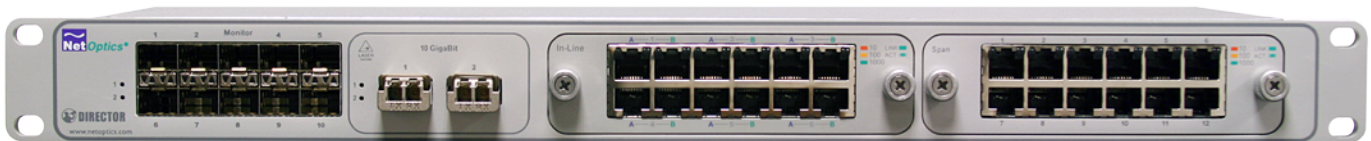




CLI Command Reference



Data Monitoring Switch



```
*****  
* Net Optics Command Line Interface (CLI) *  
* for Director *  
* *  
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* Santa Clara, California 95054 *  
* (408) 737-7777 *  
* e-mail: ts-support@netoptics.com *  
* *  
*****  
user login:
```

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Contents

Chapter 1

Introduction 1

About this Manual.....	1
CLI Usage Notes.....	1

Chapter 2

CLI Commands 3

!	5
alias del, set, show	6
commit	8
date	9
del	10
exit	11
filter add, commit, del, discard, ins, list, running, sync	12
help	16
history	17
image show	18
list	19
load	20
logout	21
module show	23
passwd	24
ping	25
port set, show	26
quit	28
remote commit, group, set, show	29
save	30
security export, import, gen-ssh, gen-web, show	31
server add, commit, del, mod, show	33
show	36
snmp commit, set, show, user_add, user_del, user_mod	37
stats clear, show	41
sysip commit, discard, set, show	42
system restart, set, show	44
time	46
upgrade	47
user add, del, mod, show	48

Chapter 3

Director CLI Quick Reference 49

Filter qualifiers	53
-------------------	----

Chapter 1

Introduction

Net Optics Director is a key component for building a comprehensive, consolidated monitoring infrastructure for both network management and security. It extends the range of visibility for data monitoring across converged data and digital voice networks, while eliminating monitoring port contention and minimizing the number of tools needed to optimally manage the network.

Please see the Director data sheet and User Guide for further information about Director.

About this Manual

This manual documents the command line interface (CLI) commands used to manage a Director device. The commands are presented in alphabetical order. A single-page Quick Reference is included at the end of the manual.

CLI Usage Notes

The CLI is case-sensitive; commands must be entered in lower case. However, certain items such as user-defined text strings, user names, and passwords may be entered in upper, lower, or mixed case, and are case-sensitive also.

The tab key can be used to automatically complete words in the CLI. This function works for commands as well as arguments. For example, typing the letter "t" followed by the tab key results in "time" being entered in the command line. Likewise, "da<tab>" auto-completes to the "date" command. However, "d<tab>" does not auto-complete, because it is ambiguous between the "date" and "del" commands.

To display a list of sub-commands and arguments for any command, press the ? key after entering the command. (A space is required between the command and the ?.) For example, type "filter add ?" to display a list of all the arguments that can be used to complete the command.

Ports are numbered as follows:

- Network ports are numbered ns.p where
 - s is the DNM module (1 or 2; 1 is on the left, 2 is on the right)
 - p is the port number within the DNM (1 through 12)
 - for example, n2.1 and n2.12 are the lowest and highest port numbers in the second DNM
- Monitor ports are numbered m.1 through m.10.
- Configurable 10 Gigabit ports are numbered t1.1 and t1.2 (front panel) and t2.1 and t2.2 (rear panel).
- a *portlist* is a list of ports separated by commas; dashes may be used to specify ranges; for example, n1.1,n1.2,n1.3 and n1.1-n1.3 mean the same thing; space characters are not allowed in the list (do not put a space after the comma); RESTRICTION: t2.1 and t2.2 may not be included in any monitor portlist that includes any other monitor port.
- In mutli-unit systems, the following restriction applies: RESTRICTION: Monitor portlists can only contain ports within the same unit. In other words, monitor traffic cannot be regenerated across multiple units.
- In multi-unit systems, ports in specific units are specified by adding a unit designator at the beginning of the port name. The unit designator is ux., where x is the UID of the unit. For example, u7.n1.1 is the first network port in the unit with uid=7. Ports in the master unit can be designated with the master unit's UID or simply by

omitting the unit designator. For example, if the UID of the master unit is 1, the first monitor port in the master unit can be identified as u1.m.1 or m.1. (Currently the only supported topology for multi-unit systems is a daisy-chain, and the unit UID=1 at the beginning of the daisy-chain is always the master unit.)

Privilege levels

User accounts are assigned one of three privilege levels:

- admin (level 1) – access to all CLI commands; only the admin level can use the *user*, *passwd*, *remote*, *security*, *server*, and *snmp* commands
- user (level 2) – access to all CLI commands except *user*, *passwd*, *remote*, *security*, *server*, and *snmp*
- view (level 3) – can access only these CLI read-only commands: *help*, *history*, *list*, *ping*, *show*, *exit*, *logout*, *quit*

All accounts are authorized to use the **user mod** command to change their own passwords.

Chapter 2

CLI Commands

This chapter describes all of the Director CLI commands. The commands are presented in alphabetical order. Each command description has the sections explained on this page.

An introductory paragraph describes the purpose of the command.

Syntax

This section specifies the syntax of the command, using the following conventions:

```
command subcommand parameter1=<value1> [parameter2=<value2>] [parameter3=<value3>] ... # comment
```

The command is always a noun that identifies the object that the command affects. The subcommand, when present, is always a verb that identifies the action to be taken. The command and subcommand may be followed by arguments that modify the action of the command, and have the following characteristics:

- Each argument is a parameter-value pair connected with an equals symbol (=).
- The value must not have embedded spaces, except where noted in a few cases (such as the **alias** command), it is the last argument in the command line
- A few arguments do not include a value part of the pair.
- Arguments shown in square brackets ([argument]) are optional; otherwise, they are required.
- If an argument has a default value among a list of possible values, it is indicated in **bold**.
- Arguments can be entered in any order, unless otherwise noted.
- A command may have no arguments.

Finally, a line can contain a comment that begins with the # symbol and continues until the end of the line. Comments are stripped by the parser and have no effect on the command; they are useful for documenting commands in this manual and in perl and TCL scripts that might be used to drive the CLI.

Arguments

This section explains the effect of each argument.

Defaults

This section specifies the default values of parameters that have default values.

Examples

This section shows some examples of command entry. In some cases, a typical system response is shown as well. **Information you need to type in exactly as shown is presented in bold like this sentence.** *Values that you need to supply are shown in italics like this sentence.*

Related commands

This section lists other commands that you may want to study to fully understand the use of the current command.



Director keeps a history of the last 100 commands you entered. To view the command history buffer, use the **history** command. To execute a command that is stored in the command buffer, use the **!** command. You can also bring commands from the history buffer to the current command line for execution or editing by using the up-arrow and down-arrow keys. (Note: The **!** command is sometimes referred to as the "bang;" for example, you might say you entered the command "bang-7" for **!7**.)

Syntax

!**<number>**

Arguments

Argument	Description
<number>	The number of the command in the history buffer that will be executed; lower numbers are older commands

Defaults

None

Examples

```
Net Optics> history
1: filter running ipv6=yes
2: time
3: commit
Net Optics> !2

11:54:27

Net Optics>
```

Related commands

Command	Description
history	Displays the command history buffer

alias del, set, show

To assign aliases for CLI commands and parameters, use the **alias set** command. To view a list of all defined aliases, use the **alias show** command. To delete an alias from the system, use the **alias del** (delete) command.

Rules for creating and using aliases:

- In the **alias set** command, the **name** argument must be first and the **text** argument second.
- An alias (name) can contain any typeable characters *except* =, #, single and double quotes, and whitespace; its maximum length is 30 characters.
- Alias text (the text the alias resolves to) can contain any typeable characters *including* embedded spaces. It consists of everything on the command line following **text=**, until end-of-line or the # character (which begins a comment). Leading and trailing whitespace is dropped, and the ? character cannot be included because it invokes help. The maximum length of a text value is 400 characters.
- Aliases and alias text (like the CLI in general) are case sensitive.
- An alias can replace an entire CLI command or any token or group of tokens in a command, where a token is a text string delimited by spaces or the = character. For example, the command **filter add ip4_src_mask=10.60.4.5** contains four tokens: filter, add, ip4_src_mask, and 10.60.4.5. Note that this rule means that when an alias is used for an argument's value, it must be the entire value field; for example:


```
Net Optics> filter add ip4_src_mask=myMask # legal
Net Optics> filter add ip4_src_mask=myPartialMask.255.0 # illegal!
```
- You can assign multiple aliases for the same text, and aliases for other aliases.
- Director maintains a single alias list that is available to all users.

Note:

An alias cannot be used to replace an argument parameter name. For example:

```
Net Optics> alias set name=in text=in_ports
Net Optics> filter add in=n1.1 action=drop # illegal! parameter "in" will not be recognized
```

Syntax

```
alias del name=<alias_name>
alias del all
alias set name=<alias_name> text=<text> # text=<text> must be the final argument
alias show
```

Arguments

Argument	Description
name=<alias_name>	Alias that resolves to <text>; any typeable characters except no embedded spaces or the = or # characters, 30 characters maximum
all	Use in alias del command to delete all aliases
text=<text>	Text string that replaces <alias_name> in a CLI command; any typeable characters except #; can include embedded spaces; 500 characters maximum <i>Important: Must be the final argument in the command line</i>

alias (continued)

Defaults

None

Examples

```

Net Optics> alias del name=myHome
Net Optics> alias del all
Net Optics> alias set name=myHome text=10.60.4.5
Net Optics> alias set name=dnm1 text=n1.1-n1.12
Net Optics> alias set name=10G_ports text=u2.t1.1-u2.t1.2,u2.t2.1,u2.t2.2
Net Optics> alias set name=disableDNM1 text=port set ports=n1.1-n1.12 admin=disable
Net Optics> disableDNM1 # illustrates use of alias defined in previous line
Net Optics> alias set name=TCP text=8 # the following line uses this alias
Net Optics> filter add in_ports=n1.1 action=drop ip_protocol=TCP
Net Optics> alias set name=in text=in_ports # used below
Net Optics> alias set name=out text=action=redir redir_ports # used below
Net Optics> filter add in=n1.1 out=m.1
Net Optics> alias show

```

Alias Name	Text
10G_ports	u2.t1.1-u2.t1.2,u2.t2.1,u2.t2.2
disableDNM1	port set ports=n1.1-n1.12 admin=disable
dnm1	n1.1-n1.12
in	in_ports
myHome	10.60.4.5
out	action=redir redir_ports
TCP	8

Related commands

None

commit

To download filter and configuration changes to the Director hardware and make them active, use the **commit** command. Executing the **commit** command also writes the changes into the default configuration file so they will persist through reset and power cycle events.

Syntax

commit

Arguments

None

Defaults

Not applicable

Examples

```
Net Optics> commit
```

Related commands

Command	Description
filter add, del, discard, ins, set_udf	Creates pending changes to filters; commit or filter commit is required to make the changes active
filter commit	Commits pending filter changes, but does not write them to the default configuration file; a reset or power cycle event will restore the previous filter set; also note that filter commit commits filter changes only, and not other configuration changes
server add, del, mod	Creates pending changes to server configurations; commit or server commit is required to make the changes active
server commit	Commits pending server configuration changes, but does not write them to the default configuration file; a reset or power cycle event will restore the previous server configurations; also note that server commit commits server configuration changes only, and not other filter and configuration changes
sysip discard, set	Creates pending changes to system configuration settings; commit or sysip commit is required to make the changes active
sysip commit	Commits pending system configuration changes, but does not write them to the default configuration file; a reset or power cycle event will restore the previous system configuration settings; also note that sysip commit commits system configuration changes only, and not other filter and configuration changes

date

To view or set the Director system calendar date, use the **date** command. Director maintains the system clock (date and time) even when no power is supplied to the unit, so you should only need to set the date and time once (and to adjust for Daylight Saving Time and leap years).

Syntax

```
date [<date>]
```

Arguments

Argument	Description
<date>	Enter in mm/dd/yyyy format; the system clock is set to this date

Defaults

- If the <date> argument is omitted, the current date is displayed

Examples

```
Net Optics> date 04/11/2009
```

```
Net Optics> date
```

```
04/11/09
```

```
Net Optics>
```

Related commands

Command	Description
time	Displays and sets the system clock time

del

To delete a saved configuration file, use the **del** command.

Syntax

```
del <filename>
```

Arguments

Argument	Description
<filename>	The name of the configuration file to be acted upon; do not include an extension

Defaults

Not applicable

Examples

```
Net Optics> del my_config
```

Related commands

Command	Description
list	Displays a list of the names of all saved configuration files
load	Restores a saved system configuration, including filters
save	Saves the current system configuration, including filters
show	Displays the contents of a configuration file

exit

When you are done using the CLI, log out of the system by using the **exit**, **logout**, or **quit** command.

Syntax

exit

Arguments

None

Defaults

Not applicable

Examples

```
Net Optics> exit
do you want to exit? (yes/no) - yes
Connection to 10.60.4.182 closed.
MyComputer:~ team$
```

Related commands

Command	Description
logout	Exit to the CLI login prompt
quit	Exit to the shell (same as exit)

filter add, commit, del, discard, ins, list, running, sync

To create and manage filters to direct traffic of interest from network ports to monitoring tools, use the **filter** commands.

Keep in mind that there are a total of four filter lists: IPv4 pending, IPv6 pending, IPv4 running, and IPv6 running. The pending filter lists are a working area for you to create the filters you want to use. The running filter lists are the filters currently running in the Director hardware. A multi-unit Director system has only one of each filter list; Director automatically assigns filter resources to the different units in the system to optimize resource usage and performance.

To define a filter and make it pending, use the **filter add** or **filter ins** command. The **filter add** command adds the new filter at the end of the pending filter list, while the **filter ins** command enables you to insert the command at a particular position (priority) in the pending filter list.

To download and upload the pending filter list to and from the Director system, use the **filter commit** or **filter sync** command. The **filter commit** command downloads the pending filter list to the Director system, while the **filter sync** command uploads the filters currently running in the Director system to the pending filter list. The **filter commit** and **filter sync** commands always affect both the IPv4 and IPv6 filter lists. Note that **filter commit** does not write the new filters to the default configuration file, so the previously running filters can be recovered by resetting the unit. To commit the filters and write them to the default configuration file (making them persistent), use the simple **commit** command.

To remove filters from the pending filter list, use the **filter del** or **filter discard** command. The **filter del** command removes one filter from a specified position (priority) in the pending filter list, while the **filter discard** command clears the entire IPv4 and IPv6 filter lists, giving you a clean working space to start from.

To view the filters in the pending filter list, use the **filter list** command. To view the filters currently running in the Director system, use the **filter running** command.

Syntax

```
filter add [ipv6=<ylyes>] in_ports=<portlist> [<qual>=<value>..<qual>=<value>] action=<redirdrop>
[redir_ports=<portlist>]
filter commit
filter del id=<id> [ipv6=<ylyes>]
filter discard
filter ins id=<id> [ipv6=<ylyes>] in_ports=<portlist> [<qual>=<value>..<qual>=<value>] action=<redirdrop>
[redir_ports=<portlist>]
filter list [ipv6=<ylyes>] [uid=<uid>]           # uid is only for debug
filter running [ipv6=<ylyes>] [uid=<uid>]      # uid only for debug
filter sync
```

filter (continued)

Arguments

Argument	Description
ipv6=<y yes>	If this argument is included in a filter add or filter ins command, IP address filter qualifiers are applied only to IPv6 addresses and the filter is stored in the IPv6 filter lists; if this argument is omitted, IP address filter qualifiers are applied only to IPv4 addresses and the filter is stored in the IPv4 filter lists; in other filter commands, this argument controls which filter list, IPv6 or IPv4, the command applies to
in_ports=<portlist>	Identifies the network ports whose traffic will be aggregated and used as input to the filter
<qual>=<value>	Identifies the filter qualifiers such as protocol, IP addresses, and so on; see following table for a list of filter qualifiers; any number of <qual>=<value> arguments may be included in a command, except that only one of each <qual> may be included
action=<redir drop>	Specifies whether packets matching the filter qualifiers should be redirected to monitor ports or dropped from the filter traffic stream and therefore not processed by lower priority filters — action=drop is used to create exclusive or NOT filters; if the argument action=redir is included in the command, then redir_ports=<portlist> must also be included
redir_ports=<portlist>	Identifies the monitor ports to which packets matching the filter qualifiers will be copied; identical copies of the packets are regenerated to each of the ports in the portlist; the redir_ports=<portlist> argument may only be included in the command if action=redir is also included
id=<id>	Identifies the location (priority) in the filter list to which the filter will be inserted (filter ins command) or from which the filter will be deleted (filter del command)
uid=<uid>	In a multi-unit system only, identifies the unit to which the command applies; use this argument only for debugging issues related to filter resource allocation; omit this argument to work with the entire filter set for a multi-unit system

Filter qualifiers

<qual>	<value>	Example	Description
ip_protocol	0 to 255	ip_protocol=6	Layer 4 IP protocol*
ip4_src	d.d.d.d	ip4_src=168.10.4.1	IPv4 source address
ip4_src_mask	d.d.d.d	ip4_src_mask=255.255.255.0	Mask for IPv4 source address
ip4_dst	d.d.d.d	ip4_dst=168.10.4.2	IPv4 destination address
ip4_dst_mask	d.d.d.d	ip4_dst_mask=255.255.255.0	Mask for IPv4 destination address
ip6_src	xxxx:xxxx:xxxx:xxxx: xxxx:xxxx:xxxx:xxxx	ip6_src=1234:5678:9abc:def0:1234:5 678:9abc:def0	IPv6 source address
ip6_src_mask	xxxx:xxxx:xxxx:xxxx: xxxx:xxxx:xxxx:xxxx	ip6_src_mask= ffff:ffff:ffff:ffff:ffff:ffff:ffff:ffff	Mask for IPv6 source address
ip6_dst	xxxx:xxxx:xxxx:xxxx: xxxx:xxxx:xxxx:xxxx	ip6_dst=1234:5678:9abc:def0:1234:5 678:9abc:def0	IPv6 destination address
ip6_dst_mask	xxxx:xxxx:xxxx:xxxx: xxxx:xxxx:xxxx:xxxx	ip6_dst_mask= fff:fff:fff:fff:fff:fff:fff:ffc0	Mask for IPv6 destination address
l4_src_port	0 to 65535	l4_src_port=80	Layer 4 source port
l4_src_port_mask	0 to 65535	l4_src_port_mask=65535	Mask for Layer 4 source port

filter (continued)

<qual>	<value>	Example	Description
i4_dst_port	0 to 65535	i4_dst_port=80	Layer 4 destination port
i4_dst_port_mask	0 to 65535	i4_dst_port_mask=65520	Mask for Layer 4 destination port
mac_src	xx:xx:xx:xx:xx:xx	mac_src=01:23:45:67:89:ab	MAC source address
mac_src_mask	xx:xx:xx:xx:xx:xx	mac_src_mask=ff:ff:ff:ff:fc	Mask for MAC source address
mac_dst	xx:xx:xx:xx:xx:xx	mac_dst=11:22:33:44:55:66	MAC destination address
mac_dst_mask	xx:xx:xx:xx:xx:xx	mac_dst_mask=ff:ff:ff:ff:00	Mask for MAC destination address
udf_value	xxxxxxxx **	udf_value=2324	User-definable filter pattern
udf_mask	xxxxxxxx **	udf_mask=3ff3	Mask for user-definable filter
vlan	0 to 4095	vlan=3820	VLAN number
vlan_mask	0 to 4095	vlan_mask=4080	Mask for VLAN number

Key: x = a hex digit, 0 to f
d = a decimal number, 0 to 255

* See the Internet Assigned Numbers Authority at <http://www.iana.org/assignments/protocol-numbers> for a complete list of protocol numbers. Some common protocols include:

Number	Keyword	Protocol
1	ICMP	Internet Control Message Protocol
2	IGMP	Internet Group Message Protocol
6	TCP	Transmission Control Protocol
17	UDP	User Datagram Protocol
80	ISO-IP	ISO Internet Protocol
89	OSPF	Open Shortest Path First
132	SCTP	Stream Control Transmission Protocol

** A user-definable filter (UDF) cannot be used in conjunction with any other filter qualifier. The entire UDF pattern must lie within the first 128 bytes of the packet, and the last byte of the pattern must be quad-word aligned. Therefore **udf_offset** can be from 1 to 128, where 1 means that matching starts at the first byte of the packet. The length of **udf_value** and **udf_mask** should be equal to **udf_length**, which is set with the **system set** command. Its range is 0 to 16 bytes with the maximum value decreased by $(\text{udf_offset}-1)\%4$. If **udf_value** or **udf_mask** is longer than **udf_length**, the udf pattern is truncated to **udf_length**. If **udf_value** or **udf_mask** is shorter than **udf_length**, the udf pattern is padded with "don't care," that is, 0's in the extra **udf_mask** bytes.

filter (continued)

Defaults

- If the `uid=<uid>` argument is omitted, the command applies to the stand-alone unit or the entire multi-unit system (this argument is provided for debugging issues related to filter resource allocation in multi-unit systems)
- If the `ipv6=<ylyes>` argument is omitted, IPv4 is assumed
- If no `<qual>=<value>` arguments are included in the command, the filter is a switch that aggregates traffic from the `in_ports` and redirects it to the `redir_ports`

Examples

```
Net Optics> filter add in_ports=n1.1-n1.3 ip4_src=10.1.1.1 action=drop
Net Optics> filter commit
Net Optics> filter del id=7
Net Optics> filter discard
Net Optics> filter ins id=15 in_ports=u3.n2.7-u3.n2.9,u7.t1.2 action=redir
redir_ports=m.1,m.10
Net Optics> filter list
Net Optics> filter running ipv6=y
Net Optics> filter sync
```

Related commands

Command	Description
commit	Downloads all pending configuration changes and filters to the Director system and writes the new values to the default configuration file so the changes will persist through resets and power cycles

help

To view the complete list of CLI commands or to get more information about any command, use the **help** command.

In addition to the **help** command, the CLI provides other ways to get help:

- If you enter a command without a required sub-command, help for the command is displayed.
- Press the ? key after entering the command or the command and sub-command to display a list of supported sub-commands and arguments. (A space is required between the command and the ?.) For example, type **filter add ?** to display a list of all the arguments that can be used to complete the command.
- The tab key can be used to automatically complete words in the CLI. This function works for commands as well as arguments. For example, typing the letter "t" followed by the tab key results in "time" being entered in the command line. Likewise, "da<tab>" auto-completes to the "date" command. However, "d<tab>" does not auto-complete, because it is ambiguous between the "date" and "del" commands.

Syntax

```
help [<command>]
```

Arguments

Argument	Description
command	The CLI command for which additional information should be displayed

Defaults

- If the <command> argument is omitted, the complete list of CLI commands is displayed

Examples

```
Net Optics> help time
```

```
time          - display current time
time hh:mm:ss - set time to hh:mm:ss
```

```
Net Optics>
```

Related commands

None

history

Director keeps a history of the last 100 commands you entered. To view the command history buffer, use the **history** command. To execute a command that is stored in the command buffer, use the **!** command. You can also bring commands from the history buffer to the current command line for execution or editing by using the up-arrow and down-arrow keys.

Syntax

history

Arguments

None

Defaults

Not applicable

Examples

```
Net Optics> history
1: filter running ipv6=yes
2: time
3: commit
Net Optics> !2

11:54:27

Net Optics>
```

Related commands

Command	Description
!	Execute a command from the command history buffer

image show

To display information about the two stored system software images, including the software version number, use the **image show** command. To change the image that will be used to boot from, use the **image** command.

Syntax

```
image <1|2>
image show
```

Arguments

Argument	Description
<1 2>	Identifies which image should be used for future reboots

Defaults

None

Examples

```
Net Optics> image show

Current Running Image: dir_020200_050709

boot from --> (1). dir_020200_050709
              (2). dir_020100_043009

Net Optics> image 2
Image switched. Please restart the system!
Net Optics> image show

Current Running Image: dir_020100_043009

              (1). dir_020200_050709
boot from --> (2). dir_020100_043009

Net Optics>
```

Related commands

None

list

To view a list of the names of all the saved configuration files, use the **list** command.

The system maintains two configuration files that do not show up in the configuration file list. One file contains the system configuration (with no filters) that the unit left the factory with; it can be restored with a **load factory** command. The other file, called **running**, has the current default configuration and filters that will be loaded when the system reboots.

Syntax

list

Arguments

None

Defaults

Not applicable

Examples

```
Net Optics> list
```

```
Configuration Files
```

```
-----
```

```
one2oneDNM2
one2a11
allDNM1_2a11MON
protocols
allDNM2_2a11MON
all2oneDNM2
all2oneDNM1
tenG2oneG
one2oneDNM1
Net Optics>
```

Related commands

Command	Description
del	Deletes a saved configuration file
load	Restores a saved system configuration, including filters
save	Saves the current system configuration, including filters
show	Displays the contents of a configuration file

load

To restore a saved system configuration including filters, use the **load** command.

The system maintains two configuration files that do not show up in the configuration file list. One file contains the system configuration (with no filters) that the unit left the factory with; it can be restored with a **load factory** command. The other file, called **running**, has the current default configuration and filters that will be loaded when the system reboots.

Syntax

```
load running|factory|<filename>
```

Arguments

Argument	Description
running	Designates the current default configuration
factory	Designates the configuration in which Director shipped from the factory
<filename>	The name of the configuration file to be acted upon; do not include an extension

Defaults

Not applicable

Examples

```
Net Optics> load factory          # restore the factory configuration
```

Related commands

Command	Description
del	Deletes a saved configuration file
list	Displays a list of the names of all the saved configuration files
save	Saves the current system configuration, including filters
show	Displays the contents of a configuration file

logout

When you are done using the CLI, log out of the system by using the **exit**, **logout**, or **quit** command. **Logout** exits to the CLI login prompt, while **exit** and **quit** exit to the shell where you launched your SSH client.

Syntax

logout

Arguments

None

Defaults

Not applicable

Examples

```
Net Optics> logout
do you want to exit? (yes/no) - yes
```

```
*****
*      Net Optics Command Line Interface (CLI)      *
*                               for Director        *
*      Copyright (c) 2008-2009 by Net Optics, Inc.  *
*      Restricted Rights Legend                     *
*      Use, duplication, or disclosure by the Government is *
*      subject to restrictions as set forth in subparagraph *
*      (c) of the Commercial Computer Software - Restricted *
*      Rights clause at FAR sec. 52.227-19 and subparagraph *
*      (c)(1)(ii) of the Rights in Technical Data and Computer *
*      Software clause at DFARS sec. 252.227-7013.    *
*      Net Optics, Inc.                               *
*      5303 Betsy Ross Drive                          *
*      Santa Clara, California 95054                 *
*      (408) 737-7777                                *
*      e-mail: ts-support@netoptics.com              *
*****
login user:
```

logout (continued)

Related commands

Command	Description
exit	Exit to the shell (same as quit)
quit	Exit to the shell (same as exit)

module show

To display information about the hardware modules in the system, such as module types and serial numbers, use the **module** command.

Syntax

```
module show [uid=<uid>]
```

Arguments

Argument	Description
uid=<uid>	In a multi-unit system only, identifies the unit to which the command applies

Defaults

- If the uid=<uid> argument is omitted, the command applies to the stand-alone unit or the entire multi-unit system

Examples

```
Net Optics> module show
```

```
System Serial #: 000000-0000-000000
+-----+
| Board | ID  | Rev | Description |
+-----+-----+-----+-----+
|   DCM |  1  |  2  |    CPU      |
+-----+-----+-----+-----+
|  DNM_1 |  5  |  1  | FB_SPAN_MM_230 |
+-----+-----+-----+-----+
|  DNM_2 |  5  |  1  | FB_SPAN_MM_230 |
+-----+-----+-----+-----+
|  DXM_1 |  1  |  2  |    XFP      |
+-----+-----+-----+-----+
```

```
Net Optics>
```

Related commands

None

passwd

To change the SSH password for the system, use the **passwd** command. Follow the prompts to enter the current password and the new password. For security, Director does not echo the characters you type for the passwords.

Syntax

passwd

Arguments

None

Defaults

Not applicable

Examples

```
Net Optics> passwd
Changing password for director.
(current) UNIX password:
New UNIX password:
Net Optics>
```

Related commands

None

ping

To find out if a device is accessible at a certain IP address, use the **ping** command.

Syntax

```
ping <address>
```

Arguments

Argument	Description
address	IPv4 address to ping

Defaults

Not applicable

Examples

```
Net Optics> ping 40.20.1.1
```

Related commands

None

port set, show

To enable or disable ports and set port parameters, use the **port set** command. To view the current port status and settings, use the **port show** command.

In a multi-unit system, use the argument **[uid=<uid>]** to specify which unit should be acted upon by the command. Do not specify the UID in the portlist.

The **desc=<description>** argument, if present, must be the last argument on the command line, because everything after **desc=** is included in the **<description>** text string (except any comment, which is everything from a # character to the end of the line).

Syntax

```
port set [uid=<uid>] ports=<portlist> [admin=<enable|disable> ] [autoneg=<on|off>] [duplex=<full|half>]
[speed=<10|100|1000>]
ports show [uid=<uid>]
```

Arguments

Argument	Description
uid=<uid>	In a multi-unit system only, identifies the unit to which the command applies
ports=<portlist>	Identifies the ports that will be affected by the command <i>Important: Do not specify UID in the port numbers; use uid=<uid> argument instead</i>
admin=<enable disable>	Enables or disables the ports; when a port is disabled, the link is dropped and the interface is unpowered
autoneg=<on off>	For 10/100/1000 ports only, turns autonegotiation of link parameters on or off; when autoneg is on, the duplex and speed arguments are ignored
duplex=<full half>	For 10/100/1000 ports only, sets the link mode to full duplex or half duplex; has no effect if autoneg is on
speed=<10 100 1000>	For 10/100/1000 ports only, sets the link speed to a fixed speed of 10, 100, or 1,000 megabits per second; has no effect if autoneg is on

Defaults

- autoneg=on
- duplex=full
- speed=1000
- uid=1 (the master unit)

Examples

```
Net Optics> port set ports=n1.1-n1.3 autoneg=on duplex=full
```

port (continued)

Net Optics> port show

port	link	Status			Setting			
		autoneg	speed	duplex	admin	autoneg	speed	duplex
n1.01	up	on	1000	1000	en	on	1000	full
n1.02	up	on	1000	1000	en	on	1000	full
n1.03	up	on	1000	1000	en	on	1000	full
n1.04	up	on	1000	1000	en	on	1000	full
n1.05	up	on	1000	1000	en	on	1000	full
n1.06	up	on	1000	1000	en	on	1000	full
n1.07	up	on	1000	1000	en	on	1000	full
n1.08	up	on	1000	1000	en	on	1000	full
n1.09	up	on	1000	1000	en	on	1000	full
n1.10	up	on	1000	1000	en	on	1000	full
n1.11	up	on	1000	1000	en	on	1000	full
n1.12	up	on	1000	1000	en	on	1000	full
n2.01	up	on	1000	1000	en	on	1000	full
n2.02	up	on	1000	1000	en	on	1000	full
n2.03	up	on	1000	1000	en	on	1000	full
n2.04	up	on	1000	1000	en	on	1000	full
n2.05	dwn	on	unk	unk	en	on	1000	full
n2.06	up	on	1000	1000	en	on	1000	full
n2.07	up	on	1000	1000	en	on	1000	full
n2.08	up	on	1000	1000	en	on	1000	full
n2.09	up	on	1000	1000	en	on	1000	full
n2.10	up	on	1000	1000	en	on	1000	full
n2.11	up	on	1000	1000	en	on	1000	full
n2.12	dwn	on	unk	unk	en	on	1000	full
m.01	up	on	1000	1000	en	on	1000	full
m.02	up	on	1000	1000	en	on	1000	full
m.03	up	on	1000	1000	en	on	1000	full
m.04	up	on	1000	1000	en	on	1000	full
m.05	up	on	1000	1000	en	on	1000	full
m.06	up	on	1000	1000	en	on	1000	full
m.07	dwn	on	unk	unk	en	on	1000	full
m.08	dwn	on	unk	unk	en	on	1000	full
m.09	dwn	on	unk	unk	en	on	1000	full
m.10	dwn	on	unk	unk	en	on	1000	full

Net Optics>

Related commands

None

quit

When you are done using the CLI, log out of the system by using the **exit**, **logout**, or **quit** command. **Logout** exits to the CLI login prompt, while **exit** and **quit** exit to the shell where you launched your SSH client.

Syntax

quit

Arguments

None

Defaults

Not applicable

Examples

```
Net Optics> quit
do you want to exit? (yes/no) - yes
Connection to 10.60.4.182 closed.
MyComputer:~ team$
```

Related commands

Command	Description
quit	Exit to the shell (same as quit)
logout	Exit to the CLI login prompt

remote commit, group, set, show

To configure a multi-unit system, use the **remote** commands as follows. To configure a multi-unit system into a daisy-chain topology, use the **remote group** command; the **remote group** command makes the configuration pending. To change a unit from stand-alone operation to multi-unit system mode, or vice-versa, and to designate a unit as the master of the multi-unit system, use the **remote set** command; the **remote set** command makes the configuration pending. To view the current and pending multi-unit system configuration, use the **remote show** command. To activate pending changes to the multi-unit configuration setup, use the **remote commit** command.

Director supports only the daisy-chain topology for multi-unit systems. (Different topologies may be supported in the future.)

A multi-unit system operates in a master-slave model. The unit with UID 1 at the beginning of the daisy-chain must be configured as the multi-unit system master. The remaining units are slave (or *remote*) units.

Syntax

```
remote commit
remote group topology=<uid1,uid2,...>
remote set [admin=<enable|disable>] [master=<enable|disable>]
remote show
```

Arguments

Argument	Description
topology=<uid1,uid2,...>	Defines a daisy-chain of Director units in a multi-unit system; the unit ID (UID) list must begin at 1 and run consecutively for the number of units in the system
admin=<enable disable>	Enables or disables the unit for remote (multi-unit system) operation
master=<enable disable>	Enables or disables the unit as the multi-unit system master

Defaults

- admin=disable (stand-alone operation)
- master=disable

Examples

```
Net Optics> remote set admin=enable          # configure unit for remote operation
Net Optics> remote set admin=enable master=enable # configure unit as master
Net Optics> remote group topology=1,2,3     # define a 3-unit daisy-chain
Net Optics> remote show
Net Optics> remote commit
```

Related commands

None

save

To save the current system configuration including filters, use the **save** command.

Configuration filenames can be up to 120 characters long and include the alphabetic (a-z A-Z) and numeric (1-9) characters, plus the underscore (_) and hyphen (-). Embedded spaces are not allowed. Configuration filenames are case sensitive and should not include an extension.

Syntax

```
save <filename>
```

Arguments

Argument	Description
<filename>	The name of the configuration file to be acted upon; do not include an extension

Defaults

Not applicable

Examples

```
Net Optics> save my_config
```

Related commands

Command	Description
del	Deletes a saved configuration file
list	Displays a list of the names of all the saved configuration files
load	Restores a saved system configuration, including filters
show	Displays the contents of a configuration file

security export, import, gen-ssh, gen-web, show

To manage Web RSA key, certificate, certificate signing request (csr), and SSH key information, use the **security** command. To export a Web certificate signing request, use the **security export** command. To import a Web RSA key or certificate, use the **security import** command. To generate an SSH RSA key, use the **security gen-ssh** command. To generate a Web RSA key and certificate, or a csr, use the **security gen-web** command. To view the Web RSA key, certificate, csr, and SSH key information, use the **security show** command.

Syntax

```

security export type=<web-csr> srvip=<srvip> user=<username> pw=<password> file=<filename>
security import type=<web-key|web-crt > srvip=<srvip> user=<username> pw=<password> file=<filename>
security gen-ssh type=<ssh-rsa> [key-length=<768|1024|2048>]
security gen-web type=<web-csr|web-rsa> [regenerate-key=<yes|no>] [key-length=<768|1024|2048>]
cn=<common_name> [ou=<organization_unit>] [o=<organization>] [l=<locality_name>] [st=<state>] [c=<country>]
[days=<30..365..9999>]
security show [type=<ssh-rsa|web-csr|web-rsa>]
    
```

Arguments

Argument	Description
type=<web-crt web-csr web-key web-rsa ssh-rsa >	Entity to which the command applies
srvip=<srvip>	The IPv4 address of the ftp server
user=<username>	The username of the ftp server account
pw=<password>	The password for the ftp server account
file=<filename>	The name of the file on the ftp server to export to or import
key-length=<768 1024 2048>	The length of the encryption key

Arguments for the gen-web only

Argument	Description
regenerate-key=<yes no>	Yes to regenerate the RSA key
cn=<common_name>	Common name
ou=<organization_unit>	Organization name
o=<organization>	Organization
l=<locality_name>	Locality
st=<state>	State
c=<country>	Country
days=<30..9999>	Number of days for certificate to remain valid

security (continued)

Defaults

- regenerate-key=no
- key-length=1024
- days=365

Examples

```

Net Optics> security export type=csr srvip=20.50.2.1 user=myUserName pw=myPassword
file=myFilename
Net Optics> security import type=web-key srvip=20.50.2.1 user=myUserName pw=myPassword
file=myFilename
Net Optics> security gen-ssh type=ssh-rsa key-length=1024
Net Optics> security gen-web type=web-rsa regenerate-key=yes key-length=1024
cn=myCommonName ou=myDivision o=myOrganization l=SanJose st=CA c=USA days=730
Net Optics> security show type=web-rsa

```

Related commands

Command	Description
server	Configures RADIUS and TACACS+ servers

server add, commit, del, mod, show

To configure authentication, authorization, and accounting (AAA, in particular, RADIUS and TACACS+) servers, and to enable and disable the SNMP and Web servers, use the **server** commands. To define a new server for Director, use the **server add** command. To remove an existing server from Director, use the **server del** command. To modify the definition of an existing server, use the **server mod** command; only arguments included in the command are modified. To see a list of all defined servers, use the **server show** command. To activate changes made with the other **server** commands, use the **server commit** command.

Multiple RADIUS, and TACACS+ servers may be defined by using multiple **server add** commands, supporting a maximum of three of each server type. Director attempts to fulfill a service by querying each server in sequence until the service is satisfied. (Director tries authentication and authorization from its local account list first, before going to any of the AAA servers.) As each server is added, Director assigns it a sequential ID number starting with 1 for the first server and going as high as six for the combined list of RADIUS and TACACS+ servers. The ID is also used to identify the server for **server del** and **server mod** commands.

You can insert a new server at any position within the list by using the argument the **id=<id>** to specify the position at which you want it to appear. (The list of IDs is contiguous, so if you try to insert anywhere beyond the end of the list, the new entry goes at the end of the list. For example, if IDs 1, 2, and 3 are assigned, the command **server add id=6** actually adds a server at ID=4.) You can also change the position of a server in the sequence by using the **server mod** command with the **id_new** argument; for example, to move a RADIUS server from position 3 to position 2, enter **server mod type=rad id=3 id_new=2**.

Director provides an SNMP agent (server) to provide MIB services. The SNMP agent is configured using the **snmp** command and is addressed using Director's sysip address (see **sysip** command). The SNMP server can be enabled and disabled with both the **server set type=snmp admin=<enable|disable>** command and with the **snmp set agent=<123|12|3|0>** command.

Director provides a Web server to host the Web Manager browser-based GUI interface tool. The Web server can be enabled and disabled using the **server set type=web admin=<enable|disable>** command.

Syntax

Note: The syntax for each server type is presented separately because the available subcommands and arguments differ depending on the type of server being configured.

Applies to all server types:

```
server commit
```

```
server show
```

RADIUS and TACACS+ servers

```
server add type=<rad|tac> [id=<1..6>] [admin=<enable|disable>] srvip=<address|domain> [port=<number>]  
pw=<password> [timeout=<1..10>] [retries=<1..10>] [priv_map=<alv,lower,upper>] [priv_default=<1|2|3>]
```

```
server del type=<rad|tac> id=<1..6>
```

```
server mod type=<rad|tac> id=<1..6> [id_new=<1..6>] [admin=<enable|disable>] [srvip=<address|domain>]  
[port=<number>] [pw=<password>] [timeout=<1..10>] [retries=<1..10>] [priv_map=<alv,lower,upper>]  
[priv_default=<1|2|3>]
```

server (continued)

SNMP agent (server)

```
server mod type=snmp admin=<enable|disable>
```

*Note: Use the **snmp** command to configure the SNMP server.*

Web server

```
server mod type=web admin=<enable|disable>
```

Arguments

Argument	Description
type=<rad tac snmp web>	Identifies the type of server being configured; rad=RADIUS, tac=TACACS+, snmp=SNMP, web=Web Manager
id=<id>	An identifying number to the server, which also defines the sequence in which the servers are queried for service; the ID is assigned when the server add command is performed; the ID identifies the target server for server del and server mod commands
id_new=<id>	Used with server mod command to change the ID of a server
admin=<enable disable>	Enables or disables access to the server; when the server is disabled, Director does not attempt to connect to it for services; Director simply moves to the next enabled server in sequence, if one is available
srvip=<address domain>	The IPv4 address or domain of the server
port=<number>	The port used to access the server's services
pw=<password>	The password for accessing the server
timeout=<1..10>	Timeout for requests to server, in seconds; in the range of 1 to 10 decimal
retries=<1..10>	Number of retries before giving up on a server; in the range of 1 to 10 decimal
priv_map=<a v,lower,upper>	Defines how the privilege level returned by the AAA server maps into the Director privilege level If the the first value in the value list is "a", the privilege levels are mapped as follows: admin <lower<= user <= upper < view ; for example, priv=<a,2,2> assigns admin=0 or 1, user=2, and view=3 or higher If the the first value in the value list is "v", the privilege levels are mapped as follows: view <lower<= user <= upper < admin ; for example, priv=<v,2,2> assigns view=0 or 1, user=2, and admin=3 or higher
priv_default=<1 2 3>	The privilege level to assign if the server does not return a privilege level

Defaults

- admin=enable
- port=1812 (type=tac), 49 (type=rad)
- timeout=3
- retries=1 (type=tac), 2 (type=rad)
- priv_map=a,2,2
- priv_default=3 (view)

server (continued)

Examples

```

Net Optics> server commit
Net Optics> server show
Net Optics> server add type=rad id=2 admin=enable srvip=120.30.10.1 pw=rad_password
priv_map=v,5,9
Net Optics> server del type=rad id=2
Net Optics> server mod type=rad id=2 timeout=10 retries=5
Net Optics> server add type=tac admin=enable srvip=40.20.2.7 port=49 pw=tac_password
timeout=1
Net Optics> server del type=tac id=3
Net Optics> server mod type=tac id=3 srvip= 40.20.2.8 port=149 timeout=2 priv_map=v,3,7
Net Optics> server mod type=snmp admin=enable
Net Optics> server mod type=web admin=disable

```

Related commands

Command	Description
snmp	Configures the SNMP agent server and SNMP trap IP address
sysip	Sets the Director IP address, which is also the SNMP agent server address

show

To view the contents of a configuration file, use the **show** command.

The system maintains two configuration files that do not show up in the configuration file list. One file contains the system configuration (with no filters) that the unit left the factory with; it can be restored with a **load factory** command. The other file, called **running**, has the current default configuration and filters that will be loaded when the system reboots.

Syntax

```
show running|factory|<filename>
```

Arguments

Argument	Description
<filename>	The name of the configuration file to be acted upon; do not include an extension
running	Designates the current default configuration
factory	Designates the configuration in which Director shipped from the factory

Defaults

Not applicable

Examples

```
Net Optics> show my_config
```

Related commands

Command	Description
del	Deletes a saved configuration file
list	Displays a list of the names of all the saved configuration files
load	Restores a saved system configuration, including filters
save	Saves the current system configuration, including filters

snmp commit, set, show, user_add, user_del, user_mod

To configure the SNMP server, use the **snmp set** command. Also use the **snmp set** command to modify specific SNMP server parameters. To view the SNMP server configuration, use the **snmp show** command. To add, delete, or modify SNMP security user accounts, use the **snmp user_add**, **snmp user_del** and **snmp user_mod** commands; you may have multiple SNMP security user accounts. To activate changes made with the other **snmp** commands, use the **snmp commit** command.

Director provides an SNMP agent (server) to provide MIB services; and it supports a single IP address as a target for SNMP traps. The SNMP agent is addressed using Director's sysip address (see **sysip** command) over port 161.

SNMP traps go to port 162 at the IP address specified with the **trap_srvip** argument of the **snmp set** command. The trap events, if enabled, are Director cold and warm resets, and changes of link state (link up and link down) on any Director port.

The SNMP server can be enabled and disabled with both the **snmp set agent=<123|12|3|0>** command (use **0** to disable the SNMP server) and with the **server set type=snmp admin=<enable|disable>** command.

Syntax

snmp commit

snmp set [agent=<123|12|3|0>] [trap=<enable|disable>] [trap_srvip=<address>]
[community=<public|community string>] [context=<context name>]

snmp show

snmp user_add securityName=<name> [authProtocol=<MD5>] [authKey=<passphrase>] [privKey=<passphrase>] [securityLevel=<noAuthNoPriv|authNoPriv|authPriv>]

snmp user_del securityName=<name>

snmp user_mod securityName=<name> [authProtocol=<MD5>] [authKey=<passphrase>] [privKey=<passphrase>] [securityLevel=<noAuthNoPriv|authNoPriv|authPriv>]

snmp (continued)

Arguments

Argument	Description								
agent=<123 12 3 0>	Enable or disable the SNMP agent (the server that provides SNMP MIB services) as follows: <table border="0" style="margin-left: 20px;"> <tr> <td>123</td> <td>Enable SNMPv1, v2, and v3</td> </tr> <tr> <td>12</td> <td>Enable SNMPv1 and v2; disable SNMPv3</td> </tr> <tr> <td>3</td> <td>Enable SNMPv3; disable SNMPv1 and v2</td> </tr> <tr> <td>0</td> <td>Disable SNMP agent</td> </tr> </table>	123	Enable SNMPv1, v2, and v3	12	Enable SNMPv1 and v2; disable SNMPv3	3	Enable SNMPv3; disable SNMPv1 and v2	0	Disable SNMP agent
123	Enable SNMPv1, v2, and v3								
12	Enable SNMPv1 and v2; disable SNMPv3								
3	Enable SNMPv3; disable SNMPv1 and v2								
0	Disable SNMP agent								
trap=<enable disable>	Enable or disable issuing of SNMP traps								
trap_srvrip=<address>	The IPv4 address to which SNMP traps are sent								
community=<public community string>	The SNMP community string (must not contain embedded spaces)								
context=<context name>	The SNMP context name								
securityName=<name>	The security name associated with the community								
authProtocol=<MD5>	The SNMP authentication protocol								
authKey=<passphrase>	The SNMP authorization key passphrase								
privKey=<passphrase>	The passphrase key for the SNMP privilege authentication protocol								
securityLevel=<noAuthNoPriv authNoPriv authPriv>	The SNMP security level: <table border="0" style="margin-left: 20px;"> <tr> <td>noAuthNoPriv=</td> <td>no authentication, no privilege authentication</td> </tr> <tr> <td>AuthNoPriv=</td> <td>authentication but no privilege authentication</td> </tr> <tr> <td>AuthPriv=</td> <td>authentication and privilege authentication</td> </tr> </table>	noAuthNoPriv=	no authentication, no privilege authentication	AuthNoPriv=	authentication but no privilege authentication	AuthPriv=	authentication and privilege authentication		
noAuthNoPriv=	no authentication, no privilege authentication								
AuthNoPriv=	authentication but no privilege authentication								
AuthPriv=	authentication and privilege authentication								

Defaults

- agent=0 (disabled)
- trap =disable
- community=public
- authProtocol=MD5
- securityLevel=authPriv

snmp (continued)

Examples

```
Net Optics> snmp commit
Net Optics> snmp set agent=123 trap=enable trap_srvrip=20.40.3.7
                community=myCommunityString context=myContext
Net Optics> snmp set community=myNewCommunityString
Net Optics> snmp user_add securityName=mySecurityName authProtocol=MD5
                authKey=myPassphrase privKey=myPrivKey securityLevel=authNoPriv
Net Optics> snmp user_mod securityName=mySecurityName securityLevel=noAuthNoPriv
Net Optics> snmp user_del securityName=mySecurityName
Net Optics> snmp show
```

```
-----
SNMP Setting:
-----
```

```
    agent: 123
    trap: enable
agent port: 161
  trap ip: 20.40.3.7
  trap port: 162
  community: myNewCommunityString
context name: myContext
```

```
-----
V3 User #1:
-----
```

```
security name: aSecurityName
auth protocol: MD5
  auth key: myPassphrase
priv protocol: AES
  priv key: myPrivKey
security level: noAuthNoPriv
```

```
-----
V3 User #2:
-----
```

```
security name: secName
auth protocol: MD5
  auth key: authKey
priv protocol: DES
  priv key: privKey
security level: authPriv
```

```
Net Optics>
```

snmp (continued)

Related commands

Command	Description
server	Enables and disables the SNMP agent
sysip	Sets the Director IP address, which is also the SNMP agent server address

stats clear, show

To clear port RMON statistics, use the **stats clear** command. To view port RMON statistics, use the **stats show** command.

In a multi-unit system, use the argument **[uid=<uid>]** to specify which unit should be acted upon by the command. Do not specify the UID in the portlist.

Syntax

```
stats clear [ports=<all|portlist>] [alarms=<all|portlist>] [uid=<uid>]
stats show ports=<all|portlist> [uid=<uid>]
```

Arguments

Argument	Description
ports=<all portlist>	Identifies the ports to which the command applies; all applies the command to all ports
alarms=<all portlist>	Identifies the ports on which alarm conditions (if present) should be cleared; include the alarms=<all portlist> argument but not the ports=<all portlist> argument to clear alarms but not RMON statistics
uid=<uid>	In a multi-unit system only, identifies the unit to which the command applies; all applies the command to all units

Defaults

- uid=1 (the master unit)

Examples

```
Net Optics> stats clear ports=n2.4-n2.8 uid=2
Net Optics> stats clear alarms=m.7,t2.1,n2.11
Net Optics> stats clear ports=n2.4-n2.8 alarms=m.7,t2.1,n2.11
Net Optics> stats show ports=a11
```

Related commands

None

sysip commit, discard, set, show

To change Director's IP address, netmask, and gateway, use the **sysip set** command. The **sysip set** command must be followed (not necessarily immediately – you can enter other commands in between) by a **sysip commit** command or a **commit** command to make the change active. To discard the changes before they are made active, use the **sysip discard** command. To view the current and pending IP address, netmask, and gateway, use the **sysip show** command.

If you are operating over an SSH or Web connection, note that when you change Director's IP address, your connection will be broken and you will have to establish a new connection at the new IP address.

Syntax

```
sysip commit
sysip discard
sysip set ipaddr=<address> mask=<netmask> gw=<gateway>
sysip show
```

Arguments

Argument	Description
ipaddr=<address>	The new IP address
mask=<netmask>	The new netmask
gw=<gateway>	The new gateway IP address

Defaults

Not applicable

Examples

```
Net Optics> sysip set ipaddr=100.6.4.15 mask=255.0.0.0 gw=10.0.0.1
Net Optics> sysip show
```

```
Active System IP Address
-----
IP addr: 100.6.4.14
IP mask: 255.0.0.0
Gateway: 10.0.0.1

Pending System IP Address
-----
IP addr: 100.6.4.15
IP mask: 255.0.0.0
Gateway: 10.0.0.1
```

sysip (continued)

```
Net Optics> sysip discard
```

```
Net Optics> sysip show
```

```
Active System IP Address
```

```
-----
```

```
IP addr: 100.6.4.14
```

```
IP mask: 255.0.0.0
```

```
Gateway: 10.0.0.1
```

```
Net Optics>
```

Related commands

None

system restart, set, show

To restart Director, use the **system restart** command; this has the same effect as cycling power to the unit. To turn the CRC Forwarding, Jumbo Packets, and Link Fault Detect features on or off, and to define the length and offset for user-definable filters, use the **system set** command. To view the current settings of the features, use the **system show** command. Note: The system configuration settings apply across all units in a multi-unit system.

The CRC Forwarding feature enables packets with CRC errors to pass through the filters to the monitor ports; when CRC Forwarding is off, packets with CRC errors are dropped from the monitoring traffic stream.

The Jumbo Packets feature enables packets with lengths greater than 1,518 bytes and less than or equal to 12,000 bytes to pass through the filters to the monitor ports; when Jumbo Packets is off, only packets with lengths of 1,518 bytes or less are passed to the monitoring traffic stream. Packets with lengths greater than 1,518 bytes are counted in the Jumbo Packets RMON statistics counter regardless of whether the Jumbo Packets feature is on or off.

The Link Fault Detect feature propagates errors from one port of an in-line network link to the other port, so that an attached router can detect the error and switch traffic to an alternate path (if available). When the Link Fault Detect feature is on, a down or no-link condition on one network port of an in-line link causes Director to drop the link on the other port.

User-definable filters (UDF) are filter parameters that can be arbitrary bit strings. All UDFs in a system (including all units within a multi-unit system) share the same length and offset parameters, which are specified using the **system set** command. The udf filter patterns are defined using the **filter add** and **filter ins** commands with the **udf_value** and **udf_mask** filter qualifiers.

udf_length can be assigned a value from 0 to 16. The value 0 turns udfs off. The maximum allowable **udf_length** is decreased from 16 by the value **udf_offset**%4 (the remainder after **udf_offset** is divided by 4) because the hardware internally aligns on quad-byte boundaries. For example, if **udf_offset=3**, then the maximum value for **udf_length** is 13.

The maximum value of **udf_offset** is limited such that the last byte of the udf pattern falls within the first 128 bytes of the packet. In other words, **udf_offset** plus **udf_length** must be less than or equal to 128.

Syntax

```
system restart
```

```
system set [crc=<on|off>] [jumbo=<on|off>] [lfd=<on|off>] [udf_length=<0..16>] [udf_offset=<0..127>]
```

```
system show [uid=<uid>]
```

Arguments

Argument	Description
crc=<on off>	Turns the CRC Forwarding feature on or off
jumbo=<on off>	Turns the Jumbo Packets feature on or off
lfd=<on off>	Turns the Link Fault Detect feature on or off
udf_length=<0..16>	Number of bytes for a user-definable filter (udf) pattern
udf_offset=<0..127>	Number of bytes offset from the beginning of the packet for a user-definable filter (udf) pattern
uid=<uid>	In a multi-unit system only, identifies the unit to which the command applies

system (continued)

Defaults

- `crc=off`
- `jumbo=off`
- `lfd=off`
- `udf_length=0`
- `udf_offset=0`
- If the `uid=<uid>` argument is omitted, the command applies to the stand-alone unit or the entire multi-unit system

Examples

```
Net Optics> system restart
Net Optics> system set crc=on lfd=off
Net Optics> system set uid=4 udf_length=8 udf_offset=20
Net Optics> system show
```

Related commands

None

time

To view or set the Director system time-of-day clock, use the **time** command. Director maintains the system clock (date and time) even when no power is supplied to the unit, so you should only need to set the date and time once (and to adjust for Daylight Saving Time and leap years).

Syntax

```
time [<time>]
```

Arguments

Argument	Description
time	Enter in hr:min:sec format; the system clock is set to this time

Defaults

- If the <time> argument is omitted, the current time is displayed

Examples

```
Net Optics> time 14:58:44
```

```
Fri May 15 14:58:44 PDT 2009
```

```
Net Optics> time
```

```
14:58:47
```

```
Net Optics>
```

Related commands

Command	Description
date	Displays and sets the system clock calendar date

upgrade

To upgrade Director's software, use the **upgrade** command. You can upgrade directly from Net Optic's upgrade server, or you can copy the system image to a local server and upgrade locally for faster performance.

If you need the correct parameters for a software upgrade, contact Net Optics Technical Operations staff at ts-support@netoptics.com or (408) 737-7777.

Syntax

```
upgrade srvip=<srvip> user=<username> pw=<password> file=<filename>
```

Arguments

Argument	Description
srvip=<srvip>	The IPv4 address of the ftp upgrade server
user=<username>	The username of the ftp upgrade server account
pw=<password>	The password for the ftp upgrade server account
file=<filename>	The name of the Director software image file on the ftp upgrade server

Defaults

Not applicable

Examples

```
Net Optics> upgrade srvip=74.220.202.17 user=director@itaportal.com pw=netoptics  
file=release_1.0.3/dir_010003_020209.tgz
```

Related commands

Command	Description
image show	Identifies the system images present in Director

user add, del, mod, show

To add a new user account to the system, use the **user add** command. To delete a user account from the system, use the **user del** command. To change a user account password or privilege level, use the **user mod** command. To view a list of user accounts on the system, use the **user show** command.

Director supports the following three user privilege levels:

Level	Name	Description
1	admin	Full privileges
2	user	All privileges except the user , passwd , remote , security , server , and snmp commands (and can change own user password)
3	view	Can access only these read-only commands: help history , list , ping , show , exit , logout , quit (and can change own user password)

Syntax

```
user add name=<username> pw=<password> priv=<level>
user del name=<username>
user mod name=<username> pw=<password> priv=<level>
user show
```

Arguments

Argument	Description
user=<username>	The username of the affected account
pw=<password>	The password for the affected account
priv=<level>	The privilege level for the affected account

Defaults

Not applicable

Examples

```
Net Optics> user add name=betty pw=bettypw priv=2
Net Optics> user mod name=betty pw=newpw priv=3
Net Optics> user del name=betty
Net Optics> user show
```

Related commands

None

Chapter 3

Director CLI Quick Reference

Command	Sub-Command	Arguments	Example
!		<number>	Net Optics> !3
alias	del	name=<alias_name> all	Net Optics> alias del alias=MyHome
	set	name=<alias_name> text=<text> [desc=<description>]	Net Optics> alias set alias=MyHome text=10.60.4.5 desc="IP address of my server"
	show		Net Optics> alias show
commit			Net Optics> commit
date		[<date>]	Net Optics> date 04/11/2009
del		<filename>	Net Optics> del my_config
exit			Net Optics> exit
filter	add	[ipv6=<y yes> in_ports=<network_portlist> [<qual>=<value>] action=<redir drop> [redir_ports=<monitor_portlist>]	Net Optics> filter add in_ports=n1.1-n1.3 ip4_src=10.1.1.1 action=redir redir_ports=m.3,m.9
	commit		Net Optics> filter commit
	del	id=<id> [ipv6=<y yes>]	Net Optics> filter del id=3
	discard		Net Optics> filter discard
	ins	id=<id> [ipv6=<y yes> in_ports=<network_portlist> [<qual>=<value>] action=<redir drop> [redir_ports=<monitor_portlist>]	Net Optics> filter ins id=myfilter-1 in_ports=n1.1-n1.3 ip4_src=10.1.1.1 action=drop
	list	[ipv6=<y yes> uid=<uid>]	Net Optics> filter list
	running	[ipv6=<y yes> uid=<uid>]	Net Optics> filter running
	sync		Net Optics> filter sync
help		[<command>]	Net Optics> help filter
history			Net Optics> history
image		<1 2>	Net Optics> image 2
	show		Net Optics> image show
list			Net Optics> list
load		running factory <filename>	Net Optics> load my_config

Command	Sub-Command	Arguments	Example
logout			Net Optics> logout
module	show	[uid=<uid>]	Net Optics> module show
passwd			Net Optics> passwd
ping		<address>	Net Optics> ping 10.1.1.4
port	set	[uid=<uid> ports=<portlist> [admin=<enable disable>] [autoneg=<on off>] [duplex=<full half>] [speed=<10 100 1000>]	Net Optics> port set ports=n1.1-n1.3 autoneg=on <i>Note: Do not include UID in port numbers; use the uid=<uid> argument instead.</i>
	show	[uid=<uid>]	Net Optics> port show
quit			Net Optics> quit
remote	commit		Net Optics> remote commit
	group	topology=<uid-n1,uid-n2,...>	Net Optics> remote group topology=0,1,2,3
	set	[admin=<enable disable>] [master=<enable disable>]	Net Optics> remote set admin=enable master=enable
	show		Net Optics> remote show
save		<filename>	Net Optics> save my_config
security	export	type=<web-csr> srvip=<srvip> user=<username> pw=<password> file=<filename>	Net Optics> show my_config
	import	type=<web-key web-crt> srvip=<srvip> user=<username> pw=<password> file=<filename>	
	gen-ssh	type=<ssh-rsa> key-length=<768 1024 2048>	
	gne-web	type=<web-csr web-rsa> regenerate-key=<yes no> key-length=<768 1024 2048> cn=<common_name> ou=<organization_unit> o=<organization> l=<locality_name> st=<state> c=<country> days=<30..9999>	
	show	type=<ssh-rsa web-csr web-rsa>	

Command	Sub-Command	Arguments	Example
server	add	type=<rad tac snmp> [id=<id>] [admin=enable disable] [srvip=<address domain>] [port=<number>] pw=<password> [timeout=<1..10>] [retries=<1..10>] [priv_map= <a v,lower,upper>] [priv_default=<1 2 3>]	Net Optics> server add type=rad admin=enable srvip=120.30.10.1 pw=rad_password priv_map=v,5,9
	commit		Net Optics> server commit
	del	type=<rad tac snmp> [id=<id>]	Net Optics> server del type=tac id=1
	mod	type=<rad tac snmp web> [id_new=<id>] <i>The rest of the arguments are the same as for server add</i>	Net Optics> server mod type=web admin=disable
	show		Net Optics> server show
show		running factory <filename>	Net Optics> show my_config
snmp	commit		Net Optics> snmp commit
	set	[agent=<123 12 3 0>] [trap=<enable disable>] [trap_srvrip=<address>] [community=<public community string>] [context=<context name>]	Net Optics> snmp set agent=123 trap=enable trap_srvrip=20.40.3.7 community=myCommunityString context=myContext
	show		Net Optics> server show
	user_add	securityName=<name> [authProtocol=<MD5>] [authKey=<passphrase>] [privKey=<passphrase>] [securityLevel= <noAuthNoPriv authNoPriv authPriv>]	Net Optics> snmp user_add securityName=mySecurityName authProtocol=MD5 authKey=myPassphrase privKey=myPrivKey securityLevel=authNoPriv
	user_del	[securityName=<name>]	Net Optics> snmp user_del securityName=myName
	user_mod	<i>The arguments are the same as for snmp user_add</i>	Net Optics> snmp mod securityName=myName securityLevel=authPriv

Command	Sub-Command	Arguments	Example
stats	clear	[ports=<all portlist>] [alarms=<all portlist>] [uid=<uid>]	Net Optics> stats clear ports=all uid=7 <i>Note: Do not include UID in port numbers; use the uid=<uid> argument instead.</i>
	show	ports=<all portlist> [uid=<uid>]	Net Optics> stats show ports=m.2,n1.4 <i>Note: Do not include UID in port numbers; use the uid=<uid> argument instead.</i>
sysip	commit		Net Optics> sysip commit
	discard		Net Optics> sysip discard
	set	ipaddr=<address> mask=<netmask> gw=<gateway>	Net Optics> sysip set ipaddr=100.6.4.15 mask=255.255.0.0 gw=10.0.0.1
	show		Net Optics> sysip show
system	restart		Net Optics> system restart
	set	[crc=<on off>] [jumbo=<on off>] [lfd=<on off>] [udf_length=<0..16>] [udf_offset=<0..127>]	Net Optics> system set jumbo=on
	show	[uid=<uid>]	Net Optics> system show
time		[<time>]	Net Optics> time 13:02:00
upgrade		srvip=<srvip> user=<username> pw=<password> file=<filename>	Net Optics> upgrade srvip=168.192.20.2 user=bob pw=bobpw file=image021108
user	add	name=<username> pw=<password> priv=<level>	Net Optics> user add name=bob pw=bob-pw priv=3
	del	name=<username>	Net Optics> user del name=bill
	mod	name=<username> pw=<password> priv=<level>	Net Optics> user mod name=bill pw=billpw priv=2
	show		Net Optics> user show

Filter qualifiers

<qual>	<value>	Example	Description
ip_protocol	0 to 255	ip_protocol=6	Layer 4 IP protocol
ip4_src	d.d.d.d	ip4_src=168.10.4.1	IPv4 source address
ip4_src_mask	d.d.d.d	ip4_src_mask=255.255.255.0	Mask for IPv4 source address
ip4_dst	d.d.d.d	ip4_dst=168.10.4.2	IPv4 destination address
ip4_dst_mask	d.d.d.d	ip4_dst_mask=255.255.255.0	Mask for IPv4 destination address
ip6_src	xxxx:xxxx:xxxx:xxxx: xxxx:xxxx:xxxx:xxxx	ip6_src=1234:5678:9abc:def0:12 34:5678:9abc:def0	IPv6 source address
ip6_src_mask	xxxx:xxxx:xxxx:xxxx: xxxx:xxxx:xxxx:xxxx	ip6_src_mask= ffff:ffff:ffff:ffff:ffff:ffff:ffff:ffff	Mask for IPv6 source address
ip6_dst	xxxx:xxxx:xxxx:xxxx: xxxx:xxxx:xxxx:xxxx	ip6_dst=1234:5678:9abc:def0:12 34:5678:9abc:def0	IPv6 destination address
ip6_dst_mask	xxxx:xxxx:xxxx:xxxx: xxxx:xxxx:xxxx:xxxx	ip6_dst_mask= fff:fff:fff:fff:fff:fff:fff:ffc0	Mask for IPv6 destination address
l4_src_port	0 to 65535	l4_src_port=80	Layer 4 source port
l4_src_port_mask	0 to 65535	l4_src_port_mask=65535	Mask for Layer 4 source port
l4_dst_port	0 to 65535	l4_dst_port=80	Layer 4 destination port
l4_dst_port_mask	0 to 65535	l4_dst_port_mask=65520	Mask for Layer 4 destination port
mac_src	xx:xx:xx:xx:xx:xx	mac_src=01:23:45:67:89:ab	MAC source address
mac_src_mask	xx:xx:xx:xx:xx:xx	mac_src_mask=ff:ff:ff:ff:fc	Mask for MAC source address
mac_dst	xx:xx:xx:xx:xx:xx	mac_dst=11:22:33:44:55:66	MAC destination address
mac_dst_mask	xx:xx:xx:xx:xx:xx	mac_dst_mask=ff:ff:ff:ff:00	Mask for MAC destination address
udf_value	xxxxxxx *	udf_value=2324	Mask for user-definable filter
udf_mask	xxxxxxx *	udf_mask=3ff3	User-definable filter pattern
vlan	0 to 4095	vlan=3820	VLAN number
vlan_mask	0 to 4095	vlan_mask=4080	Mask for VLAN number

* A user-definable filter (UDF) cannot be used in conjunction with any other filter qualifier. The entire UDF pattern must lie within the first 128 bytes of the packet, and the last byte of the pattern must be quad-word aligned. Therefore **udf_offset** can be from 1 to 128, where 1 means that matching starts at the first byte of the packet. The length of **udf_value** and **udf_mask** should be equal to **udf_length**, which is set with the **system set** command. Its range is 0 to 16 bytes with the maximum value decreased by $(\text{udf_offset}-1)\%4$. If **udf_value** or **udf_mask** is longer than **udf_length**, the udf pattern is truncated to **udf_length**. If **udf_value** or **udf_mask** is shorter than **udf_length**, the udf pattern is padded with "don't care," that is, 0's in the extra **udf_mask** bytes.

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