VANTAGEO Server

IPMI Interface Description (BMC V4)

Version: R1.1

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LEGAL INFORMATION

Revision History

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R1.1	2024-11-06	Updated "2 Command Descriptions". Added "3 IPMI Use Case".
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Contents

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.

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

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 Restraints
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/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

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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

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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

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Etc/GMT+3:30

Etc/GMT+4

Etc/GMT+4:30

Etc/GMT+5

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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