



VANTAGEO Server

IPMI Interface Description (BMC V4)

Version: R1.1

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About This Manual

Purpose

This manual describes **IPMI** configurations, so that users can learn how to use the IPMI commands.
This manual is applicable to **BMC V4**.

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 concept of IPMI, the environment preparation for IPMI, and the syntax of IPMI commands.
Chapter 2, Command Descriptions	Describes IPMI commands.
Chapter 3, IPMI Use Case	Describes three IPMItool modes.
Chapter 4, Appendix: Time Zone Names	Describes time zone names.

Conventions

This manual uses the following convention.

	Note: provides additional information about a topic.
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Chapter 1

IPMI Overview

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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 Environment Preparation

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 form

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

Parameters

For a description of the IPMI command parameters, refer to [Table 1-1](#).

Table 1-1 IPMI Command Parameter Descriptions

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 `Parameter 4` to **help** to obtain help information.

```
ipmitool -I lanplus -H 192.168.5.7 -U Administrator -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
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 Administrator -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

Command Descriptions

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2.1 Manager-Related Commands

2.1.1 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

Response Description

3e 0f 00

Request

Example

```
ipmitool -I lanplus -H 192.168.5.7 -U Administrator -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
```

2.1.2 Creating an SOL Session

Function

This command creates an SOL ([KVM](#)) session.

Syntax

```
ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] sol
activate instance=[Parameter 4]
```

User Privilege

user

Parameters

For a description of the parameters, refer to [Table 2-1](#).

Table 2-1 Parameter Descriptions for Creating an SOL Session

Parameter	Value Restraints	Description
Parameter 4	1 byte	1: HOST1 2: HOST2 3: serial port of another card

Example

Request

```
ipmitool -I lanplus -H 192.168.5.7 -U Administrator -P Superuser9! sol activate
instance=2
```

Response

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

2.1.3 Deactivating an SOL Session

Function

This command deactivates an SOL (KVM) session.

Syntax

```
ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [Parameter 3] sol
deactivate instance=[Parameter 4]
```

User Privilege

user

Parameters

For a description of the parameters, refer to [Table 2-2](#).

Table 2-2 Parameter Descriptions for Deactivating an SOL Session

Parameter	Value Restraints	Description
Parameter 4	1 byte	1: HOST1 2: HOST2 3: serial port of another card

Example

Request

```
ipmitool -I lanplus -H 192.168.5.7 -U Administrator -P Superuser9! sol
deactivate instance=2
```

Response

None

2.1.4 Enabling Support for Ironic Commands

Function

The 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

Example**Request**

```
ipmitool -I lanplus -H 192.168.5.7 -U Administrator -P Superuser9! raw 0x00  
0x08 0x03 0x08
```

Response

None

2.2 System-Related Commands

2.2.1 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 Administrator -P Superuser9! chassis power  
reset
```

Response

```
Chassis Power Control: Reset
```

2.2.2 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 Administrator -P Superuser9! chassis  
power on
```

Response

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

2.2.3 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 Administrator -P Superuser9! chassis power off
```

Response

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

2.2.4 Obtaining ACPI Power States

Function

This command obtains [ACPI](#) power states.

Syntax

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

User Privilege

user

Response Description

For a description of response data, refer to [Table 2-3](#).

Table 2-3 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 → 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 Administrator -P Superuser9! raw 0x6 0x7
```

Response

00 00

For a description of response data, refer to [Table 2-4](#).

Table 2-4 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

2.2.5 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

**Note**

The administrator privilege is required to configure the validity period of the boot device.

Response Description

Set Boot Device to [Parameter 4]

Parameters

For a description of the parameters, refer to [Table 2-5](#).

Table 2-5 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

Example**Request**

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

Response

```
Set Boot Device to disk
```

2.3 Chassis-Related Commands

2.3.1 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 Administrator -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           : 2240-RE
Product Serial         : 254554548754
Product Asset Tag      : 254554548754
```

2.3.2 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 Administrator -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
```

2.3.3 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 Administrator -P Superuser9! mc reset warm
```

Response

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

2.3.4 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 2-6](#).

Table 2-6 Parameter Descriptions for Setting the IP Address of a BMC

Parameter	Description	Value Restraints
Parameter 4	IP address	IP address format

Example

Request

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

Response

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

2.3.5 Setting the Subnet Mask of the IP Address 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 2-7](#).

Table 2-7 Parameter Descriptions for Setting the Subnet Mask of the IP Address of a BMC

Parameter	Description	Value Constraints
Parameter 4	Subnet mask of the IP address	IP address format

Example

Request

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

Response

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

2.3.6 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 2-8](#).

Table 2-8 Parameter Descriptions for Setting the Gateway Address of a BMC

Parameter	Description	Value Restraints
Parameter 4	Gateway IP address	IP address format

Example

Request

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

Response

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

2.3.7 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 Administrator -P Superuser9! dcmi asset_tag
```

Response

```
Asset tag: VANTAGEO
```

2.3.8 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 2-9](#).

Table 2-9 Parameter Descriptions for Setting the Asset Tag

Parameter	Description	Value Restraints
Parameter 4	Asset tag	Character string

Example

Request

```
ipmitool -I lanplus -H 192.168.5.7 -U Administrator -P Superuser9! dcmi  
set_asset_tag "VANTAGEO"
```

Response

```
Asset tag: VANTAGEO
```


2.4 Account-Related Commands

2.4.1 Setting a Username

Function

This command sets the username of a BMC management user.

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 2-10](#).

Table 2-10 Parameter Descriptions for Setting a Username

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

Response Description

For a description of response data, refer to [Table 2-11](#).

Table 2-11 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 Administrator -P Superuser9! user set name
3 testname
```

Response

None

2.4.2 Setting the Password of a User

Function

This command sets the password of a BMC management user.

Syntax

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

User Privilege

administrator

Response Description

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

Parameters

For a description of the parameters, refer to [Table 2-12](#).

Table 2-12 Parameter Descriptions for Setting the Password of a User

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

Example

Request

Set the password of the user whose ID is 3 to "testPwd1!": `ipmitool -I lanplus -H 192.168.5.7
-U Administrator -P Superuser9! user set password 3 testPwd1!`

Response

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

2.4.3 Activating a User

Function

This command activates a BMC management 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 2-13](#).

Table 2-13 Parameter Descriptions for Activating a User

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

Response Description

For a description of response data, refer to [Table 2-14](#).

Table 2-14 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

Enable the user whose ID is 3:

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

Response

None

2.4.4 Setting the Privilege of a User

Function

This command sets the privilege of a BMC management user.

Syntax

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

User Privilege

administrator

Response Description

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

Parameters

For a description of the parameters, refer to [Table 2-15](#).

Table 2-15 Parameter Descriptions for Setting the Privilege of a User

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

Example**Request**

Set the privilege of the user whose ID is 3 to administrator:

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

Response

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

2.4.5 Setting the Privilege of a User in a Channel

Function

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

**Note**

After a user is granted privilege, the user can log in to the Web portal of the [BMC](#). Otherwise, the user cannot log in to the Web portal of the BMC.

Syntax

```
ipmitool -I lanplus -H [Parameter 1] -U [Parameter 2] -P [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 2-16](#).

Table 2-16 Parameter Descriptions for Setting the Privilege of a User in a Channel

Parameter	Description	Value Restraints
Parameter 4	Channel ID	1: channel ID1 2: channel ID2
Parameter 5	User ID	Integer
Parameter 6	Privilege	2: viewer 3: operator 4: administrator

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 Administrator -P Superuser9! channel setaccess 1 3 callin=on ipmi=on link=on privilege=4

Response

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

Chapter 3

IPMI Use Case

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3.1 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
```

3.2 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
```

3.3 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 4

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/Fakaofu
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
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GMT-10
GMT-9:30
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GMT-3
GMT-2:30
GMT-2

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GMT-1
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GMT-0
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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
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GMT+14
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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

ACPI

- Advanced Configuration and Power Interface

BIOS

- Basic Input/Output System

BMC

- Baseboard Management Controller

CLI

- Command Line Interface

FRU

- Field Replaceable Unit

IP

- Internet Protocol

IPMI

- Intelligent Platform Management Interface

KVM

- Keyboard, Video and Mouse

PC

- Personal Computer

PXE

- Preboot execution Environment

RHEL

- Red Hat Enterprise Linux

SOL

- Serial Over LAN

SSH

- Secure Shell

USB

- Universal Serial Bus