

**N560 series**  
**Command Line Interface (CLI)**  
**User's Guide**

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**Change Histroy**

Version	Date	Effective S/W	Description
Rev 1.0	Apr 19, 2010	1.7.1 later	Initial version
Rev 1.1	Apr 27, 2010	1.7.1 later	Deleted « auto-ratecontrol » section and corrected some mis-typed words
Rev 1.2	Oct 17, 2012	1.9.0 later	Added TCPAM selection. Deleted <<bootimage>> selection.

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# 1 Conventions

This publication uses the following conventions:

convention	description
<b>boldface</b> font	Commands, command options, and keywords are in <b>boldface</b> .
< <i>italic</i> >	Arguments for which you supply values are in <i>italics</i> and angle brackets.
[ ]	Elements in square brackets are optional.
{ x   y   z }	Alternative keywords are grouped in braces and separated by vertical bars
< x   y   z >	Alternative values are grouped in angle brackets and separated by vertical bars.
screen font	sessions and information the system displays are in screen font.
<b>boldface</b> screen font	Information you must enter is in <b>boldface</b> screen font.
<i>italic</i> screen font	Arguments for which you supply values are in <i>italic screen</i> font.
^	^ The symbol ^ represents the key labeled Control—for example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
#	A pound sign (#) at the beginning of a line of code indicates a comment line.

Notes use the following conventions:

► <b>Note</b> ◀	Means <i>reader take note</i> . Notes contain helpful suggestions or references to material not covered in the publication.
-----------------	---

## 2 Command-Line Interfaces

This section describes command modes and functions that allow you to operate the N560 CLI.

### 2.1 Accessing the CLI

You can access the CLI from a console terminal connected to “CONSOLE” port or through a telnet session.


After connecting through the console port or a telnet session, you see this display (You may have to press Enter key more than once to allow the console to synchronize with the device.).

[Example 2-1] logging into the CLI

```
Enter password:      (Press Enter key)
N564F>
```

To access the CLI, enter the password for the CLI at the “Enter Password:” prompt (press the enter key after typing password).

#### ► Note ◀

 The password is case sensitive and password characters are not echoed to the terminal.

### 2.2 Accessing the Privileged Mode

The CLI has two modes of operation: normal and privileged. Both are password-protected.

Use normal-mode commands for everyday system monitoring. Use privileged commands for system configuration and basic troubleshooting.

After you log in, the system enters normal mode, which gives you access to normal-mode commands only. You can enter privileged mode by entering the **enable** command followed by the admin password. Privileged mode is indicated by the word “enable” in the system prompt.


To return to normal mode, enter the **exit** command at the prompt.



[Example 2-2] accessing the privileged mode

```
N564F> enable
Enter password:          (Press Enter key)
N564F> (enable)
```

► **Note** ◀

 The admin password is case sensitive and password characters are not echoed to the terminal.


## 2.3 Using Command-Line Processing

CLI commands are not case sensitive. You can abbreviate commands and parameters as long as they contain enough letters to be different from any other currently available commands or parameters. You can scroll through the last 20 commands stored in the history buffer and enter or edit the command at the prompt.

### Keystrokes

keystroke	description
Ctrl-A	Jumps to the first character of the command line.
Ctrl-B or the left arrow key	Moves the cursor back one character.
Ctrl-C	Escapes and terminates prompts and tasks.
Ctrl-D	Deletes the character at the cursor.
Ctrl-E	Jumps to the end of the current command line.
Ctrl-F or the right arrow key	Moves the cursor forward one character.
Ctrl-K	Deletes from the cursor to the end of the command line.
Ctrl-L	Clears the screen.
Ctrl-N or the down arrow key	Enters next command line in the history buffer.
Ctrl-P or the up arrow key	Enters previous command line in the history buffer.
Ctrl-U	Deletes from the cursor to the beginning of the command line.
Ctrl-W	Deletes the last word typed.
Delete key or Backspace key	Erases a mistake when entering a command; reenter the command after using this key.

► **Note** ◀

 Arrow keys are supported only on terminals that are ANSI compatible, such as the VT100.

## 2.4 Using History Substitution

Commands that you enter during each terminal session are stored in a history buffer, which stores the last 20 commands you entered during a terminal session. History substitution allows you to access these commands without retyping them by using special abbreviated commands.

### History Substitution Commands

command	description
!!	Repeats the most recent command.
!n	Repeats command n.

[Example 2-3] repeating command 2

```
N564F> history
  1 help
  2 history
N564F> !2
history
  1 help
  2 history
  3 history
N564F>
```

## 2.5 Using Command Completion Features

### Using Keyword Lookup

Use the keyword-lookup function to display a list of valid keywords and arguments for a command. To display the matches, enter a space after the last parameter and press **Tab** twice. (If only one matches, press **Tab** once to display)

### Using Partial Keyword Lookup

Use the partial keyword-lookup function to display a list of commands that begin with a specific set of characters. To display the matches, press **Tab** twice immediately after the last parameter.

(If only one matches, press **Tab** once to display)

### Using Command Completion

Use the command completion function to complete a command or keyword. When you enter a unique partial character string and press **Tab**, the system completes the command or keyword on the command line. For example, if you enter **co** at the privileged prompt and press **Tab**, the system completes the command as **configure** because it is the only command that matches the criteria.

If no completion can be done, no action is carried out and the system returns to the prompt and the last command. The cursor appears immediately after the keyword, allowing you to enter additional information.

## 2.6 Getting Command Help with Question Mark

At any time during a CLI session, you can display a help message by typing a question mark (?) at the prompt.

You can use command - syntax help to display a list of command, keyword, or argument options that are available for the command that you have entered. To use command - syntax help, enter a question mark (?) in the place of a keyword or argument, *including* a space before the question mark. The CLI will display a list of available command options.

## 2.7 Abbreviating Commands

You can abbreviate commands by typing the minimum number of characters that uniquely match a command. For example, you can type **sh** to execute the **show** command because the characters "sh" are unique to that command.

If you do not type enough unique characters, the CLI display an "Ambiguous command" error message (in this case, because the CLI cannot differentiate between the **exit** and **enable** commands if you type the character "e")

[Example 2-4] abbreviating commands

```
N564F> e
Error: Ambiguous command
N564F> en
Enter password:
```

## 3 System Management

This section describes the commands for managing and displaying system-rated information.

### 3.1 set system

To configure system-related information.

#### Usage

```

set system hostname <host name>
set system description <description>
set system passwd
set system adminpasswd
set system time <day_of_week> <mm/dd/yyyy> <hh:mm:ss>
set system bootconfig { config0 | config1 }
set system baudrate <baudrate>
set system auto-logout <timeout>

```

#### Arguments

Keyword	Description
<b>hostname</b>	Name for the system. Used in CLI prompt and in SNMP as sysName. <host name> : A case - sensitive string of 1 - 16 characters (not including tabs, spaces, double quotes(""))
<b>description</b>	Description for the system. <description> : A case - sensitive string of 1 - 64 characters (not including tabs, spaces, double quotes(""))
<b>passwd</b>	Configures a new login password. The password must be a case - sensitive string of 5 - 10 characters, not including spaces, tabs or any of {,;:\^*"'`.&><}
<b>adminpasswd</b>	Configures a new administrative password. The password must be a case - sensitive string of 5 - 10 characters, not including spaces, tabs or any of {,;:\^*"'`.&><}

<b>time</b>	The system date and time. Used in system log as time field.
<b>bootconfig</b>	Startup configuration file of system
<b>baudrate</b>	Baud rate of the console port. Valid rates are 9600, 19200 and 38400. The default is 38400.
<b>auto-logout</b>	Number of minutes until the system disconnects an idle session or telnet session automatically. <timeout>: Valid values are 0 to 10,000 minutes. The default value is 20 minutes. Setting the value to 0 disables the automatic disconnection of sessions.

► **Note** ◀

- ☞ A change to password takes effect the next login to CLI.
- ☞ A change to auto-logout takes effect the next login to CLI.
- ☞ A change to baudrate takes effect immediately .

## Confirmation

See also, "[show system](#)", "[restart system](#)".

## Examples

[Example 3-1] changing host name

```
N564F> (enable) set system hostname Branch-1
Branch-1> (enable)
```

[Example 3-2] changing description

```
N564F> (enable) set system description TestBed
N564F> (enable)
```

[Example 3-3] setup system time

```
N564F> (enable) set system time fri 09/22/2006 13:08:30
Fri Sep 22 13:08:30 2006
N564F> (enable)
```

## 3.2 show system

To display system-related information.

### Usage

**show system**

### Confirmation

See also, "[set system](#)", "[restart system](#)".

### Examples

[Example 3-4] show system information

```
N564F> (enable) show system
Model Name:          N564F
Host Name:           Branch-1
Description:         TestBed
Current Time:        Mon Apr 19 13:29:02 2010
Uptime (d,h:m:s):    0,1:49:37
Boot Configuration:  config0
Current Configuration: config0
Boot Firmware:       image0
Current Firmware:    image0
H/W Version:         R1.1
S/W Version:         1.7.1 [Fri Apr 9 08:06:23 2010]
Auto Logout:         20 minutes
Current CLI Logout:  20 minutes
Serial Baudrate:     38400
N564FDW> (enable)
```

### Output Fields

keyword	description
Model Name	Device model name of this system.
Host Name	Name of this system.
Description	Description of this system.
Current Time	Current time of day in the system clock.
Up Time	Number of uninterrupted days, hours, minutes, and seconds the system has been up and running.
Boot Configuration	Configuration file that will be used when the system is started next.

Current Configuration	Configuration file that was used when the system is started recently
Boot Firmware	Firmware file that will be loaded when the system is started next.
Current Firmware	Firmware file that was loaded when the system is started recently.
Auto Logout	Number of minutes until the system disconnects an idle session or telnet session automatically
Current CLI Logout	Auto logout value of current CLI session.
Serial Baudrate	Baud rate of the console port.

### 3.3 restart system

To reboot the system.

#### Usage

**restart system**

#### Confirmation

See also, "[set system](#)", "[show system](#)".

#### Examples

[Example 3-5] restarting the system

```
N564F> (enable) restart system
This command will reboot system.
Do you want to continue (y/n) [n]? y
```

## 4 Interface Management

This section describes the commands for managing and displaying network interface information.

### 4.1 set interface

To configure interface.

#### Usage

```

set interface <interface name> ip <ip addr> <netmask> [<broadcast>]
set interface <interface name> gw <ip addr>
set interface <interface name> vid <vid>

```

#### Arguments

keyword	Description
<interface name>	The N560 series has one interface, m1. <interface name> : m1
<b>ip</b>	IP address to be assigned to the interface, in-dot-decimal notation. <ip> : IP address. <netmask> : subnet mask. (Optional) <broadcast> : broadcast address.
<b>gw</b>	Default gateway IP address, in-dot-decimal notation. <gw ip> : IP address for a default gateway.
<b>vid</b>	VID to be assigned to the interface. <vid> : vid. The default value is 1.

#### Confirmation

See also, "[show interface](#)", "[clear interface](#)".

#### Examples

[Example 4-1] assigning the IP address

```

N564F> (enable) set interface m1 ip 172.16.0.56 255.255.255.0
N564F> (enable)

```



## 4.2 clear interface

To remove interface configuration.

### Usage

```
clear interface <interface name> gw
```

### Arguments

keyword	Description
<interface name>	The N560 seires has one interface, m1 <interface name> : m1
gw	Remove default gateway configuration.

### Confirmation

See also, "[set interface](#)", "[show interface](#)".

### Examples

[Example 4-2] clearing a default gateway

```
N564F> (enable) clear interface m1 gw
N564F> (enable)
```

## 4.3 show interface

To display interface information.

### Usage

```
show interface [<interface name>]
```

### Arguments

keyword	Description
<interface name>	The N560 series has one interface, m1 <interface name> : m1

## Confirmation

See also, "[set interface](#)", "[clear interface](#)".

## Examples

[Example 4-3] show information about interface m1

```
N564F> (enable) show interface m1
m1 (00:d0:84:23:57:11)
    ip 172.16.0.55 netmask 255.255.255.0 broadcast 172.16.0.255
    gw 172.16.0.254
    vid 1
N564F> (enable)
```

## Output Fields

keyword	description
ip	IP address of this interface.
gw	IP address of default gateway. If this interface does not have default gateway, this field is not printed.
vid	VID of this interface.

## 5 Device Type Commands

This section describes a list of commands that configure and display information about device type of the N560 series.

### 5.1 set devicetype

The N560 series can operate in either Central Office (CO) or Remote Terminal (RT) mode. This command enables the configuration of device's operational mode.

#### Usage

```
set devicetype { co | rt }
```


#### Arguments

keyword	Description
co	N560 series operates in Central Office mode.
rt	N560 series operates in Remote Terminal mode. <b>► Note ◀</b> When using <code>rt</code> type, you don't need to supply values for PMEs because the <code>co</code> device supplies these values to the <code>rt</code> device.

#### Confirmation

see also, "[show devicetype](#)", "[restart pme](#)".

#### ► Note ◀

 To apply the changed configuration, the PMEs must be restarted.

#### Examples

[Example 5-1] setting the device to RT mode

```
N564F> (enable) set devicetype rt
N564F> (enable)
```

## 5.2 show devicetype

To display the operational mode of the N560 series.

### Usage

**show devicetype**

### Confirmation

see also, "[set devicetype](#)".

### Examples

[Example 5-2] displaying the operational mode of a device

```
N564F> (enable) show devicetype
Device Type: RT
N564F> (enable)
```

### Output Fields

keyword	Description
<b>devicetype</b>	The operational mode of this system. CO : Central Office RT : Remote Terminal

## 6 Device Mode Commands

This section describes a list of commands that configure and display information about device mode of the N560 series. This command applies only to N56x (N562 or N564) product which can support separate DSL ports (s0, s1). The following table shows how PME's are mapped to a DSL port.

Product	Port	Binding Mode	Separate Mode
N562	s0	P0, p3	P0
	s1	-	P3
N564	s0	P0, p1, p2, p3	P0, p1
	s1	-	p2, p3

### 6.1 set devicemode

The N56x can operate in either "binding" or "separate" mode. In binding mode, it operates like a previous model (N500 series), which supports only one DSL port and binds all PME's to s0 port. In separate mode, s1 port is activated and binds PME's according to the above table.

#### Usage

```
set devicemode { binding | separate }
```

#### Arguments

keyword	Description
binding	Port s0 binds all PME's
separate	Port s1 is activated and binds PME's according to the above table.

#### Confirmation

see also, "**show devicemode**".

#### Examples

[Example 6-1] setting the device to separate mode.

```
N564F> (enable) set devicemode separate
```

## 6.2 show devicemode

To display the device operating mode of the N560 series.

### Usage

**show devicemode**

### Confirmation

see also, "**set devicemode**".

### Examples

[Example 6-2] displaying the operational mode of a device

```
N564F> (enable) show devicemode
Device Mode: separate
N564F> (enable)
```

### Output Fields

keyword	Description
<b>devicemode</b>	The operational mode of this system. binding : s0 binds all PMES separate : s1 is activated and binds PMEs according to the table described before.

## 7 PME Management

This section describes a list of commands that configure and display information about 2BASE-TL Physical Medium Entity (PME).

The N560 series has the maximum four 2BASE-TL PMEs and supports an aggregation of two or four bonded PMEs depending on the product type or device operating mode. These PMEs were bonded to the 2BASE-TL port, s0 or s1. Also, N560 series supports TCPAM-64 which enhances the maximum data rate up to 11392 Kbps per pair, depending on loop environment

### ► Note ◀

*TCPAM-4, 8, 64 and 128 are not an international standard but a proprietary implementation by G.SHDSL.bis chipset vendor. So care must be taken when operating device in that mode, because it may violate the regional regulation for Power Spectral Density (PSD). Please contact our sales support team for more detailed information.*

### 7.1 set pme

To configure information about 2BASE-TL PMEs.

#### Usage

```

set pme <pme names> annex { a | b }
set pme <pme names> maxrate <rate>
set pme <pme names> minrate <rate>
set pme <pme names> rate <minrate> [<maxrate>]
set pme <pme names> powerbackoff auto | forced [<value>]
set pme <pme names> tcpam auto | forced [<value>]
set pme <pme names> targetmargin <margin>
set pme <pme names> worstmargin <margin>
set pme <pme names> margintype default | worst
set pme <pme names> finetune enable | disable
set pme <pme names> deact

```

## Arguments

keyword	Description
<b>&lt;pme names&gt;</b>	Name of PME. <pme names> : p0...p3, all If you enter <b>all</b> keyword in this argument, set all PMEs to the same value that you supply.
<b>annex</b>	Transmission type of PME. The default value is b. Annex A refers to North American specific requirements. Annex B refers to European specific requirements.
<b>maxrate</b>	The maximum line-rate of PME. This value must be larger than <b>minrate</b> . When the <b>tcpam</b> is fixed mode, the <b>minrate</b> is set to the same of this value which means the fixed rate configured on PME(s). <rate> : 192~15296 [Kbps]
<b>minrate</b>	The minimum rate of PME. This value must be smaller than <b>maxrate</b> . When the <b>tcpam</b> is fixed mode, the <b>maxrate</b> is set to the same of this value which means the fixed rate configured on PME(s). <rate> : 192~15296 [Kbps]
<b>rate</b>	This parameter allows setup both <b>minrate</b> and <b>maxrate</b> in 1 command line. If you miss <maxrate> parameter in this command line, <maxrate> is set to the same value of <minrate>, which means the fixed rate configured on PME(s). when the tcpam is fixed mode, minrate is set to the same of maxrate value.
<b>powerbackoff</b>	<b>auto</b> : Each receiver determines the power back-off value for the transmitter of the counterpart. <b>Forced</b> : The STU-C determines the upstream and downstream power back-off with the user-specified value. <value> : Set the power back-off value of PME. 0~31 [dB]
<b>tcpam</b>	<b>Auto</b> : In auto mode, TCPAM is set to value according to link rate. <ul style="list-style-type: none"> <li>▶ 0 ~ 3840 kbps : TCPAM-16</li> <li>▶ 3904 ~ 5696 kbps : TCPAM-32</li> <li>▶ 5760 ~ 12736 kbps : TCPAM-64</li> </ul> <b>Forced</b> : User defined TCPAM. The actual maxrate is limited according to <tcpam> value <ul style="list-style-type: none"> <li>▶ TCPAM-4 : 2496 kbps</li> <li>▶ TCPAM-8 : 5056 kbps</li> <li>▶ TCPAM-16 : 7616 kbps</li> <li>▶ TCPAM-32 : 10176 kbps</li> <li>▶ TCPAM-64 : 12736 kbps</li> <li>▶ TCPAM-128 : 15296 kbps</li> </ul>



<b>targetmargin</b>	The target SNR margin of PME. <margin> : 0~21 [dB]
<b>worstmargin</b>	The worst case target SNR margin of PME. <margin> : -10~21 [dB]
<b>margin</b>	<p><b>default</b> : In default mode, Current condition target margin is set to <b>targetmargin</b> value. Worst case target margin is not used in this mode.</p> <p><b>worst</b> : In this mode, In addition to the Current condition target margin set to <b>targetmargin</b>, Worst case target margin is set to the value of <b>worstmargin</b>.</p> <p>► <b>Note</b> ◀</p> <p>If Worst case target margin is applied, you may get lower data rate compared to the default mode, but can get much higher SNR margin. It is useful when connecting N560 series in an electrical noisy environment where noise level may vary dramatically.</p>
<b>finetune</b>	N560 series are applied the finetune algorithm that is solution to find out optimum link rate per distance. When the <finetune> is disabled, rate is determined by original DSP algorithm and rate would be determined row value. Finetune will operate when the <tcpam> is auto.
<b>deact</b>	User can activate or deactivate any PME in bonding group. This will be helpful when you want to disable a special PME from bonding group if it shows very poor loop performance. Use "restart pme" command to add the deactivated PME again. Any PME activate/deactivate configuration can be saved with "write config" command only in CO mode.

## Confirmation

See also, "[show pme](#)", "[restart pme](#)".

### ► Note ◀


 To apply the changed configuration, the PME must be restarted.

## Examples

[Example 7-1] configuring data rate of the p1

```
N564F> (enable) set pme p1 minrate 4096
N564F> (enable) set pme p1 maxrate 5696
N564F> (enable) restart pme p0
```

### ► Note ◀

 N560 series supports an aggregation of bonded PMEs. And if you change the configuration of any PME, you must restart the bonded PMEs. If you restart any PME, all PMEs will be restarted.

[Example 7-2] configure transmission type of p1, p2

```
N564F> (enable) set pme p1, p2 annex a
N564F> (enable) restart pme p0
```

[Example 7-3] configure power back-off of p0, p1, p2

```
N564F> (enable) set pme p0-p2 powerbackoff 3
N564F> (enable) set pme p0-p2 powerbackoff forced
N564F> (enable) restart pme p0
```

[Example 7-4] configure target SNR margin of the all PME

```
N564F> (enable) set pme all targetmargin 6
N564F> (enable) restart pme p0
```

## 7.2 show pme

To display information about 2BASE-TL PMEs.

### Usage

```
show pme { all | <pme name> }
```

### Arguments

Keyword	description
All	Display information about all PME.
<pme name>	Name of the PME. p0...p3

## Confirmation

See also, "[set pme](#)", "[restart pme](#)".

## Examples

[Example 7-5] show information about all PME

```
N564F> (enable) show pme all
Local Configurations                Local                Remote
-----
name  min   max pam  wcm mgn  pbo  annx st  rate sn la pam  pwr  sn la  pwr
-----
p0    192  5696 auto  -   5 auto  - dn  -  -  -  -  -  -  -  -
p1    192  5696 auto  -   5 auto  - dn  -  -  -  -  -  -  -  -
p2    192  5696 auto  -   5 auto  - dn  -  -  -  -  -  -  -  -
p3    192  5696 auto  -   5 auto  - dn  -  -  -  -  -  -  -  -
```

## Output Fields

Keyword	Description
min	Minimum line-rate 192Kbps ~ 15296Kbps
max	Maximum line-rate 192Kbps ~ 15296Kbps
pam	Configured constellation TCPAM-Auto, TCPAM-4, TCPAM-8, TCPAM-16, TCPAM-32, TCPAM-64, TCPAM-128
wcm	Worst case margin 0dB ~ 21dB
mgn	Target SNR margin 0dB ~ 21dB
pbo	Power back-off value. The value in brackets means auto or forced mode.
annx	DSL transmission mode ANNEX-A(F), ANNEX-B(G)
st	Current port status UP : Up DN : Down X : Deactivated

rate	Current port line-rate Minimum Rate < rate < Maximum Rate
sn	Current SNR margin
la	Current loop attenuation
pam	Negotiated constellation TCPAM-4, TCPAM-8, TCPAM-16, TCPAM-32, TCPAM-64, TCPAM-128, TCPAM-ext
pwr	Transmit power in dB. The shorter loop, the lower transmit power.

When the device is used in `rt` operational mode, the PME configuration of the `rt` device displays with "-", since the `co` device supply these values to `rt` device.

[Example 7-6] showing a specific pme information

```
N564F> (enable) show pme p0
-----
Device Type           CO
Transmission Mode     ANNEX-B(G)
Target Margin [dB]    5
Worst Margin [dB]    -10
PMMS Margin Type      default
Power Backoff [dB]    auto
Maximum Rate [Kbps]   5696
Minimum Rate [Kbps]   192
-----
Admin State           activated
Line State            dn
Line Rate [Kbps]      -
SNR Margin [dB]      -
Loop Atten [dB]      -
Transmit Power [dB]  -
Constellation         -
-----
N564F> (enable)
```

## 7.3 restart pme

To restart the 2BASE-TL PMEs

### Usage

```
restart pme <pme names>
```

## Arguments

keyword	description
<i>&lt;pme names&gt;</i>	Name of the PME. <i>&lt;pme names&gt;</i> : p0...p3, all

## Confirmation

See also, "[set pme](#)", "[show pme](#)".

## Examples

[Example 7-7] restart p0

```
N564F> (enable) restart pme p0
This command will restart p0, p1, p2, p3.
Do you want to continue (y/n) [n]? y
N564F> (enable)
```

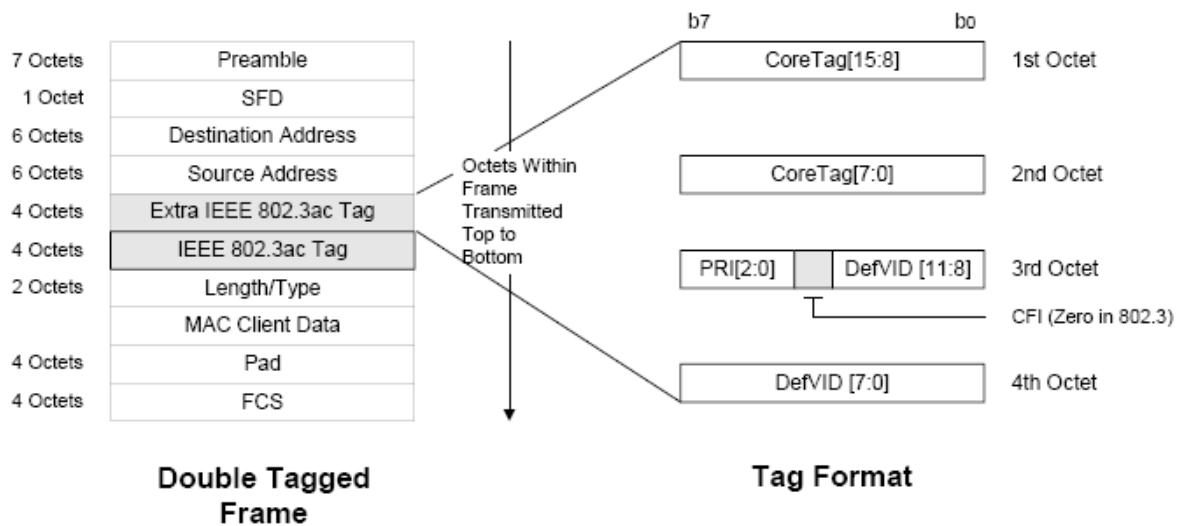
[Example 7-8] restart all PME

```
N564F> (enable) restart pme all
This command will restart all pmes.
Do you want to continue (y/n) [n]? y
N564F> (enable)
```

## 8 Double Tagging ID Commands

Double tagging is a way to isolate one IEEE 802.1Q VLAN from other IEEE 802.1Q VLANs in a hierarchical fashion that is compatible with IEEE 802.1Q aware switches as long as those switches support a maximum frame size of 1526 bytes or more. This method places an extra or Double Tag in front of a frame's normal tag (assuming the frame was already tagged), increasing the frame size by 4 bytes. The double tag frame format is shown in Figure 7-1.

[Figure 7-1]



If double tagging is enabled on a port, this port removes the first IEEE 802.3ac tag that appears after the source address in every ingress frame. In this mode, if the ingress frame has a single tag, it is removed and if the ingress frame has two tags, the first tag is removed.

And this port transmits all egress frames with an extra tag. If a frame is untagged, it egress tagged. If a frame is tagged, it egress double tagged. The extra or double tag is inserted right after the frame's source address so this new tag becomes the frame's first tag.

When a tag is added because the port is in double tagging mode, the tag is inserted right after the egress frame's source address. The four bytes of added data are:

The Tag bits are double tag ID to configure using "set doubletag-id" command.

The PRI bits indicate the frame's priority determined during ingress.

The CFI bit is always set to a zero.

The VID bits are the frame's source port's PVID and Fixed-Priority.

This section describes the commands that configure and display information about double tagging ID. To enable double tagging operation, see "set port".

## 8.1 set doubletag-id

To configure the double tag ID.

### Usage

```
set doubletag-id <hex code>
```

### Arguments

keyword	Description
<hex code>	When the extra tag is added, this value is used with VLAN Protocol ID (CoreTag[15:0] in Figure 7-1). <hex code> : double tag ID in 4 hexadecimal code.

### Confirmation

See also, "[show doubletag-id](#)", "[set port](#)".

### Examples

[Example 8-1] configure double tag ID

```
N564F> (enable) set doubletag-id 0x8200
N564F> (enable)
```

## 8.2 show doubletag-id

To display the double tag ID.

### Usage

```
show doubletag-id
```

### Confirmation

See also, "[set doubletag-id](#)".

## Examples

[Example 8-2] show double tag ID

```
N564F> (enable) show doubletag-id
Double Tagg ID: 0x8200
N564F> (enable)
```

## Output Fields

keyword	description
Double Tag ID	When the extra tag is added, this value is used as the VLAN Protocol ID.



## 9 Port Management

This section describes a list of commands that configure and display information about 100BASE-T and 2BASE-TL ports

### 9.1 set port

To configure information about 100BASE-T and 2BASE-TL ports.

#### Usage

```

set port <port names> linkmode { auto | full | half } [{ 10 | 100 }]
set port <port names> flowcontrol { enable | disable }
set port <port names> description <description>
set port <port names> portvlan <members>
set port <port names> pvid <vid>
set port <port names> doubletag { enable | disable }
set port <port names> maxrate { <rate> | unlimit }
set port <port names> fixed-priority <priority>
set port <port names> classifier { fixed | dot1p | dscp }

```

#### Arguments

keyword	Description
<b>&lt;port names&gt;</b>	Name of the port. <port names> : e0..e3, s0..s3, all If you enter <b>all</b> keyword in this argument, set all port to the same value that you supply.
<b>linkmode</b>	Applies only to 100BASE-T port. Configure the link mode of port. To configure the link mode : auto, full, half To configure the link speed : 10, 100 If you enter <b>auto</b> , you don't need to supply { <b>10   100</b> }
<b>flowcontrol</b>	Applies only to e0..e3 and s2..s3 ports. Enable or Disable flow control back pressure on this port.

<b>description</b>	Description of the port. <description> : A case - sensitive string of 1 - 64 characters (not including tabs, spaces, double quotes(""))
<b>portvlan</b>	To configure port-based VLAN. This configuration allows the port to send frames to the only member ports. The default configuration allows all ports to send frames to all the other ports. <members> : <port name>,<port name>, ... , <port name>
<b>pvid</b>	Port VID of the port. If the untagged frame is received by the port, the PVID is tagged. The default value is 1. <vid> : An integer in the range 2 ~ 4095.
<b>doubletag</b>	Enable or Disable Double Tagging.
<b>maxrate</b>	Limit the transmission rate of the port. <rate> : 64Kbps ~ 45568Kbps When set to 0, rate limiting function is disabled.
<b>fixed-priority</b>	Fixed Priority of the Port. <priority> : An integer in the range 0 ~ 7.
<b>classifier</b>	Quality of Service (QoS) Classifier. If a frame is received by the port, priority of the frame is determined by this field. <b>fixed</b> : use the port's fixed priority ( <b>fixed-priority</b> value) <b>dot1p</b> : use the IEEE 802.1p priority information. <b>dscp</b> : use the Ipv4 Type of Service (TOS)/DiffServ field.

## Confirmation

See also, "[show port](#)", "[set doubletag-id](#)", "[set auto-ratecontrol](#)".

## Examples

[Example 9-1] configure link mode of the e0, e2, e3

```
N564F> (enable) set port e0, e2, e3 linkmode full 100
N564F> (enable)
```

[Example 9-2] configure flow control of the e0, e1, e2, e3

```
N564F> (enable) set port e0-e3 flowcontrol enable
N564F> (enable)
```

[Example 9-3] configure port based VLAN of the e1

```
N564F> (enable) set port e1 portvlan e0, e2, s0
N564F> (enable)
```

## 9.2 show port

To display information about 100BASE-T and 2BASE-TL ports.

### Usage

```
show port { all | <port name> }
```

### Arguments

keyword	description
<b>all</b>	Display information about all port.
<b>&lt;port name&gt;</b>	Name of the port. e0..e3, s0..s3

### Confirmation

See also, "[set port](#)".

### Examples

[Example 9-4] show information about all port

```
N564F> (enable) show port all
configurations                                     status
-----
po  mode fc portvlan                               pvid dt maxrate pr class st  link
-----
s0   - di s1, s2, s3, e0, e1, e2, e3             1 di unlimit  0 fixed dn  -
s1   - di s0, s2, s3, e0, e1, e2, e3             1 di unlimit  0 fixed dn  -
s2   - di s0, s1, s3, e0, e1, e2, e3             1 di unlimit  0 fixed dn  -
s3   - di s0, s1, s2, e0, e1, e2, e3             1 di unlimit  0 fixed dn  -
e0  auto di s0, s1, s2, s3, e1, e2, e3             1 di unlimit  0 fixed dn  -
e1  auto di s0, s1, s2, s3, e0, e2, e3             1 di unlimit  0 fixed dn  -
e2  auto di s0, s1, s2, s3, e0, e1, e3             1 di unlimit  0 fixed up 100/F
e3  auto di s0, s1, s2, s3, e0, e1, e2             1 di unlimit  0 fixed dn  -
```

### Output Fields

keyword	description
mode	The link mode of this port

fc	The flow control of this port.
portvlan	The port based vlan members of this port.
pvid	The PVID of this port.
dt	The double tagging of this port.
maxrate	The max rate of this port.
pr	The fixed-priority of this port.
class	The classifier of this port.
st	The state of this port.
link	The link state including duplex and speed

[Example 9-5] show specific port information

```
N564F> (enable) show port e0
Description:      10/100BASE-TX_0
Link Mode:       auto
Flow Control:    disable
Port VLAN Members: s0, s1, s2, s3, e1, e2, e3
PVID:            1
Double Tagging:  disable
Max Rate:        unlimit
Fixed Priority:   0
Classifier:       fixed
Link State:      dn
Duplex:          -
Speed:           -
N564F> (enable)
```

## 10 Filter Commands

This section describes a list of commands that configure and display information about filter

The N560 series supports MAC address filter function. This filter is to block specific MAC access and will be very useful as a good protection against network congestions caused by users on vicious purpose. The N560 series provides 100 entries for filtering MAC addresses.

### 10.1 set filter mac

To configure information about MAC address filter.

#### Usage

```
set filter mac <mac address> { drop | forward-to-cpu }
```

#### Arguments

keyword	Description
<mac address>	The specific MAC address to filter.
drop	The specific MAC address to be dropped.
forward-to-cpu	The specific MAC address to be forwarded to the CPU.

#### Confirmation

See also, "[show filter mac](#)", "[clear filter mac](#)".

#### Examples

[Example 10-1] configure MAC address filter to drop

```
N564F> (enable) set filter mac 00:d0:84:11:12:13 drop
N564F> (enable)
```

[Example 10-2] configure MAC address filter to forward to CPU

```
N564F> (enable) set filter mac 00:d0:84:11:12:14 forward-to-cpu
N564F> (enable)
```

## 10.2 clear filter mac

To remove information about MAC address filter.

### Usage

```
clear filter mac { <mac address> | all }
```

### Arguments

keyword	Description
<i>&lt;mac address&gt;</i>	The specific MAC address to remove.
all	Remove all MAC address filter entries.

### Confirmation

See also, "[set filter mac](#)", "[show filter mac](#)".

### Examples

[Example 10-3] remove the specific MAC address filter entry

```
N564F> (enable) clear filter mac 00:d0:84:11:12:13
N564F> (enable)
```

[Example 10-4] remove all MAC address filter entries

```
N564F> (enable) clear filter mac all
This command will clear all mac filters.
Do you want to continue (y/n) [n]? y
N564F> (enable)
```

## 10.3 show filter mac

To display information about MAC address filter.

### Usage

```
show filter mac
```

### Confirmation

See also, "[set filter mac](#)", "[clear filter mac](#)".

## Examples

[Example 10-5] show MAC address filter entries

```
N564F> (enable) show filter mac
MAC Address      Filter Action
-----
00:d0:84:11:12:13  drop
00:d0:84:11:12:14  forward-to-cpu
N564F> (enable)
```

## Output Fields

keyword	Description
MAC Address	The specific MAC address.
Filter Action	Drop or Forward to the CPU the specific MAC address.

# 11 EFM OAM Commands

This section describes a list of commands that configure and display information about Operation, Administration and Maintenance (OAM) defined in IEEE 802.3ah Clause 57, also known as Ethernet in the First Mile OAM (EFMOAM). User can operate EFMOAM feature independently per port.

## 11.1 set efmoam

To configure information about EFM OAM.

### Usage

```

set efmoam <port names> { enable | disable }
set efmoam <port names> keepalive <interval> <timeout count>
set efmoam <port names> mode { active | passive }
set efmoam <port name> rcmp-channel

```

### Arguments

keyword	Description
<b>&lt;port names&gt;</b>	Name of the port. <port names> : e0..e3, s0..s3, all If you enter <b>all</b> keyword in this argument, set all port to the same value that you supply.
<b>enable or disable</b>	Enable or Disable EFM OAM function.
<b>keepalive</b>	Set transmission rate of <i>Information OAMPDU</i> and timeout count. <interval> : transmission interval in second. Should be greater than 1 second. <timeout count> : how many missing <i>Information OAMPDU</i> s to declare "EFMOAM Discovery Process" failure. For example, when you set keepalive parameters as 2 seconds (interval) and 5 missings (timeout count), EFMOAM process sends an Information OAMPDU every 2 seconds to EFMOAM peer and declares "EFMOAM Discovery Failure" if it couldn't receive any Information OAMPDU from the peer during consecutive 10 seconds (2 x 5).



<b>mode</b>	Set EFMOAM Data Terminating Entity (DTE) mode of ports (e0..e3, s2, s3). You can't change the mode of DSL ports (s0, s1). They are automatically configured according to the following rule: Device type (CO) : <b>active</b> Device type (RT) : <b>passive</b>
<b>rcmp-channel</b>	Remote CPE Management Protocol (RCMP) is a proprietary protocol by NexComm for configuring remote CPE without any IP address assigning to CPE devices. When you connect two NexComm devices, you can access remote CPE via CO device console without assigning an IP address to the remote CPE. This command selects the port over which RCMP PDU is carried. By default, s0 is selected. Please refer to "cpe" command for how to access remote CPE.

### Confirmation

See also, "[show efmoam](#)".

### Examples

[Example 11-1] configure EMF OAM

```
N564F> (enable) set efmoam s0 enable
N564F> (enable)
```

[Example 11-2] configure keepalive parameters

```
N564F> (enable) set efmoam s0 keepalive 1 10
N564F> (enable)
```

## 11.2 show efmoam

To display information about EFM OAM.

### Usage

```
show efmoam { all | <port name> }
```

### Confirmation

See also, "[set efmoam](#)".

## Examples

[Example 11-3] show information about EFMOAM

```
N564F> (enable) show efmoam all
```

po	local state	remote state	remote MAC addr	KTO
s0	act: any	pas: stable	00:d0:84:00:03:44	0
s1	disable	-	-	-
s2	disable	-	-	-
s3	disable	-	-	-
e0	disable	-	-	-
e1	disable	-	-	-
e2	disable	-	-	-
e3	disable	-	-	-

```
N564F> (enable) sh efmoam s0
OAM Information [s0]
```

Local Discovery State	send_any
Remote Discovery State	stable
Keepalive Interval	1 sec
Keepalive Timeout Count	10
Local MAC Address	00:d0:84:00:03:45
Remote MAC Address	00:d0:84:00:03:44

```
OAM Status:
```

	local	remote
Information Revision	0	0
OAM Mode	active	passive
Max. OAMPDU Size	1522	1522
Parser State	forward	forward
Multiplexer State	forward	forward
Variable Retrieval	no	no
Link Events	no	no
OAM Remote Loopback	yes	yes
Unidirectional	no	no

```
Statistics:
```

	send	recv
Information PDUs	14	12
Event PDUs	0	0
Variable Request PDUs	0	0
Variable Response PDUs	0	0
Loopback Control PDUs	0	0
Vendor Specific PDUs	6	6
Unknown PDUs	-	0
KeepAlive Timeouts	-	0

```
N564F> (enable)
```

## 12 Remote Device Management

This section describes a list of commands that manage the remote terminal(RT) device.

If an CO(central office) device is connected to a RT(remote terminal) device, you can manage remotely RT device from CO device by using “cpe” command.

### 12.1 cpe

To manage the RT device.

#### Usage

```
cpe <port name> <command>
```

#### Arguments

keyword	Description
<i>&lt;port name&gt;</i>	Port Name connected to a RT device. This feature is only supported to the 2BASE-TL port.
<i>&lt;command&gt;</i>	Command to execute on a RT device.

#### ► Note ◀

- ↳ You can this command only if device type is CO and 2BASE-TL port is up.
- ↳ This command is effective only if efmoam is enabled.

#### Confirmation

See also, “[set devicetype](#)”, “[set efmoam](#)”.

#### Examples

[Example 12-1] display device type of remote device.

```
N564F> (enable) show devicetype
Device Type: CO
N564F> (enable) cpe s0 show devicetype
Device Type: RT
N564F> (enable)
```

## 13 VLAN Management

This section describes a list of commands that configure and display information about IEEE 802.1Q VLAN

The N56x supports three IEEE 802.1Q VLAN operation modes: normal, trunk and transparent. In normal mode, maximum 256 VLANs can be added and deleted. In trunk mode, the ports operate like trunk port of cisco switch. Each port is able to set to have multiple VLANs (range from 1 to 4095). In transparent mode, the device operates like transparent bridge. Both untagged and tagged frames are transferred transparently.

### 13.1 set vlmode

To configure information about 802.1Q VLAN operation mode.

#### Usage

```
set vlmode { normal | trunk | transparent }
```

#### Arguments

keyword	Description
normal	Normal VLAN mode. Use "set vlan", "clear vlan" and "show vlan" commands.
trunk	Trunk VLAN mode. Use "set trunk", "clear trunk" and "show trunk" commands.
transparent	Transparent mode.

#### ► Note ◀

 If vlmode is changed, the VLAN configuration in the previous mode is cleared.

#### Confirmation

See also, "[show vlmode](#)".

#### Examples

[Example 13-1] configuring VLAN operation mode.

```
N564F> (enable) set vlmode trunk
This command will flush all vlan group.
Do you want to continue (y/n) [n]? y
N564F> (enable)
```

## 13.2 show vlmode

To display information about 802.1Q VLAN operation mode.

### Usage

```
show vlmode
```

### Confirmation

See also, "[set vlmode](#)".

### Examples

[Example 13-2] display information about VLAN operation mode.

```
N564F> (enable) show vlmode
VLAN Mode: trunk
N564F> (enable)
```

## 13.3 set vlan

To configure information about 802.1Q VLANs.

This command is effective only in normal VLAN operation mode.

### Usage

```
set vlan <vlans> <port names> { untag | tag }
```

### Arguments

keyword	Description
<b>&lt;vlans&gt;</b>	802.1Q VID (VLAN identifiers) An integer in the range 1 ~ 4095.
<b>&lt;port names&gt;</b>	Name of the port. <port names> : e0..e3, s0..s3, all
<b>untag</b>	Frames to egress the port(s) are untagged.
<b>tag</b>	Frames to egress the port(s) are tagged.

## Confirmation

See also, "[clear vlan](#)", "[show vlan](#)".

## Examples

[Example 13-3] add the tagged port e0,s0 to the VLAN 2~10.

```
N564F> (enable) set vlan 2-10 e0,s0 tag
N564F> (enable)
```

## 13.4 clear vlan

To remove information about 802.1Q VLANs.

This command is effective only in normal VLAN operation mode.

### Usage

```
clear vlan <vlans> <port names>
```

### Arguments

keyword	Description
<i>&lt;vlans&gt;</i>	802.1Q VID (VLAN identifiers) An integer in the range 1 ~ 4095.
<i>&lt;port names&gt;</i>	Name of the port. <i>&lt;port names&gt;</i> : e0..e3, s0..s3, all

## Confirmation

See also, "[set vlan](#)", "[show vlan](#)".

## Examples

[Example 13-4] delete the all port from the VLAN 2~10.

```
N564F> (enable) clear vlan 2-10 all
N564F> (enable)
```

## 13.5 show vlan

To display information about about 802.1Q VLANs.

This command is effective only in normal VLAN operation mode.

## Usage

**show vlan**

## Confirmation

See also, "[set vlan](#)", "[clear vlan](#)".

## Examples

[Example 13-5] show information about VLAN

```

N564F> (enable) show vlan
VID    s0 1 2 3    e0 1 2 3
-----
1      u u u u    u u u u
2      t          t
3      t          t
4      t          t
5      t          t
6      t          t
7      t          t
8      t          t
9      t          t
10     t          t
N564F> (enable)

```

## Output Fields

keyword	description
VID	VLAN Identifier. VID 1 is default VLAN.
u	The specific port is the untagged port of this VLAN group.
t	The specific port is the tagged port of this VLAN group.

## 13.6 set trunk

To add VLANs to the trunk ports.

This command is effective only in trunk VLAN operation mode.

In trunk mode, the ports have the allowed VLAN list. The tagged VLANs in this list are only allowed to transmit and receive by this port. All untagged frames are assigned to the PVID (called native VLAN ID). When the frame with native VLAN ID egress, it is untagged.

## Usage

```
set trunk <vlans> <port names>
```

## Arguments

Keyword	Description
<vlans>	Range of VLANs which involve specific ports. An integer value between 1 and 4095.
<port names>	Name of the port. <port names> : e0...e3, s0, all

## Confirmation

See also, "[clear trunk](#)", "[show trunk](#)".

## Examples

[Example 13-6] add the trunk VLAN 1~1000 to e0, s0 ports.

```
N564F> (enable) set trunk 1-1000 e0, s0
N564F> (enable)
```

## 13.7 clear trunk

To remove VLANs from the trunk ports.

This command is effective only in trunk VLAN operation mode.

## Usage

```
clear trunk <vlans> <port names>
```

## Arguments

keyword	Description
<vlans>	Range of VLANs which involve specific ports. An integer value between 1 and 4095.
<port names>	Name of the port. <port names> : e0...e3, s0, all

### ► Note ◀

- ☞ If a native VLAN ID is involved in <vlans>, the NCLI displays an error message as Example 11-7.



## Confirmation

See also, "[set trunk](#)", "[show trunk](#)".

## Examples

[Example 13-7] delete the trunk VLAN 1-1000 from all port.

```
N564F> (enable) clear trunk 1-1000 all
Error: vid range [1-1000] has native VLAN 1 of e0.
N564F> (enable)
```

[Example 13-8] delete the trunk VLAN 500-1000 from all port.

```
N564F> (enable) clear trunk 500-1000 all
N564F> (enable)
```

## 13.8 show trunk

To display information about the allowed VLAN list to trunk ports.

This command is effective only in trunk VLAN operation mode.

## Usage

```
show trunk
```

## Confirmation

See also, "[set trunk](#)", "[clear trunk](#)".

## Examples

[Example 13-9] show the allowed VLAN list

```
N564F> (enable) show trunk
Port  VID
-----
s0    1-499
s1    1
s2    1
s3    1
e0    1-499
e1    1
e2    1
e3    1
N564F> (enable)
```

**Output Fields**

<b>keyword</b>	<b>description</b>
<b>Port</b>	Name of the specific port.
<b>VID</b>	Range of VLANs allowed to go on the specific port.

## 14 QoS Management

This section describes a list of commands that configure and display information about Quality of Service(QoS).

### 14.1 set qos

To configure information about Quality of Service(QoS).

#### Usage

```
set qos scheduling { strict | wfq }
set qos dot1p-map <map>
set qos dscp-map <codes> <priority>
```

#### Arguments

keyword	Description
<b>scheduling</b>	QoS scheduler. <b>strict</b> : N560 series has four priority queues. In strict scheduling, queue 3 has the highest priority, queue 2 the next highest. Queue 0 has the lowest priority, queue 1 the next lowest. <b>wfq</b> : In weighted fair queuing(WFQ) scheduling, an 8, 4, 2, 1 weighting is applied to the four priority queues.
<b>dot1p-map</b>	IEEE 802.1p mapping. These values are used to map a received tagged frame to classify based on the 802.1p priority. <i>&lt;map&gt;</i> : A comma-separated list of 8 priority values (0~7). The default is "0,1,2,3,4,5,6,7"
<b>dscp-map</b>	DSCP mapping. These values are used to map a received IP frame to classify based on the DSCP value. <i>&lt;codes&gt;</i> : comma-separated ranges of DSCP values(0~63). <i>&lt;priority&gt;</i> : an integer in the range 0~7. The default value is all 0.

#### Confirmation

See also, "[show qos](#)", "[set port](#)".

## Examples

[Example 14-1] configure QoS scheduling

```
N564F> (enable) set qos scheduling wfq
N564F> (enable)
```

[Example 14-2] configure dot1p map

```
N564F> (enable) set qos dot1p-map 0, 1, 2, 3, 4, 5, 6, 7
N564F> (enable)
```

[Example 14-3] configure dscp map

```
N564F> (enable) set qos dscp-map 0-7, 50-55, 63 3
N564F> (enable)
```

[Example 14-4] configure dscp map

```
N564F> (enable) set qos dscp-map 11, 60 7
N564F> (enable)
```

## 14.2 show qos

To display information about qos.

### Usage

```
show qos
```

### Confirmation

See also, "[set qos](#)".

## Examples

[Example 14-5] show information about all port

```
N564F> (enable) show qos
Scheduling:      strict
Dot1p map:
  0  1  2  3  4  5  6  7
-----
  0  1  2  3  4  5  6  7
DSCP map
dl:d2  0  1  2  3  4  5  6  7  8  9
-----
0:  0  0  0  0  0  0  0  0  0  0
1:  0  0  0  0  0  0  0  0  0  0
2:  0  0  0  0  0  0  0  0  0  0
3:  0  0  0  0  0  0  0  0  0  0
4:  0  0  0  0  0  0  0  0  0  0
5:  0  0  0  0  0  0  0  0  0  0
6:  0  0  0  0
N564F> (enable)
```

## Output Fields

Keyword	description
<b>Scheduling</b>	The discipline for QoS scheduler.
<b>Dot1p map</b>	These values are used to map a received tagged frame to classify based on the 802.1p priority
<b>DSCP map</b>	These values are used to map a received IP frame to classify based on the DSCP value

## 15 Configuration Management

This section describes a list of commands you can use to manage the system configuration.

The N560 series supports two configurations. These configurations are stored in two banks of the system's non - volatile memory. A file can be stored in either bank (0 or 1). You can use the "**show system**" command to display the bank.

When the system started, it loads the startup configuration that is selected by "**set system bootconfig**" command. If this configuration is empty, the system is started with the default settings.

### 15.1 show config

To display the system or stored configuration,

#### Usage

```
show config [ <config name> ]
```

#### Arguments

Keyword	Description
<b>&lt;config name&gt;</b>	(Optional) Display the stored configuration in non - volatile memory. The system supports two banks. <config name> : config0, config1 If you do not enter <config name>, display the running configuration..

#### Confirmation

See also, "[set system](#)", "[write](#)", "[copy](#)", "[clear config](#)".

#### Examples

[Example 15-1] display the running configuration

```
N564F> (enable) show config
# begin
#
# ***** RUNNING CONFIGURATION *****
```

```
#
# Current time: Thu Jan 1 00:30:42 1970
#
# Version 1.0.1 [Fri Nov 10 12:56:32 2006]
#
.....
#
# end
N564F> (enable)
```

[Example 15-2] display the stored configuration in bank 1.

```
N564F> (enable) show config config1
# begin
#
# ***** config1 CONFIGURATION *****
#
# Saved time: Thu Jan 1 00:18:55 1970
# Saved Bytes: 1810
#
# Version 1.0.1 [Fri Nov 10 12:56:32 2006]
#
.....
#
# end
N564F> (enable)
```

## 15.2 copy commands for configuration

To upload or download a system configuration to or from memory bank or FTP server.

### Usage

```
copy { ftp | tftp } <config name>
copy <config name> ftp
copy <src config name> <dst config name>
```

### Arguments

Keyword	Description
<b>&lt;config name&gt;</b>	Specifies the configuration in the non - volatile memory bank. <config name> : config0, config1
<b>ftp</b>	Allows you to copy to or from a FTP server.
<b>Tftp</b>	Allows you to copy from a TFTP server.

<b>&lt;src config name&gt;</b>	Specifies the source configuration. <src config name> : config0, config1
<b>&lt;dst config name&gt;</b>	Specifies the destination configuration. <dst config name> : config0, config1

## Confirmation

See also, "[set system](#)", "[write](#)", "[show config](#)", "[clear config](#)".

## Examples

[Example 15-3] Download a system configuration file from a FTP server to the bank 1.

```
N564F> (enable) copy ftp config1
FTP Server IP address? 172.20.22.7
User name? nexcomm
Password? (password is not echoed)
File Location? test.cfg
Download config file from test.cfg to config1 (y/n) [n]? y
..
Finish network download. (1810 bytes)
Configuration has been copied to config1.
N564F> (enable)
```

[Example 15-4] Upload a system configuration file from a FTP server to the bank 1.

```
N564F> (enable) copy config1 ftp
FTP Server IP address? 172.20.22.7
User name? nexcomm
Password? (password is not echoed)
File Location? test.cfg
Upload config file from config1 to test.cfg (y/n) [n]? y
..
Finish network upload. (1810 bytes)
Configuration has been copied from config1.
N564F> (enable)
```

[Example 15-5] Copy a system configuration file from the bank 0 to the bank 1.

```
N564F> (enable) copy config0 config1
Copy configuration from config0 to config1 (y/n) [n]? y
.....
Configuration has been copied successfully. (1810 bytes).
N564F> (enable)
```



## 15.3 write command

To copy the current configuration to the non - volatile memory or display the configuration information currently in running.

### Usage

```
write <config name>
```

### Arguments

Keyword	Description
<b>&lt;config name&gt;</b>	Specifies the configuration on the non - volatile memory bank. <config name> : config0, config1

### Confirmation

See also, "[set system](#)", "[copy](#)", "[show config](#)", "[clear config](#)".

### Examples

[Example 15-6] copy the current configuration to the bank 1.

```
N564F> (enable) write config1
N564F> (enable)
```

## 15.4 clear config

To erase the configuration in the non - volatile memory bank.

### Usage

```
clear config <config name>
```

### Arguments

Keyword	Description
<b>&lt;config name&gt;</b>	Specifies the configuration on the non - volatile memory bank. <config name> : config0, config1

### Confirmation

See also, "[set system](#)", "[write](#)", "[show config](#)", "[copy](#)".

## Examples

[Example 15-7] erase the current configuration in the bank 1.

```
N564F> (enable) clear config configl  
This command will clear configl.  
Do you want to continue (y/n) [n]? y  
N564F> (enable)
```

## 16 Software Image Management

This section describes a list of commands you can use to manage the system software.

The N560 series supports one software image. This image is stored in a bank of the system's non - volatile memory.

### 16.1 show image

To display the information about the stored software image.

#### Usage

```
show image
```

#### Confirmation

See also, "[set system](#)", "[copy](#)".

#### Examples

[Example 16-1] display software image information

```
N564F> (enable) show image
Image   Version           Build Date
-----
image0  1.7.1             Fri Apr  9 08:06:23 2010
N564F> (enable)
```

### 16.2 copy commands for software image

Upload or download system software to or from memory bank or FTP server,

#### Usage

```
copy { ftp | tftp } image0
copy image0 { ftp | tftp }
```

#### Arguments

keyword	Description
<b>image0</b>	Specifies the software image on the non - volatile memory bank.
<b>ftp</b>	Allows you to copy to or from a FTP server.
<b>tftp</b>	Allows you to copy from a TFTP server.

## Confirmation

See also, "[set system](#)", "[show image](#)".

## Examples

[Example 16-2] Download a system software image file from a FTP server to the bank 0.

```
N564F> (enable) copy ftp image0
FTP Server IP address? 172.20.22.7
User name? nexcomm
Password? (password is not echoed)
File Location? N560.1.0.1.bin
Download config file from N560.1.0.1.bin to image0 (y/n) [n]? y
.....
Finish network download. (1425408 bytes)
Verify download image...
Write download image...
Software image has been copied to image0.
N564F> (enable)
```

[Example 16-3] Upload a system software image file from a FTP server to the bank 0.

```
N564F> (enable) copy image0 ftp
FTP Server IP address? 172.20.22.7
User name? nexcomm
Password? (password is not echoed)
File Location? test.img
Upload config file from image0 to test.img (y/n) [n]? y
.....
Finish network upload. (1425408 bytes)
Software image has been copied from image0.
N564F> (enable)
```

## 17 SNMP Commands

This section describes a list of commands for SNMP features.

This section has two sub sections. First section describes the commands that enable you to manage the access privilege levels associated with SNMP community strings, which help control SNMP access to a device. A community string functions as a password that is used to verify the authenticity of messages that are passed between the N560 device and an SNMP manager.

Second section describes the commands for managing and displaying information about an N560's trap host table.

### 17.1 set snmp community

To configure the attributes of an SNMP community string.

#### Usage

```
set snmp { enable | disable }
set snmp community { read-only | read-write } <community string>
```

#### Arguments

keyword	Description
<b>enable</b>	Allows access from SNMP manager to device.
<b>disable</b>	Prohibits access from SNMP manager to device.
<b>read-only</b>	Assigns read-only access to the specified SNMP community.
<b>read-write</b>	Assigns read-write access to the specified SNMP community.
<b>&lt;community string&gt;</b>	Name of the SNMP community. The name is 1 - 32 character case - sensitive string.

#### Confirmation

See also, "[clear snmp community](#)", "[show snmp](#)".

## Examples

[Example 17-1] add new community string

```
N564F> (enable) set snmp community read-only nexcomm
N564F> (enable)
```

[Example 17-2] change the access-privileged of the community string

```
N564F> (enable) set snmp community read-write nexcomm
N564F> (enable)
```

## 17.2 clear snmp community

To remove an SNMP community string.

### Usage

```
clear snmp community [ <community string> ]
```

### Arguments

Keyword	Description
<community string>	(Optional) Name of the SNMP community. If you do not enter <community string>, removes all SNMP community string.

### Confirmation

See also, "[set snmp community](#)", "[show snmp](#)".

## Examples

[Example 17-3] remove "nexcomm" community string

```
N564F> (enable) clear snmp community nexcomm
N564F> (enable)
```

[Example 17-4] remove all community string

```
N564F> (enable) clear snmp community
This command will clear all snmp communities.
Do you want to continue (y/n) [n]? y

Cleared all snmp communities.
N564F> (enable)
```

## 17.3 set snmp trap

To add and modify an entry into the SNMP trap receiver table.

### Usage

```
set snmp trap { enable | disable }
set snmp trap host <rcvr addr > <rcvr community>
```

### Arguments

Keyword	Description
Enable	Enable SNMP traps.
Disable	Disable SNMP traps.
Host	host to receive SNMP traps. <rcvr addr > : IP address of the host. <rcvr community> : Community string to use when sending traps.

### Confirmation

See also, "[clear snmp trap](#)", "[show snmp](#)".

### Examples

[Example 17-5] add new host entry

```
N564F> (enable) set snmp trap host 172.16.0.17 public
N564F> (enable)
```

[Example 17-6] change the community string of the host

```
N564F> (enable) set snmp trap host 172.16.0.17 private
N564F> (enable)
```

## 17.4 clear snmp trap

To remove an SNMP trap host.

### Usage

```
clear snmp trap host [ <rcvr addr > ]
```

## Arguments

Keyword	Description
<code>&lt;rcvr addr &gt;</code>	(Optional) IP Address of the SNMP trap host. If you do not enter <code>&lt;rcvr addr &gt;</code> , removes all SNMP trap host.

## Confirmation

See also, "[set snmp trap](#)", "[show snmp](#)".

## Examples

[Example 17-7] remove "172.16.0.17" trap host

```
N564F> (enable) clear snmp trap host 172.16.0.17
N564F> (enable)
```

[Example 17-8] remove all trap host

```
N564F> (enable) clear snmp trap host
This command will delete all SNMP trap receiver.
Do you want to continue (y/n) [n]? y

All SNMP trap hosts deleted.
N564F> (enable)
```

## 17.5 show snmp

To display SNMP information.

### Usage

```
show snmp
```

### Confirmation

See also, "[set snmp community](#)", "[clear snmp community](#)", "[set snmp trap](#)", "[clear snmp trap](#)".



## Examples

[Example 17-9] display SNMP information

```
N564F> (enable) show snmp
SNMP: enable
SNMP trap: enable

Community-Access      Community-String
-----
read-only             public

Trap-Rec-Address      Trap-Rec-Community
-----
150.150.10.10         nexcomm
N564F> (enable)
```

## Output Fields

Keyword	description
SNMP	Admin status of SNMP.
SNMP Trap	Admin status of SNMP Trap.
Community-Access	Access authority of the specified SNMP community.
Community-String	Name of the specified SNMP community.
Trap-Rec-Address	IP address of the specified SNMP Trap host.
Trap-Rec-Community	Community string of the specified SNMP Trap host.

## 18 Log Commands

This section describes a list of commands that display and clear system logs.

### 18.1 show log

To display the system log information.

#### Usage

```
show log
```

#### Confirmation

See also, "[show log dump](#)", "[clear log](#)"

#### Examples

[Example 18-1] display the system log information

```
N564F> (enable) show log
Re-boot History:      Thu Jan  1 00:00:04 1970
s0 port UP/DOWN count: 0/0
s1 port UP/DOWN count: 0/0
s2 port UP/DOWN count: 0/0
s3 port UP/DOWN count: 0/0
e0 port UP/DOWN count: 0/0
e1 port UP/DOWN count: 0/0
e2 port UP/DOWN count: 1/0
e3 port UP/DOWN count: 0/0
p0 pme  UP/DOWN count: 0/0
p1 pme  UP/DOWN count: 0/0
p2 pme  UP/DOWN count: 0/0
p3 pme  UP/DOWN count: 0/0
N564F> (enable)
```

## Output Fields

keyword	description
Reset count	Count of System Reboot.
Re-boot History	Histories of System Reboot. If reset count is 0, this field is not printed.
port UP/DOWN count	Count of up and down event in this port.
pme UP/DOWN count	Count of up and down event in this port.

## 18.2 show log dump

To display the system logs.

### Usage

```
show log dump [ <-count> ]
```

### Arguments

keyword	Description
<-count>	(Optional) Number of dump log entries to display. If you do not enter <-count>, dump 20 log entries.

### Confirmation

See also, "[show log](#)", "[clear log](#)"

### Examples

[Example 18-2] dump the only one system log

```
N564F> (enable) show log dump -1
Thu Jan 1 00:00:19 1970 e0: 100 Mbps full-duplex Link Up
Total logs: 2.
N564F> (enable)
```

## 18.3 clear log

To remove the system logs.

### Usage

```
clear log
```

## Confirmation

See also, "[show log](#)", "[show log dump](#)"

## Examples

[Example 18-3] clear all system log.

```
N564F> (enable) clear log
This command will clear all system log.
Do you want to continue (y/n) [n]? y

All system log cleared.
N564F> (enable)
```

## 18.4 set log server

To configure syslog server.

### Usage

```
show log server { enable | disable }
show log server ip <ip addr>
show log server facility <level>
show log server severity <level>
```

### Arguments

keyword	Description
<b>enable</b>	Enable system message logging to configured syslog server.
<b>disable</b>	Disable system message logging to configured syslog server.
<b>ip</b>	IP address of the syslog server. <ip addr> : In dot-decimal notation.
<b>facility</b>	Type of system messages to capture <level> : Valid values are from 0 to 7 (local0 ~ local7).
<b>severity</b>	Severity level <level> : Valid values are from 0 to 7.

## Confirmation

See also, "[show log server](#)"

## Examples

[Example 18-4] enable logging to the syslog server

```
N564F> (enable) set log server enable
N564F> (enable)
```

## 18.5 show log server

To display the information about syslog server.

### Usage

```
show log server
```

### Confirmation

See also, "[set log server](#)"

## Examples

[Example 18-5] display log server information

```
N564F> (enable) show log server
Log server:          enabled
server ip:           172.16.0.17
server facility:     local7
server severity:     Alert(1)
N564F> (enable)
```

### Output Fields

keyword	description
Log server	Status of whether logging to the syslog server.
server ip	IP address of the syslog server.
server facility	Name of the facility to be logged.
server severity	Severity level to be logged.

## 19 Statistics Commands

This section describes the commands that display and clear statistics for 100BASE-TX and 2BASE-TL ports.

### 19.1 show statistics

To display statistics about port, OAM and PME.

#### Usage

```
show statistics port {all | <port name>}
show statistics oam {all | <port name>}
show statistics pme {all | <pme name>}
```

#### Arguments

keyword	Description
<b>&lt;port name&gt;</b>	Name of the port. <port names> : e0..e3, s0..s3, all
<b>port</b>	Display statistics about the specified port.
<b>oam</b>	Display statistics about EFM-OAM of the specified port.
<b>&lt;pme name&gt;</b>	Name of PME. <pme names> : p0...p3, all If you enter <b>all</b> keyword in this argument, set all PME to the same value that you supply.
<b>pme</b>	Display statistics about the specified PME.

#### Confirmation

See also, "[clear statistics](#)"

## Examples

[Example 19-1] display port statistics about all port.

```
N564F> (enable) show statistics port all
Port  Receive Frames  Transmit Frames
-----
s0    0                0
s1    0                0
s2    0                0
s3    0                0
e0    0                0
e1    0                0
e2    10452           0
e3    0                0
N564F> (enable)
```

## Output Fields

keyword	description
Port	Name of the specified port.
Receive Frames	Count of received frame to this port.
Transmit Frames	Count of transmit frame from this port.

[Example 19-2] display oam statistics about all port.

```
N564F> (enable) show statistics oam all
Port  txInfoPdu  txEventPdu  rxInfoPdu  rxEventPdu  rxUkCodes  KaTimeOut
-----
s0    0          0           0          0           0          0
N564F> (enable)
```

## Output Fields

keyword	description
Port	Name of the specified port.
txInfoPdu	Count of transmit information PDU from this port.
txEventPdu	Count of transmit event PDU from this port.
rxInfoPdu	Count of receive information PDU to this port
rxEventPdu	Count of receive event PDU to this port
rxUkCodes	Count of receive unknown code to this port
KaTimeOut	Count of keepalive timeout counter to this port

[Example 19-3] display statistics about all PME.

```
N564F> (enable) show statistics pme all
PME  CV      ES      SES      LOS      UAS
-----
p0   0       0       0       0       0
p1   0       0       0       0       0
p2   0       0       0       0       0
p3   0       0       0       0       0
N564F> (enable)
```

## Output Fields

keyword	description
PME	Name of the specified PME.
CV	Code violation counter
ES	Errored seconds counter.
SES	Severely errored seconds counter
LOS	Loss of signal
UAS	Unavailable seconds counter

## 19.2 clear statistics

To clear statistics.

### Usage

```
clear statistics port { all | <port name> }
clear statistics oam { all | <port name> }
clear statistics pme { all | <pme name> }
```

### Arguments

keyword	Description
<b>&lt;port name&gt;</b>	Name of the port. <port names> : e0...e3, s0, all
<b>port</b>	Clear statistics about the specified port.
<b>oam</b>	Clear statistics about EFM-OAM of the specified port.



<b>&lt;pme name&gt;</b>	Name of PME. <pme names> : p0...p3, all If you enter <b>all</b> keyword in this argument, set all PME to the same value that you supply.
<b>pme</b>	Clear statistics about the specified PME.

## Confirmation

See also, "[show statistics](#)"

## Examples

[Example 19-4] clear statistics about all port.

```
N564F> (enable) clear statistics port all
This command will reset all statistics of all port.
Do you want to continue (y/n) [n]? y
N564F> (enable)
```

[Example 19-5] clear statistics about e1.

```
N564F> (enable) clear statistics port e1
N564F> (enable)
```

[Example 19-6] clear oam statistics about all port.

```
N564F> (enable) clear statistics oam all
This command will reset all oam statistics.
Do you want to continue (y/n) [n]? y
N564F> (enable)
```

[Example 19-7] clear oam statistics about s1.

```
N564F> (enable) clear statistics oam s0
N564F> (enable)
```

[Example 19-8] clear statistics about all PME.

```
N564F> (enable) clear statistics pme all
This command will reset all statistics of all pme.
Do you want to continue (y/n) [n]? y
N564F> (enable)
```

[Example 19-9] clear statistics about p0.

```
N564F> (enable) clear statistics pme p0
N564F> (enable)
```

## 20 Telnet Session Management

This section describes a list of commands that display and disconnect active telnet sessions of console port.

### 20.1 show users

To display if the console port is active and to list all active telnet sessions with the IP address.

#### Usage

```
show users
```

#### Confirmation

See also, "[disconnect](#)"

#### Examples

[Example 20-1] display all active sessions

```
N564F> (enable) show users
Console Port
-----
Login   : Wed Feb 28 18:24:07 2007

Telnet Sessions
-----
172.16.0.132 : Wed Feb 28 18:24:22 2007
N564F> (enable)
```

#### Output Fields

keyword	description
Console Port	Status of the console port.
Telnet Sessions	Active telnet sessions.

## 20.2 disconnect

To close an active console port or telnet session.


### Usage

**disconnect** { *<ip addr>* | **console** }

### Arguments

keyword	Description
<i>&lt;ip addr &gt;</i>	IP address.
<b>console</b>	Denotes an active console port.

#### ► Note ◀

 If multiple sessions from the same IP address exist, all telnet session from the specified IP address are disconnected.

### Confirmation

See also, "[show users](#)".

### Examples

[Example 20-2] close a telnet session to host 172.16.0.132.

```
N564F> (enable) disconnect 172.16.0.132
N564F> (enable)
```

## 21 HTTP Commands

This section describes a list of commands that configure and display information about HyperText Transfer Protocol (HTTP) server.

### 21.1 set http server

To enable or disable the HTTP server.

#### Usage

```
set http server { enable | disable }
```

#### Arguments

keyword	Description
enable	Enables the HTTP server.
disable	Disable the HTTP server.

#### Confirmation

See also, "[set http port](#)", "[show http](#)".

#### Examples

[Example 21-1] enable the HTTP server

```
N564F> (enable) set http server enable
N564F> (enable)
```

### 21.2 set http port

To configure the TCP port number for the HTTP server.

#### Usage

```
set http port { default | <port number> }
```

## Arguments

keyword	Description
<b>default</b>	Specifies the default HTTP server port number (80).
<b>&lt;port number&gt;</b>	Number of the TCP port for the HTTP server. Valid values are from 1 to 65535.


## Confirmation

See also, "[set http server](#)", "[show http](#)".

## Examples

[Example 21-2] configure the HTTP port number

```
N564F> (enable) set http port 8080
N564F> (enable)
```

 To apply the changed port number, the HTTP server must be restarted (using "set http server disable" and "set http server enable" commands).

## 21.3 show http

To display the HTTP configuration.

### Usage

```
show http
```

### Confirmation

See also, "[set http server](#)", "[set http port](#)".

### Examples

[Example 21-3] display the HTTP configuration

```
N564F> (enable) show http
HTTP Configuration Information:
-----
HTTP Server: enabled
HTTP Port: 80
N564F> (enable)
```

**Output Fields**

<b>keyword</b>	<b>description</b>
HTTP Server	Admin status of HTTP server.
HTTP Port	TCP number for the HTTP server.

## 22 SNTP Commands

This section describes a list of commands that configure and display information about Simple Network Time Protocol (SNTP).

### 22.1 set sntp

To configure the attributes of SNTP.

#### Usage

```
set sntp { enable | disable }
set sntp server <ip addr>
set sntp timezone <hours>
set sntp interval <minutes>
```

#### Arguments

keyword	Description
<b>enable</b>	Enable SNTP client.
<b>disable</b>	Disable SNTP client.
<b>server</b>	Specify the SNTP server address. <ip addr> : IP address of the SNTP server, in dot-decimal notation.
<b>timezone</b>	Time zone. <hours> : the offset in hours from UTC. Valid values are from -11 to +12.
<b>interval</b>	How often the N560 should poll the SNTP server. <minutes> : The default is 60 minutes (1 hour).

#### Confirmation

See also, "[show sntp](#)".

#### Examples

[Example 22-1] enable the SNTP client

```
N564F> (enable) set sntp enable
N564F> (enable)
```

**[Example 22-2] changing timezone**

```
N564F> (enable) set sntp timezone 0
N564F> (enable)
```

## 22.2 show sntp

To display SNTP information.

### Usage

```
show sntp
```

### Confirmation

See also, "[set sntp](#)".

### Examples

**[Example 22-3] display SNTP information**

```
N564F> (enable) show sntp
SNTP Client Mode:    enabled
SNTP Server Address: 66.187.224.4
Timezone:           UTC+9
Polling Interval:   60 minutes
Current TIme:       Tue May 22 17:29:06 2007
Last SNTP Update:   Tue May 22 17:29:05 2007
N564F> (enable)
```

### Output Fields

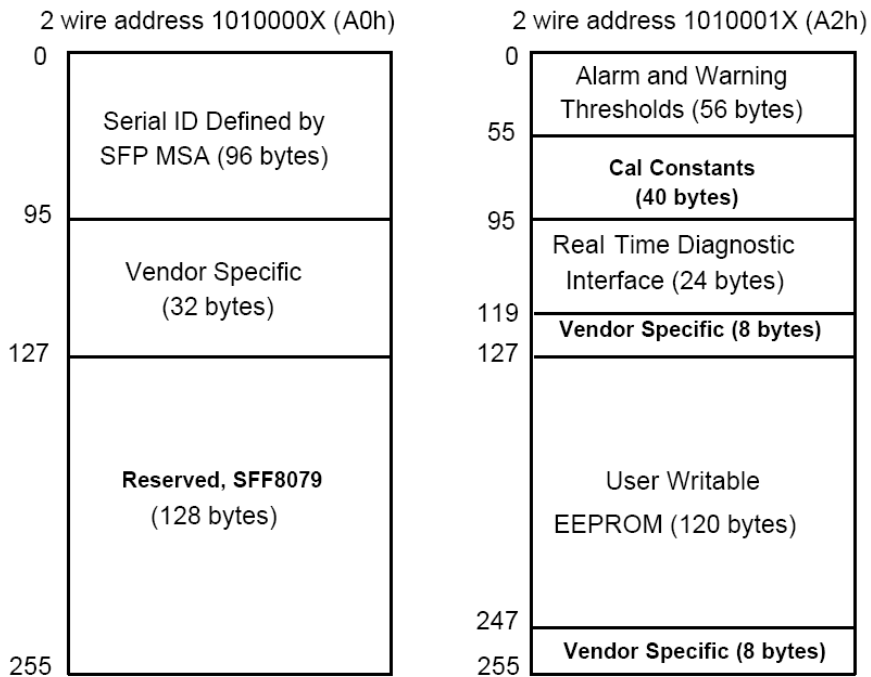
keyword	description
SNTP Client Mode	Admin status of SNTP.
SNTP Server Address	IP address of the SNTP server.
Timezone	The offset in hours from UTC.
Polling Interval	How often the N560 should poll the SNTP server.
Current Time	Current system time.
Last SNTP Update	Time of the last SNTP update.



## 23 SFP Management

The small form-factor pluggable (SFP) is a compact, hot-pluggable transceiver used for both telecommunication and data communications applications. It interfaces a network device mother board (for a switch, router, media converter or similar device) to a fiber optic or copper networking cable. It is a popular industry format supported by several network component vendors.

N56XF supports a Digital Diagnostic Monitoring (DDM) interface for optical transceivers that allows pseudo real time access to device operating parameters. The interface is an extension of the two-wire interface ID interface defined in the GBIC specification as well as the SFP MSA. Both specifications define a 256 byte memory map in EEPROM which is accessible over a 2 wire serial interface at the 8 bit address 1010000X (A0h). The digital diagnostic monitoring interface makes use of the 8 bit address 1010001X (A2h), so the originally defined two-wire interface ID memory map remains unchanged.



[Figure 22-1] Digital Diagnostic Memory Map Specific Data Field Descriptions

## 23.1 set sfp

To configure SFP parameters.

### Usage

**set sfp** <port names> **temperature** {alarm|warn} {high|low} <value>

**set sfp** <ort names> **voltage** {alarm|warn} {high|low} <value>

**set sfp** <ort names> **current** {alarm|warn} {high|low} <value>

**set sfp** <ort names> **txpower** {alarm|warn} {high|low} <value>

**set sfp** <ort names> **rxpower** {alarm|warn} {high|low} <value>

### Arguments

keyword	Description
<port names>	Name of the port. <port names> : s2..s3, all If you enter <b>all</b> keyword in this argument, only s2 and s3 ports are applied.
<b>temperature</b>	Temperature of SFP module The unit is 1/100 °C (e.g. -40°C → -4000).
<b>voltage</b>	Supply voltage to SFP module The unit is mV.
<b>current</b>	Laser bias current of SFP module The unit is μV.
<b>txpower</b>	Transmitter output power of SFP module The unit is μW.
<b>rxpower</b>	Receive optical power of SFP module The unit is μW.
<b>alarm</b>	Alarm threshold (high and low)
<b>warn</b>	Warning threshold (high and low)

### ► Note ◀

- ☞ All SFP module doesn't support Digital Diagnostic Monitoring (DDM) feature. You may confirm whether it supports or not by "show sfp" command described later.

## Confirmation

See also, “**show sfp**”.

## Examples

[Example 23-1] setting alarm high temperature of SFP module[s2] to 100°C

```
N564F> (enable) set sfp s2 temperature alarm high 10000
N564F> (enable)
```

## 23.2 show sfp

To display information about SFP.

### Usage

```
show sfp <port names> {id|threshold|calibration|ddm}
```

### Confirmation

See also, “**set sfp**”.

### ► Note ◀

- ☞ All SFP module doesn't support Digital Diagnostic Monitoring (DDM) feature. “DDM type” shows whether the SFP module supports DDM or not. “N/A” means that this SFP module doesn't support DDM feature. “External Calibration” or “Internal Calibration” means that it supports DDM and shows what kind of calibration method it supports. For more detailed information, please refer to “**Small Form-factor Pluggable (SFP) Transceiver MultiSource Agreement (MSA)**” and “**SFF-8472 Specification for Diagnostic Monitoring Interface for Optical Transceivers**”.

### Examples

[Example 23-2] displaying various SFP information.

```
N564F> (enable) show sfp all id
-----
SFP[s2] MSA Serial ID
-----
Vendor Name: AVAGO           [00-17-6A]
Vendor P/N : ABCU-5710RZ    [   ]
Vendor S/N : AK064917E5
Date Code  : 061208
```

```

Transceiver: 1000BASE-T
Wave Length: N/A
Encoding   : 8B/10B
Length(SM) : N/A
Length(OM1): N/A
Length(OM2): N/A
Length(OM3): N/A
Options    : TX_DISABLE
DDM type   : N/A
SFF-8472   : N/A
-----
SFP[s3] MSA Serial ID
-----
Vendor Name: CORETEK           [00-00-00]
Vendor P/N  : CT-1250TSP-MB4LD [0000]
Vendor S/N  : IF0032H5402251
Date Code   : 080511
Transceiver: 1000BASE-LX-L-LC-SM, 100 MBytes/sec
Wave Length: 1310 nm
Encoding    : 8B/10B
Length(SM)  : 10.00 Km
Length(OM1) : N/A
Length(OM2) : N/A
Length(OM3) : N/A
Options     : TX_DISABLE TX_FAULT RX_LOS
DDM type    : External Calibration
SFF-8472    : Rev 9.3
-----

```

```
N564F> (enable) show sfp s2 threshold
```

```
SFP[s2] Alarm and Warning Threshold [LA/LW/HW/HL]
```

```

Temperature : -10.00  -5.00  90.00  100.00  oC
Voltage      :   3000   3100   3500   3600   mV
Bias Current:   2000   4000  65030  80000   uA
Tx Power     :     89    112    501    630   uW
Rx Power     :     6     7    550    631   uW
-----

```

```
N564F> (enable) show sfp s2 calibration
```

```
SFP[s2] Calibration Constants
```

```

Temperature [slo/off]: 1.000 0
Voltage     [slo/off]: 1.000 0
Bias Current [slo/off]: 1.000 0
Tx Power    [slo/off]: 1.000 0
Rx Power    [4/3/2/1/0]: 0.000 0.000 0.000 1.000 0.000
-----

```

```
N564F> (enable) show sfp s2 ddm
```

## SFP[s2] Diagnostic Monitoring

```
-----  
Temperature : 45.043 oC  
Voltage     : 3211 mV  
Bias Current: 18544 uA  
Tx Power    : 238 uW  
Rx Power    : 0 uW  
Alarm       : RPL  
Warning     : RPL  
-----
```

```
N564F> (enable)
```

## APPENDIX A. List of the Model of N560 series

Table A-1 lists the models of N560 series and the convention of referring such groups.

Base Model Name	Number of PMEs
N562	2
N564	4

**[Table A-1] Models of N560 series**

Option	Description
F	2 SFP cages are provided. Port s2 and s3 are available.
D (optional)	Dying Gasp is provided.
W (optional)	Wetting Current is available over DSL line.

**[Table A-2] Model Options**