Oracle® Fabric OS 1.0.2 Command Reference

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Contents

Using This Documentation

- **Overview** – Provides command descriptions, syntax, and examples for the Oracle Fabric OS 1.0.2 on the Oracle Infiniband Switch IS2-46 and the Oracle Fabric Interconnect F2-12.
- **Audience** – Technicians, system administrators, and authorized service providers.
- **Required knowledge** – Advanced experience troubleshooting and maintaining hardware.

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Using CLI Commands

These topics describe how to use the CLI commands in Oracle Fabric OS to manage the Oracle InfiniBand Switch IS2-46 (the leaf switch), the Oracle EDR InfiniBand Fabric, and the Oracle Fabric Interconnect F2-12 switch (the virtualization switch) For detailed information about concepts and procedures, refer to the *Oracle Fabric OS 1.0.2 Administration Guide*.

The Oracle Fabric OS includes commands to configure the following elements:

- Virtual Resources – These resources, such as vNICs and vHBAs, provide virtual I/O for your systems. VHBAs and modules are supported only on the virtualization switch.
- File System – A file storage system.
- Hardware – Servers, I/O cards, and system logs.
- Scripting Engine – Ability to run scripts within the Oracle Fabric OS for each I/O card. The engine also enables you to define new commands. Script support in the Oracle Fabric OS includes a full text editor for writing and revising your scripts. Refer to "Creating Scripts" in *Oracle Fabric OS 1.0.2 Administration Guide*.

Command Overview

The Oracle Fabric OS includes a powerful command-completion feature that informs you of possible commands, subcommands, and options at each point on the command line. The following kinds of command completion are available:

- To complete an unambiguous entry, press the Tab key.

- If your entry is unambiguous, the Oracle Fabric OS completes the command or subcommand that you have begun typing. For example:

  ```
  [OFOS] add server-[Tab]
  ```

  To see valid completions at any point, type **?** on the command line.

  Note - The Oracle Fabric OS prompt is admin@*hostname*[OFOS], where your *hostname* is inserted. The prompt is not customizable. In the remaining topics, the prompt is simply shown as [OFOS].

  Typing a question mark causes the Oracle Fabric OS to print a list of valid completions, and some short help text for each item, for what is currently on the command line. For example, if you enter the following, the output below shows what is displayed.

  ```
  [OFOS] ad?
  ```

  The Oracle Fabric OS responds with the following output:

  ```
  command::Possible completions:
     add     usercli::add
  ```

Help

In addition to command completion, the Oracle Fabric OS includes online help topics at various levels. To access these topics, type **help** *command*. The Oracle Fabric OS displays the detailed help topic for that item, if a topic is available.

Certain higher-level concepts also have help topics within the Oracle Fabric OS. Type **help** *TopicName* to see these help items.

For example, to view the help topic about adding a vNIC:

```
[OFOS] help add vnic
Add a new virtual Network Interface Card (vNIC) to the system. You must provide
a hierarchical name for the vNIC at the time that it is added. A 'hierarchical' name
includes the name of the vNIC, plus the name of the server profile to which A second
(optional) parameter of the 'add' command specifies the termination for the vNIC. A
vNIC can be terminated on an I/O port. For example, when you type:
add vnic vNIC_name.server_profile_name slot/port,
the vNIC is assigned. The two names are separated by the dot '.' character. For example:
add vnic vNIC_name.server_profile_name.
```

Keyboard Shortcuts

While entering a command, you can move around in the command-line text and edit it. The following list shows the control key strokes that are available:

- Left and right arrow keys: Move the cursor to either the left or to the right on the command line.
- Up and down arrow keys: Scroll up and down in the command history.
- Ctrl-L: Retype the line.
- Ctrl-U: Erase the line.
- Ctrl-C: Quit the command.
- Ctrl-R: Search the command history.
- Ctrl-E: Move to the end of the command.
- Ctrl-A: Move to the beginning of the command.

Command History

The Oracle Fabric OS maintains a history of the commands that you have entered over multiple sessions. Use the up and down arrows to scroll through the command history and find a specific command. When you find the desired command, press the carriage return on the keyboard to execute that command.

You can also search the command history for a sequence of characters using Ctrl-R. As you type characters after Ctrl-R, the Oracle Fabric OS searches backwards through the command history for commands containing those characters. To select a command found this way, press Return. Alternatively, use Ctrl-R again to continue the search.

Other Commands

Output Redirection

Redirect the output from any command may be redirected to a file by placing a **>** sign, followed by a filename at the end of the command. For example, typing the following runs the command and place the output in a file called `allvnics` in the current directory:

[OFOS] **show vnics > allvnics**

Another way to redirect the command output is to execute the command inside backtick characters and then place the result in a variable. For example, typing the following displays the variable `vnics`, which contains a vector of lines containing the output from the `show -list vnics` command:

[OFOS] **var vnics = 'show -list vnics'**

Wildcards

Use wildcards to control the display of output. Wildcards can be used in most of the Oracle Fabric OS `show` commands to select a set of objects. The only wildcard character supported is the asterisk (*) which causes zero or more of any character to be displayed in the `show` command. Wildcards can also represent entire names.

Strings you create with wildcards are case sensitive, ensure you enter the wildcard item correctly. For example, vNICs named `vnic1` and `vnic2` are not displayed if you issue `show vnic V*`. If you type `show vnic v*` with a lowercase v, the vNICs are displayed.

Note - Not all `show` commands support the use of wildcards. For example, LAGs and VLANs do not support them for selecting the LAG name or VLAN number.

Typing the following displays a list of all vNICs with `v` as the first letter:

[OFOS] **show vnic v***

The wildcard character represents zero or more characters in a name string starting with `v`.

Typing the following results in a list of all vNICs on all server profiles that contain the string `test` in their names:

[OFOS] **show vnic *.*test***

The first wildcard represents an entire name, and the second and third represent individual characters.

Pipes

Use pipes to control the display of output in the Oracle Fabric OS. Pipes in the Oracle Fabric OS are like standard UNIX pipes, and they use the same syntax. Typing the following displays all vNICs in the down state:

```
[OFOS] show vnic * | grep down
```

The Oracle Fabric OS pipes work with any command, but is most effective when coupled with the grep command. Pipes are not limited to only one set of pipes; many stages in the pipeline are supported.

Filters

The Oracle Fabric OS supports command filters, which are boolean expressions that operate on columns of object output. You can use filters to specify objects that will be displayed in the output of the following show commands:

- **show vnic**
- **show vhba**
- **show server-profile**
- **show physical-server**

To specify a filter for these commands, append a "where" clause containing operands and operators. Examples are provided later in this topic.

Filters determine specific output (the table columns) that will be displayed when you issue one of the listed commands. The value of a table column in a show command can be compared to a constant using one of the operators in the following table.

Operator	Means
)	Close expression
=	Equal to
<>	Not equal to
<	Less than
<=	Less than or equal to
>	Greater than
>=	Greater than or equal to
like	Regular expression match

Expressions can be combined using "and", "or", and "xor". Expressions can also be enclosed in parentheses.

Type the following to display all vNICs terminated on interface 1/1:

```
[OFOS] show vnic * where if = 1/1
```

Type the following to display vNICs with a name that starts with `priv` and are on the `prod` server profile, filtering those with an if-state column (interface state) that is not `up`:

```
[OFOS] show vnic priv*.prod where if-state <> up
```

Type the following to display all server-profiles that are connected to an external switch and are `up`:

```
[OFOS] show server-profile * where connection like "extsw" and state = up
```

Type the following to display all server profiles that have a vNIC or vHBA on them:

```
[OFOS] show server-profile * where vnics > 0
```

Naming Conventions

Follow these naming guidelines for object names in the Oracle Virtual Networking information model. Following is a partial list of characters to avoid when naming server profiles and vNICs and vHBAs:

- The `$` is used by the for textual replacement of expressions.
- The `/` (slash), the `^` (caret), and the `%` (percent sign) cause errors and prevent the named item from being displayed.
- The `:` (colon) causes a permissions error.

Internal blank spaces are accepted when they are enclosed in quotation marks. For example, a server profile named "web apps" is valid, but web apps is not.

Follow these guidelines to name objects for the Oracle Fabric OS:

- Characters accepted in the names of vNICs and vHBAs include alphanumerics and underscore (_). Avoid using other characters.
- Characters accepted in the other objects (for example, server profiles) include alphanumerics, dash (-), and underscores (_). Avoid using other characters.

The names you can set on virtual I/O resources can contain a restricted character set. Names of vNICs and vHBAscan contain the following:

- The letters A-Z and a-z

- The numerals 0-9
- The underscore character (_)

All other virtual I/O resources, such as server profiles, can contain:

- The letters A-Z and a-z
- The numerals 0-9
- The underscore character (_)
- A dash (-)

The names of virtual resources are restricted to the following lengths:

- A vNIC – Between 2 and 10 characters
- A vHBA – Between 2 and 15 characters
- Server profiles – Between 1 and 31 characters

Oracle Fabric OS Login

You can log in to the Oracle Fabric OS using the console or SSH. Telnet is not supported. Up to 20 concurrent Oracle Fabric OS sessions can be established on the chassis (limited by the number of instances available in the address object). For more information, refer to "Choosing a Login Method" in *Oracle Fabric OS 1.0.2 Administration Guide*.

Oracle Fabric Manager Login

You can log in to the Oracle Fabric Manager GUI using a browser and your own account or the default account. Refer to "Log In to Oracle Fabric Manager" in *Oracle Fabric Manager 5.0.2 Installation Guide*.

Generally, you will log in to the Oracle Fabric Manager CLI using a secure shell and your own account or the default account. Refer to "Log in to the CLI" in *Oracle Fabric Manager 5.0.0 Command Reference*.

Configuring Oracle Fabric OS

These topics describe commands that configure and display the Oracle Fabric OS CLI.

set cli

The set cli command configures different attributes of the CLI.

Syntax

```
set cli autocommit {off|on} [-noconfirm]
set cli block-entry {off|on}
set cli color {off|on}
set cli cols number
set cli confirm {off|on}
set cli echo {off|on}
set cli idle-timeout minutes
set cli mode {expert|user|xml}
set cli paging {off|on}
set cli progress-bar {off|on}
set cli prompt {custom value|normal}
set cli rows number
set cli space-completion {off|on}
set cli wrap {off|on}
```

where:

- *minutes* is the number of minutes an idle-timeout will last.

- *number* is the number of columns or rows on the screen.
- *value* is the CLI prompt.

This command has subcommands. This table describes the subcommands and provides the syntax.

Subcommand	Description
autocommit	Controls whether the CLI automatically commits after each change: ■ on – The default is on. When a CLI command is complete, the system automatically commits the changes to the configuration database. ■ off – When set to off, any changes must be manually written to the database using the commit command. Choosing off lets you make a set of changes and then commit the changes as a group.
block-entry	Controls whether the CLI prompts for the entry of scripting blocks, such as "foreach".
color	Controls whether the CLI displays colors for command output in a session. Only output is displayed in color. Command prompts and command text is monochrome. By default, colors are displayed, but setting color to off returns the screen to monochrome display.
cols	Sets the number of columns on the terminal screen. The default is the screen size for your monitor. Setting row size might not be available through a TTY/console port.
confirm	Sets the CLI confirmation mode. If the mode is set to on, the CLI confirms dangerous commands.
echo	Displays all CLI communication. Choosing on echoes all commands to the terminal screen. The default is off.
history	Sets the number of saved history commands to display. The buffer limit size is 512 commands per user. The log is persistent across CLI login sessions.
idle-timeout	After a specified number of idle minutes, the CLI session times out. Configure a value of *0* to configure an infinite CLI timeout (no timeout). The default is 30 minutes.
mode	Controls the CLI mode. The default is user.
paging	Sets the CLI paging mode. When set to on, the display output stops when the screen is full. When paging mode is off, the output does not stop at the end of the page.
progress-bar	Determines if a progress bar is displayed on the screen for commands that are expected to take a long time to execute.
prompt	Controls the current CLI prompt mode. The custom keyword sets the prompt to be an arbitrary CLI expression. The normal keyword sets the prompt to be the full name of the current object, such as admin@nsn150-162[OFOS]. ■ custom – Sets the prompt to an arbitrary CLI expression. ■ normal – Sets the prompt to the full name of the current object.
rows	Sets the number of rows on the terminal screen. The default is the screen size for your monitor. Setting row size might not be available through a TTY/console port.
space-completion	Controls whether the CLI completes commands when the spacebar is pressed. The default is on.
wrap	Controls whether the CLI wraps text at the end of line. The default is on.

Options

Option	Description
`-noconfirm`	Turns off the confirmation when configuring or displaying the CLI.

Example: Controlling Echo on the Command Line

This example shows how to turn echo on and off on the command line.

```
[OFOS] set cli echo on
[OFOS] add server-profile foo
add server-profile foo
add  server virtual "foo"
    // if a template was specified, apply it now
top
top
commit noconfirm
[OFOS] set cli echo off
set cli echo off
```

show cli

The show cli command displays information about the attributes of the CLI.

Syntax

```
show cli autocommit
show cli block-entry
show cli color
show cli cols
show cli command name
show cli commands name
show cli confirm
show cli echo
show cli history number
show cli idle-timeout
show cli keys
show cli loaded-commands
show cli mode
show cli paging
```

```
show cli progress-bar
show cli prompt
show cli rows
show cli space-completion
show cli user
show cli wrap
```

where:

- *name* is the name of the CLI command.
- *number* is the number of saved history commands to display.

This command has subcommands. This table describes the subcommands and provides the syntax.

Subcommand	Description
autocommit	- on – The default is on. When a CLI command is complete, the system automatically commits the changes to the configuration database. - off – When set to off, any changes must be manually written to the database using the commit command. Choosing off lets you make a set of changes and then commit the changes as a group.
block-entry	Controls whether the CLI prompts for the entry of scripting blocks, such as "for each".
color	Controls whether the CLI displays colors for command output in a session. Only output is displayed in color. Command prompts and command text is monochrome. By default, colors are displayed, but setting color off returns the screen to monochrome display.
cols	Sets the number of columns on the terminal screen. The default is the screen size for your monitor. Setting row size might not be available through a TTY/console port.
command	Reflects the name of the commands to display.
rows	Sets the number of rows on the terminal screen. The default is the screen size for your monitor. Setting row size might not be available through a TTY/console port.
confirm	Sets the CLI confirmation mode. If the mode is set to on, the CLI confirms dangerous commands.
echo	Displays all CLI communication. Choosing on echoes all commands to the terminal screen. The default is off.
history	Sets the number of saved history commands to display. The buffer limit size is 512 commands per user. The log is persistent across CLI login sessions.
idle-timeout	After a specified number of idle minutes, the CLI session times out. Configure a value of *0* to configure an infinite CLI timeout (no timeout).
mode	Controls the CLI mode. The default is user.
paging	Sets the CLI paging mode. When set to on, the display output stops when the screen is full. When paging mode is off, the output does not stop at the end of the page.
progress-bar	Determines if a progress bar is displayed on the screen for commands that are expected to take a long time to execute.
prompt	Controls the current CLI prompt mode. The custom keyword sets the prompt to be an arbitrary CLI expression. The normal keyword sets the prompt to be the full name of the current object, such as admin@nsn150-162[OFOS].

Subcommand	Description
	■ custom – Sets the prompt to an arbitrary CLI expression.
	■ normal – Sets the prompt to the full name of the current object.
space-completion	Controls whether the CLI completes commands when the spacebar is pressed. The default is on.
wrap	Controls whether the CLI wraps text at the end of line. The default is on.

cli record-script

The cli record-script command starts the command-line recording tool to capture commands in a management session in the exact sequence that the commands were issued. The commands are saved to a script that you name.

Syntax

```
cli record-script name
cli stop-recording
```

where *name* is the name of the recording script that you create.

cli stop-recording

The cli stop-recording command stops the command-line recording tool that captures commands in a management session in the exact sequence that the commands were issued.

Syntax

```
cli stop-recording
```

Understanding Hardware Commands

These topics describe how to use the CLI to view hardware status, and configure I/O cards and ports:

- I/O cards – Adds, removes, and displays available I/O line card information.
- I/O ports – Displays state and configuration information on an I/O port.
- FC cards – Controls the operational state of an FC card.
- FC ports – Configures the attributes of an FC port.
- Gateway ports – Configures gateway port information. A gateway port is a general term that includes both IB ports and Ethernet gateway ports.
- Configurable ports – Allows you to configure up to two additional ports. These ports can be IB ports or 40 Gb Ethernet ports.

Note - FC storage is supported for the Oracle Fabric Interconnect F2-12 virtualization switch, but not for the leaf switch.

Command	Link
help	"help" on page 28
fc-card	"fc-card" on page 29
set fc-port	"fc-port" on page 31
show fc-port	
set gw-port	"gw-port" on page 38
show gw-port	
iocard	"iocard" on page 33
show ioport	"ioport" on page 37
set multiconfig-port	"multiconfig-port" on page 39
show multiconfig-port	
show config	"show config" on page 40
show hardware	"show hardware" on page 42
show physical-server	"show physical-server" on page 43
show system info	"show system info" on page 45

help

The help command displays the detailed help topic for that command, if help is available.

Syntax

For example, to view the help topic about adding a vNIC:

help *command* **|** *class*

where:

- *command* is the command for which you need assistance.
- *class* is the category of commands.

Description

This hardware command provides help information for supported commands. Typically, the same information is provided using the -h option.

Type help to get more information on topics like these:

- Getting-started – Information about getting started with the system.
- Scripts – Information about the use of scripts.
- Concepts – High-level concepts describing the Oracle Fabric OS.
- VLANs – Virtual LAN features.

Example: Viewing Help

This example shows how to view the help topic for adding a vNIC:

```
[OFOS] help add vnic
Add a new virtual Network Interface Card (vNIC) to the system. You must provide a
hierarchical name for the vNIC at the time that it is added. A 'hierarchical' name
includes the name of the vNIC, plus the name of the server profile to which A second
(optional) parameter of the 'add' command specifies the termination forth vNIC. A
vNIC can be terminated on an I/O port. For example:
'add vnic <vNIC_name>.<server_profile_name> slot/port'. The vNIC is assigned. The
two names are separated by the dot '.' character. For example:
```

```
'add vnic <vNIC_name>.<server_profile_name>'.
```

fc-card

The `fc-card` command controls and displays the operational state of the FC card. Commands that affect card state also affect the FC ports on the cards, and in turn, the vHBAs that are supported on the port. You can use FC storage, vHBAs, and I/O modules on a virtualization switch, but not on a leaf switch. For more information about the FC module that works with the virtualization switch, refer to the Oracle Fabric Interconnect F2-12 Product Page.

Syntax

```
remove fc-card {*|slot}
set fc-card {*|slot} [-descr=text]
show fc-card {*|slot} alarms
show fc-card {*|slot} dmesg
show fc-card {*|slot} errors
show fc-card {*|slot} ioport port-number wildcard
show fc-card {*|slot} ioports
show fc-card {*|slot} stats
show fc-card {*|slot} utilization
show fc-card {*|slot} vhbas
show fc-card {*|slot} warnings
```

where:

- *slot* specifies the physical slot where the command will be applied. An asterisk (*) specifies all available FC cards.
- *port-number* specifies a particular FC port for which information will be displayed.
- *wildcard* specifies selected wildcard characters (for example, *) to facilitate executing a command for one or more FC cards.

These hardware commands have subcommands that determine their functionality. This table describes the *subcommand*s and provides their syntax.

Subcommand	Description
alarms	Displays alarms for the specified card.
dmesg	Displays base OS messages.
errors	Displays error alarms for the FC card.
ioport	Displays information for the port on the FC card.
ioports	Displays information for all ports on the FC card.

Subcommand	Description
stats	Shows FC card statistics.
utilization	Displays FC card utilization.
vhbas	Displays a list of vHBAs connected to the FC card.
warnings	Displays warning alarms for the FC card.

Options

Option	Description
-descr	Applies a text description to the FC card. Quotes are required around multiple words containing spaces in between.
-detail	Displays detailed information for the card. Optional.

Example: Configure an FC Card

This example shows how to add a description to an FC card in slot 11 and then view the card's information for port 1.

```
[OFOS] set fc-card 11 -descr=SalesWest
[OFOS] show fc-card 11 ioport 1
--------------------------------------------------
name                          11/1
type                          sanFc16GbPort
state                         up/down
descr                         SalesWest
wwnn                          50:01:39:71:00:56:70:65
wwpn                          50:01:39:70:00:56:70:65
rate                          auto/16Gbps
frame-size                    2048/2048
exec-throttle                 65535
int-delay                     1000
fc-link-down-timeout          30
login-retry                   8
login-timeout                 4
fc-target-port-down-timeout   30
topo                          F
loop-delay                    5
tape-support                  true
sfp-type                      16G
vhbas_2Mb_mtu_size            0
vhbas                         0
_____-

1 record displayed
```

fc-port

The `fc-port` command configures and displays the attributes of the FC port. FC storage is supported for the virtualization switch, but not for the leaf switch.

```
set fc-port {*|slot/port} [-descr=text]
set fc-port {*|slot/port} [-fc-link-down-timeout={number|default}]
set fc-port {*|slot/port} [-fc-target-port-down-timeout={number|default}]
set fc-port {*|slot/port} [-topology={f-port|l-port|n-port}]
show fc-port {*|slot/port} [-detail]
show fc-port {*|slot} alarms [-detail]
show fc-port {*|slot} stats [-detail]
show fc-port {*|slot} vhbas [-detail]
show fc-ports {*|slot/port} [-detail]
```

Syntax

where *slot*/*port* specifies the physical slot and port coordinate to be configured. An asterisk (*) specifies all available FC cards. You can configure FC ports on a virtualization switch, but not on a leaf switch.

These hardware commands have subcommands that determine their functionality. This table describes the *subcommand*s and provides their syntax.

Subcommand	Description
alarms	Displays alarms for the specified port.
stats	Shows FC port statistics.
vhbas	Displays a list of vHBAs connected to the FC port.

Options

Option	Description
-descr	Applies a text description to the FC port. Quotes are required around multiple words containing spaces in between.
-detail	An optional modifier that displays detailed information (if available) for the FC port.
-fc-link-down-timeout	When a fibre link goes down, the FC port waits for the specified number of seconds before declaring the fibre link down. This parameter value in seconds determines the duration for which a link can experience a loss of signal, or be non-operational before the firmware declares the link is down and sends a link down event. This parameter guards against link

Option	Description
	flapping and excessive reporting of link state changes when there is a constant change in the state of the link. Specify the number of seconds between 0 and 60, or do not specify any value to use the default time-out of 30 seconds.
-fc-target-port-down-timeout	When an FC port goes down on a target, the fabric waits for the specified of seconds before declaring the port down. This parameter is a counter that determines the maximum number of seconds a port can remain offline. If the specified number of seconds is exceeded, the port is timed out and declared down. Specify the time-out value as the number of seconds between 0 and 60, or do not specify any value to use the default retry limit. The default limit is 30 seconds.
-topology	Specifies the type of storage connection to use: ■ f-port – Specifies a point-to-point connection to the storage device through an FC switch. This type of connection supports NPIV. This is the default configuration for an FC module. ■ l-port – Specifies a loop connection to the storage device without using an FC switch. This type of connection does not support NPIV. A port configured this way can only support a single vHBA. ■ n-port – Specifies a point-to-point connection to the storage device without using an FC switch. This type of connection supports NPIV.

Example: Set the Link Down Timeout

This example shows how to set the FC port wait time to 45 seconds. The port will wait this length of time before declaring that the fibre link is down. The default timeout is 30 seconds.

Note - Modified settings do not become effective until you reset the I/O card. To adopt new settings, the card must be brought down, rebooted, and reinitialized using the set iocard command. For more information, see .

```
[OFOS] show ioport
name      type                  state      descr    vnics    vhbas
-------------------------------------------------------------------
4/1       sanFc1GbPort          up/down               0        0
4/2       sanFc1GbPort          up/up                 0        4
5/1       sanFc1GbPort          up/up                 0        1
5/2       sanFc1GbPort          up/up                 0        0
9/1       nwEthernet10GbPort    up/up                 0        0
-------------------------------------------------------------------
5 records displayed
[OFOS] set fc-port 4/2 -fc-link-down-timeout=45
[OFOS] set iocard 4 reset
Resetting I/O cards will adversely affect any virtual I/O resource connected to them
and thus cut I/O to the physical servers. Are you sure you want to reset the I/O card
in slot 4 (y/n)? y
[OFOS] show ioport 4/1 -detail
```

```
-----------------------------------------------------
name                       4/1
type                       sanFcPort
state                      up/up
descr
wwnn                       50:01:39:71:00:00:B0:1F
wwpn                       50:01:39:70:00:00:B0:1F
rate                       auto/4Gbps
frame-size                 2048/2048
exec-throttle              65535
int-delay                  1000
fc-link-down-timeout       45
login-retry                8
login-timeout              4
fc-target-port-down-timeout 60
topo                       F
loop-delay                 5
tape-support               true
vhbas                      4
-----------------------------------------------------
1 record displayed
```

Typically, you should use the default values for FC port parameters, and change them only if absolutely necessary.

iocard

The iocard command adds, resets, removes, and displays available I/O line card information in the system. The virtualization switch supports up to 12 I/O cards, while the leaf switch supports only one I/O card. You can configure vHBAs on a virtualization switch, but not on a leaf switch.

Note - The leaf switch and the virtualization switch are always in the embedded slot. Use the add iocard and remove iocard commands only on I/O modules that are in slots 0-11. Do not use these commands on switches that are in the embedded slot.

Syntax

add iocard {*slot*|*wildcard*} *card-type* [-noconfirm]
remove iocard {*|*slot*}
remove iocard {*|*slot*} vhbas [-noconfirm]
remove iocard {*|*slot*} vnics [-noconfirm]
set iocard {*|*slot*} clear-stats [-descr=*text*] [-fabric-mtu=*mtu*] [-type=*card-type*]

```
set iocard {*|slot} reset [-descr=text] [-fabric-mtu=mtu] [-type=card-type]
show iocard
show iocard *
show iocard {slot|wildcard}
show iocard {slot|wildcard} alarms
show iocard {slot|wildcard} cpu [-detail]
show iocard {slot|wildcard} dmesg [-detail]
show iocard {slot|wildcard} errors
show iocard {slot|wildcard} ioport {*|port} [-detail]
show iocard {slot|wildcard} ioports [-detail]
show iocard {slot|wildcard} stats [-detail]
show iocard {slot|wildcard} vnics [-detail[
show iocard {slot|wildcard} warnings
```

where:

- *card-type* is the type of I/O card you are adding or configuring. For example, `gwEthernet4Port10GbCard`.
- *slot* is the physical slot number.
- *port* is the physical port number.

Note - The leaf switch and the virtualization switch are always in the `embedded` slot.

This hardware command has subcommands that determine its functionality. This table describes the subcommands and provides their syntax.

Subcommand	Description
alarms	Displays alarms for the I/O card.
clear-stats	Clears the statistics of the I/O card.
cpu	Displays CPU information.
dmsg	Displays base OS messages for the I/O card.
errors	Displays I/O card errors.
ioport	Displays information for a specific ioport for the I/O card.
ioports	Displays information for all ioports for the I/O card.
reset	Resets an I/O card. This subcommand removes the card's power, restores the power after a few seconds, and then rediscovers the card's settings. The set iocard reset command resets only I/O modules that are located in slots 0-11. This command does not reset switches that are in the embedded slot.
stats	Displays statistics for the I/O card.
type	Specifies the type of card.
vhbas	Removes vHBAs connected to the I/O card.
vnics	Displays or removes vNICs connected to the I/O card.
warnings	Displays warning alarms for a specific I/O card.

These commands are supported on I/O cards only. The front panel, SCP, and IB fabric board are not affected.

Options

Option	Description
-descr	Applies a text description to the I/O card. Use quotes if there are multiple words containing spaces in the description.
-detail	An optional modifier that displays detailed information (if available) for the I/O card.
-fabric-mtu	Displays the MTU of the card's fabric.
-noconfirm	The process completes without prompting you for confirmation. The argument automatically answers yes to any prompts.
-type	The type of I/O card. For example, `gwEthernet4Port10GbCard`.

Reset an I/O Card

This example shows how to reset I/O card 2 and view the results.

```
[OFOS] set iocard 2 reset
Resetting IO cards will adversely affect any virtual IO resource connected to them and
thus cut I/O to the physical servers.  Are you sure you want to reset the IO card in
slot 2 (y/n)? y
[OFOS] show iocard
slot          state      descr    type                      v-resources
------------------------------------------------------------------------
1             up/down             gwEthernet4Port10GbCard    0
2             up/up               gwEthernet4Port10GbCard    0
3             up/up               gwEthernet4Port40GbCard    0
4             up/up               gwEthernet4Port10GbCard    0
embedded      up/up               spineIb4Gw2PortCard        0
5 records displayed
```

Example: Remove an I/O Card

This example shows how to display all I/O cards and remove the card in slot 3.

```
[OFOS] show iocard ?
Possible completions:
  2          sanFc2Port16GbCard in slot 2
```

```
   3          gwEthernet4Port10GbCard in slot 3
   4          gwEthernet4Port40GbCard in slot 4
 embedded    nsmCard in slot 5
   7          sanFc2Port16GbCard in slot 7
   8          ibLr4Port100GbCard in slot 8
   9          ibSfm4Port100GbCard in slot 9
   10         ibSlm8Port100GbCard in slot 10
[OFOS] remove iocard 3
This may disrupt traffic on all physical server that happen to be using the IO card.
Remove iocard in slot 3 (y/n)? y
```

Example: Remove a VHBA on an I/O Card

This example shows how to remove all vHBAs connected to the I/O card in slot 2.

```
[OFOS] remove iocard 2 vhbas
Remove all vhbas from iocard in slot 2 (y/n)? y
```

Example: Display I/O Card Information

This example shows how to view information for I/O card 2.

```
[OFOS] show iocard 2
-------------------------------
slot     2
state    up/up
descr
type     gwEthernet4Port40GbCard
vnics    0
qos      default
acl      xmsGeneratedAclSet
enables  --s--
-------------------------------
1 record displayed
```

The field v-resources indicates the number of Oracle Fabric OS virtual resources (vNICs and vHBAs) that are associated with this card. vNICs can be bound only to network Ethernet cards.

Example: Display a Port on an I/O Card

This example displays port information for I/O card 3.

```
[OFOS] show iocard 3 ioport
```

```
name   type                   state   descr   mode    lag   access-vlan   guid
-------------------------------------------------------------------------------------
3/1  gwEthernet10GbPort       up/up           trunk         1             10e08b50870102
3/2  gwEthernet10GbPort       up/up           trunk         1             10e08b50870102
3/3  gwEthernet10GbPort       up/up           trunk         1             10e08b50870102
3/4  gwEthernet10GbPort       up/up           trunk         1             10e08b50870102
4 records displayed
```

The field `v-resources` indicates the number of Oracle Fabric OS virtual resources (vNICs and vHBAs,) that are associated with this card. vNICs can be bound only to network Ethernet cards.

ioport

The `ioport` command displays state and configuration information on an I/O port.

Syntax

```
set ioport slot/port clear-stats [-descr=text]
show ioport
show ioport *
show ioport slot/port [-detail]
show ioport slot/port alarms [-detail]
show ioport slot/port stats [-detail]
show ioport slot/port vhbas [-detail]
show ioport slot/port vnics [-detail]
show ioport slot/*
```

where:

- * is a wildcard.
- *slot* /*port* are the physical slot and port numbers.

This hardware command has subcommands that determine its functionality. This table describes the subcommands and provides their syntax.

Subcommand	Description
alarms	Displays alarms for the port.
clear-stats	Clears the statistics for the port.
stats	Displays statistics for the port.
vhbas	Displays vHBAs connected to this port.
vnics	Displays vNICs connected to this port.

Options

Option	Description
-detail	Displays detailed information for the port. Optional.
-descr	Applies a text description to the port. Quotes are required around multiple words containing spaces in between.

Example: Display I/O Ports

This example shows how to view I/O port information, with and without the -detail option.

```
[OFOS] show ioport
name            type                    state           descr       v-resources
--------------------------------------------------------------------------------
2/1             gwEthernet10GbPort      up/down                      0
2/2             gwEthernet10GbPort      up/down                      0
2/3             gwEthernet10GbPort      up/down                      0
2/4             gwEthernet10GbPort      up/down                      0
4/1             gwEthernet40GbPort      up/indeterminate             0
4/2             gwEthernet40GbPort      up/down                      0
embedded/3      gwEthernet10GbPort      up/down                      0
embedded/8      gwEthernet40GbPort      up/down                      0
8 records displayed

[OFOS] show ioport 2/3 -detail
------------------------------------
name            2/3
type            gwEthernet10GbPort
state           up/down
descr
mode            trunk
lag
access-vlan     1
guid            10e096c95d0102
------------------------------------
1 record displayed
```

gw-port

The gw-port configures and displays the gateway port. A gateway port can be either an IB port or an Ethernet gateway port.

Syntax

```
set gw-port slot/port down
set gw-port slot/port up
show gw-port
```

where *slot*/*port* are the physical slot and port numbers.

These hardware commands have subcommands that determine their functionality. This table describes the *subcommand*s and provides their syntax.

Subcommand	Description
down	Deactivates a gateway port.
up	Activates a gateway port.

Example: Display Gateway Port Information

This example shows how to display information about the gateway port.

```
[OFOS] show gw-port
name          type                 state              descr   mode   lag  access-vlan
────────────────────────────────────────────────────────────────────────────────────
2/1           gwEthernet40GbPort   up/up                      trunk        1
2/2           gwEthernet40GbPort   up/indeterminate           trunk        1
2/3           gwEthernet40GbPort   up/up                      trunk        1
2/4           gwEthernet40GbPort   up/up                      trunk        1
4/1           gwEthernet10GbPort   up/down                    trunk        1
4/2           gwEthernet10GbPort   up/up                      trunk        1
4/3           gwEthernet10GbPort   up/up                      trunk        1
4/4           gwEthernet10GbPort   up/down                    trunk        1
embedded/5    gwEthernet40GbPort   up/up                      trunk        1
embedded/6    gwEthernet40GbPort   up/up                      trunk        1
11 records displayed
```

multiconfig-port

The multiconfig-port command allows you to configure up to two additional ports. These ports can be IB ports or 40 GbE Ethernet ports.

Syntax

```
set multiconfig-port slot/port [-port-type={gwEthernet10GbPort|gwEthernet40GbPort|ibPort}]
show multiconfig-port slot/* [-detail]
```

where *slot*/*port* are the physical slot/ port numbers.

Options

Option	Description
-detail	Displays detailed information for the port. Optional.
-port-type	Specifies the type of port: ■ gwEthernet10GbPort – 10 GbE port ■ gwEthernet40GbPort – 40 GbE port ■ ibPort – InfiniBand port

Example: Configure an Additional Ethernet Port

This example shows how to add an 4-port 40 GbE card, and then change the port type to 10GbE.

```
[OFOS] add iocard 7 gwEthernet4Port40GbCard
[OFOS] show iocard 7 ioport
name   type                 state            descr   mode    lag   access-vlan  guid
--------------------------------------------------------------------------------
7/1    gwEthernet40GbPort   up/indeterminate         trunk         1            0
7/2    gwEthernet40GbPort   up/indeterminate         trunk         1            0
7/3    gwEthernet40GbPort   up/indeterminate         trunk         1            0
7/4    gwEthernet40GbPort   up/indeterminate         trunk         1            0
[OFOS] set multiconfig-port 7/1 -port-type=gwEthernet10GbPort
[OFOS] show iocard 7 ioport
name   type                 state            descr   mode    lag   access-vlan  guid
--------------------------------------------------------------------------------
7/1    gwEthernet10GbPort   up/indeterminate         trunk         1            0
7/2    gwEthernet10GbPort   up/indeterminate         trunk         1            0
7/3    gwEthernet10GbPort   up/indeterminate         trunk         1            0
7/4    gwEthernet10GbPort   up/indeterminate         trunk         1            0
```

show config

The show config command displays a scrolling output that includes fabric type and speed information.

Syntax

show config [-sortby=*value*]

Options

Option	Description
-sortby	Specifies the column used to sort the configuration information.

Description

An XML version of the configuration file (config.xml) is located in the /config directory.

The config.xml file is large and not easy to parse on the fabric. Use file copy to copy the config.xml file to a remote location and view the file with an XML reader.

Example: Display the Configuration

This example shows how to display configuration information.

```
[OFOS] show config
# NM3 Chassis System Configuration
# Model: Oracle Fabric Interconnect F2-12
# Serial: To be filled by O.E.M.
#
# Date: Wed Oct 5 16:20:13 PST 2016
# User: admin
#
...## Virtual NICs #####################
------------------------------------------
name           aaa.aaa
state          up/indeterminate
mac-addr       00:00:00:00:00:00
admin-ipaddr
oper-ipaddr
descr
if
if-state       up
type
mtu            1500
vlans          none
```

```
----------------------------------------
1 record displayed

## Virtual LANs #######################

.....(more output is available)
```

Example: Print the Configuration

This example shows how to print configuration information.

```
[OFOS] printconfig /config/config.xml
<top:System xmlns:top="http://www.example.com/services/xmlapi/top"
    xmlns:example="http://www.example.com/services/xmlapi/example"
    oracle:version="Build 3.8.0  - (root) Wed Mar 23 00:59:43 PDT 2016
    displayedName="best">
        <application:Manager xmlns:application=
        "http://www.example.com/services/xmlapi/application"/> <composite:Manager xmlns:
         composite="http://www.example.com/services/xmlapi/composite">
    <composite:MigrateVResource xmlns:composite=
        "http://www.example.com/services/xmlapi/composite"<request>
         destinationServerProfileDN="system-local:server:virtual-caesar_default">
```

show hardware

The show hardware command displays comprehensive hardware information and environmental statistics for the fabric.

Syntax

show hardware [-sortby=*value*]

Additional commands, show config and show system info, show the hardware status of the fabric.

Options

Option	Description
-sortby	Specifies the column used to sort the configuration information.

Example: Display Hardware Status

This example shows how to display comprehensive output of important hardware information.

```
[OFOS] show hardware
# NM3 Chassis Hardware Status
# Model: Oracle Fabric Interconnect F2-12
# Serial: To be filled by O.E.M.
# Base MAC: 00:13:97:5D:A0:00
# Base WWN: 00:00:00:00:00:00:00:00
# Base VGUID: 00:13:97:02:F5:DA:00:00
# Locator LED: off
#
# Date: Wed Oct 5 01:10:37 PDT 2016
# User: admin
```

show physical-server

The show physical-server command displays the list of IB-connected servers.

Syntax

```
show physical-server name * hca
show physical-server name * where {descr|guid|name|os|port|server-profile|
version} operator value
```

where:

- *name* is the name of the server or the GUID.
- *operator* is an operator. For example, like, =, or <.
- *value* is the string value of the operator.

This hardware command has subcommands that determine its functionality. This table describes the subcommands and provides their syntax.

Subcommand	Description
descr	Displays the description of the physical server.
hca	Displays the GUID of the physical server.
guid	Displays HCA firmware and the option ROM version.

Subcommand	Description
name	Displays the name of the vNIC.
os	Displays the OS of the physical server.
port	Displays the server port.
server-profile	Displays the server profile that is connected to the physical server.
version	Displays version information for the physical server.
where	Displays a filter to view information.

Description

The Oracle Virtual Networking host drivers communicate with Oracle Fabric's OS OpenSM by default. When an IB connected host server boots up, the installed Oracle Virtual Networking host driver advertises the server's host name to the fabric.

Example: List of IB-Connected Servers

This example shows how to view the list of IB physical servers.

```
[OFOS] show physical-server
admin@ovn86-114[OFOS] show physical-server
--------------------------------------------------
name          ovn86-22
guid          10e0000186ab71
descr
port          ovn86-124:ServerPort20
os            Linux/4.1.12-22.el6uek.x86_64/x86_64
version       2.35.5510/3.0.0/xg-6.0.8026
server-profile  ovn86-22
--------------------------------------------------
name          ovn86-23
guid          10e0000186a7f1
descr
port          ovn86-124:ServerPort19
os            Linux/4.1.12-22.el6uek.x86_64/x86_64
version       2.35.5510/3.0.0/xg-6.0.8026
server-profile  ovn86-23
--------------------------------------------------
name          ovn86-29
guid          10e07ac2ac0005
descr
port          ovn86-124:ServerPort21
os            Linux/4.1.12-67.el6uek.x86_64/x86_64
version       1.0.0/3.0.0/xg-6.0.8032
server-profile  ovn86-29
```

----

show system info

The show system info command displays a quick summary of the fabric's essential information.

Syntax

show system info

Example: Show Hardware Status

This example shows how to view hardware system information.

```
[OFOS] show system info
------------------------------------------------------
hostname            ovn86-114
descr
domain
address             10.129.86.114
netmask             255.255.255.0
model-num           Oracle Fabric Interconnect F2-12
serial-num          unknown
ipconfig            static
default-gateway     10.129.86.1
mtu                 1500
support-jumbo-packet  true
timezone            US_Pacific
domain-search
nameservers
console-speed       115200
1 record displayed
```

Configuring IB

These topics describe how to use the CLI to configure and enable an IB port on the chassis. You can also use the CLI to display IB information and SM group information. However, you must use the Oracle Fabric Manager GUI to create and configure SM groups and partitions. For instructions, refer to "Create an SM Group" in *Oracle Fabric Manager 5.0.2 Administration Guide* and "Create a Partition" in *Oracle Fabric Manager 5.0.2 Administration Guide*.

The IB connects processor nodes and I/O nodes to a system area network. For information about the number of IB ports on a leaf switch and a virtualization switch, refer to "Understanding the Hardware" in *Oracle Fabric OS 1.0.2 Administration Guide*. Each external IB port connects to an external HCA installed on a remote host server.

Note - For login instructions for the Oracle Fabric Manager GUI, refer to "Log In to Oracle Fabric Manager (GUI)" in *Oracle Fabric OS 1.0.2 Administration Guide*.

Command	Link
`set infiniband-port`	"infiniband-port" on page 47
`show infiniband-port`	
`show ib partition`	"show ib" on page 49
`show ib path-stats`	
`show ib sm`	
`show ib sm-group`	
`show ib sm-keyset`	

infiniband-port

The `infiniband-port` command sets and displays configuration information for an IB port.

Syntax

```
set infiniband-port slot/port up [-noconfirm]
set infiniband-port slot/port down [-noconfirm]
show infiniband-port slot/* stats [-detail]
```

where *slot*/*port* are the physical slot and port numbers.

This command has subcommands. This table describes the subcommands and provides the syntax.

Subcommand	Description
down	Deactivates the IB port.
stats	Displays statistics for the IB port.
up	Activates the IB port.

Options

Option	Description
-detail	Displays detailed information for the IB port. Optional.
-noconfirm	Switches off confirmation prompts. The process completes without prompting you for confirmation. The argument automatically answers yes to any prompts.

Example: Activate an IB Port

This example shows how to activate an IB port.

```
[OFOS] set infiniband-port 10/1 up -noconfirm
name        state       mode-state      guid
10/1        up/up       switching       10e00001289c31
```

Example: Display IB Port Configuration

This example shows how to display statistics for IB ports.

```
[OFOS] show infiniband-port 10/* stats
```

show ib

The `show ib` command displays configuration information for IB SM groups. This action assumes you have used the Oracle Fabric Manager GUI to create and configure an SM group. Refer to "Create an SM Group" in *Oracle Fabric Manager 5.0.2 Administration Guide*.

Syntax

```
show ib partition name {ports|groups} [-detail]
show ib path-stats {from-port-guid} {to-port-guid}
show ib sm
show ib sm-group name {group-member|ports|groups}
show ib sm-keyset
```

where *name* is the name of the SM group.

This command has subcommands. This table describes the subcommands and provides the syntax.

Subcommand	Description
`partition`	Displays IB subnet partition information by groups or ports. The default is `partition`.
`path-stats`	Displays IB statistics. You can view statistics from one physical server or GUID to another.
`sm`	Displays IB SM configuration information.
`sm-group`	Displays IB SM details by group, group member, or port.
`sm-keyset`	Displays key set configuration details for an IB SM: ■ `SM key` – Controls messages for OpenSM. ■ `Trusted MKey` – Controls messages about programming switches. All switches are given this `MKey`. ■ `Untrusted Mkey` – Controls other messages.

Options

Option	Description
`-detail`	Displays detailed information for the IB partition. Optional.

Example: Show IB Partition Information

This example shows how to display IB partition information. Use the Oracle Fabric Manager GUI to create and configure an IB partition.

```
[OFOS] show ib partition
name    pkey    type      oper-pkey    isIPoIB    useGRH    adminPartition
LLL     777     subnet    8777         true       false     false
```

Example: Show IB SM Configuration

This example shows how to display SM configuration information. Use the Oracle Fabric Manager GUI to create and configure an SM group.

```
[OFOS] show ib sm
subnet-name             MT25218
subnet-id               0x2c9020023f4c1
subnet-prefix-id        0
chassis-id              0x2c9020023f4c1
state                   up/master
priority                14
handover-enabled        true
log-level               4
subnet_lid_range_start  0
subnet_lid_range_end    bfff
router_lid_range_start  0
router_lid_range_end    bfff
routing-engine          ftree
```

Example: Show IB SM Key Set Configuration

This example shows how to display SM key set information. Use the Oracle Fabric Manager GUI to create and configure an SM key set.

```
[OFOS] show ib sm-keyset
sm-key    trusted-key    untrusted-key    isActive
333       3331234        333abcd          true
777       7771234        777abcd          false
```

Example: Show IB Partition Configuration for SM Groups

This example shows how to display IB partition information for an SM group. Use the Oracle Fabric Manager GUI to create and configure SM groups and IB partitions.

```
[OFOS] show ib partition JJJ groups
type       membership     oper-pkey
all        full           8777
self       full           8777
```

Example: Show IB Path Stats

This example shows how to display IB path statistics.

```
[OFOS] show ib path-stats ?
Possible completions:
    10e08508ac0005  Port Guid of host nsn178-42
    10e085095a0005  Port Guid of host nsn178-76
    10e08b53a80005  Port Guid of host leaf_01
    10e09a86500005  Port Guid of host hca-10e09a86500004
    2c9030057b4de   Port Guid of host nsn178-32
```

Configuring Public Networks, PVIs and Server Profiles

These topics describe how to use the CLI to configure public networks, PVIs, and server profiles:

- Public network – Enables access to other networks or an external Ethernet network.
- PVI – Provides 100-Gb Ethernet connections within the fabric.
- Server profile – Assigns connections and I/O configuration properties to a physical server. When you assign a server profile, the host server assumes all of the server profile's I/O characteristics. Server profiles must follow the guidelines listed in "Naming Conventions" on page 18.

A default gateway enables IP communication with hosts on different IP subnets. A default gateway enables centralized IP address administration from the fabric. A default gateway is configured as part of the system OS installation, so you do not need to add or configure a default gateway. You can use the Oracle Fabric Manager GUI to create default gateways and server profiles. Refer to "Managing Default Gateways" in *Oracle Fabric Manager 5.0.2 Administration Guide* and "Using I/O Profiles" in *Oracle Fabric Manager 5.0.2 Administration Guide*. For login instructions, refer to "Log In to Oracle Fabric Manager (GUI)" in *Oracle Fabric OS 1.0.2 Administration Guide*.

Command	Link
`add public-network`	"public-network" on page 54
`remove public-network`	
`set public-network`	
`show public-network`	
`add pvi`	"pvi" on page 55
`show pvi`	
`add server-profile`	"server-profile" on page 56
`remove server-profile`	
`set server-profile`	
`show server-profile`	

public-network

The `public-network` command creates, configures, displays, and removes a public network.

Syntax

```
add public-network name ID uplink slot/port|slot.port [-group-name=value] [-type=value]
 [-mtu=value] [-pkey=value] [-trunk-mode={true|false}]
remove public-network name
set public-network name [-pkey=value] [-mtu=value] [-new-name=value]
set public-network name add allowed-vlans vlan [start1-end1,start2-end2]
set public-network name remove allowed-vlans vlan [start1-end1,start2-end2]
show public-network
```

where:

- *ID* is the ID of the public network.
- *name* is name of the public network.
- *slot*/*port* is the physical slot and port number. For example: 2/1.
- *vlan* is the name of the `allowed-vlan` to add or remove.

This hardware command has subcommands. This table describes the subcommands and provides their syntax.

Subcommand	Description
`add allowed-vlans`	Specifies the VLANs that can pass over any trunk VNICs on a public network. You can add starting and ending VLAN IDs.
`remove allowed-vlans`	Deletes any VLANs on the public network.

Options

Option	Description
`-group-name`	Defines a group name for the public networks.
`-mtu`	Sets the maximum size of packet transmitted without fragmentation for the public network. Specify an MTU number between 1500 and 4070. By default, 1500-byte packets are used.
`-new-name`	Defines a new name for the public network.
`-pkey`	A partition key (hex). Select from the list of established PVI partition pkeys.
`-trunk-mode`	When set to `true`, the `-trunk-mode` option assigns a VLAN range on the public network. When set to `false`, a VLAN range is not assigned.

Example: Create a Public Network

This example shows how to create a public network named `LLL`.

```
[OFOS] add public-network LLL 333 2/4
```

Example: Display Public Network Configuration

This example shows how to display the configuration information for a public network.

```
[OFOS] show public-network
name group-name id   pkey  state  type     trunkMode mtu   oper-mtu  mode description uplink allowed-vlans
------------------------------------------------------------------------------------------------------------
KKK  default    777  7fff  up/up  subnet   true      1500  1500      UD              2.1    1-11
LLL  default    333  7fff  p/up   subnet   true      1500  1500      UD              2/4    none
```

pvi

The `pvi` command creates and removes a PVI. Use the `set public-network` command to configure a PVI.

Syntax

```
add pvi name ID [-type={subnet|global}] [-mtu=value] [-pkey=value] [-trunk-mode={true|
false}]
set pvi name [-pkey=value] [-mtu=value] [-new-name=value]
show pvi
```

where:

- *ID* is the PVI ID.
- *name* is the name of the PVI you are creating.

Options

Option	Description
-mtu	Sets the maximum size of packet transmitted without fragmentation. Specify an MTU number between 1500 and 10218. By default, 4070-byte packets are used.

Option	Description
-pkey	A partition key (hex). Select from the list of established pkeys.
-new-name	Defines a new name for the PVI.
-type	Defines the kind of traffic on the PVI: ■ global describes traffic between subnets. ■ subnet describes traffic with the subnet only.
-trunk-mode	When set to true, the -trunk-mode option assigns a VLAN range . When set to false, a VLAN range is not assigned.

Example: Create a PVI

This example shows how to create a subnet PVI called MMM with an ID of 321 and a pkey of 222.

```
[OFOS] add pvi MMM 321 -type=subnet
set pvi MMM -pkey=222
show pvi
name   id    pkey   state   type    mtu    oper-mtu  mode  description
------------------------------------------------------------------------
MMM    321   222    up/up   subnet  4070   4070      UD    RC
JJJ    444   7fff   up/up   global  9000   1500            RC
```

server-profile

The server-profile command creates a server profile for a server and assigns it to the physical server. The profile contains properties for the server. This command also displays or removes a server profile.

Syntax

```
add server-profile name physical-server
add server-profile {*|name} connection physical-server [-descr=text]
set server-profile {*|name} connect physical-server
set server-profile {*|name} disconnect
set server-profile {*|name} down
set server-profile name iscsi-boot [vnic-name|none] targetIP [mount {direct /dev/node|
LABEL=label|lvm group-name volume-name}]
set server-profile {*|name} reset
set server-profile {*|name} up
set server-profile {*|name} [-default-gateway=name|none]
set server-profile {*|name} [-descr==text]
```

```
set server-profile {*|name}
remove server-profile name
remove server-profile name [vhbas] [vnics] [-noconfirm]
show server-profile name
show server-profile name [alarms][connection][iscsi-boot][throughput][vhbas][vnics]
[where]
```

This hardware command has subcommands that determine its functionality. This table describes the subcommands and provides their syntax.

Subcommand	Description
alarms	Displays the alarms.
connection	Adds, sets, and displays the attributes of the physical connection to the server.
connect	Connects the server profile to the specified server.
disconnect	Disconnects the server profile from the physical server.
down	Deactivates the server profile.
iscsi-boot	Configures the iSCSI boot options for the server profile.
reset	Resets the busy state.
throughput	Displays throughput statistics.
up	Activates the server profile.
vhbas	Displays the list of vHBAs.
vnics	Displays the list of vNICs.
where	Filters settings on the server profile.

where:

- *name* is the name of the server profile. Use a name that is unique to the fabric. A server profile name must be between 1 and 32 characters. Restrict characters in the name to alphanumerics, the dash (-), and the underscore (_).
- *physical-server* is the name of a server connected to the fabric.
- *targetIP* is the IP address of the target vNIC.
- *vnic-name* is the name of an existing vNIC.

Options

Option	Description
-default gateway	The name of a default gateway that is already configured.
-descr	An optional description of the server profile. This description is for your own use. If the description includes spaces, enclose the entire description in quotation marks.

Option	Description
-noconfirm	The process completes without prompting you for confirmation. The argument automatically answers yes to any prompts.

Example: Create a Server Profile

This example shows how to add a server profile named mytest.

```
[OFOS] add server-profile mytest ?
Possible completions:
  alexander@iowa:ServerPort8  Connection to host alexander (up)
  ceasar@iowa:ServerPort24    Connection to host caesar (up)
[OFOS] add server-profile mytest alexander@iowa:ServerPort8
```

All the physical servers connected to the fabric are displayed. The two servers listed (alexander and caesar) were automatically discovered by the fabric.

Configuring vNICs

This topic describes how to use the CLI to add and configure vNICs. An Oracle vNIC virtualizes NIC connectivity. A vNIC appears to the Oracle Fabric OS as a physical NIC and enables a server to have an Ethernet network attachment without having a physical NIC present. Instead of the client server using a NIC, an IB HCA is used and then virtualizes the NIC for Ethernet connectivity.

Server profiles must follow the guidelines listed in "Naming Conventions" on page 18.

You can also use the Oracle Fabric Manager GUI to add and configure vNICs. Refer to "Managing VNICs on a Physical Server" in *Oracle Fabric Manager 5.0.2 Administration Guide*.

Note - For login instructions, refer to "Log In to Oracle Fabric Manager (GUI)" in *Oracle Fabric OS 1.0.2 Administration Guide*.

Command	Link
add vnic	"vnic" on page 59
remove vnic	
set vnic	
show vnic	

vnic

The vnic command adds, configures, and displays vNIC connectivity.

Syntax

add vnic *vnic-name.server-profile* {*slot/port*|none} [-noconfirm]
add vnic *vnic-name.server-profile* *if-name* [-boot-capable={true|false}]

```
add vnic vnic-name.server-profile [-addr-type={default|static|dhcp}] [-ip-addr=addr/mask]
 [-ipaddr-host-managed=n.n.n.n]
set vnic vnic-name.server-profile [-addr-type={default|static|dhcp}] [-ip-addr=addr/mask]
 [-ipaddr-host-managed=n.n.n.n]
set vnic vnic-name.server-profile clear
set vnic vnic-name.server-profile down
set vnic vnic-name.server-profile clear vnic-stats
set vnic vnic-name.server-profile up
set vnic vnic-name.server-profile down
set vnic vnic-name.server-profile [-boot-capable={true|false}]
set vnic vnic-name.server-profile if-name
remove vnic {*|vnic-name} [-noconfirm]
remove vnics [-noconfirm]
show vnic [*] vnic-name [-detail]
show vnic [*] vnic-name alarms
show vnic [*] vnic-name errors
show vnic [*] vnic-name l2entries
show vnic vnic-name.server-name vnic-stats
show vnic vnic-name vnic-stats
show vnic [*] vnic-name vlans
show vnic [*] vnic-name warnings
show vnic [*] vnic-name where
show vnic vnic-name|* [-detail]
show vnic vnic-name wildcard throughput
```

where:

- *if-name* is the interface name (public network or PVI).
- *port* is the port termination for a vNIC.
- *public-network-name|* specifies the name of the public network you are creating.
- *vnic-name|* specifies the name of a vNIC or all vNICs if you are using the wildcard.
- *server-profile* is the name of the server profile.

This hardware command has subcommands. This table describes the *subcommand*s and provides their syntax.

Subcommand	Description
alarms	Displays alarms
clear	Removes items, such as vnic-stats.
down	Deactivates a vNIC, or deactivates specific settings (such as -boot-capable or -netmask.)
errors	Displays error alarms.
l2entries	Displays the L2 table entries.
throughput	Displays throughput statistics.
up	Activates a vNIC.

Subcommand	Description
vlans	Displays a list of VLANs.
vnic-stats	Displays statistics for a vNIC.
warnings	Displays warnings.
where	Filters information.

Description

The fabric automatically assigns MAC addresses to vNICs from a pool of internal-sequential addresses.

Options

Option	Description
-addr-type	Specifies the type of address: ■ default – The default is DHCP. ■ static – A static address that is assigned by the director. ■ dhcp – A DHCP-assigned address.
-boot-capable	Determines if the vNIC is capable of booting.
-descr	Provides a text description of the vNIC. Use quotes if there are spaces in the description.
-detail	Displays detailed information. Optional.
-ip-addr	Configures the IP address (address/mask) for the vNIC. This address is propagated to the physical server and appears as the address of an interface.
-ipaddr-host-managed	Configures an IP address (address/mask) that is managed by the host.
-netmask	Configures a netmask for the vNIC.
-noconfirm	The process completes without prompting you for confirmation. The argument automatically answers yes to any prompts.

Example: Create a vNIC and Assign it to a Server Profile

This example shows how to create a vNIC called VNIC1, and assign it to server profile vserver1, and assign it to a public network named AAA.

```
[OFOS] add vnic VNIC1.vserver1 ?
Possible completions:
```

```
     AAA   Public Network (ID: 777)
     none  No interface
[OFOS] add vnic VNIC1.vserver1 AAA
```

Example: Configure a Server Profile With a vNIC

This example shows how to create a server profile called myserver, and then configure a vNIC for it called myvnic.myserver that is connected to a public network named AAA.

```
[OFOS] add server-profile myserver alexander@iowa:ServerPort8
[OFOS] add vnic myvnic.myserver AAA
[OFOS] set vnic myvnic.myserver -addr-type=static -ip-addr=10.1.1.1/32 -boot-
capable=true
[OFOS] show vnic myvnic.myserver
--------------------------------
name          myvnic.myserver
state         up/up
mac-addr      00:13:97:01:80:08
ipaddr        10.1.1.1/32
if            2/2
if-state      up
type          static
vlans         none
boot-capable  true

[OFOS] show ioport 2/2 -detail
--------------------------------
name          2/2
type          gwEthernet10GbPort
state         up/up
descr
mode          access
lag
access-vlan   1
--------------------------------
1 record displayed

[OFOS] show vnic myvnic.myserver vnic-stats
-----------------------------------
name                myvnic.myserver
vlan-id-or-none     0
rcv-pkt             43544
rcv-bytes           4267274
trans-pkt           43507
trans-bytes         4265073
invalid-ip-checksum 0
invalid-l4-checksum 0
mtu-err             0
```

```
ipchecksum-pkt      0
tcp-checksum-pkt    0
udp-checksum-pkt    0
green-pkt           43519
yellow-pkt          0
red-pkt             0
-------------------------------------
1 record displayed
```

Configuring a VHBA

An Oracle vHBA virtualizes HBA connectivity. It appears to the OS as a physical HBA. Instead of the host server using an HBA, an IB HCA is used. You can use vHBAs on a virtualization switch, but not on a leaf switch.

This topic describes how to add and configure a vHBA.

Command	Link
add vhba	"vhba" on page 65
remove vhba	
set vhba	
show vhba	

vhba

The vhba command creates a vHBA and attaches it to an existing server profile. The command can also customize a vHBA, remove a vHBA, and display additional information about the vHBA. For instructions on creating a server profile, see "server-profile" on page 56.

Syntax

```
add vhba vhba.server-profile slot/port none [-local-id=ID] [-mtu=mtu-size] [-wwn-id=wwn-suffix]
remove vhba {vhba.server-profile|wildcard} [-noconfirm]
set vhba {vhba.server-profile|wildcard} clear stats [-descr=text]
    [-fabric-link-down-timeout={value|default}] [-if={slot/port|none}]
set vhba {vhba.server-profile|wildcard} down [-descr=text] [-fabric-link-down-timeout=
    {number|default}] [-if={slot/port|none}]
set vhba {vhba.server-profile|wildcard} full-scan [-descr=text]
    [-fabric-link-down-timeout={value|default}] [-if={slot/port|none}]
```

```
set vhba {vhba.server-profile|wildcard} prescan [-descr=text]
    [-fabric-link-down-timeout={value|default}] [-if={slot/port|none}]
set vhba {vhba.server-profile|wildcard} remove-prescan [-descr=text]
    [-fabric-link-down-timeout={value|default}] [-if={slot/port|none}]
set vhba {vhba.server-profile|wildcard} rescan [-descr=text]
    [-fabric-link-down-timeout={value|default}] [-if={slot/port|none}]
set vhba {vhba.server-profile|wildcard} up [-descr=text]
    [-fabric-link-down-timeout={value|default}] [-if={slot/port|none}]
show vhba {vhba.server-profile|wildcard} alarms [-detail]
show vhba {vhba.server-profile|wildcard} errors [-detail]
show vhba {vhba.server-profile|wildcard} stats [-detail]
show vhba {vhba.server-profile|wildcard} target [-detail]
show vhba {vhba.server-profile|wildcard} targets [-detail]
show vhba {vhba.server-profile|wildcard} throughput [-detail]
show vhba {vhba.server-profile|wildcard} warnings [-detail]
show vhba {vhba.server-profile|wildcard} where [cmds-per-lun|descr|fabric-state|
    flags|if|if-state|local-id|luns-per-target|mtu|name|state|wwnn|wwpn]
    expression operator [-detail]
```

where:

- *expression* is evaluated to produce a value.
- *operator* matches strings following a specific pattern. For a list of operators, see .
- *server-profile* is the name of a server profile that you already created.
- *slot* /*port* are the physical slot and port numbers.
- *vhba* is the name of the vHBA. It must be unique in the Oracle server profile to which it is assigned.
- *wildcard* allows you to specify selected wildcard characters (for example, *) to facilitate executing a command.

This hardware command has subcommands that determine its functionality. This table describes the *subcommand*s and provides their syntax.

Subcommand	Description
alarms	Displays vHBA alarms.
clear	Clears items from the vHBA and leaves it in the state it was in when you issued the clear command. The vHBA can be explicitly named, or you can use a wildcard character (for example, *) to clear all vHBAs.
down	Deactivates the vHBA and causes the disks on the server to become inoperable. The vHBA can be explicitly named, or you can use a wildcard character (for example, *) to turn down all vHBAs.
errors	Displays vHBA errors.
full-scan	Scans for devices using the port login.
none	Specifies no interface when adding a vHBA.
prescan	Configures prescan state for an unbound vHBA.

Subcommand	Description
`remove-prescan`	Removes a prior configured prescan state, which is required in order to re-issue a new prescan state. After you perform a prescan, the configuration resides on the I/O card.
`rescan`	Configures rescan state for a bound vHBA. When running rescan, if any vHBAs are in `down` state, the rescan process completes and then displays the vHBAs in a `down` state.
`stats`	Displays vHBA statistics.
`target`	Displays the storage target attached to the vHBA.
`targets`	Displays the storage targets attached to the vHBA.
`throughput`	Displays throughput speed for the vHBA.
`up`	Brings the vHBA online. The vHBA can be explicitly named, or you can use a wildcard character (for example, *) to bring all vHBAs online.
`warnings`	Displays vHBA warnings.
`where`	Displays filter criteria, expressions, and operators: ■ `cmds-per-lun` – Displays the number of commands allowed per LUN. ■ `descr` – Displays the text describing the vHBA. ■ `fabric-state` – Describes the state of the fabric, which can be `up`, `down`, `indeterminate`, `initialized`, or `uninitialized`. ■ `flags` – Indicates if LUNs are enabled for a vHBA. ■ `if` – Displays the termination port. ■ `if-state` – Displays the interface state. ■ `local-id` – Displays the ID used by the ESX server to map its HBA to this vHBA. ■ `luns-per-target` – Displays the number of LUNs allowed per target. ■ `mtu` – Displays the MTU of the vHBA. ■ `name` – Displays the name of the vHBA. ■ `state` – Displays the `admin` or `oper` state of the vHBA. ■ `wwnn` – Displays the World Wide Node Name ■ `wwpn` – Displays the World Wide Port Name. For a list of operators, see "Filters" on page 17.

Description

An IB connection exists between the fabric interconnect and host servers supporting the Oracle Virtual Networking vHBA host software stack. Up to 24 IB ports are supported. A 2-port FC I/O card connects to an FC switch fabric. All the host server vHBAs multiplex through the FC ports on the I/O card. A storage array is attached to the switch fabric. Initiators are host servers that request I/O processing and actively seek out and interact with target devices. Targets are passive storage devices (arrays, JBODs, RAIDs, and so on) that respond to requests sent by initiators. The Oracle Fabric Interconnect itself is an I/O initiator that provides a conduit for host-server initiators to send commands to the fabric.

The vHBA host software defines how the FC protocol will be transported (in or out) over IB. Without this software and the details of the transport, the vHBA will not function and the payload cannot be sent over IB.

Options

Option	Description
-descr	Applies a text description to the vHBA. Quotes are required around multiple words containing spaces in between. Optional.
-detail	Displays detailed information (if available) for the vHBA. Optional.
-fabric-link-down-timeout	Sets a value in milliseconds for the IB fabric to be down before the vHBA is put in operational state down. Set a value between 0 and 255. The default is 0, which can be set through the number zero (0) or through the keyword default. The new value becomes effective after you reboot the FC card.
-if	Sets a termination slot and port for the vHBA. This option can be used to terminate the vHBA on a different FC port if needed.
-local-id	The identifier used by ESX Server to map its HBA to this vHBA. Enter 1 to 32. Each ID must be unique per ESX Server.
-mtu	Size of the MTU: ■ 2048 – 2 MByte ■ 256 – 256 Kbyte ■ 512 – 512 KByte ■ 1024 – 1 Mbyte ■ default – 256 Kbyte
-noconfirm	Allows you to remove vHBAs without displaying a confirmation prompt. This option assumes yes to the prompt asking for confirmation, and if used, no warning messages will be displayed and the vHBA will be immediately deleted.
-wwn-id	Specifies a particular WWN. This option allows you to enter the WWN suffix, which is the last 12 bits of the WWN address. The WWN suffix is a 12-bit hexadecimal number from 100 to FFF.

Description

When you bring a vHBA online, it attempts to discover all the attached targets that are available to it. You can also have the vHBA relearn attached targets without bringing the vHBA down, and then up. See "Target Prescan and Rescan" in *Oracle Fabric OS 1.0.2 Administration Guide*.

Example: Create a Basic vHBA

This example shows how to create a server profile named `crawford` and bind it to a physical server connection. The example also shows how to find an FC card and an FC slot and port, and create and bind a vHBA to the server profile. The last command verifies that the vHBA was created.

```
[OFOS] add server-profile crawford ceasar@iowa:ServerPort24
[OFOS] show iocard
slot        state     descr    type                  v-resources
-----------------------------------------------------------------
3           up/up              sanFc2Port16GbCard    0
4           up/up              sanFc2Port16GbCard    2
embedded    up/up              spineIb4Gw2PortCard   0
3 records displayed
[OFOS] show ioport
name        type               state      descr    v-resources
-----------------------------------------------------------------
1/1         sanFc1GbPort       up/up                0
1/2         sanFc1GbPort       up/up                0
2/1         sanFc1GbPort       up/up                0
2/2         sanFc1GbPort       up/up                0
3/1         sanFc1GbPort       up/up                0
3/2         sanFc1GbPort       up/up                0
4/1         sanFc1GbPort       up/up                1
4/2         sanFc1GbPort       up/up                1
8 records displayed

[OFOS] add vhba vhba1.crawford 2/1
[OFOS] show -list vhba vhba1.crawford
--------------------------------------
name          vhba1.crawford
state         up/up
fabric-state  up/up
if            2/1
if-state
wwnn          50:01:39:71:00:02:D1:1E
wwpn          50:01:39:70:00:02:D1:1E
local-id      0
--------------------------------------
1 record displayed
```

Tip - The state is up when the FC port is connected to a reachable FC switch. If the state is `resourceUnavailable`, there is no FC connection, the server profile is not bound to a physical host resource, or the host cannot communicate.

Example: Discover Targets for a VHBA and Bind the Server Profile

This example shows how to discover and display targets attached to a vHBA. The last command shows how to bind the targets to the host server profile.

```
[OFOS] set vhba vhba1.crawford prescan
[OFOS] show vhba vhba1.crawford targets
vhba            wwnn                     wwpn                     lun-ids
--------------------------------------------------------------------------
vhba1.crawford  2F:9F:00:06:2B:10:C3:BA  2F:9F:00:06:2B:10:C3:BA  3,2,1,0
vhba2.crawford  2F:BF:00:06:2B:10:C3:BA  2F:BF:00:06:2B:10:C3:BA  3,2,1,0
vhba3.crawford  2F:DF:00:06:2B:10:C3:BA  2F:DF:00:06:2B:10:C3:BA  3,2,1,0
vhba4.crawford  2F:FF:00:06:2B:10:C3:BA  2F:FF:00:06:2B:10:C3:BA  3,2,1,0
--------------------------------------------------------------------------
4 records displayed
[OFOS] set server-profile crawford connect ceasar@iowa:ServerPort24
```

Example: Display vHBA Statistics

```
[OFOS] show vhba vhba1.crawford stats
-------------------------------------------------
name                             vhba1.crawford
total-io                         27136
read-byte-count                  3380540138
write-byte-count                 0
outstanding-request-count        0
io-request-count                 27136
read-request-count               27042
write-request-count              0
task-management-request-count    94
target-count                     36
xsmp-xt-down-count               3
xsmp-xt-oper-state-request-count 4
map-fmr-count                    27042
ummap-fmr-count                  27042
used-map-fmr-count               0
abort-command-count              0
reset-target-command-count       0
reset-bus-command-count          0
link-down-count                  1
disc-info-update-count           3
target-lost-count                0
target-found-count               0
cqp-disconnect-count             4
```

```
dqp-disconnect-count               4
cqp-ib-snd-err-count               1
dqp-ib-snd-err-count               0
cqp-ib-rcv-err-count               0
dqp-ib-rcv-err-count               0
cqp-ib-remote-disconnect-err-count  0
dqp-ib-remote-disconnect-err-count  0
--------------------------------------------------
1 record displayed
```

Configuring LAGs

This topic describes how to use the CLI to add and configure a LAG. A LAG is a group of physical Ethernet ports. You can combine multiple individual physical Ethernet ports into one logical port group. The ports combined into a LAG operate in parallel to increase bandwidth and HA. The LAG must also be configured on the peer Ethernet device. For more details, refer to *"Working with a LAG"* in *Oracle Fabric OS 1.0.2 Administration Guide*.

You can also use the Oracle Fabric Manager GUI to create and configure a LAG. Refer to *"Managing LAGs"* in *Oracle Fabric Manager 5.0.2 Administration Guide*.

Command	Link
add lag	*"lag" on page 73*
remove lag	
set lag	
show lag	

lag

The lag commands adds, configures, displays, and removes a LAG.

Syntax

```
add lag name port port-number
remove lag {*|*.*|name}
set lag {*|*.*|name} [-descr=text]
show lag {*|*.*|name}
```

where:

■ *. * are wildcards that enable the command to be applied to all LAGs on the fabric.

- *name* is a LAG name (which consists of slot and LAG ID separated by a dot) that enables the command to be applied to a specific LAG.
- *port-number* is the port that will be added.

This hardware command has one subcommand. This table describes the subcommand and provides the syntax.

Subcommand	Description
port	Specifies an Ethernet port to add to a LAG.

Options

Option	Description
-descr	Specifies an alphanumeric character string that describes the LAG. Optional.

Example: Configure a Static LAG

This example shows how to configure a static LAG and specify the first port that you want in the LAG.

```
[OFOS] add lag 0.4 port 3,4,7,8
[OFOS] show lag
name    state   mac-addr            descr   mode      access-vlan   ports
-------------------------------------------------------------------------
0.4     up      00:13:97:5D:A0:01           access    1             4
```

Managing Users and Roles

These topics describe how to use the CLI to configure an admin user's role and display users, and also view a list of admin users who are logged in. You *must* use the Oracle Fabric Manager GUI to add `admin` users. Refer to "Assign a Role to a User" in *Oracle Fabric Manager 5.0.2 Administration Guide*.

Oracle's internal IMS service authenticates admin users and grants them suitable privileges according to assigned user roles to access the fabric and the switch. The IMS service is the Oracle Fabric OS local system, which is always present. For more information, refer to "Implementing User Authorization" in *Oracle Fabric OS 1.0.2 Administration Guide*.

Command	Link
show login	"show login" on page 75
set user	"user" on page 76
show user	

show login

The `show login` command shows which admin users are logged in, and provides details about the active CLI sessions.

Syntax

show login *session-ID*

where *session-id* is the ID number of the session.

Example: Display Login Details

This example shows which admin users are logged in to Oracle Fabric OS.

```
[OFOS] show login
-----------------------------------
session        1
time           2011-08-20 21:28:20
name           admin
descr
roles          administrator
interface      cli
type           local
logged-in-from 172.16.48.190
----------------------------------
1 record displayed

show users
name    role            descr
----------------------------------
admin   administrators
```

user

The set user command sets attributes for an admin user. The show user command displays a specific admin user, and the show users command displays all admin users. Refer to "Users and Roles" in *Oracle Fabric OS 1.0.2 Administration Guide* for details about each type of role in Oracle Fabric OS. Use the Oracle Fabric Manager GUI to add admin users for the Oracle Fabric OS.

Syntax

```
set user name [-role=role-name] [-password]
show user name
show users
```

where *name* is the name of the admin user.

Options

Option	Description
-descr	Specifies an alphanumeric character string that further describes the user. Optional.
-password	Specifies a password for the admin user.
-role	Specifies a role for the admin user:

Option	Description
	■ administrators
	■ network
	■ operators
	■ server
	■ storage
	For more information about each role, refer to "Users and Roles" in *Oracle Fabric OS 1.0.2 Administration Guide*.

Monitoring Oracle Fabric OS

These topics describe how to use the CLI to monitor the chassis, hardware, and software:

- Alarms – View current alarms that are reported by the fabric.
- SNMP – Monitor hardware and the chassis. Oracle Fabric OS 1.0.2 supports SNMP v3.
- Diagnostics – Track and display performance statistics and error counters.

Note - You can also use the Oracle Fabric Manager GUI to monitor hardware and software. Refer to "Working With Live Monitoring" in *Oracle Fabric Manager 5.0.2 Administration Guide*.

Command	Link
show alarms	"show alarms" on page 80
show xyz stats	"show *xyz* stats" on page 80
show system	"show system" on page 82
show system copyright	
show system date	
show system demsg	
show system errors	
show system info	
show system interfaces	
show system log	
show system loglevel	
show system ntp-server	
show system password-strength	
show system processes	
show system root-ssh-login	
show system server-connection	

Command	Link
show system status	
show system syslog	
show system syslog-server	
show system user	
show system version	
show system warnings	
add snmp	"snmp" on page 85
set snmp	
show snmp	

show alarms

The show alarms command displays all alarms in the system database. Alarms can have a severity of info, warning, minor, major, or critical.

Syntax

```
show alarms
```

Example: Display Alarms

This example shows how to view all alarms.

```
[OFOS] show alarms
time                    type       name       severity   cause        descr
-------------------------------------------------------------------------------------------
2016-03-26 22:09:54.439   server     vserver1   warning    termination  Unspecified no physical compute
                                                                        resource provisioned.
016-03-26  00:11:54.439   equipment  controller critical   failed       IB link is down.
```

show *xyz* stats

The show *xyz* stats command displays system real-time statistics.

Syntax

```
set vhba vhba-name clear stats
set vnic vnic-name clear vnic-stats
show vhba vhba-name stats
show vnic vnic-name vnic-stats
```

where:

- *vnic-name* is the name of the vNIC for which you want to gather or display statistics.
- *vhba-name* is the name of the vHBA or which you want to gather or display statistics.

You can use vHBAs on a virtualization switch, but not on a leaf switch. For more information on vHBAs, see "Configuring a VHBA" on page 65. For more information on vNICs, see "Configuring vNICs" on page 59.

This command has subcommands. This table describes the subcommands and provides the syntax.

Subcommand	Description
clear vnic-stats	Clears statistics for the vNIC.
clear stats	Clears statistics for the vHBA.
vnic-stats	Displays statistics for the vNIC.
stats	Displays statistics for the vHBA.

Example: Display vNIC Stats

This example shows how to display the statistics for a vNIC named `vn0.sp2`.

```
[OFOS] show vnic vn0.sp2 vnic-stats
---------------------------
name                vn0.sp7
vlan-id-or-none     0
rcv-pkt             43544
rcv-bytes           4267274
trans-pkt           43507
trans-bytes         4265073
invalid-ip-checksum 0
invalid-l4-checksum 0
mtu-err             0
ipchecksum-pkt      0
tcp-checksum-pkt    0
udp-checksum-pkt    0
tcpseg-pkt          0
```

```
green-pkt          43519
yellow-pkt         0
red-pkt            0
---------------------------
1 record displayed
```

show system

The show system command displays the system attributes: OS version, fabric IP address, installed Oracle Fabric OS version, memory information, hard disk status, and so on.

Syntax

```
show system
show system date
show system dmesg
show system errors
show system info
show system interfaces
show system log [debug|syslog]
show system loglevel
show system ntp-server
show system password-strength
show system processes
show system root-ssh-login
show system server-connection
show system status
show system syslog
show system syslog-server
show system user
show system version [-all]
show system warnings
```

This command has subcommands. This table describes the subcommands and provides the syntax.

Subcommand	Description
date	Displays the current system local date and time.
dmesg	Displays base OS messages.
errors	Displays syslog errors.
info	Displays system information, such as the fabric management IP address, hostname, and default gateway.
interfaces	Displays all the network interfaces in the system.

Subcommand	Description
log	Displays the logs. The show system log and show system log debug commands are interactive, and do not return to a command prompt after they have been issued. You must enter input to manipulate the command output (for example, pause or resume output), or exit the log file and return to the command prompt. If you do not provide any input, the show system log and show system log debug output is displayed indefinitely. Use one of the qualifiers to return to the command prompt: ■ h – View a list of qualifiers ■ q – Quit ■ f – Enter filter ■ p – Pause or resume ■ - to skip backward through the file ■ + to skip forward through the file ■ / (forward slash) – Search backwards through the log for a string ■ Enter key – Marks a position on the screen If there are no log entries, the message *Log file /log/user-debug.log is empty* appears, but you are still required to provide input to return to the Oracle Fabric OS command prompt.
loglevel	Displays the syslog level of each service: ■ 0 XG_LOG_EMERG ■ 1 XG_LOG_ALERT ■ 2 XG_LOG_CRIT ■ 3 XG_LOG_ERR ■ 4 XG_LOG_WARNING ■ 5 XG_LOG_NOTICE ■ 6 XG_LOG_INFO ■ 7 XG_LOG_DEBUG
ntp-server	Displays the configured NTP server.
password-strength	Displays criteria for setting password strength.
processes	Displays process information.
root-ssh-login	Shows permission for the root user to log in with ssh.
server-connection	Displays server connection information.
status	Displays the current status of the system.
syslog	Displays entries.
syslog-server	Displays the syslog server.
user	Displays internal information about the current user.
version	Displays version information for the system, including the minimum driver version required to keep the Oracle Fabric OS and driver software synchronized.
warnings	Displays syslog warnings.

Options

Option	Description
-all	Displays the version information for all images in the system.

Example: Display System Details

This example shows how to display information for the system.

```
[OFOS] show system
Booted on: Wed Oct 12 00:21:02 PST 2016
uptime: 7 minutes, 14 seconds

RECENT UPGRADES, DOWNGRADES AND PATCHES
Tue Oct  4 16:21:35 PDT 2016: Upgraded to nm3-branch-OFOS-1.0.0-47175.xpf
Tue Oct  4 23:39:07 GMT 2016: Upgraded to nm3-branch-OFOS-1.0.0-47175.xpf
Thu Oct  6 17:09:20 GMT 2016: Upgraded to nm3-branch-OFOS-1.0.0-47156.xpf
Current BIOS Revision Information
    bios-vendor: American Megatrends Inc.
    bios-version: 43.00.00.16
    bios-release-date: 06/21/2016

Current Base OS Version Information
    Oracle Linux Server release 6.7
    4.1.12-32.el6uek.x86_64

INSTALLED OFOS VERSIONS
Current: oibos-branch-OFOS-1.0.0-47156
Previous: oibos-branch-OFOS-1.0.0-47175_0

MEMORY INFORMATION
Total memory: 31.068G
Used memory: 1.826G
Free memory: 29.242G
Swap space used: 0.000M
DISK STATUS
Partition          Size  Available      Used  %used
/                15.624G     9.575G    5.234G   33%   |########----------------|
/shared/config    3.812G     3.589G    8.035M    0%   |------------------------|
/shared/data     15.624G    14.765G   43.965M    0%   |------------------------|
/shared/variable 15.624G     4.771G    0.037G   64%   |##############----------|
/shared/temporary 23.498G   19.861G    2.422G   10%   |##----------------------|
/shared/coredumps 15.624G   13.881G  949.848M    5%   |#-----------------------|
```

snmp

The snmp command creates, monitors, and displays the operational status of the fabric. Use SNMP to configure trap destinations that will receive events. The commands below add an SNMP trap destination IP address and then add an authenticated user.

Oracle Fabric OS supports SNMP v3. For instructions on setting up SNMP, refer to "Configure SNMP" in *Oracle Fabric OS 1.0.2 Administration Guide*.

Syntax

```
add snmp trap-dest IP-address [:port] [-community=community-name] [-version=version]
     v3-user username [-auth-protocol=auth-protocol] [-priv-protocol=priv-protocol]
add snmp v3-user username [-auth-protocol=auth-protocol] [-priv-protocol=priv-protocol]
remove snmp trap-dest IP-address[:port] [-noconfirm]
remove snmp v3-user username [-noconfirm]
set snmp v3-user username [-auth-password=auth-password] [-auth-protocol=auth-protocol]
     [-priv-password=priv-password] [-priv-protocol=priv-protocol]
set snmp trap-dest v3-user [-auth-password=auth-password] [-auth-protocol=auth-protocol]
     [-priv-password=priv-password] [-priv-protocol=priv-protocol]
set snmp [-descr=text [-sys-contact=sys-contact] [-sys-location=sys-location]
     [-sys-name=sys-name]
show snmp v3-users
```

where:

- *IP-address* is the IP address of the system that will receive SNMP traps.
- *port* specifies the physical port coordinate.
- *username* is the name of the SNMP user.

This command has subcommands. This table describes the subcommands and provides the syntax.

Subcommand	Description
trap-dest	Adds or removes SNMP information about where to forward the traps. Type the IP address of the system that will receive SNMP traps.
	If you are entering a description with internal blank spaces (for example Oracle Systems) you must enclose the string in double quotes.
v3-user	Sets and removes SNMP version 3 user information. Use the -community and the -version options to add SNMP version 3 user information.

Options

Option	Descriptions
-auth-password	Sets the authorization password for the SNMP v3-user.
-auth-protocol	Sets the authorization protocol for the SNMP v3-user: ■ MD5 ■ SHA ■ default (none) ■ none
-community	Sets the SNMP community for the v3-user.
-descr	Sets the SNMP description. Optional.
-noconfirm	Switches off confirmation prompts. The process completes without prompting you for confirmation. The argument automatically answers yes to any prompts.
-priv-password	Sets the privacy password for the SNMP v3-user.
-priv-protocol	Sets the privacy protocol for the SNMP v3-user: ■ AES128 ■ DES ■ default (none) ■ none
-sys-contact	Sets the SNMP system contact information.
-sys-location	Sets the SNMP system location.
-sys-name	Sets the SNMP system name.
-version	Sets the SNMP version number.

Using System Commands

These topics describe how to use the CLI to set jumbo frames, retrieve log files, and get detailed system information.

Command	Link
`get log-files`	"get log-files" on page 88
`remove system`	"remove system" on page 90
`set system address`	"set system" on page 91
`set system default-gateway`	
`set system description`	
`set system domain`	
`set system domain-search`	
`set system hostname`	
`set system ipconfig`	
`set system jumbo-packet`	
`set system loglevel`	
`set system management-interface`	
`set system nameserver`	
`set system netmask`	
`set system password-strength`	
`set system root-password`	
`set system timezone`	
`show software`	"show" on page 94
`show tech-support`	
`system access-core-files`	"system" on page 95
`system broadcast`	

Command	Link
system cancel	
system clear	
system export	
system import	
system install	
system logout	
system restart-ilom	
system restart-ofos	
system shutdown	
system upgrade	
system upgrade-io	
system upgrade-saturn	
system verify	

get log-files

The get log-files command gathers log, archive, and core files and places them in a file to send to Oracle Customer Support. For example, xsigo-logs.tar.gz. The .gz file extension is automatically added.

Syntax

get log-files *output file* [-all] [-cores] [-noarchives] [-nologs] [-silent]

where *output file* is a compressed file containing information for Oracle Customer Support.

Options

Option	Description
-all	Gathers all log and archive files (but not core files) and puts them in the xsigo-logs.tar.gz file. If you want to include core files, use the -cores option.

Option	Description
-cores	Gathers all core files (but not log or archive files) and puts them in the `xsigo-logs.tar.gz` file.
-noarchives	Gathers all log and core files (but not archived log files) and puts them in the `xsigo-logs.tar.gz` file.
-nologs	Gathers all core and archive files (but not current log files) and puts them in the `xsigo-logs.tar.gz` file.
-silent	Gathers all log, archive, and core files and puts them in the `xsigo-logs.tar.gz` file without displaying any onscreen progress.

Example: Gather All Log Files

This example gathers all available files, logs, and cores, as well as the output f the `show tech-support` command, and places it into a gzipped tar file to send to Oracle Customer Support.

```
[OFOS] get-log-files -all
copying /log/cli.log...
copying /log/createdb.log...
copying /log/daemon.log...
copying /log/dumpster.log...
copying /log/ib.log...
copying /log/install.log...
copying /log/kern.log...
copying /log/osm.log...
copying /log/postgresql.log...
copying /log/syslog.log...
copying /log/upgrade.log...
copying /log/upgrade_sw.log...
copying /log/user-debug.log...
copying /log/user-debug_old.log...
copying /log/user.log...
copying /log/xdsd.log...
copying /log/xms.log...
copying /log/createdb.log.1.gz...
copying /log/dmesg.1.gz...
copying /log/dmesg.2.gz...
copying /log/dmesg.3.gz...
copying /log/dmesg.4.gz...
copying /log/ib.log.1.gz...
copying /log/ib.log.2.gz...
copying /log/ib.log.3.gz...
copying /log/ib.log.4.gz...
copying /log/ib.log.5.gz...
copying /log/osm.log.1.gz...
copying /log/osm.log.2.gz...
copying /log/postgresql.log.1.gz...
copying /log/postgresql.log.2.gz...
```

```
            copying /log/syslog.log.1.gz...
            copying /log/user-debug.log.10.gz...
            copying /log/user-debug.log.1.gz...
            copying /log/user-debug.log.2.gz...
            copying /log/user-debug.log.3.gz...
            copying /log/user-debug.log.4.gz...
            copying /log/user-debug.log.5.gz...
            copying /log/user-debug.log.6.gz...
            copying /log/user-debug.log.7.gz...
            copying /log/user.log.8.gz...
            copying /log/user.log.9.gz...
            copying /log/wtmp.1.gz...
            copying /log/coredumps/dmsg_iocard-8_ts67_0...
            copying /log/coredumps/dmsg_iocard-8_ts68_0...
            copying /log/coredumps/dmsg_iocard-8_ts74_0...
            copying /log/coredumps/dmsg_iocard-8_ts86_0...
            copying /log/coredumps/mimm.1727.core...
            Warning: cannot open file: /log/coredumps/mimm.1727.core
            copying /log/coredumps/mimm.5532.core...
            Warning: cannot open file: /log/coredumps/mimm.5532.core
            copying /log/coredumps/snmpagent.1653.core...
            Warning: cannot open file: /log/coredumps/snmpagent.1653.core
            copying /log/coredumps/snmpagent.25697.core...
            Warning: cannot open file: /log/coredumps/snmpagent.25697.core
            copying /log/coredumps/systemcontrolle.23348.core...
            Warning: cannot open file: /log/coredumps/systemcontrolle.23348.core
            copying /log/coredumps/systemcontrolle.26447.core...
            Warning: cannot open file: /log/coredumps/systemcontrolle.26447.core
            copying /log/coredumps/systemcontrolle.851.core...
            Warning: cannot open file: /log/coredumps/systemcontrolle.851.core
            *** output file is xsigo-logs.tar.gz (49.12M)
            You can use the 'file copy' command to transfer it off the Oracle system
```

remove system

The remove system command removes name servers and syslog servers from the Oracle Fabric OS.

```
remove system nameserver nameserver-name [-noconfirm]
remove system syslog-server syslog-name [-noconfirm]
```

where:

- *nameserver-name* is the IP address of the DNS name server.
- *syslog-name* is the host name or IP address of the syslog server.

Options

Option	Description
-noconfirm	Switches off confirmation prompts. The process completes without prompting you for confirmation. The argument automatically answers yes to any prompts. Optional.

set system

The set system commands perform a variety of tasks: enforcing password strength, enabling jumbo packets to increase throughput, setting a default gateway, searching domains, and so on.

Syntax

```
set system address system-addr [-noconfirm]
set system default-gateway gateway-IP [-noconfirm]
set system description value [-noconfirm]
set system domain domain [-noconfirm]
set system domain-search domains [-noconfirm]
set system hostname host-name [-noconfirm]
set system ipconfig {default|dhcp|static} [-noconfirm]
set system jumbo-packet {true|false} [-noconfirm]
set system loglevel service-name
set system management-interface [-address=IP]
set system management-interface [-default-gateway=gateway-IP] [-noconfirm]
set system management-interface [-hostname=value] [-noconfirm]
set system management-interface [-ipconfig={default|dhcp|static}] [-noconfirm]
set system management-interface [-netmask=network-IP]
set system management-interface nameserver [-noconfirm]
set system management-interface netmask mask [-noconfirm]
set system nameservers nameserver-address [-order=search-value]
set system netmask mask [-noconfirm]
set system password-strength [-min-length=min-length-value] [-min-lower-case
    =min-lower-case-value] [-min-number=min-number-value]
    [-min-special=min-special-value] [-min-upper-case=min-upper-case-value]
set system root-password [-noconfirm]
set system timezone [-noconfirm]
```

where:

- *domain* is the name of the domain you are configuring.

- *domains* is a list of domain names, separated by spaces and enclosed by quotes.
- *gateway-IP* is the IP address of the default gateway.
- *host-name* is the hostname (for example, Central).
- *mask* is the system netmask (for example 192.168.189.0).
- *nameserver-addr* is the IP address of the nameserver (for example, 192.168.3.56).
- *service-name* is the name of the service for which you want to generate logs.
- *system-addr* is the IP address of your system (for example, 192.168.1.3).
- *value* is text describing the system.

This command has subcommands. This table describes the subcommands and provides the syntax.

Subcommand	Description
address	Specifies an IP address for the fabric interconnect. To use the fabric interconnect's management interface remotely, you must configure an IP address and prefix length for the interface. You configure these parameters when you first run the installation wizard at the console port. If you have changes to your management network, you might need to change the IP address for the fabric interconnect.
default-gateway	Specifies the IP address of the default gateway.
description	Specifies a description for the system.
domain	Specifies the name of the domain (for example, sales.example.com).
domain-search	Lists the domain names, separated by a space and enclosed by quotes.
hostname	Specifies the hostname (for example, central or pubstest).
ipconfig	Specifies a static or DHCP IP address: - default – The default is a static address. - dhcp – A DHCP-assigned address. - static – A static address.
jumbo-packet	Determines the throughout for Oracle FCAs: - default – Enables support for jumbo packets. - true – Enables support for jumbo packets. - false – Disables support for jumbo packets. Up to 10,000 jumbo frames are supported for an Ethernet gateway.
loglevel	Determines the level of error logging for each service.
management-interface	Specifies the IP address and other related parameters for the network interfaces for the switch.
nameservers	Lists the name servers (comma-separated IP addresses) to access when the system connects to another server over the network. Three nameservers are allowed per chassis.
netmask	Specifies the network IP mask (for example, 255.255.255.0).
password-strength	Enforces password strength.
root-password	Changes the root password. The default root password is root.
timezone	Specifies the time zone to use for the fabric interconnect.

Options

Option	Description
-address	Specifies the IP address or netmask of the management interface. For example, 192.168.3.56/24.
-default gateway	Specifies the IP address of the default gateway.
-hostname	Specifies the host name.
-ipconfig	Specifies a static or DHCP IP address: ■ default – The default is a static address. ■ dhcp – A DHCP-assigned address. ■ static – A static address.
-min-length	Specifies a number from 0 to 20 that sets the minimum number of characters in the password.
-min-lower-case	Specifies a number from 0 to 20 that sets the minimum number of lower case letters in the password.
-min-number	Specifies a number from 0 to 20 that sets the minimum number of numbers in the password.
-min-special	Specifies a number from 0 to 20 that sets the minimum number of special characters in the password.
-min-upper-case	Specifies a number from 0 to 20 that sets the minimum number of upper case letters in the password.
-netmask	Specifies the IP netmask. For example, 255.255.255.0.
-noconfirm	Switches off confirmation prompts. The process completes without prompting you for confirmation. The argument automatically answers yes to any prompts.
-order	Specifies which of the three allowed nameservers to access first.

Example: Set Jumbo Frames

This examples shows how to configure jumbo frames on the virtualization switch, which can increase the throughput for Oracle FCAs.

```
[OFOS] set system jumbo-packet true
show system info
-----------------------------------------------------
hostname          ovn81-123
descr
domain            us.example.com
address           10.134.178.65
netmask           10.255.255.0
model-num         Oracle Fabric Interconnect F2-12
serial-num        To be filled by O.E.M.
ipconfig          static
```

```
default-gateway      10.128.9.86.1
mtu                  1500
support-jumbo-packet  true
timezone             GMT
nameservers
console-speed        115200
--------------------------------------------------------
1 record displayed
```

There is no progress indicator or completion message. When the command prompt returns, the command has completed.

Example: Change the Management Address of the Fabric Interconnect

This example show how to change the IP address to `192.168.3.56` and the host name to `SalesCentral` for the management interface.

```
[OFOS] set system management-interface -address 192.168.3.56
[OFOS] set system management-interface -hostname SalesCentral
[OFOS] show system info
--------------------------------------------------------
hostname             SalesCentral
descr
domain
address              192.168.3.56
netmask              192.255.255.0
model-num            Oracle Fabric Interconnect F2-12
serial-num           unknown
ipconfig             static
default-gateway      10.129.86.1
mtu                  1500
support-jumbo-packet  true
timezone             US_Pacific
nameservers
console-speed        115200
--------------------------------------------------------
1 record displayed
```

show

The `show software` command displays a variety of software information. The `show tech-support` command sends the contents to a file. You must use the redirection switch (>) to redirect the output to the file.

Syntax

```
show software -sortby=value
show tech-support > output file
```

where *output file* is a compressed file containing information for Oracle Customer Support.

- *output file* is a compressed file containing information for Oracle Customer Support.
- *value* is the column used to sort the information.

Options

Option	Description
-sortby	Displays the column used to sort the information.

Example: Redirect `show tech-support`

Use the redirection switch (>) to send the current show tech-support command content to an output file to send to Oracle Customer Support.

```
[OFOS] show tech-support > test112011
```

There is no progress indicator or completion message. When the command prompt returns, the command has completed.

system

The system command provides system commands to perform system maintenance, backups, logouts, and shutdowns.

Syntax

```
system access-core-files
system broadcast message
system cancel {restart|shutdown}
```

```
system clear {config|garbage|logs}
system export filename
system import filename
system install ssh-key key
system logout session message
system restart-ofos [-noconfirm]
system restart-ilom [-noconfirm]
system shutdown message [-delay=sec] [-force] [-noconfirm] [-now]
system verify
```

where:

- *filename* is the name of the file to back up or restore.
- *key* is the SSH key that you are installing.
- *message* is a text message.
- *session* is the session ID of the user that will be logged out.

This command has subcommands. This table describes the subcommands and provides their syntax.

Subcommand	Description
access-core-files	Sets the system core files as readable.
broadcast	Sends a message to all CLI users who are logged in.
cancel	Cancels one of these pending operations: - restart - shutdown
clear	Optional. Performs one of the following actions: - config – Clears your configuration by completely wiping it out and starting over. This command resets all values in the fabric's configuration database to the factory defaults. When you use the system clear config command, you are prompted for confirmation before the configuration is cleared. When prompted, type confirm to clear the configuration. Any answer other than confirm aborts the system clear config command. - garbage – Removes failed processes, such as failed image installations. - logs – Removes existing error and warning logs.
export	Before you upgrade the software through a chassis upgrade, export your system configuration to an XML file. The system export command is also used to back up the configuration of an I/O module. For more information about modules, refer to "Managing a Module" in *Oracle Fabric OS 1.0.2 Administration Guide*.
import	Loads a configuration file into the system. If you import a configuration, the system migrates the old configuration to the new. The file is imported in XML format. If your running configuration gets lost during a chassis software upgrade, you can import the old one. For more information on upgrading the virtualization switch, refer to "Upgrading the Switch Firmware (Oracle Fabric OS)" in *Oracle EDR InfiniBand Switch and Virtualized I/O Systems Administration Guide*.

Subcommand	Description
	For more information on upgrading the leaf switch, refer to "Upgrading the Switch Firmware (nm3tool)" in *Oracle EDR InfiniBand Switch and Virtualized I/O Systems Administration Guide*.
install ssh-key	Installs SSH software on the system.
logout	Forces a user to logout (administrator only).
restart-ilom	Restarts Oracle ILOM on the hardware. For more information, refer to "Controlling the Switch (Oracle ILOM CLI)" in *Oracle EDR InfiniBand Switch and Virtualized I/O Systems Administration Guide*.
restart-ofos	Restarts Oracle Fabric OS and the base OS on the hardware. For more information, refer to "Controlling the Switch (Oracle ILOM Web)" in *Oracle EDR InfiniBand Switch and Virtualized I/O Systems Administration Guide*.
shutdown	Stops all processes and shuts off power to all components in the chassis. All power is deactivated.
verify	Verifies the integrity of the installation.

Options

Option	Description
-delay	Defines the number of seconds before the shutdown begins.
-force	Performs the shutdown immediately, prompting for confirmation.
-noconfirm	Switches off confirmation prompts. The shutdown completes without prompting you for confirmation. The argument automatically answers yes to any prompts.
-now	Performs the shutdown immediately.

Example: Clear All Configuration

This example shows how to clear all configuration information from the system and restart. If you are running OpenSM, disable the IB subnet manager first and then run the system clear config command. After you shut down the IB subnet manager, its status changes to standby mode.

```
[OFOS] set ib sm down
Disabling IB Subnet Manager will disrupt traffic on the network.  Are you sure (y/n)?
[OFOS] system clear config
This is a destructive operation. Your configuration will be cleared and the system will
 be restarted.
Please type 'confirm' to clear the configuration and restart the system.
[OFOS] confirm
```

Example: Save and Restore System Configuration

This example shows how to export a saved configuration and restore the system.

```
[OFOS] system export myconfig.xml
[OFOS] system import myconfig.xml

DISK STATUS
Partition           Size  Available      Used %used
Base OS          253.967M    77.037M  163.816M  64%  |#############--------|
Oracle Fabric OS   1.192G   330.699M  827.602M  67%  |#############-------|
System logs        9.169G     8.531G  175.754M   1%  |--------------------|
Database           8.249G     7.646G  188.738M   2%  |--------------------|
Temporary data     6.040G     5.701G   32.062M   0%  |--------------------|
User data          2.752G     2.522G   92.645M   3%  |--------------------|
Volatile data    184.901M   175.334M    0.021M   0%  |--------------------|
Config data       44.292M    41.952M    0.053M   0%  |--------------------|
```

Glossary

A

AES128   Advanced Encryption Standard (AES). A symmetric-key algorithm specification used to encrypt data. AES supersedes DES.

D

DES   Data Encryption Standard. An algorithm specification used to encrypt data.

DHCP   Dynamic Host Configuration Protocol. The IP address is assigned by an external DHCP server.

F

F2-12   Oracle Fabric Interconnect F2-12 chassis.

fabric interconnect   Short name for an IB switch that provides gateway services and additional functionality.

H

HA   High Availability.

I

IB   InfiniBand. A high bandwidth messaging technology used for very high performance computing.

IMS   Identity Management System.

K

key set   Key sets are used for enhanced security. For examples, see "show ib" on page 49.

L

LAG   Link Aggregation Group.

leaf switch   Oracle InfiniBand Switch IS2-46.

M

MD5   MD5 message-digest algorithm used to verify data integrity.

O

OpenSM   The default Subnet Manager running on the Oracle Fabric Interconnect.

S

switch   Oracle InfiniBand Switch IS2-46.

P

PVI   Private Virtual Interconnect used for cloud computing.

S

SCP   System Control Processor.

SM   Subnet Manager. SM groups manage and monitor an IB subnet.

SNMP   Simple Network Management Protocol. A protocol for collecting and organizing information about managed devices on an IP network.

SHA

V

vHBA Virtual Host Bus Adapter. Connects a computer, which acts as the host system, to other network and storage devices.

virtualization switch Oracle Fabric Interconnect F2-12 Switch. This virtualization switch supports several I/O modules that provide FC and Ethernet connectivity.

VLAN Virtual local area network. A private, independent, logical network that is created within a physical network. A VLAN behaves like an ordinary LAN, but connected devices don't have to be physically connected to the same network segment.

vNIC Virtual Network Interface Card. An Ethernet interface that is provided without a physical NIC.

HCA Host Channel Adapter. An InfiniBand network interface card used in an InfiniBand network. An HCA provides high-speed connectivity and virtual interfaces, based on the InfiniBand interface. An HCA can have 1 or 2 ports.

I/O Input/Output. In computer architecture, the combination of the CPU and main memory (i.e., memory that the CPU can read and write to directly, with individual instructions) is considered the heart of a computer. Any movement of information to or from that complex, for example to or from a disk drive, is considered I/O.

I/O module A user-replaceable physical interface component for the virtualization switch. I/O modules are supported only on this switch.

I/O Port A single port on an Ethernet module, a Host Bus Adapter module, or one of the 38 InfiniBand server ports.

MTU Maximum Transmission Unit. An MTU is the largest physical packet size (in bytes) that a network can transmit. MTU values are only applicable to Ethernet ports, and the MTU of the I/O port must match the MTU of the neighboring switch.

PVI Private Virtual Interconnect. Connects the switch to the fabric and manages those Ethernet connections.

SHA Secure Hash Algorithm.

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