VadaTech MicroTCA

Shelf Manager Command Line Interface Reference Manual

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Revision History

Doc Rev	Description of Change	Revision Date
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1.0.1	Updated to reflect changes to Get Event Code Description	11/05/2008
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2.0.0	Updated for MCH release 1.4.0	05/20/2009
2.0.1	Removed cmd_list option from cliUTCSH; minor formatting changes	06/15/2009
2.1.0	Updated for MCH release 1.4.4	02/22/2010

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Tables

1 Overview

This document covers the initial connection to the Command Line Interface (CLI), and the available commands to the interface.

1.1 Applicable Products

- UTC001
- UTC003
- VT850

1.2 Document References

- Intelligent Platform Management (IPMI) Interface Specification v2.0
- PICMG® 3.0 Revision 3.0 AdvancedTCA® Base Specification
- PICMG® AMC.0 R2.0 Advanced Mezzanine Card Base Specification
- PICMG® Specification MTCA.0 R1.0 (MicroTCA)
- VadaTech MCH Software Management Manual
- VadaTech MicroTCA Management Interface Specification
- VadaTech MicroTCA Carrier Manager Command Line Interface Reference Manual

1.3 Acronyms Used in this Document

Acronym	Description
ATCA	Advanced Telecommunications Computing Architecture
CLI	Command Line Interface
EMMC	Enhanced Module Management Controller
MC	Management Controller
MicroTCA	MicroTelecommunication Computing Architecture
PEF	Platform Event Filter(ing)
SEL	System Event Log

Table 1: Acronyms

2 MicroTCA Shelf Manager Command Line Interface

The MicroTCA Shelf Command Line Interface (CLI) provides an interface to a MicroTCA Shelf Manager. The CLI is based on the IPMI 2.0, AdvancedTCA™ PICMG 3.0, and MicroTCA 1.0 specifications. It uses a subset of commands that can be accessed directly or though a higher-level Management Application. Administrators can access the CLI though a telnet session, SSH, or the VadaTech MicroTCA Shelf Manager serial port. Using the CLI, users can access information about the current state of the Shelf, obtain information such as the FRU population, or monitor alarms, power management, current sensor values, and the overall health of the Shelf. The interface can also be used to update Shelf-configurable parameters.

The information provided in this section is a supplement to the information found in the MicroTCA Management Interface Specification and the device's respective Getting Started documentation.

2.1 Shelf Manager Interfaces

The various VadaTech MicroTCA Shelf Managers support the following front panel interfaces:

- Two Ethernet connections via an RJ-45 connector
- An RS-232 serial management port interface via an RJ-45 connector

Any of these interfaces can be used to log in to the Shelf Manager. To configure the system IP address the first time, log in using the serial port console.

2.2 Logging in the First Time

If the system IP address is not configured / not configured properly for its network, logging onto the console the first time must be done via the serial port console.

The default administrative user name and password are '**root**' and '**root**', respectively, for console authentication.

2.3 Starting the CLI

Once logged on, the user can communicate with an active Shelf Manager, if present. There are two CLI operating modes the user can use to communicate with the Shelf Manager:

- **Interactive Mode** – use the "`cliUTCSH`" command to connect to the Shelf Manager. You will be prompted for a username and password. Following the login, the CLI will start in an interactive mode. Interactive mode supports additional debugging commands not listed in this document. Enter 'help' at the command line to get the capabilities of the interface.

```
# cliUTCSH
Username: shelf
Password: shelf

SilverFox Version   5.1
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reserved.

NOTE: Session inactivity timeout is set to 60 secs.

fox(127.0.0.1:623)#
```

  To exit this mode, enter '`exit`' or '`q`'.

- **Command Mode** – The user can execute CLI commands from the console prompt (see **Section 5: Command Reference**). This enables the user to write and execute scripts using the CLI implicitly.

```
# list_frus_present
```

Note: The CLI can be accessed from either the passive Manager's MCH or the active Manager's MCH using the above methods, when the Shelf Manager is found on either of the Shelf-enabled MCHs. Connections are forwarded to the active Manager.

2.4 Remote Access

If the MicroTCA Shelf Manager IP address is configured properly, the user can communicate with the Shelf Manager over the network. The CLI can run on a Remote Management Console and connect to the Shelf Manager through the RMCP interface to send IPMI messages. The port address to connect to is **623**. By default, the Shelf Manager is configured with a CLI user account with administrative privileges.

By default, the Shelf Manager IP connection uses address "192.168.1.230" to communicate with the active Shelf Manager. This can be changed during the initial configuration via the serial console.

View the available IP connections to the MicroTCA Shelf Manager:

```
# get_ip_connection

      Shelf Manager IP Address 0          : 192.168.1.230
      Shelf Manager Gateway Address 0     : 192.168.1.1
      Shelf Manager Netmask 0             : 255.255.255.0
      Shelf Manager IP Address 1          : 192.168.1.231
      Shelf Manager Gateway Address 1     : 192.168.1.1
      Shelf Manager Netmask 1             : 255.255.255.0
```

To change the IP connections to the Shelf Manager, use the `set_ip_connection` CLI command. The changes take effect on the next power cycle.

For example, once the IP connections are set, if an IP connection is configured to "192.168.1.230", the remote CLI access to the active Shelf Manager is as follows:

```
# cliUTCSH --host 192.168.1.230 --port 623
```

2.5 CLI Starting Options

The CLI accepts several starting options:

```
cliUTCSH                [-h|--host HOST_NAME]
                        [-p|--port PORT_NUMBER]
                        [-a]--keepalive]
                        [-v|--version]
                        [-U|--username USERNAME]
                        [-P|--password PASSWORD]
```

host – specify a host address other than the default (local host)
port – specify a port other than the default (623 for the MicroTCA Shelf CLI)
keepalive – overrides the timeout for a CLI run in the Interactive Mode
version – display the CLI version and exit; see `get_version`
username – specify the login username; by default, the CLI will prompt for it
password – specify the login password; by default, the CLI will prompt for it

3 Command Summary

The following is a summary of the commands supported by the VadaTech MicroTCA Shelf Manager CLI.

The commands are listed alphabetically by Group in Table 2. For more details about each command, refer to Section 5: Command Reference.

Note: The following commands are only applicable to a CLI connected to a MicroTCA Shelf server type.

Group	Command	Description
Alarm	`alarm_clear`	remove or clear a triggered alarm from the list of active alarms
	`alarm_reset`	reset the alarms on a given MicroTCA Carrier for a given time (specified in minutes)
	`alarm_status`	display the active alarms and whether the alarm cut-off is enabled
	`list_event_code_descriptions`	translate the MicroTCA Shelf diagnostic event codes
	`get_telco_alarm_state`	display the state of Telco alarms for a given MicroTCA Carrier
	`get_telco_capabilities`	display the Telco alarm states and modes for a given MicroTCA Carrier
	`set_telco_alarm_state`	set a given Telco alarm's state
Alerting	`get_pef_config_parameters`	display the configuration of a given Platform Event Filter (PEF) parameter, such as the configuration of the Event Filter Table and alert strings, as well as whether PEF is enabled/disabled
	`get_snmp_trap_info`	display the status of SNMP traps and available trap destinations
	`set_pef_config_parameters`	configure a given Platform Event Filter (PEF) parameter, such as the Event Filter Table and alert strings, as well as whether PEF is enabled/disabled
	`snmp_trap_disable`	disable SNMP traps for a given channel
	`snmp_trap_enable`	enable SNMP traps for a given channel
	`snmp_trap_get_address`	display a list of SNMP trap destinations for a given channel
	`snmp_trap_remove_address`	remove an SNMP trap destination from a given channel
	`snmp_trap_set_address`	modify an SNMP trap destination for a given channel

	snmp_trap_test	send a test SNMP trap to a given destination; get/clear status of test alert sent to a given destination
CLI	cli_commands	list all available CLI commands
	cli_options	describe the shorthand notation used for common CLI options
	exit	exit the CLI; see q
	get_version	display the application and CLI versions
	help	display help for a given command, or display all commands, organized by group
	q	exit the CLI; see exit
Cooling	get_cooling_parameters	display the MicroTCA Shelf cooling management parameters
	get_fan_geography	display the Fan Tray to FRU connections
	get_fan_info	display the Fan Tray properties and hot-swap status for a given Fan Tray
	get_fan_level	display a given Fan Tray's current operating speed level
	list_fan_trays	display the locations of all Fan Trays installed in the MicroTCA Shelf
	set_cooling_parameters	configure the MicroTCA Shelf cooling management parameters
	set_fan_level	set the current operating speed level for a given Fan Tray
E-Keying	get_amc_ptp	display AMC e-keying information
	get_carrier_ptp	display a given Carrier's Carrier point-to-point connectivity information
	get_clock_configuration	display available clocks in a given FRU and their properties
	get_clock_ptp	display clock routing information
	get_clock_state	display current state information for a given clock ID
	get_port_state	display link status for a given FRU
	set_clock_state	configure a given clock
FRU Management	activate	activate a given FRU, bring it to M4 state
	deactivate	deactivate a given FRU, bring it to M1 state
	fru_control	change the state of a given FRU's payload
	get_address_info	display a given FRU's address information
	get_carrier_ip_connection[1]	display the local Carrier's IP connection information; see get_ip_connection in the VadaTech MicroTCA Carrier Command Line Interface Reference Manual
	get_device_id	retrieve device information from a given FRU
	get_event_receiver	display the location of the event receiver for a given FRU
	get_fru_activation_policy	display the activation policy for a given FRU
	get_fru_power_levels	display a given FRU's power level

[1] Optional command requiring the MicroTCA Shelf Manager to be configured on the Carrier's active MCH

	get_fru_state	display the hot-swap information for a given FRU
	get_fru_temperature	display the status of all temperature sensors for a given FRU
	get_module_info	display the configuration and hot-swap information for a given Module
	hpm	upgrade firmware or check version
	list_device_sdr	display the list of SDRs in a given FRU's Device SDR Repository
	list_fru_storages	display the list of FRU Inventory Devices located at a given address
	list_sdr	display the list of SDRs in the SDR Repository
	read_fru_storage	display content from a given FRU inventory device
	set_carrier_ip_connection[2]	set the local Carrier's (if present) IP connection information; see set_ip_connection in the VadaTech MicroTCA Carrier Command Line Interface Reference Manual
	set_carrier_number[3]	set the local Carrier's (if present) Carrier Number; see set_carrier_number in the VadaTech MicroTCA Carrier Command Line Interface Reference Manual
	set_event_receiver	change the location of the event receiver for a given FRU
	set_fru_extracted	inform the MicroTCA Shelf Manager that a given FRU is no longer installed
	set_fru_power_level	set the FRU power level for a given FRU
	update_fru_version	change the product version number for a given FRU
	write_fru_storage	write data to a given FRU inventory device
	write_sdr_repository	write data to a given SDR repository device
LAN	get_channel_access	display whether a given channel is enabled or disabled, whether alerting is enabled or disabled, and under what system modes the channel can be accessed
	get_channel_cipher_suites	display supported authentication, integrity, and confidentiality algorithms
	get_channel_info	display media and protocol information about a given channel
	get_ip_connection	display available network interfaces to a MicroTCA Carrier or the MicroTCA Shelf
	get_lan_config_parameters	display a given parameter related to IPMI LAN operation, such as network addressing information
	get_session_info	display session information

[2] Optional command requiring the MicroTCA Shelf Manager to be configured on the Carrier's active MCH
[3] Optional command requiring the MicroTCA Shelf Manager to be configured on the Carrier's active MCH

	list_active_sessions	display the list of active sessions
	set_channel_access	modify whether a given channel is enabled or disabled, whether alerting is enabled or disabled, and privilege level limit
	set_ip_connection	add or modify available network interfaces to the MicroTCA Shelf
	set_lan_config_parameters	modify parameters required for IPMI LAN operation, such as the network addressing information
	set_session_privilege_level	request the ability to perform operations at a given privilege level for the active session
LED	get_led_color_capabilities	display information about the LEDs supported by a given FRU
	get_led_properties	display a list of LEDs controlled by a given FRU
	get_led_state	display the state of a given LED
	set_led_state	set the state of a given LED
Power	get_power_channel_status	display global and local power status information for a given power channel
	get_power_feed_status	display the Power Module status information, such as the hot-swap status, role, and power status, for a given Power Module
	get_power_management_info	display the FRU activation sequence; see get_fru_activation_sequence
	get_power_policy	display configured information for Power Module control, such as role, current limit, and associated power channels for each Power Module
	power_feed_control	relay a Chassis control request to a given Power Module
	power_feed_reset	reset a given Power Module (requires PM redundancy)
SEL	clear_sel	erase the contents of a given System Event Log
	get_sel	display the contents of a given System Event Log
	get_sel_info	display information about a given System Event Log
Sensor	get_sensor_event_enable	display sensor event generation capabilities
	get_sensor_hysteresis	display sensor hysteresis values
	get_sensor_info	display sensor information
	get_sensor_reading	display sensor reading
	get_sensor_threshold	display sensor thresholds
	list_sensors	display a list of sensors on a FRU
	set_sensor_event_enable	set sensor event generation capabilities for a given sensor
	set_sensor_hysteresis	set sensor hysteresis values for a given sensor
	set_sensor_threshold	set sensor thresholds for a given sensor

System Administration	`get_user_access`	display privilege level and channel accessibility for a given user
	`list_users`	display the list of available users for the MicroTCA Shelf or a given Carrier
	`list_users_access`	display channel access information for all users on a given channel for the MicroTCA Shelf or a given Carrier
	`set_user_access`	configure privilege level and channel accessibility associated with a given user
	`set_user_info`	add user, set / change a given user ID's associated user name or password, and/or enable/disable a given user ID
System Management	`chassis_control`	change the power state of the Chassis or issue a diagnostic interrupt
	`failover`[4]	execute failover to the standby MCH, if present and healthy; see `failover` in the VadaTech MicroTCA Carrier Command Line Interface Reference Manual
	`get_chassis_info`	display the Chassis Information record data
	`get_diagnostics`	run diagnostics and display the results
	`get_fru_activation_sequence`	display the FRU activation sequence; see `get_power_management_info`
	`get_health`	provide a summary of the FRU alarm and health status
	`get_ipmb0_status`	display IPMB-0 sensor data for each FRU
	`get_location_info`	display location information for a given FRU
	`get_shelf_address_info`	display the address field in the MicroTCA Shelf Information record in the Shelf FRU Information
	`get_system_guid`	display the globally unique ID (GUID) of a given MicroTCA Carrier
	`list_carriers_present`	display all installed MicroTCA Carriers in the MicroTCA Shelf
	`list_frus_present`	display the list of installed FRUs
	`list_modules_present`	display the list of installed Modules on a given MicroTCA Carrier
	`set_chassis_info`	set the Chassis Information record data
	`set_shelf_address_info`	set the address field in the MicroTCA Shelf Information record in the Shelf FRU Information

Table 2: Command List

[4] Optional command requiring the MicroTCA Shelf Manager to be configured on the Carrier's active MCH

4 Addressing

This section covers, in detail, the FRU addressing according to the PICMG® MicroTCA Base Specification. The first section covers general FRU addressing. The second section covers addressing as it relates to Inventory commands. The third section relates to physical addressing.

4.1 FRU Addressing

When using the MicroTCA Shelf CLI, all intelligent Field Replaceable Units (FRUs) on a MicroTCA Carrier can be addressed by the FRU's Carrier's IPMB address and target FRU ID, a number in the range from 0 - 255.

Note that this document uses "Carrier address" interchangeably with "Carrier Manager address" and "IPM Controller address", all three referring to the access address described in Table 3.

The Carrier address can be calculated from the Carrier Number using the following formula:

80h + 2 * <Carrier Number> = Carrier address

FRU	Access Address	FRU ID
Carrier Manager 1	82h	0
Carrier Manager 2	84h	0
Carrier Manager 3	86h	0
Carrier Manager 4	88h	0
Carrier Manager 5	8ah	0
Carrier Manager 6	8ch	0
Carrier Manager 7	8dh	0
Carrier Manager 8	8fh	0
Carrier Manager 9	90h	0
Carrier Manager 10	92h	0
Carrier Manager 11	94h	0
Carrier Manager 12	96h	0
Carrier Manager 13	98h	0
Carrier Manager 14	9ah	0
Carrier Manager 15	9ch	0
Carrier Manager 16	9dh	0

Table 3: Carrier Manager Addresses

A device is specified by access address and FRU ID. When referring to devices behind a Carrier in a Shelf, the access address will be the Carrier address, and the device's FRU ID will be relative to the Carrier denoted by the Carrier address.

For example, to activate the Management Controller at Carrier address 86h, FRU ID 8, the following FRU addressing can be used:

```
# activate –a 0x86 –f 8
```

The following tables describe the carrier access address to FRU ID relationships for all applicable FRUs:

EntityID	Entity	FRU ID
C2h	MCH 1	3
	MCH 2	4
C1h	AMC 1	5
	AMC 2	6
	AMC 3	7
	AMC 4	8
	AMC 5	9
	AMC 6	10
	AMC 7	11
	AMC 8	12
	AMC 9	13
	AMC 10	14
	AMC 11	15
	AMC 12	16
1Eh	CU 1	40
	CU 2	41
0Ah	PM 1	50
	PM 2	51
	PM 3	52
	PM 4	53
DAh-DFh	OEM Module 1	60
	OEM Module 2	61
	OEM Module 3	62
	OEM Module 4	63
	OEM Module 5	64
	OEM Module 6	65
	OEM Module 7	66
	OEM Module 8	67
	OEM Module 9	68
	OEM Module 10	69
	OEM Module 11	70
	OEM Module 12	71
	OEM Module 13	72
	OEM Module 14	73
	OEM Module 15	74
	OEM Module 16	75

Table 4: Carrier Local FRU Identifier Relationships

4.2 FRU Storage Addressing

Certain FRU IDs are reserved for Inventory use, and do not represent any managed FRU. FRU Inventory commands can address the FRUs outlined in Section 4.1: FRU Addressing, as well as those reserved for Inventory use.

Entity ID	Entity	Carrier Manager FRU Device ID
C2h	Physical Shelf Information 1	1
	Physical Shelf Information 2	2
D1h	Logical Carrier FRU Information	253

Table 5: Carrier Manager FRU Inventories

To read the complete FRU Inventory Information of Shelf Information 2 on Carrier 3, use the following syntax:

```
# read_fru_storage –a 0x86 –f 2
```

To read the complete FRU Inventory Information of the logical Carrier Information on Carrier 3, use the following syntax:

```
# read_fru_storage –a 0x86 –f 253
```

The MicroTCA Shelf also has one remaining special FRU ID, which is the Logical Shelf FRU Information FRU ID located on the Shelf Manager, described in Table 6 below:

Entity ID	Entity	Shelf Manager FRU Device ID
F2h	Logical Shelf FRU Information	254

Table 6: Logical Shelf FRU Information

To read the complete FRU Inventory Information of the logical Shelf Information, use the following syntax:

```
# read_fru_storage –a 0x20 –f 254
```

4.3 Physical Addressing

Some commands display the physical address of a FRU. The physical address is the combination of site type and site number. The physical address describes the physical location of a FRU in a Carrier. It identifies both the type of FRU and a particular FRU of that type (AMC #1 versus AMC #2).

The `get_address_info` command may be used to translate from one type of addressing to another.

The physical addressing relationships are detailed in Table 7:

EntityID	Entity	FRU Device ID	Physical Address	
			Site Type	Site Number
C2h	MCH 1	3	0Ah	1
	MCH 2	4	0Ah	2
C1h	AMC 1	5	07h	1
	AMC 2	6	07h	2
	AMC 3	7	07h	3
	AMC 4	8	07h	4
	AMC 5	9	07h	5
	AMC 6	10	07h	6
	AMC 7	11	07h	7
	AMC 8	12	07h	8
	AMC 9	13	07h	9
	AMC 10	14	07h	10
	AMC 11	15	07h	11
	AMC 12	16	07h	12
1Eh	CU 1	40	04h	1
	CU 2	41	04h	2
0Ah	PM 1	50	0Bh	1
	PM 2	51	0Bh	2
	PM 3	52	0Bh	3
	PM 4	53	0Bh	4
D0h-DFh	OEM Module 1	60	C0h – CFh	1
	OEM Module 2	61	C0h – CFh	2
	OEM Module 3	62	C0h – CFh	3
	OEM Module 4	63	C0h – CFh	4
	OEM Module 5	64	C0h – CFh	5
	OEM Module 6	65	C0h – CFh	6
	OEM Module 7	66	C0h – CFh	7
	OEM Module 8	67	C0h – CFh	8
	OEM Module 9	68	C0h – CFh	9
	OEM Module 10	69	C0h – CFh	10
	OEM Module 11	70	C0h – CFh	11
	OEM Module 12	71	C0h – CFh	12
	OEM Module 13	72	C0h – CFh	13
	OEM Module 14	73	C0h – CFh	14
	OEM Module 15	74	C0h – CFh	15
	OEM Module 16	75	C0h – CFh	16

Table 7: Physical Addressing

5 Command Reference

This section covers, in detail, the commands of the CLI and provides the syntax, usage, and examples for each of the available commands.

5.1 Alarm

5.1.1 Alarm Clear

NAME

`alarm_clear` – remove a triggered alarm from the list of active alarms

SYNOPSIS

```
alarm_clear             {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-c|--event-code EVENT_CODE}
                        [-u|--unit-id UNIT_ID/SENSOR_NUMBER]
                        [-s|--sensor-type SENSOR_TYPE]
```

DESCRIPTION

This command is used to attempt to remove a triggered alarm from the list of active alarms monitored by the Shelf Manager. Not all alarms are clearable; if the alarm cannot be cleared, it will remain until the problem is fixed.

IPMB Address and **FRU Identifier** specify the FRU that generated the alarm.

Event Code is the code of the alarm to be removed. Some alarms are associated with a sensor. For these alarms, **Unit ID/Sensor Number** and **Sensor Type** must also be specified.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 8: Alarm Clear applicable target FRUs

EXAMPLE

Remove the alarm event represented by code C5h generated by the Shelf Manager at FRU ID 0, located at IPMB address 20h:

```
# alarm_clear –a 0x20 –f 0 –c 0xC5
```

SEE ALSO

```
alarm_status
list_event_code_descriptions
get_diagnostics
```

5.1.2 Alarm Reset

NAME

`alarm_reset` – turn off alarm LEDs and silence Telco alarms for a given time (specified in minutes)

SYNOPSIS

```
alarm_reset             {-i|--carrier_number CARRIER_NUMBER}
                        {-t|--timeout MINUTES}
```

DESCRIPTION

This command is used to turn off alarm LEDs for a given time on a given MicroTCA Carrier. If Telco alarms are supported, they are shut off for the same amount of time as well.

Timeout is the time, in minutes, to keep the LEDs off and Telco alarms shut off.

EXAMPLE

Reset alarms for 3 minutes:

```
# alarm_reset --timeout 3
```

SEE ALSO

`alarm_status`

5.1.3 Alarm Status

NAME

`alarm_status` – display the active alarms and whether the alarm cut-off is enabled

SYNOPSIS

```
alarm_status            [-i|--carrier-number CARRIER_NUMBER]
```

DESCRIPTION

This command is used to display the active alarms on the MicroTCA Shelf or a MicroTCA Carrier.

The user may specify a Carrier by using the **Carrier Number**. If a target is not specified, the command displays information for the Shelf Manager.

The command displays the following information:

- [!] Minor alarm is active
- [!!] Major alarm is active
- [!!!]Critical alarm is active

If the alarms are reset and/or silenced, the command displays the time for which the alarms are silenced.

EXAMPLE

Display the alarm status of Carrier 3:

```
# alarm_status –i 3
```

SEE ALSO

```
get_diagnostics
get_health
```

5.1.4 List Event Code Descriptions

NAME

`list_event_code_descriptions` – list the MicroTCA Shelf Manager diagnostic event codes and their descriptions

SYNOPSIS

```
list_event_code_descriptions
```

DESCRIPTION

This command is used to translate event codes as reported by the `get_diagnostics` command.

The following is a table of the MicroTCA Shelf event codes, and recommended specification document(s) and document section(s) to refer to for more information. A value of "N/A" implies an internal VadaTech event type.

Event Code	Event Description	Specification Reference	Comments
60h	Normal	IPMI Intelligent Platform Management Interface Specification V2.0 Section : *Sensor Types and Data Conversion*	Threshold-based sensors, such as Voltage, Temperature, Fan RPM, etc, shall report these errors and assert that a threshold was crossed.
61h	Lower non-critical going low asserted		
62h	Lower non-critical going high asserted		
63h	Lower critical going low asserted		
64h	Lower critical going high asserted		
65h	Lower non-recoverable going low asserted		
66h	Lower non-recoverable going high asserted		
67h	Upper non-critical going low asserted		
68h	Upper non-critical going high asserted		
69h	Upper critical going low asserted		
6Ah	Upper critical going high asserted		
6Bh	Upper non-recoverable going low asserted		
6Ch	Upper non-recoverable going high asserted		
6Dh	Lower non-critical going low asserted		
6Eh	Lower non-critical going high asserted		
6Fh	Lower critical going low asserted		
70h	Lower critical going high asserted		
71h	Lower non-recoverable going low asserted		
72h	Lower non-recoverable going high asserted		
73h	Upper non-critical going low asserted		
74h	Upper non-critical going high asserted		
75h	Upper critical going low asserted		
76h	Upper critical going high asserted		
77h	Upper non-recoverable going low asserted		
78h	Upper non-recoverable going high asserted		

79h	IPMB-A disabled, IPMB-B disabled asserted	IPMI Intelligent Platform Management Bus Communications Protocol Specification 1.0 Section: *IPMB Sensors and event messages*	IPMB Fault events on the IPMB A or IPMB B.
7Ah	IPMB-A enabled, IPMB-B disabled asserted		
7Bh	IPMB-A disabled, IPMB-B enabled asserted		
7Ch	IPMB-A enabled, IPMB-B enabled asserted		
7Dh	Minor alarm test enabled	N/A	VadaTech Test only
7Eh	Major alarm test enabled		
7Fh	Critical alarm test enabled		
80h	-48V fuse alarm asserted	PICMG® 3.0 Revision 3.0 AdvancedTCA® Base Specification Section: *IPM Controller / FRU sensors*	Power Feed status sensors for the power Feed fuses have triggered an event.
81h	48V fuse alarm deasserted		
82h	Unable to read SDR	N/A	Unable to read from the Sensor Data Repository.
83h	Unable to read/write to sensor	N/A	Sensor initialization failed due to a communication error with the device.
84h	EEPROM read/write error	N/A	Communication error with an EEPROM device.
85h	SEL is full. Events are not being logged	N/A	System Event Log (SEL) is full; therefore, the Shelf Manager has disabled logging until the log is cleared by the user.
86h	Unable to read FRU information	N/A	Unable to successfully read FRU information due to internal failure.
C0h	Port enable failed	N/A	E-Keying port enable failed.
C1h	Cache point-to-point connectivity information failed	N/A	Caching point-to-point E-Key information from the specified FRU failed.
C2h	Communication lost	PICMG® 3.0 Revision 3.0 AdvancedTCA® Base Specification Section: *FRU hot swap event message*	A Device or FRU is currently at Communication lost state.
C3h	Unable to set FRU power level for FRU. FRU activation failed	N/A	N/A for Shelf Manager

C4h	FRU was deactivated due to overheating components	N/A	A FRU was deactivated by the Shelf Manager due to over heating components.
C5h	One or more cooling units are absent or at communication lost state		Shelf Manger could not communicate with one of more cooling units and Shelf cooling is compromised.
C6h	Cooling configuration not found. Cooling disabled		Shelf Manger could not locate the Cooling configuration information and therefore has disabled cooling.
C7h	Cooling Management failure detected		Shelf Cooling management is not functional due to an internal failure.
C8h	Power Module failure	PICMG® Specification MTCA.0 R1.0 Section: *Abnormal power condition handling*	An abnormal power condition handling event occurred.
100h	Power Subsystem - redundancy lost		Power Module redundancy is lost.
101h	Power supply failure detected		Power supply failure detected in the specified Power Module.
102h	Power supply failure input lost (AC/DC)		Power supply input was lost in the specified Power Module.
130h	Shelf FRU Information not found	N/A	Shelf Manager FRU information was not successfully located. Shelf Manager is not initialized.

Table 9: Event Code Descriptions and References

SEE ALSO

`get_diagnostics`

5.1.5 Get Telco Alarm State

NAME

`get_telco_alarm_state` – display the state of the Telco alarms for a given MicroTCA Carrier

SYNOPSIS

```
get_telco_alarm_state   {-a|--address IPMB_ADDRESS}
                        [-c|--critical]

get_telco_alarm_state   {-a|--address IPMB_ADDRESS}
                        [-M|--major]

get_telco_alarm_state   {-a|--address IPMB_ADDRESS}
                        [-m|--minor]

get_telco_alarm_state   {-a|--address IPMB_ADDRESS}
                        [-p|--power-indicator]

get_telco_alarm_state   {-a|--address IPMB_ADDRESS}
                        [-C|--alarm-cutoff]
```

DESCRIPTION

This command is used to display the state of the Telco alarms.

Carrier Address specifies the MicroTCA Carrier from which to retrieve the information.

The user may specify one of the following alarm states. If a target is not specified, the command displays information for all alarm states:

- Critical Alarm
- Major Alarm
- Minor Alarm
- Power Indicator
- Alarm Cutoff

EXAMPLE

Display all Telco alarm states for Carrier 1:

```
# get_telco_alarm_state –a 0x82
```

Display major Telco alarm state for Carrier 1:

```
# get_telco_alarm_state –address 0x82 –-major
```

SEE ALSO

get_telco_capabilities
set_telco_alarm_state

5.1.6 Get Telco Capabilities

NAME

`get_telco_capabilities` – display the Telco alarm states and modes available to a given MicroTCA Carrier

SYNOPSIS

```
get_telco_capabilities  {-a|--address IPMB_ADDRESS}
```

DESCRIPTION

This command is used to display the Telco alarm states and mode available.

Carrier Address specifies the MicroTCA Carrier from which to retrieve the information.

The command displays the following information:

- Critical Alarm, whether it can be controlled by the `set_telco_alarm_state` command
- Major Alarm, whether it can be controlled by the `set_telco_alarm_state` command
- Minor Alarm, whether it can be controlled by the `set_telco_alarm_state` command
- Power Alarm, whether it can be controlled by the `set_telco_alarm_state` command
- Test Mode, whether it can be enabled by the `set_telco_alarm_state` command
- Alarm Cutoff, whether implemented or not
- Minor Reset, whether implemented or not
- Major Reset, whether implemented or not

EXAMPLE

View Telco capabilities on Carrier 1:

```
# get_telco_capabilities –a 0x82
```

SEE ALSO

```
get_telco_alarm_state
set_telco_alarm_state
```

5.1.7 Set Telco Alarm State

NAME

`set_telco_alarm_state` – enable, disable, or test Telco alarms for a given MicroTCA Carrier

SYNOPSIS

```
set_telco_alarm_state   {-a|--address IPMB_ADDRESS}
                        {-e|--enable}
                        {[-c|--critical] |
                         [-M|--major] |
                         [-m|--minor] |
                         [-p|--power-indicator] |
                         [-C|--alarm-cutoff]}

set_telco_alarm_state   {-a|--address IPMB_ADDRESS}
                        {-d|--disable}
                        {[-c|--critical] |
                         [-M|--major] |
                         [-m|--minor] |
                         [-p|--power-indicator] |
                         [-C|--alarm-cutoff]}

set_telco_alarm_state   {-a|--address IPMB_ADDRESS}
                        {-t|--test}
                        {[-c|--critical] |
                         [-M|--major] |
                         [-m|--minor] |
                         [-p|--power-indicator] |
                         [-C|--alarm-cutoff]}
```

DESCRIPTION

This command is used to enable, disable, or test Telco alarms.

Carrier Address specifies which Carrier's Telco alarms to control.

An alarm state can be **Enabled**, **Disabled**, or, if supported, put into the **Test State**.

Only one of the following alarm states can be configured at a time:

- Critical Alarm
- Major Alarm
- Minor Alarm
- Power Indicator
- Alarm Cutoff

EXAMPLE

Enable the minor Telco alarm on Carrier 2:

```
# set_telco_alarm_state –a 0x82 –e -m
```

Test the critical Telco alarm on Carrier 2:

```
# set_telco_alarm_state –-address 0x82 –-test –-critical
```

SEE ALSO

get_telco_capabilities
get_telco_alarm_state

5.2 Alerting

5.2.1 Get PEF Configuration Parameters

NAME

`get_pef_config_parameters` – display parameters related to PEF alerting, such as whether PEF is enabled or disabled, or the configuration of the Event Filter Table and alert strings

SYNOPSIS

```
get_pef_config_parameters   {-p|--parameter PARAMETER_SELECTOR}
                            [-s|--set SET_SELECTOR]
                            [-b|--block BLOCK_SELECTOR]
                            [-r|--dump-raw]

get_pef_config_parameters   [-R|--revision-only]
```

DESCRIPTION

This command displays the parameters related to platform event filter (PEF) alerting. The full description of associated parameters is listed below.

Specifying the **Revision-Only** option will display the parameters' revision.

Specifying the **Dump Raw** option will display the following, as well as the message response, in raw hexadecimal format.

Parameter Selector is a 0-based index used to identify a setting parameter. The following parameters are supported:

0 = Set in progress. This parameter is used to indicate when LAN parameters are being updated, and when the updates are completed.
- Complete
- In progress

1 = PEF control
- PEF, whether enabled or disabled

2 = PEF action global control
- Alert, whether enabled or disabled

5 = Number of event filters

6 = Event Filter Table
- Filter, whether enabled or disabled and manufacturer or software configurable

- Event filter action
- Group control
- Diagnostic interrupt
- OEM
- Power cycle
- Reset
- Power off
- Alert
- Alert policy number
- Event severity to be used in a PET alert
- Generating FRU, channel number, and LUN
- Sensor type to match
- Sensor number to match
- Event/reading type to match
- Event data 1 event offset mask. This bit field is used to match different values of the least significant nibble of the Event Data 1 field. This enables a filter to provide a match on multiple offset values.
- Mask and compare fields for Event Data 1, 2, and 3. These fields are used in combination to allow wildcarding, 'one or more bit(s)', and exact comparisons to be made between bits in corresponding event data byte.

7 = Event Filter Table data 1. This parameter provides an aliased access to the first byte of the event filter data. This is provided to simplify the act of enabling and disabling individual filters by avoiding the need to do a read-modify-write of the entire filter data.

8 = Number of alert policy entries

9 = Alert Policy Table

- Policy number
- Policy
- Always send alert to destination
- If alert to previous destination was successful, do not send alert to this destination. Proceed to next entry in this policy set.
- If alert to previous destination was successful, do not send alert to this destination. Do not process any more entries in this policy set.
- If alert to previous destination was successful, do not send alert to this destination. Proceed to next entry in this policy set that is to a different channel.
- If alert to previous destination was successful, do not send alert to this destination. Proceed to next entry in this policy set that is to a different destination type.

10 = System GUID

- Use value returned from Get System GUID or the following value
- System GUID

11 = Number of alert strings

12 = Alert string keys. If, in the Alert Policy Table, alert uses an event-specific alert string, this parameter is used as an alert string set. An alert string set, along with the event filter number, is used to look up the string associated with a particular event. Otherwise, this parameter is used as an alert string selector.
- Alert string selector, 0-based
- Event filter number, 1-based, 00h = unspecified
- Alert string set, 1-based, 00h = unspecified

13 = Alert strings
- Alert string selector, 0-based
- Alert string

For the following parameters, the user may specify a target alert string selector using the **Set Selector** parameter. The set (alert string) selector is a 0-based index. Alert string 0 is always present as a volatile destination that is used with the `snmp_trap_test` command. If a target is not specified, the command displays information for all sets (strings).

- 12 = Alert strings
- 13 = Alert string keys

For the following parameters, the set selector may also be specified:

- 6 = Event Filter Table, 1-based
- 7 = Event Filter Table Data 1, 1-based
- 9 = Alert Policy Table, 1-based
- 15 = Group Control Table, 1-based

Block is unused in the current implementation.

The command displays a given parameter setting, as described above.

EXAMPLE

View event filter (parameter 6) number 9:

```
# get_pef_config_parameters --parameter 6 –-set 9
```

View all alert strings (parameter 13):

```
# get_pef_config_parameters –p 13
```

View PEF configuration parameter revision:

```
# get_pef_config_parameters –r
```

SEE ALSO

`set_pef_config_parameters`

5.2.2 Get SNMP Trap Information

NAME

`get_snmp_trap_info` – display status of SNMP traps and available trap destinations

SYNOPSIS

```
get_snmp_trap_info      [-c|--channel-number CHANNEL_NUMBER]
```

DESCRIPTION

This command is used to display the status of SNMP traps and available trap destinations.

The user may specify a target **Channel Number**, which is a 0-based index used to identify a messaging channel. To display information for the channel used for the active session, the value 0Eh may be used. If a target is not specified, the command displays information for all available channels.

The command displays the following information:

- SNMP traps, whether enabled or disabled. Alerting may also be disabled on a per-channel basis using `set_channel_access`.
- List of available channels
- List of available trap destinations

EXAMPLE

Get trap information for channel 3:

```
# get_snmp_trap_info –-channel-number 3
```

SEE ALSO

```
set_channel_access
snmp_trap_disable
snmp_trap_enable
snmp_trap_get_address
snmp_trap_remove_address
snmp_trap_set_address
```

5.2.3 Set PEF Configuration Parameters

NAME

`set_pef_config_parameters` – modify parameters such as PEF enable/disable and set the configuration of the Event Filter Table and alert strings

SYNOPSIS

```
set_pef_config_parameters   {-p|--parameter PARAMETER_SELECTOR}
                            {[-d|--data DATA] |
                             [-S|--string STRING]}
```

DESCRIPTION

This command modifies the setting parameters, such as PEF enable/disable, and sets the configuration of the Event Filter Table and alert strings.

Parameter Selector is a 0-based index used to identify a setting parameter. All changes are saved to both volatile and non-volatile storages.

0 = Set in progress. This parameter is used to indicate when LAN parameters are being updated, and when the updates are completed.
- Complete
- In progress

2 = PEF action global control
- Alert, whether enabled or disabled

6 = Event Filter Table
- Filter, whether enabled or disabled and manufacturer or software configurable
- Event filter action
- Group control
- Diagnostic interrupt
- OEM
- Power cycle
- Reset
- Power off
- Alert
- Alert policy number
- Event severity to be used in a PET alert
- Generating FRU, channel number, and LUN
- Sensor type to match
- Sensor number to match
- Event/reading type to match

- Event data 1 event offset mask. This bit field is used to match different values of the least significant nibble of the Event Data 1 field. This enables a filter to provide a match on multiple offset values.
- Mask and compare fields for Event Data 1, 2, and 3. These fields are used in combination to allow wildcarding, one or more bit(s), and exact comparisons to be made between bits in corresponding event data byte.

7 = Event Filter Table data 1. This parameter provides an aliased access to the first byte of the event filter data. This is provided to simplify the act of enabling and disabling individual filters by avoiding the need to do a read-modify-write of the entire filter data.

9 = Alert Policy Table

- Policy number
- Policy
- Always send alert to destination
- If alert to previous destination was successful, do not send alert to this destination. Proceed to the next entry in this policy set.
- If alert to previous destination was successful, do not send alert to this destination. Do not process any more entries in this policy set.
- If alert to previous destination was successful, do not send alert to this destination. Proceed to the next entry in this policy set that is to a different channel.
- If alert to previous destination was successful, do not send alert to this destination. Proceed to next entry in this policy set that is to a different destination type.

10 = System GUID

- Use value returned from Get System GUID or the following value
- System GUID

12 = Alert string keys. If, in the Alert Policy Table, alert uses an event-specific alert string, this parameter is used as an alert string set. An alert string set, along with the event filter number, is used to look up the string associated with a particular event. Otherwise, this parameter is used as an alert string selector.

- Alert string selector, 0-based
- Event filter number, 1-based, 00h = unspecified
- Alert string set, 1-based, 00h = unspecified

13 = Alert strings

- Alert string selector, 0-based
- Alert string

Data is a variable length of byte values in hexadecimal. The length varies by parameter. Refer to the "Set PEF Configuration Parameters Command" section of the Intelligent Platform Management Interface Specification v2.0. If specifying an alert string, the **String** option must also be specified.

EXAMPLE

Add/modify event filter (parameter 6) number 3 that sends an alert, with non-critical severity, for upper-critical going high assertion events from any voltage sensor. This event filter is software configurable and will execute alert policy number 5:

```
# set_pef_config_parameters --parameter 6 --data “03 00 01 05 08
      ff ff 02 ff 01 00 02 00 00 00 00 00 00 00 00 00”
```

Enable event filter (parameter 7) number 3:

```
# set_pef_config_parameters –p 7 –d “03 80”
```

Change alert string (parameter 13) to “testing” for selector 2:

```
# set_pef_config_parameters –p 13 –d 2 –S testing
```

SEE ALSO

get_pef_config_parameters

5.2.4 SNMP Trap Disable

NAME

`snmp_trap_disable` – disable SNMP traps on a given channel

SYNOPSIS

```
snmp_trap_disable       {-c|--channel-number CHANNEL_NUMBER}
```

DESCRIPTION

This command is used to disable SNMP traps on a given channel. By default, SNMP traps are not enabled. The changes are saved in non-volatile storage.

Channel Number is a 0-based index used to identify a messaging channel. SNMP trap are disabled on a per-channel basis. To disable SNMP trap on the channel used for the active session, the value 0Eh may be used.

EXAMPLE

Disable traps on channel 2:

```
# snmp_trap_disable –c 2
```

SEE ALSO

```
get_snmp_trap_info
snmp_trap_enable
```

5.2.5 SNMP Trap Enable

NAME

`snmp_trap_enable` – enable SNMP traps on a given channel

SYNOPSIS

```
snmp_trap_enable        {-c|--channel-number CHANNEL_NUMBER}
```

DESCRIPTION

This command is used to enable SNMP traps on any applicable channel. Alerting can be enabled on a per-channel basis using `set_channel_access`. By default, SNMP traps are not enabled. The changes are saved in non-volatile storage.

Channel Number is a 0-based index used to identify a messaging channel. SNMP traps are enabled on a per-channel basis. To enable SNMP traps on the channel used for the active session, the value 0Eh may be used.

EXAMPLE

Enable traps on the active channel:

```
# snmp_trap_enable –-channel-number 0xE
```

SEE ALSO

```
get_snmp_trap_info
set_channel_access
snmp_trap_disable
```

5.2.6 SNMP Trap Get Address

NAME

`snmp_trap_get_address` – display a list of SNMP trap destinations for a given channel on the MicroTCA Shelf

SYNOPSIS

```
snmp_trap_get_address   {-c|--channel-number CHANNEL_NUMBER}
                        [-d|--destination DESTINATION_NUMBER]
```

DESCRIPTION

This command is used to display a list of SNMP trap destinations for a given channel.

Channel Number is a 0-based index used to identify a messaging channel. SNMP trap destinations are configured on a per-channel basis. To display information for the channel used for the active session, the value 0Eh may be used.

Destination Number is a 0-based index used to identify an IP address that SNMP traps can be sent to. The user may specify the target destination. If a target is not specified, the command displays all destinations available for the Shelf.

The command displays the alerting IP address as returned by `get_lan_config_parameters -p 19` with the corresponding channel number and set selector (destination number).

EXAMPLE

List SNMP trap destinations for channel 2:

```
# snmp_trap_get_address –c 2
```

List SNMP trap destinations for the channel used for the active session:

```
# snmp_trap_get_address –-channel-number 0xE
```

View the SNMP trap destination at index 2 for channel 3:

```
# snmp_trap_get_address –-channel-number 3 --destination 2
```

SEE ALSO

`get_lan_config_parameters`

```
snmp_trap_set_address
snmp_trap_remove_address
```

5.2.7 SNMP Trap Remove Address

NAME

`snmp_trap_remove_address` – remove an SNMP trap destination for a given channel

SYNOPSIS

```
snmp_trap_remove_address   {-c|--channel-number CHANNEL_NUMBER}
                           {-d|--destination DESTINATION_NUMBER}
```

DESCRIPTION

This command is used to remove an SNMP trap destination for a given channel. The changes are saved in non-volatile storage.

Channel Number is a 0-based index used to identify a messaging channel. SNMP trap destinations are configured on a per-channel basis. To display information for the channel used for the active session, the value 0Eh may be used.

Destination Number is a 0-based index used to identify an IP address that an SNMP trap can be sent to. Destination 0 on all channels represents the default destination number, and cannot be removed.

EXAMPLE

Remove SNMP trap destination 3 for channel 2:

```
# snmp_trap_remove_address –c 2 –d 3
```

Remove SNMP trap destination 3 for the channel used for the active session:

```
# snmp_trap_remove_address –c 0xE --destination 3
```

SEE ALSO

```
snmp_trap_get_address
snmp_trap_set_address
```

5.3 SNMP Trap Set Address

NAME

`snmp_trap_set_address` – modify an SNMP trap destination for a given channel

SYNOPSIS

```
snmp_trap_set_address   {-c|--channel-number CHANNEL_NUMBER}
                        {-d|--destination DESTINATION_NUMBER}
                        {-i|--ip-address IP_ADDRESS}
```

DESCRIPTION

This command is used to modify an SNMP trap destination for a given channel on the MicroTCA Shelf. The changes are saved in non-volatile storage.

Channel Number is a 0-based index used to identify a messaging channel. SNMP trap destinations are configured on a per-channel basis. To display information for the channel used for the active session, the value 0Eh may be used.

Destination Number is a 0-based index used to identify an IP address that SNMP traps can be sent to. The user may specify the target destination. If a target is not specified, the command displays all destinations available.

IP Address is in decimal dotted notation.

The command is the same as using `set_lan_config_parameters` to change the following values:

- Destination type (parameter selector 18)
- Destination type = PET trap destination
- Alert acknowledge = no
- Alert acknowledge timeout / retry interval = 0 seconds
- Retries = 0
- Destination address (parameter selector 19)
- Address format = IPv4
- Address = IP_ADDRESS
- Gateway selector = use default
- Alerting MAC address = 00:00:00:00:00:00
- VLAN TAG (parameter selector 25)
- Address format = VLAN ID (not used)
- VLAN ID = 0
- CFI = 0

- User Priority = 0

EXAMPLE

Add 10.1.12.36 as destination number 2 for channel 2:

```
# snmp_trap_set_address –c 2 –d 2 –i 10.1.12.36
```

Change destination 3 for the channel used for the active session to 10.1.14.109:

```
# snmp_trap_set_address –-channel-number 0xE --destination 3 --
      ip-address 10.1.14.109
```

SEE ALSO

```
set_lan_config_parameters
snmp_trap_get_address
snmp_trap_remove_address
```

5.3.1 SNMP Trap Test

NAME

`snmp_trap_test` – send a test SNMP trap to the a given destination; get/clear status of test alert sent to a given destination

SYNOPSIS

```
snmp_trap_test          {-c|--channel-number CHANNEL_NUMBER}
                        {-d|--destination DESTINATION_NUMBER}
                        [[-g|--get-status] |
                         [-C|--clear-status]]
```

DESCRIPTION

This command is used to send a test SNMP trap to a given destination. It can also be used to get/clear the status of the test alert.

Channel Number is a 0-based index used to identify a messaging channel. SNMP trap destinations are configured on a per-channel basis. To send an alert on the channel used for the active session, the value 0Eh may be used.

Destination Number is a 0-based index used to identify an IP address to which a SNMP trap is sent. By default, destination 0 is always available to use for this command.

If **Get Status** is specified, the command displays the status of the test SNMP trap:

- No status. There was no SNMP trap sent. It is waiting its turn in the queue, there are no pending traps, or the channel specified is invalid.
- Normal end. The SNMP trap was sent successfully.
- Failed due to timeouts waiting for acknowledge on all retries.
- In progress. The SNMP trap is being sent out and the status is still pending.

If **Clear Status** is specified, the status is set to "No status."

EXAMPLE

Send test SNMP trap to destination number 2 on channel 2:

```
# snmp_trap_test –c 2 –d 2
```

Get status of test SNMP trap sent to destination 3 on the channel used for the active session:

```
# snmp_trap_test –-channel-number 0xE --destination 3 –-get-
      status
```

Clear status of test SNMP trap sent to destination 5 on channel 4:

```
# snmp_trap_test –-channel-number 4 --destination 5 –C
```

SEE ALSO

```
get_snmp_trap_info
snmp_trap_get_address
```

5.4 CLI Utilities

5.4.1 CLI Commands

NAME

`cli_commands` – list all available commands

SYNOPSIS

```
cli_commands              [{-a|--alarm}       |
                           {-A|--alerting}    |
                           {-c|--cooling}     |
                           {-e|--e-keying}    |
                           {-f|--fru-mgmt}    |
                           {-i|--cli-info}    |
                           {-l|--lan}         |
                           {-L|--led}         |
                           {-p|--power}       |
                           {-E|--sel}         |
                           {-s|--sensor}      |
                           {-S|--system-admin}|
                           {-m|--system-mgmt} |
                           {-o|--all}]
```

DESCRIPTION

This command provides a summary of CLI Commands supported for the Shelf platform.

The following options can be specified to list the commands grouped by function:

- **alarm** – Alarm commands
- **alerting** – Alerting commands
- **cooling** – Cooling commands
- **e-keying** - Electronic Keying commands
- **fru-mgmt** – FRU Management commands
- **cli-info** – CLI commands
- **lan** – LAN commands
- **led** – LED commands
- **power** – Power commands
- **sel** – Sensor Event Log commands
- **sensor** - Sensor commands
- **system-admin** – Adminstration commands
- **system-mgmt** – System Management commands

- **all** – display all commands

Refer to Table 2 for more information on the command groups.

EXAMPLE

Display the supported System Management commands:

```
# cli_commands –m
```

Display all supported commands

```
# cli_commands
```

SEE ALSO

cli_options
help

5.4.2 CLI Option Description

NAME

`cli_options` – display the shorthand notation used for some CLI options

SYNOPSIS

```
cli_options
```

DESCRIPTION

This command describes the CLI shorthand options of `site options`, `address-fruid-options`, and `sensor-filter-options`.

SEE ALSO

```
cli_commands
help
```

5.4.3 Exiting an Open CLI Session

NAME

`exit` – exit an open CLI session

SYNOPSIS

```
exit
```

DESCRIPTION

Note: This command is only available when using the CLI in Interactive Mode.

This command exits an open CLI session. This command functions identically to the `q` command.

SEE ALSO

`q`

5.4.4 Get Version of CLI Software

NAME

`get_version` - display the release version of the MicroTCA Shelf CLI software

SYNOPSIS

```
get_version
```

DESCRIPTION

This command can only be issued in an open CLI session. This command displays the release version of the Shelf CLI software. Alternatively, use CLI starting options to retrieve the version information; See **Section 2.5: CLI Starting Options** for more information.

5.4.5 Help

NAME

`help` - Display an organized list of available CLI commands, or help for a given command

SYNOPSIS

```
help

<CLI_command>            [-h | --help]
```

DESCRIPTION

Note: The first version of the command command is only available when using the CLI in Interactive Mode.

If a command is provided, the `help` command lists the options available for a given CLI command. If a command is not provided, an organized list of available commands is displayed, identical to `cli_commands` without filtering capabilities.

EXAMPLE

See the help for the `get_address_info` command:

```
# get_address_info --help
```

SEE ALSO

```
cli_commands
get_options
```

5.4.6 Quitting an Open CLI Session

NAME

`q` – quit an open CLI session

SYNOPSIS

```
q
```

DESCRIPTION

Note: This command is only available when using the CLI in Interactive Mode.

This command quits an open CLI session. This command functions identically to the `exit` command.

SEE ALSO

`exit`

5.5 Cooling Management

5.5.1 Get Cooling Parameters

NAME

`get_cooling_parameters` – display the MicroTCA Shelf cooling management parameters

SYNOPSIS

```
get_cooling_parameters
```

DESCRIPTION

This command will display the currently configured readiness allowance and monitor cycle, as well as the normal level and ramp up and ramp down increment levels for handling temperature events.

The Shelf may contain Fan Trays that are used to maintain airflow within the Carriers. When the IPM Controllers send temperature events to the Shelf Manager, it is the responsibility of the Shelf Manager to adjust the fan levels in an effort to alleviate the problem.

The command displays the following information:

- Normal operating level
- Increment level
- Decrement level
- Readiness allowance; time interval from power on until the Shelf Manager begins monitoring the cooling regions.
- Monitor cycle; minimum time between fan speed changes, in seconds
- Whether cooling is enabled/disabled

SEE ALSO

`set_cooling_parameters`

5.5.2 Get Fan Geography

NAME

`get_fan_geography` – display the Fan Tray to FRU connections as defined in the MicroTCA Shelf Fan Geography record

SYNOPSIS

```
get_fan_geography
```

DESCRIPTION

This command describes the FRUs associated with each configured Fan Tray in a Shelf.

The command displays the following information:

- FRU ID / MicroTCA Carrier Number of a Fan Tray
- FRU IDs of FRUs cooled by a given Fan Tray

If a value of FEh is provided, all FRUs in the Fan Tray's Carrier are assumed to be covered by a given Fan Tray.

SEE ALSO

```
get_fan_info
get_fan_level
```

5.5.3 Get Fan Information

NAME

`get_fan_info` – display the Fan Tray properties and hot-swap status

SYNOPSIS

```
get_fan_info            {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command is used to obtain the Fan Tray properties for a given Fan Tray, its current hot-swap status, and its current operating speed level.

The target Fan Tray is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**.

The command displays the following information:

- Location of the Fan Tray identified by its MicroTCA Carrier Address and Carrier-local FRU identifier
- Minimum speed level
- Maximum speed level
- Normal operating speed level
- If it is currently in the override control state, its override speed level

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
CU	82h – A0h	40 – 41

Table 10: Get Fan Info applicable target FRUs

EXAMPLE

View the fan information for the Fan Tray located at address 84h, FRU ID 40:

```
# get_fan_info –a 0x84 –f 40
```

SEE ALSO

`get_fan_level`
`set_fan_level`

5.5.4 Get Fan Level

NAME

`get_fan_level` – display current Fan Tray operating speed level

SYNOPSIS

```
get_fan_level          {-a|--ipmb-address IPMB_ADDRESS}
                       {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command displays the current operating speed level for a given Fan Tray. This value can be anywhere between the minimum to maximum speed level for the Fan tray.

The target Fan Tray is specified using the Carrier's **IPMB Address** and the **FRU Identifier**.

The command displays the following information:

- Location of the Fan Tray identified by its IPMB address and FRU identifier
- Whether the Fan Tray is in the local or override control state
- Current operating speed level

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
CU	82h – A0h	40 – 41

Table 11: Get Fan Level applicable target FRUs

EXAMPLE

View current operating speed level for the Fan Tray located at address 86h, FRU ID 41:

```
# get_fan_level –a 0x86 –f 41
```

SEE ALSO

`get_fan_info`
`set_fan_level`

5.5.5 List Fan Trays Installed

NAME

`list_fan_trays` – display the location of all the Fan Trays installed in the MicroTCA Shelf

SYNOPSIS

```
list_fan_trays
```

DESCRIPTION

This command is used to obtain a list of all the Fan Trays installed in the Shelf and their locations.

The command displays the following information for each installed Fan Tray:

- Location (Carrier address / Carrier-relative Fan Tray FRU Identifier)
- Entity ID / Instance
- Device Name
- Hotswap State

SEE ALSO

```
get_fan_info
get_fan_level
```

5.5.6 Set Cooling Parameters

NAME

`set_cooling_parameters` – set the MicroTCA Shelf cooling management parameters

SYNOPSIS

```
set_cooling_parameters  {[-n|--normal-level NORMAL_LEVEL]
                         [-i|--increment-level INCREMENT_LEVEL]
                         [-I|--decrement-level DECREMENT_LEVEL]
                         [-a|--readiness-allowance READINESS_ALLOWANCE]
                         [-m|--monitor-cycle MONITOR_CYCLE]
                         [[-e|--enable]|
                          [-d|--disable]]}
```

DESCRIPTION

A MicroTCA Carrier may contain Fan Trays that are used to maintain airflow within the Carrier. When the IPM Controllers within that region send temperature events to the Shelf Manager, it is the responsibility of the cooling manager to adjust the fan levels in the region in an effort to alleviate the problem.

The Shelf Manager is responsible for monitoring all the Fan Trays in the Shelf. The Shelf Manager begins monitoring after the **Readiness Allowance** interval expires, which begins at power on. The Shelf Manager may begin lowering the Fan Tray speed depending on the region's ambient temperature, which is determined by monitoring the various temperature sensors located on the FRUs and Chassis.

The readiness allowance is a time interval between 1-255 seconds. The default setting for the Shelf Manager cooling readiness allowance is 60 seconds. It is recommended to allow at least 60 seconds of readiness allowance during initial power on since all the payloads are being enabled.

The **Monitor Cycle** is the time interval in seconds that is used by the Shelf Manager to periodically monitor the Shelf's temperature health. The default setting for the Shelf Manager cooling monitor cycle is 20 seconds. It is recommended to have a minimum of 20 seconds per monitor cycle for optimal performance of the Shelf Manager.

When temperature events require cooling manager intervention of the Fan Tray operating levels, the **Normal Level**, the normal run level of the Fan Trays during standard operation, is incremented or decremented by the level specified by the **Increment Level** and **Decrement Level** fields in order to raise or lower, respectively, the temperature in the troubled region.

A user may also enable or disable cooling monitoring by specifying **Enable** cooling or **Disable** cooling.

EXAMPLE

Set Shelf cooling readiness allowance to 60 seconds and monitor cycle to 30 seconds, with a normal run level of 40, an increment level value of 10, and a decrement level of 3, and enable intelligent cooling:

```
# set_cooling_parameters –a 60 –m 30 –e –i 10 –I 3 –n 40
```

SEE ALSO

`get_cooling_parameters`

5.5.7 Set Fan Level

NAME

`set_fan_level` – set the current operating speed level for a Fan Tray

SYNOPSIS

```
set_fan_level          {-a|--ipmb-address IPMB_ADDRESS}
                       {-f|--fru-id FRU_ID}
                       {-l|--level FAN_LEVEL}
```

DESCRIPTION

This command is used to set the current operating speed level for a Fan Tray. This speed level can be anywhere between the minimum to maximum speed level for the Fan tray. This command will override the MicroTCA Shelf cooling management and set the Fan Tray at a given speed level and will remain at override control. Note that overriding the cooling manager is not recommended. When this command is used, it is the responsibility of the user to monitor the Shelf cooling in the override state.

The target Fan Tray is specified using the IPM Controller's **IPMB Address** and **FRU Identifier**.

The command displays the following information:

- Location of the Fan Tray identified by its IPMB address and FRU identifier
- Whether the Fan Tray is at local or override control
- Current operating speed level

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
CU	82h – A0h	40 – 41

Table 12: Set Fan Level applicable target FRUs

EXAMPLE

Set the current operating speed level to 30 for the Fan Tray located at address 84h, FRU ID 40:

```
# set_fan_level –a 0x84 –f 40 –l 30
```

SEE ALSO

```
get_fan_info
get_fan_level
```

5.6 E-Keying

5.6.1 Get AMC Point-to-Point Connectivity Information

NAME

`get_amc_ptp` – display e-keying information for an AMC, or for on-Carrier devices

SYNOPSIS

```
get_amc_ptp             {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command is used to examine the available communication interfaces on an AMC or an on-Carrier device. This information is retrieved from the device's multi-records.

The target FRU is specified using the Carrier Manager's **IPMB Address** and the **FRU Identifier**.

The command displays the following information for GUID link types, if any are defined:

- OEM GUID count

The command displays the following channel summary information:

- Number of channels defined

The command displays the following information for each channel:

- Channel number
- Lane-to-port mapping

The command displays the following information for each point-to-point link:

- Channel number
- Lane mask
- Link type, in numeric and translated form
- Link type extension
- Link grouping ID

- Asymmetric match

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16

Table 13: AMC PTP Connectivity Information applicable target FRUs

EXAMPLE

View e-keying information for the AMC at address 82h, FRU ID 5:

```
# get_amc_ptp –a 0x82 –f 5
```

View e-keying information for on-Carrier devices on the MCMC located at address 82h, FRU ID 4:

```
# get_amc_ptp –a 0x82 –f 4
```

SEE ALSO

`get_carrier_ptp`

5.6.2 Get Carrier Point-to-Point Connectivity Information

NAME

`get_carrier_ptp` – display Carrier point-to-point connectivity information

SYNOPSIS

```
get_carrier_ptp         {-a|--ipmb-address IPMB_ADDRESS}
```

DESCRIPTION

The **IPMB Address** identifies a Carrier Management Controller.

This command is used to examine the connections that a MicroTCA Carrier provides among on-board devices and AMC bays.

The command displays the following information for each Point-to-Point AMC Resource Descriptor defined by the MicroTCA Carrier:

- AMC Bay ID or on-Carrier device ID defining one endpoint common to a list of point-to-point connections
- List of point-to-point connections sharing one endpoint
- Port on the common endpoint
- AMC Bay ID or on-Carrier device ID defining the remote endpoint
- Port on the remote endpoint

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Carrier Manager	82h – A0h

Table 14: Carrier Point-To-Point applicable target addresses

EXAMPLE

Display point-to-point connectivity information for the Carrier Manager located at address 82h:

```
# get_carrier_ptp –a 0x82
```

SEE ALSO

`get_amc_ptp`
`get_port_state`

5.6.3 Get Clock Configuration

NAME

`get_clock_configuration` –display clock configuration descriptors for a given FRU

SYNOPSIS

```
get_clock_configuration    {-a|--ipmb-address IPMB_ADDRESS}
                           {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command is used to display clock configurations that can be enabled or disabled on a FRU. A clock device may support multiple configurations, but only one of the configurations can be enabled at a time.

The target FRU is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**. This command displays information for all clock resources on the FRU.

The command displays the following information for each configuration:

- Descriptor number
- PLL status
- Clock family
- Clock accuracy
- Nominal frequency
- Minimum guaranteed frequency
- Maximum guaranteed frequency

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16

Table 15: Clock Configuration applicable target FRUs

EXAMPLE

View clock configurations for the AMC located at address 82h, FRU ID 5:

```
# get_clock_configuration –a 0x82 –f 5
```

SEE ALSO

```
get_clock_state
set_clock_state
get_clock_ptp
```

5.6.4 Get Clock Point-to-Point Connectivity Information

NAME

`get_clock_ptp` –display backplane clock connectivity information

SYNOPSIS

```
get_clock_ptp          {-a|--ipmb-address IPMB_ADDRESS}
```

DESCRIPTION

This command is used to display clock point-to-point records. These records describe physical connections among clock ports on AMCs and on-Carrier devices.

The target FRU is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**.

The command displays the following information for each connection:

- Local clock ID
- Remote clock resource ID
- Remote Clock ID
- Remote Resource Type
- Site number

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Carrier Manager	82h – A0h

Table 16: Clock Point-To-Point applicable target Addresses

EXAMPLE

View point-to-point records in the Carrier FRU Information located at address 82h, FRU ID 253:

```
# get_clock_ptp –a 0x82
```

SEE ALSO

```
set_clock_state
get_clock_state
get_carrier_ptp
```

5.6.5 Get Clock State

NAME

`get_clock_state` –display clock status for a given FRU

SYNOPSIS

```
get_clock_state         {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-i|--clock-id CLOCK_ID}
                        [-I|--device-id DEVICE_ID]
```

DESCRIPTION

This command is used to display the clock configuration that is currently enabled on a given FRU. A clock configuration is enabled when there is an E-Keying match between two clock resources. The clock family, clock accuracy, and clock tolerance are compared to find a match. One clock resource must be a clock source, and the other clock resource must be a clock receiver.

The target FRU is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**.

Clock ID is a number used to identify a clock on an AMC or on-Carrier device. Clock IDs for AMCs and backplanes are 1-based and defined by the AdvancedTCA specification. Clock IDs for on-Carrier devices are implementation-dependant, and are relative to the on-Carrier device ID.

The on-Carrier **Device Identifier** must be used when the target FRU is an MCMC.

The command displays the following information for each link:

- Clock State, enabled or disabled
- Clock Direction, source or receiver
- PLL Control Status
- Configuration Descriptor Index
- Clock Family
- Clock Accuracy
- Nominal Clock Frequency

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16

Table 17: Get Clock State applicable target FRUs

EXAMPLE

View the status of Telco Clock A on the AMC located at address 84h, FRU ID 8:

```
# get_clock_state –a 0x84 –f 8 –i 1
```

View the status of clock 1 on on-Carrier device 3 on the MCH located at address 82h, FRU ID 4:

```
# get_clock_state –a 0x82 –f 4 –i 1 –I 3
```

SEE ALSO

```
set_clock_state
get_clock_configuration
get_clock_ptp
```

5.6.6 Get Port State

NAME

`get_port_state` – display link status for a given FRU

SYNOPSIS

```
get_port_state          {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        [-c|--channel-number CHANNEL_NUMBER]
                        [-d|--device-id DEVICE_ID]
```

DESCRIPTION

This command is used to display links that are enabled or disabled on a FRU. A link is enabled when there is an E-Keying match on the remote resource. The link type, extension, and designator are compared to find a match. The asymmetric match fields must be compatible as well.

The target FRU is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**.

Channel Number is a 0-based number used to identify a channel on an AMC or on-Carrier device. The user may specify a target channel. If a target is not specified, the command displays information for all channels.

The on-Carrier **Device Identifier** may also be used to filter results for a given on-Carrier device.

The command displays the following information for each link:

- Channel number
- Lanes used by link
- Link type
- Link extension
- Group ID
- Status of link, whether enabled or disabled

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16

Table 18: Get Port State applicable target FRUs

EXAMPLE

View the status of links on channel 2 for the AMC located at address 82h, FRU ID 5:

```
# get_port_state –a 0x82 –f 5 –c 2
```

View the status of all links with Device ID 7 located on the MCH located at address 82h, FRU ID 4:

```
# get_port_state –a 0x82 –f 4 –d 7
```

SEE ALSO

get_amc_ptp
get_carrier_ptp

5.6.7 Set Clock State

NAME

`set_clock_state` – enable or disable clock.

SYNOPSIS

```
set_clock_state         {-a|--ipmb-address IPMB_ADDRESS)
                        {-f|--fru-id FRU_ID}
                        {-i|--clock-id CLOCK_ID}
                        [[-I|--device-id DEVICE_ID]
                         [-b|--backplane-clock]]
                        {[-s|--clock-source] |
                         [-S|--clock-receiver]}
                        {-d|--disable}

set_clock_state         {-a|--ipmb-address IPMB_ADDRESS)
                        {-f|--fru-id FRU_ID}
                        {-i|--clock-id CLOCK_ID}
                        [[-I|--device-id DEVICE_ID]
                         [-b|--backplane-clock]]
                        {[-s|--clock-source] |
                         [-S|--clock-receiver]}
                        {-e|--enable}
                        {-c|--clock-family CLOCK_FAMILY}
                        {-l|--accuracy-level ACCURACY_LEVEL}
                        {-F|--frequency FREQUENCY}
                        [[-m|--megahertz] |
                         [-k|--kilohertz] |
                         [-h|--hertz]]

set_clock_state         {-a|--ipmb-address IPMB_ADDRESS)
                        {-f|--fru-id FRU_ID}
                        {-i|--clock-id CLOCK_ID}
                        [[-I|--device-id DEVICE_ID]
                         [-b|--backplane-clock]]
                        {[-s|--clock-source] |
                         [-S|--clock-receiver]}
                        {[-U|--pll-use] |
                         [-B|--pll-bypass]}
                        {-c|--clock-family CLOCK_FAMILY}
                        {-l|--accuracy-level ACCURACY_LEVEL}
                        {-F|--frequency FREQUENCY}
                        [[-m|--megahertz] |
                         [-k|--kilohertz] |
                         [-h|--hertz]]
```

DESCRIPTION

This command is used to enable and disable clock sources and receivers.

The target FRU is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**.

Clock ID is a number used to identify a clock on an AMC or on-Carrier device. Clock IDs for AMCs and backplanes are 1-based and defined by the AdvancedTCA specification. Clock IDs for on-Carrier devices are implementation-dependant, and are relative to the on-Carrier device ID.

The **Device ID** identifies an on-Carrier clock device. This field must be specified when enabling or disabling an on-Carrier clock device.

Every clock device is either a clock **Source** or a clock **Receiver**. The **–s** or **–S** option must match the clock device that is being **Enabled** or **Disabled**.

Some clock devices provide an optional PLL circuit. The clock e-keying process will always use the default PLL state of the clock device. The **–U** or **–B** option can be used to force the clock device to **Use** or **Bypass** the PLL. When specifying **–U** or **–B**, the remaining parameters must match the values reported by **get_clock_state**.

The **Clock Family** is used to match clock sources with receivers. It must be provided when enabling a clock or changing the PLL status.

The **Accuracy Level** is smaller for more accurate clocks and larger for less accurate clocks. The specific meaning of an accuracy value is defined per clock family. This field must be provided when enabling a clock or changing the PLL status.

The **Frequency** is the nominal frequency of the clock, and must be provided when enabling a clock or changing the PLL status. The **–m**, **–k** and **–h** options allow the frequency to be specified in **Megahertz**, **Kilohertz**, or simply **Hertz**. By default, hertz is specified.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16

Table 19: Set Clock State applicable target FRUs

EXAMPLE

Enable Telco Clock A on the AMC located at address 82h, FRU ID 8. The clock is a SONET stratum 3 receiver running at 1.544 MHz:

```
# set_clock_state –a 0x82 –f 8 –i 1 –S –e –c 1 –l 60 –F 1544 -k
```

Enable the PLL for Telco Clock A on the AMC located at address 82h, FRU ID 8. The clock is a SONET stratum 3 receiver running at 1.544 MHz:

```
# set_clock_state –a 0x82 –f 8 –i 1 –S -U –c 1 –l 60 –F 1544 -k
```

Disable Telco Clock A on the AMC located at address 82h, FRU ID 8:

```
# set_clock_state –a 0x82 –f 8 –i 1 –S -d
```

Enable clock 1 of on-Carrier device 3 on the MCH located at address 82h, FRU ID 4. The clock is a SONET stratum 3 source running at 8KHz.

```
# set_clock_state –a 0x82 –f 4 –i 1 –I 3 –s –e –c 1 –l 60 –F 8 -k
```

SEE ALSO

get_clock_configuration
get_clock_state

5.7 FRU Management

5.7.1 Activate FRU

NAME

`activate` – activate a FRU, bringing it to M4

SYNOPSIS on

```
activate                {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command brings a FRU from M1 to M4 by clearing the activation-locked bit. This command is typically used in conjunction with deactivate. These commands can restart a FRU remotely, without using the hot-swap handle.

The target FRU is specified using a Carrier Manager's **IPMB Address** and the **FRU Identifier**.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 20: FRU Activation applicable target FRUs

EXAMPLE

Activate the AMC located at address 82h, FRU ID 5:

```
# activate –a 0x82 –f 5
```

SEE ALSO

`deactivate`

5.7.2 Deactivate FRU

NAME

`deactivate` – deactivate a FRU, bringing it to M1

SYNOPSIS

```
deactivate              {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command brings a FRU from M4 to M1 by clearing the deactivation-locked bit. This command can be used to shut down a FRU remotely, without using the hot-swap handle. This command can be used in conjunction with `activate` to re-start a FRU.

The target FRU is specified using a Carrier Manager's **IPMB Address** and the **FRU Identifier**.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 21: FRU Deactivation applicable target FRUs

EXAMPLE

Deactivate the AMC located at address 82h, FRU ID 12:

```
# deactivate –a 0x82 –f 12
```

SEE ALSO

`activate`

5.7.3 FRU Control

NAME

`fru_control` – change the state of a FRU's payload

SYNOPSIS

```
fru_control             {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {[-c|--cold-reset]|
                         [-w|--warm-reset]|
                         [-r|--graceful-reboot]|
                         [-i|--diagnostic-interrupt]|
                         [-q|--quiesce]}
```

DESCRIPTION

This command is used to control a Carrier. Several control commands are available, as described below. The behavior of the FRU's payload in response to these commands will vary according to individual requirements. The command does not change the operational state of the FRU, which is typically M4 or FRU Active. All FRUs must support the Cold Reset control command. Support for the other control commands is optional.

The target FRU is specified using a Carrier's **IPMB Address** and the **FRU Identifier**.

Only one of the following can be specified:

- **Cold Reset** causes a hardware reset, similar to a power-on reset.
- **Warm Reset** causes the payload to reset to a stable condition, preserving its operational state. Some FRUs may not support this control command.
- **Graceful Reboot** initiates a graceful shutdown and reboot of the Payload operating system. Some FRUs may not support this control command.
- **Diagnostic Interrupt** triggers a diagnostic interrupt to the FRU. Some FRUs may not support this control command.
- **Quiesce** brings the payload of a Module to a quiesced state. Some FRUs may not support this control command.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41

PM	82h – A0h	50 – 53

Table 22: FRU Control applicable target FRUs

EXAMPLE

Perform a cold reset of the payload on the AMC located at address 82h, FRU ID 6:

```
# fru_control –a 0x82 –f 6 -c
```

5.7.4 Get Address Information

NAME

`get_address_info` – display the FRU address information

SYNOPSIS

```
get_address_info        [{-a|--ipmb-address IPMB_ADDRESS}
                         {-f|--fru-id FRU_ID}]

get_address_info        [{-a|--ipmb-address IPMB_ADDRESS}
                         {-t|--site-type SITE_TYPE}
                         {-n|--site-number SITE_NUMBER}]
```

DESCRIPTION

This command can be used to determine the hardware address, IPMB address, and FRU ID of a FRU at a known site. It can also be used to determine the site type and number of a FRU at a known address. It also provides the MCH location and MicroTCA Carrier number related to a given FRU.

The user may specify the target FRU using a Carrier Manager's **IPMB Address** and a **FRU Identifier**. If a Carrier Manager is the target, the command displays the information of a given Carrier Manager's MCH.

The target FRU may also be specified using a Carrier Manager's IPMB address, Module **Site Type**, and Module **Site Number**.

Site types are defined in the MicroTCA.0 R1.0 specification as follows:

- 04h = Cooling Unit
- 07h = AdvancedTCA™ Module (Mezzanine)
- 0Ah = MicroTCA Carrier Hub
- 0Bh = Power Module
- C0h - CFh = OEM defined
- FFh = Unknown
- All other values reserved

The site number identifies a specific FRU of a given site type.

The command displays the following information:

- Active MCH site number
- Active MCH IPMB address
- Device IPMB address and FRU ID; defaults to 0 and FFh, respectively, if no device is specified
- Device site type; defaults to 0 if no device is specified
- Device Site ID; defaults to 0 if no device is specified
- Device associated Carrier number; defaults to 0 if no device is specified

APPLICABLE TARGET FRUS

Entity	Access Address	FRU ID(s)	Site Type	Site Number(s)
Shelf Manager	20h	0	N/A	N/A
Carrier Manager	82h – A0h	0	N/A	N/A
MCH	82h – A0h	3 – 4	0Ah	1 – 2
AMC	82h – A0h	5 – 16	07h	1 – 12
CU	82h – A0h	40 – 41	04h	1 – 2
PM	82h – A0h	50 – 53	0Bh	1 – 4

Table 23: Address Info applicable target FRUs

EXAMPLE

View the address information common for all address requests

```
# get_address_info
```

View the address information for the MCH (site type 0Ah) located at address 82h, site number 1:

```
# get_address_info –a 0x82 –n 1 –t 0xA
```

View the address information for the MCH located at address 82h, FRU ID 3:

```
# get_address_info –a 0x82 –f 3
```

View the address information for the active MCH on the Carrier Manager at address 82h:

```
# get_address_info –a 0x82
```

SEE ALSO

`get_location_info`

5.7.5 Get Carrier IP Connection Information

NAME

`get_carrier_ip_connection` – display the system network configuration for the current Carrier, if available

SYNOPSIS

```
get_carrier_ip_connection
```

DESCRIPTION

Note: This command is only available on configurations where the MicroTCA Shelf Manager is present alongside a Carrier Manager on an MCH.

Note: This command is only available in Command Mode.

This command displays the following Carrier Manager system network configuration information:

- Shelf Manager IP address
- Carrier Manager IP address
- Primary Gateway IP address
- Secondary Gateway IP address
- Subnet mask
- MCH 1 IP address
- MCH 2 IP address
- Username for the Carrier Manager to use to communicate with the Shelf Manager
- Password for the Carrier Manager to use to communicate with the Shelf Manager (not displayed for security purposes)

For each of the IP addresses and subnet masks above, a value of 0.0.0.0 indicates that no address is defined.

SEE ALSO

```
get_ip_connection
set_carrier_ip_connection
```

5.7.6 Get Device Identifier

NAME

`get_device_id` – display the FRU device identifier information

SYNOPSIS

```
get_device_id          {-a|--ipmb-address IPMB_ADDRESS}
                       {-f|--fru-id FRU_ID}
```

DESCRIPTION

The command displays the following information about the FRU:

- FRU Device Identifier
- Device Revision
- Firmware Revision
- IPMI Version
- Device support flags
- Manufacturer ID
- Product ID

The target FRU is specified using a MicroTCA Carrier Manager's **IPMB Address** and the **FRU Identifier**.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 24: Get Device ID applicable target FRUs

EXAMPLE

View the FRU device information for the AMC located at address 92h, FRU ID 7:

```
# get_device_id –a 0x92 –f 7
```

SEE ALSO

`get_module_info`

5.7.7 Get Event Receiver Location

NAME

`get_event_receiver` – display the location of the event receiver

SYNOPSIS

```
get_event_receiver      {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command is used to display the location of the event receiver. Most FRUs are event generators. An event generator sends all event messages to its assigned event receiver.

The user must specify an event generator FRU by using the Carrier Manager's **IPMB Address** and the **FRU Identifier.**

The command displays the location of the event receiver by IPMB address and Logical Unit Number (LUN).

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 25: Get Event Receiver applicable target FRUs

EXAMPLE

View the location of the event receiver for the AMC located at address 82h, FRU ID 6:

```
# get_event_receiver –a 0x82 –f 6
```

SEE ALSO

`set_event_receiver`

5.7.8 Get FRU Activation Policy

NAME

`get_fru_activation_policy` – display current activation policy for a FRU

SYNOPSIS

```
get_fru_activation_policy   [{-a|--ipmb-address IPMB_ADDRESS}
                             {-f|--fru-id FRU_ID}]
```

DESCRIPTION

This command is used to display the current FRU activation policy. The activation policy is used during certain state transitions. The activation-locked bit is a software equivalent of the handle switch. The FRU cannot proceed from state M1 to M2 if the activation-locked bit is set. The deactivation-locked bit indicates whether an extraction condition exists. The FRU cannot proceed from state M4 to M5 if the deactivation-locked bit is set.

The user may specify a target FRU by using a Carrier Manager's **IPMB Address** and the **FRU Identifier**. If a target is not specified, the command displays information of the MicroTCA Shelf.

The command displays the following information:

- Activation-locked, whether enabled or disabled
- Deactivation-locked, whether enabled or disabled

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 26: FRU Activation Policy applicable target FRUs

EXAMPLE

Display the FRU activation policy for the AMC located at address 82h, FRU ID 5:

```
# get_fru_activation_policy –a 0x82 –f 5
```

5.7.9 Get FRU Power Levels

NAME

`get_fru_power_levels` – display the power levels information for a given FRU

SYNOPSIS

```
get_fru_power_levels    {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command is used to display the current power level of a given FRU.

The target FRU is specified using the Carrier Manager's **IPMB Address** and the **FRU Identifier**.

The command displays the following power level information for a given FRU:

- Location
- Power draw information:
- Current power level(1 – ON, 0 – OFF)
- Power draw, in watts

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 27: FRU Power Levels applicable target FRUs

EXAMPLE

Display the power level for the AMC located at address 82h, FRU ID 5:

```
# get_fru_power_levels –a 0x82 –f 5
```

SEE ALSO

`set_fru_power_level`

5.7.10 Get FRU State

NAME

`get_fru_state` – display the hot-swap information for a given FRU

SYNOPSIS

```
get_fru_state          {-a|--ipmb-address IPMB_ADDRESS}
                       {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command is used to display the hot-swap information of a given FRU.

The target FRU is specified using the Carrier Manager's **IPMB Address** and the **FRU Identifier**.

The command displays the following information:

- Physical address
- Module name
- Module entity ID/instance
- Current hot-swap state and reason for last state change

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 28: FRU State applicable target FRUs

EXAMPLE

Display the hot-swap information for the Power Module located at address 82h, FRU ID 51:

```
# get_fru_state –a 0x82 –f 51
```

SEE ALSO

```
list_frus_present
list_carriers_present
```

5.7.11 Get FRU Temperature Status

NAME

`get_fru_temperature` – display the status of all temperature sensors for a given FRU

SYNOPSIS

```
get_fru_temperature     {-a|--ipmb-address IPMB_ADDRESS}
                        [-f]--fru-id FRU_ID]
                        [-T|--threshold]
```

DESCRIPTION

This command is used to display the status of all the temperature sensors monitoring a given FRU.

The user must specify a target FRU by using the IPM Controller's **IPMB Address**. A user may also filter results using the **FRU Identifier**.

The command displays the following information for each FRU:

- FRU location
- Device name
- Sensor number
- Current sensor reading

Specifying the **Threshold** option will also display the following:

- Current threshold status
- Normal
- LowerNonCritical
- LowerCritical
- LowerNonRecoverable
- UpperNonCritical
- UpperCritical
- UpperNonRecoverable

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 29: Get FRU Temperature applicable target FRUs

EXAMPLE

Display the temperature status for the Fan Tray located at address 96h, FRU ID 40:

```
# get_fru_temperature –a 0x96 –f 40
```

SEE ALSO

`get_sensor_reading`

5.7.12 Get Module Information

NAME

`get_module_info` – display configuration and hot-swap information for a Module

SYNOPSIS

```
get_module_info          {-a|--ipmb-address IPMB_ADDRESS}
                         {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command displays configuration and hot-swap information for a Module. The information is collected from several sources, including the Module's FRU Inventory Area and the ATCA "Get Device ID" command.

This command displays the following information:

- Location of the Module identified by its physical and logical slot number and IPMB and physical addresses
- Module's device name, device ID, and entity ID / instance (optional)
- Module's FRU ID (normally 0)
- Module's current hot-swap state
- Revision information

The target FRU is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 30: Get Module Information applicable target FRUs

EXAMPLE

View configuration and hot-swap information for the Power Module located at address 84h, FRU ID 51:

```
# get_module_info –a 0x84 –f 51
```

5.7.13 HPM

NAME

`hpm` – upgrade firmware or check version information

SYNOPSIS

```
hpm                     {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-v|--version}

hpm                     {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-F|--file HPM FILE}
```

DESCRIPTION

This command uses the PICMG HPM.1 protocol to upgrade FRUs and check version information.

When used with the –v option, this command displays the following information:

- The name and version of each upgradeable component

When used with the –F option, this command will upgrade the target as directed by the **HPM File**. The target device information is compared to the file, and the upgrade will not proceed if they are not compatible. Progress is displayed during the upgrade.

The target FRU is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 31: hpm applicable target FRUs

EXAMPLE

Show the version information for the Power Module at address 84h, FRU ID 51:

```
# hpm –a 0x84 –f 51 -v
```

Upgrade the AMC at address 84h, FRU ID 5:

```
# hpm –a 0x84 –f 5 –F Upgrade_AMC000_2.1.0.hpm
```

5.7.14 List Device SDRs

NAME

`list_device_sdr` – display a list of SDRs in a given FRU's Device SDR Repository.

SYNOPSIS

```
list_device_sdr         {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command is used to obtain a list of the SDRs in a given FRU's SDR Device Repository.

The target FRU is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**.

The command displays the following information for each SDR:

- Record ID
- Version
- Length of the record
- Entity ID/instance
- Type of record
  - FS – Full sensor
  - CS – Compact sensor
  - EO – Entity only sensor
  - EA – Entity association
  - DREA- Device-Relative entity association
  - GDL – Generic device locator
  - FRUDL – FRU device locator
  - MCDL – Management device locator
  - MCC – Management Controller confirmation
  - BMC – Message channel information
  - OEM
  - Device name

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 32: List Device SDR applicable target FRUs

EXAMPLE

List the SDRs from the repository on the Power Module located at address 82h, FRU ID 51:

```
# list_device_sdr –a 0x82 –f 51
```

SEE ALSO

```
list_sdr
list_sensors
```

5.7.15 List FRU Storage Devices

NAME

`list_fru_storages` – display a list of all the FRU Inventory Devices located in the MicroTCA Shelf.

SYNOPSIS

```
list_fru_storages       [-a|--ipmb-address IPMB_ADDRESS]
```

DESCRIPTION

This command is used to obtain a list of accessible FRU Inventory Devices.

A target may be specified using the MicroTCA Carrier Manager's **IPMB Address**. If a target is not specified, the command displays FRU Inventories on the MicroTCA Shelf Management Controller.

The command displays the following information for each FRU Inventory Device:

- Location
- Entity ID/instance
- Device name

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf	20h
Carrier	82h – A0h

Table 33: FRU Inventories applicable target addresses

EXAMPLE

List the FRU storages on the Carrier located at address 82h:

```
# list_fru_storages –a 0x82
```

SEE ALSO

`read_fru_storage`

5.7.16 List SDRs

NAME

`list_sdr` – display a list of SDRs in the MicroTCA Shelf SDR Repository.

SYNOPSIS

```
list_sdr
```

DESCRIPTION

This command is used to obtain a list of the SDRs in the Shelf SDR Repository. This command displays all the merged SDRs in the Shelf SDR Repository along with the SDRs belonging to FRU address 20h.

The command displays the following information for each SDR:

- Record ID
- Version
- Length of the record
- Entity ID/instance
- Type of record
  - FS – Full sensor
  - CS – Compact sensor
  - EO – Entity only sensor
  - EA – Entity association
  - DREA- Device-Relative entity association
  - GDL – Generic device locator
  - FRUDL – FRU device locator
  - MCDL – Management device locator
  - MCC – Management Controller confirmation
  - BMC – Message channel information
  - OEM
- Device name

SEE ALSO

```
list_device_sdr
list_sensors
```

5.7.17 Read FRU Storage

NAME

`read_fru_storage` – display content from a FRU Inventory Device

SYNOPSIS

```
read_fru_storage          {-a|--ipmb-address IPMB_ADDRESS}
                          {-f|--fru-id FRU_ID}
                          [-B|--board-info]
                          [-P|--product-info]
                          [-C|--chassis_info]
                          [-M|--multi-record]
                          [-T|--multi-record-type MULTI_RECORD_TYPE]
                          [-r|--dump-raw]
```

DESCRIPTION

This command is used to read the content from a FRU Inventory Device.

The target FRU is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**.

A target section or sections of the FRU Inventory Device may be specified. If a target section is not specified, the command displays all sections of the FRU Inventory Device.

Board Info displays the Board Information Area.

Product Info displays the Product Information Area.

Chassis Info displays the Chassis Information Area.

Multi-Record displays the Multi-Record Information Area.

Multi-Record Type displays records with a given PICMG Record ID within the Multi-Record Information Area. Refer to the PICMG specifications for Record ID definitions.

Dump Raw will also include the information in raw format. This option is only applicable for information from the Multi-Record Info Area.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Physical Shelf FRU Info 1	20h	1
Physical Shelf FRU Info 2	20h	2
Logical Shelf FRU Info	20h	254
Carrier Manager	82h – A0h	0
Physical Shelf FRU Info 1	82h – A0h	1
Physical Shelf FRU Info 2	82h – A0h	2
Logical Carrier FRU Info	82h – A0h	253
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 34: Read FRU Inventory Device applicable target FRUs

EXAMPLE

Display the product information from FRU storage on the AMC located at address 82h, FRU ID 5:

```
# read_fru_storage –a 0x82 –f 5 -P
```

Display the OEM PICMG MultiRecord type 4 (Backplane Point-to-Point Connectivity Record) information in raw format from the FRU storage on the Carrier Manager located at address 82h, FRU ID 0:

```
# read_fru_storage –a 0x82 –f 0 –T 4 -r
```

SEE ALSO

`list_fru_storages`

5.7.18 Set Carrier IP Connection Information

NAME

`set_carrier_ip_connection` – modify available network interfaces

SYNOPSIS

```
set_carrier_ip_connection   {[-s|--shelf-ip-address SHELF_IP_ADDRESS]
                             [-c|--carrier-ip-address CARRIER_IP_ADDRESS]
                             [-m|--mch1-ip-address MCH_1_IP_ADDRESS]
                             [-M|--mch2-ip-address MCH_2_IP_ADDRESS]
                             [-n|--netmask SUBNET_MASK]
                             [-g|--gw-address GATEWAY_ADDRESS_0
                             [-G|--gw-address1 GATEWAY_ADDRESS_1]
                             [-U|--username USERNAME]
                             [-P|--password PASSWORD]}
```

DESCRIPTION

This command modifies the network interfaces with which an external application may communicate with the MicroTCA Carrier Manager, and how the Carrier Manager may communicate with a MicroTCA Shelf and MCH(s).

The IP connection record consists of the **Carrier IP Address**, its **Gateway Address 0** and **1**, and **Subnet Mask**. It also contains the **Shelf IP Address**, **MCH 1 IP Address**, and **MCH 2 IP Address**, as well as the username and password to be used to connect to the Shelf. At least one of these values must be specified when adding or modifying a record.

If a value is specified, the record will be updated with the value. If a value is not specified, the current value remains.

The changes will take effect on the next power cycle.

EXAMPLE

Update IP Link record with Carrier IP address 192.168.0.13, gateway address 0 10.1.0.33, and subnet mask 255.255.255.0:

```
# set_carrier_ip_connection –c 192.168.0.13 –g 10.1.0.33 –n
      255.255.255.0
```

Update IP Link record with Carrier IP address 192.168.0.13, gateway address 0 10.1.0.33, and subnet mask 255.255.255.0:

```
# set_carrier_ip_connection –-ip-address 192.168.0.13 –-gw-
      address 10.1.0.33 –-netmask 255.255.255.0
```

Switch Shelf Managers, where the Shelf IP address is 192.168.1.14, username 'root', password 'root':

```
# set_carrier_ip_connection –s 192.168.1.14 –U root –P root
```

Add a redundant MCH with an IP address of 192.168.1.7:

```
# set_carrier_ip_connection –M 192.168.1.7
```

SEE ALSO

get_carrier_ip_connection

5.7.19 Set Carrier Number

NAME

`set_carrier_number` – update the Carrier Number of the current Carrier

SYNOPSIS

```
set_carrier_number      {-i|--carrier-number CARRIER_NUMBER}
```

DESCRIPTION

Note: This command is only available on configurations where the MicroTCA Shelf Manager is present alongside a Carrier Manager on an MCH.

Note: This command is only available in Command Mode.

This command updates the **Carrier Number** for the current Carrier.

The change is applied after restarting the Carrier Manager.

EXAMPLE

Update the current Carrier's Carrier Number to 3:

```
# set_carrier_number –i 3
```

SEE ALSO

`get_address_info`

5.7.20 Set Event Receiver

NAME

`set_event_receiver` – change the location of the event receiver

SYNOPSIS

```
set_event_receiver      {-a|--ipmb-address IPMB_ADDRESS}
                        {-r|--rx-address RECEIVER_IPMB_ADDRESS}
                        {-l|--lun LUN}
```

DESCRIPTION

This command is used to change the location of the event receiver. The IPM Controller sends each event message to the assigned event receiver. This command is only applicable to Carrier Managers that act as IPMB event generators.

The event generator FRU is specified using the Carrier Manager's **IPMB Address**.

The location of the event receiver is identified by using the **Receiver IPMB Address** and **Logical Unit Number (LUN)**.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 35: Set Event Receiver applicable target FRUs

EXAMPLE

Change the location of the event receiver to 20h, LUN 0 for the Carrier Manager located at address 82h:

```
# set_event_receiver –a 0x82 –r 0x20 –l 0
```

SEE ALSO

`get_event_receiver`

5.7.21 Set FRU Extracted

NAME

`set_fru_extracted` – inform the MicroTCA Shelf Manager that the given MicroTCA Carrier or Power Module is no longer installed

SYNOPSIS

```
set_fru_extracted       {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command is used to inform the Shelf Manager that the FRU at a given address is no longer installed. All the information pertaining to this FRU is removed by the Shelf Manager. This command is only supported for extracting Carriers and Power Modules.

The target FRU is specified using the MicroTCA Carrier Manager's **IPMB Address** and the **FRU Identifier**. The command only supports extraction of a Carrier or a Power Module.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Carrier Manager	82h – A0h	0
PM	82h – A0h	50 – 53

Table 36: FRU Activation/Deactivation applicable target FRUs

EXAMPLE

Set the Carrier with a Carrier Manager located at address 82h, FRU ID 0 as extracted:

```
# set_fru_extracted –a 0x82 –f 0
```

Set the Power Module located at address 84h, FRU 51 as extracted:

```
# set_fru_extracted –a 0x84 –f 51
```

SEE ALSO

`list_frus_present`

5.7.22 Set FRU Power Level

NAME

`set_fru_power_level` – set the power level for the given FRU on the MicroTCA Carrier

SYNOPSIS

```
set_fru_power_level     {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-l|--power-level POWER_LEVEL}
```

DESCRIPTION

This command is used to set the power level of the FRU specified.

The target FRU is specified using a Carrier Manager's **IPMB Address** and the **FRU Identifier**.

The **Power Level** is a number used to specify which steady power draw, as returned by the `get_fru_power_levels` command, should be used. The user may set the power level to 0 (off) or 1 (on).

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41

Table 37: Set FRU Power Levels applicable target FRUs

EXAMPLE

Power off the AMC located at address 82h, FRU ID 5:

```
# set_fru_power_level –a 0x82 –f 5 –l 0
```

SEE ALSO

`get_fru_power_levels`

5.7.23 Update FRU Version

NAME

`update_fru_version` – change the product version number for the given FRU

SYNOPSIS

```
update_fru_version      [-a|--ipmb-address IPMB_ADDRESS]
                        [-f|--fru-id FRU_ID]
                        {-v|--version VERSION}
```

DESCRIPTION

This command is used to change the product version number, as stored in the FRU Inventory Device, of the FRU specified.

The user may specify a target FRU by using the IPM Controller's **IPMB Address** and the **FRU Identifier**. If a target is not specified, the command changes the product version number of the MicroTCA Carrier Manager.

If successful, the product version number will be changed to the value specified by **Version**.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 38: Update FRU Version applicable target FRUs

EXAMPLE

Change the product version number of the Power Module located at address 84h, FRU ID 50 to 'PM1.3':

```
# update_fru_version –a 0x84 –f 50 –v PM1.3
```

Change the product version number of the Shelf Manager to 1.2.2:

```
# update_fru_version –-version 1.2.2
```

SEE ALSO

```
read_fru_storage, write_fru_storage
```

5.7.24 Write FRU Storage

NAME

`write_fru_storage` – write data to the FRU Information for the given FRU

SYNOPSIS

```
update_fru_version      {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-F|--file FRU FILE}
```

DESCRIPTION

This command is used to change the data stored in the FRU Inventory Device, of the FRU specified.

The user may specify a target FRU by using the IPM Controller's **IPMB Address** and the **FRU Identifier**. This command writes the contents of **FRU File** to the target FRU, starting at the beginning of the FRU Information device. This operation is not reversible, and can interfere with the operation of the FRU. The FRU Information includes serial numbers and may include GUIDs that should be unique for every device, so the same file should not be written to two different FRUs. Do not use this command unless instructed to by the manufacturer of the target FRU. Normally, the target FRU will require a power cycle for the changes to take effect.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 39: write_fru_storage applicable target FRUs

EXAMPLE

Overwrite the FRU Information of the Power Module at address 84h, FRU ID 50:

```
# write_fru_storage –a 0x84 –f 50 –F fru_3170028
```

SEE ALSO

`read_fru_storage`

5.7.25 Write SDR Repository

NAME

`write_sdr_repository` – update the SDRs in a given FRU's Device SDR Repository.

SYNOPSIS

```
write_sdr_repository    {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-F|--file-name SDR_FILE}
                        [-L|--sdr-alignment BYTES]
                        [-u|--updatemode]
```

DESCRIPTION

This command is used to update the SDRs in a given FRU's SDR Device Repository.

The target FRU is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**. The SDRs to write are stored in the standard IPMI binary format in the **SDR File**. The alignment, in **Bytes**, specifies the alignment of SDRs in the SDR File. For example, with at 16-byte alignment, if an SDR ends on byte 17, the next SDR will not start until byte 32. If no alignment is specified, the SDRs in the file must be contiguous. The **Updatemode** option must be used to update FRUs that only provide a modal SDR.

This operation is not reversible, and can interfere with the operation of the FRU. Do not use this command unless instructed to by the manufacturer of the target FRU. The target FRU may require a power cycle for the changes to take effect.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 40: Write SDR Repository applicable target FRUs

EXAMPLE

Update the SDRs on the Power Module located at address 82h, FRU ID 51:

```
# write_sdr_repository –a 0x82 –f 51 –F sdr –L 16
```

SEE ALSO

```
list_sdr
list_sensors
list_device_sdr
```

5.8 LAN

5.8.1 Get Channel Accessibility Information

NAME

`get_channel_access` – display whether channel is enabled or disabled, whether alerting is enabled or disabled, and under which system modes the channel can be accessed

SYNOPSIS

```
get_channel_access      [-a|--ipmb-address IPMB_ADDRESS]
                        {-c|--channel-number CHANNEL_NUMBER}
                        [-V|--non-volatile]
```

DESCRIPTION

This command is used to check whether the channel is enabled or disabled, whether alerting is enabled or disabled, and under which system modes the channel can be accessed.

The user may specify a target MicroTCA Carrier by using the Carrier Manager's **IPMB Address**. If a target is not specified, the command displays information for the Shelf Manager.

Channel Number is a 0-based index used to identify a messaging channel. To display information for the channel used for the active session, the value 0Eh may be used.

By default, the information is retrieved from volatile (active) storage. Specifying the **Non-volatile** option will retrieve information from non-volatile storage.

The command displays the following information:

- PEF alerting, whether it is enabled or disabled
- Per-message authentication, whether it is enabled or disabled
- User-level authentication, whether it is enabled or disabled
- Access mode
- Channel privilege level limit

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf	20h
Carrier	82h – A0h

Table 41: Channel Access applicable target addresses

EXAMPLE

View the active channel's access settings for the active session:

```
# get_channel_access –c 0xE
```

View the non-volatile channel access for channel 3 on the Carrier Manager located at address 84h:

```
# get_channel_access –a 0x84 –c 3 --non-volatile
```

SEE ALSO

```
get_channel_info
get_channel_cypher_suites
set_channel_access
```

5.8.2 Get Channel Cipher Suites

NAME

`get_channel_cipher_suites` – display supported authentication, integrity, and confidentiality algorithms

SYNOPSIS

```
get_channel_cipher_suites   [-a|--ipmb-address IPMB_ADDRESS]
                            {-c|--channel-number CHANNEL_NUMBER}
                            [-A|--all]
```

DESCRIPTION

This command is used to look up which authentication, integrity, and authentication algorithms are supported for a given LAN channel that supports RMCP+ sessions. This allows the remote console to determine which authentication, integrity, and confidentiality algorithms can be used for establishing the connection. The algorithms are used in combinations called Cipher Suites. This command only applies to IPMI v2.0/RMCP+ sessions.

The user may specify a target MicroTCA Carrier Manager by using the Carrier Manager's **IPMB Address**. If a target is not specified, the command displays information for the Shelf Manager.

Channel Number is a 0-based index used to identify a messaging channel. To display information for the channel used for the active session, the value 0Eh may be used.

By default, only cipher suites using supported algorithms are displayed. To display all cipher suites, specify the **All** option.

The command displays the following information:

- Cipher suite ID
- OEM IANA, if applicable
- Authentication algorithm
- Integrity algorithms
- Confidentiality algorithms

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h

Carrier Manager	82h – A0h

Table 42: Channel Cipher Suites applicable target addresses

EXAMPLE

View all cipher suites on channel 3:

```
# get_channel_cipher_suites –c 3 --all
```

View supported cipher suites on channel 2 for the Carrier Manager located at address 86h:

```
# get_channel_cipher_suites –-ipmb-address 0x86 –-channel-number
      2
```

View supported cipher suites on the channel used for the active session:

```
# get_channel_cipher_suites –c 0xE
```

5.8.3 Get Channel Information

NAME

`get_channel_info` – display media and protocol information about a given channel

SYNOPSIS

```
get_channel_info        [-a|--ipmb-address IPMB_ADDRESS]
                        {-c|--channel-number CHANNEL_NUMBER}
```

DESCRIPTION

This command is used to look up media and protocol information about a given channel. The user can use this command in combination with `get_session_info` to obtain the address of parties with open sessions and their present privilege levels.

The user may specify a target MicroTCA Carrier Manager by using the Carrier Manager's **IPMB Address**. If a target is not specified, the command displays information for the Shelf Manager.

Channel Number is a 0-based index used to identify a messaging channel. To display information for the channel used for the active session, the value 0Eh may be used.

The command displays the following information:

- Channel number
- Channel medium type
- Channel protocol type
- Session support
  - Session-less
  - Single-session
  - Multi-session
  - Session-based
- Number of active sessions
- Vendor IANA enterprise number

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 43: Channel Information applicable target addresses

EXAMPLE

View information about the channel used for the active session on the Shelf Manager:

```
# get_channel_info –c 0xE
```

View information about channel 2 for the Carrier Manager located at address 82h:

```
# get_channel_info –a 0x82 –c 2
```

SEE ALSO

```
get_channel_access
get_channel_cipher_suites
get_session_info
```

5.8.4 Get IP Connection Information

NAME

`get_ip_connection` – display system network configuration

SYNOPSIS

```
get_ip_connection       [-a|--ipmb-address IPMB_ADDRESS]
```

DESCRIPTION

This command is used to view the system network configuration with which an external application may communicate with the MicroTCA Shelf Manager. As well, a user may specify an **IPMB Address** to retrieve the system network configuration with which an external application may communicate with a MicroTCA Carrier Manager, and how the Carrier Manager may communicate with the MicroTCA Shelf Manager and MCH(s).

By default, the command will return the following Shelf system network configuration information:

- Primary Shelf IP address
- Primary Gateway IP Address
- Primary Subnet mask
- Secondary Shelf IP address
- Secondary Gateway IP Address
- Secondary Subnet mask

The command displays the following Carrier Manager system network configuration information if a Carrier Manager address is given:

- Shelf IP address
- Carrier IP address
- Primary Gateway IP address
- Secondary Gateway IP address
- Subnet mask
- MCH 1 IP address
- MCH 2 IP address
- Username for the Carrier to use to communicate with the Shelf
- Password for the Carrier to use to communicate with the Shelf (not displayed for security purposes)

For each of the IP addresses and subnet masks above, a value of 0.0.0.0 indicates that no address is defined.

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 44: Get IP Connection applicable target addresses

EXAMPLE

Display the system network configuration for the Carrier Manager located at address 84h:

```
# get_ip_connection –a 0x84
```

Display the system network configuration for the Shelf Manager:

```
# get_ip_connection
```

SEE ALSO

`set_ip_connection`

5.8.5 Get LAN Configuration Parameters

NAME

`get_lan_config_parameters` – display parameters related to IPMI LAN operation, such as the network addressing information

SYNOPSIS

```
get_lan_config_parameters   {-c|--channel-number CHANNEL_NUMBER}
                            {-p|--parameter PARAMETER_SELECTOR}
                            [-s|--set SET_SELECTOR]
                            [-r|--dump-raw]

get_lan_config_parameters   {-c|--channel-number CHANNEL_NUMBER}
                            {-R|--revision-only}
```

DESCRIPTION

This command displays the parameters, such as the network addressing information, required for IPMI LAN operation.

Specifying the **Revision Only** option will display the parameters' revision.

Specifying the **Dump Raw** option will display the following, as well as the message response in raw hexadecimal format.

Channel Number is a 0-based index used to identify a messaging channel. To display information for the channel used for the active session, the value 0Eh may be used.

Parameter Selector is a 0-based index used to identify a setting parameter. The following parameters are supported:

0 = Set in progress. This parameter is used to indicate when LAN parameters are being updated, and when the updates are completed.
- Complete
- In progress

1 = Authentication type support. This displays the possible authentication types (algorithms) that are available for the given channel.
- MD2
- MD5
- Straight password/key
- OEM proprietary

2 = Authentication type enables. This displays the authentication types (algorithms) that are available for use when a remote session activates a connection for a requested maximum privilege level.
3 = IP address
4 = IP address source
- Static address (manually configured)
- Address obtained by BMC running DHCP
- Address loaded by BIOS or system software
- Address obtained by BMC running other address assignment protocol
- Unspecified

5 = MAC address
6 = Subnet mask
7 = IPv4 header parameters
- Time-to-live parameter in IP header for RMCP packets and PET traps transmitted from this channel
- Value of bit 1 in Flags field in the IP header for packets transmitted by this channel
- Type of service
- Precedence

12 = Default gateway address
13 = Default gateway MAC address
14 = Backup gateway address
15 = Backup gateway MAC address
16 = Community string. This value is used to fill in the 'Community String' field in a PET trap.
17 = Number of destinations
18 = Destination type
- Destination type
- Whether alert is acknowledged
- Alert acknowledge timeout / retry interval
- Number of alert retries to given destination

19 = Destination addresses
- Address format
- Address
- Gateway, whether default or backup
- Alerting MAC address

20 = 802.1q VLAN ID
- 12-bit VLAN ID
- VLAN ID, whether enabled or disabled

21 = 802.1q VLAN priority. This value is used for Priority field of 802.1q fields.
22 = RMCP+ messaging cipher suite entry support. This parameter provides a count of the number of cipher suites available to be enabled for use with IPMI messaging on the given channel.

23 = RMCP+ messaging cipher suite entries. This parameter contains the cipher suite IDs for cipher suites that can be used for establishing an IPMI messaging session.
24 = RMCP+ messaging cipher suite privilege levels. This parameter assigns a maximum privilege level for each cipher suite.
- Callback
- User
- Operator
- Administrator
- OEM proprietary

25 = Destination address VLAN TAGs
- Whether VLAN TAG is used
- VLAN TAG

For the following parameters, the user may specify a target destination using the **Set Selector**. The set (destination) selector is a 0-based index. Destination 0 is always present as a volatile destination that is used with the `snmp_trap_test` command. If a target is not specified, the command displays information for all sets (destinations).

- 18 = Destination type
- 19 = Destination addresses
- 25 = Destination address VLAN TAGs

The command displays a given parameter setting, as described above.

EXAMPLE

View the primary RMCP port number (parameter 8) on the channel used for the active session:

```
# get_lan_config_parameters --channel-number 0xE --parameter 8
```

View all available destination addresses (parameter 19) on channel 3, and display the raw information:

```
# get_lan_config_parameters –c 3 –p 19 -r
```

View the destination type (parameter 18) for the destination with index 5 on channel 2:

```
# get_lan_config_parameters –c 2 –p 18 –s 5
```

View the LAN configuration parameter revision number for channel 4:

```
# get_lan_config_parameters –c 4 –r
```

SEE ALSO

`set_lan_config_parameters`

5.8.6 Get Session Information

NAME

`get_session_info` – display session information

SYNOPSIS

```
get_session_info        [-a|--ipmb-address IPMB_ADDRESS]
                        [-I|--session-index SESSION_INDEX]

get_session_info        [-a|--ipmb-address IPMB_ADDRESS]
                        [-h|--session-handle SESSION_HANDLE]
```

DESCRIPTION

This command is used to get information regarding which users presently have active sessions, and, when available, addressing information for the user that has established the session.

The user may specify a target MicroTCA Carrier Manager by using a Carrier Manager's **IPMB Address**. If a target is not specified, the command displays information for the Shelf Manager.

The user may also specify a target session by **Session Index** or **Session Handle.** The session index is used to select the entry in the active sessions table, based on its location within the table. The session handle is a 1-based number used to identify a specific session. If a target is not specified, the command displays information about the active session.

The command displays the following information:

- Number of possible active sessions
- Number of currently active sessions

The command also displays the following information if an active session is found:

- Session handle
- User ID
- Operating privilege level
- Channel number
- IPMI/RMCP version (for 802.3 LAN channel types)
- IP address of remote console
- MAC address of remote console
- Port number of remote console

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 45: Get Session Info applicable target addresses

EXAMPLE

View session information for active session on the Shelf:

```
# get_session_info
```

View session information for the session with session handle 3 on the Carrier Manager located at address 86h:

```
# get_session_info –a 0x86 –h 3
```

View session information for the session with session index 1 on the Carrier Manager located at address 86h:

```
# get_session_info –a 0x86 –I 3
```

SEE ALSO

`get_channel_info`

5.8.7 List Active Sessions

NAME

`list_active_sessions` – display a list of active sessions

SYNOPSIS

```
list_active_sessions    [-a|--ipmb-address IPMB_ADDRESS]
```

DESCRIPTION

This command is used to display a list of active sessions for a given channel.

The user may specify a target MicroTCA Carrier Manager by using the Carrier Manager's **IPMB Address**. If a target is not specified, the command displays information for the Shelf Manager.

The command displays the following information for each active session:

- Session Index
- Session handle
- Channel number
- IP address used by the session
- Port used by the session
- User ID
- Operating privilege level

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 46: List Active Sessions Applicable Target addresses

EXAMPLE

List active sessions on the Carrier Manager located at address 82h:

```
# list_active_sessions –a 0x82
```

SEE ALSO

`get_session_info`

5.8.8 Set Channel Access

NAME

`set_channel_access` – modify whether channel is enabled or disabled, whether alerting is enabled or disabled, and privilege level limit

SYNOPSIS

```
set_channel_access      [-a|--ipmb-address IPMB_ADDRESS]
                        {-c|--channel-number CHANNEL_NUMBER}
                        {[-A|--pef-enable 0|1]
                         [-M|--per-msg-auth 0|1]
                         [-U|--user-level-auth 0|1]
                         [-l|--privilege-limit PRIVILEGE_LEVEL]
                         [-V|--non-volatile]}
```

DESCRIPTION

Session-based channels can be configured to provide IPMI messaging access only when the system is in certain states. This allows the system user to configure various levels of security and remotely-accessible features. This command is used to enable/disable PEF alerting, per-message authentication, and user-level authentication, as well as changing the system mode.

The user may specify a target MicroTCA Carrier Manager by using the Carrier Manager's **IPMB Address**. If a target is not specified, the command displays information for the Shelf Manager.

Channel Number is a 0-based index used to identify a messaging channel. To display information for the channel used for the active session, the value 0Eh may be used.

By default, only the information in volatile (active) settings is changed. Specifying the **Non-volatile** option will change information for both volatile and non-volatile settings. The volatile (active) settings are overwritten from the non-volatile settings whenever the system is reset or powered on.

One or more of the following can be enabled (**1**) or disabled (**0**):

- **PEF Alerting:** Enabling PEF alerting has no effect when alerting is disabled on the system, as reported in `get_snmp_trap_info`.
- **Per-Message Authentication**: Whether authentication is required to activate any session
- **User-Level Authentication**: Whether all User Level commands are to be authenticated

A maximum **Privilege Level** can be set on a given channel. This is the maximum privilege level that can be accepted on the channel:

- 01h = Callback
- 02h = User
- 03h = Operator
- 04h = Administrator
- 05h = OEM

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 47: Channel Access Setup applicable target addresses

EXAMPLE

Enable PEF alerting, disable user-level authentication in volatile storage for channel 3 on the Shelf Manager:

```
# set_channel_access –c 3 –A 1 –U 0
```

Change maximum privilege level to operator in non-volatile storage on the channel used for the active session on the Carrier Manager located at address 84h:

```
# set_channel_access –a 0x84 –c 0xE –l 3 –V
```

SEE ALSO

```
get_channel_access
get_channel_cipher_suites
get_snmp_trap_info
```

5.8.9 Set IP Connection Information

NAME

`set_ip_connection` – modify available network interfaces

SYNOPSIS

```
set_ip_connection       {[-a|--ip-address0 SHELF_IP_ADDRESS]
                         [-g|--gw-address0 GATEWAY_ADDRESS]
                         [-n|--netmask0 SUBNET_MASK]
                         [-A|--ip-address1 SHELF_IP_ADDRESS]
                         [-G|--gw-address1 GATEWAY_ADDRESS]
                         [-N|--netmask1 SUBNET_MASK]}
```

DESCRIPTION

This command modifies the network interfaces with which an external application may communicate with the MicroTCA Shelf Manager.

The IP connection record consists of the Shelf **IP Address,** both primary and secondary, and their respective **Gateway Address** and **Subnet Mask**. At least one of these values must be specified when adding or modifying a record.

If a value is specified, the record will be updated with the value. If a value is not specified, the current value remains.

The changes will take effect on the next power cycle.

EXAMPLE

Update the primary addresses in the Shelf's IP Link record with IP address 192.168.0.13, gateway address 0 10.1.0.33, and subnet mask 255.255.255.0:

```
# set_ip_connection –a 192.168.0.13 –g 10.1.0.33 –n 255.255.255.0
```

Update the secondary addresses in the Shelf's IP link record with IP address 192.168.0.13, gateway address 0 10.1.0.33, and subnet mask 255.255.255.0:

```
# set_ip_connection –-ip-address1 192.168.0.13 –-gw-address1
      10.1.0.33 –-netmask1 255.255.255.0
```

SEE ALSO

`get_ip_connection`

5.8.10 Set LAN Configuration Parameters

NAME

`set_lan_config_parameters` – modify parameters required for IPMI LAN operation, such as the network addressing information

SYNOPSIS

```
set_lan_config_parameters   {-c|--channel-number CHANNEL_NUMBER}
                            {-p|--parameter PARAMETER_SELECTOR}
                            {[-d|--data DATA] |
                             [-S|--string STRING]}
```

DESCRIPTION

This command modifies the parameters, such as the network addressing information, required for IPMI LAN operation.

Channel Number is a 0-based index used to identify a messaging channel. To display information for the channel used for the active session, the value 0Eh may be used.

Parameter Selector is a 0-based index used to identify a setting parameter. All changes are saved to both volatile and non-volatile storages. The following parameters are supported:

0 = Set in progress. This parameter is used to specify when LAN parameters are being updated, and when the updates are completed.
- Complete
- In progress

2 = Authentication type enables. This parameter is used to specify the authentication types (algorithms) that are available for use when a remote session activates for each privilege level.
- Callback
- User
- Operator
- Administrator
- OEM proprietary

3 = IP address

4 = IP address source
- Static address (manually configured)
- Address obtained by BMC running DHCP
- Address loaded by BIOS or system software
- Address obtained by BMC running other address assignment protocol

- Unspecified

5 = MAC address
6 = Subnet mask
7 = IPv4 header parameters
- Time-to-live parameter in IP header for RMCP packets and PET traps transmitted from this channel
- Value of bit 1 in Flags field in the IP header for packets transmitted by this channel
- Precedence
- Type of service

12 = Default gateway address
13 = Default gateway MAC address
14 = Backup gateway address
15 = Backup gateway MAC address
16 = Community string; used to fill in the 'Community String' field in a PET trap.
18 = Destination type
- Destination selector
- Destination type
- Whether alert is acknowledged
- Alert acknowledge timeout / retry interval
- Number of alert retries to given destination

19 = Destination addresses
- Destination selector
- Address format
- Address
- Gateway, whether default or backup
- Alerting MAC address

20 = 802.1q VLAN ID
- VLAN ID, whether enabled or disabled
- 12-bit VLAN ID

21 = 802.1q VLAN priority. This parameter is used for Priority field of 802.1q fields.
24 = RMCP+ messaging cipher suite privilege levels. This parameter assigns a maximum privilege level for each cipher suite.
- Callback
- User
- Operator
- Administrator
- OEM proprietary

25 = Destination address VLAN TAGs
- Destination selector
- Whether VLAN TAG is used
- VLAN TAG

Data is a variable length list of byte values in hexadecimal. The length varies by parameter. Refer to the "Set PEF Configuration Parameters Command" section of the Intelligent Platform Management Interface Specification v2.0. If specifying a community string, the String option may be used instead.

EXAMPLE

Change the primary RMCP port (parameter 8) to 623 on the channel used for the active session:

```
# set_lan_config_parameters –-channel-number 0xE --parameter 8 --
      data "6f 02"
```

Change the IP address (parameter 19) to 10.1.12.33, using the backup gateway, for the destination with index 5 on channel 2:

```
# set_lan_config_parameters –c 2 –p 19 –d "05 00 01 0a 01 0c 21
      00 00 00 00 00 00"
```

Change the community string (parameter 16) to "testing" on channel 3:

```
# set_lan_config_parameters –c 3 –p 16 –S testing
```

SEE ALSO

get_lan_config_parameters

5.8.11 Set Session Privilege Level

NAME

`set_session_privilege_level` – request ability to perform operations at a particular privilege level for the active session

SYNOPSIS

```
set_session_privilege_level  {-p|--privilege-level PRIVILEGE_LEVEL}
```

DESCRIPTION

This command requests the ability to perform operations at a particular privilege level for the active session. The command can only be used to set privilege levels that are less than or equal to the privilege level limit for the entire channel, regardless of the privilege level of the user making the request.

This command is only relevant for a CLI used in **Interactive Mode**. See **Section 2.3: Starting the CLI** for more details on this mode.

Privilege Level can be one of the following:

- 00h = No change, just return privilege level
- 01h = Callback
- 02h = User
- 03h = Operator
- 04h = Administrator
- 05h = OEM

The command displays the new current operating privilege level for the active session.

EXAMPLE

Request a change to operator privilege level for the active session:

```
set_session_privilege_level –p 3
```

SEE ALSO

```
get_channel_access
get_session_info
get_user_access
```

5.9 LED

5.9.1 Get LED Color Capabilities

NAME

`get_led_color_capabilities` – display a list of LEDs and the colors supported by each for the given FRU

SYNOPSIS

```
get_led_color_capabilities   {-a|--ipmb-address IPMB_ADDRESS}
                             {-f|--fru-id FRU_ID}
                             [-i|--led-id LED_ID]
```

DESCRIPTION

This command is used to display a list of LEDs and the colors supported by them for a given FRU.

The target FRU is specified using the Carrier Manager's **IPMB Address** and the **FRU Identifier**.

LED ID is a 0-based number used to identify an LED. The user may specify a target LED. If a target is not specified, the command displays information for all LEDs on a given Management Controller.

- List of colors supported
- Default color when in local control state
- Default color when in override state

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 48: LED Color Capabilities applicable target FRUs

EXAMPLE

View the colors supported by LED 3 for the AMC located at address 82h, FRU ID 5:

```
# get_led_color_capabilities –a 0x82 –f 5 –i 3
```

SEE ALSO

```
get_led_properties
get_led_state
```

5.9.2 Get LED Properties

NAME

`get_led_properties` – display a list of LEDs controlled by the given FRU

SYNOPSIS

```
get_led_properties      {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command is used to display a list of LEDs controlled by the given Management Controller. LEDs are separated into general status LEDs and application specific LEDs.

The target FRU is specified using a Carrier Manager's **IPMB Address** and the **FRU Identifier**.

The command displays the following information:

- Name of all general status LEDs, if any; otherwise, specifies "None"
- Number of application specific LEDs

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 49: Get LED Properties applicable target FRUs

EXAMPLE

View the list of LEDs on the AMC at address 82h, FRU ID 5:

```
# get_led_properties –a 0x82 –f 5
```

SEE ALSO

```
get_led_color_capabilities
get_led_state
```

5.9.3 Get LED State

NAME

`get_led_state` – display the state for a given LED

SYNOPSIS

```
get_led_state           {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        [-i|--led-id LED_ID]
```

DESCRIPTION

This command is used to display the state of a FRU's LED(s), including whether a Lamp Test or Override State are enabled for it.

The target FRU is specified using the Carrier Manager's **IPMB Address** and the **FRU Identifier**.

LED ID is a 0-based number used to identify an LED. The user may specify a target LED. If a target is not specified, the command displays information for all LEDs on a given Management Controller.

The command displays the following information for each LED:

- Whether local control state is supported
- Lamp test duration, if lamp test is enabled
- Override state and color, if override is enabled
- On and off duration, if override (blinking) is enabled
- Local state and color

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 50: Get LED State applicable target FRUs

EXAMPLE

View the state of LED 1 on the AMC at address 96h, FRU ID 12:

```
# get_led_state –a 0x96 –f 12 –i 1
```

View the state of all LEDs on the Power Module located at address 86h, FRU ID 50:

```
# get_led_state –a 0x86 –f 50
```

SEE ALSO

set_led_state

5.9.4 Set LED State

NAME

`set_led_state` – set the state for a given LED

SYNOPSIS

```
set_led_state           {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-i|--led-id LED_ID}
                        {-o|--on-override}
                        [-c|--color COLOR]

set_led_state           {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-i|--led-id LED_ID}
                        {-x|--off-override}

set_led_state           {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-i|--led-id LED_ID}
                        {-b|--blink}
                        {-D|--off-duration OFF_DURATION}
                        {-U|--on-duration ON_DURATION}
                        [-c|--color COLOR]

set_led_state           {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-i|--led-id LED_ID}
                        {-l|--lamp-test}
                        {-U|--on-duration ON_DURATION}

set_led_state           {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-i|--led-id LED_ID}
                        {-r|--restore-local}
```

DESCRIPTION

This command is used to set the state for a given LED.

The target FRU is specified using the Carrier Manager's **IPMB Address** and the **FRU Identifier**.

LED ID is a 0-based number used to identify an LED. The user must specify a target LED. For lamp tests, the value FFh may be used to test all LEDs controlled by a given Management Controller.

Only one of the following can be specified:

- **On override** puts the LED in override state and turns on the LED.
- **Off override** puts the LED in override state and turns of the LED.
- **Blinking** puts the LED in override state and blinks the LED. The time the LED is on and off is specified by On Duration and Off Duration, in tens of milliseconds. Valid range of duration is 10ms – 2.5s.
- **Lamp Test** turns on the LED for the time, in hundreds of milliseconds, specified in On Duration. Valid range of duration is 100ms – 12.8s.
- **Restore Local** puts the LED in local control state and sets the LED to the default local control state.

Color may be specified if the LED is in override on or blinking state.

- 1h = Blue
- 2h = Red
- 3h = Green
- 4h = Amber
- 5h = Orange
- 6h = White
- Eh = Do not change
- Fh = Use default color
- All other values reserved

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 51: Set LED State applicable target FRUs

EXAMPLE

Turn off LED 2 on the MCH located at address 82h, FRU ID 3:

```
# set_led_state –a 0x82 –f 3 –i 2 -x
```

Turn on LED 1 using the color green (3) on the MCH located at address 82h, FRU ID 3:

```
# set_led_state –-ipmb-address 0x82 –-fru-id 3 –-led-id 1 –-on-
      override –-color 3
```

Blink LED 1 on the MCH located at address 82h, FRU ID 3 for 200 milliseconds and off for 300 milliseconds:

```
# set_led_state –a 0x82 –f 3 –i 1 –b –U 20 –D 30
```

Lamp test LED 1 on the AMC located at address 88h, FRU ID 8 for 2 seconds:

```
# set_led_state –a 0x88 –f 8 –i 1 –l –U 20
```

Restore local control to LED 3 on the AMC located at addresss 84h, FRU ID 5:

```
# set_led_state –a 0x84 –f 5 –i 3 -r
```

SEE ALSO

```
get_led_color_capabilities
get_led_state
```

5.10 Power Management

5.10.1 Get Power Channel Status

NAME

`get_power_channel_status` – display the status for a given channel(s).

SYNOPSIS

```
get_power_channel_status   {-a|--ipmb-address IPMB_ADDRESS}
                           {-f|--fru-id FRU_ID}
                           [-c|--power-channel-number
                           POWER_CHANNEL_NUMBER]
```

DESCRIPTION

A MicroTCA Chassis and all its Modules are provided payload power by one or more Power Modules. This command is used to display information about the current status of the channels for which a Power Module is providing power.

The target Power Module is specified using the Power Module's IPM Controller's **IPMB Address** and the **FRU Identifier**.

Power Channel Number is a 1-based index used to identify a specific MicroTCA Power Channel within a Power Module. The user may specify a target power channel number. If a target is not specified, the command displays information for all power channels.

The command displays global power status and channel-specific power status:

- Power Module address
- Device Name
- Entity ID/Instance
- FRU state
- Power Module role
- Management power status (healthy/unhealthy)
- Payload power status (healthy/unhealthy)
- Count of power channels associated with this Power Module

For each power channel, the following information is displayed:

- Module name
- PS1# signal asserted/de-asserted
- Enable signal asserted/de-asserted
- Management power on/off and status (healthy/unhealthy)
- Payload power on/off and status (healthy/unhealthy)
- Channel power on/off

Lastly, the command displays whether or not the redundant Power Module is providing payload power.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
PM	82h – A0h	50 – 53

Table 52: Power Channel Status applicable target FRUs

EXAMPLE

View the power channel status for power channel 5 on the Power Module located at address 82h, FRU ID 50:

```
# get_power_channel_status –a 0x82 –f 50 –c 5
```

View the status of all power channels on the Power Module located at address 92h, FRU ID 51:

```
# get_power_channel_status –a 0x92 –f 51
```

SEE ALSO

```
get_power_feed_status
get_power_management_info
get_power_policy
power_feed_control
power_feed_reset
```

5.10.2 Get Power Feed Status

NAME

`get_power_feed_status` – display the Power Module status for a given Power Module

SYNOPSIS

```
get_power_feed_status   {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
```

DESCRIPTION

This command requires a redundant Power Module. The system will locate a secondary Power Module to query about a given Power Module.

The target Power Module is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**.

The command displays the following information:

- FRU address
- Device name
- Entity ID/Instance
- FRU hot-swap state, previous state
- Role, whether primary or redundant
- Power Module status (healthy/unhealthy)
- Management power status (healthy/unhealthy)
- Payload power status (healthy/unhealthy)
- Whether the redundant Power Module is supplying power or not

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
PM	82h – A0h	50 – 53

Table 53: Power Feed Status applicable target FRUs

EXAMPLE

View the Power Module status for the Power Module located at address 82h, FRU ID 50:

```
# get_power_feed_status –a 0x82 –f 50
```

SEE ALSO

```
get_power_channel_status
get_power_management_info
get_power_policy
power_feed_control
power_feed_reset
```

5.10.3 Get Power Management Information

NAME

`get_power_management_info` – display FRU activation sequence

SYNOPSIS

```
get_power_management_info   {-a|--ipmb-address IPMB_ADDRESS}
```

DESCRIPTION

The **IPMB Address** identifies a Carrier Manager.

See `get_fru_activation_sequence` for details.

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Carrier Manager	82h – A0h

Table 54: Get Power Management Info applicable target FRUs

EXAMPLE

View the FRU activation sequence for the FRUs on the Carrier located at address 82h:

```
# get_power_management_info –a 0x82
```

SEE ALSO

```
get_fru_activation_sequence
get_power_channel_status
get_power_feed_status
power_feed_control
power_feed_reset
```

5.10.4 Get Power Policy

NAME

`get_power_policy` – display the power policy configuration

SYNOPSIS

```
get_power_policy        {-a|--ipmb-address IPMB_ADDRESS}
```

DESCRIPTION

The **IPMB Address** identifies a Carrier Manager.

This command displays the following information for all configured Power Feeds:

- Power Module role (primary or redundant)
- Site number
- Maximum current override (amps)
- Associated power channels

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Carrier Manager	82h – A0h

Table 55: Power Policy applicable target addresses

EXAMPLE

View the power policy for the FRUs located on the Carrier at address 82h:

```
# get_power_policy –a 0x82
```

SEE ALSO

```
get_power_channel_status
get_power_feed_status
get_power_management_info
power_feed_control
power_feed_reset
```

5.10.5 Power Feed Control

`power_feed_control` – send a Chassis control request to a given Power Module

SYNOPSIS

```
power_feed_control      {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {[-d|--power-down] |
                         [-u|--power-up] |
                         [-r|--hard-reset] |
                         [-i|--diagnostic-interrupt] |
                         [-s|--soft-shutdown]}
```

DESCRIPTION

This command provides power control, reset, and diagnostic interrupt control of a given Power Module. The implementation of the command is optional, and may not be supported in some Power Modules.

The target Power Module is specified using the IPM Controller's **IPMB Address** and the **FRU Identifier**.

Only one of the following can be specified:

- **Power Down** forces the system into the SOFT OFF state. This is for emergency management power down actions.
- **Power Up** can be used to power up the Power Module.
- **Hard Reset** can be used to pulse the system reset signal regardless of the power state.
- **Diagnostic Interrupt** will pulse a version of a diagnostic interrupt that goes directly to the processor. This is typically used to cause the operating system to do a diagnostic dump. This may not be available in some implementations.
- **Soft Shutdown** behaves similarly to power down.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	Target FRU(s)
PM	82h – A0h	50 – 53

Table 56: Power Feed Control applicable target FRUs

EXAMPLE

Send a power-down request to the Power Module located at address 82h, FRU ID 51:

```
# power_feed_control –a 0x82 –f 51 –d
```

Send a power-up request to the Power Module located at address 84h, FRU ID 50:

```
# power_feed_control –a 0x84 –f 50 --power-up
```

SEE ALSO

chassis_control
get_power_feed_status

5.10.6 Power Feed Reset

NAME

`power_feed_reset` – reset a given Power Module

SYNOPSIS

```
power_feed_reset        {-a|--ipmb-address IPMB_ADDRESS}
                        {-f|--fru-id FRU_ID}
                        {-F|--reset-fru-id FRU_ID}
```

DESCRIPTION

This command will reset a Power Module. This is done by sending the reset request to another present Power Module.

FRU ID and **Reset FRU ID** is the FRU identifier of a present Power Module and the Power Module to be reset, respectively.

APPLICABLE TARGET FRUS

Entity	Access Address(es)
PM	82h – A0h

Table 57: Reset Power Feed applicable target addresses

EXAMPLE

Reset the Power Module located at address 84h, FRU ID 51 with the Power Module located at address 84h, FRU ID 50:

```
# power_feed_reset –a 0x84 –f 50 –F 51
```

SEE ALSO

`get_power_feed_status`
`power_feed_control`

5.11 System Event Log

5.11.1 Clear SEL

NAME

`clear_sel` – erase the contents of a System Event Log

SYNOPSIS

```
clear_sel               [-a|--ipmb-address IPMB_ADDRESS]
                        [-f|--fru-id FRU_ID]
```

DESCRIPTION

This command is used to clear the System Event Log.

The target SEL is specified using its IPM Controller's **IPMB Address** and the **FRU Identifier**. If a target is not specified, the command clears the Shelf Manager's System Event Log.

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 58: SEL Clear applicable target FRUs

EXAMPLE

Clear the System Event Log on the Carrier Manager located at address 82h, FRU ID 0:

```
# clear_sel –a 0x82 –f 0
```

Clear the Shelf Manager's System Event Log:

```
# clear_sel
```

SEE ALSO

```
get_sel
get_sel_info
```

5.11.2 Get SEL

NAME

`get_sel` – display the contents of a System Event Log

SYNOPSIS

```
get_sel                 [-a|--ipmb-address IPMB_ADDRESS]
                        [-f|--fru-id FRU_ID]
                        [{-i|--item INDEX]} |
                         {[-s|--sensor-type SENSOR_TYPE]
                          [-A|--fru-address GENERATING_IPMB_ADDRESS]
                          [-S|--sensor-number SENSOR_NUMBER]}]
                        [{-r|--dump-raw} | {-v|--verbose}]
```

DESCRIPTION

This command is used to display the contents of the System Event Log. The System Event Log is a non-volatile repository for system events and certain system configuration information.

The user may specify a target FRU by using its IPM Controller's **IPMB Address** and the **FRU Identifier**. If a target is not specified, the command displays items from the Shelf Manager's System Event Log.

By default, all entries of the System Event Log are displayed.

Sensor Type displays only the entries in the System Event Log that are generated by sensors matching a given sensor type.

Generating IPMB Address displays only the entries in the System Event Log that are generated by the FRU matching a given IPMB address.

Sensor Number displays only the entries in the System Event Log that are generated by sensors matching a given sensor number.

Index displays the System Event Log entry with event ID matching a given index.

Verbose will interpret events from hot-swap, temperature, voltage, and IPMB-0 status sensors.

Dump Raw will convert the values into the response's hexadecimal values.

The command displays the following information:

- Date/timestamp
- Event ID
- Generator FRU
- Event revision
- Sensor type/number
- Event direction
- Event type
- Event data 1
- Event data 2
- Event data 3

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 59: SEL Query Events applicable target FRUs

EXAMPLE

Display the System Event Log on the FRU located at address 84h, FRU ID 0:

```
# get_sel –a 0x84 –f 0
```

Display the Shelf Manager's System Event Log:

```
# get_sel
```

Display entries from the System Event Log that are generated by hot-swap sensors:

```
# get_sel –s 0xF0
```

Display entries from the System Event Log that are generated by temperature sensors, with interpretation

```
# get_sel –s 0x1 -v
```

Display entries from the System Event Log that are generated by FRUs located at address 82h and with sensors of type 01h, in raw format:

```
# get_sel –A 0x82 –s 1 -r
```

SEE ALSO

`get_sel_info`

5.11.3 Get SEL Information

NAME

`get_sel_info` – display information about a Management Controller's System Event Log

SYNOPSIS

```
get_sel_info            [-a|--ipmb-address IPMB_ADDRESS]
                        [-f|--fru-id FRU_ID]
```

DESCRIPTION

This command is used to display information about the System Event Log. The System Event Log is a non-volatile repository for system events and certain system configuration information.

The user may specify a target SEL by using its IPM Controller's **IPMB Address** and the **FRU Identifier**. If a target is not specified, the command displays information about the Shelf Manager's System Event Log.

The command displays the following information:

- SEL version
- Number of events logged
- Available free space
- Timestamp of most recent addition
- Timestamp of most recent erasure
- Command support
- Delete SEL
- Partial add SEL entry
- Reserve SEL
- Get SEL allocation information

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 60: SEL Allocation Information applicable target FRUs

EXAMPLE

View information about the System Event Log on the Carrier Manager located at address 82h:

```
# get_sel_info –a 0x82
```

View information about the System Event Log on the AMC located at address 84h, FRU ID 10:

```
# get_sel_info –a 0x82 –f 10
```

View information about the Shelf Manager's System Event Log:

```
# get_sel_info
```

SEE ALSO

```
# get_sel
```

5.12 Sensor Management

5.12.1 Get Sensor Event Generation Capabilities

NAME

`get_sensor_event_enable` – display sensor event generation capabilities

SYNOPSIS

```
get_sensor_event_enable    {-a|--ipmb-address IPMB_ADDRESS}
                           [-l|--lun LUN]
                           [-S|--sensor-number SENSOR_NUMBER]
                           [-s|--sensor-type SENSOR_TYPE]
```

DESCRIPTION

The Management Controller monitors the state of a number of sensors. When a change is detected, the sensor event status is updated and an event is generated if the sensor supports event generation. The process of updating the event status is referred to as sensor scanning. As long as scanning is enabled, the sensor event status will be updated. This is independent of whether Event Messages are enabled. This command is used to display the status of the sensor event generation capabilities and whether sensor scanning is enabled.

Individual sensor events may be enabled or disabled. For discrete sensors, assertion and de-assertion events may be generated on a state change. For threshold sensors, the following events may be generated:

- an assertion event upon exceeding a threshold
- a de-assertion event upon clearing a threshold

The target MicroTCA Carrier is specified using the Carrier Manager's **IPMB Address**.

Logical Unit Number (LUN) display readings for sensors on a given LUN.

Sensor Number display readings for sensors matching a given number.

Sensor Type display readings for sensors matching a given type.

The command displays the following information:

- Sensor number/name
- Entity ID/Instance
- Sensor type
- Event/reading type
- Event messages, whether enabled or disabled
- Sensor scanning, whether enabled or disabled
- Assertion/de-assertion event masks and supported events

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 61: Get Sensor Event Enables applicable target addresses

EXAMPLE

View event generation capabilities for sensor 10h in the Carrier located at 82h:

```
# get_sensor_event_enable –a 0x82 –S 0x10
```

View event generation capabilities for sensors on LUN 0 in the Carrier located at 86h:

```
# get_sensor_event_enable –-ipmb-address 0x86 –-lun 0
```

View event generation capabilities for all temperature sensors on the Carrier located at 82h:

```
# get_sensor_event_enable --ipmb-address 0x82 –-sensor-type 0x1
```

SEE ALSO

```
get_sensor_info
set_sensor_event_enable
```

5.12.2 Get Sensor Hysteresis Values

NAME

`get_sensor_hysteresis` – display sensor hysteresis values

SYNOPSIS

```
get_sensor_hysteresis   {-a|--ipmb-address IPMB_ADDRESS}
                        [-l|--lun LUN]
                        [-S|--sensor-number SENSOR_NUMBER]
                        [-s|--sensor-type SENSOR_TYPE]
```

DESCRIPTION

This command is used to display the sensor hysteresis values, applicable only to threshold sensors. Threshold and hysteresis values are used to determine when assertion and de-assertion events are generated.

Threshold events are classified as either high-going or low-going. The differences between high-going and low-going threshold events are in which direction the reading needs to be going for an event to occur and how hysteresis affects when de-assertion events occur.

For a high-going threshold:

- an assertion event is generated when the reading is greater than or equal to the threshold
- a de-assertion event is generated when the reading is positive_going_hysteresis+1 below the threshold

For a low-going threshold:

- an assertion event is generated when the reading is less than or equal to the threshold
- a de-assertion event is generated when the reading is negative_going_hysteresis+1 above the threshold

The target MicroTCA Carrier is specified using the Carrier Manager's **IPMB Address**.

Logical Unit Number (LUN) display readings for sensors on a given LUN.

Sensor Number display readings for sensors matching a given number.

Sensor Type display readings for sensors matching a given type.

The command displays the following information:

- Sensor number/name
- Entity ID/Instance
- Sensor type
- Event/Reading Type
- Positive-going hysteresis
- Negative-going hysteresis

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 62: Get Sensor Hysteresis applicable target addresses

EXAMPLE

View the hysteresis for sensor 10h in the Carrier located at address 86h:

```
# get_sensor_hysteresis –a 0x86 –S 0x10
```

View the hysteresis for sensors on LUN 0 in the Carrier located at address 86h:

```
# get_sensor_hysteresis –-ipmb-address 0x86 –-lun 0
```

SEE ALSO

```
get_sensor_event_enable
get_sensor_info
get_sensor_reading
get_sensor_threshold
get_diagnostics
set_sensor_hysteresis
```

5.12.3 Get Sensor Information

NAME

`get_sensor_info` – display sensor information

SYNOPSIS

```
get_sensor_info         {-a|--ipmb-address IPMB_ADDRESS}
                        [-l|--lun LUN]
                        [-S|--sensor-number SENSOR_NUMBER]
                        [-s|--sensor-type SENSOR_TYPE]
                        [-r|--dump-raw]
```

DESCRIPTION

This command is used to display the sensor information.

The target MicroTCA Carrier is specified using the Carrier Manager's **IPMB Address**.

Logical Unit Number (LUN) display readings for sensors on a given LUN.

Sensor Number display readings for sensors matching a given number.

Sensor Type display readings for sensors matching a given type.

Dump Raw displays the information in raw format, without interpretation.

The command displays the following information:

- Sensor number/name
- Entity ID/Instance
- Sensor type
- Event/Reading type
- Sensor initialization
- Assertion/De-assertion event mask, if applicable
- Sensor units
- Analog data format
- Rate type/unit
- Modifier type/unit
- Percentage, yes or no

Also shown for compact sensor records:

- Number of sensors sharing the same sensor data record

The command displays the following information for each threshold sensor:

- Settable/reading mask
- Sensor direction
- Hysteresis

Also shown for full sensor records:

- Linearization
- M, B, K1, and K2 values
- Tolerance and accuracy
- Nominal reading, if specified
- Normal maximum, if specified
- Normal minimum, if specified
- Sensor maximum and minimum

The command displays the following information for each discrete sensor:

- Discrete reading mask

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 63: Sensor Information applicable target addresses

EXAMPLE

View sensor information for sensor 10h in the Carrier located at address 86h:

```
# get_sensor_info –a 0x86 –S 0x10
```

View sensor information for all temperature sensors in the Carrier located at address 84h:

```
# get_sensor_info –-sensor-type 0x1 –a 0x84
```

View sensor information for all sensors on the Carrier located at address 86h:

```
# get_sensor_info –a 0x86
```

SEE ALSO

`get_sensor_reading`

5.12.4 Get Sensor Reading

NAME

`get_sensor_reading` – display sensor reading

SYNOPSIS

```
get_sensor_reading      {-a|--ipmb-address IPMB_ADDRESS}
                        [-l|--lun LUN]
                        [-S|--sensor-number SENSOR_NUMBER]
                        [-s|--sensor-type SENSOR_TYPE]
```

DESCRIPTION

This command is used to display the sensor reading for threshold-based sensors and the asserted states for discrete sensors.

The target MicroTCA Carrier is specified using the Carrier Manager's **IPMB Address**.

Logical Unit Number (LUN) display readings for sensors on a given LUN.

Sensor Number display readings for sensors matching a given number.

Sensor Type display readings for sensors matching a given type.

The command displays the following information:

- Sensor number/name
- Entity ID/Instance
- Sensor type
- Event/Reading type
- Sensor initialization status
- Sensor scanning (enabled/disabled)
- Event messages (enabled/disabled)

The command displays the following information for each threshold sensor:

- Raw reading
- Processed reading
- Current threshold status
- Sensor thresholds

The command displays the following information for each discrete sensor:

- Current asserted state
- Sensor reading

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 64: Sensor Reading applicable target addresses

EXAMPLE

View sensor readings for sensor 10h in the Carrier located at address 86h:

```
# get_sensor_reading –a 0x86 –S 0x10
```

View sensor readings for all hot-swap sensors in the Carrier located at 82h:

```
# get_sensor_reading –s 0xF0 –a 0x82
```

SEE ALSO

```
get_sensor_info
get_sensor_threshold
```

5.12.5 Get Sensor Thresholds

NAME

`get_sensor_threshold` – display sensor threshold values

SYNOPSIS

```
get_sensor_threshold    {-a|--ipmb-address IPMB_ADDRESS}
                        [-l|--lun LUN]
                        [-S|--sensor-number SENSOR_NUMBER]
                        [-s|--sensor-type SENSOR_TYPE]
```

DESCRIPTION

This command is used to display the sensor threshold values, applicable only to threshold sensors. Threshold and hysteresis values are used to determine when assertion and de-assertion events are generated.

The Management Controller monitors the state of a number of sensors. When a change is detected, the sensor event status gets updated and, if the sensor supports event generation, an event is generated.

For threshold sensors, the severity of an event depends on the threshold that was triggered or cleared. There are three levels of thresholds: non-critical, critical, and non-recoverable. The corresponding severities are minor, major, and critical. Each event triggers an alarm of the corresponding severity. Use `get_health` and `get_diagnostics` to view the alarms triggered and the sensors that caused the events.

An event is specified as either high-going or low-going. The differences in high-going and low-going threshold events are in which direction the reading needs to be going for an event to occur and how hysteresis affects when de-assertion events occur.

For a high-going threshold:

- an assertion event is generated when the reading is greater than or equal to the threshold
- a de-assertion event is generated when the reading is positive_going_hysteresis+1 below the threshold

For a low-going threshold:

- an assertion event is generated when the reading is less than or equal to the threshold
- a de-assertion event is generated when the reading is negative_going_hysteresis+1 above the threshold

The target MicroTCA Carrier is specified using the Carrier Manager's **IPMB Address**.

Logical Unit Number (LUN) display readings for sensors on a given LUN.

Sensor Number display readings for sensors matching a given number.

Sensor Type display readings for sensors matching a given type.

The command displays the following information:

- Sensor number/name
- Sensor type
- Entity ID/instance
- Threshold values
- Lower/upper non-critical
- Lower/upper critical
- Lower/upper non-recoverable

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 65: Get Sensor Thresholds applicable target addresses

EXAMPLE

View the thresholds for sensor 10h in the Carrier located at address 86h:

```
# get_sensor_threshold –-ipmb-address 0x86 –-sensor-number 0x10
```

View the thresholds for sensors on LUN 0 in the Carrier located at address 86h on LUN 0:

```
# get_sensor_threshold –a 0x86 –l 0
```

SEE ALSO

```
get_diagnostics
get_sensor_event_enable
get_sensor_hysteresis
get_sensor_info
get_sensor_reading
set_sensor_hysteresis
set_sensor_threshold
```

5.12.6 List Sensors

NAME

`list_sensors` – display a list of sensors on a FRU

SYNOPSIS

```
list_sensors            [-a|--ipmb-address IPMB_ADDRESS]
                        [-l|--lun LUN]
                        [-s|--sensor-type SENSOR_TYPE]
                        [-r|--reading]
```

DESCRIPTION

This command is used to obtain a list of sensors on a MicroTCA Carrier.

The target MicroTCA Carrier is specified using the Carrier Manager's **IPMB Address**.

The **Logical Unit Number (LUN)** is used to list the sensors on a given LUN. If not specified, then sensors located on all the LUNs are displayed.

The **Sensor Type** is used to list the sensors that match a given type. If not specified, then sensors of all types are displayed.

The FRU ID, logical unit, and sensor type can be used together to filter the sensor list.

The command displays the following information for each sensor:

- Location
- Entity ID/instance
- Sensor number/type
- Name

Using the **Reading** option displays the raw sensor reading for each sensor in the list.

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 66: List Sensors applicable target addresses

EXAMPLE

List temperature sensors (type 01h) in the Carrier located at address 82h, and display their respective raw readings:

```
# list_sensors –a 0x82 –s 0x1 -r
```

List all sensors on LUN 0 in the Carrier located at address 86h:

```
# list_sensors –a 0x86 –l 0 –s 0x1
```

SEE ALSO

```
get_sensor_event_enable
get_sensor_hysteresis
get_sensor_info
get_sensor_reading
get_sensor_threshold
```

5.12.7 Set Sensor Event Generation Capabilities

NAME

`set_sensor_event_enable` – set event generation capabilities for a given sensor

SYNOPSIS

```
set_sensor_event_enable  {-a|--ipmb-address IPMB_ADDRESS}
                         {-S|--sensor-number SENSOR_NUMBER}
                         {-l|--lun LUN}
                         {[-e|--event-messages 0|1]
                          [-s|--scanning 0|1]
                          [{-i|--selected-event-messages 0|1}
                           {[-A|--event-assertion-mask
                                  ASSERTION_EVENT_MASK]
                            [-D|--event-deassertion-mask
                                  DEASSERTION_EVENT_MASK]}]}
```

DESCRIPTION

The Management Controller monitors the state of a number of sensors. When a change is detected, the sensor event status gets updated and an event is generated if the sensor supports event generation. The process of updating the event status is referred to as sensor scanning. As long as scanning is enabled, the sensor event status will be updated. This is independent of whether Event Messages are enabled. This command is used to modify the event generation capabilities for a given sensor, as well as enable/disable sensor scanning.

The target MicroTCA Carrier is specified using the Carrier Manager's **IPMB Address**.

Logical Unit Number (LUN) and Sensor Number specify which sensor's threshold values are to be changed.

Sensor Scanning option for the sensor must be enabled (1) or disabled (0). If enabled, the sensor event status will be updated.

Event Messages option for the sensor must be enabled (1) or disabled (0). If enabled, events are generated when there is a change in the sensor event status. Event generation can also be modified on a per-event basis.

To change an individual sensor event capability, specify the **Assert Event Mask** and/or **De-assert Event Mask**. The masks are two-byte values which can be specified in hexadecimal or decimal format. For the selected events, they will be enabled (1) or disabled (0) according to the Selected Event Messages option. For discrete sensors, an assertion and de-assertion event may be generated on a state change. For threshold sensors, the following events may be generated:

- an assertion event upon exceeding a threshold
- a de-assertion event upon clearing a threshold

Refer to the "Set Sensor Event Enable Command" section and "Generic Event/Reading Type Codes" table of the Intelligent Platform Management Interface Specification v2.0 for the assertion and de-assertion event mask bit-assignments.

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 67: Set Sensor Event Enables applicable target addresses

EXAMPLE

Disable event generation and enable sensor scanning for sensor 10h on LUN 0 in the Carrier located at address 86h:

```
# set_sensor_event_enable –a 0x86 –l 0 –S 0x10 –e 0 –s 1
```

Enable sensor scanning and event generation for sensor 10h on LUN 1 in the Carrier located at address 92h, but disable upper critical and upper non-recoverable going high event generation:

```
# set_sensor_event_enable -a 0x92 –l 1 –S 0x10 -s 1 –e 1 –E 0 -D
      0x0A00
```

SEE ALSO

`get_sensor_event_enable`

5.12.8 Set Sensor Hysteresis

NAME

`set_sensor_hysteresis` – set sensor hysteresis values for a given sensor

SYNOPSIS

```
set_sensor_hysteresis   {-a|--ipmb-address IPMB_ADDRESS}
                        {-l|--lun LUN}
                        {-S|--sensor-number SENSOR_NUMBER}
                        {[-P|--positive-hysteresis
                             POSITIVE_GOING_HYSTERESIS]
                         [-N|--negative-hysteresis
                             NEGATIVE_GOING_HYSTERESIS]}
```

DESCRIPTION

This command is used to set the sensor hysteresis values, applicable only to threshold sensors. Threshold and hysteresis values are used to determine when assertion and de-assertion events are generated. The ability to set hysteresis values is optional. Therefore, some FRUs may not support this command.

Threshold events are classified as either high-going or low-going. The differences between high-going and low-going threshold events are in which direction the reading needs to be going for an event to occur and how hysteresis affects when de-assertion events occur.

For a high-going threshold:

- an assertion event is generated when the reading is greater than or equal to the threshold
- a de-assertion event is generated when the reading is positive_going_hysteresis+1 below the threshold

For a low-going threshold:

- an assertion event is generated when the reading is less than or equal to the threshold
- a de-assertion event is generated when the reading is negative_going_hysteresis+1 above the threshold

The target MicroTCA Carrier is specified using the Carrier Manager's **IPMB Address**.

Logical Unit Number (LUN) and Sensor Number specify which sensor's threshold values are to be changed.

At least one hysteresis value must be specified. If either **Positive-Going** or **Negative-Going** hysteresis values are not specified, it will remain unchanged.

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 68: Set Sensor Hysteresis applicable target addresses

EXAMPLE

Change the positive-going hysteresis to 3 for sensor 10h on LUN 0 in the Carrier located at address 86h:

```
# set_sensor_hysteresis –a 0x86 –l 0 –S 0x10 –P 3
```

Change the positive-going hysteresis to 5 and negative-going hysteresis to 6 for sensor 10h on LUN 1 in the Carrier located at address 82h:

```
# set_sensor_hysteresis --ipmb-address 0x82 --lun 1 --sensor-
    number 0x10 --positive-hysteresis 5 --negative-hysteresis 6
```

SEE ALSO

```
get_sensor_event_enable
get_sensor_hysteresis
get_sensor_info
get_sensor_reading
get_sensor_threshold
get_diagnostics
```

5.12.9 Set Sensor Threshold

NAME

`set_sensor_threshold` – set sensor threshold values for a given sensor

SYNOPSIS

```
set_sensor_threshold    {-a|--ipmb-address IPMB_ADDRESS}
                        {-l|--lun LUN}
                        {-S|--sensor-number SENSOR_NUMBER}
                        {[-o|--lower-non-critical
                             LOWER_NON_CRITICAL_THRESHOLD]
                         [-c|--lower-critical LOWER_CRITICAL_THRESHOLD]
                         [-r|--lower-non-recoverable
                             LOWER_NON_RECOVERABLE_THRESHOLD]
                         [-O|--upper-non-critical
                             UPPER_NON_CRITICAL_THRESHOLD]
                         [-C|--upper-critical UPPER_CRITICAL_THRESHOLD]
                         [-R|--upper-non-recoverable
                             UPPER_NON_RECOVERABLE_THRESHOLD]}
```

DESCRIPTION

This command is used to set the sensor threshold values for a given threshold, applicable only to threshold sensors. Threshold and hysteresis values are used to determine when assertion and de-assertion events are generated.

The Management Controller monitors the state of a number of sensors. When a change is detected, the sensor event status is updated and an event is generated if the sensor supports event generation.

For threshold sensors, the severity of an event depends on the threshold that was triggered or cleared. There are three levels of thresholds: non-critical, critical, and non-recoverable. The corresponding severities are minor, major, and critical. Each event triggers an alarm of the corresponding severity. Use `get_health` and `get_diagnostics` to view the alarms triggered and the sensors that caused the events.

An event is specified as either high-going or low-going. The differences in high-going and low-going threshold events are in which direction the reading needs to be going for an event to occur and how hysteresis affects when de-assertion events occur.

For a high-going threshold:

- an assertion event is generated when the reading is greater than or equal to the threshold
- a de-assertion event is generated when the reading is positive_going_hysteresis+1 below the threshold

For a low-going threshold:

- an assertion event is generated when the reading is less than or equal to the threshold
- a de-assertion event is generated when the reading is negative_going_hysteresis+1 above the threshold

The target MicroTCA Carrier is specified using the Carrier Manager's **IPMB Address**.

Logical Unit Number (LUN) and **Sensor Number** specify which sensor's threshold values are to be changed.

At least one threshold value must be specified. If **Lower Non-Critical**, **Lower Critical**, **Lower Non-Recoverable**, **Upper Non-Critical**, **Upper Critical**, or **Upper Non-Recoverable** threshold values are not specified, it will remain unchanged.

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 69: Set Sensor Thresholds applicable target addresses

EXAMPLE

Change the upper critical threshold to 80 for sensor 10h on LUN 0 in the Carrier located at address 86h:

```
# set_sensor_threshold –a 0x86 –l 0 –S 0x10 –C 80
```

Change the lower non-recoverable threshold to 20 and upper non-recoverable to 100 for sensor 10h on LUN 0 in the Carrier located at address 82h:

```
# set_sensor_threshold –a 0x82 –l 0 –S 0x10 –r 20 –R 100
```

SEE ALSO

```
get_health
get_sensor_event_enable
get_sensor_info
get_sensor_hysteresis
get_sensor_reading
get_sensor_threshold
get_diagnostics
```

5.13 System Administration

5.13.1 Get User Accessibility Information

NAME

`get_user_access` – display privilege level and channel accessibility for a given user

SYNOPSIS

```
get_user_access          [-a|--ipmb-address IPMB_ADDRESS]
                         {-c|--channel-number CHANNEL_NUMBER}
                         {-i|--user-id USER_ID}
```

DESCRIPTION

This command is used to retrieve the privilege level and channel accessibility associated with a given user ID

The user may specify a target MicroTCA Carrier Manager by using the Carrier Manager's **IPMB Address**. If a target is not specified, the command displays information for the Shelf Manager.

Channel Number is a 0-based index used to identify a messaging channel. A user is configured on a per-channel basis.

User ID is a 1-based number used to identify a user record.

The command displays the following information:

- Maximum number of user IDs supported on this channel
- Count of currently enabled user IDs on this channel
- Count of user IDs with fixed names on this channel
- Access, whether restricted to callback connection or unrestricted for callback and call-in connections
- Link authentication, whether it is enabled or disabled
- IPMI messaging, whether it is enabled or disabled
- User privilege limit

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h

Carrier Manager	82h – A0h

Table 70: Get User Access applicable target addresses

EXAMPLE

Display access information for the user with ID 1 on channel 3 on the Shelf Manager:

```
# get_user_access –c 3 –i 1
```

Display access information for the user with ID 2 on channel 6 on the Carrier Manager at address 84h:

```
# get_user_access –a 0x84 –c 6 –i 2
```

SEE ALSO

```
get_channel_access
set_user_access
```

5.13.2 List Users

NAME

`list_users` – display a list of available users

SYNOPSIS

```
list_users              [-a|--ipmb-address IPMB_ADDRESS]
```

DESCRIPTION

This command is used to display the list of available users for the target Manager.

The user may specify a target MicroTCA Carrier Manager by using the Carrier Manager's **IPMB Address**. If a target is not specified, the command displays information for the Shelf Manager.

The command displays the following information:

- User ID
- User name
- Whether the user is enabled or not

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 71: List Users Applicable Target addresses

EXAMPLE

List users on the Shelf Manager:

```
# list_users
```

List users on the Carrier Manager located at address 84h:

```
# list_users –a 0x84
```

SEE ALSO

```
get_user_access
get_user_info
list_users_access
```

5.13.3 List Users Access

NAME

`list_users_access` – display all users' access properties for a given channel

SYNOPSIS

```
list_users_access       [-a|--ipmb-address IPMB_ADDRESS]
                        {-c|--channel-number CHANNEL_NUMBER}
```

DESCRIPTION

This command is used to display a list of users and their access properties for a given channel.

The user may specify a target MicroTCA Carrier Manager by using the Carrier Manager's **IPMB Address**. If a target is not specified, the command displays information for the Shelf Manager.

The **Channel Number** specifies the channel from which to retrieve information.

The command displays the information for all users that `get_user_access` displays for a given user:

- User ID
- User name
- User privilege limit
- Whether user is enabled or not
- IPMI messaging, whether it is enabled or disabled
- Link authentication, whether it is enabled or disabled
- Access, whether restricted to callback connection or unrestricted for callback and call-in connections

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf	20h
Carrier	82h – A0h

Table 72: Access List applicable target addresses

EXAMPLE

List users' access on channel 3 on the Shelf Manager:

```
# list_users_access –c 3
```

List users' access for the channel used for the active session on the Carrier Manager located at 84h:

```
# list_users_access –a 0x84 –c 0xe
```

SEE ALSO

get_user_access
get_user_info
list_users

5.13.4 Set User Accessibility Information

NAME

`set_user_access` – configure privilege level and channel accessibility associated with a given user ID

SYNOPSIS

```
set_user_access         [-a|--ipmbaddress IPMB_ADDRESS]
                        {-c|--channel_number CHANNEL_NUMBER}
                        {-i|--user_id USER_ID}
                        {[-l|--privilege_limit PRIVILEGE_LIMIT]
                         [-s|--session_limit SESSION_LIMIT]
                         [-r|--restricted 0|1]
                         [-A|--authentication 0|1]
                         [-m|--messaging 0|1]}
```

DESCRIPTION

This command is used to configure the privilege level and channel accessibility associated with a given user ID. The limits set for channel access take precedence over the ones set here. The changes will take effect the next time the user establishes a session. The changes are saved in non-volatile storage.

The user may specify a target MicroTCA Carrier Manager by using the Carrier Manager's **IPMB Address**. If a target is not specified, the command displays information for the Shelf Manager.

Channel Number is a 0-based index used to identify a messaging channel. A user is configured on a per-channel basis. To configure information for the channel used for the active session, the value 0Eh may be used.

User ID is a 1-based number used to identify a user record.

A maximum **Privilege Limit** can be set for a user. This is the maximum privilege level the user can be switched to:

- 01h = Callback
- 02h = User
- 03h = Operator
- 04h = Administrator
- 05h = OEM
- 0Fh = No access

The **User Session Limit** sets the number of simultaneous sessions that can be activated with the username associated with the user ID.

The following can be enabled (**1**) or disabled (**0**):

- **Restricted**: User access restricted to callback
- **Authentication**: User link authentication
- **Messaging:** IPMI messaging

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Shelf Manager	20h
Carrier Manager	82h – A0h

Table 73: Set User Access applicable target addresses

EXAMPLE

Change the privilege level to operator (03h) for user with ID 2 on channel 2 on the Shelf Manager:

```
# set_user_access –c 2 –i 2 –l 3
```

Disable callback restriction and enable IPMI messages for the user with ID 2 on channel 3 for the Carrier Manager located at address 82h:

```
# set_user_access –a 0x82 –c 3 –i 2 –r 0 –m 1
```

SEE ALSO

```
get_channel_access
get_user_access
```

5.13.5 Set User Information

NAME

`set_user_info` – add user, change username, set/change password, or enable/disable user

SYNOPSIS

```
set_user_info          {-i|--user-id USER_ID}
                       {-n|--username USER_NAME}

set_user_info          {-i|--user-id USER_ID}
                       {-p|--password PASSWORD}

set_user_info          {-i|--user-id USER_ID}
                       {-t|--test-password PASSWORD}

set_user_info          {-i|--user-id USER_ID}
                       {-e|--enable}

set_user_info          {-i|--user-id USER_ID}
                       {-d|--disable}
```

DESCRIPTION

This command is used to add a new user, change a user name, set and change user passwords, and enable and disable users. The changes are saved in non-volatile storage.

The user may specify a target MicroTCA Carrier Manager by using the Carrier Manager's **IPMB Address**. If a target is not specified, the command displays information for the Shelf Manager.

When adding a new user, by default, the user is disabled with the following access levels:

- Access is available only during callback connection
- Link authentication is disabled
- IPMI messaging is disabled
- Current and maximum operating level of NO ACCESS; this value does not add to, or subtract from, the number of enabled users

User ID is a 1-based number used to identify a user record. User ID 1 is reserved for the null user name.

User Name is an ASCII string with maximum length of 16.

Password is a string of no more than 20 characters. This option is required when assigning a password.

Test Password verifies the password value against the password saved in storage.

The user must be **Enabled** before the username assigned to the user can be used. Similarly, the user can be **Disabled**.

EXAMPLE

Assign a user name to ID 2:

```
# set_user_info -i 2 –n david
```

Set password for a new user with ID 2:

```
# set_user_info -i 2 -p password
```

Verify the password was set for user with ID 2:

```
# set_user_info –i 2 -t newPassword
```

Enable the user with ID 2:

```
# set_user_info –-user-id 2 --enable
```

SEE ALSO

```
set_user_access
get_user_info
```

5.14 System Management

5.14.1 Chassis Control

NAME

`chassis_control` – change the power state of the Shelf or a Carrier, or issue a diagnostic interrupt

SYNOPSIS

```
chassis_control          [-a|--ipmb-address IPMB_ADDRESS]
                         {[-d|--power-down]|
                          [-u|--power-up]|
                          [-r|--hard-reset]|
                          [-i|--diagnostic-interrupt]|
                          [-s|--soft-shutdown]}
```

DESCRIPTION

This command provides power control, reset, and diagnostic interrupt control of a Chassis.

Only one of the following can be specified:

- **Power Down** forces the system into the SOFT OFF state. This is for emergency management power down actions.
- **Power Up** can be used to power up the Chassis.
- **Hard Reset** can be used to pulse the system reset signal regardless of the power state.
- **Diagnostic Interrupt** will pulse a version of a diagnostic interrupt that goes directly to the processor. This is typically used to cause the operating system to do a diagnostic dump. This may not be available in some implementations.
- **Soft Shutdown** behaves similarly to power down.

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Carrier Manager	82h – A0h

Table 74: Chassis Control applicable target addresses

EXAMPLE

Send a power down request to the Carrier located at address 82h:

```
# chassis_control –-ipmb-address 0x82 --power-down
```

SEE ALSO

fru_control
power_feed_control

5.14.2 Failover

NAME

failover – transfer control of the MicroTCA Carrier from the active MCH to the backup MCH

SYNOPSIS

```
failover
```

DESCRIPTION

Note: This command is only available on configurations where the MicroTCA Shelf Manager is present alongside a Carrier Manager on an MCH.

Note: This command is only available in Command Mode.

This command is used to simulate a failure on the primary (active) MCH, thus transferring control of the Carrier to the backup MCH. If the redundant Carrier Manager is unhealthy or is absent, no actions are taken.

The following are preserved when performing a failover:

- FRU state information
- Power settings of all FRUs
- E-Keying
- Alarms
- Fan level and cooling settings

5.14.3 Get Chassis Information

NAME

`get_chassis_info` – display the Chassis Info Area in the FRU Storage Inventory Area

SYNOPSIS

```
get_chassis_info
```

DESCRIPTION

This command is used to display the Chassis Information record found in the MicroTCA Shelf FRU Inventory Area.

SEE ALSO

`set_chassis_info`

5.14.4 Get Diagnostics

NAME

`get_diagnostics` – run diagnostics and display the results

SYNOPSIS

```
get_diagnostics          [{-a|--ipmb-address IPMB_ADDRESS}
                          [-f|--fru-id FRU_ID]]
                         [-r|--report]
```

DESCRIPTION

This command is used to run diagnostics and obtain the current status of the major, minor and critical alarms in the MicroTCA Shelf.

The user may specify a target FRU by using the Carrier Manager's **IPMB Address** and the **FRU Identifier**. If a target is not specified, the command displays information of the FRU that hosts the MicroTCA Shelf Manager. If only an IPMB address is given, then the command displays information for all FRUs at that address.

The **Report** option displays the results in a list format, unlike the non-report table version displayed otherwise.

The command displays the following information:

- FRU device name
- Location of the FRU
- Current FRU alarm state - major, minor, or critical
- Event code of the event that caused the alarm
- Sensor type and number of the sensor that generated this event

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 75: Diagnostics applicable target FRUs

EXAMPLE

Get diagnostics for all the FRUs in the Carrier located at address 84h

```
# get_diagnostics -a 84
```

Get diagnostics for the AMC located at address 82h, FRU ID 5, displaying the results in list format

```
# get_diagnostics -a 82 –f 5 -r
```

Get diagnostics for all modules:

```
# get_diagnostics
```

SEE ALSO

```
list_event_code_descriptions
get_health
```

5.14.5 Get FRU Activation Sequence

NAME

`get_fru_activation_sequence` – display FRU activation sequence

SYNOPSIS

```
get_fru_activation_sequence  {-a|--ipmb-address IPMB_ADDRESS}
```

DESCRIPTION

This command is used to display the FRU activation sequence. This information is retrieved from the MicroTCA Carrier Manager's multi-records.

The MicroTCA Carrier FRU Information may include several MicroTCA Carrier Activation and Power Management records. Each record describes the amount of time and power allowable for any number of FRUs. The order of the records determines the order in which the FRUs will be brought to M3 (see AMC.0 R1.0 specification for exceptions).

The command displays the following information for each MicroTCA Carrier Activation and Power Management record:

- Number of seconds from startup that FRUs have in order to transition to M3 (activation in progress)
- Number of entries per entity type
- Physical address
- Power channel number
- Maximum FRU current capability
- Delay before powering next FRU
- Whether it is the MicroTCA Carrier Manager, MicroTCA Shelf Manager, or System Manager that controls activation, activating the FRU when it reaches M2 (activation request)

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Carrier Manager	82h – A0h

Table 76: Activation Sequence applicable target addresses

EXAMPLE

Display the FRU activation sequence for the Carrier located at address 84h:

```
# get_fru_activation_sequence –a 0x84
```

SEE ALSO

`get_power_management_info`

5.14.6 Get Health Status

NAME

`get_health` – provide a summary of the alarm status of all the FRUs installed in the MicoTCA Shelf

SYNOPSIS

```
get_health
```

DESCRIPTION

This command is used to obtain a summary of the currently active major, minor, and critical alarms for all the FRUs installed in the Shelf. If no alarms are active for a FRU, then the FRU is deemed 'healthy'.

Further information on an alarm status can be obtained by using the `get_diagnostics` command.

SEE ALSO

```
get_diagnostics
```

5.14.7 Get IPMB-0 Status

NAME

`get_ipmb0_status` – get EMMC IPMB-0 sensor status

SYNOPSIS

```
get_ipmb0_status        [-a|--ipmb-address IPMB_ADDRESS]
```

DESCRIPTION

Physical IPMB-0 sensors are implemented by each EMMC and are used to monitor the state of the IPMBs. For all EMMCs, querying these sensors returns information about their local IPMBs.

The Carrier Manager connects to IPMB-0 in a bused topology to the EMMCs.

The target Carrier is specified using the Carrier Manager's **IPMB Address**.

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Carrier Manager	82h – A0h

Table 77: IPMB-0 Status applicable target addresses

EXAMPLE

View the status of all IPMB-0 sensors in the Carrier located at addres 82h:

```
# get_ipmb0_status –a 0x82
```

SEE ALSO

`get_sensor_info`

5.14.8 Get Location Information

NAME

`get_location_info` – display location information for a given Module, MicroTCA Carrier, or MicroTCA Shelf

SYNOPSIS

```
get_location_info       [-a|--ipmb-address IPMB_ADDRESS]
                        [-f|--fru-id FRU_ID]
```

DESCRIPTION

This command describes the physical location of a Module, Carrier, or Shelf.

The user may specify the target FRU using the IPM Controller's **IPMB Address** and the **FRU Identifier**.

By default, the Shelf location information is displayed.

The command displays the following information when a Module is specified:

- Module IPMB address
- Entity ID/instance
- Physical address
- Absolute Tier Number within Shelf, and whether it is a 0-based or 1-based number
- Absolute Slot Number within Shelf, and whether it is a 0-based or 1-based number
- Carrier orientation, whether horizontal or vertical
- Cartesian coordinates, in mm
- Origin X: distance from the ejector handle corner of a slot to the left edge of the Carrier
- Origin Y: distance from the ejector handle corner of a slot to the bottom edge of the Carrier
- Carrier orientation, whether horizontal or vertical

Module slot numbers and tier numbers are determined by adding the Carrier slot and tier numbers to the respective Module slot and tier numbers, less one if they are 1-based numbers.

When a Carrier is specified, the following information is displayed:

- Carrier IPMB address
- Tier Number within Shelf, and whether it is a 0-based or 1-based number
- Slot Number within Shelf, and whether it is a 0-based or 1-based number
- Carrier orientation, whether horizontal or vertical
- Cartesian coordinates, in mm
- Origin X: distance from the lower left corner of a Carrier to the left edge of its Shelf
- Origin Y: distance from the lower left corner of a Carrier to the bottom edge of its Shelf

When a Shelf is specified, the following information is displayed:

- Shelf IPMB address
- Cartesian coordinates, in mm
- Origin X: distance from the lower left corner of a Shelf to the left edge of its frame
- Origin Y: distance from the lower left corner of a Shelf to the bottom edge of its frame

APPLICABLE TARGET FRUS

Entity	Access Address(es)	FRU ID(s)
Shelf Manager	20h	0
Carrier Manager	82h – A0h	0
MCH	82h – A0h	3 – 4
AMC	82h – A0h	5 – 16
CU	82h – A0h	40 – 41
PM	82h – A0h	50 – 53

Table 78: Location Information applicable target FRUs

EXAMPLE

View the location information for the Shelf:

```
# get_location_info
```

View the location information for the MCH located at address 82h, FRU ID 3:

```
# get_location_info –a 0x82 –f 3
```

View the location information for the Carrier located at address 84h:

```
# get_location_info –a 0x84
```

SEE ALSO

`get_address_info`

5.14.9 Get Shelf Address Information

NAME

`get_shelf_address_info` – display the MicroTCA Shelf Information record's address field

SYNOPSIS

```
get_shelf_address_info
```

DESCRIPTION

This command is used to display the Shelf's address field in the **MicroTCA Shelf Info** record in the Shelf FRU Inventory Area.

SEE ALSO

`set_shelf_address_info`

5.14.10 Get System GUID

NAME

`get_system_guid` – display the globally unique ID (GUID) of a given Carrier

SYNOPSIS

```
get_system_guid          {-a|--ipmb-address IPMB_ADDRESS}
```

DESCRIPTION

This command is used to display the globally unique ID (GUID) of a given MicroTCA Carrier.

The target FRU is specified using the IPM Controller's **IPMB Address**.

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Carrier Manager	82h – A0h

Table 79: System GUID applicable target addresses

EXAMPLE

Display the system GUID for the Carrier located at address 82h:

```
# get_system_guid –a 0x82
```

5.14.11 List Carriers Present

NAME

`list_carriers_present` – Display a list of installed MicroTCA Carriers within the MicroTCA Shelf

SYNOPSIS

```
list_carriers_present
```

DESCRIPTION

This command is used to obtain a list of Carriers currently installed in the Shelf.

The command displays the following information for each installed Carrier:

- Location
- Entity ID/instance
- Device name
- Current hot-swap state
  - M0 – Not installed
  - M1 – Inactive
  - M2 – Activation request
  - M3 – Activation in progress
  - M4 – Active
  - M5 – Deactivation request
  - M6 – Deactivation in progress
  - M7 – Communication lost

SEE ALSO

`list_frus_present`

5.14.12 List FRUs Present

NAME

`list_frus_present` – provide a summary of the FRUs installed in the MicroTCA Shelf.

SYNOPSIS

```
list_frus_present       [-a|--ipmb-address IPMB_ADDRESS]
                        [-e|--entity-id ENTITY_ID]
```

DESCRIPTION

This command is used to obtain a list of FRUs currently installed.

A target Carrier may be specified by the Carrier Manager's **IPMB Address**. If a target is not specified, the command displays all FRUs currently installed in the Shelf.

Entity ID filters the results by Entity type.

The command displays the following information for each installed FRU:

- Location
- Entity ID/instance
- Device name
- Current hot-swap state
- M0 – Not installed
- M1 – Inactive
- M2 – Activation request
- M3 – Activation in progress
- M4 – Active
- M5 – Deactivation request
- M6 – Deactivation in progress
- M7 – Communication lost

APPLICABLE TARGET FRUS

Entity	Entity ID(s)	Access Address(es)
MCH	C2h	82h – A0h
AMC	C1h	82h – A0h
CU	1Eh	82h – A0h
PM	0Ah	82h – A0h
OEM	DAh – DFh	82h – A0h

Table 80: FRU Population applicable target addresses / entity IDs

EXAMPLE

List FRUs installed on the Carrier located at address 82h with entity type A0h:

```
# list_frus_present –a 0x82 –e 0xA0
```

List all FRUs installed with entity type A0h:

```
# list_frus_present –e 0xA0
```

List all FRUs installed in the Shelf:

```
# list_frus_present
```

SEE ALSO

```
list_carriers_present
list_fan_trays
```

5.14.13 List Modules Present

NAME

`list_modules_present` – provide a summary of the Modules installed in the MicroTCA Shelf.

SYNOPSIS

```
list_modules_present    {-a|--ipmb-address IPMB_ADDRESS}
```

DESCRIPTION

This command is used to obtain a list of Modules currently installed in a MicroTCA Carrier.

The target FRU is specified using the IPM Controller's **IPMB Address**.

The command displays the following information for each installed FRU:

- Location
- Entity ID/instance
- Device name
- Current hot-swap state
- M0 – Not installed
- M1 – Inactive
- M2 – Activation request
- M3 – Activation in progress
- M4 – Active
- M5 – Deactivation request
- M6 – Deactivation in progress
- M7 – Communication lost

APPLICABLE TARGET FRUS

Entity	Access Address(es)
Carrier	82h – A0h

Table 81: List Installed Modules applicable target addresses

EXAMPLE

List FRUs installed in the Carrier located at address 86h:

```
# list_modules_present –a 0x86
```

SEE ALSO

```
list_carriers_present
list_fan_trays
list_frus_present
```

5.14.14 Set Chassis Information

NAME

`set_chassis_info` – set the Chassis Information in the MicroTCA Shelf FRU Inventory Area

SYNOPSIS

```
set_chassis_info        {[-i|--chassis-id CHASSIS_ID]
                          [-t|--chassis-type CHASSIS_TYPE]}
```

DESCRIPTION

This command is used to set the Chassis Information in the Shelf FRU Inventory Area.

The **Chassis ID** is a string for Chassis identification.

Chassis Type is identified in the IPMI Platform Management FRU Information Storage Definition v1.0:

Byte Value	Meaning
01h	Other
02h	Unknown
03h	Desktop
04h	Low Profile Desktop
05h	Pizza Box
06h	Mini Tower
07h	Tower
08h	Portable
09h	Laptop
0Ah	Notebook
0Bh	Hand Held
0Ch	Docking Station
0Dh	All-In-One
0Eh	Sub Notebook
0Fh	Space-saving
10h	Lunch Box
11h	Main Server Chassis
12h	Expansion Chassis
13h	SubChassis
14h	Bus Expansion Chassis
15h	Peripheral Chassis
16h	RAID Chassis
17h	Rack Mount Chassis

Table 82: Chassis types

EXAMPLE

Set the Chassis ID to “ABCDE” and Chassis Type to “Rack Mount Chassis” (17h):

```
# set_chassis_info –i “ABCDE” –t 0x17
```

SEE ALSO

`get_chassis_info`

5.14.15 Set Shelf Address Information

NAME

`set_shelf_address_info` – set the MicroTCA Shelf Information record's *address* field

SYNOPSIS

```
set_shelf_address_info  {-a|--address ADDRESS}
```

DESCRIPTION

This command is used to set the Shelf's *address* field in the Shelf Information record in the Shelf FRU Inventory Area.

Address is intended to reflect the physical location of the Shelf.

EXAMPLE

Set the address to "ABCDE":

```
# set_shelf_address_info –a ABCDE
```

SEE ALSO

`get_shelf_address_info`

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