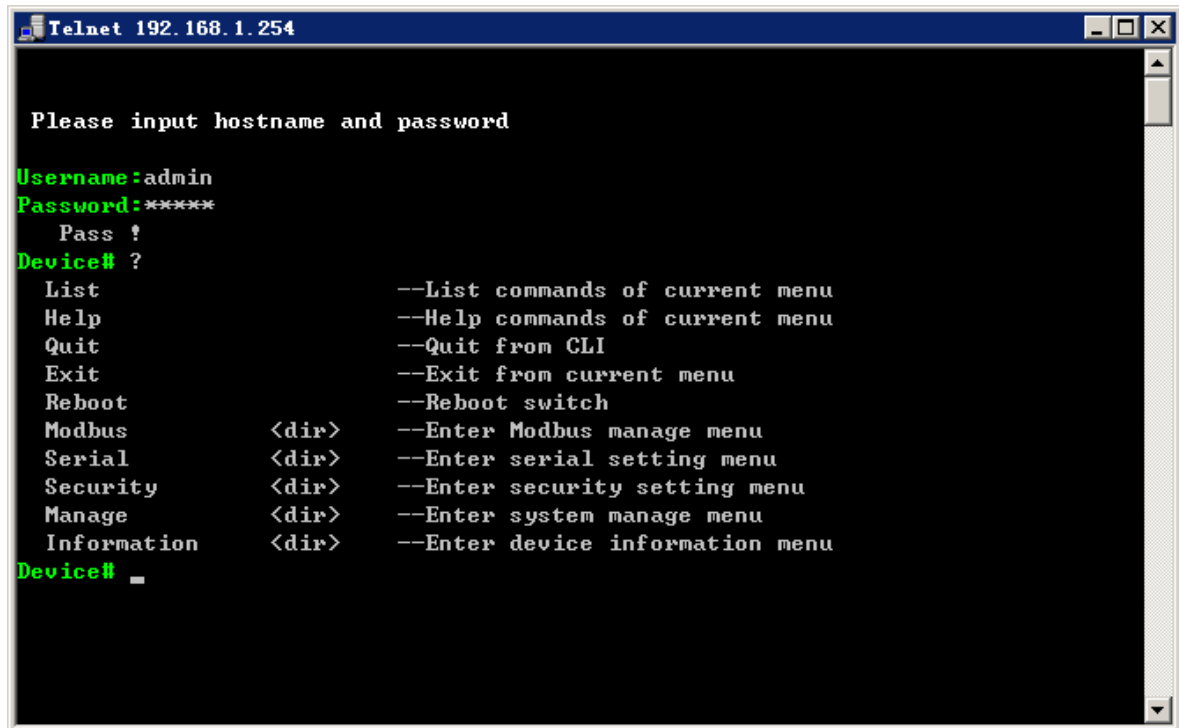
1.3 Command line port

Modbus gateway provides command lines port and its configuration for user's easy configuration and management. Command lines port includes the following features:

1. Local configuration through LAN port;
2. Supports history command saving which means it can save 10 pieces. History commands can be selected by up and down key.
3. User can type in “help” or “?” to get some help;
4. Supports intelligent complement with Tab when commands input;
5. Command interpreter take the method of partial matching. User can type in conflict-free key words, such as config command, only need to type in conf.

1.3.1 View of Command Lines

Modbus gateway' view of command lines aim at configuration of different functions. First of all, Modbus gateway establish connection, then confirmation of user name and password finished, after enter the correct user name and password, enter “help or ?” in “Device#”, enter into system view, Under the view of system, corresponding view appears after typing indifferent command, figure 1.3.1 as follows:



(Figure 1.3.1)

Table 1.3.1 system view command list

View	Function	DOS Prompt	Enter	Quit
System View		Device #	Help or ?	Quit and return to user login
Modbus	Show or modify Modbus information	Device (Modbus)#	Modbus	Exit and return to the view of system
serial	Show or modify serial information, like as baud rate, data bit, flow control	Device (Serial)#	Serial	
Security	Show or modify the IP and MAC address filtering, user name and password settings	Device(Security)#	Security	
manage	Show or modify IP address and subnet mask, Set Console Overtime and Reset to default configure	Device (manage)#	Manage	
Information	Show or modify device type, name, device description, serial number, contact way, etc	Device (information)#	Information	

1.3.2 Command lines online help

Command lines port provides the following online help:

- ✧ Total help
- ✧ Partial help

1. Total help

1) Type in <?> To get all commands and their description.

Example:

Device# ?

List		--List commands of current menu
Help		--Help commands of current menu
Quit		--Quit from CLI
Exit		--Exit from current menu
Reboot		--Reboot switch
Modbus	<dir>	--Enter Modbus manage menu
Serial	<dir>	--Enter serial setting menu
Security	<dir>	--Enter security setting menu
Manage	<dir>	--Enter system manage menu
Information	<dir>	--Enter device information menu

2) Type in a command and "?", between there is a space, if key word is in this location, then type in all keywords and descriptions.

Switch(System)# show ?

mac	--Device MAC Address
version	--Device version
others	--Device name, type, etc

2. Partial help

1) Type in a character string with <?>. It can show all commands beginning with this character string.

Example:

Device# m?

Modbus	<dir>	--Enter Modbus manage menu
Manage	<dir>	--Enter system manage menu

2) Type in former letters of some key word of the command, press<Tab> key. If the letters are unique, it can show the completed key word.

Example:

Device# inf + <Tab>

Device# information

1.3.3 Frequent Incorrect Information of Command Lines

All commands typed by users, if it is certificated by grammar, it can run correctly, or users will be sent incorrect information. Frequent incorrect information is in table 1.3.3 as below:

Table 1.3.3 frequent incorrect information

English incorrect information	Reason
Invalid Command	Command cannot be found.
	Key word cannot be found.
	The type of parameter is wrong.
	The parameter is beyond the border.
Incomplete Command	Command is not completed.
Too many parameters	Parameter is too much.
Must One To One option!	Based mode is necessary

1.3.4 History command

Command lines port can provides the function similar to Dos key. It automatic save command lines that users types in, and users can use these history commands. Detailed operating please check table 1.3.4 as follows:

Table 1.3.4 access history command

Operating	Key	Result
Visit previous history command	Up < ↑ >	If exists earlier command, it is taken out.
Visit next history command	Down < ↓ >	If exists later command, it is taken out.

Chapter 2 Modbus information configuration

2.1 Enter into the view of Modbus information

Please check the view as figure 2.1.1

Table 2.1.1

Operating	Command	Description
Enter into the view of Modbus information	Modbus	Run in the view of system
Add gateway TCP Slave entry	AddGateWayT <RemoteIP> <RemotePort> <VIDmin> <VIDmax> <Offset> <RIDmin> <RIDmax>	<RemoteIP> --Remote Ip such as 192.168.1.254 <RemotePort> --Config RemotePort:1-65535 <VIDmin> --Config VIDmin:0-247 <VIDmax> --Config VIDmax:0-247 <Offset> --Config Offset:(-253)-(253) <RIDmin> --Config RIDmin:0-247 <RIDmax> --Config RIDmax:0-247
Delete gateway TCP Slave entry	DelGateWayT <Index>	<Index> --Config Index: 1-32
Set serial gateway entry	SetGateWayS <Index> <DeviceType> <VIDmin> <VIDmax> <Offset> <RIDmin> <RIDmax>	<Index> --Config Index: 1-4 or 8 <DeviceType> --serial DeviceType 1 --RTU Master 2 --RTU Slave 3 --ASCII Master 4 --ASCII Slave <VIDmin> --Config VIDmin:0-247 <VIDmax> --Config VIDmax:0-247 <Offset> --Config Offset:(-253)-(253) <RIDmin> --Config RIDmin:0-247 <RIDmax> --Config RIDmax:0-247
Set response timeout and interval timeout	SetResponseTime <Index> <ResponseTime> <Inter_character_Timeout> <Inter_frame_Delay>	<Index> --Config Index: (serial:1-4 or 8)(tcp:5 or 9) <ResponseTime> --Config ResponseTime:10-120000ms <Inter_character_Timeout> --Config Inter character Timeout:10-500ms <Inter_frame_Delay> --Config Inter frame Delay:10-500ms
Set Initial Delay	SetInitSetting <InitTime> <TcpExceptionEn>	<InitTime> --Config InitTime:0-30000ms <TcpExceptionEn> --TcpExceptionEn 0 --disable 1 --enable

Example: Enter into device information view, enter the bold type command as follows and enter return key.

Switch(Modbus)# ?

List	--List commands of current menu
Help	--Help commands of current menu
Quit	--Quit from CLI
Exit	--Exit from current menu
Reboot	--Reboot switch
SetGateWayS	--Config GateWay
AddGateWayT	--Config GateWay
DelGateWayT	--Del GateWayTCP
Show GateWay	--Show Modbus GateWay information
SetResponseTime	--Config ResponseSetting
Show ResponseTime	--Show Response config information
SetInitSetting	--Config InitSetting
Show InitSetting	--Show Init config information

Example: Slave ID Map Table Channel NO.1, Channel type is RTU Slave. Virtual ID Start is 3, Virtual ID End is 3, and Slave ID Offset is 0. Virtual ID Start is 3, Virtual ID End is 3.

Switch(Modbus)# setGateWayS 1 2 3 3 0 3 3

[OK]

2.2 Show Modbus Gateway information

Please check the device information command as table 2.2.1

Table 2.2.1

Operating	Command	Description
Show Modbus GateWay information	show GateWay	Carry out under the view of MODBUS information
Show Response config information	Show ResponseTime	
Show Initial Delay information	Show InitSetting	

Example: show Modbus gateway information

Switch(Modbus)# show GateWay

VirtualSerialEn : Disable

Index	Mode	VIDMin	VIDMax	Offset	RIDMin	RIDMax
PORT1	RTU Slave	3	3	0	3	3
PORT2	RTU Master	0	0	0	0	0
PORT3	RTU Master	0	0	0	0	0
PORT4	RTU Master	0	0	0	0	0
PORT5	RTU Master	0	0	0	0	0
PORT6	RTU Master	0	0	0	0	0
PORT7	RTU Master	0	0	0	0	0

PORT8	RTU	Master	0	0	0	0	0
-------	-----	--------	---	---	---	---	---

Index	IP	Port	VIDMin	VIDMax	Offset	RIDMin	RIDMax
-------	----	------	--------	--------	--------	--------	--------

Example: show Response Timeout and Interval Timeout information

Switch(Modbus)# show ResponseTime

name	Index	ResponseTimeout	InterCharacterTimeout	InterFrameDelay
COM	1	1000 ms	0 ms	0 ms
COM	2	1000 ms	0 ms	0 ms
COM	3	1000 ms	0 ms	0 ms
COM	4	1000 ms	0 ms	0 ms
COM	5	1000 ms	0 ms	0 ms
COM	6	1000 ms	0 ms	0 ms
COM	7	1000 ms	0 ms	0 ms
COM	8	1000 ms	0 ms	0 ms
TCP	9	1000 ms	0 ms	0 ms

Example: Show Initial Delay information

Switch(Modbus)# show InitSetting

Init Time :	0 ms
TcpExceptionEn :	Enable

Chapter 3 COM Setting

3.1 Enter into the view of serial information

Please refer to table 3.1.1 to set up the view serial command.

Table 3.1.1

Operating	Command	Description
Enter into the view of serial information	Serial	Run in the view of system
Set Serial alias	Com alias <i><port></i> <i><string></i>	<i><port></i> --1~4 or 8 <i><string></i> --alias:1-30 chars
Set serial baud rate	Com baudrate <i><port></i> <i>< baudrate ></i>	<i><port></i> --1~4 or 8 <i><baudrate></i> --serial Baudrate Tip: {300,600,1200,2400,4800,9600,19200,38400,57600,115200, }
Set serial data bits, stop bits and parity bits	Com linctrl <i><port></i> <i><parity></i> <i><databits></i> <i><stopbits></i>	<i><port></i> : --1~4 or 8 <i><parity></i> --Parity 0 --None 1 --Odd 2 --Even 3 --Mark 4 --Space <i><databits></i> --Databits 2 --7bits 3 --8bits <i><stopbits></i> --Stopbits 0 --1bit 1 --2bits
Set serial mode	Com mode <i><port></i> <i><mode></i>	<i><port></i> : --1~4 or 8 <i><mode></i> --com mode 0 --RS232 1 --RS485 2 --RS422
Set flow control	Com flow_ctrl <i><port></i> <i><flow_ctrl></i>	<i><port></i> --1~4 or 8; <i><flow_ctrl></i> --flow ctrl 0 --None 1 --RTS/CTS 2 --Xon/Xoff 3 --DTR/DSR

Operating	Command	Description
Set serial RTS	Com rts <port> <rts>	<port>: --1~4 or 8; <rts> --rts ctrl 0 --Auto 1 --On 2 --Off
Set serial DTR	Com dtr <port> <dtr>	<port>: --1~4 or 8; <dtr> --dtr ctrl 0 --Auto 1 --On 2 --Off

Example: Enter into serial information view, enter the bold type command as follows and enter return key.

Switch(Serial)# ?

List	--List commands of current menu
Help	--Help commands of current menu
Quit	--Quit from CLI
Exit	--Exit from current menu
Reboot	--Reboot switch
Show config	--Show COM config information
Show com_state	--Show com state info
Com alias	--COM set
Com buadrate	--COM set
Com linctrl	--COM set
Com mode	--COM set
Com flow_ctrl	--COM set
Com rts	--COM set
Com dtr	--COM set

Example: Set the serial COM1 Parameters, the parity bit is ODD, the data bits are 8, and the stop bit is 2.

Switch(Serial)# com linctrl 1 1 3 1

[OK]

Example: Set the serial COM1 Parameters, the alias is 111.

Switch(Serial)# com alias 1 111

[OK]

Example: Set the serial COM1 Parameters, the baud rate is 300.

Switch(Serial)# com buadrate 1 300

[OK]

Example: Set the serial COM1 Parameters, the flow control is RTS/CTS.

Switch(Serial)# com flow_ctrl 1 1

[OK]

Example: Set the serial COM1 Parameters, the RTS is disable.

Switch(Serial)# com rts 1 2

[OK]

Example: Set the serial COM1 Parameters, the DTR is disable.

Switch(Serial)# com dtr 1 2

[OK]

3.2 Display serial information

Please check the serial information command as table 3.2.1

Table 3.2.1

Operating	Command	Description
Show the serial information	Show config <port_list>	<port_list>: 1~4 or 8, all

Example: Enter into device information view, enter the bold type command as follows and enter return key

Switch(Serial)# **show config 1**

COM<1>

```

Alias:          111
COM work mode:  RS485
Baudrate:       300(bps)
Data bit:       8(bits)
Parity bit:     ODD
Stop bit:       2(bits)
Flow ctrl:      RTS/CTS
FIFO ctrl:      Enable
Rts ctrl:       OFF
Dtr ctrl:       OFF
  
```

Chapter 4 Device Security Management

4.1 Enter into the view of Security Management

Please check the device information command as table 4.1.1

Table 4.1.1

Operating	Command	Description
Enter into the view of device information	Security	Run in the view of system
Set user management	UserManage Add <username> <password> <affirm> <user_level>	<username> --user name:No more than 20 characters <password> --password:No more than 20 characters <affirm> --affirm password <user_level> --user level: --0 guest --1 administrator
Modify user management	UserManage modify <name_index> <username> <password> <affirm> <user_level>	<name_index> --name index:user name index <username> --user name <user_level> --user level: 0 guest 1 administrator
Delete user management	UserManage delete <username>	<username> --user name:No more than 20 characters
IP filter set	IpFilter def <def_permission>	<def_permission> --0:forbidden 1:allow
IP address filter enable setup	IpFilter set <filter_en>	<filter_en> --0:disable 1:enable
Modify IP address filtering entries	IpFilter modify <list> <state> <permission> <ip> <netmask>	<list> 1-16 <state> --0:disable 1:enable <permission> --0:forbidden 1:allow <ip> --ip address <netmask> --netmask
MAC address filter enable setup	MacFilter enable <filter_en>	<filter_en> --0:disable 1:enable
MAC filter set	MacFilter def <def_permission>	<def_permission> --0:forbidden 1:allow

Operating	Command	Description
Modify NAC address filtering entries	MacFilter def<list_id> <state> <access_permission> <MAC_addr>	<list_id> 1-16 <state> --0:disable 1:enable <access_permission> --0:forbidden 1:allow <MAC_addr> --MAC address:xx.xx.xx.xx.xx.xx
Set device security funtion	DeviceSecurity <web_console> <telnet_console> <serach> <upgrade>	<web_console> 0:disable 1:enable <telnet_console> 0:disable 1:enable <serach> 0:disable 1:enable <upgrade> 0:disable 1:enable

Example: Enter into device information view, enter the bold type command as follows and enter return key.

Switch(Security)# ?

List	--List commands of current menu
Help	--Help commands of current menu
Quit	--Quit from CLI
Exit	--Exit from current menu
Reboot	--Reboot switch
UserManage show	--User Manage
Auth	--Authentication setting
UserManage Add	User Manage
UserManage modify	User Manage
UserManage delete	User Manage
IpFilter show	Ip Filter
IpFilter set	IP Filter
IpFilter def	IP Filter
IpFilter modify	IP filter
MacFilter show	MAC Filter
MacFilter set	MAC Filter
MacFilter def	MAC Filter
MacFilter modify	MAC Filter
Device show	--Device Manage
Device modify	Device Security

Example: Set the user name and password are admin123.

Switch(Security)# userManage add admin123 admin123 admin123 1
[OK]

Example: set the user management 2 of the user name and password are set to admin111, for the administrator.

Switch(Security)# userManage modify 2 admin111 admin111 admin111 1
[OK]

Example: User management entries delete.

```
Switch(Security)# userManage delete 2
```

[OK]

Example: set the IP filter rule to prohibit access

```
Switch(Security)# ipFilter def 0
```

[OK]

Example: modify the status of IP filtering rule entries 1 to allow, access permission for the permission to access, allowing access to the address 192.168.2.188, subnet mask is set to 255.255.255.0

```
Switch(Security)# ipFilter modify 1 1 1 192.168.2.188 255.255.255.0
```

[OK]

Example: modify the status of MAC filtering rule entry 1 to allow, access permission to allow access, allowing the MAC address for 00.00.00.00.00.01

```
Switch(Security)# macFilter modify 1 1 1 00.00.00.00.00.01
```

[OK]

4.2 Display Security Management

Please check the security information command as table 4.2.1

Table 4.2.1

Operating	Command	Description
Display user management information	userManage show	
Display IP filtering information	IpFilter show <list_id>	<list_id> --1-16 or all
Display MAC filtering information	MacFilter show <list_id>	<list_id> --1-16 or all
Display device security settings information	Device show	

Example: Display serial COM1 basic parameters set information

```
Switch(Security)# userManage show
```

```
user_index:1          user_name:admin          user_level:administrator
user_index:2          user_name:admin123       user_level:guest
user_index:3          user_name:admin1         user_level:guest
```

Example: display IP address filtering item 1 information

```
Switch(Security)# ipfilter show_details 1
```

```
list_id:1
```

```
state:                enable
access permission:    allow
ip address:           192.168.2.188
subnet mask:          255.255.255.0
```

Example: display MAC address filtering item 1 information

Switch(Security)# macFilter show_details 1

list_id:1

state:	enable
access permission:	allow
mac address:	00.00.00.00.00.00

Example: display device security settings information

Switch(Security)# device show

web: Enable

telnet: Enable

search: Enable

upgrade: Enable

Chapter 5 System Management

5.1 Enter into the view of System Management

Please check the device information command as table5.1.1

Table5.1.1

Operating	Command	Description
Enter into the view of device information	Manage	Run in the view of system
Set gateway	Gateway <gateway>	<gateway> --gateway address such as 192.168.1.1
Set IP address and subnet mask	Ip <ip_address> <mask>	<ip_address> --ip address such as 192.168.1.254 <mask> --subnet mask such as 255.255.255.0
Set overtime	Set <time_out>	<time_out> --Range [0-60] minutes 0 --Close timeout function
Recovery equipment to factory settings	Restore	
Upload configuration file	upload	
Download configuration file	download	
Software upgrade	upgrade	

Example: Enter into device information view, enter the bold type command as follows and enter return key

Device# **manage**

Switch(Manage)# ?

List	--List commands of current menu
Help	--Help commands of current menu
Quit	--Quit from CLI
Exit	--Exit from current menu
Reboot	--Reboot switch
Gateway	--Set gateway
Ip	--Set ip address and subnet mask
Show net_address	--Show Internet address
Set	--Set Console Overtime
Restore	--Reset to default config
Upgrade	--upgrade switch
Upload	--Upload switch configuration files
Download	--Download switch configuration files

Example: set the device gateway to 192.168.2.1

Switch(Manage)# **gateway 192.168.2.1**

[OK]

The device is rebooting. Please waiting.....

Example: set the timeout period to 60min

Switch(Manage)# **set 60**

[OK]

Example: software upgrade

Switch(Manage)# **upgrade**

Please send upgrade file, or press [Esc] to quit .

CCCCCCCC

Example: upload configuration file

Switch(Manage)# **upload**

Please send configuration file, or press [Esc] to quit .

CCCC

Example: download the configuration file

Switch(Manage)# **download**

Please select file path and ready to receive file .

Or press [Esc] to quit .

5.2 Display System Management

Please check the device information command as table 5.2.1

Table 5.2.1

Operating	Command	Description
Display system address information	show net_address	Carry out under the view of system management

Example: display device address information

Switch(Manage)# **show net_address**

Device IP address : 192.168.2.66

Device mask address : 255.255.0.0

Device gateway : 192.168.2.1

Chapter 6 Device Information

6.1 Enter into the view of device information

Please check the device information command as table 6.1.1

Table 6.1.1

Operating	Command	Description
Enter into the view of device information	Information	Run in the view of system
Device type setting	DeviceType <string>	<string> --parameters
Device Name setting	DeviceName <string>	<string> --parameters
Device description setting	DeviceDescrip <string>	<string> --parameters
Device number setting	SerialNumber <string>	<string> --parameters
Connection way setting	ContactWay <string>	<string> --parameters

Example: Enter into device information view, enter the bold type command as follows and enter return key.

Device# **information**

Switch(System)# ?

List	--List commands of current menu
Help	--Help commands of current menu
Quit	--Quit from CLI
Exit	--Exit from current menu
Reboot	--Reboot switch
Show mac	--Show device MAC Address
Show version	--Show device version
Show others	--Show device name,type,etc
DeviceType	--Config device type
DeviceName	--Config device name
DeviceDescrip	--Config device description
SerialNumber	--Config serial number
ContactWay	--Config contact way

Example: set the device type is 123456.

Switch(System)# deviceType 123456

[OK]

Example: setting the device name is 2222222.

Switch(System)# deviceName 2222222

[OK]

Example: setting the device description is 333333.

Switch(System)# deviceDescrip 333333

[OK]

Example: setting the device number is 4444444.

Switch(System)# serialNumber 4444444

[OK]

Example: setting the contact information for 555555555.

Switch(System)# contactWay 555555555

[OK]

6.2 Display device information

Please check the device information command as table 6.2.1

Table 6.2.1

Operating	Command	Description
Show system version	show version	Carry out under the view of device information
Show MAC address of device	show mac	Carry out under the view of device information
Show Device Type, Name, etc.	show others	Carry out under the view of device information

Example: view the software and hardware version of the device, etc.

Switch(System)# **show version**

SoftWare Version : 1.0.0 Build Dec 17 2014 401R

HardWare Version : 2.0.0

Release Date : 14:37:29 , Dec 17 2014

Example: check the device model, name, etc.

Switch(System)# **show others**

Device type 8COM

Device name ModbusGateway

Description 1LAN

Serial number 201412160001

Contact way

Example: Check the MAC address

Switch(information)# **show mac**

Device MAC address : 00.22.6F.BB.00.01