# IPMICFG
# User’s Guide

Revision 1.15

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## Document Revision History

| Date | Revision | Description |
|---|---|---|
| 2023/07/21 | 1.15 | 1. Added support for ESXi 8.0.<br>2. Added an option to specify a date range for retrieving SEL and MEL lists.<br>3. Removed the "-tas exec" command. |
| 2023/02/24 | 1.14 | 1. Added NVMe backplane "Rev" information.<br>2. Modified the SEL display format. |
| 2022/08/10 | 1.13 | 1. Added the "-lani" command to check and configure the BMC LAN interface.<br>2. Added the "-linkstatus" command to check the connection status of the BMC LAN interface.<br>3. Allowed users to view and modify the information of the multi-node systems.<br>4. Added support for FreeBSD 10.4 and later versions.<br>5. Changed the number system of BMC’s major version from hexadecimal to decimal.<br>6. Changed the normal state of the PSU from "ON" to "OK." |
| 2021/11/23 | 1.12 | 1. Modified the onscreen messages for the KCS Control privilege levels: Operator, User, and Callback. |
| 2021/05/28 | 1.11 | 1. Added the "Liquid Cooling" and "Smart Speed" fan modes.<br>2. Modified the display format of firmware version.<br>3. Removed the function of putting a system in lockdown mode.<br>4. Added the IPv6 DHCPv6 disabled mode.<br>5. Supported a NVMe backplane. (Firmware information: 30 02)<br>6. Added the severity code and event ID fields to the "-sel list" command. |
| 2020/07/03 | 1.10 | 1. Added the "-lockdown" command to put the system in lockdown mode.<br>2. Added the "-mel list" command to list maintenance event log.<br>3. Added the function of listing dynamic IPv6 addresses to the "-ipv6 list" command. |
| 2020/06/23 | 1.9 | 1. Corrected errors in this document. |

|  |  |  |
|---|---|---|
| 2020/01/21 | 1.8 | 1. Added options to the "-fd" command.<br>2. Added the "-addrptl" command to set up IP protocol.<br>3. Added a function to display sets of commands. (This function is not available on DOS.) |
| 2019/07/01 | 1.7 | 1. Added the EFI version of IPMICFG.<br>2. Added the IPv6 routing functions. (option: -ipv6)<br>3. Supported the UEFI PXE boot options, including -reset and -soft commands. |
| 2018/03/02 | 1.6 | 1. Added IPv6 setting functions.<br>2. Supported BBP2 (BBP + PSU) module.<br>3. Supported MRC error code for Intel® Xeon® Scalable Processors with Intel® C620 Series Chipsets. |
| 2017/09/01 | 1.5 | 1. Modified the NVME remove commands. |
| 2017/06/20 | 1.4 | 1. Added the DCMI commands.<br>2. Removed the -recoverbiosinfo command. |
| 2016/11/23 | 1.3 | 1. Modified description of the -fru DMI feature.<br>2. Modified description of the -pminfo feature.<br>3. Updated the “Operation Requirements” chapter. |
| 2016/08/23 | 1.2 | 1. Added the Get/Set host name command. |
| 2016/01/05 | 1.1 | 1. Added the TAS commands. (DOS was NOT supported)<br>2. Updated the NVME commands. (DOS was NOT supported)<br>3. Added the summary command. |
| 2015/06/15 | 1. 0 | Initial document. |

## Contents

# 1 IPMICFG Overview

IPMICFG is a command line tool utility, providing IPMI commands and Supermicro proprietary OEM commands to configure and monitor IPMI devices. It requires no pre-installation and is easy to use for basic IPMI configuration and BMC status reading and monitoring.

## 1.1 Features

- Setting up IPMI IP addresses
- Setting up IPMI configurations
- Configuring IPMI User Management
- Configuring IPMI FRU
- Managing the System Event Log (SEL)
- Managing IPMI with the node management (NM) protocol

# 1.2 Operation Requirements

To run basic operations, you must meet the following requirements.

## 1.2.1 System Requirements

| Environment | Requirements |
|---|---|
| Hardware | Free Disk Space: 200 MB<br>Available RAM: 64 MB<br>Baseboard Management Controller (BMC) must support Intelligent Platform Management Interface (IPMI) version 2.0 specifications. |
| Operating System | • DOS 5.0 and later version<br>• Microsoft Windows 10 / 11 / Server 2012 / Server 2016 / Server 2019 / Server 2022<br>• Operating System must be pre-installed Microsoft Visual C++ 2008 SP1 Redistributable Package.<br>Download Link: https://www.microsoft.com/en-us/download/details.aspx?id=11895<br>• Linux Kernel version 2.6.x and higher.<br>Red Hat Enterprise Linux (RHEL) 6.8 and later versions<br>Roxy Linux 8.8 and later versions<br>SUSE Linux Enterprise Server (SLES) 12 SP4 and later versions<br>Ubuntu Server 16.04 LTS and later versions<br>• UEFI Shell<br>• FreeBSD 10.4 and later version.<br>• VMWare ESXi 6.5, 6.7, 7.0 and 8.0 |

### 1.2.2 Software Requirements

| Program/Script | Description |
|---|---|
| \DOS\IPMICFG.exe | IPMICFG DOS (DOS 5.0) |
| \Linux\32bit\IPMICFG-Linux.x86 | IPMICFG Linux 32bit |
| \Linux\64bit\IPMICFG-Linux.x86_64 | IPMICFG Linux 64bit |
| \Windows\32bit\IPMICFG-Win.exe | IPMICFG Windows 32bit |
| \Windows\64bit\IPMICFG-Win.exe | IPMICFG Windows 64bit |
| \UEFI\IPMICFG.efi | IPMICFG UEFI |
| \FreeBSD\IPMICFG.bsd | IPMICFG FreeBSD |
| *.dat files | database for MB type and SEL event table |
| \IPMICFG_*_build.*_ESXi_*x.vib | IPMICFG ESXi VIB package |

### 1.2.3 Installing Additional Drivers

- **Linux:**

The Linux version of IPMICFG will automatically use the built-in Linux IPMI driver from ipmitool to access BMC.

To load an IPMI driver, type the following commands to access the IPMI driver:

1. # modprobe ipmi_msghandler
2. # modprobe ipmi_devintf
3. # modprobe ipmi_si

- **FreeBSD:**

The FreeBSD version of IPMICFG will use the built-in FreeBSD IPMI driver to access the BMC. To load an IPMI driver, run the "kldload ipmi" command.

## 1.3 Typographical Conventions

This manual uses the following typographical conventions.

`Courier-New font size 10` represents command line instructions (in CLI) in terminal mode.

**Bold** is used for emphasizing keywords.

*Italic* is used for variables and section titles.

< > enclose the parameters in syntax description.

`[ipmicfg_HOME]` represents the prompt for inputs in terminal mode.

| A vertical bar separates items in a list.

# 2 Installation and Setup

## 2.1 Installing IPMICFG

Get the IPMICFG_x.xx.x_build.xxxxxx.zip installer, and then unzip it in your environment. You will see the directory list:

**DOS:**

Execute `\DOS\IPMICFG.exe`

**Linux 32bit:**

Execute `/Linux/32bit/IPMICFG-Linux.x86`

**Linux 64bit:**

Execute `/Linux/64bit/IPMICFG-Linux.x86_64`

**Windows 32bit:**

Execute `\Windows\32bit\IPMICFG-Win.exe`

**Windows 64bit:**

Execute `\Windows\64bit\IPMICFG-Win.exe`

**UEFI Shell:**

Execute `\UEFI\IPMICFG.efi`

**FreeBSD:**

Execute `\FreeBSD\IPMICFG.bsd`

**ESXi:**

Install the IPMICFG standalone program by executing

```
esxcli software vib install -v ~/IPMICFG_*_build.*_ESXi_*x.vib --
        no-sig-check
```

and then execute `\opt\supermicro\ipmicfg\IPMICFG.esxi`

# 3 Basic User Operations

Usage:

```
[ipmicfg_HOME] > IPMICFG <command> [option/data...]
```

**Note:** To display sets of commands, use the command `[ipmicfg_HOME] > IPMICFG <command> -help`

Here is an example of displaying the set of `-sdr` commands to illustrate the steps.

Example:

```
[ipmicfg_HOME] > IPMICFG -sdr -help
Command: -sdr
Command(s):
 -sdr [full]               Show SDR records and reading
 -sdr del <sdr id>         Delete SDR record
 -sdr ver <v1> <v2>        Get/Set SDR version (v1, v2 are BCD
format)
```

## 3.1 Setting Up IPMI Addresses

| **Options for Using IPMICFG** | |
|---|---|
| -m | Shows IPv4 address and MAC. |
| -m <ip> | Sets IPv4 address (format: ###.###.###.###). |
| -a <mac> | Sets MAC (format: ##:##:##:##:##:##). |
| -k | Shows Subnet Mask. |
| -k <mask> | Sets Subnet Mask (format: ###.###.###.###). |
| -dhcp | Gets the DHCP status. |
| -dhcp on | Enables the DHCP. |
| -dhcp off | Disables the DHCP. |
| -g | Shows a Gateway IP. |
| -g <gateway> | Sets a Gateway IP (format: ###.###.###.###). |
| -garp on | Enables the Gratuitous ARP. |
| -garp off | Disables the Gratuitous ARP. |
| -ipv6 mode | Shows the IPv6 mode. |
| -ipv6 mode <mode> | Sets the IPv6 mode. |
| -ipv6 autoconfig | Shows IPv6 auto configuration. |
| -ipv6 autoconfig on | Enables IPv6 auto configuration. |
| -ipv6 autoconfig off | Disables IPv6 auto configuration. |
| -ipv6 list | Lists IPv6 static and dynamic addresses. |
| -ipv6 duid | Show IPv6 DUID. |
| -ipv6 dns [IPv6 addr] | Gets/Sets IPv6 DNS server. |
| -ipv6 add <id> <IPv6 addr> <prefix> | Adds IPv6 static address. |
| -ipv6 remove <id> | Removes IPv6 static address. |
| -ipv6 route | Displays IPv6 static route status. |
| -ipv6 route on | Enables IPv6 static route. |
| -ipv6 route off | Disables IPv6 static route. |
| -ipv6 route list | Lists IPv6 static router information. |
| -ipv6 route <id> <prefix value> <prefix length> <IPv6 addr> | Sets IPv6 static router information. |
| -ipv6 route clear <id> | Clears IPv6 static router information. |
| -addrptl [option] | Gets/Sets IP address protocol |
| -lockdown | Checks the system’s lockdown mode. |
| -lani [option] | Gets/Sets LAN interface. |
| -linkstatus | Shows network link status. |

### 3.1.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Showing IPv4 address and MAC.**

```
[ipmicfg_HOME] > IPMICFG.exe -m
IP=192.168.12.34
MAC=00:25:90:AB:CD:EF
```

- **Example 2. Setting IPv4 address.**

```
[ipmicfg_HOME] > IPMICFG.exe -m 192.168.56.78
IP=192.168.56.78
```

- **Example 3. Setting MAC.**

```
[ipmicfg_HOME] > IPMICFG.exe -a 00:25:90:AB:CD:EF
MAC=00:25:90:AB:CD:EF
```

- **Example 4. Showing Subnet Mask.**

```
[ipmicfg_HOME] > IPMICFG.exe -k
Subnet Mask=255.255.0.0
```

- **Example 5. Setting Subnet Mask.**

```
[ipmicfg_HOME] > IPMICFG.exe -k 255.255.0.0
Subnet Mask=255.255.0.0
```

- **Example 6. Getting the DHCP status.**

```
[ipmicfg_HOME] > IPMICFG.exe -dhcp
DHCP is currently disabled.
```

- **Example 7. Setting the DHCP status.**

```
[ipmicfg_HOME] > IPMICFG.exe -dhcp on
Successfully enable DHCP.
```

- **Example 8. Showing a Gateway IP.**

```
[ipmicfg_HOME] > IPMICFG.exe -g
Gateway=192.168.12.254
```

- **Example 9. Setting a Gateway IP.**

```
[ipmicfg_HOME] > IPMICFG.exe -g 192.168.12.254
Gateway=192.168.12.254
```

- **Example 10: Enabling the Gratuitous ARP.**

```
[ipmicfg_HOME] > IPMICFG.exe -garp on
Failed to enable Gratuitous ARP, Completion Code=80h
```

**Note:** Gratuitous ARP includes Gratuitous ARP requests and replies, updating ARP tables to map MAC addresses and IP addresses. Due to security concerns, it is not supported by default for most network devices. If you want to use this function, please make sure the Gratuitous ARP function is enabled on your network devices.

- **Example 11. Showing the IPv6 mode.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 mode
Current IPv6 mode is [Stateless]
Supported IPv6 modes:
0:Stateless
1:Stateful
2:Disabled
```

- **Example 12. Setting the IPv6 mode.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 mode 0
Done.
```

- **Example 13. Showing IPv6 auto configuration.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 autoconfig
Auto Configuration is currently enabled.
```

- **Example 14. Setting IPv6 auto configuration.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 autoconfig on
Done.
```

- **Example 15. Listing IPv6 static and dynamic addresses.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 list
Maximum number of IPv6 static address: 5
ID | IPv6 Static Address                     | Prefix
-- | --------------------                    | ------
 0 | FE80:0000:0000:0000:0225:90FF:FEEE:59E5 |    64
 1 | 3333:2222:0000:0000:0000:0000:0000:0000 |    32
 2 | Disabled                                |   N/A
 3 | Disabled                                |   N/A
 4 | FE80:0000:0000:0000:0225:90FF:FEEE:59E9 |    64

Maximum number of IPv6 dynamic address: 4
ID | IPv6 Dynamic Address                    | Prefix
-- | --------------------                    | ------
   | FE80:0000:0000:0000:0225:90FF:FEEE:59F1 |    64
```

- **Example 16. Showing IPv6 DUID.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 duid
0E 00 00 01 00 01 28 6B A2 54 3C EC EF C6 34 7C
```

- **Example 17. Showing IPv6 DNS.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 dns
::
```

- **Example 18. Setting IPv6 DNS.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 dns
   0000:0000:0000:0000:0000:0000:0000:0000
Done.
```

- **Example 19. Adding IPv6 static address.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 add 1
   FE80:0000:0000:0000:0225:90FF:FEEE:59E5 64
Done.
```

- **Example 20. Removing IPv6 static address.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 remove 1
Done.
```

- **Example 21. Displaying IPv6 static route status.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 route
IPv6 Static Route is currently enabled
```

- **Example 22. Enabling IPv6 static route.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 route on
Done.
```

- **Example 23. Listing IPv6 static router information.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 route list
Router 1:
        Prefix to Route: 2001:0DB8:0002:0002:0000:0000:0000:0000/64
         Router Address: 2001:0DB8:0012:0012:0000:0000:0000:0002
Router 2:
        Prefix to Route: 0000:0000:0000:0000:0000:0000:0000:0000/255
         Router Address: 0000:0000:0000:0000:0000:0000:0000:0000
```

- **Example 24. Setting IPv6 static router information.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 route 1
   2001:0DB8:0002:0002:0000:0000:0000:0000 64
   2001:0DB8:0012:0012:0000:0000:0000:0002
Done.
```

- **Example 25. Clearing IPv6 static router information.**

```
[ipmicfg_HOME] > IPMICFG.exe -ipv6 route clear 1
Done.
```

- **Example 26. Showing IP address protocol.**

```
[ipmicfg_HOME] > IPMICFG.exe -addrptl
Address Protocol is [ Dual ]
Address Protocol Types:
1:IPv4
2:IPv6
3:Dual
```

- **Example 27. Setting up an IP address protocol.**

```
[ipmicfg_HOME] > IPMICFG.exe -addrptl 3
Done.
```

- **Example 28. Checking the system's status mode.**

```
[ipmicfg_HOME] > IPMICFG.exe -lockdown
System Lockdown Mode: Unlocked
```

- **Example 29. Checking the BMC LAN interface.**

```
[ipmicfg_HOME] > IPMICFG.exe -lani
Current LAN interface is [ Failover ]

Supported parameter for setting:
0: Dedicated
1: Shared
2: Failover
```

- **Example 30. Setting the BMC LAN interface to Dedicated.**

```
[ipmicfg_HOME] > IPMICFG.exe -lani 0
Done.
```

- **Example 31. Checking the BMC network link status.**

```
[ipmicfg_HOME] > IPMICFG.exe -linkstatus
General
-------
Hostname              :
MAC Address           : 3C:EC:EF:C6:34:7C
VLAN                  : OFF
VLAN ID               : N/A
LAN Interface         : Failover
RMCP Port             : 623
Active Interface      : Share

Dedicated
---------
Link                  : Auto Negotiation
Status                : Disconnected
Speed                 : Unknown
Duplex                : Unknown

Share
---------
Status                : Connected
Speed                 : 1G
Duplex                : Full Duplex
```

## 3.2 IPMI Management Functions

| Options | Descriptions |
|---|---|
| -r | Performs a BMC cold reset. |
| -fd <option> | Resets to the factory defaults without preserving configurations. |
| | *To meet various needs, set [option] to 1, 2, or 3.<br>1: Preserves the configurations in the "Users" section.<br>2: Restores the factory defaults and the default password of the motherboard.<br>3: Sets user's password to ADMIN. |
| -fdl | Resets IPMI to the factory default. (Clean LAN). |
| -fde | Resets IPMI to the factory default. (Clean FRU & LAN). |
| -d | Detects if a BMC reset was successfully performed on the IPMI device.<br>**Note that this option can be only used after** -r, -fd, -fdl or -fde**.** |
| -ver | Gets firmware revision. |
| -vlan | Gets VLAN status. |
| -vlan on <VLAN tag> | Enables the VLAN and sets the VLAN tag.<br>If VLAN tag is not given, it uses the previously saved value. |
| -vlan off | Disables the VLAN. |
| -selftest | Checks and reports the basic health status of the BMC. |
| -raw | Sends a RAW IPMI request and prints a response.<br>*Command format: `NetFn/LUN Cmd [Data1 ... DataN]` |
| -fan | Gets the fan mode. |
| -fan <mode> | Sets the fan mode.<br>*Mode parameters, such as 0 or 1, may vary by motherboards. . |
| -clrint | Clears chassis intrusion. |
| -reset <index> | Resets system and forces to boot from the selected device.<br>*For the list of index options for a reboot device, please find it in the note below. |
| -soft <index> | Initiates a soft-shutdown for OS and forces system to boot from the selected device.<br>*For the list of index options for a reboot device, please find it in the note below. |
| -summary | Displays FW and BIOS information. |
| -hostname [value] | Gets/Sets a host name. |

| Options | Descriptions |
|---|---|
| -mel list | Shows BMC maintenance event log.<br>-y <n years> \| Filter event logs within n years<br>-m <n months> \| Filter event logs within n months<br>-d <n days> \| Filter event logs within n days |
| -mel download <file> | Downloads a BMC maintenance event log to a file. |
| -mel clear | Clears a BMC maintenance event log. |

**Note:** This is the list of index options for a reboot device.

| Index Option | Reboot Device |
|---|---|
| 1 | PXE |
| 2 | Hard-drive |
| 3 | CD/DVD |
| 4 | Bios |
| 5 | USB KEY |
| 6 | USB HDD |
| 7 | USB Floppy |
| 8 | USB CD/DVD |
| 9 | UEFI Hard-drive |
| 10 | UEFI CD/DVD |
| 11 | UEFI USB KEY |
| 12 | UEFI USB HDD |
| 13 | UEFI USB CD/DVD |
| 14 | UEFI PXE |

### 3.2.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Performing a BMC cold reset.**

```
[ipmicfg_HOME] > IPMICFG.exe -r
BMC cold reset successfully completed!
```

- **Example 2. Resetting IPMI to the factory default.**

```
[ipmicfg_HOME] > IPMICFG.exe -fd 2
Reset to the factory default completed.
```

- **Example 3. Resetting IPMI to the factory default. (Clean LAN)**

```
[ipmicfg_HOME] > IPMICFG.exe -fdl
Reset to the factory default completed.
```

- **Example 4. Resetting IPMI to the factory default. (Clean FRU & LAN)**

```
[ipmicfg_HOME] > IPMICFG.exe -fde
Reset to the factory default completed.
```

- **Example 5. Getting the firmware revision.**

```
[ipmicfg_HOME] > IPMICFG.exe -ver
Firmware Version: 01.87
```

- **Example 6. Getting the VLAN status.**

```
[ipmicfg_HOME] > IPMICFG.exe –vlan
VLAN is now disabled.
```

- **Example 7. Enabling the VLAN status.**

```
[ipmicfg_HOME] > IPMICFG.exe -vlan on 1
VLAN is now enabled.
Tag: 1
```

- **Example 8. Disabling the VLAN status.**

```
[ipmicfg_HOME] > IPMICFG.exe –vlan off
VLAN is now disabled.
```

- **Example 9. Checking and reporting the basic health status of the BMC.**

```
[ipmicfg_HOME] > IPMICFG.exe –selftest
Selftest: Passed.
```

- **Example 10. Sending a RAW IPMI request and printing a response.**

```
[ipmicfg_HOME] > IPMICFG.exe -raw 6 1
20 01 03 19 02 BF 7C 2A 00 34 06
```

- **Example 11. Getting the fan mode.**

```
[ipmicfg_HOME] > IPMICFG.exe -fan
Current Fan Speed Mode is [ Optimal Mode ]

Parameter for setting:
0: Standard
1: Full
2: Optimal
```

**Note:** Eight types of fan modes are supported: 0: Standard, 1: Full, 2: Optimal, 3: PUE2 Optimal, 4: Heavy IO, 5: PUE3 Optimal, 6: Liquid Cooling and 7: Smart Speed. To find out the available fan modes on your system, use the "-fan" command.

- **Example 12. Setting the fan mode.**

```
[ipmicfg_HOME] > IPMICFG.exe -fan 0
Done.
```

- **Example 13. Clearing chassis intrusion.**

```
[ipmicfg_HOME] > IPMICFG.exe -clrint
Done.
```

- **Example 14. Resetting the system and forcing it to boot from the selected device.**

```
[ipmicfg_HOME] > IPMICFG.exe -reset 0
Done.
```

- **Example 15. Initiating a soft-shutdown for OS and forcing the system to boot from the selected device.**

```
[ipmicfg_HOME] > IPMICFG.exe -soft 0
Done.
```

- **Example 16. Displaying FW and BIOS information.**

```
[ipmicfg_HOME] > IPMICFG.exe -summary
Summary
-------------------------------------------
IP                        : 10.136.33.107
MAC Address               : 00:25:90:EE:58:E7
Firmware Revision         : 2.18
Firmware Build Date       : 09/17/2015
BIOS Version              : 1.0
BIOS Build Date           : 11/13/2013
System MAC Address 1      : 00:25:90:E8:70:64
System MAC Address 2      : 00:25:90:E8:70:65
```

- **Example 17. Getting a host name.**

```
[ipmicfg_HOME] > IPMICFG.exe -hostname
TestServer.
```

- **Example 18. Setting a host name.**

```
[ipmicfg_HOME] > IPMICFG.exe -hostname TestServer
Done.
```

- **Example 19. Listing BMC maintenance log.**

```
[ipmicfg_HOME] > IPMICFG.exe -mel list
------------------------------------------------------------------------
Event:1   Time:2023/05/24 17:01:17 Interface:0000    User:ADMIN(ADMIN)
Source:0000 Desc:[MEL-0098] IPv6 address fe80
------------------------------------------------------------------------
Event:2   Time:2023/05/24 17:02:28 Interface:0000    User:ADMIN(ADMIN)
Source:0000 Desc:[MEL-0099] IPv6 address fe80
------------------------------------------------------------------------
Event:3   Time:2023/05/29 13:03:24 Interface:KCS     User:ADMIN(ADMIN)
Source:Localhost Desc:[MEL-0084] VLAN was enabled successfully.
------------------------------------------------------------------------
Event:4   Time:2023/05/29 13:03:24 Interface:KCS     User:ADMIN(ADMIN)
Source:Localhost Desc:[MEL-0085] VLAN ID was configured to 1 successfully.
------------------------------------------------------------------------
Event:5   Time:2023/05/29 13:04:03 Interface:KCS     User:ADMIN(ADMIN)
Source:Localhost Desc:[MEL-0084] VLAN was disabled successfully.
```

- **Example 20. List and filter maintenance event logs within 3 days.**

```
[ipmicfg_HOME] > IPMICFG.exe -mel list -d 3
------------------------------------------------------------------------
Event:3   Time:2023/05/29 13:03:24 Interface:KCS     User:ADMIN(ADMIN)
Source:Localhost Desc:[MEL-0084] VLAN was enabled successfully.
------------------------------------------------------------------------
Event:4   Time:2023/05/29 13:03:24 Interface:KCS     User:ADMIN(ADMIN)
Source:Localhost Desc:[MEL-0085] VLAN ID was configured to 1 successfully.
------------------------------------------------------------------------
Event:5   Time:2023/05/29 13:04:03 Interface:KCS     User:ADMIN(ADMIN)
Source:Localhost Desc:[MEL-0084] VLAN was disabled successfully.
------------------------------------------------------------------------
```

- **Example 21. Downloading a BMC maintenance log to a file.**

```
[ipmicfg_HOME] > IPMICFG.exe -mel download mel.txt
Downloaded file successfully.
```

**Note:** The "`-mel download`" command is not supported when you see the "Prepare download file timeout" message.

- **Example 22. Clearing BMC maintenance log.**

```
[ipmicfg_HOME] > IPMICFG.exe -mel clear
Done.
```

# 3.3 Node Management (NM) 2.0 Functions

| Options | Descriptions |
|---|---|
| -nm nmsdr | Displays NM SDR. |
| -nm seltime | Gets SEL time. |
| -nm deviceid | Gets the ID of an ME device. |
| -nm reset | Reboots ME. |
| -nm reset2default | Forces ME to reset to default settings. |
| -nm updatemode | Forces ME to enter the update mode. |
| -nm selftest | Gets self-test results. |
| -nm listimagesinfo | Lists ME information of images. |
| -nm oemgetpower | OEM Power command for ME. |
| -nm oemgettemp | OEM Temp. command for ME. |
| -nm pstate | Gets the maximum allowed CPU P-State. |
| -nm tstate | Gets the maximum allowed CPU T-State. |
| -nm cpumemtemp | Gets CPU/memory temperature. |
| -nm hostcpudata | Gets the host CPU data. |

## 3.3.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Displaying NM SDR.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm nmsdr
Record ID           = A7 08
SDR Version         = 51h
Record Type         = C0h
Record Length       = 0Bh
OEM ID              = 57 01 00 h
Record Subtype      = 0Dh
Subtype Version     = 01h
Salve Address       = 2Ch
Channel             = 00h
Health Event Sensor Number              = 1Dh
Exception Event Sensor Number           = 1Eh
Operational Capabilities Sensor Number  = 1Fh
Alert Threshold Exceeded Sensor Number  = 20h
```

- **Example 2. Getting SEL time.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm seltime
Mon May 29 13:35:37 2023
```

- **Example 3. Getting the ID of an ME device.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm deviceid
Device ID          = 50h
Firmware Version   = 2.1.5.95
IPMI Version       = 2.0
Manufacturer ID    = 57 01 00
Product ID Minor Ver = Romley platform
Firmware implemented version = NM Revision 2.0
Image Flag = operational image 1
raw  = 50 01 02 15 02 21 57 01 00 02 0b 02 09 50 01
```

- **Example 4. Rebooting ME.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm reset
Done.
```

- **Example 5. Forcing ME to reset to default settings.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm reset2default
Done.
```

- **Example 6. Forcing ME to enter the update mode.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm updatemode
Done.
```

- **Example 7. Getting self-test results.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm selftest
PSU Monitoring service error. < 80 03 >
PSU[1] is not responding.
PSU[2] is not responding.
```

- **Example 8. Listing information of ME images.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm listimagesinfo
Recovery Image:
Image Type = Recovery image
raw  = 57 01 00 02 01 02 09 55 00
```

- **Example 9. Getting power consumption through ME.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm oemgetpower
273 watts
```

- **Example 10. Getting system temperature through ME.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm oemgettemp
41 (c)
```

- **Example 11. Getting the maximum allowed CPU P-State.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm pstate
Current max allowed P-State   = 0
Number of P-State = 15
```

- **Example 12. Getting the maximum allowed CPU T-State.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm tstate
Current max allowed T-State   = 0
Number of T-State = 0
```

- **Example 13. Getting CPU and memory temperature.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm cpumemtemp
CPU#0 = 43(c)
CPU#1 = 44(c)
[CPU#0]CHANNEL#1, DIMM#0 = 39(c)
[CPU#1]CHANNEL#3, DIMM#0 = 31(c)
```

- **Example 14. Getting the host CPU data.**

```
[ipmicfg_HOME] > IPMICFG.exe -nm hostcpudata
Host CPU data:
End of POST notification was received
Host CPU discovery data provided with that command is valid
Number of P-States = 10
Number of T-States = 15
Number of installed CPUs/socket = 2
Processor Discovery Data-1 = 19 19 18 18 17 17 17 17
Processor Discovery Data-2 = 00 00 00 00 00 00 00 00
```

## 3.4 IPMI User & Configuration Management Functions

| Options | Descriptions |
|---|---|
| -pminfo [full] | Displays PMBus health information of power supply. |
| -psfruinfo | Displays FRU health information of power supply. |
| -psbbpinfo | Displays status of the backup battery. |
| -autodischarge <module> <day> | Sets auto discharge by days. |
| -discharge <module> | Manually discharges a battery. |
| -user list | Lists user privileges. |
| -user help | Shows a user privilege code. |
| -user add <user id> <user name> <password> <privilege> | Adds a user.<br>* For the list of privilege levels, please find it in the note below. |
| -user del <user id> | Deletes users. |
| -user level <user id> <privilege> | Updates user privileges. |
| -user setpwd <user id> <password> | Updates a user password. |
| -conf download <file> | Downloads IPMI configuration to a binary file. |
| -conf upload <file> <option> | Uploads IPMI configuration from a binary file.<br>*To bypass a warning message, use the option -p. |
| -conf tdownload <file> | Downloads IPMI configuration to a text file. |
| -conf tupload <file> <option> | Uploads IPMI configuration from a text file.<br>*To bypass a warning message, use the option -p. |

**Note:** This is the list of privilege levels.

| Level | Privilege |
|---|---|
| 15 | No Access |
| 1 | Callback |
| 2 | User |
| 3 | Operator |
| 4 | Administrator |

### 3.4.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Displaying PMBus health information of the power supply.**

```
[ipmicfg_HOME] > IPMICFG.exe -pminfo
[SlaveAddress = 78h] [Module 1]
 Item                       |                Value
 ----                       |                -----
 Status                     |     [STATUS OK](00h)
 AC Input Voltage           |              121.5 V
 AC Input Current           |               0.56 A
 DC 12V Output Voltage      |              12.19 V
 DC 12V Output Current      |               3.18 A
 Temperature 1              |             43C/109F
 Temperature 2              |             41C/106F
 Fan 1                      |              224 RPM
 Fan 2                      |                0 RPM
 DC 12V Output Power        |                 42 W
 AC Input Power             |                 65 W
 PMBus Revision             |               0x8B22
 PWS Serial Number          |      P441PAC17GW2358
 PWS Module Number          |          PWS-441P-1H
 PWS Revision               |               REV1.0
```

- **Example 2. Displaying FRU health information of the power supply.**

```
[ipmicfg_HOME] > IPMICFG.exe -psfruinfo
[SlaveAddress = 70h] [Module 1]
 Item                       |                Value
 ----                       |                -----
 Status                     |                   On
 Temperature                |             41C/106F
 Fan 1                      |              229 RPM
 Fan 2                      |                0 RPM
```

**Note:** If the system does not support the "`-psfruinfo`" command, please try the "`-pminfo`" command to get PSU information.

- **Example 3. Displays status of the backup bettery.**

```
[ipmicfg_HOME] > IPMICFG.exe -psbbpinfo
[SlaveAddress = 70h] [Module 1]
Item                        |               Value
----                        |               -----
Manufacturer                |          SUPERMICRO
Model Name                  |         PWS-206B-1R
Serial Number               |     TEST1234567890A
Product Version             |                 1.2
Firmware version            |                 1.0
-----                       |
Battery Voltage             |             16.27 V
Battery Current             |                0 mA
Battery Pack Temp           |             30C/86F
Board Temp                  |                 N/A
Power Wattage               |                200W
Cycle Count                 |                   6
-----                       |
Battery Power Status        |              Normal
Remaining Energy            |                 99%
Discharge Status            |                None
Discharge Setting           |      Auto (30 days)
Discharge Remaining Days    |             30 days
Battery Status              |              0xC0E0
                            |     [FULLY CHARGED]
                            |       [DISCHARGING]
                            |  [TERMINATE CHARGE]
```

- **Example 4. Setting auto discharge by days.**

```
[ipmicfg_HOME] > IPMICFG.exe -autodischarge 1 30
Done.
```

- **Example 5. Discharging the battery manually.**

```
[ipmicfg_HOME] > IPMICFG.exe -discharge 1
Done.
```

- **Example 6. Listing user privileges.**

(In this example, two users are enabled by default, and one user is hidden in the command line.)

```
[ipmicfg_HOME] > IPMICFG.exe -user list
Maximum number of Users: 10
Count of currently enabled Users: 2
User ID | User Name     | Privilege Level | Enable
------- | -----------   | --------------- | ------
     2  | ADMIN         | Administrator    | Yes
```

- **Example 7. Showing a user privilege code.**

```
[ipmicfg_HOME] > IPMICFG.exe -user help
For privilege level:
Administrator      : 4
Operator           : 3
User               : 2
Callback           : 1
No Access          : 15
```

- **Example 8. Adding a user.**

```
[ipmicfg_HOME] > IPMICFG.exe -user add 3 TEST #Test0908 4
Done.
```

- **Example 9. Deleting a user.**

```
[ipmicfg_HOME] > IPMICFG.exe -user del 3
Done.
```

- **Example 10. Updating user privileges.**

```
[ipmicfg_HOME] > IPMICFG.exe -user level 3 2
Done.
```

- **Example 11. Updating user password.**

```
[ipmicfg_HOME] > IPMICFG.exe -user setpwd 3 #Test0102
Done.
```

- **Example 12. Downloading IPMI configuration to a binary file.**

```
[ipmicfg_HOME] > IPMICFG.exe -conf download ipmi.cfg.bin
Downloaded file successfully
```

- **Example 13. Uploads IPMI configuration from a binary file.**

```
[ipmicfg_HOME] > IPMICFG.exe -conf upload ipmi.cfg.bin
This function may reboot the IPMI device.
Do you want to proceed?[y/n]: y
Uploaded file successfully
Please wait for 1 minute to reboot the BMC.
```

- **Example 14. Downloading IPMI configuration to a text file.**

```
[ipmicfg_HOME] > IPMICFG.exe -conf tdownload ipmi.cfg.txt
Downloaded file successfully
```

- **Example 15. Uploads IPMI configuration from a text file.**

```
[ipmicfg_HOME] > IPMICFG.exe -conf tupload ipmi.cfg.txt
This function may reboot the IPMI device.
Do you want to proceed?[y/n]: y
Uploaded file successfully
Please wait for 1 minute to reboot the BMC.
```

**Notes:**

- The "`-conf (t)download`" command is not supported when you see the "Prepare download file timeout" message.
- The "`-conf (t)upload`" command is not supported when you see the "Upload file failed, Completion Code=xxh" message.
- The "`-conf tdownload`" and "`-conf tupload`" commands are only used to download and upload the BMC IPv4 configurations, including an IP address, a MAC address, a subnet mask, a gateway, and DHCP status.

# 3.5 IPMI Sensor & System Event Management

| Options | Descriptions |
|---|---|
| -sel info | Shows SEL information. |
| -sel list | Shows SEL records.<br>-y <n years> \| Filter event logs within n years<br>-m <n months> \| Filter event logs within n months<br>-d <n days> \| Filter event logs within n days |
| -sel del | Deletes all SEL records. |
| -sel raw | Shows SEL raw data. |
| -sdr [full] | Shows SDR records and readings. |
| -sdr del <sdr id> | Deletes the SDR record. |
| -sdr ver <v1> <v2> | Gets/Sets the SDR version. (<v1> and <v2> are BCD-format.) |

## 3.5.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Showing SEL information.**

```
[ipmicfg_HOME] > IPMICFG.exe -sel info
# of log entries : 6
Free Space       : 10120 bytes
Most recent add  : 2023/05/24 10:35:54
Most recent del  : Pre-Init
# of alloc units : 512
Alloc unit size  : 20 bytes
# free alloc unit: 506
Largest free blk : 506
Max record size  : 20
```

- **Example 2. Showing SEL records.**

```
[ipmicfg_HOME] > IPMICFG.exe -sel list
--------------------------------------------------------------------
Event:1 Time:2023-04-30 21:49:04 Severity:Warning SensorType:System NIC
| Msg = [LAN-0006] Dedicated LAN Link Down - Assertion
--------------------------------------------------------------------
Event:2 Time:2023-04-30 21:49:57 Severity:OK SensorType:PFR
| Msg = [ROT-0003] [BMC] SPI Channel attack is prevented - Assertion
--------------------------------------------------------------------
Event:3 Time:2023-05-08 08:58:42 Severity:Warning SensorType:OS Stop /
Shutdown
| Msg = [SYS-0069] OS graceful shutdown - Assertion
--------------------------------------------------------------------
Event:4 Time:2023-05-08 09:00:29 Severity:OK SensorType:Base OS Boot /
Installation Status
| Msg = [SYS-0056] C: Boot Completed - Assertion
--------------------------------------------------------------------
Event:5 Time:2023-05-24 10:34:00 Severity:Warning SensorType:OS Stop /
Shutdown
| Msg = [SYS-0069] OS graceful shutdown - Assertion
--------------------------------------------------------------------
Event:6 Time:2023-05-24 10:35:54 Severity:OK SensorType:Base OS Boot /
Installation Status
| Msg = [SYS-0056] C: Boot Completed - Assertion
```

- **Example 3. List and filter SEL records within 3 days.**

```
[ipmicfg_HOME] > IPMICFG.exe -mel list -d 3
--------------------------------------------------------------------
Event:5 Time:2023-05-24 10:34:00 Severity:Warning SensorType:OS Stop /
Shutdown
| Msg = [SYS-0069] OS graceful shutdown - Assertion
--------------------------------------------------------------------
Event:6 Time:2023-05-24 10:35:54 Severity:OK SensorType:Base OS Boot /
Installation Status
| Msg = [SYS-0056] C: Boot Completed - Assertion
```

- **Example 4. Deleting all SEL records.**

```
[ipmicfg_HOME] > IPMICFG.exe -sel del
Done.
```

- **Example 5. Showing SEL raw data.**

```
[ipmicfg_HOME] > IPMICFG.exe -sel raw
SEL(   1) 01 00 02 48 00 00 00 20 00 04 05 51 6F F0 FF FF
```

- **Example 6. Showing SDR records and readings.**

```
[ipmicfg_HOME] > IPMICFG.exe -sdr
Status   | (#)Sensor                |      Reading | Low Limit    | High Limit
------   | ---------                |      ------- | ---------    | ----------
    OK   | (4) CPU1 Temp            |     44C/111F |     0C/32F   |    86C/187F
    OK   | (71) CPU2 Temp           |     44C/111F |     0C/32F   |    86C/187F
    OK   | (138) System Temp        |      31C/88F |    -5C/23F   |    80C/176F
    OK   | (205) Peripheral Temp    |     44C/111F |    -5C/23F   |    80C/176F
    OK   | (272) PCH Temp           |     57C/135F |    -5C/23F   |    90C/194F
    OK   | (339) FAN1               |     1800 RPM |    600 RPM   |   18975 RPM
    OK   | (406) FAN2               |     1800 RPM |    600 RPM   |   18975 RPM
         | (473) FAN3               |          N/A |        N/A   |         N/A
         | (540) FAN4               |          N/A |        N/A   |         N/A
         | (607) FAN5               |          N/A |        N/A   |         N/A
         | (674) FAN6               |          N/A |        N/A   |         N/A
         | (741) FAN7               |          N/A |        N/A   |         N/A
         | (808) FAN8               |          N/A |        N/A   |         N/A
    OK   | (875) VTT                |       1.05 V |     0.91 V   |      1.34 V
    OK   | (942) CPU1 Vcore         |       0.89 V |     0.54 V   |      1.48 V
    OK   | (1009) CPU2 Vcore        |       0.76 V |     0.54 V   |      1.48 V
   OK    | (1076) VDIMM ABCD        |       1.48 V |     1.20 V   |      1.64 V
   OK    | (1143) VDIMM EFGH        |       1.50 V |     1.20 V   |      1.64 V
   OK    | (1210) +1.5 V            |       1.47 V |     1.34 V   |      1.64 V
   OK    | (1277) 3.3V              |       3.31 V |     2.92 V   |      3.64 V
   OK    | (1344) +3.3VSB           |       3.31 V |     2.92 V   |      3.64 V
   OK    | (1411) 5V                |       5.05 V |     4.48 V   |      5.50 V
   OK    | (1478) 12V               |      12.29 V |    10.81 V   |     13.25 V
   OK    | (1545) VBAT              |       3.26 V |     2.68 V   |      3.31 V
   OK    | (1612) HDD Status        |       0.00   |     2.68 V   |      3.31 V
   Fail| (1679) Chassis Intru     | 01 C0 01 00 |        N/A   |         N/A
   OK    | (1746) PS1 Status        | 01 C0 01 00 |        N/A   |         N/A
```

- **Example 7. Deleting SDR record.**

```
[ipmicfg_HOME] > IPMICFG.exe -sdr del 808
Delete SDR Record (808) successfully.
```

- **Example 8. Getting the SDR version.**

```
[ipmicfg_HOME] > IPMICFG.exe -sdr ver
SDR version is 00.00
```

- **Example 9. Setting the SDR version.**

```
[ipmicfg_HOME] > IPMICFG.exe -sdr ver 01 02
Done.
SDR version is 01.02
```

## 3.6 FRU Management

| Options | Descriptions |
|---|---|
| -fru info | Shows information of the FRU inventory area. |
| -fru list | Shows all FRU values. |
| -fru cthelp | Shows chassis type code. |
| -fru help | Shows help of FRU Write. |
| -fru <field> | Shows FRU field value. |
| -fru <field> <value> | Writes FRU. |
| -fru backup <file> | Backs up FRU to a file <Binary format>. |
| -fru restore <file> | Restores FRU from a file <Binary format>. |
| -fru tbackup <file> | Backs up FRU to a file <Text format>. |
| -fru trestore <file> | Restores FRU from a file <Text format>. |
| -fru ver <v1> <v2> | Gets/Sets the FRU version.<br>*<v1> and <v2> are BCD-format.) |
| -fru dmi <$1> …<br><$14> | Inputs 14 parameters and writes to FRU Chassis/Board/Product fields.<br>$1 PRODUCT Manufacturer Name<br>$2 PRODUCT Product Name<br>$3 PRODUCT Part Number<br>$4 PRODUCT Product Version<br>$5 PRODUCT Serial Number<br>$6 PRODUCT Asset Tag<br>$7 BOARD mfg/DateTime<br>$8 BOARD Board Manufacturer<br>$9 BOARD Product Name<br>$10 BOARD Part Number<br>$11 BOARD Serial Number<br>$12 CHASSIS Type (HEX value, ex:01,02,03 ...)<br>$13 CHASSIS Part Number<br>$14 CHASSIS Serial Number |

### 3.6.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Showing information of the FRU inventory area.**

```
[ipmicfg_HOME] > IPMICFG.exe -fru info
FRU size: 1024 bytes
```

- **Example 2. Showing all FRU value.**

```
[ipmicfg_HOME] > IPMICFG.exe –fru list
Chassis Type (CT)                = Unknown(02h)
Chassis Part Number (CP)         =
Chassis Serial Number (CS)       = 0123456789
Board Mfg. Date/Time(BDT)        = 2012/11/12 16:31:00 (DF 5D 87)
Board Manufacturer (BM)          = Supermicro
Board Product Name (BPN)         = X9DRD-iF
Board Serial Number (BS)         = 0123456789
Board Part Number (BP)           =
Product Manufacturer (PM)        = Supermicro
Product Name (PN)                = X9DRD-iF
Product Part/Model Number (PPM)  =
Product Version (PV)             =
Product Serial Number (PS)       = 0123456789
Product Asset Tag (PAT)          =
```

- **Example 3. Showing chassis type code.**

```
[ipmicfg_HOME] > IPMICFG.exe -fru cthelp
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
18h = Sealed-case PC
19h = Multi-system Chassis
1Ah = CompactPCI
1Bh = AdvancedTCA
1Ch = Blade
1Dh = Blade Enclosure
```

```
1Eh = Tablet
27h = Blade
```

- **Example 4. Showing help of FRU Write.**

```
[ipmicfg_HOME] > IPMICFG.exe -fru help
Available Fields for FRU
Chassis Info Fields:
CT  ;Chassis Type
CP  ;Chassis Part Number
CS  ;Chassis Serial Number
Board Info Fields:
BDT ;Board Mfg. Date/Time (YYYYMMDDhhmm)
BM  ;Board Manufacturer
BPN ;Board Product Name
BS  ;Board Serial Name
BP  ;Board Part Number
Product Info Fields:
PM  ;Product Manufacturer
PN  ;Product Name
PPM ;Product Part/Model Number
PV  ;Product Version
PS  ;Product Serial Number
PAT ;Asset Tag
Example:
ipmicfg -fru PS                 ;read product serial number
ipmicfg -fru PS 123456789       ;write product serial number
```

- **Example 5. Showing FRU field value.**

```
[ipmicfg_HOME] > IPMICFG.exe -fru cs
0123456789
```

- **Example 6. Writing FRU.**

```
[ipmicfg_HOME] > IPMICFG.exe -fru BDT 201211121631
Chassis Type (CT)               = Unknown(02h)
Chassis Part Number (CP)        =
Chassis Serial Number (CS)      = 0123456789
Board Mfg. Date/Time(BDT)       = 2012/11/12 16:31:00 (DF 5D 87)
Board Manufacturer (BM)         = Supermicro
Board Product Name (BPN)        = X9DRD-iF
Board Serial Number (BS)        = 0123456789
Board Part Number (BP)          =
Product Manufacturer (PM)       = Supermicro
Product Name (PN)               = X9DRD-iF
Product Part/Model Number (PPM) =
Product Version (PV)            =
Product Serial Number (PS)      = 0123456789
Product Asset Tag (PAT)         =
```

- **Example 7. Backing up FRU to a binary file.**

```
[ipmicfg_HOME] > IPMICFG.exe -fru backup fru.bin
Backed up FRU successfully.
```

- **Example 8. Restoring FRU from a binary file.**

```
[ipmicfg_HOME] > IPMICFG.exe -fru restore fru.bin
Restored FRU successfully.
```

- **Example 9. Backing up FRU to a text file.**

```
[ipmicfg_HOME] > IPMICFG.exe -fru tbackup fru.txt
Backed up FRU successfully.
```

- **Example 10. Restoring FRU from a text file.**

```
[ipmicfg_HOME] > IPMICFG.exe -fru trestore fru.txt
Restored FRU successfully.
```

- **Example 11. Setting the FRU version.**

```
[ipmicfg_HOME] > IPMICFG.exe -fru ver 1 1
Done.
FRU version is 01.01
```

- **Example 12. Batch update FRU fields.**

```
[ipmicfg_HOME] > IPMICFG.exe -fru dmi PM PN PPM PV PS PAT 202305300000 BM
BPN BP BS 0 CP CS
Chassis Type (CT)                = Unspecified(00h)
Chassis Part Number (CP)         = CP
Chassis Serial Number (CS)       = CS
Board Mfg. Date/Time(BDT)        = 2023/05/30 00:00:00 (E0 F7 DB)
Board Manufacturer (BM)          = BM
Board Product Name (BPN)         = BPN
Board Serial Number (BS)         = BS
Board Part Number (BP)           = BP
Product Manufacturer (PM)        = PM
Product Name (PN)                = PN
Product Part/Model Number (PPM)  = PPM
Product Version (PV)             = PV
Product Serial Number (PS)       = PS
Product Asset Tag (PAT)          = PAT
```

# 3.7 Multi Node Management

| Options | Descriptions |
|---|---|
| -tp info | Gets MCU information. |
| -tp info <type> | Gets information of MCU type.<br>*Type parameters are 1, 2 and 3. |
| -tp nodeid | Gets a node ID. |
| -tp systemname [value] | Gets/Sets a system name. |
| -tp systempn [value] | Gets/Sets a system P/N. |
| -tp systemsn [value] | Gets/Sets a system S/N. |
| -tp chassispn [value] | Gets/Sets a chassis P/N. |
| -tp chassissn [value] | Gets/Sets a chassis S/N. |
| -tp backplanepn [value] | Gets/Sets a backplane P/N. |
| -tp backplanesn [value] | Gets/Sets a backplane S/N. |
| -tp nodepn [value] | Gets/Sets a node P/N. |
| -tp nodesn [value] | Gets/Sets a node S/N. |

## 3.7.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1: Getting MCU information.**

```
[ipmicfg_HOME] > IPMICFG.exe -tp info
Node | Power    | IP              | Watts | Current | CPU1 | CPU2 | System
---- | -------- | --------------- | ----- | ------- | ---- | ---- | ------
   A | Active   | 10.136.33.31    |   35W |    3.4A |  42C |  N/A |    31C
   B | Active   | 10.136.33.32    |   27W |    2.2A |  43C |  N/A |    31C
   C | Active   | 10.136.33.33    |   46W |    3.8A |  45C |  N/A |    29C
   D | Active   | 10.136.33.34    |   24W |    2.0A |  39C |  N/A |    30C

Node | Node P/N               | Node S/N
---- | --------               | --------
   A | X9DRT-P                | ZM141S022841
   B | X9DRT-P                | ZM141S023245
   C | X9DRT-P                | ZM141S022861
   D | X9DRT-P                | ZM141S022860

Configuration ID    : 4
Current Node ID     : B
```

```
System Name         : Test
System P/N          : (Empty)
System S/N          : (Empty)
Chassis P/N         : (Empty)
Chassis S/N         : (Empty)
BackPlane P/N       : (Empty)
BackPlane S/N       : (Empty)
Chassis Location    : 00 00 00 00 00
BP Location         : N/A (FBh)
MCU Version         : 1.06
BPN Revision        : 1.23
```

- **Example 2. Getting information of MCU type.**

```
[ipmicfg_HOME] > IPMICFG.exe -tp info
Node | Power    | IP               | Watts | Current | CPU1 | CPU2 | System
---- | -------- | ---------------- | ----- | ------- | ---- | ---- | ------
   A | Active   | 10.136.33.31     |   35W |    3.4A |  42C |  N/A |    31C
   B | Active   | 10.136.33.32     |   27W |    2.2A |  43C |  N/A |    31C
   C | Active   | 10.136.33.33     |   46W |    3.8A |  45C |  N/A |    29C
   D | Active   | 10.136.33.34     |   24W |    2.0A |  39C |  N/A |    30C
```

- **Example 3. Getting a node ID.**

```
[ipmicfg_HOME] > IPMICFG.exe -tp nodeid
B
```

- **Example 4. Setting the MCU's backplane P/N.**

```
[ipmicfg_HOME] > IPMICFG.exe -tp backplanepn BPN-PDB-F418
Done
```

- **Example 5. Getting the MCU's backplane P/N.**

```
[ipmicfg_HOME] > IPMICFG.exe -tp backplanepn
BPN-PDB-F418
```

# 3.8 TAS Management

| Options | Descriptions |
|---|---|
| -tas info | Gets TAS information. |
| -tas pause | Pauses a TAS service. |
| -tas resume | Resumes a TAS service. |
| -tas refresh | Triggers TAS to recollect data. |
| -tas clear | Clears collected TAS data in BMC. |
| -tas period <sec> | Sets the time length of a TAS update <limit 1 to 60 sec>. |

**Note:** The "-tas" command set is not supported on DOS and UEFI Shell.

## 3.8.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Getting TAS information.**

```
[ipmicfg_HOME] > IPMICFG.exe -tas info
 Item                   |                     Value
 ----                   |                     -----
 Version                |                     1.1.1
 Build Data             |                    150923
 Protocol Version       |                      0x01
 Status                 |                   Running
 TAS Start Time         |  Mon Nov 23 13:39:35 2015
 Last Update Time       |  Thu Dec 10 17:21:00 2015
```

- **Example 2. Pausing a TAS service.**

```
[ipmicfg_HOME] > IPMICFG.exe -tas pause
Done.
```

- **Example 3. Resuming a TAS service.**

```
[ipmicfg_HOME] > IPMICFG.exe -tas resume
Done.
```

- **Example 4. Trigger TAS to recollect data.**

```
[ipmicfg_HOME] > IPMICFG.exe -tas refresh
Done.
```

- **Example 5. Clearing collected TAS data in BMC.**

```
[ipmicfg_HOME] > IPMICFG.exe -tas clear
Done.
```

- **Example 6. Setting the time length of a TAS update.**

```
[ipmicfg_HOME] > IPMICFG.exe -tas period 10
Done.
```

## 3.9 NVME Management

| Options | Descriptions | Requirement of TAS running on management systems |
|---|---|---|
| -nvme list | Displays the existing NVME SSD list. | Yes |
| -nvme info | Displays NVME SSD information. | No |
| -nvme rescan | Rescans all devices by in-band. | Yes |
| -nvme insert <aoc> <group> <slot> | Inserts SSD by out-of-band. | No |
| -nvme locate <HDD name> | Locates SSD. (in-band) | Yes |
| -nvme locate <aoc> <group> <slot> | Locates SSD. (out-of-band) | No |
| -nvme stoplocate <HDD name> | Stops locating SSD. (in-band) | Yes |
| -nvme stoplocate <aoc> <group> <slot> | Stops locating SSD. (out-of-band) | No |
| -nvme remove <HDD name> [option1] [option2] | Removes NVME device. (in-band)<br>*To disconnect an NVME device on the OS and then eject from BMC, by default, use 0 for [option1].<br>*To disconnect an NVME device on the OS but not eject from BMC afterwards, use 1 for [option1].<br>*To bypass a warning message, use -p for [option2]. | Yes |
| -nvme remove <aoc> <group> <slot> [option] | Removes NVME device. (out-of-band)<br>*To bypass a warning message, use the option -p. | No |
| -nvme smartdata [HDD name] | NVME S.M.A.R.T data. | Yes |

**Notes:**

- The "-nvme" command set is not supported on DOS and UEFI shells.
- The "-nvme insert" and "-nvme remove" commands are not supported on ESXi.
- If you do not have the info of "AOC," "Group," and "Slot" to run out-of-band commands, execute the "-nvme info" command.

### 3.9.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Displaying the existing NVMe SSD list.**

```
[ipmicfg_HOME] > IPMICFG.exe -nvme list
Name  |               Vendor |  Capacity |  IB Temp. |   Locate |   Slot
----  |               ------ |  --------- |  --------- |   ------ |   ----
Nvme0 | INTEL SSDPE2ME400G4 |  372.6 GB |      25 C |       No |      0
```

- **Example 2. Displaying NVMe SSD information.**

```
[ipmicfg_HOME] > IPMICFG.exe -nvme info
 [AOC Number: 0] [Firmware Info: 00 00][Rev: 00]
 Item                        |                  Value
 ----                        |                  -----
 Slot                        |                      0
 Located                     |                     NO
 OOB Temp.                   |                   36 C
 Class Code                  |               02 08 01
 ID                          |                  80 86
 Serial Number               |     CVMD44500004400FGN
 Model Number                |    INTEL SSDPE2ME400G4
 Port0 Max Link Speed        |               8.0 GT/s
 Port0 Max Link Width        |                     x4
 Port1 Max Link Speed        |               8.0 GT/s
 Port1 Max Link Width        |                     x4
 Init Power Requirement      |               25 Watts
 Max Power Requirement       |               25 Watts

 Item                        |                  Value
 ----                        |                  -----
 Slot                        |                      1
 Located                     |                     NO
 OOB Temp.                   |                   34 C
 Class Code                  |               88 88 88
 ID                          |                  80 86
 Serial Number               |     PHLF723600Z04P0IGN
 Model Number                |    INTEL SSDPE2KX040T7
 Port0 Max Link Speed        |                    N/A
 Port0 Max Link Width        |                Unknown
 Port1 Max Link Speed        |                    N/A
 Port1 Max Link Width        |                Unknown
 Init Power Requirement      |                0 Watts
 Max Power Requirement       |                0 Watts
----------------------End of Group (0)--------------
```

- **Example 3. Rescanning all devices by in-band.**

```
[ipmicfg_HOME] > IPMICFG.exe -nvme rescan
Done.
```

- **Example 4. Inserting an SSD by out-of-band access.**

```
[ipmicfg_HOME] > IPMICFG.exe -nvme insert 0 0 2
Done
```

- **Example 5. Locating an SSD by in-band access.**

```
[ipmicfg_HOME] > IPMICFG.exe -nvme locate nvme2
Done
```

- **Example 6. Locating an SSD by out-of-band access.**

```
[ipmicfg_HOME] > IPMICFG.exe -nvme locate 0 0 2
Done
```

- **Example 7. Stop locating an SSD by in-band access.**

```
[ipmicfg_HOME] > IPMICFG.exe -nvme stoplocate nvme2
Done
```

- **Example 8. Stop locating an SSD by out-of-band access.**

```
[ipmicfg_HOME] > IPMICFG.exe -nvme stoplocate 0 0 2
Done
```

- **Example 9. Removing an NVMe device by in-band access.**

```
[ipmicfg_HOME] > IPMICFG.exe -nvme remove nvme2 -p
Sending in band remove command...
Done.
Waiting for 10 secs to remove device...
Sending OOB eject command...
Done.
```

- **Example 10. Removing an NVMe device by out-of-band access.**

```
[ipmicfg_HOME] > IPMICFG.exe -nvme remove 0 0 2 -p
Sending OOB eject command...
Done.
```

- **Example 11. Getting NVME S.M.A.R.T data.**

```
[ipmicfg_HOME] > IPMICFG.exe -nvme smartdata
Item                            |               Value
----                            |               -----
Device name                     |              vmhba2
Critical warning                |                   0
IB Temp.                        |               297 K
Available spare                 |               100 %
Available spare threshold       |                10 %
Percentage                      |                 0 %
Data units read (512k bytes)    |             0xdbb6b
Data units written (512k bytes) |            0x37a20d
Host read commands              |         0x739089d9c
Host write commands             |          0x6fe42b3b
Controller busy time (minutes)  |                 0x7
Power cycles                    |              0x59e5
Power on hours                  |              0xcbaf
Unsafe shutdowns                |                0x38
Media errors                    |                 0x0
Error log entries               |                 0x0

Item                            |               Value
----                            |               -----
Device name                     |              vmhba3
Critical warning                |                   0
IB Temp.                        |               306 K
Available spare                 |                99 %
Available spare threshold       |                10 %
Percentage                      |                 1 %
Data units read (512k bytes)    |           0x8ed31c0
Data units written (512k bytes) |           0x235a035
Host read commands              |          0x85bf55ae
Host write commands             |          0x5cfb3a52
Controller busy time (minutes)  |               0x123
Power cycles                    |               0x24a
Power on hours                  |              0x83c2
Unsafe shutdowns                |               0x1ec
Media errors                    |                 0x0
Error log entries               |                 0x0
```

# 3.10 DCMI Management

| Options | Descriptions |
|---|---|
| -dcmi cap | Lists information of DCMI capabilities. |
| -dcmi power | Gets the DCMI power readings. |
| -dcmi ctl [value] | Gets/Sets the DCMI management controller ID string. |

## 3.10.1 Examples of Command Executions

The following are selected options from the above table to illustrate their execution.

- **Example 1. Listing info of DCMI capabilities.**

```
[ipmicfg_HOME] > IPMICFG.exe -dcmi cap
Mandatory Platform Capabilities
-------------------------------
Temperature Monitor     | Compliant
Chassis Power           | Compliant
SEL Logging             | Compliant
Identification Support  | Compliant

Optional Platform Capabilities
------------------------------
Power Management        | Compliant

Manageability Access Capabilities
---------------------------------
VLAN Capable                        | Available
SOL Supported                       | Available
OOB Primary LAN Channel Available   | Available
OOB Secondary LAN Channel Available | Not Present
OOB Serial TMODE Available          | Not Present
In-Band KCS Channel Available       | Available

SEL Attributes
--------------
SEL Automatic Rollover Enabled      | Not Present
Number Of SEL Entries               | 0

Identification Attributes
-------------------------
Asset Tag Support       | Available
DHCP Host Name Support  | Not Present
GUID Support            | Available

Temperature Monitoring
----------------------
```

```
Baseboard temperature   | At least 1
Processors temperature  | At least 1
Inlet temperature       | At least 1

Power Management Device Slave Address
-------------------------------------
7-bit I2C Slave Address Of Device On IPMB   | 10h

Power Management Controller Channel Number
------------------------------------------
Channel Number          | 00h
Device Revision         | 01h

Manageability Access Attributes
-------------------------------------
Mandatory Primary LAN OOB Support (RMCP+ Support Only)  | Supported
Optional Secondary LAN OOB Support (RMCP+ Support Only) | Not Supported
Optional Serial OOB TMODE Capability                    | Not Supported
```

- **Example 2. Getting the DCMI power readings.**

```
[ipmicfg_HOME] > IPMICFG.exe -dcmi power
Instantaneous Power Reading              | 14 Watts
Minimum During Sampling Period           | 6 Watts
Maximum During Sampling Period           | 86 Watts
Average Power Reading Over Sample Period | 15 Watts
IPMI Timestamp                           | 2017/02/24 14:00:22
Sampling Period                          | 172705000 Milliseconds
Power Reading State                      | Activated
```

- **Example 3. Getting or setting the DCMI management controller ID string**.

```
[ipmicfg_HOME] > IPMICFG.exe -dcmi ctl
(Empty)
```

# 4 Third Party Software

## 4.1 IPMI Tool

Please refer to http://sourceforge.net/projects/ipmitool for more information.

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