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| **Huawei Puppet Plugin 1.2.0** | | |
| **User Guide** | | |
| **Issue** | **02** | |
| **Date** | **2019-08-30** | |
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|  | HUAWEI TECHNOLOGIES CO., LTD. | |  |  |

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About This Document

Overview

This document describes how to install and use the Huawei Puppet REST module.

Intended Audience

This document is intended for:

* Technical support engineers
* Maintenance engineers

Symbol Conventions

The symbols that may be found in this document are defined as follows.

| Symbol | Description |
| --- | --- |
|  | Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. |
|  | Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. |
|  | Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. |
|  | Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results.  NOTICE is used to address practices not related to personal injury. |
|  | Calls attention to important information, best practices, and tips.  NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration. |

Change History

| Issue | Date | Description |
| --- | --- | --- |
| 02 | 2019-06-14 | This issue is the second official release.  Updated 1 Introduction. |
| 01 | 2018-09-21 | This issue is the first official release. |

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# Introduction

The Huawei Puppet REST module is a plug-in that runs on the Puppet system and manages Huawei servers.

You can implement the following functions by using this plug-in:

* Basic server information query
* iBMC and BIOS parameter configuration
* iBMC, BIOS, and CPLD firmware upgrade
* Smart Provisioning, RAID controller card, NIC, and hard drive firmware upgrade
* Server reset and power control
* Configuration related to OS deployment
* Basic component information and health status query
* Access to the iBMC in IPv4, IPv6, and domain name modes

The Huawei Puppet REST module supports the following versions in the environment:

* Only Puppet 5.0.0 and later
* Stdlib 5.0.0 and later
* RedHat 7.2/7.3/7.5/7.6 and CentOS 7.2/7.3/7.5/7.6
* Python 2.7

Table 1-1 lists servers supported by the Huawei Puppet REST module.

Supported servers

| Type | Server |
| --- | --- |
| Rack server | 1288H V5 |
| 2288H V5 |
| 2488 V5 |
| 2488H V5 |
| RH2288H V3 |
| High-density server | XH622 V3 |
| Blade server | CH121 V5 |
| CH242 V5 |
| CH121 V3 |
| CH242 V3 |

# Installing and Uninstalling the Huawei puppet rest Module

[2.1 Installing the Huawei Puppet REST Module](#_EN-US_TOPIC_0131280260)

[2.2 Uninstalling the Huawei Puppet REST Module](#_EN-US_TOPIC_0131280361)

## Installing the Huawei Puppet REST Module

You can install the Huawei puppet rest module and stdlib library in automatic or manual installation mode. The automatic installation mode is recommended because the dependent stdlib library can be installed at the same time.

### Automatic Installation

Prerequisites

* You have installed Puppet 5 or later.
* The Puppet environment can connect to the Internet.

Procedure

Use the SSH method (such as PuTTY) to log in to the Puppet environment by using an administrator account.

Run the following command to install the Huawei Puppet REST module and stdlib library in the default path.

**# puppet module install[-i *dir*] serverplugin-rest**



You can run the **-i** command to install the module and library in the specified *dir* path.

Run the **puppet module list** command to check the installation path.

----End

### Manual Installation

Prerequisites

You have installed Puppet 5 or later.

Procedure

Run the **puppet module list** command to check the installation path.

The following uses the **/etc/puppetlabs/code/modules** path of the public module as an example.

Use the SSH method (such as PuTTY) to log in to the Puppet environment by using an administrator account.

Manually download the Huawei Puppet rest module.

#**git clone** <https://github.com/Huawei/Server_Management_Plugin_Puppet/tree/master/releases>

Copy the plug-in to the directory of the public module, decompress the package, and rename the generated folder **rest**.

Download the stdlib library to the **/etc/puppetlabs/code/modules/** directory of the public module.

Download **puppetlabs-stdlib-X.X.X.tar.gz** of 5.0.0 or later from the [official Puppet website](https://forge.puppet.com/puppetlabs/stdlib) to the **/etc/puppetlabs/code/modules/** directory, decompress the package, and rename the decompressed folder **stdlib**.

----End

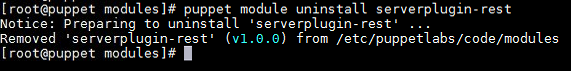
## Uninstalling the Huawei Puppet REST Module

Select the uninstallation method based on the installation mode. 2.1 Installing the Huawei Puppet REST Module describes the installation modes.

* If the automatic installation mode is used:
  1. Run the following command to uninstall the Huawei Puppet REST module:

**# puppet module uninstall serverplugin-rest**

Command output



* 1. Run the following command to delete the stdlib library:

**# puppet module uninstall puppetlabs-stdlib**

Command output



* 1. Manually delete the **rest** folder in the **/etc/puppet/modules/** directory.
* If the manual installation mode is used, manually delete the **rest** folder in the **/etc/puppetlabs/code/modules/** and **/etc/puppet/modules/** directories and the stdlib library downloaded in [Step 4 in Manual Installation](#li1289985062318).

# Using the Huawei puppet rest Module

[3.1 Configuring Data Sources](#_EN-US_TOPIC_0131203668)

[3.2 Adding Servers](#_EN-US_TOPIC_0131203669)

[3.3 Modifying Instance Parameters](#_EN-US_TOPIC_0131203670)

[3.4 Running the Huawei Puppet REST Module](#_EN-US_TOPIC_0131203671)

## Configuring Data Sources

The Huawei Puppet REST module provides multiple data source configuration modes. This section uses Hiera eyaml as an example.

In Puppet 5 or a later verion, the Hiera plug-in is installed by default.

Version Mapping

* iBMC: 3.08 or later
* BIOS: 0.39 or later
* Smart Provisioning: V118 or later

Procedure

Run the following command to open the hiera plug-in configuration file and edit it:

**# vi /etc/puppetlabs/puppet/hiera.yaml**

Modify the following parameters. The **common.yaml** file is used as an example to describe how to load the **common.yaml** file from the **hiera** directory.

# Hiera 5 Global configuration file   
   
version: 5   
   
# defaults:   
# data\_hash: yaml\_data   
# hierarchy:   
# - name: Common   
# data\_hash: yaml\_data   
hierarchy:   
 - name: Common   
 data\_hash: yaml\_data   
 path: "common.yaml"

* **name**: file name
* **data\_hash**: file type
* **path**: file path

----End

## Adding Servers

Check whether the **data** folder and **data/common.yaml** files exist in the common database source path **/etc/puppetlabs/puppet/**.

* If existing, go to [Step 2](#d0e771).
* If not existing, create the **data/common.yaml** file and go to [Step 2](#d0e771).

Run the following command to open the **common.yaml** file and edit it.

**# vi /etc/puppetlabs/puppet/data/common.yaml**

Modify the following parameters. The following describes how to add the **192.168.3.9** and **192.168.3.10** servers.

hosts:   
 192.168.3.9:   
 username: test   
 password: Test123   
 192.168.3.10:   
 username: test   
 password: Test123

* **username**: iBMC user name
* **password**: iBMC password



You can add multiple IP addresses and corresponding user names and passwords to query and configure multiple servers.

Run the following command to check whether the servers are added successfully:

**# puppet lookup hosts**

[root@master /]**# puppet lookup hosts**   
---   
192.168.3.9:   
 username: test   
 password: Test123   
192.168.3.10:   
 username: test   
 password: Test123

If the query results contain the servers added in [Step 3](#d0e783), the servers are added successfully.

----End

## Modifying Instance Parameters

For convenient usage, the Huawei Puppet REST module provides query and configuration interfaces for instances to invoke. All instances exist in the installation path in 2.1 Installing the Huawei Puppet REST Module. For example, if the REST module is installed in the **/etc/puppetlabs/code/modules/** directory, the instances exist in the **/etc/puppetlabs/code/modules/rest/examples** directory.

Run the following command to enter the **examples** folder:

**# cd /etc/puppetlabs/code/modules/rest/examples**

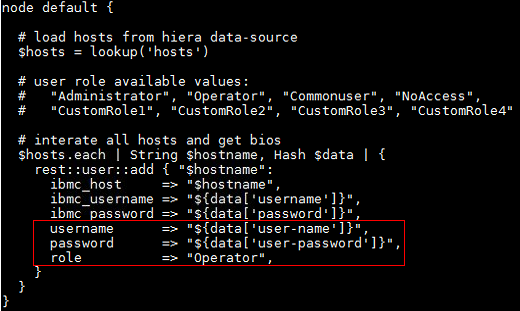
Run the following command to view the instance parameters. The following uses the user name adding instance **user\_add.pp** as an example.

**# vi user\_add.pp**

Modify the parameters based on the actual situation. For details, see B Instance Parameter Description.

If sensitive information such as user names and passwords is involved in instance parameters, save the information to the data sources. The following uses the **common.yaml** file as an example.

Instance information



Exit the instance editing mode, and run the following commands to open the **common.yaml** file and edit it:

**# vi /etc/puppetlabs/puppet/data/common.yaml**

The **192.168.3.9** server is used as an example. The parameter names must correspond to the instance information, and the parameters to be modified must be added.

hosts:   
 192.168.3.9:   
 username: test   
 password: Test123   
 **user-name: test**   
 **user-password: Huawei12#$**

Save the modification and exit.

----End

## Running the Huawei Puppet REST Module

This section uses the **/etc/puppetlabs/code/modules/rest/examples** installation path as an example.

### Using the Independent Running Mode

In independent running mode, the server and client running the Huawei puppet rest module are in the same environment.

Run the following command to enter the **examples** folder:

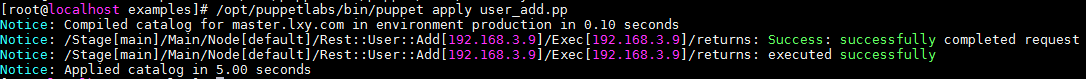
**# cd /etc/puppetlabs/code/modules/rest/examples**

You can run the **puppet apply \*.pp** command to invoke the corresponding configuration and query interfaces. The following uses **user\_add.pp** as an example.

Run the following command to execute the **user\_add.pp** instance:

**# /opt/puppetlabs/bin/puppet apply user\_add.pp**

Command output



----End

### Using the Master/Agent Mode

In master/agent mode, the server and client running the Huawei puppet rest module are not in the same environment. The server is called master and the client is called agent.

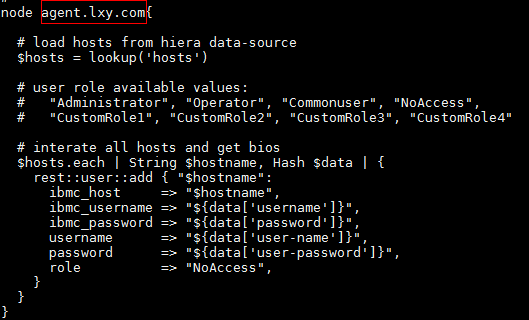
Run the following command to copy the **\*.pp** instance in the **/etc/puppetlabs/code/modules/rest/examples** directory in the master environment to the **/etc/puppetlabs/code/environments/production/manifests** directory:

**# cp /etc/puppetlabs/code/modules/rest/examples/\*.pp /etc/puppetlabs/code/environments/production/manifests/**

Run the following commands in the master environment to change the domain name in the instance. The domain name must be the same as the domain name of the agent. The following uses **user\_add.pp** as an example to describe how to change **default** to **agent.lxy.com**.

**# vi /etc/puppetlabs/code/environments/production/manifests/user\_add.pp**

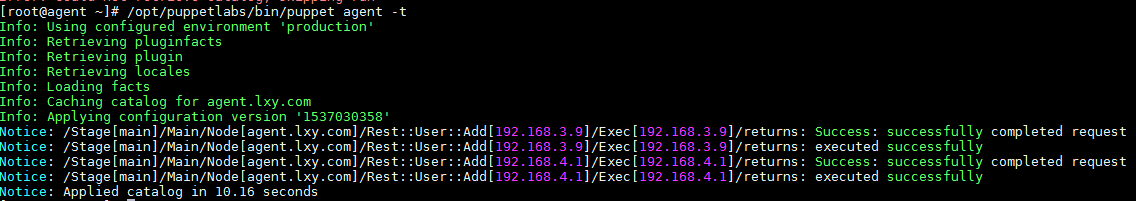
Changing the domain name



Run the following command in the agent environment to obtain the results:

**# /opt/puppetlabs/bin/puppet agent -t**

Command output



----End

1. Instance Function Description

The Huawei Puppet REST module provides query and configuration interfaces for instances to invoke. Table A-1 describes the instance functions.

Instance application description

| Instance Name | Function | Description |
| --- | --- | --- |
| bios\_get.pp | Queries BIOS attributes. | B.1 Querying BIOS Attributes |
| bios\_restore.pp | Restores BIOS attributes. | B.2 Restoring BIOS Attributes |
| bios\_set.pp | Sets BIOS attributes. | B.3 Setting BIOS Attributes |
| bmc\_power\_restart.pp | Restarts the BMC. | B.4 Restarting the BMC |
| boot\_get.pp | Queries boot option information. | B.5 Querying Boot Option Information |
| boot\_order.pp | Sets the boot option sequence. | B.6 Setting the Boot Option Sequence |
| boot\_override.pp | Modifies boot options. | B.7 Modifying Boot Options |
| cpu\_get.pp | Queries CPU information. | B.8 Querying CPU Information |
| drive\_get.pp | Queries drive information. | B.9 Querying Drive Information |
| ethernet\_get.pp | Queries BMC network port information. | B.10 Querying BMC Network Port Information |
| memory\_get.pp | Queries memory information. | B.11 Querying Memory Information |
| ntp\_get.pp | Queries NTP settings. | B.12 Querying NTP Settings |
| ntp\_set.pp | Sets the NTP. | B.13 Setting the NTP |
| raid\_get.pp | Queries RAID controller card information. | B.14 Querying RAID Controller Card Information |
| service\_get.pp | Queries service information. | B.15 Querying BMC Service Information |
| service\_set.pp | Updates service settings. | B.16 Updating BMC Service Information |
| smtp\_get.pp | Queries SMTP information. | B.17 Querying SMTP Information |
| smtp\_set.pp | Updates SMTP settings. | B.18 Updating SMTP Settings |
| snmp\_get.pp | Queries SNMP information. | B.19 Querying SNMP Information |
| snmp\_set.pp | Updates SNMP settings. | B.20 Updating SNMP Settings |
| sys\_power\_ctrl.pp | Performs a power control operation. | B.21 Performing a Power Control Operation |
| vmm\_connect.pp | Connects to the virtual media. | B.22 Connecting to the Virtual Media |
| vmm\_disconnect.pp | Disconnects from the virtual media. | B.23 Disconnecting from the Virtual Media |
| license\_install.pp | Installs a license. | B.24 Installing a License |
| license\_get.pp | Queries license information. | B.25 Querying License Information |
| license\_export.pp | Exports a license. | B.26 Exporting a License |
| license\_delete.pp | Deletes a license. | B.27 Deleting a License |
| system\_get.pp | Queries System Hardware Information | B.28 Queries System Hardware Information |
| assettag\_set.pp | Sets asset tags. | B.29 Setting Asset Tags |
| indicator\_led\_set.pp | Controls the status of UID indicators. | B.30 Controlling the Status of UID Indicators |
| network\_adapter\_get.pp | Queries the NIC information. | B.31 Querying NIC information |
| system\_eth\_get.pp | Queries system network port information. | B.32 Querying System Network Port Information |
| ethernet\_dns\_set.pp | Sets the DNS. | B.33 Setting the DNS |
| ethernet\_vlan\_set.pp | Sets the VLAN. | B.34 Setting the VLAN |
| ethernet\_ipversion\_set.pp | Sets an IP version. | B.35 Setting an IP Version |
| ethernet\_ipv6\_set.pp | Sets network IPv6 addresses. | B.36 Setting Network IPv6 Addresses |
| ethernet\_ipv4\_set.pp | Sets network IPv4 addresses. | B.37 Setting Network IPv4 Address |
| os\_deploy\_config.pp | Deploys an OS. | B.38 Deploying an OS |
| cpu\_health\_get.pp | Queries the CPU health status. | B.39 Querying the CPU Health Status |
| raid\_health\_get.pp | Queries the health status of a RAID controller card. | B.40 Querying the Health Status of a RAID Controller Card |
| memory\_health\_get.pp | Queries the memory health status. | B.41 Querying the Memory Health Status |
| power\_supply\_health\_get.pp | Queries the power supply health status. | B.42 Querying the Power Supply Health Status |
| drive\_health\_get.pp | Queries the drive health status. | B.43 Querying the Drive Health Status |
| network\_adapter\_health\_get.pp | Queries the NIC health status. | B.44 Querying the NIC Health Status |
| fan\_health\_get.pp | Queries the fan health status. | B.45 Querying the Fan Health Status |
| firmware\_outband\_version\_get.pp | Queries the out-of-band firmware version. | B.46 Querying the Out-of-Band Firmware Version |
| firmware\_outband\_upgrade.pp | Upgrades the out-of-band firmware. | B.47 Upgrading the Out-of-Band Firmware |
| firmware\_inband\_version\_get.pp | Queries the in-band firmware version. | B.48 Querying the In-Band Firmware Version |
| firmware\_inband\_upgrade.pp | Upgrades the in-band firmware. | B.49 Upgrading the Out-of-Band Firmware |
| sp\_set.pp | Enables or Disables the SP function. | B.50 Enabling or Disabling the SP Function |
| firmware\_sp\_version\_get.pp | Queries the SP firmware version. | B.51 Querying the SP Firmware Version |
| firmware\_sp\_upgrade.pp | Upgrades the SP firmware. | B.52 Upgrading the SP Firmware |
| firmware\_sp\_result\_get.pp | Queries results of SP tasks. | B.53 Querying Results of SP Tasks |
| user\_add.pp | Adds a user. | B.54 Adding a User |
| user\_delete.pp | Deletes a user. | B.55 Deleting a User |
| user\_get.pp | Queries information about all users. | B.56 Querying Information About All Users |
| user\_update.pp | Updates user information. | B.57 Updating User Information |

1. Instance Parameter Description
   1. Querying BIOS Attributes

bios\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| attribute | BIOS attribute. For details, see Table B-2. |

BIOS attributes

| Field | Type | Description | Value |
| --- | --- | --- | --- |
| QuickBoot | Character string | Quick boot mode | * **Enabled** (default value) * **Disabled** |
| QuietBoot | Character string | Quiet boot mode | * **Enabled** * **Disabled** (default value) |
| PXEBootToLan | Character string | Legacy PXE function | * **Enabled** (default value) * **Disabled** |
| PXEOnly | Character string | PXE boot setting | * **Enabled** * **Disabled** (default value) |
| BootTypeOrder0 | Character string | First boot device | * **HardDiskDrive**: drive (default value) * **DVDROMDrive**: DVD drive * **PXE**: PXE * **Others**: other boot devices |
| BootTypeOrder1 | Character string | Second boot device | * **HardDiskDrive**: drive * **DVDROMDrive**: DVD drive (default value) * **PXE**: PXE * **Others**: other boot devices |
| BootTypeOrder2 | Character string | Third boot device | * **HardDiskDrive**: drive * **DVDROMDrive**: DVD drive * **PXE**: PXE (default value) * **Others**: other boot devices |
| BootTypeOrder3 | Character string | Fourth boot device | * **HardDiskDrive**: drive * **DVDROMDrive**: DVD drive * **PXE**: PXE * **Others**: other boot devices (default value) |
| CustomPowerPolicy | Character string | Energy efficiency mode | * **Efficiency**: low power consumption * **Performance**: high performance * **Custom**: customization (default value) * **LoadBalance**: load balancing |
| TurboMode | Character string | CPU turbo mode | * **Enabled** (default value) * **Disabled** |
| ProcessorHyperThreadingDisable | Character string | Hyper-threading setting information (not available for some CPUs) | * **Enabled** (default value) * **Disabled** |
| ProcessorEISTEnable | Character string | CPU Enhanced Intel SpeedStep Technology (EIST) | * **Enabled** (default value) * **Disabled** |
| PowerSaving | Character string | Energy saving | * **Enabled** * **Disabled** (default value) |
| SystemCpuUsage | Digit | CPU usage threshold adjustment | * 50 to 99 (default value: 95) |
| PStateDomain | Character string | CPU P-state domain setting | * **All**: All packages are in a state domain. (default value) * **One**: The state domain of each package may vary with the core. |
| ProcessorAutonomousCstateEnable | Character string | CPU autonomous C-state setting | * **Enabled** * **Disabled** (default value) |
| ProcessorC1eEnable | Character string | C1E configuration information | * **Enabled** (default value) * **Disabled** |
| C6Enable | Character string | CPU C6 state setting | * **Enabled** * **Auto**: automatic (default value) * **Disabled** |
| NumaEn | Character string | NUMA function setting | * **Enabled** (default value) * **Disabled** |
| PCIeSRIOVSupport | Character string | PCIe card SR-IOV technology setting | * **Enabled** * **Disabled** (default value) |
| PCIeARISupport | Character string | PCIe card ARI technology setting | * **Enabled** * **Disabled** (default value) |
| VTdSupport | Character string | VT-D technology setting | * **Enabled** (default value) * **Disabled** |
| InterruptRemap | Character string | Interrupt Remapping setting | * **Enabled** (default value) * **Disabled** |
| CoherencySupport | Character string | Non-synchronous consistency support | * **Enabled** (default value) * **Disabled** |
| ATS | Character string | ATS function setting | * **Enabled** (default value) * **Disabled** |
| PassThroughDMA | Character string | Pass-through DMA function setting | * **Enabled** (default value) * **Disabled** |
| BMCWDTEnable | Character string | Watchdog setting in the POST phase | * **Enabled** * **Disabled** (default value) |
| BMCWDTAction | Character string | Watchdog action in the POST phase | * **NoAction**: no action * **HardReset**: cold restart (default value) * **PowerDown**: power-off * **PowerCycle**: hot restart |
| BMCWDTTimeout | Digit | Watchdog timeout interval in the POST phase (in minutes) | * 2 to 8 (default value: 5) |
| OSWDTEnable | Character string | Watchdog setting in the OS phase | * **Enabled** * **Disabled** (default value) |
| OSWDTAction | Character string | Watchdog action in the OS phase | * **NoAction**: no action * **HardReset**: cold restart (default value) * **PowerDown**: power-off * **PowerCycle**: hot restart |
| OSWDTTimeout | Digit | Watchdog timeout interval in the OS phase (in minutes) | * 2 to 8 (default value: 5) |
| CREnable | Character string | Serial port redirection function setting | * **Enabled** (default value) * **Disabled** |
| GlobalBaudRate | Character string | Serial port redirection rate setting | * **Rate115200** (default value) * **Rate57600** * **Rate38400** * **Rate19200** * **Rate9600** * **Rate4800** * **Rate2400** * **Rate1200** |
| ProcessorFlexibleRatioOverrideEnable | Character string | CPU non-turbo maximum frequency setting | * **Enabled** * **Disabled** (default value) |
| ProcessorFlexibleRatio | Digit | CPU non-turbo maximum frequency | * 0 to 100 (default value: 23) |
| ProcessorHWPMEnable | Character string | CPU HWP function setting | * **NativeMode**: native mode * **OutOfBandMode**: out-of-band mode * **NativeModewithNoLegacySupport**: native mode that does not support the traditional configuration table * **Disabled**: The CPU HWP function is disabled. (default value) |
| TStateEnable | Character string | CPU T-state setting | * **Enabled** * **Disabled** (default value) |
| EnableXE | Character string | CPU XE setting | * **Enabled** (default value) * **Disabled** |
| OSCx | Character string | Mapping between CPU C-state and ACPI C-state | * **ACPIC3**: ACPI C3 state * **ACPIC2**: ACPI C2 state (default value) |
| ExecuteDisableBit | Character string | Execute Disable Bit instruction setting | * **Enabled** (default value) * **Disabled** |
| MLCStreamerPrefetcherEnable | Character string | Hardware prefetch feature setting | * **Enabled** (default value) * **Disabled** |
| MLCSpatialPrefetcherEnable | Character string | Adjacent cache prefetch feature setting | * **Enabled** (default value) * **Disabled** |
| MonitorMwaitEnable | Character string | Monitor/Mwait instruction setting | * **Enabled** (default value) * **Disabled** |
| DCUStreamerPrefetcherEnable | Character string | DCU stream prefetch feature setting | * **Enabled** (default value) * **Disabled** |
| DCUIPPrefetcherEnable | Character string | DCU IP prefetch feature setting | * **Enabled** (default value) * **Disabled** |
| ProcessorX2APIC | Character string | Extended APIC feature setting | * **Enabled** * **Disabled** (default value) |
| BootPState | Character string | Boot performance mode | * **MaxEfficient**: maximum efficiency mode * **MaxPerformance**: maximum performance mode (default value) |
| TurboPowerLimitLock | Character string | Power capping register lock | * **Enabled** * **Disabled** (default value) |
| QpiLinkSpeed | Character string | Link rate | * **Speed9.6GB/s** * **Speed10.4GB/s** * **Auto**: automatic selection (default value) * **UsePerLinkSetting**: Set this parameter for each channel. |
| KtiLinkL0pEn | Character string | L0p-state energy saving function setting | * **Enabled** (default value) * **Disabled** * **Auto**: automatic |
| KtiLinkL1En | Character string | L1-state energy saving function setting | * **Enabled** (default value) * **Disabled** * **Auto**: automatic |
| DdrFreqLimit | Character string | Memory frequency (MHz) | * **Freq1866** * **Freq2133** * **Freq2400** * **Freq2666** * **Auto** (default value) |
| DemandScrubMode | Character string | Demand Scrub mode setting | * **Enabled** (default value) * **Disabled** |
| PatrolScrub | Character string | Patrol Scrub setting | * **Enabled** (default value) * **Disabled** |

* 1. Restoring BIOS Attributes

bios\_restore.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Setting BIOS Attributes

bios\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| attribute | BIOS attribute. For details, see Table B-2. |
| value | BIOS attribute value. For details, see Table B-2. |

* 1. Restarting the BMC

bmc\_power\_restart.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying Boot Option Information

boot\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Setting the Boot Option Sequence

boot\_order.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| sequence | Value range: any sequence of the four values **['Pxe','Hdd','Cd','Others']** |

* 1. Modifying Boot Options

boot\_override.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| target | Current boot device of the system   * **None** * **Pxe** * **Floppy** * **Cd** * **Hdd** * **BiosSetup** |
| enabled | Enabling status of system boot parameters. The values are as follows:   * **Disabled**: The system boot parameters are disabled. * **Once**: The system boot parameters take effect only once upon the next restart. * **Continuous**: The system boot parameters are effective permanently. |

* 1. Querying CPU Information

cpu\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying Drive Information

drive\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying BMC Network Port Information

ethernet\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying Memory Information

memory\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying NTP Settings

ntp\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Setting the NTP

ntp\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| enabled | NTP enabling   * **true** * **false** |
| addr\_origin | NTP mode   * **Static** * **IPv4** * **IPv6** |
| preferred\_server | Preferred server address |
| alternate\_server | Alternate server address |
| auth\_enabled | Server identity authentication   * **true** * **false** |
| min\_interval | Minimum polling interval. The value ranges from 3 to 17. |
| max\_interval | Maximum polling interval. The value ranges from 3 to 17. |

* 1. Querying RAID Controller Card Information

raid\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying BMC Service Information

service\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Updating BMC Service Information

service\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| protocol | Information about services supported by the BMC   * **HTTP** * **HTTPS** * **SNMP** * **VirtualMedia** * **IPMI** * **SSH** * **KVMIP** * **SSDP** * **VNC** |
| enabled | Service enabling status. The values are as follows:   * **true** * **false**   NOTE  **ProtocolEnabled** of **IPMI** indicates the enabling status of **RMPC+**. |
| port | Service port number. The value ranges from 1 to 65535.  NOTE  The port number is the first port number of the IPMI service. |
| notify\_ttl | SSDP service message lifetime. The value ranges from 1 to 255. |
| notify\_scope | SSDP service message IPv6 multicast scope   * **Link**: link-local scope * **Site**: site-local scope * **Organization**: organization-local scope |
| notify\_interval | SSDP service message multicast interval. The value ranges from 0 to 1800. |

* 1. Querying SMTP Information

smtp\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Updating SMTP Settings

smtp\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| enabled | SMTP service enabling status   * **true** * **false** |
| server\_addr | SMTP server address |
| tls\_enabled | TLS enabling status   * **true** * **false** |
| anon\_enabled | Whether the anonymous mode is used   * **true** * **false** |
| sender\_addr | Sender email address |
| sender\_password | Sender password |
| sender\_username | Sender user name |
| email\_subject | Email subject |
| email\_subject\_contains | Additional information about the subject   * **HostName** (host name) * **BoardSN** (board serial number) * **ProductAssetTag** (product asset tag) |
| alarm\_severity | Alarm severity   * **Normal** (normal or above) * **Minor** (minor or above) * **Major** (major or above) * **Critical** |

* 1. Querying SNMP Information

snmp\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Updating SNMP Settings

snmp\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| v1\_enabled | SNMPv1 enabling status   * **true** * **false** |
| v2\_enabled | SNMPv2 enabling status   * **true** * **false** |
| long\_password\_enabled | Long password enabling status   * **true** * **false** |
| rw\_community\_enabled | Read/write community name enabling status   * **true** * **false** |
| rw\_community | Read/write community name. The value is a character string. The requirements are as follows:   * The value cannot contain spaces. * The default length is 1 to 32 bytes. After the long password function is enabled, the length must be 16 to 32 bytes. * When the password complexity check function is enabled, the minimum length is 8 bytes. The value must contain at least two types of the following characters: lowercase letters, uppercase letters, digits, and special characters. * The value must contain at least two characters different from those in the value set last time. * The read-only and read/write community names must be different. |
| ro\_community | Read-only community name. The value is a character string. The requirements are as follows:   * The value cannot contain spaces. * The default length is 1 to 32 bytes. After the long password function is enabled, the length must be 16 to 32 bytes. * When the password complexity check function is enabled, the minimum length is 8 bytes. The value must contain at least two types of the following characters: lowercase letters, uppercase letters, digits, and special characters. * The value must contain at least two characters different from those in the value set last time. * The read-only and read/write community names must be different. |
| v3\_auth\_protocol | SNMPv3 authentication algorithm   * **MD5** * **SHA1** |
| v3\_priv\_protocol | SNMPv3 encryption algorithm   * **DES** * **AES** |
| trap\_enabled | Trap function enabling status   * **true** * **false** |
| trap\_v3\_user | SNMPv3 user name (valid when the value of **trap\_version** is **V3**) |
| trap\_version | Trap version   * **V1** * **V2C** * **V3** |
| trap\_mode | Reporting mode   * **OID** (OID mode) * **EventCode** (event code mode) * **PreciseAlarm** (precise alarm mode) |
| trap\_server\_identity | Host ID   * **HostName** (host name) * **BoardSN** (board serial number) * **ProductAssetTag** (product asset tag)   (This parameter is valid when **trap\_mode** is set to **OID** or **PreciseAlarm**.) |
| trap\_community | Character string. The requirements are as follows:   * The trap community name cannot be set when the trap version is v3. * Password complexity check:   + - When this function is enabled, the value must be a combination of at least two types of the following characters: lowercase letters, uppercase letters, digits, and special characters. In addition, the length must be 8 to 18 bytes, and the value must contain at least two characters different from those in the value set last time.     - When this function is disabled, the length must be 1 to 18 bytes. * The value cannot contain spaces.   NOTE  If SNMPv3 is used, the community name is invalid. |
| trap\_alarm\_severity | Alarm severity   * **Normal** (normal or above) * **Minor** (minor or above) * **Major** (major or above) * **Critical** |
| trap\_server1~4 | Trap server   * **enabled**: server enabling status   + - **true**     - **false** * **address**: server address, of which the value can be an IPv4 address, IPv6 address, or domain name character string * **port**: server port number, of which the value must be a digit ranging from 1 to 65535 |

* 1. Performing a Power Control Operation

sys\_power\_ctrl.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| reset\_type | Power control type   * **On**: power-on * **ForceOff**: forcible power-off * **GracefulShutdown**: graceful power-off * **ForceRestart**: forcible restart * **Nmi**: non-maskable interrupt * **ForcePowerCycle**: forcible power-off and power-on |

* 1. Connecting to the Virtual Media

vmm\_connect.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| image\_uri | URI of the virtual media image  Currently, only URIs (whose supported protocols are NFS, CIFS, and HTTPS) support connection. |

* 1. Disconnecting from the Virtual Media

vmm\_disconnect.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Installing a License

license\_install.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| source | License source:   * iBMC * FusionDirector * eSight |
| type | Installation method:   * URI: The value is a URI (a local or remote path). Other installation types are not supported. |
| content | * Local path: Local **/tmp** directory * The value is a remote path in the format of File Transfer Protocol://user name:password@IP address of the remote server/directory/file name. Supported file transfer protocols include HTTPS, SFTP, NFS, CIFS, and SCP. |

* 1. Querying License Information

license\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Exporting a License

license\_export.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| export\_to | Export path.  The value is a remote path in the format of File Transfer Protocol://user name:password@IP address of the remote server/directory/file name. Supported file transfer protocols include NFS, CIFS, and HTTPS. |

* 1. Deleting a License

license\_delete.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Queries System Hardware Information

system\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Setting Asset Tags

assettag\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| value | Asset label name |

* 1. Controlling the Status of UID Indicators

indicator\_led\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| state | The values are as follows:   * Lit: steady on * Off * Blinking |

* 1. Querying NIC information

network\_adapter\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying System Network Port Information

system\_eth\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Setting the DNS

ethernet\_dns\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| hostname | Host name |
| domain | Domain name |
| address\_origin | The DNS information can be obtained in the following ways:   * Static * IPv4 * IPv6 |
| preferred\_server | Preferred DNS server |
| alternate\_server | Alternate DNS server |

* 1. Setting the VLAN

ethernet\_vlan\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| enabled | VLAN enabling status:   * true * false |
| vlan\_id | ID of the VLAN to which the current port belongs.   * The value ranges from 1 to 4094. * Supported only in PXE mode |

* 1. Setting an IP Version

ethernet\_ipversion\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| value | Supported IP protocols are as follows   * IPv4AndIPv6 * IPv4 * IPv6 |

* 1. Setting Network IPv6 Addresses

ethernet\_ipv6\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| ip | IPv6 address of the BMC network port |
| gateway | IPv6 gateway address |
| prefix\_length | Prefix length of an IPv6 address |
| address\_origin | The IPv6 address can be obtained in the following ways:   * Static * DHCPv6 |

* 1. Setting Network IPv4 Address

ethernet\_ipv4\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| ip | IPv4 address of the BMC network port |
| gateway | IPv4 gateway address |
| Mask | Subnet mask of the IPv4 address |
| address\_origin | The IPv4 address can be obtained in the following ways:   * Static * DHCP |

* 1. Deploying an OS



A license is required for OS deployment.

os\_deploy\_config.pp

| Parameter | Description |
| --- | --- |
| Common Parameters | |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| Parameters About the Configuration File Path | |
| os\_deploy\_config\_file\_path | The configuration file path has the following requirements:   * The path must be local. * The configuration file must be in JSON format. * For details about the parameters in the configuration file, see Table B-40. |
| Parameters About Image File Path | |
| image\_uri | URI of the virtual media image  NOTE  Currently, only URIs (whose supported protocols are NFS, CIFS, and HTTPS) support connection. |
| Parameters for Enabling Smart Provisioning. | |
| start\_enabled | Enable the function of starting the server from Smart Provisioning.   * true * false |
| system\_restart\_delay\_seconds | System restart duration  NOTE  The value is an integer greater than 0, in seconds. |
| System Restart Parameter | |
| reset\_type | Server power-on or power-off operations are as follows:   * **On**: power-on * **ForceOff**: forcible power-off * **GracefulShutdown**: graceful power-off * **ForceRestart**: forcible restart * **Nmi**: non-maskable interrupt (simulating resetting) * **ForcePowerCycle**: forcible power-off and power-on |

Description

| Parameter | Description | Value |
| --- | --- | --- |
| InstallMode | Installation mode. This parameter is mandatory. | The option is as follows:   * Recommended |
| OSType | Type of the OS to be installed. This parameter is mandatory. | The options are as follows:   * RHEL6U9 * RHEL7U3 * RHEL7U4 * RHEL7U5 * CentOS6U9 * CentOS7U3 * CentOS7U4 * CentOS7U5 * ESXi6.0 * ESXi6.5 * ESXi6.7 * SLES11SP4 * SLES12SP2 * SLES12SP3 * Ubuntu16.04 * Ubuntu16.04.1 * Ubuntu16.04.2 * Win2016 * Win2016 Standard Desktop * Win2016 Standard Core * Win2016 Datacenter Desktop * Win2016 Datacenter Core * Win2012\_R2 * Win2012\_R2 Standard Desktop * Win2012\_R2 Standard Core * Win2012\_R2 Datacenter Desktop * Win2012\_R2 Datacenter Core * EulerOSV2SP3 |
| BootType | BIOS boot mode. This parameter is optional. | The options are as follows:   * UEFIBoot * LegacyBoot * SecureBoot |
| CDKey | Installation key of the Windows OS. This parameter is optional. | * For Windows, this parameter is optional and can be set to a 25-digit value with every five digits connected by a hyphen (-). The value can contain uppercase letters (A to Z), lowercase letters (a to z), and digits (0 to 9). * For Linux, this parameter is left empty. * For VMware, this parameter is left empty. |
| RootPwd | Administrator initial password. This parameter is mandatory. | * For Microsoft Windows, the parameter value must contain at least six digits. * For SUSE, the parameter value must contain at least six digits. * For CentOS, Red Hat and EulerOS, the parameter value must contain at least six digits and must not contain a "#", "$", or space. * For VMware, the parameter value must contain at least seven digits. In the VMware ESXi 6.7 version, the parameter value must contain at least three types of characters, including letters, digits, and special characters. |
| HostName | Host name. This parameter is optional. | * The value contains a maximum of 15 characters, including uppercase letters (A to Z), lowercase letters (a to z), digits (0 to 9), and hyphens (-). * For Linux, this parameter is optional and takes effect only after the network is configured. * For Windows, this parameter is optional. * For VMware, this parameter is optional and takes effect only after the network is configured. |
| Language | System language. This parameter is mandatory.  For details, see Table B-41. | The parameter is a string of characters. For details, see the installation guide of each OS.   * For Linux, this parameter is mandatory. * For Windows, this parameter is mandatory. * For VMware, this parameter is left empty. |
| TimeZone | System time zone. This parameter is mandatory.  For details, see Table B-41. | The parameter is a string of characters. For details, see the installation guide of each OS.   * For Linux, this parameter is mandatory. * For Windows, this parameter is mandatory. * For VMware, this parameter is left empty. |
| Keyboard | System keyboard layout. This parameter is mandatory.  For details, see Table B-41. | The parameter is a string of characters. For details, see the installation guide of each OS.   * For Linux, this parameter is mandatory. * For Windows, this parameter is mandatory. * For VMware, this parameter is left empty. |
| CheckFirmware | Whether to verify firmware. This parameter is mandatory. | The options are as follows:   * true * false |
| AutoPosition | Whether to select an installation disk automatically. This parameter is mandatory. | The option is as follows:   * **true** (The installation disk can only be automatically selected now.) |
| Autopart | Whether the automatic partitioning is supported. This parameter is mandatory. | The options are as follows:   * For Linux and VMware, the value is **true**. * For Windows, the value is **false**. |
| Partition | Partition information. This parameter is optional.  The format is as follows:  {  "Name": "string",  "FileSystem": " NTFS ",  "Size": "string"  } | Object. The value is a partition list.   * Windows:   The value of **Name** is any uppercase letter from C to Z.  The value of **FileSystem** is **NTFS**.  The value of **Size** is greater than 32. If it is set to **max**, the entire disk is used as the data disk.   * Linux:   The value (such as **/, /home, swap**) of **Name** does not contain <>|:& or spaces.  The values of **FileSystem** are **ext4**, **ext3**, **ext2**, and **xfs**.  The value of **Size** is greater than 0. The size of the root partition must be greater than 10, and the size of the swap partition must be greater than 1. If the value is set to **max**, the remaining space will be allocated.   * VMware does not support this function. |
| Software | Software list. This parameter is mandatory.  The format is as follows:  {  "FileName": "iBMA"  } | Object array. The value is the list of software to be installed. The option is as follows:   * iBMA |
| Device | Device information. This parameter is mandatory.  The **Silkprint** field is optional, and the **Name** and **MAC** fields are mandatory. If the **Silkprint** field is selected, the **Name** and **MAC** fields are not used.  The format is as follows:  {  "Name": "eth0",  "MAC":"00:00:00:00:00:00",  "Silkprint": {  "Location":"mainboard",  "DeviceName": "PCIeCard1",  "Port": "1"  }  } | Object. The value is the information of the device, for which the network needs to be configured.   * **Name**: indicates the device name. * **MAC**: indicates the device MAC address. * **Silkprint**: indicates the NIC silkscreen information. * **Location**: indicates the location parameter. * **Device**: indicates the device name. * **Port**: indicates the port number. |
| IPv4Addresses | IPv4 address information of the network port. This parameter is mandatory.  The format is as follows:  {  "Address":"Address", "SubnetMask":"SubnetMask", "AddressOrigin":"AddressOrigin", "Gateway":"Gateway"  } | Object array. The value is the information of the IPv4 to be configured.   * **Address**: indicates the IPv4 address. * **SubnetMash**: indicates the subnet mask. * **AddressOrigin**: indicates the mode for obtaining the IPv4 address, of which the value can be **Static** or **DHCP**. * Gateway: indicates the IPv4 gateway address. |
| IPv6Addresses | IPv6 address information of the network port. This parameter is mandatory.  The format is as follows:  {  "Address":"Address", "PrefixLength":"PrefixLength", "AddressOrigin":"AddressOrigin" ,  "Gateway":"Gateway"  } | Object array. The value is the information of the IPv6 to be configured.   * **Address**: indicates the IPv6 address. * **PrefixLength**: indicates the prefix length of the IPv6 address. * **AddressOrigin**: indicates the mode for obtaining the IPv6 address, of which the value can be **Static** or **DHCP**. * **Gateway**: indicates the IPv6 gateway address. |
| NameServers | DNS server address. This parameter is optional.  The format is as follows:  {  "DNS":"127.0.0.1"  } | IP address of the DNS server. The value can be an IPv4 or IPv6 address. |
| PackageName | Package name. This parameter is optional.  The format is as follows:  {  "PackageName": ["gcc","aspell"]  } | Character string array. During the Linux deployment process, select the packages to be installed. Value range: [0-9a-zA-Z-\_ ] One or more values can be specified. |
| PatternName | Pattern group name. This parameter is optional.  The format is as follows:  {  "PatternName": ["x11","base"]  } | Character string array. During the Linux deployment process, select the packages to be installed. Value range: [0-9a-zA-Z-\_ ] One or more values can be specified. |

Examples

| OSType | Language | TimeZone | Keyboard |
| --- | --- | --- | --- |
| RHEL/CentOS/EulerOS/Ubuntu | en\_US.UTF-8 | America/New\_York | us |
| SLES | en\_US | America/New\_York | english-us |
| Windows | en-US | Eastern Standard Time | 0x00000409 |

* 1. Querying the CPU Health Status

cpu\_health\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying the Health Status of a RAID Controller Card

raid\_health\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying the Memory Health Status

memory\_health\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying the Power Supply Health Status

power\_supply\_health\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying the Drive Health Status

drive\_health\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying the NIC Health Status

network\_adapter\_health\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying the Fan Health Status

fan\_health\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Querying the Out-of-Band Firmware Version

firmware\_outband\_version\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Upgrading the Out-of-Band Firmware

firmware\_outband\_upgrade.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| firmware\_file\_uri | Upgrade package path:   * The installation file is in .hpm format. * The value is a local **/tmp** path or a remote path in the format of File Transfer Protocol://user name:password@IP address of the remote server/directory/file name. Supported file transfer protocols include HTTPS, SCP, SFTP, CIFS, and NFS. |

Usage Guidelines

If you need to upgrade both the active and standby iBMCs, perform the upgrade twice.

The upgrade of the BIOS or CPLD takes effect only after the server is powered off.

* 1. Querying the In-Band Firmware Version

firmware\_inband\_version\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Upgrading the Out-of-Band Firmware

firmware\_inband\_upgrade.pp

| Parameter | Description |
| --- | --- |
| Common Parameters | |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| Firmware Upgrade Parameters | |
| firmware\_file\_uri | URI of the upgrade package.  The URI supports HTTPS, SFTP, NFS, CIFS, and SCP and cannot contain ||, ;, &&, $, |, >>, >, or <. |
| signal\_file\_uri | Digital signature address of the upgrade package.  The URI supports HTTPS, SFTP, NFS, CIFS, and SCP and cannot contain ||, ;, &&, $, |, >>, >, or <. |
| mode | Upgrade modes are as follows:   * Auto * Full * Recover * APP * Driver |
| active\_method | How the configuration item takes effect.   * Restart |
| Parameters for Enabling Smart Provisioning. | |
| start\_enabled | Enable the function of starting the server from Smart Provisioning.   * true * false |
| system\_restart\_delay\_seconds | System restart duration  NOTE  The value is an integer greater than 0, in seconds. |
| System Restart Parameter | |
| reset\_type | Server power-on or power-off operations are as follows:   * **On**: power-on * **ForceOff**: forcible power-off * **GracefulShutdown**: graceful power-off * **ForceRestart**: forcible restart * **Nmi**: non-maskable interrupt (simulating resetting) * **ForcePowerCycle**: forcible power-off and power-on |

* 1. Enabling or Disabling the SP Function

sp\_set.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| start\_enabled | Enable the function of starting the server from Smart Provisioning.   * true * false |
| system\_restart\_delay\_seconds | System restart duration  NOTE  The value is an integer greater than 0, in seconds. |

* 1. Querying the SP Firmware Version

firmware\_sp\_version\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Upgrading the SP Firmware

firmware\_sp\_upgrade.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| firmware\_file\_uri | URI of the upgrade package.  The URI supports HTTPS, SFTP, NFS, CIFS, and SCP and cannot contain ||, ;, &&, $, |, >>, >, or <. |
| mode | Upgrade modes are as follows:   * Auto * Full * Recover * APP * Driver |
| active\_method | How the configuration item takes effect.   * Restart |

* 1. Querying Results of SP Tasks

firmware\_sp\_result\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Adding a User

user\_add.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| username | Name of the new user   * Value: a string of 1 to 16 characters * Setting rules:   + - The value must consist of letters, digits, and special characters, and cannot contain spaces. The first character cannot be #.     - The value cannot contain the following special characters: :<>&,'"/\% |
| password | Password of the new user   * Value: a string of up to 20 characters * If the password complexity check function is enabled for other interfaces, the password must meet password complexity requirements. * If the password complexity check function is disabled for other interfaces, the password can be any character string. |
| role | The available roles are as follows:   * **Administrator** * **Operator** * **Commonuser** * **Noaccess** * **CustomRole1** * **CustomRole2** * **CustomRole3** * **CustomRole4** |

* 1. Deleting a User

user\_delete.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| user\_name | Name of the user to be deleted |

* 1. Querying Information About All Users

user\_get.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |

* 1. Updating User Information

user\_update.pp

| Parameter | Description |
| --- | --- |
| ibmc\_host | iBMC host name |
| ibmc\_username | iBMC user name |
| ibmc\_password | iBMC password |
| username | User name to be changed |
| newusername | New user name   * Value: a string of 1 to 16 characters * Setting rules:   + - The value must consist of letters, digits, and special characters, and cannot contain spaces. The first character cannot be #.     - The value cannot contain the following special characters: :<>&,'"/\% |
| newpassword | New password   * Value: a string of up to 20 characters * If the password complexity check function is enabled for other interfaces, the password must meet password complexity requirements. * If the password complexity check function is disabled for other interfaces, the password can be any character string. |
| newrole | New user role. The available roles are as follows:   * **Administrator** * **Operator** * **Commonuser** * **Noaccess** * **CustomRole1** * **CustomRole2** * **CustomRole3** * **CustomRole4** |
| enabled | User enabling status after the modification   * **true** * **false** |
| locked | User locking status after the modification. This parameter can be set only to **false** during the modification. |