RAISECOM

RC001-NMS1 (REV.C)

User Manual

Raisecom Technology Co., Ltd

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CONTENTS

Chapter 1. System Overview

1.1 RC002-16 Chassis

RC002-16 is 3U-high 16-slot chassis that can accommodate all kinds of 3U-high service modules, including copper to fiber media converters, fiber-optic modems, and interface converters.

Models Description

Model	Description	Dimension (mm)	Power Supply
RC002-16AC	16-slot, AC, network managed	440x131x410	220V AC,50Hz,80W
RC002-16DC	16-slot, DC, network managed	440x131x410	-48V DC,80W

Sketch of the RC002-16 front panel

Indicator Explanation

PWR indicator: steady ON, the power supply is working in good condition

PS1-5V indicator: steady OFF, the PS1 power supply to modules is in good condition

PS1-12V indicator: steady OFF, the PS1 power supply to electric fans is in good condition

PS2-5V indicator: steady OFF, the PS2 power supply to modules is in good condition

PS2-12V indicator: steady OFF, the PS2 power supply to electric fans is in good condition
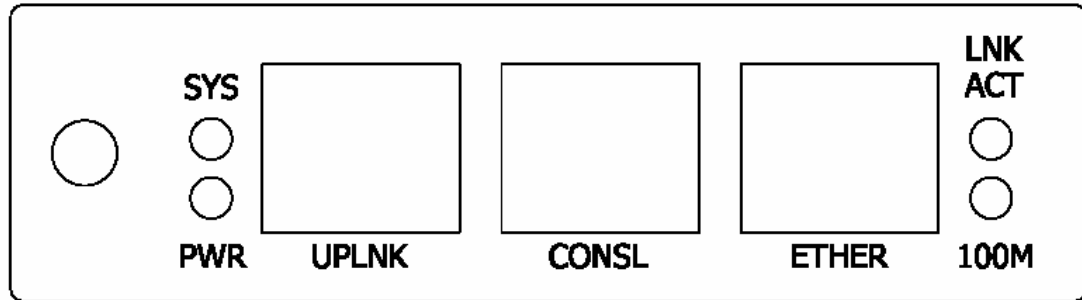
1.2 RC001-NMS1 Master Network Management Module

RC002-16 supports SNMP. The SNMP can be implemented through deploying RC001-NMS1 Master Network Management module in the No.0 slot of the chassis.

Model Specification

RC001-NMS1 (REV.C) rack-mountable chassis master control module

Sketch of the front panel of RC001-NMS1

1. LED Indicators on the Front Panel

SYS: Network management system in operation. Flashing indicates working in
 good   condition; otherwise, system is abnormal.

PWR: Network management module power indicator. Steady on when supplying
power.

LNK/ACT: 10/100M Ethernet signal indicator. Steady on when the cable is properly
             connected; flashing when transmitting/receiving data.

100M: 10/100M Ethernet signal indicator. Steady on when the Ethernet is at 100M;
             steady off when at 10M.

2. RJ45 Interface on the Front Panel

UPLNK: The port for connection between RC002-16-NMS1 module and
             RC001-NMS2. It complies with the RS-232 protocol.

CONSL: The port for console. It can be connected to the serial port of console
             computer through RS-232 cable.

ETHER: 10/100M Ethernet port. It can be connected to the Switch through
             straight-through cable, or to the host through crossover cable.

The 'ETHER' Ethernet port of each master control module has an IP address of which the
address is 192.168.1.254 by default. Since there can not be two same address in one
Ethernet section, please configure the master control module and its IP address through
the 'CONSL' port before connecting the network cable.

    Main functions of the master control module:

- 10/100M Ethernet port is used to connect with network management computer
- Communicate with slave control modules to implement cascade connection
- Configure and collect information about the working status and alarms of other
  service modules inserted in No.1 – No.15 slots of both its own chassis and cascaded
  chassis
- Collect information about the temperature, fan speed, and power supply status of
  both its own chassis and cascaded chassis

1.3 RC001-NMS2 Slave Network Management Module

A rack-mountable 16-slot chassis with RC001-NMS1 master control module can cascade
3 same chassis with RC001-NMS2 slave control module at the most. That is to say, a
master network management module can manage 60 service modules at the most. There
can be as many as master control module in one Ethernet.

1.4 AGENT Program

AGENT program resides in RC001-NMS1 and be operated to implement the network management functions. It can be upgraded as per the enrichment of network managed product series.

The version of AGENT program in RC001-NMS1 (Rev. C) is 5.x.x or above. Different versions of AGENT program require different versions of BOOTRM program correspondingly.

1.5 Network Management Platform and Network Element Manager

The network management platform and network element manager are the software that are supposed to be installed on the network management server. Please refer to NVIEWNNM_3.1.2 (SP2) Installation Manual and NVIEWNNM_3.1.2 (SP2) Operation Manual for details.

Chapter 2. Hardware Installation

2.1 RC001-NMS1 Installation

There are 3 ports on the front panel of RC001-NMS1.

CONSL port (RJ-45). This port is used to connect the emulation terminal and perform the initial configuration installation. The connection parameters are default ones of hyper terminal (Baud rate: 9600; data bit: 8; parity bit: none; stop bit: 1; data flow control: none.)

ETHER Ethernet port (RJ45). This 10/100Mps auto-sensing port is used to access the TCP/IP management network and communicate with network management platform. The straight-through cable shall be used to connect with Switch, and crossover cable to connect the host.

UPLNK cascade connection port (RJ45). This RS-232 serial port is used to connect with other 3 chassis with RC001-NMS2 modules through serial lines. Only the straight-through cable can be used.

RC001-NMS1 can only be installed into the No. 0 slot of RC002-16 chassis.

2.2 RC001-NMS2 Installation

There are 3 ports that are all cascade connection ports. They can be used to connect with RC001-NMS1 master network management module through straight-through line, in order to increase the number of managed service modules. A master network management module supports 3 slave network management modules (60 service modules) at the most. The connection topology is as follows.

Chassis Cascade Connection Topology

10/100M Ethernet port

The 1st Chassis with RC001-NMS1 Agent Module

The 2nd Chassis with RC001-NMS2 Module

Console

The 3rd Chassis with RC001-NMS2 Module

The 4th Chassis with RC001-NMS2 Module
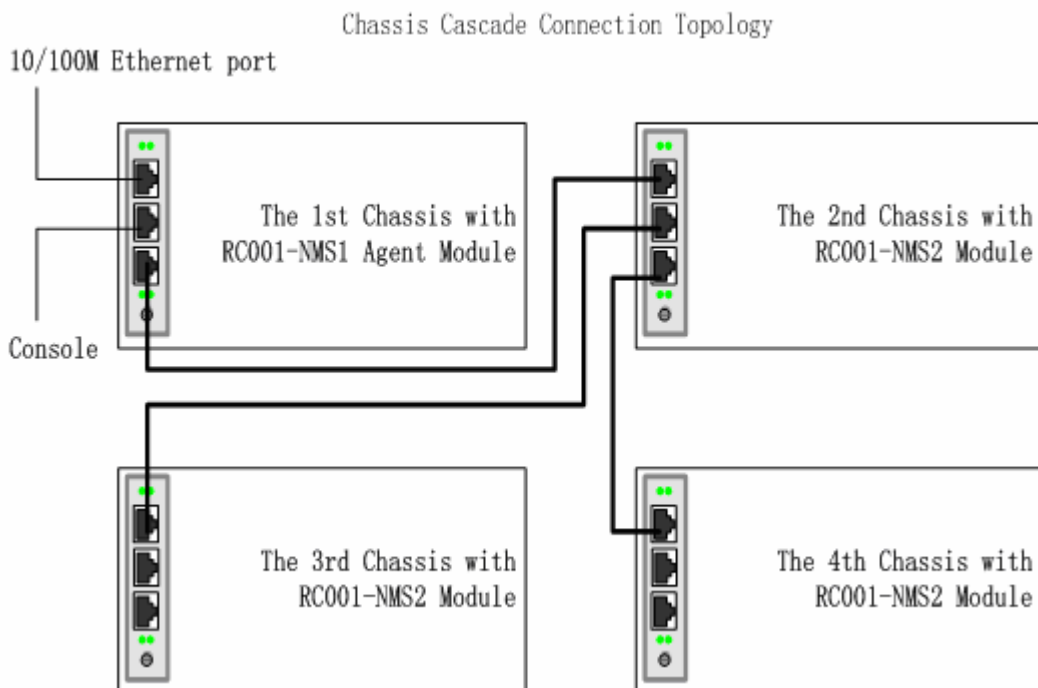
Chapter 3. AGENT Setup

3.1 General Connection

3.1.1 Management through Console Port

First connect the PC COM port and CONSL port of RC001-NMS1 master network management module by using serial line. On the Windows® platform, run the 'hyper terminal' program or third party's serial port connection software, and configure parameters as follows.

    Baud rate: 9600

    Data bit: 8

    Parity bit: none

    Stop bit: 1

    Flow control: none

Press 'Enter' for several times and the system CLI interface will be ready for management work.

3.1.2 Remote Management through TELNET

After the initial of IP address through the console port, users are able to remotely manage the RC001-NMS1 through Telnet.

3.2 BOOTROM Guidelines

Under the BOOTROM mode, users are able to perform management and maintenance to the flash memory and the files stored in it.

During applying the power supply to RC001-NMS1, the system interface will prompt whether to enter BOOTROM mode or not for 3 seconds.

Press the space bar to enter BOOTROM mode.

System Prompt

    raisecom

    Commands under BOOTROM mode

    ?   - list all the commands

    c   - Change parameters when upgrading the firmware through FTP download

    e   - Format the flash sector where the firmware (AGENT program) resides

    h   - List all the commands

    r   - Reboot the system

    u   - Upgrade the firmware through FTP download

The following text will introduce the usage of "c" command. The comments are in the "/* */". The comments are the information that shall be input by the users.

raisecom: c

'.' = clear field;   '-' = go to previous field;   ^D = quit

boot device   : sng0
processor number   : 0
host name   : host
file name   :   RC999   /*the   file   name   that   need   to   be downloaded*/
inet on ethernet (e)   : 192.168.223.64   /*the   IP   address   of   this equipment*/
inet on backplane (b)   :
host inet (h)   : 192.168.223.98   /*the IP address of FTP server*/
gateway inet (g)   :
user (u)   : raisecom   /*FTP user name*/
ftp password (pw) (blank = use rsh): 123 /*FTP password*/
flags (f)   : 0x0
target name (tn)   : agent
startup script (s)   :
other (o)   :

3.3 Guideline of Command Line Prompt

3.3.1 Command Line Prompt

EXEC	Description	How to Access (By default)	Prompt
Common User Exec	Users can display the basic information of the terminal, and display parameters	User name: raisecom Password: :raisecom	raisecom>
Privileged User Exec	Users can configure the basic information of the equipment, but not the operation parameters.	From common exec Command: enable Password: raisecom	raisecom#
CONFIG Configuration Exec	Users can configure the interface parameters of RC001-NMS1	From privileged exec Command: config	raisecom(config)#
SNMP Configuration Exec	Users can configure the SNMP parameters of RC001-NMS1	From CONFIG exec Command: SNMP	raisecom (config-SNMP)#

3.3.2 Acquiring Help Information

Command	Function Description
help	Get a brief description of the system in Chinese or English
Specific String **?**	Get a list of commands that begin with certain (*abbreviated-command-entry*） For example: raisecom>**en?** **enable**
Specific String <**Tab**>	Get the whole command For example: raisecom #**show ver**<TAB> raisecom#**show version**
?	List all the available commands in the current exec. For example: raisecom#？
command **?**	List all the keywords and options of a certain command, and also brief help information. raisecom#**show ?**

3.3.3 Using the Historical Commands

The system will keep 20 entries of historical command by default. Users can set up the number of kept entries by the following command.

raisecom#**terminal history   <0-20>**

The "**history**" command can used to display the historical command entry.

3.3.4 Editing properties

up arrow: last command entry
down arrow: next command entry
left arrow: left move the cursor by one character
right arrow: right move the cursor by one character
backspace: delete the left character of cursor
Ctrl+d: delete the right character of cursor
Ctrl+a: move the cursor to the beginning of the line
Ctrl+e: move the cursor to the end of the line
Ctrl+k: delete all the characters on the right of the cursor
Ctrl+z: exit to Privileged Exec for different non-privileged execs

3.4 System Command

3.4.1 Basic System Command

clear	Clear the screen
enable	Enter Privileged User Exec
exit	Back to last command exec or logout
help	Display the help information of the system
history	Display the historical commands
list	List all the available commands under current exec
quit	Back to last command exec or logout
terminal history <1-20>	Change the number of entries memorized by console
terminal time-out <0-65535>	Change the time of logout
disable	Back to initial exec from privileged user exec
logout	Logout
reboot	Reboot the RC001-NMS1 Master module
show version	Display the system version information
show terminal	Display the operation information of system
write	Save the current configuration information

3.4.2 User Management

The system default user name "raisecom" and password "raisecom" can be used to enter the common exec.

Add a new user

Step	Command	Description
1	**user** USERNAME **password** PASSWORD	● USERNAME The user name ● **password** The keyword ● PASSWORD The password
2	**user** USERNAME **privilege** <1-15>	● USERNAME The user name ● **privilege** The keyword ● <1-15> The user privilege
3	**write**	Save the configuration information
4	**show user**	Display the user information

- **3.4.2.1 delete a user**

[Command]

no user USERNAME

[Command Execution Echo]

You have no enough right to change user information!

This echo shows when privileged user whose priority is not 15 tries to create a new user. Only 15-priority users can perform this command.

3.5 Configuration of Network Management Functions

3.5.1 Configure the IP address

The configuration of IP address shall be performed under CONFIG exec.

- **3.5.1.1 Enter CONFIG exec**

[Command]

From Privileged User Exec

config

[Command Execution Echo]

 raisecom(config)#

- **3.5.1.2 Configure the IP address**

 [Command]

   ipaddr A.B.C.D mask A.B.C.D gateway A.B.C.D

[Command Execution Echo]

set command success

please execute "write" to save!

[For Example]

   Set the IP of RC001-NMS1 to 192.168.223.89, subnet mask to 255.225.255.0, and gateway to 192.168.223.1

   *raisecom#**ipaddr   192.168.223.89   mask   255.225.255.0   gateway 192.168.223.1***

- **3.5.1.3 Configure the auto negotiation of Ethernet port**

 [Command]

   autonego (enable|disable)

[Command Execution Echo]

set command success

if you want to save it, please execute "write" to save!

[For Example]

   raisecom(config)#auto enable

- **3.5.1.4 Configure the speed and duplex mode of Ethernet port**

 [Command]

   speed (10|100) duplex (full|half)

[Command Execution Echo]

set command success

if you want to save it, please execute "write" to save!

[For Example]

   raisecom(config)#speed 100 duplex full

- **3.5.1.5 Show Ethernet port information**

 [Command]

   show ether

[Command Execution Echo]

STAUS: link up
AUTO: enable
Speed: 100M
Duplex: FULL
[For Example]
raisecom(config)#show eth

3.5.2 Configure the Clock, Time Zone and Summer Time

This should be done under CONFIG exec.

- **3.5.2.1 Enter CONFIG exec**

[Command]
From Privileged User Exec
config
[Command Execution Echo]
raisecom(config)#

- **3.5.2.2 Configure the clock**

[Command]
clock set
[Description]
Use **clock set** to change the date and time of system
clock set *<0-23> <0-59>   <0-59>   <2000-2099>   <1-12>   <1-31>*
[Parameter]

- *<0-23>*   hour;

- *<0-59>*   minute;

- *<0-59>*   second;

- *<2000-2099>*   year;

- *<1-12>*   month;

- *<1-31>*   day;

[Command Execution Echo]
System time changed successfully
Current system time: 06/06/2006   13:34:00 +08:00(DST)
The command is executed successfully
Current system time: 06/06/2006   13:34:00 +08:00(DST)
Indicate the configured time and day does not exist and display the current
system time
No 30th or 31th in Feb. in leap year
No 29th, 30th or 31th in Feb.
No 31th in the month
[For Example]

Change the system date to September 30th, 2003 and time to 8:30 0 second

raisecom # **clock set** *8   30   0   2003 9 30*

- **3.5.2.3 Enable the summer time**

[Command]

clock summer-time

[Command Execution Echo]

Set successfully

[For Example]

raisecom #clock summer-time enable

- **3.5.2.4 Start summer time**

[Command]

clock summer-time recurring

[Command format]

clock summer-time recurring <1-5> (sun | mon | tue | wed | thu | fri | sat) <1-12> <0-23> <0-59> <1-5> (sun | mon | tue | wed | thu | fri | sat) <1-12> <0-23> <0-59> <1-1440>

[Parameter]

 ·**<1-5>**   summer time starting from which week, 5 indicates the last week
 ·**week day**   summer time starting from what date of the week
 ·**<1-12>**   summer time starting from which month
 ·**<0-23>**   summer time starting hour
 ·**<0-59>**   summer time starting minute
 ·**<1-5>**   summer time ending at which week of the month, 5 indicates the last week
 ·**week day**   summer time ending at which day of the week
 ·**<1-12>**   summer time ending month
 ·**<0-23>**   summer time ending hour
 ·**<0-59>**   summer time ending minute
·**<1-1440>**   summer time offset minute

[Command Execution Echo]

 Set successfully

Set unsuccessfully

[Usage Guide]

 This command is used to set the starting time, the ending time and recurring of summer time. The format for starting time and the ending time is: xx month, xx week (or the last week), xx hour and xx minute.

[For Example]

Raisecom# **clock summer-time recurring 2 sun 4 2 0 2 sun 9 2 0 60**

- **3.5.2.5 Configure the time zone**

[Introduction]

Configure time zone

[Command format]

clock timezone {+|-} <0-11> <0-59>

[Parameter]

 ·**+**   East Earth time zone
 ·**-**   West Earth time zone

·**<0-11>**   time zone recurring hour
·**<0-59>**   time zone offset minute

[Default]

The default time is Beijing local time, which is eastern offset 8 hours

[Command format]

Privilege exec; privileged user.

[Usage Guide]

[Explanation of command execution echo]

Set successfully

[Example]

Set the time-offset direction to West Earth, offset time is 5 hours and 40 minutes.

Raisecom#clock timezone – 5 40

3.5.2.6 Show system time

[Command]

show clock

[Command Execution Echo]

raisecom(config)#show clock

Current system time: 05/23/2006 17:01:22 +08:00(DST)

3.5.2.7 Show summer time

[Command]

show clock summer-time-recurring

[Command Execution Echo]

raisecom#**show clock summer-time-recurring**

Current system time: 06/06/2006   13:31:44 -08:00

Summer time recurring: Disable

raisecom#**show clock summer-time-recurring**

Current system time: 06/06/2006   14:01:04 -08:00(DST)

Summer time recurring: Enable

Summer time start: week 1 Tuesday June 12 00

Summer time end: week 1 Tuesday June 15 00

Summer time Offset: 30 min

3.5.3 Configure SNMP

The configuration of **SNMP** shall be performed under SNMP configuration exec.

•**3.5.3.1 Enter SNMP exec**

[Command]

From CONFIG configuration exec

snmp

[Command Execution Echo]

raisecom(config-SNMP)#

•3.5.3.2 Configure the community name
  [Command]
  snmp-server community COMMUNITY (ro|rw)
  [Description]
  Set the community read-only or read-write
  [For Example]
  *raisecom(config-SNMP)# **snmp-server   community   public ro***

•3.5.3.3 Enable/disable TRAP
[Command]
snmp-server trap (enable|disable)
[Description]
Enable/disable TRAP
 [For Example]
 *raisecom(config-SNMP)# **snmp-server trap enable***

•3.5.3.4 Configure the MANAGER and port number of TRAP
[Command]
snmp-server trap <1-8> target A.B.C.D port <1-65536>
[Description]
 trap: the number of Manager (8 at the most)
 target: the IP address of Manager
 port: the port number
 [For Example]
 Set the first TRAP address, IP 192.168.1.1; Port 162
 *raisecom(config-SNMP)# **snmp-server   trap   1 target 192.168.1.1 port 162***

•3.5.3.5 Delete the Trap Manager
[Command]
no snmp-server trap   <1-8>
[Description]
Delete a Trap Manager
[For Example]
*raisecom(config-SNMP)# **no snmp-server trap 1***

•3.5.3.6 Remove all the Trap Manager configuration
[Command]
snmp-server trap clear
[Description]
Remove all the Trap configurations

•3.5.3.7 Set the Contact information
[Command]

snmp-server contact STRING
[Description]
Set the Contact information
[For Example]
Set the contact information to "admin"
raisecom(config-SNMP)# **snmp-server contact admin**

•**3.5.3.8 Set ID information**
[Command]
snmp-server id <0-65536>
[Description]
Set ID information
[For Example]
Set the ID to "5"
raisecom(config- SNMP)# **snmp-server id 5**

•**3.5.3.9 Set the Location information**
[Command]
snmp-server location LOCATION
[Description]
Set the location information of the equipment
[For Example]
Set the location of the equipment to "haidian"
raisecom(config- SNMP)# **snmp-server location haidian**

•**3.5.3.10 Set the Name information**
[Command]
snmp-server name NAME
[Description]
Set the name of the equipment
[For Example]
Set the name of the equipment to "RC002"
raisecom(config-SNMP)# **snmp-server name RC002**

•**3.5.3.11 Set the threshold of system temperature**
[Command]
snmp-server temperature <0-100>
[Description]
Set the threshold of the chassis temperature. When the temperature gets too high,
the system will send Trap information to the console.
[For Example]
Set the temperature of the chassis to 20
raisecom(config-SNMP)# **snmp-server temperature 20**

•**3.5.3.12 Load the default SNMP community**

[Command]

load default community

[Description]

Use this command to load the default SNMP community

[For Example]

raisecom(config-SNMP)#**load default community**

•**3.5.3.13 Enquire SNMP information**

[Command]

show snmp

[Description]

Display the SNMP information

[For Example]

raisecom(config- SNMP)# show snmp

System name: unknown

System contact: unknown

System location: unknown

System ID: 1

System level: 1

System Temperature Alarm Threshold: 50

Read Community: public

Write Community: private

Send trap status: Enable

Trap sink	Target Address	Target Port
1	0.0.0.0	162
2	0.0.0.0	162
3	0.0.0.0	162
4	0.0.0.0	162
5	0.0.0.0	162
6	0.0.0.0	162
7	0.0.0.0	162
8	0.0.0.0	162

3.5.4 Configure SNTP

The system supports SNTP (system net time protocol) CLIENT to acquire the real time.

The relevant configuration shall be performed under CONFIG exec.

- **3.5.4.1 Enter CONFIG exec**

[Command]

From the privileged user exec

config

[Command Execution Echo]

raisecom(config)#

- **3.5.4.4 Acquire time from SNTP server**
  [Command]
  sntp server A.B.C.D
  [Description]
  Acquire time from the designated SNTP server
  [For Example]
  Acquire time from the host of 192.168.1.10
  raisecom(config)# sntp server 192.168.1.10

- **3.5.4.5 Cancel acquiring time from SNTP server**
  [Command]
  no sntp server
  [Description]
  Cancel acquiring time from designated SNTP server
  [For Example]
  Cancel acquiring time from the host of 192.168.1.10
  raisecom(config)# no sntp server

Chapter 4. System Maintenance

4.1 Maintenance Tasks

Managing configuration files: view and store configuration files in the system, export to external storage, and import form external storage.

Managing AGENT program: view the information of the program, export to external storage, and upgrade the AGENT program.

When performing interactions between configuration files/AGENT program and external storages, RC001-NMS1 will act as the FTP client and the external storage or host shall be configured as the FTP server. After appointed user account, it is required to make corresponding configuration at the RC001-NMS1 console.

4.2 Configuration Files Management

➢ The current configuration of the system is stored in the following files.
  system.txt
  hostconf.txt
  slotconf.txt；
➢ Users can use "**write**" command to save the configuration files to flash memory. The system will load the configuration information during the next boot automatically.
➢ Users shall use "download/upload" command to exchange configuration files with external storage, through FTP or TFTP

4.2.1 View the Information of Configuration Files

[Command]
dir (c:|d:)
[Description]
Function: view the files in flash memory
Parameters:
    c: files in system partition
    d: files in configuration partition
[For Example]
Read the configuration file sector
  raisecom#dir d:

size	*date*	*time*	*name*
269	*Jan-01-1980*	*00:00:00*	*hostconf.txt*
1340	*Jan-01-1980*	*00:00:00*	*system.txt*
81	*Jan-01-1980*	*00:00:00*	*usercfg.txt*
7680	*Jan-01-1980*	*00:00:00*	*slotconf.txt*

4.2.2 Save the Current Configuration

[Command]

write

[Description]

Mode: privileged exec

Function: save the current system configuration

[For Example]

 *raisecom#**write***

Writing running-config to flash, please wait...

Successfully write to flash

4.2.3 Delete the Configuration

[Command]

del FILENAME

[Description]

Mode: privileged exec

Function: delete the current system configuration

[For Example]

raisecom#del slotconf.txt

delete file slotconf.txt successfully.

4.2.4 Export the Current Configuration

[Command]

Upload startup-config (tftp | ftp)

[Description]

Mode: privileged exec

Function: export the current configuration files to export storage, through FTP or TFTP

[Other Parameter]

 File name (system.txt; hostconf.txt; slotconf.txt)

 system.txt: SNMP-relevant information in AGENT, including IP address of Trap, port number, system contact information, system name, location, community string, temperature threshold, and alarm function status.

 hostconf.txt: information about the AGENT, including IP address, subnet mask, bit rate at Ethernet port, duplex mode, auto-negotiation status, and SNTP configuration information

 slotconf.txt: the configuration information of all the service modules in chassis.

[For Example]

   raisecom#upload startup-conf ftp

   Please input server IP Address:192.168.1.251

   Please input FTP User name:target

   Please input FTP Password:target

Please input FTP Server File Name:slotconf.txt

4.2.5 Import System Configuration

[Command]
Download startup-config (tftp | ftp)
[Description]
Mode: privileged exec
Function: import the configuration files from external storage to RC001-NMS1, through TFTP or FTP.
[Other Parameters]
 File name (system.txt; hostconf.txt; slotconf.txt)
[For Example]
raisecom#download startup-config ftp

Please input server IP Address:192.168.1.251
Please input FTP User name:target
Please input FTP Password:target
Please input FTP Server File Name:hostconf.txt
Loading, please wait...
Loading: 268 ... done
Writing to flash, please wait...
.finished
You've successfully download new config file

new config works after the device reboots ...

4.3 Start File Management (AGENT Program)

➢ AGENT program file is based on embedded operation system. The SNMP will be loaded when applied the power supply.
➢ Use "dir" command to view the files in flash memory.
➢ Use "**show version**" to view the version information.

4.3.1 View the AGENT Program Information

[Command]
dir (c:|d:)
[Description]
Function: view the files in flash memory.
Parameters:
    c: files in system partition
    d: files in configuration partition

4.3.2 Export the AGENT Program

[Command]

upload system-boot (tftp | ftp)

[Description]

Mode: privileged exec

Function: export the current Agent program to external storage, through TFTP or FTP.

[Other Parameters]

File name

[For Example]

The text in "/* */" is the comment. Users shall input as per the comment.

raisecom#upload system-boot ftp

Please input server IP Address:1.0.0.1

Please input FTP User name:test

Please input FTP Password:test

Please input FTP Server File Name: / Any file name*/*

4.3.3 Import the AGENT Program (AGENT Upgrade)

[Command]

download system-boot (tftp | ftp)

[Description]

Mode: privileged exec

Function: upgrade the Agent program, through FTP or TFTP

[Other Parameters]

The text in "/* */" is the comment (Users shall input as per the comment)

[For Example]

raisecom# download system-boot ftp

Please input server IP Address:1.0.0.1

Please input FTP User name:test

Please input FTP Password:test

Please input FTP Server File Name: / the Agent program name on external storage*/*

BROADBAND
to RAISECOM