CHAPTER 1

CLI Overview

Topics	
Description	**Links**
Supported industry-standard model for ILOM CLI	• ILOM CLI -- DMTF Server Management Command-Line Protocol User-Interface
ILOM CLI connection requirements, installed firmware, and CLI prompt	• ILOM CLI Connection • Server SP or CMM Network Addresses Accepted by ILOM CLI • ILOM CLI Firmware and CLI Prompt
Understand ILOM CLI management namespace	• ILOM CLI Management Namespace • ILOM CLI Target Types • Server SP and CMM CLI Management Targets • Supported DMTF CLP Commands • CLI Command Options • Server SP - CLI Target Tree
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Quick reference for common CLI commands	• Common CLI Commands
Compare previous ILOM 2.0 properties with later ILOM 3.0 properties	• ILOM 3.0 Properties Versus ILOM 2.x Properties

Related Topics		
For ILOM	**Chapter or Section**	**Guide**

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For ILOM	**Chapter or Section**	**Guide**
• Concepts	• ILOM Overview	*Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide* *(820-6410)*
• Web interface	• Web Interface Overview	*Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide (820-6411)*
• SNMP and IPMI hosts	• SNMP Overview • IPMI Overview	*Oracle Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide (820-6413)*
• Feature Updates	• New or Updated Features	*Oracle Integrated Lights Out Manager (ILOM) 3.0 Feature Updates and Release Notes* (820-7329)
The ILOM 3.0 Documentation Collection is available at: http://docs.sun.com/app/docs/prod/int.lights.mgr30#hic		

This chapter introduces the basic information you need to know before you perform procedures using the ILOM command-line interface (CLI).

ILOM CLI -- DMTF Server Management Command-Line Protocol User-Interface

The ILOM CLI is based on the Distributed Management Task Force specification, Server Management Command-Line Protocol Specification, version 11.0a.8 Draft (DMTF CLP). You can view the entire specification at the following site:

http://www.dmtf.org/

The DMTF CLP provides a management user-interface for one or more servers regardless of server state, method of access, or installed operating system.

The DMTF CLP architecture models a hierarchical namespace, a predefined tree that contains every managed object in the system. In this model, a small number of commands operate on a large namespace of targets, which can be modified by options and properties. This namespace defines the targets for each command verb.

For more information about managing objects in the ILOM CLI namespace, see ILOM CLI Management Namespace.

ILOM CLI Connection

You can use a command-line interface to access ILOM on the chassis monitoring module (CMM) or the server service processor (SP) through a network connection, or through a direct terminal connection to the serial port on the CMM or server SP. In addition, on some Oracle Sun servers you can use the Local Interconnect Interface feature in ILOM to manage the server directly from the host operating system without any physical network or local connecton to the server.

Note - For more information about how to use the Local Interconnect Interface feature in ILOM, see the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*. For instructions about how to connect a local serial device to a server or how to connect a network cable to the NET MGT port on a server or CMM, see the Installation Guide provided with your server or CMM.

Topics discussed in this section include:

- Server SP or CMM Network Addresses Accepted by ILOM CLI
- ILOM CLI Firmware and CLI Prompt

Server SP or CMM Network Addresses Accepted by ILOM CLI

As of ILOM 3.0.12 or later, the following network addresses are accepted by the ILOM service processor (SP) CLI.

- **IPv4 address**, such as `10.8.183.106`
- **IPv6 address**, such as `fec0:a:8:b7:214:4fff:5eca:5f7e/64`
- **Link Local IPv6 address**, such as `fe80::214:4fff:feca:5f7e/64`
- **DNS host domain address**, such as `company.com`

Examples for Entering an IPv6 Address

When specifying an IPv6 address in a URL with a web browser or when transfering a file, the IPv6 address must be enclosed in brackets to work correctly. For example:

- When entering a URL in a web browser, type:

`https://[`*ipv6address***`]`**

- When transferring a file using the CLI `load -source` command and `tftp`, type:

`load -source tftp://``[`*ipv6address*`]`*filename.extension*

However, when specifying an IPv6 address to log in to ILOM using an SSH connection, the IPv6 address should **not be enclosed** in brackets. For example:

- When establishing an ILOM CLI session using SSH and the default ILOM `root` user account, type:

`ssh root@`*ipv6address*

For additional information about entering IPv6 addresses, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide*. For help with diagnosing IPv4 and IPv6 connection issues, see

Diagnosing IPv4 or IPv6 ILOM Connection Issues.

ILOM CLI Firmware and CLI Prompt

After establishing a connection to the CLI session on a server SP or a CMM, the ILOM firmware version installed on the system is identified and the copyright information and CLI prompt appears.

For example:

```
Oracle(R) Integrated Lights Out Manager

Version 3.0.0.0 r54408

Copyright (c) 2010, Oracle and/or its affiliates. All rights reserved.

->
```

Note - As of ILOM 3.0.10, you can change the CLI prompt on the CMM to differentiate between a CMM CLI prompt and a server module (blade) CLI prompt. For more information about the new CLI prompt properties and how to make the CLI prompt specific to a CMM or a blade, see the *Oracle Integrated Lights Out Manager (ILOM) CMM Administration Guide for Sun Blade 6000 and Sun Blade 6048 Modular Systems*.

ILOM CLI Management Namespace

The ILOM CLI management namespace includes a hierarchical predefined tree that contains every managed object in the system. Within the ILOM CLI, a small number of commands operate on a large namespace of targets that are modified by options and properties.

Topics discussed in this section include:

- ILOM CLI Target Types
- Server SP and CMM CLI Management Targets
- Supported DMTF CLP Commands
- CLI Command Options
- Server SP - CLI Target Tree

ILOM CLI Target Types

TABLE 1-1 lists the ILOM CLI target types that you can access depending on the Oracle Sun server platform that you are using.

TABLE 1-1 ILOM Target Types

Target Type	Description
* /SP	The targets and properties below this target type are used for configuring the ILOM service processor (SP) and for viewing logs and consoles.
* /CMM	On blade platforms, this target type replaces /SP and is used for configuring the ILOM chassis monitoring module (CMM).
* /SYS	The targets and properties below this target type provide inventory, environmentals, and hardware management. The targets directly correspond to nomenclature for all hardware components, some of which are printed onto the physical hardware.
* /CH	On blade platforms, this target type replaces /SYS and provides inventory, environmentals, and hardware management at the chassis level. The target types directly correspond to nomenclature names for all hardware components, some of which are printed onto the physical hardware.
* /HOST	The targets and properties below this target type are used for monitoring and managing the host operating system.

Note - Access to the target types within the hierarchy depends on the Sun server platform you are using.

Server SP and CMM CLI Management Targets

From the ILOM CLI server SP, you can access the /SP namespace and the system namespaces which include: /SYS and /HOST. In the /SP namespace, you can manage and configure the service processor. In the /SYS or /HOST namespace you can access other information about the managed system hardware.

From the ILOM CLI CMM, you can access the /CMM namespace and the chassis component namespace, which could include: /CH/BL*n*, /CH/BL*n*/Node*n*, or /CH/NEM. In the /CMM namespace you can manage and configure the CMM. In the /CH namespaces you can access and configure properties for managed chassis componenets such as single SP server modules (blades), multiple SP server modules, and NEMs.

TABLE 1-2 identifies ILOM CLI server and CMM management targets you can navigate in ILOM.

TABLE 1-2 CMM and Server SP CLI Management Targets

ILOM Management Component	CLI Management Target Descriptions

ILOM Management Component	CLI Management Target Descriptions
Server SP	• /SP is used to configure the server module SP and for viewing logs and consoles. • /SYS is used to provide inventory, environmental, and hardware management at the server module level.
CMM, Chassis, and Server Module SP (blade)	• /CMM is used to manage ILOM on the CMM. • /CH is used to provide inventory, environmental, and hardware management at the chassis level. The /CH address space replaces /SYS on Sun Blade Modular Systems. • /CH/BL*n* is used to access and configure server module SP properties and options from the CMM CLI session. • /CH/BL*n*/Node*n* is used to access and configure properties and options on a specific SP node on a server module that supports multiple SPs.
Host	• /HOST is used to monitor and manage the host server operating system interactions.

Supported DMTF CLP Commands

The ILOM CLI supports the DMTF CLP commands listed in the following table.

Note - CLI commands are case-sensitive.

TABLE 1-3 CLI Commands

Command	Description
cd	Navigates the object namespace.
create	Sets up an object in the namespace.
delete	Removes an object from the namespace.
exit	Terminates a CLI session.

Command	Description
help	Displays Help information for commands and targets.
load	Transfers a file from an indicated source to an indicated target.
dump	Transfers a file from a target to a remote location specified by the URI.
reset	Resets the state of the target.
set	Sets target properties to the specified value.
show	Displays information about targets and properties.
start	Starts the target.
stop	Stops the target.
version	Displays the version of service processor running.

CLI Command Options

The ILOM CLI supports the following options, but note that not every command supports every option. The `help` option can be used with any command.

TABLE 1-4 CLI Options

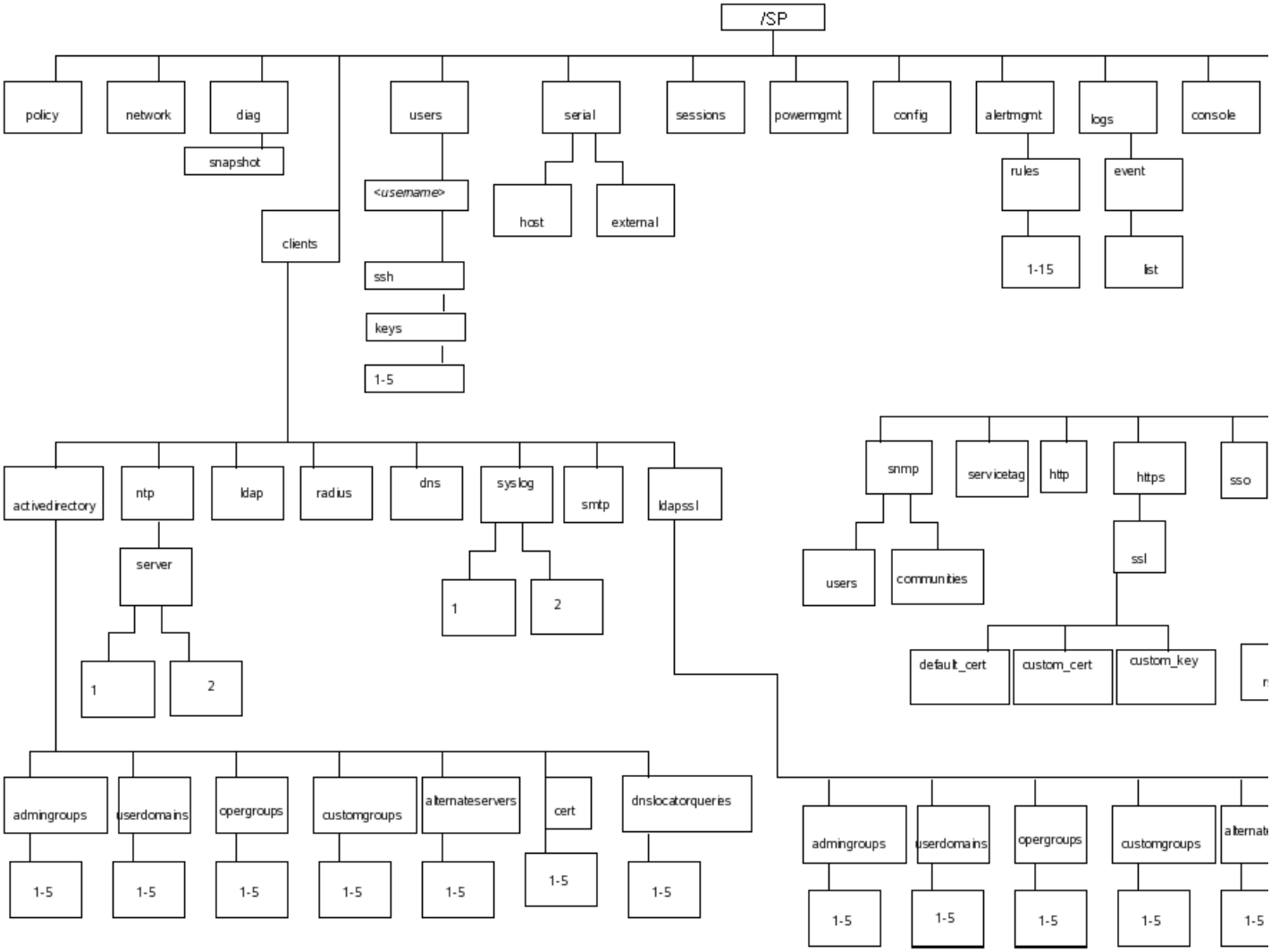
Option Long Form	Short Form	Description
-default		Causes the command to perform its default functions only.
-destination		Specifies the destination for data.
-display	-d	Shows the data the user wants to display.

Option Long Form	Short Form	Description
`-force`	`-f`	Specifies that the action will be performed immediately.
`-help`	`-h`	Displays Help information.
`-level`	`-l`	Executes the command for the current target and all targets contained through the level specified.
`-output`	`-o`	Specifies the content and form of command output. ILOM only supports `-o table`, which displays targets and properties in tabular form.
`-script`		Skips warnings or prompts normally associated with the command.
`-source`		Indicates the location of a source image.

Server SP - CLI Target Tree

Every object in the CLI namespace is considered a target.

FIGURE 1-1 `/SP` **Example of the ILOM CLI Target Tree**



[D]

Entering CLI Command Syntax and Executing Commands

To specify target locations and successfully execute CLI commands in ILOM, you must apply the require command-line syntax when entering and executing commands. For more details, see the following topics:

- Entering CLI Command Syntax
- Executing Commands

Entering CLI Command Syntax

When using the ILOM CLI, information is entered in the following command syntax:
command [*options*] [*target*] [*properties*]

For example:

```
-> set /SP/services/https port=portnumber servicestate=enabled|disabled
```

Note - Syntax examples in this chapter use the target starting with /SP/, which could be interchanged with the target starting with /CMM/ depending on your server platform. Subtargets are common across all server platforms.

Executing Commands

To execute most commands, specify the location of the target and then enter the command. You can perform these actions individually, or you can combine them on the same command line.

▼ Execute Commands Individually

1. **Navigate to the namespace using the `cd` command.**

   For example:

   ```
   cd /SP/services/http
   ```

2. **Enter the command, target, and value.**

   For example:

   ```
   -> set port=80
   ```

   or

   ```
   -> set prop1=x
   -> set prop2=y
   ```

▼ Execute Combined Commands

- **Using the syntax `<command><target>=`*value*, enter the command on a single command line.**

  For example:

  ```
  -> set /SP/services/http port=80
  ```

  or

  ```
  -> set /SP/services/http prop1=x prop2=y
  ```

Common CLI Commands

Note - For more information about ILOM CLI commands, see CLI Command Reference.

TABLE 1-5 General Commands

Description	Command
Display information about commands and targets	**help**
Display information about a specific command	**help** <*string*>
Show all valid targets	**help targets**
Change and display the current target	**cd**
Transfer a file from a target to a remote location specified by the URI	**dump**
Log out of the CLI	**exit**
Display the version of ILOM firmware running on ILOM	**version**
Reset a target	reset
Display clock information	**show /SP/clock**
Display active ILOM sessions	**show /SP/sessions**
Update ILOM and BIOS firmware	**load -source** *tftp://newSPimage*
Display a list of ILOM event logs	**show /SP/logs/event/list**

TABLE 1-6 User Commands

Description	Command
Add a local user	**create /SP/users/***user1* **password=***password* **role=a|u|c|r|o|s**

Description	Command
Delete a local user	**delete /SP/users/***user1*
Change a local user's properties	**set /SP/users/***user1* **role=operator**
Display information about all local users	**show -display [**targets|properties|all**] -level all /SP/users**
Display information about LDAP settings	**show /SP/clients/ldap**
Change LDAP settings	**set /SP/clients/ldap binddn=***proxyuser* **bindpw=***proxyuserpassword* **defaultrole=a|u|c|r|o|s address=***ipaddress*

TABLE 1-7 Network and Serial Port Setting Commands

Description	Command
Display network configuration information	**show /SP/network**
Change network properties for ILOM. Changing certain network properties, like the IP address, will disconnect your active session	**set /SP/network pendingipaddress=***ipaddress* **pendingipdiscovery=dhcp|static** **pendingipgateway=***ipgateway* **pendingipnetmask=***ipnetmask* **commitpending=true**
Display information about the external serial port	**show /SP/serial/external**
Change the external serial port configuration	**set /SP/serial/external pendingspeed=***integer* **commitpending=true**
Display information about the serial	**show /SP/serial/host**

Description	Command
connection to the host	
Change the host serial port configuration. Note: This speed setting must match the speed setting for serial port 0, COM1, or /dev/ttyS0 on the host operating system	**set /SP/serial/host pendingspeed=***integer* **commitpending=true**

TABLE 1-8 Alert Management Commanc

Description	Command
Display information about alerts. You can configure up to 15 alerts	**show /SP/alertmgmt/rules/1...15**
Configure an IPMI PET alert	**set /SP/alertmgmt/rules/1...15 type=ipmipet destination=***ipaddress* **level=down|critic**
Configure a v3 SNMP trap alert	**set /SP/alertmgmt/rules/1...15 type=snmptrap snmp_version=3 comunity_or_username**
Configure an email alert	**set /SP/alertmgmt/rules/1...15 type=email destination=***email_address* **level=down|crit**

TABLE 1-9 System Management Access Commands

Description	Command
Display information	**show /SP/services/http**

Description	Command
about HTTP settings	
Change HTTP settings, such as enabling automatic redirection to HTTPS	**set /SP/services/http port=***portnumber* **secureredirect= enabled|disabled servicestate=enabled|disabled**
Display information about HTTPS access	**show /SP/services/https**
Change HTTPS settings	**set /SP/services/https port=***portnumber* **servicestate=enabled|disabled**
Display SSH DSA key settings	**show /SP/services/ssh/keys/dsa**
Display SSH RSA key settings	**show /SP/services/ssh/keys/rsa**

TABLE 1-10 Clock Settings Commands

Description	Command
Set ILOM clock to synchronize with a primary NTP server	**set /SP/clients/ntp/server/1 address=***ntpIPaddress*
Set ILOM clock to synchronize with a secondary NTP server	**set /SP/clients/ntp/server/2 address=***ntpIPaddress2*

TABLE 1-11 SNMP Commands

Description	Command
Display information about SNMP settings. By default, the SNMP port is 161 and v3 is enabled	**Show /SP/services/snmp engineid=***snmpengineid* **port=***snmpportnumber* **sets=enabled|disabled v1=enabled|disabled v2c=enabled|disabled v3=enabled|disabled**

Description	Command
Display SNMP users	**show /SP/services/snmp/users**
Add an SNMP user	**create /SP/services/snmp/users/***snmpusername* **authenticationpassword=***password* **authenticationprotocol=MD5|SHA** **permissions=rw|ro privacypassword=***password* **privacyprotocol=none|DES**
Delete an SNMP user	**delete /SP/services/snmp/users/***snmpusername*
Display SNMP MIBs	**show /SP/services/snmp/mibs**
Display information about SNMP public (read-only) communities	**show /SP/services/snmp/communities/public**
Display information about SNMP private (read-write) communities	**show /SP/services/snmp/communities/private**
Add an SNMP public community	**create /SP/services/snmp/communities/** **public/***comm1* **permission=ro|rw**
Add an SNMP private community	**create /SP/services/snmp/communities/** **private/***comm2* **permission=ro|rw**
Delete an SNMP community	**delete /SP/services/snmp/communities/***comm1*

TABLE 1-12 Host System Commands

Description	Command
Start the host system or chassis power	**start /SYS** or **start /CH**

TABLE 1-13 Filtering Output Options for Commands

Description	Filtered Command
Display active ILOM sessions that were started on July 17th	`show /SP/sessions -level all starttime=="*Jul 17*"`
Display users that have admin roles	`show /SP/users -level all role=="a*"`
Display users that *only* have user and console roles	`show /SP/users -level all role=="uc"`
Display all SNMP trap alerts	`show /SP/alertmgmt -level all type=="snmptrap"`
Display all disabled services	`show /SP/services -level all servicestate==disabled`
Display NTP clients that use the NTP address server IP 1.2.3.4	`show /SP/clients/ntp -level all address=="1.2.3.4"`
Display all FRUs with serial number that starts with 0D01B	`show /SYS fru_serial_number=="0D01B*" -level all`
Display all memory modules manufactured by INFINEON	`show /SYS -level all type=="DIMM"  fru_manufacturer=="INFINEON"`
Display all power supplies whose alarm state is major	`show /SYS -level all type=="Power Supply" alarm_status==major`
Display all components that are DIMMs or hard disks	`show /SYS type==("Hard Disk",DIMM) -level all`
Display all voltage sensors whose upper_nonrecov_threshold value is 2.89 or 60 Volts	`show /SYS type==Voltage upper_nonrecov_threshold==("2.*","60.*")`

ILOM 3.0 Properties Versus ILOM 2.x Properties

Note - Properties are the configurable attributes specific to each object.

If you are upgrading from ILOM 2.x to ILOM 3.0 and you want to update your 2.x scripts, you need to be familiar with the new methods that ILOM 3.0 uses to implement ILOM 3.0 commands. TABLE 1-14 lists ILOM 2.x properties and the new ILOM 3.0 implementations that replace them.

TABLE 1-14 ILOM 2.x Properties and New ILOM 3.0 Implementations

ILOM 2.x Properties	ILOM 3.0 Imp
/SP/clients/syslog/destination_ip1	/SP/clients/syslog/1/address
/SP/clients/syslog/destination_ip2	/SP/clients/syslog/2/address
/SP/clients/activedirectory/ getcertfile (load a certificate)	Use load command with this target /SP/clients/activedirectory/cert
/SP/clients/activedirectory/getcertfile (remove a certificate)	Use set command with /SP/client/activedirectory/cert cl
/SP/clients/activedirectory/ getcertfile (restore a certificate)	No longer a feature
/SP/clients/activedirectory/ certfilestatus	/SP/clients/activedirectory/cert/ certstatus
/SP/clients/activedirectory/ ipaddress	/SP/clients/activedirectory/ address
/SP/clients/activedirectory/alernativeservers/getcertfile (load a certificate)	Use load command with /SP/clients/a alernativeservers/cert as target
/SP/clients/activedirectory/	Use set command with /SP/client/activedirectory/alernat

ILOM 2.x Properties	ILOM 3.0 Imp
`alernativeservers/getcertfile` (remove a certificate)	
`/SP/clients/activedirectory/getcertfile/alernativeservers/` (restore a certificate)	No longer a feature
`/SP/clients/activedirectory/alernativeservers/certfilestatus`	`/SP/clients/activedirectory/alernativeservers/cert/certstatus`
`/SP/clients/activedirectory/alernativeservers/ipaddress`	`/SP/clients/activedirectory/alernativeservers/address`
`/SP/clients/radius/ipaddress`	`/SP/clients/radius/address`
`/SP/clients/ldap/ipaddress`	`/SP/clients/ldap/address`
`/SP/cli/commands`	Use `help` command with a target name
/SP/diag/state	`/HOST/diag/state`
/SP/diag/generate_host_nmi	`/HOST/generate_host_nmi`
/SP/diag/mode	`/HOST/diag/mode`
/SP/diag/level	`/HOST/diag/level`
/SP/diag/verbosity	`/HOST/diag/verbosity`