VANTAGEO Server

IPMI Interface Description (for BMC V3)

Version: R1.4

VANTAGEO PRIVATE LIMITED
Corporate Address: 617, Lodha Supremus II,
Road No. 22, Wagle Estate,
Thane - 400604
URL: https://vantageo.com
E-mail: support@vantageo.com
Helpdesk - +91 18002669898

LEGAL INFORMATION

Statement on the Use of Third-Party Embedded Software:

If third-party embedded software such as Oracle, Sybase/SAP, Veritas, Microsoft, VMware, and Redhat is delivered together with this product of VANTAGEO, the embedded software must be used as only a component of this product. If this product is discarded, the licenses for the embedded software must be void either and must not be transferred. VANTAGEO will provide technical support for the embedded software of this product.

Revision History

Revision No.	Revision Date	Revision Reason
R1.4	2024-11-06	● Added user privilege information. ● Added IPMI use cases.
R1.3	2024-02-01	Updated: ● 2.4 Setting the BMC Clock Source and NTP Information in the NTP Synchronization Scenario ● 3.7 Querying BIOS Settings

Revision No.	Revision Date	Revision Reason
		● 3.8 Configuring BIOS Settings ● 5.2 Setting the Password of a User ● 5.7 Setting KVM and vMedia Permissions
R1.2	2023-03-30	Added: ● 3.10 Resetting the Host by Pressing Ctrl + Alt + Del ● 4.18 Performing an Operation on a Power Supply Extender ● 4.19 Querying the Status of a Power Supply Extender
R1.1	2022-10-31	Added: ● 2.16 Setting Remote Log (Syslog) Service Information ● 2.17 Querying Remote Log (Syslog) Service Information ● 3.9 Querying Power Supply Information ● 4.3 Upgrading BMC and BIOS ● 4.16 Querying the Active/Standby Power Mode ● 4.17 Setting the Active/Standby Power Mode
R1.0	2022-05-31	First edition.

Serial Number: VT20230302

Publishing Date: 2024-11-06 (R1.4)

Contents

1 IPMI Overview **7**
1.1 Introduction to IPMI 7
1.2 Operating Environment Requirements 7
1.3 IPMI Command Syntax 8
2 Manager-Related Commands **11**
2.1 Querying the Time Zone 11
2.2 Setting the Time Zone 12
2.3 Querying the BMC Clock Source and NTP Information 13
2.4 Setting the BMC Clock Source and NTP Information (NTP Synchronization) 17
2.5 Setting the BMC Clock Source and NTP Information (BIOS Synchronization) 21
2.6 Querying NTP Information 22
2.7 Querying SNMP Information 25
2.8 Configuring SNMP 26
2.9 Querying a Trap from a BMC 28
2.10 Configuring a Trap from a BMC 30
2.11 Querying SOL Information 32
2.12 Activating an SOL Session 32
2.13 Deactivating an SOL Session 33
2.14 Enabling Support for Ironic Commands 33
2.15 Setting Remote Log (Syslog) Service Information 34
2.16 Querying Remote Log (Syslog) Service Information 35
3 System-Related Commands **38**
3.1 Restarting a Server 38
3.2 Powering On a Server 39
3.3 Powering Off a Server 39
3.4 Obtaining ACPI Power States 40
3.5 Setting the Boot Device 41
3.6 Creating a RAID Volume 42
3.7 Querying BIOS Settings 46
3.8 Configuring BIOS Settings 51
3.9 Querying Power Supply Information 56
3.10 Resetting the Host by Pressing Ctrl + Alt + Del 58
4 Chassis-Related Commands **60**
4.1 Querying FRU information 60
4.2 Querying Firmware Version Information 61

4.3 BMC and BIOS Upgrade 66
4.3.1 Obtaining the Upgrade Mode Supported by the Firmware 66
4.3.2 Making Preparations for Upgrade 68
4.3.3 Writing Version Information 70
4.3.4 Notifying the BMC of Data Transmission Completion 71
4.4 Querying the IPMI Version 72
4.5 Querying Server Component Redundancy 73
4.6 Performing a Warm Reset on a BMC 74
4.7 Setting the IP Address of a BMC 75
4.8 Setting the Subnet Mask of a BMC 75
4.9 Setting the Gateway Address of a BMC 76
4.10 Disabling the Shared Port 77
4.11 Querying the Number of Network Ports 78
4.12 Querying the MAC Address of a Network Port 79
4.13 Querying the Position Information About a Network Port 80
4.14 Querying the Asset Tag 82
4.15 Setting the Asset Tag 82
4.16 Querying the Active/Standby Power Mode 83
4.17 Setting the Active/Standby Power Mode 84
4.18 Performing an Operation on a Power Supply Extender 85
4.19 Querying the State of a Power Supply Extender 86
5 Account-Related Commands 88
5.1 Setting a Username 88
5.2 Setting the Password of a User 89
5.3 Activating a User 90
5.4 Setting the Privilege of a User 91
5.5 Setting the Privilege of a User in a Channel 92
5.6 Setting SNMP Permissions 93
5.7 Setting KVM and vMedia Permissions 94
6 IPMI Use Case 96
6.1 Running the IPMI Tool in the Server System 96
6.2 Running the IPMI Command on a BMC 97
6.3 Running the IPMI Tool on a Commissioning PC 98
7 Appendix: Time Zone Names 100
Glossary 113

About This Manual

Purpose

This manual describes IPMI commands.

This manual is applicable to BMC V3.

Intended Audience

This manual is intended for:

- Data configuration engineers
- Maintenance engineers

What Is in This Manual

This manual contains the following chapters.

Chapter 1, IPMI Overview	Describes the functions, operating environment requirements, and basic command syntax of IPMI.
Chapter 2, Manager-Related Commands	Describes the function, syntax, response, and example of manager-related commands.
Chapter 3, System-Related Commands	Describes the function, syntax, response, and example of system-related commands.
Chapter 4, Chassis-Related Commands	Describes the function, syntax, response, and example of chassis-related commands.
Chapter 5, Account-Related Commands	Describes the function, syntax, response, and example of account-related commands.
Chapter 6, IPMI Use Case	Describes how to obtain the chassis status through ipmitool.
Chapter 7, Appendix: Time Zone Names	Lists time zone names.

Conventions

This manual uses the following convention.

	Note: provides additional information about a topic.

Chapter 1
IPMI Overview

Table of Contents

Introduction to IPMI 7
Operating Environment Requirements 7
IPMI Command Syntax 8

1.1 Introduction to IPMI

IPMI is a hardware-level interface specification used for out-of-band management of server systems. This specification is defined by companies such as Intel, HP, NEC, Dell, and Supermicro. IPMI is used to monitor the physical health of servers, for example, temperature, voltage, fans, and power supplies. It provides unified management of servers of different vendors.

The heart of IPMI is a dedicated chip/controller (server CPU or BMC). IPMI is an agentless management subsystem operating in the system independently, which does not depend on the CPU, BIOS, or the operating system. It can operate with only the BMC and IPMI firmware.

A BMC is an independent board installed on the mainboard. Some mainboards have a built-in BMC.

IPMI allows you to manage servers independently of the operating system. For example, IPMI enables you to perform various operations through the CLI, including power-on, power-off, and information extraction when an operating system fails to respond or be loaded.

1.2 Operating Environment Requirements

IPMI requires the support of a server and an IPMI tool (ipmitool or ipmiutil) on the remote console. Therefore, a server that supports IPMI management and a commissioning PC as the remote console are required, and the commissioning PC and the managed server can be pinged successfully.

The ipmitool tool runs in the following three environments:

- Operating system of a server: Download ipmitool to the local PC, and upload it to the server. Or install it by using Yum source.
- BMC: Log in to a BMC through SSH. Use the ipmitool tool integrated with the BMC.

- Commissioning PC: Download ipmitool to the local PC. The ipmitool tool supports Linux and Windows.

Note

If the commissioning PC uses the Linux operating system (such as Ubuntu), run the following command to install ipmitool:
sudo apt-get install ipmitool/ipmiutil

1.3 IPMI Command Syntax

Basic Command Syntax

ipmitool -I *lanplus* **-H** *[Parameter 1]* **-U** *[Parameter 2]* **-P** *[Parameter 3] [Parameter 4]*

Command Parameter Description

Table 1-1 describes the IPMI command parameters.

Table 1-1 IPMI Command Parameters

Parameter	Description	Value Restraints
Parameter 1	BMC management address	IP address
Parameter 2	BMC management username	Character string
Parameter 3	BMC management password	Character string
Parameter 4	Configured command	Command

Note

If you use the IPMI command as a non-administrator user, you need to add the **-L** parameter, and use the *operator* or *user* field to indicate the access permissions.

Example 1

Request: Set the **<command>** parameter to **help** to obtain help information.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! help
```

Response:

```
Commands:
     raw         Send a RAW IPMI request and print response
     i2c          Send an I2C Master Write-Read command and print response
     spd         Print SPD info from remote I2C device
     lan          Configure LAN Channels
```

```
    chassis      Get chassis status and set power state
    power         Shortcut to chassis power commands
    event        Send pre-defined events to MC
    mc          Management Controller status and global enables
    sdr          Print Sensor Data Repository entries and readings
    sensor         Print detailed sensor information
    fru         Print built-in FRU and scan SDR for FRU locators
    gendev         Read/Write Device associated with Generic Device locators sdr
    sel         Print System Event Log (SEL)
    pef          Configure Platform Event Filtering (PEF)
    sol          Configure and connect IPMIv2.0 Serial-over-LAN
    tsol         Configure and connect with Tyan IPMIv1.5 Serial-over-LAN
    isol        Configure IPMIv1.5 Serial-over-LAN
    user        Configure Management Controller users
    channel        Configure Management Controller channels
    session        Print session information
    dcmi          Data Center Management Interface
    nm          Node Manager Interface
    sunoem         OEM Commands for Sun servers
    kontronoem      OEM Commands for Kontron devices
    picmg          Run a PICMG/ATCA extended cmd
    fwum           Update IPMC using Kontron OEM Firmware Update Manager
    firewall    Configure Firmware Firewall
    delloem        OEM Commands for Dell systems
    shell        Launch interactive IPMI shell
    exec        Run list of commands from file
    set          Set runtime variable for shell and exec
    hpm            Update HPM components using PICMG HPM.1 file
    ekanalyzer     run FRU-Ekeying analyzer using FRU files
    ime         Update Intel Manageability Engine Firmware
    vita         Run a VITA 46.11 extended cmd
    lan6        Configure IPv6 LAN Channels
```

Example 2

Request: Obtain the help information about the **`user`** command.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! user help
```

Response:

```
User Commands:
            summary     [<channel number>]
            list    [<channel number>]
            set name   <user id> <username>
            set password <user id> [<password> <16|20>]
```

```
          disable   <user id>
          enable    <user id>
          priv     <user id> <privilege level> [<channel number>]
               Privilege levels:
               * 0x1 - Callback
               * 0x2 - User
               * 0x3 - Operator
               * 0x4 - Administrator
               * 0x5 - OEM Proprietary
               * 0xF - No Access

     test  <user id> <16|20> [<password]>
```

Chapter 2
Manager-Related Commands

Table of Contents

Querying the Time Zone 11
Setting the Time Zone 12
Querying the BMC Clock Source and NTP Information 13
Setting the BMC Clock Source and NTP Information (NTP Synchronization) 17
Setting the BMC Clock Source and NTP Information (BIOS Synchronization) 21
Querying NTP Information 22
Querying SNMP Information 25
Configuring SNMP 26
Querying a Trap from a BMC 28
Configuring a Trap from a BMC 30
Querying SOL Information 32
Activating an SOL Session 32
Deactivating an SOL Session 33
Enabling Support for Ironic Commands 33
Setting Remote Log (Syslog) Service Information 34
Querying Remote Log (Syslog) Service Information 35

2.1 Querying the Time Zone

Function

This command queries the time zone of a server.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x32 0xa6

User Privilege

user

Response Description

Table 2-1 describes the response data of this command.

Table 2-1 Response Description for Querying the Time Zone

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 64th bytes	Time zone name.

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x32 0xa6
```

Response:

```
41 73 69 61 2f 42 61 6b 75
```

For a description of response data, refer to Table 2-2.

Table 2-2 Example Response for Querying the Time Zone

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 64th bytes	41 73 69 61 2f 42 61 6b 75	Time zone name. This hexadecimal string represents Asia/Baku in ASCII format.

2.2 Setting the Time Zone

Function

This command sets the time zone of a server.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x32 0xa5 [Parameter 4]

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 2-3.

Table 2-3 Parameter Descriptions for Setting the Time Zone

Parameter	Value Restraints	Description
Parameter 4	63 bytes	Time zone name. Zero padding. For time zone names, refer to 7 Appendix: Time Zone Names.

Response Description

Table 2-4 describes the response data of this command.

Table 2-4 Response Description for Setting the Time Zone

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.

Example

Request: To set the time zone to Asia/Baku, set Parameter 4 to 0x41 0x73 0x69 0x61 0x2f 0x42 0x61 0x6b 0x75, and use zero padding.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x32 0xa5 0x41
0x73 0x69 0x61 0x2f 0x42 0x61 0x6b 0x75 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

Response: none

2.3 Querying the BMC Clock Source and NTP Information

Function

This command queries the BMC clock source and NTP information. This command has multiple versions (versions 0, 1, and 2) and is used as follows:

- For BMC earlier than V03.20.02.00, versions 0 and 1 of this command are supported.
- For BMC V03.20.02.00 and later, versions 0, 1, and 2 of this command are supported.

Note

Versions 0 and 1 of this command support only IPv4 addresses, and version 2 of this command supports IPv4 addresses, IPv6 addresses, and domain names. If an IPv6 address or domain name is configured, versions 0 and 1 of this command are not applicable.

Syntax

- Versions 0 and 1: ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter3] raw 0x2e 0xba 0x3e 0xf 0 [Parameter 4]
- Version 2: ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xba 0x3e 0xf 0 [Parameter 4] [Parameter 5]

User Privilege

user

Parameters

For a description of the parameters of versions 0 and 1 of this command, refer to Table 2-5.

Table 2-5 Parameter Descriptions for Querying the BMC Clock Source and NTP Information (Versions 0 and 1)

Parameter	Value Restraints	Description
Parameter 4	1 byte, value: 0 or 1.	Command version number. If this parameter is not set, the default version number is 0.

For a description of the parameters of version 2 of this command, refer to Table 2-6.

Table 2-6 Parameter Descriptions for Querying the BMC Clock Source and NTP Information (Versions 2)

Parameter	Value Restraints	Description
Parameter 4	1 byte	Command version number. Enter *2*.
Parameter 5	1 byte	Queries NTP configuration items, including: ● 0: NTP enabled or disabled. ● 1: synchronization period. ● 2: primary NTP server address. ● 3: secondary NTP server address. ● 4: tertiary NTP server address.

Response Description

Table 2-7 describes the response data of this command (versions 0 and 1).

Table 2-7 Response Description for Querying the BMC Clock Source and NTP Information (Versions 0 and 1)

Response Data	Description
1st byte	Completion code

Response Data	Description
2nd through 4th bytes	Vendor ID of VANTAGEO.
5th byte	Clock synchronization mode. ● 1: NTP ● 0: RTC (UTC time)
6th through 9th bytes	Primary NTP server address.
10th through 13th bytes	Secondary NTP server address.
14th through 15th bytes	Synchronization period (in seconds). The value is in big-endian byte order.

Table 2-8 describes the response data of this command (version 2).

Table 2-8 Response Description for Querying the BMC Clock Source and NTP Information (Version 2)

Response Data	Response Description
1st byte	Completion code.
2nd through 4th bytes	Vendor ID of VANTAGEO.
5th byte	Clock synchronization mode. ● 1: NTP ● 0: RTC (UTC time)
6th byte	Queries NTP configuration items, including: ● 0: NTP enabled or disabled. ● 1: synchronization period. ● 2: primary NTP server address. ● 3: secondary NTP server address. ● 4: tertiary NTP server address.
7th through Nth bytes	● When the 6th byte is 0, the Nth byte is 8. → 0: non-NTP → 1: NTP ● When the 6th byte is 1, the Nth byte is 8 and indicates the NTP synchronization interval. Unit: seconds. The value is in little-endian byte order. ● When the 6th byte is 2, 3, or 4, → The 7th byte is the NTP server type. Value 0 indicates the IPv4 address, value 1 indicates the IPv6 address, and value 2 indicates the domain name. → The 8th through Nth bytes indicate the NTP server address.

Example

Request 1:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xba 0x3e 0xf 0
```

Response 1:

```
3e 0f 00 01 c0 a8 05 b1 c0 a8 05 11 c0 a8 05 01 00 3c
```

For a description of data in response 1, refer to Table 2-9.

Table 2-9 Descriptions for Response 1 of Querying the BMC Clock Source and NTP Information

Response Data	Response	Description
1st byte	-	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.
5th byte	01	The clock synchronization mode is NTP.
6th through 9th bytes	c0 a8 05 b1	Primary NTP server address. It is expressed as *192.168.5.177* in dotted decimal notation.
10th through 13th bytes	c0 a8 05 11	Secondary NTP server address. It is expressed as *192.168.5.17* in dotted decimal notation.
14th through 17th bytes	c0 a8 05 01	Tertiary NTP server address. It is expressed as *192.168.5.1* in dotted decimal notation.
18th and 19th bytes	00 3c	Synchronization period. It is expressed as 60 seconds in dotted decimal notation.

Request 2:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xba 0x3e 0xf 0 2 2
```

Response 2:

```
3e 0f 00 21 02 02 0c 70 6f 6f 6c 2e 6e 74 70 2e 6f 72 67 ff
```

For a description of data in response 2, refer to Table 2-10.

Table 2-10 Descriptions for Response 2 of Querying the BMC Clock Source and NTP Information

Response Data	Response	Description
1st byte	-	Completion code: 00 If the first byte is 00, this byte is not displayed by default.

Response Data	Response	Description
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.
5th byte	21	The clock synchronization mode is NTP, and the command version number is 2.
6th byte	02	Primary NTP server address.
7th byte	02	Domain name.
8 byte	0c	Domain name length.
9th through 21st bytes	70 6f 6f 6c 2e 6e 74 70 2e 6f 72 67 ff	Primary NTP server address. It is expressed as `pool.ntp.org`.

2.4 Setting the BMC Clock Source and NTP Information (NTP Synchronization)

Function

This command sets the BMC clock source of and the NTP information about a server for NTP synchronization. This command has multiple versions (versions 0, 1, and 2) and is used as follows:

- For BMC earlier than V03.20.02.00, versions 0 and 1 of this command are supported.
- For BMC V03.20.02.00 and later, versions 0, 1, and 2 of this command are supported.

Note

Versions 0 and 1 of this command support only IPv4 addresses, and version 2 of this command supports IPv4 addresses, IPv6 addresses, and domain names. If an IPv6 address or domain name is configured, versions 0 and 1 of this command are not applicable.

Syntax

- Command 1: ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xb9 0x3e 0xf 0 [Parameter 4] [Parameter 5] [Parameter 6] [Parameter 7] [Parameter 8]
- Command 2: ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xb9 0x3e 0xf 0 [Parameter 4] [Parameter 5] [Parameter 6] [Parameter 7]
- Command 3: ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xb9 0x3e 0xf 0 [Parameter 4] [Parameter 5] [Parameter 6]
- Command 4: ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xb9 0x3e 0xf 0 0x2f [Parameter 4] [Parameter 5] [Parameter 6] [Parameter 7]

User Privilege

administrator

Parameters

For a description of the parameters in command 1, refer to Table 2-11.

Table 2-11 Parameter Descriptions for Setting the BMC Clock Source and NTP Information (NTP Synchronization, Only for IPv4)

Parameter	Value Restraints	Description
Parameter 4	1 byte	Clock synchronization mode. ● bit7-4: The version number is 0 or 1. ● bit3-0: 1 - NTP
Parameter 5	4 bytes	Primary NTP server address.
Parameter 6	4 bytes	Secondary NTP server address.
Parameter 7	4 bytes	Tertiary NTP server address.
Parameter 8	2 bytes	Synchronization period in seconds. The value is in big-endian byte order.

For a description of the parameters in command 2, refer to Table 2-12.

Table 2-12 Parameter Descriptions for Setting the BMC Clock Source and NTP Information (NTP Synchronization, Only for IPv4)

Parameter	Value Restraints	Description
Parameter 4	1 byte	Clock synchronization mode. ● bit7-4: The version number is 0 or 1. ● bit3-0: 1 - NTP
Parameter 5	4 bytes	Primary NTP server address.
Parameter 6	4 bytes	Secondary NTP server address.
Parameter 7	2 bytes	Synchronization period in seconds. The value is in big-endian byte order.

For a description of the parameters in command 3, refer to Table 2-13.

Table 2-13 Parameter Descriptions for Setting the BMC Clock Source and NTP Information (NTP Synchronization, Only for IPv4)

Parameter	Value Restraints	Description
Parameter 4	1 byte	Clock synchronization mode. ● bit7-4: The version number is 0 or 1. ● bit3-0: 1 - NTP

Parameter	Value Restraints	Description
Parameter 5	4 bytes	Primary NTP server address.
Parameter 8	2 bytes	Synchronization period in seconds. The value is in big-endian byte order.

For a description of the parameters in command 4, refer to Table 2-14.

Table 2-14 Parameter Descriptions for Setting the BMC Clock Source and NTP Information (NTP Synchronization)

Parameter	Value Restraints	Description
Parameter 4	1 byte	Queries NTP configuration items, including: ● 0: NTP enabled or disabled. ● 1: synchronization period. ● 2: primary NTP server address. ● 3: secondary NTP server address. ● 4: tertiary NTP server address.
Parameter 5	1 byte	● If Parameter 4 is set to 0, Parameter 5 can be set to the following: → 0: disables NTP. → 2: enables NTP. ● When Parameter 4 is set to 1, Parameter 5 is the NTP synchronization interval. Unit: seconds. The value is in little-endian byte order. ● If Parameter 4 is set to 2, 3, or 4, Parameter 5 can be set to the NTP server type. Value 0 indicates the IPv4 address, value 1 indicates the IPv6 address, and value 2 indicates the domain name.
Parameter 6	1st through Nth bytes	● If Parameter 4 is set to 0 or 1, Parameter 6 is left blank. ● If Parameter 4 is set to 2, 3, or 4: → If Parameter 5 is set to 0, the Nth byte is 5 and Parameter 6 can be set to a four-byte IPv4 address. → If Parameter 5 is set to 1, the Nth byte is 17 and Parameter 6 can be set to a 16-byte IPv6 address.

Parameter	Value Restraints	Description
		→ If Parameter 5 is set to 2, the Nth byte is 1 and Parameter 6 can be set to a one-byte domain name.
Parameter 7	N bytes	• If Parameter 4 is set to 2, 3, or 4, and Parameter 5 is set to 2, Parameter 7 can be set to a domain name character string, and the last byte is the end character. • In other cases, Parameter 7 is left blank.

Response Description

Table 2-15 describes the response data of this command.

Table 2-15 Response Description for Setting the BMC Clock Source and NTP Information (NTP Synchronization, Only for IPv4)

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	Vendor ID of VANTAGEO.

Example

Request 1: uses version 1 of this command to set the BMC clock source and NTP information (NTP synchronization). The specific information is as follows:

- Primary NTP server address: *192.168.5.177*, expressed as 0xc0 0xa8 0x05 0xb1 in hexadecimal format.
- Secondary NTP server address: *192.168.5.7*, expressed as 0xc0 0xa8 05 07 in hexadecimal format.
- Tertiary NTP server address: *192.168.5.6*, expressed as 0xc0 0xa8 05 06 in hexadecimal format.
- Synchronization period: 60 seconds, expressed as 00 0x3c in hexadecimal format.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xb9 0x3e 0xf 0 1 0xc0 0xa8 0x05 0xb1 0xc0 0xa8 05 07 0xc0 0xa8 05 06 00 0x3c
```

Request 2: uses version 2 of this command to set the BMC clock source and NTP information (NTP synchronization). Set the primary NTP server address to **pool.ntp.org**, which is expressed as 0x70 0x6F 0x6F 0x6c 0x2e 0x6E 0x74 0x70 0x2e 0x6F 0x72 0x67 0x00 in hexadecimal format.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xb9 0x3e 0xf 0 0x2f 2 2 13 0x70 0x6F 0x6F 0x6c 0x2e 0x6E 0x74 0x70 0x2e 0x6F 0x72 0x67 0x00
```

Response:

```
3e 0f 00
```

For a description of response data, refer to Table 2-16.

Table 2-16 Example Response for Setting the BMC Clock Source and NTP Information (NTP Synchronization, Only for IPv4)

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.

2.5 Setting the BMC Clock Source and NTP Information (BIOS Synchronization)

Function

This command sets the BMC clock source of and the NTP information about a server for BIOS synchronization.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xb9 0x3e 0xf 0 [Parameter 4] [Parameter 5]

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 2-17.

Table 2-17 Parameter Descriptions for Setting the BMC Clock Source and NTP Information (BIOS Synchronization)

Parameter	Value Restraints	Description
Parameter 4	1 byte	Clock synchronization mode. ● bit7-4: The version number is 1. ● bit3-0: → 1: NTP enabled.

Parameter	Value Restraints	Description
		→ 0: NTP disabled. → 2: DHCP NTP enabled.
Parameter 5	1 byte	Master clock time. ● 0: local time ● 1: UTC

Response Description

Table 2-18 describes the response data of this command.

Table 2-18 Response Description for Setting the BMC Clock Source and NTP Information (BIOS Synchronization)

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	Vendor ID of VANTAGEO.

Example

Request: Set the clock synchronization mode to local time.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xb9 0x3e 0xf 0 0
```

Response:

```
3e 0f 00
```

For a description of response data, refer to Table 2-19.

Table 2-19 Example Response for Setting the BMC Clock Source and NTP Information (BIOS Synchronization)

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.

2.6 Querying NTP Information

Function

This command queries NTP information about a server.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x32 0xa7

User Privilege

operator

Response Description

For a description of the parameters, refer to Table 2-20.

Table 2-20 Response Description for Querying NTP Information

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd byte	• 0x00: NTP is disabled. • 0x01: NTP is enabled. • 0x02: NTP failed. • 0x03: DHCPv4. • 0x04: DHCPv6.
3rd through 130th bytes	Primary NTP server address in big-endian byte order.
131st through 258th bytes	Secondary NTP server address in big-endian byte order.

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x32 0xa7
```

Response:

```
01 31 39 32 2e 31 36 38 2e 35 2e 31 37 37 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 31 39 32 2e 31 36 38 2e 35 2e 37 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

```
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00
```

For a description of response data, refer to Table 2-21.

Table 2-21 Example Response for Querying NTP Information

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd byte	01	NTP is enabled.
3rd through 130th bytes	31 39 32 2e 31 36 38 2e 35 2e 31 37 37 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Primary NTP server address. It is expressed as `192.168.5.177` in ASCII format.
131st through 258th bytes	31 39 32 2e 31 36 38 2e 35 2e 37 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Secondary NTP server address. It is expressed as `192.168.5.7` in ASCII format.

2.7 Querying SNMP Information

Function

This command queries SNMP information about a server.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xbe 0x3e 0xf0 [Parameter 4]

User Privilege

user

Parameters

For a description of the parameters, refer to Table 2-22.

Table 2-22 Parameter Descriptions for Querying SNMP Information

Parameter	Value Restraints	Description
Parameter 4	1 byte	Content to be queried: ● 2: SNMP port number ● 3: enables or disables SNMP trap ● 5: SNMP trap filtering level ● 6: SNMP trap mode ● 7: enables or disables SNMP V1/V2C Set/Get

Response Description

Table 2-23 describes the response data of this command.

Table 2-23 Response Description for Querying SNMP Information

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	Vendor ID of VANTAGEO.
5th byte	Content to be queried: ● 2: SNMP port number ● 3: enables or disables SNMP trap ● 5: SNMP trap filtering level ● 6: SNMP trap mode ● 7: enables or disables SNMP V1/V2C Set/Get
6th through last bytes	● SNMP port number: 6th to 7th bytes

Response Data	Description
	● SNMP trap enabled or disabled: 6th byte (0: disabled, 1: enabled) ● SNMP trap filtering level: 6th byte (1: critical, 2: major, 4: minor, 5: normal) ● SNMP trap mode: 6th byte (0: event OID mode, 1: module OID mode) ● SNMP V1/V2C Set/Get enabled or disabled: 6th byte (0: disabled, 1: enabled)

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xbe 0x3e 0xf 0 7
```

Response:

```
3e 0f 00 07 00
```

For a description of response data, refer to Table 2-24.

Table 2-24 Example Response for Querying SNMP Information

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.
5th byte	07	Enables SNMP V1/V2C Set/Get.
6th byte	00	Disables SNMP V1/V2C Set/Get.

2.8 Configuring SNMP

Function

This command configures SNMP information about a server.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xbd 0x3e 0xf 0 [Parameter 4] [Parameter 5]

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 2-25.

Table 2-25 Parameter Descriptions for Configuring SNMP

Parameter	Value Restraints	Description
Parameter 4	1 byte	This parameter has the following values: ● 0: read-only community ● 1: read-write community ● 2: SNMP port number ● 3: enables or disables SNMP trap ● 4: SNMP trap community name ● 5: SNMP trap filtering level ● 6: SNMP trap mode ● 7: enables or disables SNMP V1/V2C Set/Get
Parameter 5	The value range of this parameter is determined by the value of Parameter 4.	● If Parameter 4 is set to 0, Parameter 5 indicates a read-only community string, and its value contains a maximum of 19 bytes. ● If Parameter 4 is set to 1, Parameter 5 indicates a read-write community string, and its value contains a maximum of 19 bytes. ● If Parameter 4 is set to 2, Parameter 5 indicates an SNMP port number. Its value is two bytes long and in big-endian byte order. ● If Parameter 4 is set to 3, Parameter 5 enables or disables SNMP trap (0: disabled, 1: enabled). ● If Parameter 4 is set to 4, Parameter 5 indicates an SNMP trap community name, and its value contains a maximum of 19 bytes. ● If Parameter 4 is set to 5, Parameter 5 indicates SNMP trap filtering level (1: critical, 2: major, 4: minor, 5: normal). ● If Parameter 4 is set to 6, Parameter 5 indicates SNMP trap mode (0: event OID mode, 1: module OID mode). ● If Parameter 4 is set to 7, Parameter 5 enables or disables SNMP V1/V2C Set/Get (0: disabled, 1: enabled).

Response Description

Table 2-26 describes the response data of this command.

Table 2-26 Response Description for Configuring SNMP

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.

Response Data	Description
2nd through 4th bytes	Vendor ID of VANTAGEO.

Example

Request: Add *only* as a read-only community string, and use 0 as the end character. The *only* string in ASCII format is expressed as 0x6f 0x6e 0x6c 0x79 in hexadecimal format.

```
ipmitool -I lanplus -H 192.111.5.10 -U root -P Superuser9! raw 0x2e 0xbd 0x3e 0xf 0 0 0x6f 0x6e 0x6c 0x79 0
```

Response:

```
3e 0f 00
```

For a description of response data, refer to Table 2-27.

Table 2-27 Example Response for Configuring SNMP

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.

2.9 Querying a Trap from a BMC

Function

This command queries a trap from a BMC.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xbc 0x3e 0xf 0 [Parameter 4]

User Privilege

operator

Parameters

For a description of the parameters, refer to Table 2-28.

Table 2-28 Parameter Descriptions for Querying a Trap from a BMC

Parameter	Value Restraints	Description
Parameter 4	1 byte	Trap index, range: 0–15.

Response Description

Table 2-29 describes the response data of this command.

Table 2-29 Response Description for Querying a Trap from a BMC

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	Vendor ID of VANTAGEO.
5th byte	Trap index, range: 0–15.
6th byte	IP version. ● 0: IPv4 ● 1: IPv6
7th to 22nd bytes	IP address. Zero padding.
23rd through 24th bytes	Port number in big-endian byte order.
25th through 28th bytes	Reserved. All zeros.
29th byte	SNMP version. ● 1: SNMPv1 ● 2: SNMPv2c ● 3: SNMPv3
30th to 46th bytes	Username. Zero padding.

Example

Request: Query the trap whose index is 3.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xbc 0x3e 0xf 0 3
```

Response:

```
3e 0f 00 03 00 c0 a8 05 b1 00 00 00 00 00 00 00
00 00 00 00 00 66 33 00 00 00 00 03 7a 74 65 72
6f 6f 74 00 00 00 00 00 00 00 00 00 00 00
```

For a description of response data, refer to Table 2-30.

Table 2-30 Example Response for Querying a Trap from a BMC

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.

Response Data	Example	Description
5th byte	03	The trap index is 3.
6th byte	00	IPv4
7th to 22nd bytes	c0 a8 05 b1	IP address in hexadecimal format. It is expressed as *192.168.5.177* in dotted decimal notation.
23rd through 24th bytes	66 33	Port number in hexadecimal format. It is expressed as 26163 in dotted decimal notation.
25th through 28th bytes	00 00 00 00	Reserved. All zeros.
29th byte	03	SNMPv3.
30th to 46th bytes	7a 74 65 72 6f 6f 74	Username in hexadecimal format. It is expressed as *root* in ASCII format.

2.10 Configuring a Trap from a BMC

Function

This command configures a trap from a BMC.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xc1 0x3e 0xf 0 [Parameter 4] [Parameter 5] [Parameter 6] [Parameter 7] [Parameter 8] [Parameter 9] [Parameter 10]

User Privilege

operator

Parameters

For a description of the parameters, refer to Table 2-31.

Table 2-31 Parameter Descriptions for Configuring a Trap from a BMC

Parameter	Value Restraints	Description
Parameter 4	1 byte	Trap index, range: 0–15.
Parameter 5	1 byte	IP version. ● 0: IPv4 ● 1: IPv6
Parameter 6	16 bytes	IP address. Zero padding.
Parameter 7	2 bytes	Port number in big-endian byte order.
Parameter 8	4 bytes	Reserved. All zeros.

Parameter	Value Restraints	Description
Parameter 9	1 byte	SNMP version. ● 1: SNMPv1 ● 2: SNMPv2c ● 3: SNMPv3
Parameter 10	17 bytes	Username. Zero padding.

Response Description

Table 2-32 describes the response data of this command.

Table 2-32 Response Description for Configuring a Trap from a BMC

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	Vendor ID of VANTAGEO.

Example

Request: Configure a trap from a BMC. The trap index is 3. The IPv4 address is *192.168.5.177*. The port number is 26163 (0x66 0x33). The SNMP version is SNMPv3. The username is root (0x7a 0x74 0x65 0x72 0x6f 0x6f 0x74 in hexadecimal format).

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xc1 0x3e 0xf 0
3 0 192 168 5 177 0 0 0 0 0 0 0 0 0 0 0 0x66 0x33 0 0 0 0 3 0x7a 0x74
0x65 0x72 0x6f 0x6f 0x74 0 0 0 0 0 0 0 0 0 0
```

Response:

```
3e 0f 00
```

For a description of response data, refer to Table 2-33.

Table 2-33 Example Response for Configuring a Trap from a BMC

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.

2.11 Querying SOL Information

Function

This command queries IPMI v2.0 SOL information.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] sol info

User Privilege

user

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! sol info
```

Response:

```
Set in progress          : set-complete
Enabled                : true
Force Encryption         : false
Force Authentication       : false
Privilege Level         : USER
Character Accumulate Level (ms) : 60
Character Send Threshold      : 96
Retry Count              7
Retry Interval (ms)      : 500
Volatile Bit Rate (kbps) : 115.2
Non-Volatile Bit Rate (kbps)  : 115.2
Payload Channel              : 1 (0x01)
Payload Port              : 623
```

2.12 Activating an SOL Session

Function

This command activates an SOL session.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] sol activate

User Privilege

administrator

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! sol activate
```

Response:

```
[SOL Session operational. Use ~? for help]
```

2.13 Deactivating an SOL Session

Function

This command deactivates an SOL session.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] sol deactivate

User Privilege

user

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! sol deactivate
```

Response: none

2.14 Enabling Support for Ironic Commands

Function

This command enables a server to support ironic commands.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x00 0x08 0x03 0x08

User Privilege

operator

Response Description

None

2.15 Setting Remote Log (Syslog) Service Information

Function

This command sets remote log (syslog) service information.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xf9 0x3e 0x0f 0 [Parameter 4] [Parameter 5] [Parameter 6] [Parameter 7] [Parameter 8] [Parameter 9]

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 2-34.

Table 2-34 Parameter Descriptions for Setting Remote Log (Syslog) Service Information

Parameter	Description	Value Restraints
Parameter 4	1 byte	Remote log index, range: 0–3.
Parameter 5	1 byte	Status of the remote log server. ● Bit7–4: reserved fields. Set them to 0. ● Bit3–1: transport protocol: → 0: uses the current transmission protocol. → 1: UDP → 2: TCP → 3: one-way TLS authentication → 4: two-way TLS authentication ● Bit0: status of the remote log server. → 0: disabled → 1: enabled
Parameter 6	2 bytes	Port number of the log server in big-endian byte order.
Parameter 7	3 bytes	Log transfer mode. The meaning of each byte is as follows: ● 1st byte: login logs. Value 1 indicates that the logs are transferred. Value 0 indicates that the logs are not transferred. ● 2nd byte: operation logs. Value 1 indicates that the logs are transferred. Value 0 indicates that the logs are not transferred.

Parameter	Description	Value Restraints
		● 3rd byte: system logs. Value 1 indicates that the logs are transferred. Value 0 indicates that the logs are not transferred.
Parameter 8	1 byte	IP address type of the log server. ● 0: IPv4 ● 1: IPv6 ● 2: domain name. ● Others: (0xc9 is not supported)
Parameter 9	16 bytes	IP address or domain name of the remote log server: ● IPv4: The IP address has four segments in total. Each segment occupies one byte. Decimal format. Zero padding. For example, 192.168.5.7 is expressed as 192 168 5 7 0 0 0 0 0 0 0 0 0 0 0 0. ● IPv6: The IP address has eight segments in total. Each segment occupies two bytes. Hexadecimal format. Zero padding. For example, 2022::1314 is expressed as 0x20 0x22 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x13 0x14. ● Domain name: character string. → 1st byte: length of the character string. → 2nd byte through Nth byte: domain name string. The last byte is the end character (0).

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xf9 0x3e 0x0f 0 0 1 0x2 0x7 1 1 1 0
192 168 5 7 0 0 0 0 0 0 0 0 0 0 0 0
```

Response:

```
3e 0f 00
```

2.16 Querying Remote Log (Syslog) Service Information

Function

This command queries remote log (syslog) service information.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xfa 0x3e 0x0f 0 [Parameter 4]

User Privilege

operator

Parameters

For a description of the parameters, refer to Table 2-35.

Table 2-35 Parameter Descriptions for Querying Remote Log (Syslog) Service Information

Parameter	Description	Value Restraints
Parameter 4	1 byte	Remote log index, range: 0–3.

Response Description

For a description of response data, refer to Table 2-36.

Table 2-36 Response Descriptions for Querying Remote Log (Syslog) Service Information

Response Data	Description
1st byte	Completion code: 00. If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	Vendor ID of VANTAGEO.
5th byte	Status of the remote log server. ● Bit7–4: reserved fields. Set them to 0. ● Bit3–1: transport protocol: → 0: uses the current transmission protocol. → 1: UDP. → 2: TCP. → 3: one-way TLS authentication → 4: two-way TLS authentication ● Bit0: status of the remote log server. → 0: disabled → 1: enabled
6th through 7th bytes	Port number of the log server in big-endian byte order.
8th through 10th bytes	Log transfer mode. The meaning of each byte is as follows: ● 8th byte: login logs. Value 1 indicates that the logs are transferred. Value 0 indicates that the logs are not transferred. ● 9th byte: operation logs. Value 1 indicates that the logs are transferred. Value 0 indicates that the logs are not transferred. ● 10th byte: system logs. Value 1 indicates that the logs are transferred. Value 0 indicates that the logs are not transferred.
11th through 26th bytes	IP address or domain name of the remote log server: ● IPv4 address, four segments in total. Each segment is expressed in hexadecimal format. Other bytes are not displayed.

Response Data	Description
	● IPv6 address, eight segments in total. Each segment is displayed as a byte. ● Domain name: character string. → 12th byte: length of the character string. → 13th byte through Nth byte: domain name string. The last byte is the end character (0).

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xfa 0x3e 0x0f 0 0
```

Response:

```
3e 0f 00 01 02 02 01 00 00 c0 a8 05 07 00 00 00
00 00 00 00 00 00 00 00 00 00
```

For a description of response data, refer to Table 2-37.

Table 2-37 Example Response for Querying Remote Log (Syslog) Service Information

Response Data	Example	Description
1st byte	-	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.
5th byte	01	The remote log service is enabled.
6th through 7th bytes	02 02	Port number of the remote log server in hexadecimal format.
8th through 10th bytes	01 00 00	Log transfer mode. ● 01: Login logs are transferred. ● 00: No operation logs are transferred. ● 00: No system logs are transferred.
11th through 26th bytes	c0 a8 05 07 00 00 00 00 00 00 00 00 00 00 00 00	IP address of the log server. Expressed as 192.168.5.7 in dotted decimal notation.

Chapter 3
System-Related Commands

Table of Contents

Restarting a Server 38
Powering On a Server 39
Powering Off a Server 39
Obtaining ACPI Power States 40
Setting the Boot Device 41
Creating a RAID Volume 42
Querying BIOS Settings 46
Configuring BIOS Settings 51
Querying Power Supply Information 56
Resetting the Host by Pressing Ctrl + Alt + Del 58

3.1 Restarting a Server

Function

This command performs a hot restart of a server.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] chassis power reset

User Privilege

operator

Response Description

Chassis Power Control: Reset

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! chassis power reset
```

Response:

```
Chassis Power Control: Reset
```

3.2 Powering On a Server

Function

This command powers on a server.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] chassis power on

User Privilege

operator

Response Description

Chassis Power Control: Up/On

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! chassis power on
```

Response:

```
Chassis Power Control: Up/On
```

3.3 Powering Off a Server

Function

This command powers off a server.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] chassis power off

User Privilege

operator

Response Description

chassis Power Control: Down/Off

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! chassis power off
```

Response:

```
Chassis Power Control: Down/Off
```

3.4 Obtaining ACPI Power States

Function

This command displays ACPI power states.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x6 0x7

User Privilege

operator

Response Description

Table 3-1 describes the response data of this command.

Table 3-1 Response Description for Obtaining ACPI Power States

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd byte	ACPI System Power State: ● [7]: reserved ● [6:0]: System Power State enumeration → 00h S0/G0 working → 01h S1 hardware context maintained, typically equates to processor/chip set clocks stopped → 02h S2 typically equates to stopped clocks with processor/cache context lost → 03h S3 typically equates to "suspend-to-RAM" → 04h S4 typically equates to "suspend-to-disk" → 05h S5/G2 soft off → 06h S4/S5 soft off, cannot differentiate between S4 and S5 → 07h G3 mechanical off → 08h sleeping sleeping - cannot differentiate between S1-S3. → 09h G1 sleeping sleeping - cannot differentiate between S1-S4

Response Data	Description
	→ 0Ah override S5 entered by override → 20h Legacy On Legacy On (indicates On for system that don't support ACPI or have ACPI capabilities disabled) → 21h Legacy Off Legacy Soft-Off → 2Ah unknown power state has not been initialized, or device lost track of power state.
3rd byte	ACPI Device Power State: ● [7] reserved ● [6:0] Device Power State enumeration → 00h D0 → 01h D1 → 02h D2 → 03h D3 → 2Ah unknown - power state has not been initialized, or device lost track of power state.

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x6 0x7
```

Response:

```
00  00
```

For a description of response data, refer to Table 3-2.

Table 3-2 Example Response for Obtaining ACPI Power States

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd byte	00	System Power State enumeration S0/G0 working
3rd byte	00	Device Power State enumeration D0

3.5 Setting the Boot Device

Function

This command specifies the device from which to boot a server.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] chassis bootdev [Parameter 4] [Parameter 5]

User Privilege

operator

Parameters

For a description of the parameters, refer to Table 3-3.

Table 3-3 Parameter Descriptions for Setting the Boot Device

Parameter	Value Restraints	Description
Parameter 4	Character string	• pxe: boots the server from the PXE. • disk: boots the server from a hard disk. • floppy: boots the server from a USB drive. • cdrom: boots the server from a CD-ROM drive. • none: boots the server in the BIOS boot order. • bios: enters BIOS Setup directly.
Parameter 5	Character string	• No string: single boot • options=persistent: persistent boot

Response Description

Set Boot Device to [Parameter 4]

Example

Request: Set to boot a server from a hard disk only for the current boot.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! chassis bootdev disk
```

Response:

```
Set Boot Device to disk
```

3.6 Creating a RAID Volume

Function

This command creates a RAID volume in Broadcom disks. Microchip disks are not supported.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] -N [Parameter 4] raw 0x32 0xef 0x13 0 0 [Parameter 5] [Parameter 6] [Parameter 7] [Parameter 8] [Parameter 9] [Pa-

rameter 10] [Parameter 11] [Parameter 12] [Parameter 13] [Parameter 14] [Parameter 15] [Parameter 16] [Parameter 17] [Parameter 18] [Parameter 19] [Parameter 20] [Parameter 21]...[Parameter n-2] [Parameter n-1]

User Privilege

operator

Parameters

For a description of the parameters, refer to Table 3-4.

Table 3-4 Parameter Descriptions for Creating a RAID Volume

Parameter	Value Restraints	Description
Parameter 4	1 byte	Command waiting response time, optional. Range: 1–60, unit: Seconds.
Parameter 5	4 bytes	Controller ID
Parameter 6	16 bytes	Logical disk name
Parameter 7	1 byte	RAID level ● 0x00: RAID0 ● 0x01: RAID1 ● 0x02: RAID5 ● 0x03: RAID6 ● 0x04: RAID 1E (RLQ = 1) ● 0x05: RAID 1E (RLQ = 0) ● 0x06: RAID 1E0 (RLQ = 0) ● 0x07: RAID 00 ● 0x08: RAID 10 ● 0x09: RAID 50 ● 0x0A: RAID 60
Parameter 8	1 byte	Stripe size ● 0x07: 64K ● 0x08: 128K ● 0x09: 256K ● 0x0a: 512K ● 0x0b: 1MB LSI 9341 supports 64K only.
Parameter 9	1 byte	Initialization status. ● 0x00: No Initialization ● 0x01: Quick Initialization ● 0x02: Full Initialization
Parameter 10	1 byte	Cache status of the logical disk

Parameter	Value Restraints	Description
		• 0x00: Unchanged • 0x01: Enabled • 0x02: Disabled
Parameter 11	8 bytes	Size of the logic disk. All Fs by default.
Parameter 12	1 byte	Read policy • 0x00: No Read Ahead • 0x01: Always Read Ahead
Parameter 13	1 byte	Write policy • 0x00: write through • 0x01: write back • 0x02: always write back Note: If the controller has no BBUs, 0 is returned if 0 or 1 is specified, and 2 is returned if 2 is specified.
Parameter 14	1 byte	IO policy • 0x00: DirectIO • 0x01: CachedIO
Parameter 15	1 byte	Access policy • 0x00: Read-Write • 0x01: Read Only • 0x02: Blocked
Parameter 16	1 byte	Span depth. 1 by default. The span depth is greater than 1 for RAID 00, RAID10, RAID 50, RAID 60, and RAID 1E0 (RLQ = 0).
Parameter 17	1 byte	Number of disks per span
Parameter 18	1 byte	Span ID. The span ID starts from 0.
Parameter 19	2 bytes	Physical disk ID. The value is in little-endian byte order.
Parameter 20	1 byte	Span ID
Parameter 21	2 bytes	Physical disk ID. The value is in little-endian byte order.
Parameter n-2	1 byte	Span ID #n
Parameter n-1	2 bytes	Physical disk ID. The value is in little-endian byte order.

Example

Request: Create a RAID1 volume.

```
ipmitool -I lanplus -U root -P Superuser9! -H 192.168.5.7 -N 60 raw 0x32 0xef 0x13 0 0 0x3 0 0 0 0x52
0x41 0x49 0x44 0x31 0x5f 0x31 0x32 0x33 0 0 0 0 0 0 0 0x01 0x9 0 0 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0 0 0
0 1 2 0 0x09 0 0 0x0a 0
```

For the values of the parameters, refer to Table 3-5.

Table 3-5 Example Request for Creating a RAID Volume

Parameter	Value Restraints	Description
Parameter 5	4 bytes	The controller ID is 0x3 0 0 0.
Parameter 6	16 bytes	The name of the logical disk is 0x52 0x41 0x49 0x44 0x31 0x5f 0x31 0x32 0x33 0 0 0 0 0 0 0. It is expressed as RAID1_123 in ASCII format.
Parameter 7	1 byte	0x01: RAID1
Parameter 8	1 byte	The strip size is 0x09 (256K).
Parameter 9	1 byte	The initialization status is 0x00 (No Initialization).
Parameter 10	1 byte	The cache status of the logical disk is 0x00 (Un-changed)
Parameter 11	8 bytes	The size of the logical disk is 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff.
Parameter 12	1 byte	The read policy is 0x00 (No Read Ahead).
Parameter 13	1 byte	The write policy is 0x00 (write through).
Parameter 14	1 byte	The IO policy is 0x00 (DirectIO).
Parameter 15	1 byte	The access policy is 0x00 (Read-Write).
Parameter 16	1 byte	The span depth is 1.
Parameter 17	1 byte	The number of disks per span is 2.
Parameter 18	1 byte	The span ID is 0.
Parameter 19	2 bytes	The physical disk ID is 0x09 0. The value is in lit-tle-endian byte order.
Parameter 20	1 byte	The span ID is 0.
Parameter 21	2 bytes	The physical disk ID is 0x0a 0. The value is in lit-tle-endian byte order.

3.7 Querying BIOS Settings

Function

This command queries BIOS settings, including processor settings, memory settings, platform power settings, IO settings, platform thermal settings, management settings, and boot settings.

Syntax

ipmitool -I lan -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] -N [Parameter 4] raw 0x38 0x11 [Parameter 5] [Parameter 6]

User Privilege

user

Parameters

For a description of the parameters, refer to Table 3-6.

Table 3-6 Parameter Descriptions for Querying BIOS Settings

Parameter	Description	Value Restraints
Parameter 4	1 byte	Command waiting response time, optional. Range: 1–60, unit: Seconds.
Parameter 5	1 byte	● 00h = processor ● 01h = memory ● 02h = Platform power ● 03h = IO ● 04h = Platform thermal ● 05h = Management ● 06h = Boot ● 80h-ffh = reserver for OEM
Parameter 6	1 byte	● **00h (processor):** → 00h: intel Hyper-Threading Tech/SMT Mode → 01h: intel Virtualization Technology/SVM Mode → 02h: Enhanced Intel SpeedStep Technology/reserved → 03h: Intel Turbo Boost/Core Performance Boost → 04h: Package C State limit/Global C-state Control → 05h: C1E State/reserved → 06h: C6 State/C6 mode → 07h: CPU T State/reserved → 08h-FEh: Reserved

Parameter	Description	Value Restraints
		→ FFh: ALL ● **01h (Memory):** → 00h: NUMA Optimized/reserved → 01h: Sub NUMA Clustering/reserved → 02h: Lockstep Mode/reserved → 03h: Mirror Mode/reserved → 04h: Memory Rank Sparing/reserved → 05h: Memory CE Accumulation Threshold → 06h: Memory CE Storm Threshold → 07h-FFh: Reserved → FFh: ALL ● **02h (Platform Power):** → 00h: Platform Energy performance mode/reserved → 01h: Power restore on AC Loss/Power restore on AC Loss → 02h-FEh: Reserved/Reserved → FFh: ALL/ALL ● **03h (IO):** → 00h: Intel VT for Directed IO(Vt-d)/IOMMU → 01h: SATA contrller 1/Reserved → 02h: SATA controller 1 mode/Reserved → 03h: SATA controller 2/Reserved → 04h: SATA controller 2 mode/Reserved → 05h: SR-IOV Support/SR-IOV Support → 06h-FDh: Reserved → FEh: Intel VMD technology/Reserved → FFh: ALL ● **04h (Thermal):** → 00h: Fan profile → 01h-FEh: Reserved FFh: ALL ● **05h (Management):** → 00h: Sharelink Network → 01h: Serial port console redirection com0 → 02h: Terminal type → 03h: Bit Rate → 04h: Flow control → 05h: Data bits → 06h: Parity → 07h: Stop bits → 08h-FEh: Reserved → FFh: ALL ● **06h (Boot):**

Parameter	Description	Value Restraints
		→ 00h: Boot mode → 01h-FEh: Reserved → FFh: ALL ● **80h (OEM):** → 00h-03h: IPv4PXEBootTimout1–IPv4PXEBoot-Timout4 → 04h-FEh: Reserved → FFh: ALL

Response Description

For a description of response data, refer to Table 3-7.

Table 3-7 Response Description for Querying BIOS Settings

Response Data	Description
1st byte	Completion code. ● 00h: If the first byte is completion code 0x00, this byte is not displayed by de-fault. ● c0h: Node Busy. ● c7h: The IPMI command parameter is out of range. ● c8h: The IPMI command parameter is out of range. ● 80H: IPMI command not supported.
2nd byte	Validation state. ● 00h: The current settings have been validated. ● 01h: The current settings have not been validated.
3rd byte	Number of values, range: 00h–FFh.
4th byte	Values. ● **00h (Processor):** → 00h-03h, 5h-07h: 00h- Disable 01h- Enable → 04h: 00h- C0/C1 state 01h- C2 state 02h- C6(non retention)state 03h- C6(retention)state 07h- No Limit FFh- Auto → FFh: Follow the above order ● **01h (Memory):** → 00h-02h, 04h: 00h- Disable

Response Data	Description
	01h- Enable → 03h: 00h- Disable 01h- 1LM → 05h: 00h- Disable 01h- 1200 02h- 1 03h- 500 04h- 1000 05h- 2000 06h- 5000 07h- 10000 → 06h: 00h- Disable 01h- 120 02h- 60 03h- 240 04h- 1200 → FFh: Follow the above order ● **02h (Platform Power):** → 00h: 00h- Perf 01h- Balanced Perf 02h- Balanced Power 03h- Power → 01h: 00h- Power off 01h- Last state 02h- Power on 03h- No change → FFh: Follow the above order ● **03h (IO):** → 00h-01h, 03h, 05h, FEh: 00h- Disable 01h- Enable → 02h, 04h: 00h- AHCI 01h- RAID → FFh: Follow the above order ● **04h (Thermal):** → 00h: 00h- Acoustic

Response Data	Description
	01h- Performance 02h- Automatic → FFh: Follow the above order ● **05h (Management):** → 00h: 00h- Disable 01h- Enable 02h- Auto → 01h: 00h- Disable 01h- Enable → 02h: 00h- VT100 01h- VT100+ 02h- VT-UTF8 03h- ANSI F0h- LOG_TERM → 03h: 00h- 9600 01h- 19200 02h- 38400 03h- 57600 04h- 115200 → 04h: 00h- NONE 01h- Hardware 02h- Software → 05h: 00h- 7 01h- 8 → 06h: 00h- NONE 01h- Even 02h- Odd 03h- Mark 04h- Space → 07h: 00h- 1 01h- 2 → FFh: Follow the above order ● **06h (Boot):** → 00h: 01h- Legacy only

Response Data	Description
	02h- UEFI only → FFh: Follow the above order ● **80h (OEM):** → 00h-03h, FEh: 00h~3Ch - 0~60

Example

Request: Query the status of the VT-x function of the 2230-RE.

```
ipmitool -I lan -H 192.168.5.7 -U root -P Superuser9! -N 10 raw 0x38 0x11 0x00 0x01
```

Response:

```
00 01 01
```

For a description of response data, refer to Table 3-8.

Table 3-8 Example Response for Querying BIOS Settings

Response Data	Example	Description
1st byte	00	Completed (hidden).
2nd byte	00	The settings have been validated.
3rd byte	01	One value.
4th byte	01	Enable.

3.8 Configuring BIOS Settings

Function

This command configures BIOS settings, including processor settings, memory settings, platform power settings, IO settings, platform thermal settings, management settings, and boot settings.

Syntax

ipmitool -I lan -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] -N [Parameter 4] 0x38 0x12 [Parameter 5] [Parameter 6] [Parameter 7] [Parameter 8]

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 3-9.

Table 3-9 Parameter Descriptions for Configuring BIOS Settings

Parameter	Description	Value Restraints
Parameter 4	1 byte	Command waiting response time, optional. Range: 1–60, unit: Seconds.
Parameter 5	1 byte	• 00h = processor • 01h = memory • 02h = Platform power • 03h = IO • 04h = Platform thermal • 05h = Management • 06h = Boot • 80h-ffh = reserver for OEM
Parameter 6	1 byte	• **00h (processor):** → 00h: intel Hyper-Threading Tech/SMT Mode → 01h: intel Virtualization Technology/SVM Mode → 02h: Enhanced Intel SpeedStep Technology/reserved → 03h: Intel Turbo Boost/Core Performance Boost → 04h: Package C State limit/Global C-state Control → 05h: C1E State/reserved → 06h: C6 State/C6 mode → 07h: CPU T State/reserved → 08h-FEh: Reserved → FFh: ALL • **01h (Memory):** → 00h: NUMA Optimized/reserved → 01h: Sub NUMA Clustering/reserved → 02h: Lockstep Mode/reserved → 03h: Mirror Mode/reserved → 04h: Memory Rank Sparing/reserved → 05h: Memory CE Accumulation Threshold → 06h: Memory CE Storm Threshold → 07h-FFh: Reserved → FFh: ALL • **02h (Platform Power):** → 00h: Platform Energy performance mode/reserved → 01h: Power restore on AC Loss/Power restore on AC Loss → 02h-FEh: Reserved/Reserved → FFh: ALL/ALL

Parameter	Description	Value Restraints
		• **03h (IO):** → 00h: Intel VT for Directed IO(Vt-d)/IOMMU → 01h: SATA controller 1/Reserved → 02h: SATA controller 1 mode/Reserved → 03h: SATA controller 2/Reserved → 04h: SATA controller 2 mode/Reserved → 05h: SR-IOV Support/SR-IOV Support → 06h-FDh: Reserved → FEh: Intel VMD technology/Reserved → FFh: ALL • **04h (Thermal):** → 00h: Fan profile → 01h-FEh: Reserved → FFh: ALL • **05h (Management):** → 00h: Sharelink Network → 01h: Serial port console redirection com0 → 02h: Terminal type → 03h: Bit Rate → 04h: Flow control → 05h: Data bits → 06h: Parity → 07h: Stop bits → 08h-FEh: Reserved → FFh: ALL • **06h (Boot):** → 00h: Boot mode → 01h-FEh: Reserved → FFh: ALL
Parameter 7	1 byte	• **00h (Processor):** → 00h-03h, 05h-07h: 00h-Disable 01h-Enable → 04h: 00h-C0/C1 state 01h- C2 state 02h- C6(non retention)state 03h- C6(retention)state 07h- No Limit FFh- Auto → FFh: Follow the above order • **01h (Memory):**

Parameter	Description	Value Restraints
		→ 00h-02h, 04h: 00h- Disable 01h- Enable → 03h: 00h- Disable 01h- 1LM → 05h: 00h- Disable 01h- 1200 02h- 1 03h- 500 04h- 1000 05h- 2000 06h- 5000 07h- 10000 → 06h: 00h- Disable 01h- 120 02h- 60 03h- 240 04h- 1200 → FFh: Follow the above order ● **02h (Platform Power):** → 00h: 00h- Perf 01h- Balanced Perf 02h- Balanced Power 03h- Power → 01h: 00h- Power off 01h- Last state 02h- Power on 03h- No change → FFh: Follow the above order ● **03h (IO):** → 00h-01h, 03h, 05h, FEh: 00h- Disable 01h- Enable → 02h, 04h: 00h- AHCI 01h- RAID → FFh: Follow the above order ● **04h (Thermal):**

Parameter	Description	Value Restraints
		→ 00h: 00h- Acoustic 01h- Performance 02h- Automatic → FFh: Follow the above order ● **05h (Management):** → 00h: 00h- Disable 01h- Enable 02h- Auto → 01h: 00h- Disable 01h- Enable → 02h: 00h- VT100 01h- VT100+ 02h- VT-UTF8 03h- ANSI F0h- LOG_TERM → 03h: 00h- 9600 01h- 19200 02h- 38400 03h- 57600 04h- 115200 → 04h: 00h- NONE 01h- Hardware 02h- Software → 05h: 00h- 7 01h- 8 → 06h: 00h- NONE 01h- Even 02h- Odd 03h- Mark 04h- Space → 07h: 00h- 1 01h- 2 → FFh: Follow the above order ● **06h (Boot):**

Parameter	Description	Value Restraints
		→ 00h: 01h- Legacy only 02h- UEFI only → FFh: Follow the above order
Parameter 8	1 byte	● 00: sync (The BIOS changes the status of the VT-x function.) ● 01: async (The BMC changes the status of the VT-x function. It is supported in this version.)

Example

Request: The BMC sets the status of the VT-x function of the 2230-RE to **Disable**.

```
ipmitool -I lan -H 192.168.5.7 -U root -P Superuser9! -N 10 raw 0x38 0x12 0x00 0x01 0x00 0x01
```

Response:

```
Completed, so 00 is not displayed.
```

3.9 Querying Power Supply Information

Function

This command queries power supply information.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x34 0x36 0x12 0 0x38 1 [Parameter 4] [Parameter 5] 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff

User Privilege

operator

Parameters

For a description of the parameters, refer to Table 3-10.

Table 3-10 Parameter Descriptions for Querying Power Supply Information

Parameter	Description	Value Restraints
Parameter 4	1 byte	Index of the power supply.
Parameter 5	1 byte	Data type. ● 0: reserved

Parameter	Description	Value Restraints
		• 1: manufacturer • 2: model • 3: serial number • 4: firmware version • 5: input power • 6: output power • 7: PSU group • 8: position • 9: asset tag number • 10 (0xa): part number • 11 (0xb): maximum power • 12 (0xc): feature parameter (SMBIOS type39)

Response Description

For a description of response data, refer to Table 3-11.

Table 3-11 Response Description for Querying Power Supply Information

Response Data	Description
1st byte	• 0: operation succeeded. • Other completion codes have other meanings.
2nd byte	The value is fixed to 0x12.
3rd through 4th byte	Big-endian byte order. The same as CmdType in request data.
5th byte	Version number. The value is 1.
6th byte	Valid length of data.
7th through Nth bytes	Queried data.
(N+1)th through 25th bytes	0xFF by default.

Example

Request: Query the output power of the power supply whose index is 0.

```
ipmitool -I lan -H 192.168.5.7 -U root -P Superuser9! raw 0x34 0x36 0x12 0 0x38 1 0 6 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff
```

Response:

```
12 00 38 01 04 7e 01 00 00 ff ff ff ff ff ff ff
ff ff ff ff ff ff ff ff
```

For a description of response data, refer to Table 3-12.

Table 3-12 Example Response for Querying Power Supply Information

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd byte	12	The value is fixed to 0x12.
3rd through 4th bytes	00 38	Big-endian byte order. The same as CmdType in request data.
5th byte	01	Version number. The value is 1.
6th byte	04	The valid length of data is 4.
7th through Nth bytes	7e 01 00 00	The output power is 382 W.
(N+1)th through 25th bytes	0xff .. 0xff	0xFF by default.

3.10 Resetting the Host by Pressing Ctrl + Alt + Del

Function

This command enables you to reset the host by pressing **Ctrl + Alt + Del** in the BIOS.

Syntax

ipmitool -I lan -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xfe 0x3E 0x0F 0x0

User Privilege

administrator

Response Description

For a description of response data, refer to Table 3-13.

Table 3-13 Response Description for Resetting the Host by Pressing Ctrl + Alt + Del

Response Data	Description
1st through 3rd bytes	Vendor ID of VANTAGEO.
4th byte	IPMI command sending status. ● 01: successful ● 00: failed

Example

Request:

```
ipmitool -I lan -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xfe 0x3E 0x0F 0x0
```

Response:

```
3E 0F 00 01
```

Chapter 4
Chassis-Related Commands

Table of Contents

Querying FRU information 60
Querying Firmware Version Information 61
BMC and BIOS Upgrade 66
Querying the IPMI Version 72
Querying Server Component Redundancy 73
Performing a Warm Reset on a BMC 74
Setting the IP Address of a BMC 75
Setting the Subnet Mask of a BMC 75
Setting the Gateway Address of a BMC 76
Disabling the Shared Port 76
Querying the Number of Network Ports 78
Querying the MAC Address of a Network Port 79
Querying the Position Information About a Network Port 80
Querying the Asset Tag 82
Setting the Asset Tag 82
Querying the Active/Standby Power Mode 83
Setting the Active/Standby Power Mode 84
Performing an Operation on a Power Supply Extender 85
Querying the State of a Power Supply Extender 86

4.1 Querying FRU information

Function

This command queries FRU information, including BIOS version and BMC version information.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] fru list

User Privilege

user

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! fru list
```

Response:

```
FRU Device Description : Builtin FRU Device (ID 0)
Board Mfg Date    : Mon Nov 16 13:52:00 2020
Board Mfg         : VANTAGEO
Board Product     : SPLMA
Board Serial      : 2557dvds2v2s
Board Part Number  : 16030200
Board Extra       : BMC Version 03.13.0200
Board Extra       : Bios Version 03.18.0300
Product Manufacturer : VANTAGEO
Product Name      : 2230-RE
Product Serial    : 254554548754
Product Asset Tag : CHINA MOBILE ABCD1234
```

4.2 Querying Firmware Version Information

Function

This command queries firmware version information.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0x06 0x3e 0xf0 [Parameter 4] [Parameter 5] [Parameter 6]

User Privilege

user

Parameters

For a description of the parameters, refer to Table 4-1.

Table 4-1 Parameter Descriptions for Querying Firmware Version Information

Parameter	Value Restraints	Description
Parameter 4	1 byte	● 0: version number format

Parameter	Value Restraints	Description
		● Others: reserved
Parameter 5	2 bytes	Version type. Big-endian byte order. ● VER_TYPE_BIOS (26) ● VER_TYPE_IPMCBOOT (20) ● VER_TYPE_IPMC (14) ● VER_TYPE_EEPROM (15): FRU ● VER_TYPE_EPLD (7) ● VER_TYPE_CDM (18) : Not supported on iBMC. ● VER_TYPE_FPGABOOT (3): The local FPGA version which will not lost after power-off.
Parameter 6	2 bytes	The meaning and value of this parameter are determined by Parameter 5. The value is in big-endian byte order. ● VER_TYPE_BIOS: → 0: primary BIOS version number → 1: secondary BIOS version number → Others: reserved ● VER_TYPE_IPMCBOOT: 0xff 0xff ● VER_TYPE_IPMC: → 0xff 0xff: primary BMC version number → 1: secondary BMC version number ● VER_TYPE_EPLD: → The eighth byte indicates the position of the EPLD. 0: queries the version of the EPLD on the mainboard. Card index: queries the version of the EPLD on the card. → The seventh byte indicates the EPLD index within the same mainboard or card, starting from 0.

Response Description

Table 4-2 describes the response data of this command.

Table 4-2 Response Description for Querying Firmware Version Information

Response Data	Description
1st byte	● 0x00: completion code, indicating the firmware in this position is present, and its version number supports query. ● 0X01: The firmware in this position is present, and its version number does not support query. ● 0x02: The firmware in this position is present, but its version is not burned. ● 0x03: The firmware in this position is not present.

Response Data	Description
	● 0xc1: This command is not supported. ● Other error codes
2nd through 4th bytes	Vendor ID of VANTAGEO.
5th byte	0: version number format
6th through 7th bytes	Version type. The same as SCS definitions. Big-endian byte order. ● VER_TYPE_BIOS (26) ● VER_TYPE_IPMCBOOT (20) ● VER_TYPE_IPMC (14) ● VER_TYPE_EEPROM (15): FRU ● VER_TYPE_EPLD (7) ● VER_TYPE_CDM (18) : Not supported on iBMC ● VER_TYPE_FPGABOOT (3): The local FPGA version which will not lost after power-off.
8th through 9th bytes	The meaning of this value is determined by the version type. The value is in big-endian byte order. ● VER_TYPE_BIOS: → 0: primary BIOS version number → 1: secondary BIOS version number → Others: reserved ● VER_TYPE_IPMCBOOT: The high byte is 0, and the low byte is DEVICE ID. ● VER_TYPE_IPMC: → The high byte is DEVICE ID. → The low byte is DEVICE REVISION. → 1: secondary BMC version number ● VER_TYPE_EPLD: → The eighth byte indicates the position of the EPLD. 0: queries the version of the EPLD on the mainboard. Card index: queries the version of the EPLD on the card. → The seventh byte indicates the EPLD index within the same mainboard or card, starting from 0. ● VER_TYPE_EEPROM: FRU ID ● VER_TYPE_FPGABOOT: Location of the FPGA BOOT firmware. 0 indicates mother board.
10th byte	● 0: The version number format described in the following 11th through 19th bytes is used. ● 1: Reserved. If the version number format is changed, this value can be used for identification.
11th through 14th bytes	Version number.

Response Data	Description
	● VER_TYPE_BIOS (26): 0xAABBCCCC, the same as defined for the boot version number. AA indicates the major version number, BB indicates the minor version number, CCCC indicates the build number. Big-endian byte order. ● VER_TYPE_IPMCBOOT (20): 0xAABBCCCC. AA indicates the major version number, BB indicates the minor version number, CCCC indicates the build number. Big-endian byte order. ● VER_TYPE_IPMC (14): 0xAABBCCDD. AABBCC indicates the software version number. DD indicates software release serial number. ● VER_TYPE_EPLD(7) ● VER_TYPE_CDM(18)
15th byte	Indicates whether the 16th through 19 bytes are valid. ● bit0: 1 → 00: the board ID is found. → 01: the board ID is not found. → 10: reserved. → 11: The board ID does not support query. ● bit2: 3, indicating a PCB ● bit4: 5, indicating a BOM
16th through 17th bytes	Big-endian byte order ● VER_TYPE_BIOS (26): returns the board ID of the mainboard where the BIOS is located. ● VER_TYPE_IPMCBOOT (20): returns the board ID of the mainboard where the iBMC is located. ● VER_TYPE_IPMC (14): returns the board ID of the mainboard where the iBMC is located. ● VER_TYPE_EEPROM (15): returns the board ID of the mainboard where the FRU is located. ● VER_TYPE_EPLD (7): returns the board ID of the mainboard where the EPLD is located. ● If no board ID is found, 0xffff is returned.
18th byte	Big-endian byte order ● VER_TYPE_BIOS (26): returns the PCB ID of the mainboard where the BIOS is located. ● VER_TYPE_IPMCBOOT (20): returns the PCB ID of the mainboard where the iBMC is located. ● VER_TYPE_IPMC (14): returns the PCB ID of the mainboard where the iBMC is located. ● VER_TYPE_EEPROM (15): returns the PCB ID of the mainboard where the FRU is located. ● VER_TYPE_EPLD (7): returns the PCB ID of the mainboard where the EPLD is located.

Response Data	Description
	● If no PCB ID is found, 0xffff is returned.
19th byte	Big-endian byte order ● VER_TYPE_BIOS (26): returns the BOM ID of the mainboard where the BIOS is located. ● VER_TYPE_IPMCBOOT (20): returns the BOM ID of the mainboard where the iBMC is located. ● VER_TYPE_IPMC (14): returns the BOM ID of the mainboard where the iBMC is located. ● VER_TYPE_EEPROM (15): returns the BOM ID of the mainboard where the FRU is located. ● VER_TYPE_EPLD (7): returns the BOM ID of the mainboard where the EPLD is located. ● If no BOM ID is found, 0xffff is returned.
20th through 22nd bytes	PCB batch number. All zeros.

Example

Request: Query the BIOS version information. 0x1a is expressed as 26 in decimal notation, indicating BIOS.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0x06 0x3e 0xf 0 0 0 0x1a 0 0
```

Response:

```
3e 0f 00 00 00 1a 00 00 00 03 12 00 c8 c0 31 20 00 00 00 00 00
```

For a description of response data, refer to Table 4-3.

Table 4-3 Example Description for Querying Firmware Version Information

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.
5th byte	00	Version number
6th through 7th bytes	00 1a	The version type is BIOS.
8th through 9th bytes	00 00	Primary BIOS version
10th byte	00	The version number format described in the following 11th through 19th bytes is used.

Response Data	Example	Description
11th through 14th bytes	03 12 00 c8	Version number. Expressed as *03.18.200* in decimal notation.
15th byte	c0	Expressed as 1100 0000 in binary format, indicating the board ID, PCB ID, and BOM ID are found.
16th through 17th bytes	31 20	Board ID
18th byte	00	PCB ID
19th byte	00	BOM ID
20th through 22nd bytes	00 00 00	PCB batch number

4.3 BMC and BIOS Upgrade

4.3.1 Obtaining the Upgrade Mode Supported by the Firmware

Function

This command obtains the upgrade mode supported by the firmware.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xa0 0x3e 0xf0 [Parameter 4]

User Privilege

user

Parameters

For a description of the parameters, refer to Table 4-4.

Table 4-4 Parameter Descriptions for Obtaining the Upgrade Mode Supported by the Firmware

Parameter	Description	Value Restraints
Parameter 4	1 byte	Firmware type. ● 00: BMC/IPMC ● 02: BMC/IPMC BOOT ● 03: BIOS ● 04: BOOT ● 05: EPLD ● 06: THIRD_PART ● 07: VDISK ● 08: IMAGE

Parameter	Description	Value Restraints
		• 09: VR • 0A–FF: reserved

Response Description

For a description of response data, refer to Table 4-5.

Table 4-5 Response Description for Obtaining the Upgrade Mode Supported by the Firmware

Response Data	Description
1st byte	• 0x00: Operation succeeded. If the first byte is 00, this byte is not displayed by default. • 0x80: firmware type not supported.
2nd through 4th bytes	Vendor ID of VANTAGEO.
5th byte	Firmware type. • 00: BMC/IPMC • 02: BMC/IPMC BOOT • 03: BIOS • 04: BOOT • 05: EPLD • 06: THIRD_PART • 07: VDISK • 08: IMAGE • 09: VR • 0A–FF: reserved
6th byte	Upgrade mode supported. • Bit7–Bit4: reserved. Default: 0. • Bit3: web. • Bit2: JTAG, which indicates that the BMC/IPMC communicates with the CMM through JTAG, namely the BMC/IPMC provides small programs (1: supported; 0: not supported). • Bit1: LAN (1: supported; 0: not supported). • Bit0: IPMB (1: supported; 0: not supported).

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xa0 0x3e 0xf 0 0
```

Response:

```
3e 0f 00 00 0a
```

For a description of response data, refer to Table 4-6.

Table 4-6 Example Response for Obtaining the Upgrade Mode Supported by the Firmware

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.
5th byte	00	The firmware type is BMC.
6th byte	0a	Expressed as 1010 in binary format, indicating that web and LAN upgrade are supported.

4.3.2 Making Preparations for Upgrade

Function

This command makes preparations for upgrade.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xa1 0x3e 0xf0 [Parameter 4] [Parameter 5]

User Privilege

user

Parameters

For a description of the parameters, refer to Table 4-7.

Table 4-7 Parameter Descriptions for Making Preparations for Upgrade

Parameter	Description	Value Restraints
Parameter 4	1 byte	Firmware type. ● 00: BMC/IPMC ● 02: BMC/IPMC BOOT ● 03: BIOS ● 04: BOOT ● 05: EPLD ● 06: THIRD_PART ● 07: VDISK ● 08: IMAGE ● 09: VR ● 0A–FF: reserved
Parameter 5	1 byte	Channel type. ● Bit0..6:

Parameter	Description	Value Restraints
		→ 0: IPMB → 1: LAN (FTP) → 2: JTAG → 3: WEBBit ● Bit7: When the firmware type is 0x03, two BIOS chips are required to be burnt.

Response Description

For a description of response data, refer to Table 4-8.

Table 4-8 Response Description for Making Preparations for Upgrade

Response Data	Description
1st byte	● 0x00: Operation succeeded. If the first byte is 00, this byte is not displayed by default. ● 0x80: no upgrade channel supported. ● 0x81: no burning (only for BIOS). ● 0x82: Obtaining the upgrade type failed. ● 0x83: FTP download failed during upgrade. ● 0x86: synchronizing the version.
2nd through 4th bytes	Vendor ID of VANTAGEO.

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xa1 0x3e 0xf 0 0 1
```

Response:

```
3e 0f 00
```

For a description of response data, refer to Table 4-9.

Table 4-9 Example Response for Making Preparations for Upgrade

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.

4.3.3 Writing Version Information

Function

This command writes version information.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xa2 0x3e 0xf 0 [Parameter 4] [Parameter 5]

User Privilege

user

Parameters

For a description of the parameters, refer to Table 4-10.

Table 4-10 Parameter Descriptions for Writing Version Information

Parameter	Description	Value Restraints
Parameter 4	2 bytes	00 00, offset of version information data.
Parameter 5	43 bytes	Upgrade data. The username and password are **3gplat**, and the version name is **BMC.BIN**.

Response Description

For a description of response data, refer to Table 4-11.

Table 4-11 Response Description for Writing Version Information

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	Vendor ID of VANTAGEO.

Example

Request:

```
ipmitool -I lan -H 192.168.5.7 -U root -P superuser raw 0x2e 0xa2 0x3e 0x0f 0x00 0x00 0x00 0x2b 0xa1 0x28 0x00 0x10 0x00 0x00 0x00 0x06 0x33 0x67 0x70 0x6c 0x61 0x74 0x06 0x33 0x67 0x70 0x6c 0x61 0x74 0x0c 0x31 0x39 0x32 0x2e 0x31 0x36 0x38 0x2e 0x35 0x2e 0x31 0x30 0x00 0x07 0x4d 0x43 0x2e 0x42 0x49 0x4e
```

Response:

```
3e 0f 00
```

For a description of response data, refer to Table 4-12.

Table 4-12 Example Response for Writing Version Information

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.

4.3.4 Notifying the BMC of Data Transmission Completion

Function

This command notifies the BMC of data transmission completion.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xa3 0x3e 0xf0

User Privilege

user

Response Description

For a description of response data, refer to Table 4-13.

Table 4-13 Response Description for Notifying the BMC of Data Transmission Completion

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default. ● 0x81: no burning ● 0x83: upgrading ● 0x84: upgrade information verification error
2nd through 4th bytes	Vendor ID of VANTAGEO.

Example

Request:

```
ipmitool -I lan -H 192.168.5.7 -U root -P superuser raw 0x2e 0xa3 0x3e 0x0f 0x00
```

Response:

```
3e 0f 00
```

For a description of response data, refer to Table 4-14.

Table 4-14 Example Response for Notifying the BMC of Data Transmission Completion

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.

4.4 Querying the IPMI Version

Function

This command queries the IPMI version.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] mc info

User Privilege

user

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! mc info
```

Response:

```
Device ID       : 10
Device Revision   :0
Firmware Revision     : 9.09
IPMI Version         : 2.0
Manufacturer ID       : 3902
Manufacturer Name          : Unknown (0xF3E)
Product ID        : 12576 (0x3120)
Product Name          : Unknown (0x3120)
Device Available      : yes
Provides Device SDRs    : yes
Additional Device Support :
  Sensor Device
  SDR Repository Device
  SEL Device
  FRU Inventory Device
```

```
  IPMB Event Receiver
  IPMB Event Generator
  Chassis Device
Aux Firmware Rev Info   :
  0x57
  0x04
  0x00
  0x00
```

4.5 Querying Server Component Redundancy

Function

This command queries server component redundancy.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xb6 0x3e 0xf0 [Parameter 4] [Parameter 5] [Parameter 6] [Parameter 7]

User Privilege

user

Parameters

For a description of the parameters, refer to Table 4-15.

Table 4-15 Parameter Descriptions for Querying Server Component Redundancy

Parameter	Value Restraints	Description
Parameter 4	1 byte	Component type ● 0: PSU ● 1: disk ● 2: network port
Parameter 5	1 byte	Start index of components of the specified type. The start index is 0 or 1. The same as component silkscreens. Set this parameter to 0 in network port configuration.
Parameter 6	1 byte	Start index of queries. The start index is 0 or 1. Set this parameter to 0 in network port configuration.
Parameter 7	1 byte	Number of queries. The maximum number of queries is 32. Set this parameter to 1 in network port configuration.

Response Description

Table 4-16 describes the response data of this command.

Table 4-16 Response Description for Querying Server Component Redundancy

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	Vendor ID of VANTAGEO.
5th byte	Maximum number of queries.
6th byte	Number of successful queries.
7th through 21st bytes	Configuration of the component of the first index ● 0: not present (only configuration is available for hard disks and NICs) ● 1: present (configuration and actual presence information exist for PSUs) ● Bit0: indicates that the configuration shows that the component is present or not. ● Bit1: indicates that the component is actually present or not (The actual presence status is read-only) ● Bit2–bit7: reserved

4.6 Performing a Warm Reset on a BMC

Function

This command performs a warm reset on a BMC.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] mc reset warm

User Privilege

administrator

Response Description

Sent warm reset command to MC.

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! mc reset warm
```

Response:

```
Sent warm reset command to MC
```

4.7 Setting the IP Address of a BMC

Function

This command sets the IP address of a BMC.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] lan set 1 ipaddr [Parameter 4]

User Privilege

administrator

Response Description

Setting LAN IP Address to [Parameter 4]

Parameters

For a description of the parameters, refer to Table 4-17.

Table 4-17 Parameter Descriptions for Setting the IP Address of a BMC

Parameter	Value Restraints	Description
Parameter 4	IP address format	IP address

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! lan set 1 ipaddr 192.168.5.177
```

Response:

```
Setting LAN IP Address to 192.168.5.177
```

4.8 Setting the Subnet Mask of a BMC

Function

This command sets the subnet mask of the IP address of a BMC.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] lan set 1 netmask [Parameter 4]

User Privilege

administrator

Response Description

Setting LAN Subnet Mask to [Parameter 4]

Parameters

For a description of the parameters, refer to Table 4-18.

Table 4-18 Parameter Descriptions for Setting the Subnet Mask of a BMC

Parameter	Value Restraints	Description
Parameter 4	IP address format	Subnet mask

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! lan set 1 netmask 255.255.255.0
```

Response:

```
Setting LAN Subnet Mask to 255.255.255.0
```

4.9 Setting the Gateway Address of a BMC

Function

This command sets the gateway address of a BMC.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] lan set 1 defgw ipaddr [Parameter 4]

User Privilege

administrator

Response Description

Setting LAN Default Gateway IP [Parameter 4]

Parameters

For a description of the parameters, refer to Table 4-19.

Table 4-19 Parameter Descriptions for Setting the Gateway Address of a BMC

Parameter	Value Restraints	Description
Parameter 4	IP address format	Gateway address

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! lan set 1 defgw ipaddr 192.168.5.1
```

Response:

```
Setting LAN Default Gateway IP 192.168.5.1
```

4.10 Disabling the Shared Port

Function

The command disables the shared port.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x32 0x71 0 [Parameter 4] [Parameter 5]

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 4-20.

Table 4-20 Parameter Descriptions for Disabling the Shared Port

Parameter	Value Restraints	Description
Parameter 4	1 byte	Index of the network port.
Parameter 5	1 byte	Status of the network port. ● bit 7-2: Reserved ● 0-1: status → 0x0: Disable both the IPv4 and IPv6 → 0x1: Enable IPv4 only → 0x2: Enable IPv6 only → 0x3: Enable Both IPv4 and IPv6

Response Description

Table 4-21 describes the response data of this command.

Table 4-21 Response Description for Disabling the Shared Port

Response Data	Description
1st byte	Completion code: 00. If the first byte is 00, this byte is not displayed by default. ● 0x81h: Returns when Index is specific to bonding ● 0x82h: Enable IPv6 only ● 0x83h: Disable Minimum LAN Interface ● 0xd5h: Parameter not supported in current state

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x32 0x71 0 0 0
```

4.11 Querying the Number of Network Ports

Function

This command queries the number of network ports.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0x0c 0x3e 0x0f 0

User Privilege

user

Response Description

Table 4-22 describes the response data of this command.

Table 4-22 Response Description for Querying the Number of Network Ports

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	Vendor ID of VANTAGEO.
5th byte	Number of network ports.

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0x0c 0x3e 0x0f 0
```

Response:

```
3e 0f 00 08
```

For a description of response data, refer to Table 4-23.

Table 4-23 Example Response for Querying the Number of Network Ports

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.
5th byte	08	The number of network ports is 8.

4.12 Querying the MAC Address of a Network Port

Function

This command queries the MAC address of a network port.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0x0d 0x3e 0x0f 0 [Parameter 4] 0

User Privilege

user

Parameters

For a description of the parameters, refer to Table 4-24.

Table 4-24 Parameter Descriptions for Querying the MAC Address of a Network Port

Parameter	Value Restraints	Description
Parameter 4	1 byte	Index of the network port, starting from 1.

Response Description

Table 4-25 describes the response data of this command.

Table 4-25 Response Description for Querying the MAC Address of a Network Port

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.

Response Data	Description
2nd through 4th bytes	Vendor ID of VANTAGEO.
5th byte	0
6th through 11th bytes	MAC address.

Example

Request: Query the MAC address of network port 1.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0x0d 0x3e 0x0f 0 1 0
```

Response:

```
3e 0f 00 00 4c 09 b4 20 11 19
```

For a description of response data, refer to Table 4-26.

Table 4-26 Example Response for Querying the MAC Address of a Network Port

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.
5th byte	00	0
6th through 11th bytes	4c 09 b4 20 11 19	MAC Address.

4.13 Querying the Position Information About a Network Port

Function

This command queries the position information about a network port.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0x0d 0x3e 0x0f 0 [Parameter 4] 1

User Privilege

user

Parameters

For a description of the parameters, refer to Table 4-27.

Table 4-27 Parameter Descriptions for Querying the Position Information About a Network Port

Parameter	Value Restraints	Description
Parameter 4	1 byte	Index of the network port, starting from 1.

Response Description

Table 4-28 describes the response data of this command.

Table 4-28 Response Description for Querying the Position Information About a Network Port

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	Vendor ID of VANTAGEO.
5th byte	0
6th byte	● Bits 4 through 7: slot type → 0: onboard → 1: PCIe ● Bits 0 through 3: slot number. The slot number is 0x1 for an onboard NIC.
7th byte	NIC ID, starting from 0. This NIC ID is not the same as the hardware ID of the NIC. Only one NIC exists, and the NIC ID is 0.
8th byte	ID of the network port on the NIC, starting from 0. Not related to the hardware ID of the NIC.

Example

Request: Query the position information about network port 1.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0x0d 0x3e 0x0f 0 8 1
```

Response:

```
3e 0f 00 00 17 02 01
```

For a description of response data, refer to Table 4-29.

Table 4-29 Example Response for Querying the Position Information About a Network Port

Response Data	Example	Description
1st byte	–	Completion code: 00 If the first byte is 00, this byte is not displayed by default.

Response Data	Example	Description
2nd through 4th bytes	3e 0f 00	Vendor ID of VANTAGEO.
5th byte	00	0
6th byte	17	The PCIe slot number is 7.
7th byte	02	The NIC ID is 2.
8th byte	01	The ID of the network port on the NIC is 1.

4.14 Querying the Asset Tag

Function

This command queries the asset tag.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] dcmi asset_tag

User Privilege

user

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! dcmi asset_tag
```

Response:

```
Asset tag: vantageo
```

4.15 Setting the Asset Tag

Function

This command sets the asset tag.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] dcmi set_asset_tag "[Parameter 4]"

User Privilege

operator

Parameters

For a description of the parameters, refer to Table 4-30.

Table 4-30 Parameter Descriptions for Setting the Asset Tag

Parameter	Value Restraints	Description
Parameter 4	Character string	Asset tag

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! dcmi set_asset_tag "vantageo"
```

Response:

```
Asset tag: vantageo
```

4.16 Querying the Active/Standby Power Mode

Function

This command queries the active/standby power mode.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xc0 [Parameter 4]

User Privilege

user

Response Description

0x3e 0x0f 0x00 [Parameter 5] [Parameter 6]

Parameters

For a description of the parameters, refer to Table 4-31.

Table 4-31 Parameter Descriptions for Setting the Active/Standby Power Mode

Parameter	Value Restraints	Description
Parameter 4	Character string.	Little-endian byte order. BYTE1=0x3E, BYTE2=0x0F, BYTE3=0.
Parameter 5	● 0: load balancing mode	Power policy.

Parameter	Value Restraints	Description
	● 1: active/standby mode	
Parameter 6	Specifies the active power supplies when the power mode is active/standby mode. The value consists of eight bits. Each bit corresponds to one power slot. Bit0 corresponds to power slot 1, and so on. If a bit is set to 1, it indicates that the corresponding power supply is active. The value of this parameter is 0 when the power mode is load balancing mode.	Active power.

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xc0 0x3e 0x0f 0x00
```

Response:

```
0x3e 0x0f 0x00 0x01 0x01
0x3e 0x0f 0x00 0x00 0x00
```

4.17 Setting the Active/Standby Power Mode

Function

This command sets the active/standby power mode.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x2e 0xbf [Parameter 4] [Parameter 5] [Parameter 6]

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 4-32.

Table 4-32 Parameter Descriptions for Setting the Active/Standby Power Mode

Parameter	Value Restraints	Description
Parameter 4	Character string.	Little-endian byte order. BYTE1=0x3E, BYTE2=0x0F, BYTE3=0.
Parameter 5	• 0: load balancing mode • 1: active/standby mode	Power policy.
Parameter 6	Specifies the active power supplies when the power mode is active/standby mode. The value consists of eight bits. Each bit corresponds to one power slot. Bit0 corresponds to power slot 1, and so on. If a bit is set to 1, it indicates that the corresponding power supply is active. The value of this parameter is 0 when the power mode is load balancing mode.	Active power.

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x2e 0xbf 0x3e 0x0f 0x00 0x01 0x01
```

Response Example: None.

4.18 Performing an Operation on a Power Supply Extender

Function

This command performs an operation on a power supply extender.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x30 0x02 [Parameter 4] [Parameter 5]

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 4-33.

Table 4-33 Parameter Descriptions for Performing an Operation on a Power Supply Extender

Parameter	Value Restraints	Description
Parameter 4	Character string.	Little-endian byte order. BYTE1=0x61, BYTE2=0x7E, BYTE3=0.
Parameter 5	0: powered off. 1: powered on. 2: cold boot. 3: sets the state of a power supply extender to FAKE-S5.	Operation on a power supply extender.

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x30 0x02 0x61 0x7e 0x00 0x00
```

Response:

```
0x00 0x61 0x7e 0x00
```

4.19 Querying the State of a Power Supply Extender

Function

This command queries the state of a power supply extender.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x30 0x03 [Parameter 4]

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 4-34.

Table 4-34 Parameter Descriptions for Setting the Active/Standby Power Mode

Parameter	Value Restraints	Description
Parameter 4	Character string.	Little-endian byte order. BYTE1=0x61, BYTE2=0x7E, BYTE3=0

Response Description

For a description of response data, refer to Table 4-35.

Table 4-35 Response Descriptions for Querying the State of a Power Supply Extender

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.
2nd through 4th bytes	Little-endian byte order. BYTE1=0x61, BYTE2=0x7E, BYTE3=0.
5th byte	State of a power supply extender. 00: S0 04: FAKE-S5 05: S5

Example

Request:

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x30 0x03 0x61 0x7e 0x00
```

Response:

```
0x00 0x61 0x7e 0x00 00
```

Chapter 5
Account-Related Commands

Table of Contents

Setting a Username 88
Setting the Password of a User 89
Activating a User 90
Setting the Privilege of a User 91
Setting the Privilege of a User in a Channel 92
Setting SNMP Permissions 93
Setting KVM and vMedia Permissions 94

5.1 Setting a Username

Function

This command sets a username.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] user set name [Parameter 4] [Parameter 5]

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 5-1.

Table 5-1 Parameter Descriptions for Setting a Username

Parameter	Value Restraints	Description
Parameter 4	Integer	ID of the BMC management user.
Parameter 5	Character string	Username of the BMC management user.

Response Description

Table 5-2 describes the response data of this command.

Table 5-2 Response Description for Setting a Username

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.

Example

Request. Set the username of the user whose ID is 3 to testname.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! user set name 3 testname
```

5.2 Setting the Password of a User

Function

This command sets the password of a user.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] user set password [Parameter 4] [Parameter 5] [Parameter 6]

User Privilege

administrator

Response Description

Set User Password command successful (user [Parameter 4])

Parameters

For a description of the parameters, refer to Table 5-3.

Table 5-3 Parameter Descriptions for Setting the Password of a User

Parameter	Value Restraints	Description
Parameter 4	Integer	ID of the BMC management user.
Parameter 5	Character string	Password of the BMC management user. When the value of parameter 6 is set to 16, the password length must not exceed 16 characters. When the value of parameter 6 is set to 20, the password length must not exceed 20 characters.

Parameter	Value Restraints	Description
Parameter 6	Integer	Options: 16 and 20. Default: 16.

Example

Request 1: Set the password of the user whose ID is 3 to "testPwd1!". Since the value of parameter 6 is not set, the password can contain a maximum of 16 characters by default.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! user set password 3 testPwd1!
```

Response 1:

```
Set User Password command successful (user 3)
```

Request 2: Set the password of the user whose ID is 3 to "testPwdMoreThan16!". The password contains 18 characters, so the value of parameter 6 needs to be set to 20.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! user set password 3 testPwdMoreThan16! 20
```

Response 2:

```
Set User Password command successful (user 3)
```

5.3 Activating a User

Function

This command activates a user.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] user enable [Parameter 4]

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 5-4.

Table 5-4 Parameter Descriptions for Activating a User

Parameter	Value Restraints	Description
Parameter 4	Integer	ID of the BMC management user.

Response Description

Table 5-5 describes the response data of this command.

Table 5-5 Response Description for Activating a User

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.

Example

Request: Activate the user whose ID is 3.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! user enable 3
```

5.4 Setting the Privilege of a User

Function

This command sets the privilege of a user.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] user priv [Parameter 4] [Parameter 5]

User Privilege

administrator

Parameters

Set Privilege Level command successful (user [Parameter 4])

Response Description

For a description of the parameters, refer to Table 5-6.

Table 5-6 Parameter Descriptions for Setting the Privilege of a User

Response Data	Value Restraints	Description
Parameter 4	Integer	ID of the BMC management user.
Parameter 5	• 2: viewer • 3: operator • 4: administrator	Privilege of the BMC management user.

Example

Request: Set the privileges of the user whose ID is 3 to administrator.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! user priv 3 4
```

Response:

```
Set Privilege Level command successful (user 3)
```

5.5 Setting the Privilege of a User in a Channel

Function

This command sets the privilege of a user in a channel.

The following conditions must be met for a user to log in to the Web portal of a BMC:

- Channels 1 and 2 must be set.
- The user must have a privilege.

Syntax

Ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] [Parameter 3] channel setaccess [Parameter 4] [Parameter 5] callin=on ipmi=on link=on privilege=[Parameter 6]

User Privilege

administrator

Response Description

Set User Access (channel [Parameter 4] id [Parameter 5]) successful.

Parameters

For a description of the parameters, refer to Table 5-7.

Table 5-7 Parameter Descriptions for Setting the Privilege of a User in a Channel

Parameter	Value Restraints	Description
Parameter 4	• 1: The channel ID is 1. • 2: The channel ID is 2.	Channel ID.
Parameter 5	Integer	User ID.
Parameter 6	• 2: viewer • 3: operator • 4: administrator	Privilege.

Example

Request: Set the channel ID1 privilege of the user whose ID is 3 to administrator.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! channel setaccess 1 3 callin=on ipmi=on link=on privilege=4
```

Response:

```
Set User Access (channel 1 id 3) successful.
```

5.6 Setting SNMP Permissions

Function

This command sets SNMP permissions.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x32 0x7d [Parameter 4] [Parameter 5] [Parameter 6] [Parameter 7] [Parameter 8]

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 5-8.

Table 5-8 Parameter Descriptions for Setting SNMP Permissions

Parameter	Value Restraints	Description
Parameter 4	Integer	ID of the BMC management user.
Parameter 5	1 byte	SNMP Enable/Disable ● 0h: disable ● 1h: enable
Parameter 6	1 byte	SNMP Access type ● 1h: Read Only ● 2h: Read Write
Parameter 7	1 byte	SNMP Encryption type I ● 1h: SHA ● 2h: MD52
Parameter 8	1 byte	SNMP Encryption type II ● 1h: DES ● 2h: AES

Response Description

Table 5-9 describes the response data of this command.

Table 5-9 Response Description for Setting SNMP Permissions

Response Data	Description
1st byte	Completion code: 00

Response Data	Description
	If the first byte is 00, this byte is not displayed by default.

Example

Request: Set the SNMP permissions of the user whose ID is 3. The SNMP access type is read-only, the SNMP authentication protocol is MD52, and the SNMP encryption protocol is DES.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x32 0x7d 0x3 0x1 0x1 0x2 0x1
```

5.7 Setting KVM and vMedia Permissions

Function

This command sets KVM and vMedia permissions.

Syntax

ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] raw 0x32 0xa3 [Parameter 4] [Parameter 5] 0 0 0

User Privilege

administrator

Parameters

For a description of the parameters, refer to Table 5-10.

Table 5-10 Parameter Descriptions for Setting KVM and vMedia Permissions

Parameter	Value Restraints	Description
Parameter 4	Integer	ID of the BMC management user.
Parameter 5	Permissions, 1 byte ● 0x00: KVM & VMedia Not Allowed ● 0x01: KVM Only Allowed ● 0x02: VMedia Only Allowed ● 0x03: KVM & VMedia Allowed	KVM and vMedia permissions.

Response Description

Table 5-11 describes the response data of this command.

Table 5-11 Response Description for Setting KVM and vMedia Permissions

Response Data	Description
1st byte	Completion code: 00 If the first byte is 00, this byte is not displayed by default.

Example

Request: Set the KVM and vMedia permissions of the user whose ID is 3.

```
ipmitool -I lanplus -H 192.168.5.7 -U root -P Superuser9! raw 0x32 0xa3 0x03 0x02 0 0 0
```

Chapter 6
IPMI Use Case

Table of Contents

Running the IPMI Tool in the Server System 96
Running the IPMI Command on a BMC 97
Running the IPMI Tool on a Commissioning PC 98

6.1 Running the IPMI Tool in the Server System

Abstract

You can use the IPMI tool in the server system to obtain server-related information.

Note

This procedure uses the RHEL 8.2 operating system as an example.

Steps

1. Download the IPMI tool installation package.
   Download link: https://sourceforge.net/projects/ipmitool/files/ipmitool/. The following uses version 1.8.18 as an example and describes how to download the *ipmitool-1.8.18.tar.gz* file.
2. Use a file transfer tool (for example, WinSCP) to upload the IPMI tool installation package (*ipmitool-1.8.18.tar.gz*) to any directory of the server (for example, the *usr* directory, which can be changed as required).
3. Use the SSH remote login tool to log in to the CLI of the Linux operating system as the administrator.
4. Run the following commands to install the IPMI tool:

   # cd */usr*

   # tar -zxvf *ipmitool-1.8.18.tar.gz*

   # cd *ipmitool-1.8.18*

   # ./configure && make && make install

   # cp *contrib/bmclanconf /usr/local/bin*

5. (Optional) To quickly access the IPMI tool, run the following commands to establish a soft link to the IPMI tool:

   # cd */usr*

   # ln -s */usr/ipmitool-1.8.18/src/ipmitool*

6. Run the following commands in any directory to check the version information about the IPMI tool:

   # ipmitool *mc info*

   An example of the command output is as follows:

```
Device ID                 : 10
Device Revision           : 0
Firmware Revision         : 9.09
IPMI Version              : 2.0
Manufacturer ID           : 3902
Manufacturer Name         : Unknown (0xF3E)
Product ID                : 12576 (0x3120)
Product Name              : Unknown (0x3120)
Device Available          : yes
Provides Device SDRs      : yes
Additional Device Support :
    Sensor Device
    SDR Repository Device
    SEL Device
    FRU Inventory Device
    IPMB Event Receiver
    IPMB Event Generator
    Chassis Device
Aux Firmware Rev Info     :
    0x57
    0x04
    0x00
    0x00
```

6.2 Running the IPMI Command on a BMC

Abstract

The BMC on a server is equipped with the IPMI tool. You can log in to the BMC CLI through SSH, and run the IPMI command to check server information.

Steps

1. Use the SSH remote login tool to log in to the BMC CLI as the administrator.

2. Run the following command in any directory to check the version information of the IPMI tool:

   # ipmitool -I lanplus -H *BMC_IP* -U *Username* -P *Password mc info*

   An example of the command output is as follows:

```
Device ID                 : 10
Device Revision           : 0
Firmware Revision         : 9.09
IPMI Version              : 2.0
Manufacturer ID           : 3902
Manufacturer Name         : Unknown (0xF3E)
Product ID                : 12576 (0x3120)
Product Name              : Unknown (0x3120)
Device   Available      :   yes
Provides  Device  SDRs   :  yes
Additional Device Support :
    Sensor Device
    SDR Repository Device
    SEL Device
    FRU Inventory Device
    IPMB Event Receiver
    IPMB Event Generator
    Chassis Device
Aux Firmware Rev Info     :
    0x57
    0x04
    0x00
    0x00
```

6.3 Running the IPMI Tool on a Commissioning PC

Abstract

You can run the IPMI tool on a commissioning PC to query the information about the servers in the same network segment.

This procedure uses the Windows operating system as an example to describe how to run the IPMI tool on a commissioning PC. If the commissioning PC uses the Linux operating system (for example, the Ubuntu system), run the **sudo apt-get install** *ipmitool/ipmiutil* command to install the IPMI tool.

Prerequisites

The commissioning PC can successfully ping the management server.

Steps

1. Download the IPMI tool.
2. Decompress the IPMI tool package on the commissioning PC.
3. Open the command line interface by entering *cmd* in the **Run** dialog box. Enter the directory where *ipmitool.exe* is located.
4. Run the following command to check the version information about the IPMI tool:

   # ipmitool -I lanplus -H *BMC_IP* -U *Username* -P *Password mc info*

   An example of the command output is as follows:

```
Device ID                 : 10
Device Revision           : 0
Firmware Revision         : 9.09
IPMI Version              : 2.0
Manufacturer ID           : 3902
Manufacturer Name         : Unknown (0xF3E)
Product ID                : 12576 (0x3120)
Product Name              : Unknown (0x3120)
Device Available          : yes
Provides Device SDRs      : yes
Additional Device Support :
    Sensor Device
    SDR Repository Device
    SEL Device
    FRU Inventory Device
    IPMB Event Receiver
    IPMB Event Generator
    Chassis Device
Aux Firmware Rev Info     :
    0x57
    0x04
    0x00
    0x00
```

Chapter 7
Appendix: Time Zone Names

America/Puerto_Rico
America/New_York
America/Chicago
America/Denver
America/Phoenix
America/Los_Angeles
America/Anchorage
Pacific/Honolulu
America/Adak
America/Anguilla
America/Antigua
America/Araguaina
America/Argentina/Buenos_Aires
America/Argentina/Catamarca
America/Argentina/ComodRivadavia
America/Argentina/Cordoba
America/Argentina/Jujuy
America/Argentina/La_Rioja
America/Argentina/Mendoza
America/Argentina/Rio_Gallegos
America/Argentina/Salta
America/Argentina/San_Juan
America/Argentina/San_Luis
America/Argentina/Ushuaia
America/Aruba
America/Asuncion
America/Atikokan
America/Atka
America/Bahia
America/Barbados
America/Belem
America/Belize

America/Blanc-Sablon
America/Boa_Vista
America/Bogota
America/Boise
America/Buenos_Aires
America/Cambridge_Bay
America/Campo_Grande
America/Cancun
America/Caracas
America/Catamarca
America/Cayenne
America/Cayman
America/Chihuahua
America/Coral_Harbour
America/Cordoba
America/Costa_Rica
America/Cuiaba
America/Curacao
America/Danmarkshavn
America/Dawson
America/Dawson_Creek
America/Detroit
America/Dominica
America/Edmonton
America/Eirunepe
America/El_Salvador
America/Ensenada
America/Fortaleza
America/Fort_Wayne
America/Glace_Bay
America/Godthab
America/Goose_Bay
America/Grand_Turk
America/Grenada
America/Guadeloupe
America/Guatemala
America/Guayaquil
America/Guyana
America/Halifax
America/Havana
America/Hermosillo
America/Indiana/Indianapolis
America/Indiana/Knox
America/Indiana/Marengo

America/Indiana/Petersburg
America/Indiana/Tell_City
America/Indiana/Vevay
America/Indiana/Vincennes
America/Indiana/Winamac
America/Indianapolis
America/Inuvik
America/Iqaluit
America/Jamaica
America/Jujuy
America/Juneau
America/Kentucky/Louisville
America/Kentucky/Monticello
America/Knox_IN
America/La_Paz
America/Lima
America/Louisville
America/Maceio
America/Managua
America/Manaus
America/Marigot
America/Martinique
America/Matamoros
America/Mazatlan
America/Mendoza
America/Menominee
America/Merida
America/Mexico_City
America/Miquelon
America/Moncton
America/Monterrey
America/Montevideo
America/Montreal
America/Montserrat
America/Nassau
America/Nipigon
America/Nome
America/Noronha
America/North_Dakota/Center
America/North_Dakota/New_Salem
America/Ojinaga
America/Panama
America/Pangnirtung
America/Paramaribo

America/Port-au-Prince
America/Porto_Acre
America/Port_of_Spain
America/Porto_Velho
America/Rainy_River
America/Rankin_Inlet
America/Recife
America/Regina
America/Resolute
America/Rio_Branco
America/Rosario
America/Santa_Isabel
America/Santarem
America/Santiago
America/Santo_Domingo
America/Sao_Paulo
America/Scoresbysund
America/Shiprock
America/St_Barthelemy
America/St_Johns
America/St_Kitts
America/St_Lucia
America/St_Thomas
America/St_Vincent
America/Swift_Current
America/Tegucigalpa
America/Thule
America/Thunder_Bay
America/Tijuana
America/Toronto
America/Tortola
America/Vancouver
America/Virgin
America/Whitehorse
America/Winnipeg
America/Yakutat
America/Yellowknife
Europe/Amsterdam
Europe/Andorra
Europe/Athens
Europe/Belfast
Europe/Belgrade
Europe/Berlin
Europe/Bratislava

Europe/Brussels
Europe/Bucharest
Europe/Budapest
Europe/Chisinau
Europe/Copenhagen
Europe/Dublin
Europe/Gibraltar
Europe/Guernsey
Europe/Helsinki
Europe/Isle_of_Man
Europe/Istanbul
Europe/Jersey
Europe/Kaliningrad
Europe/Kiev
Europe/Lisbon
Europe/Ljubljana
Europe/London
Europe/Luxembourg
Europe/Madrid
Europe/Malta
Europe/Mariehamn
Europe/Minsk
Europe/Monaco
Europe/Moscow
Europe/Nicosia
Europe/Oslo
Europe/Paris
Europe/Podgorica
Europe/Prague
Europe/Riga
Europe/Rome
Europe/Samara
Europe/San_Marino
Europe/Sarajevo
Europe/Simferopol
Europe/Skopje
Europe/Sofia
Europe/Stockholm
Europe/Tallinn
Europe/Tirane
Europe/Tiraspol
Europe/Uzhgorod
Europe/Vaduz
Europe/Vatican

Europe/Vienna
Europe/Vilnius
Europe/Volgograd
Europe/Warsaw
Europe/Zagreb
Europe/Zaporozhye
Europe/Zurich
Asia/Aden
Asia/Almaty
Asia/Amman
Asia/Anadyr
Asia/Aqtau
Asia/Aqtobe
Asia/Ashgabat
Asia/Ashkhabad
Asia/Baghdad
Asia/Bahrain
Asia/Baku
Asia/Bangkok
Asia/Beirut
Asia/Bishkek
Asia/Brunei
Asia/Calcutta
Asia/Choibalsan
Asia/Chongqing
Asia/Chungking
Asia/Colombo
Asia/Dacca
Asia/Damascus
Asia/Dhaka
Asia/Dili
Asia/Dubai
Asia/Dushanbe
Asia/Gaza
Asia/Harbin
Asia/Ho_Chi_Minh
Asia/Hong_Kong
Asia/Hovd
Asia/Irkutsk
Asia/Istanbul
Asia/Jakarta
Asia/Jayapura
Asia/Jerusalem
Asia/Kabul

Asia/Kamchatka
Asia/Karachi
Asia/Kashgar
Asia/Kathmandu
Asia/Kolkata
Asia/Krasnoyarsk
Asia/Kuala_Lumpur
Asia/Kuching
Asia/Kuwait
Asia/Macao
Asia/Macau
Asia/Magadan
Asia/Makassar
Asia/Manila
Asia/Muscat
Asia/Nicosia
Asia/Novokuznetsk
Asia/Novosibirsk
Asia/Omsk
Asia/Oral
Asia/Phnom_Penh
Asia/Pyongyang
Asia/Qatar
Asia/Qyzylorda
Asia/Rangoon
Asia/Riyadh
Asia/Saigon
Asia/Sakhalin
Asia/Samarkand
Asia/Seoul
Asia/Shanghai
Asia/Singapore
Asia/Taipei
Asia/Tashkent
Asia/Tbilisi
Asia/Tehran
Asia/Tel_Aviv
Asia/Thimbu
Asia/Thimphu
Asia/Tokyo
Asia/Ujung_Pandang
Asia/Ulaanbaatar
Asia/Ulan_Bator
Asia/Urumqi

Asia/Vientiane
Asia/Vladivostok
Asia/Yakutsk
Asia/Yekaterinburg
Asia/Yerevan
Africa/Abidjan
Africa/Accra
Africa/Addis_Ababa
Africa/Algiers
Africa/Asmara
Africa/Asmera
Africa/Bamako
Africa/Bangui
Africa/Banjul
Africa/Bissau
Africa/Blantyre
Africa/Brazzaville
Africa/Bujumbura
Africa/Cairo
Africa/Casablanca
Africa/Ceuta
Africa/Conakry
Africa/Dakar
Africa/Dar_es_Salaam
Africa/Djibouti
Africa/Douala
Africa/El_Aaiun
Africa/Freetown
Africa/Gaborone
Africa/Harare
Africa/Johannesburg
Africa/Kampala
Africa/Khartoum
Africa/Kigali
Africa/Kinshasa
Africa/Lagos
Africa/Libreville
Africa/Lome
Africa/Luanda
Africa/Lubumbashi
Africa/Lusaka
Africa/Malabo
Africa/Maputo
Africa/Maseru

Africa/Mbabane
Africa/Mogadishu
Africa/Monrovia
Africa/Nairobi
Africa/Ndjamena
Africa/Niamey
Africa/Nouakchott
Africa/Ouagadougou
Africa/Porto-Novo
Africa/Sao_Tome
Africa/Timbuktu
Africa/Tripoli
Africa/Tunis
Africa/Windhoek
Australia/ACT
Australia/Adelaide
Australia/Brisbane
Australia/Broken_Hill
Australia/Canberra
Australia/Currie
Australia/Darwin
Australia/Eucla
Australia/Hobart
Australia/LHI
Australia/Lindeman
Australia/Lord_Howe
Australia/Melbourne
Australia/North
Australia/NSW
Australia/Perth
Australia/Queensland
Australia/South
Australia/Sydney
Australia/Tasmania
Australia/Victoria
Australia/West
Australia/Yancowinna
Indian/Antananarivo
Indian/Chagos
Indian/Christmas
Indian/Cocos
Indian/Comoro
Indian/Kerguelen
Indian/Mahe

Indian/Maldives
Indian/Mauritius
Indian/Mayotte
Indian/Reunion
Atlantic/Azores
Atlantic/Bermuda
Atlantic/Canary
Atlantic/Cape_Verde
Atlantic/Faeroe
Atlantic/Faroe
Atlantic/Jan_Mayen
Atlantic/Madeira
Atlantic/Reykjavik
Atlantic/South_Georgia
Atlantic/Stanley
Atlantic/St_Helena
Pacific/Apia
Pacific/Auckland
Pacific/Chatham
Pacific/Easter
Pacific/Efate
Pacific/Enderbury
Pacific/Fakaofo
Pacific/Fiji
Pacific/Funafuti
Pacific/Galapagos
Pacific/Gambier
Pacific/Guadalcanal
Pacific/Guam
Pacific/Johnston
Pacific/Kiritimati
Pacific/Kosrae
Pacific/Kwajalein
Pacific/Majuro
Pacific/Marquesas
Pacific/Midway
Pacific/Nauru
Pacific/Niue
Pacific/Norfolk
Pacific/Noumea
Pacific/Pago_Pago
Pacific/Palau
Pacific/Pitcairn
Pacific/Ponape

Pacific/Port_Moresby
Pacific/Rarotonga
Pacific/Saipan
Pacific/Samoa
Pacific/Tahiti
Pacific/Tarawa
Pacific/Tongatapu
Pacific/Truk
Pacific/Wake
Pacific/Wallis
Pacific/Yap
Antarctica/Casey
Antarctica/Davis
Antarctica/DumontDUrville
Antarctica/Macquarie
Antarctica/Mawson
Antarctica/McMurdo
Antarctica/Palmer
Antarctica/Rothera
Antarctica/South_Pole
Antarctica/Syowa
Antarctica/Vostok
Arctic/Longyearbyen
GMT-12
GMT-11:30
GMT-11
GMT-10:30
GMT-10
GMT-9:30
GMT-9
GMT-8:30
GMT-8
GMT-7:30
GMT-7
GMT-6:30
GMT-6
GMT-5:30
GMT-5
GMT-4:30
GMT-4
GMT-3:30
GMT-3
GMT-2:30
GMT-2

GMT-1:30
GMT-1
GMT-0:30
GMT-0
GMT+0
GMT+0:30
GMT+1
GMT+1:30
GMT+2
GMT+2:30
GMT+3
GMT+3:30
GMT+4
GMT+4:30
GMT+5
GMT+5:30
GMT+5:45
GMT+6
GMT+6:30
GMT+7
GMT+7:30
GMT+8
GMT+8:30
GMT+9
GMT+9:30
GMT+10
GMT+10:30
GMT+11
GMT+11:30
GMT+12
GMT+12:45
GMT+13
GMT+14
Etc/GMT-13
Etc/GMT-14
Etc/GMT-12
Etc/GMT-11:30
Etc/GMT-11
Etc/GMT-10:30
Etc/GMT-10
Etc/GMT-9:30
Etc/GMT-9
Etc/GMT-8:30
Etc/GMT-8

Etc/GMT-7:30
Etc/GMT-7
Etc/GMT-6:30
Etc/GMT-6
Etc/GMT-5:30
Etc/GMT-5
Etc/GMT-4:30
Etc/GMT-4
Etc/GMT-3:30
Etc/GMT-3
Etc/GMT-2:30
Etc/GMT-2
Etc/GMT-1:30
Etc/GMT-1
Etc/GMT-0:30
Etc/GMT-0
Etc/GMT+0
Etc/GMT+0:
Etc/GMT+1
Etc/GMT+1:30
Etc/GMT+2
Etc/GMT+2:30
Etc/GMT+3
Etc/GMT+3:30
Etc/GMT+4
Etc/GMT+4:30
Etc/GMT+5
Etc/GMT+5:30
Etc/GMT+6
Etc/GMT+6:30
Etc/GMT+7
Etc/GMT+7:30
Etc/GMT+8
Etc/GMT+8:30
Etc/GMT+9
Etc/GMT+9:30
Etc/GMT+10
Etc/GMT+10:30
Etc/GMT+11
Etc/GMT+11:30
Etc/GMT+12

Glossary

AC

- Access Control

ACPI

- Advanced Configuration and Power Interface

AES

- Advanced Encryption Standard

AHCI

- Advanced Host Controller Interface

ASCII

- American Standard Code for Information Interchange

BBU

- Battery Backup Unit

BIOS

- Basic Input/Output System

BMC

- Baseboard Management Controller

BOM

- Byte Order Mark

CE

- Channel Element

CMM

- Chassis Management Module

CPU

- Central Processing Unit

DES

- Data Encryption Standard

DHCP

- Dynamic Host Configuration Protocol

EPLD

- Erasable Programmable Logic Device

FPGA

- Field Programmable Gate Array

FRU

- Field Replaceable Unit

FTP

- File Transfer Protocol

IO

- Input & Output

IOMMU

- Input/Output Memory Management Unit

IP

- Internet Protocol

IPMB

- Intelligent Platform Management Bus IPMI

IPMC

- Intelligent Platform Management Controller

IPMI

- Intelligent Platform Management Interface

IPv4

- Internet Protocol Version 4

IPv6

- Internet Protocol Version 6

JTAG

- Joint Test Action Group

KVM

- Keyboard, Video and Mouse

LAN

- Local Area Network

LSI

- Large Scale Integration

MAC

- Media Access Control

NIC

- Network Interface Card

NTP

- Network Time Protocol

NUMA

- Non-Uniform Memory Access Architecture

OEM

- Original Equipment Manufacturer

PC

- Personal Computer

PCB

- Printed Circuit Board

PCIe

- Peripheral Component Interconnect Express

PSU

- Power Supply Unit

PXE

- Preboot eXecution Environment

RAID

- Redundant Array of Independent Disks

RHEL

- Red Hat Enterprise Linux

RTC

- Real-Time Clock

SATA

- Serial ATA

SCS

- System Control Subsystem

SHA

- Secure Hash Algorithm

SMT

- Simultaneous Multi-Threading

SNMP

- Simple Network Management Protocol

SSH

- Secure Shell

SVM

- Secure Virtual Machine

TCP

- Transmission Control Protocol

TLS

- Transport Layer Security

UDP

- User Datagram Protocol

USB

- Universal Serial Bus

UTC

- Universal Time Coordinated

VMD

- Volume Management Device

iBMC

- intelligent Board Management Controller