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| **Huawei Chef Plug-in 1.1.0** | | |
| **User Guide** | | |
| **Issue** | **01** | |
| **Date** | **2019-09-20** | |
|  | | | | |
|  | HUAWEI TECHNOLOGIES CO., LTD. | |  |  |

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# About This Document

Overview

This document describes how to install and use the Huawei Chef plug-in.

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 |
| --- | --- | --- |
| 01 | 2019-09-20 | This issue is the first official release. |

# Introduction

The Huawei Chef plug-in runs on the Chef platform and manages Huawei servers through the Redfish interface.

* You can implement the following functions by using this plug-in:
* Basic server information query
* iBMC and BIOS parameter configuration
* iBMC, BIOS, and CPLD out-of-band firmware upgrade
* RAID controller card and network interface card (NIC) in-band firmware upgrade, and Smart Provisioning (SP) upgrade
* Server reset and power control
* Configuration related to operating system (OS) deployment
* Basic component information and health status query
* Access to the iBMC in IPv4, IPv6, and domain name modes
* The environment requirement of the Huawei Chef plug-in is as follows:
* Only Chef 13.0 and later
* CentOS 7.3, 7.4, and 7.6, and Ubuntu 14.04, 16.04, and 18.04
* Python 2.7
* The version mapping of the Huawei Chef plug-in is as follows:
* Only BIOS later than 0.39
* Only Smart Provisioning V118 and later
* Only iBMC 3.08 and later
* Table 2-1 lists the servers supported by the Huawei Chef plug-in.

Supported servers

| Type | Server |
| --- | --- |
| Rack server | 1288H V5 |
| 2288H V5 |
| 2488 V5 |
| 2488H V5 |
| RH2288H V3 |
| High-density server | XH622 V3 |
| XH321 V5 |
| Blade server | CH121 V5 |
| CH242 V5 |
| CH121 V3 |
| CH242 V3 |

# Installing and Uninstalling the Huawei Chef Plug-in

Prerequisites

* Chef 13.0 or later has been installed.
* The **Chef-repo** file has been downloaded to the environment where the Huawei Chef plug-in is installed. The following uses the **/home** directory as an example.

[3.1 Installing the Huawei Chef Plug-in](#_EN-US_TOPIC_0193288869)

[3.2 Uninstalling the Huawei Chef Plug-in](#_EN-US_TOPIC_0193288833)

## Installing the Huawei Chef Plug-in

### Online Installation

Procedure

Log in to the the environment where the Huawei Chef plug-in is installed as an administrator from an SSH tool (such as PuTTY).

Go to the **/home/chef-repo** directory.

Run the following command to install the plug-in:

**knife supermarket install chef-ibmc-cookbook**

Add the following dependency to the end of the **/home/chef-repo/cookbooks/starter/metadata.rb** file:

**depends 'chef-ibmc-cookbook'**

----End

### Local Installation

Procedure

Decompress the plug-in installation package to the **/home/chef-repo/cookbooks** directory.

Rename the decompressed plug-in folder **chef-ibmc-cookbook**.

Add the following dependency to the end of the **/home/chef-repo/cookbooks/starter/metadata.rb** file:

**depends 'chef-ibmc-cookbook'**

----End

## Uninstalling the Huawei Chef Plug-in

Delete the **chef-ibmc-cookbook** directory from the **/home/chef-repo/cookbooks/** directory and the **chef\_uREST** directory from the **/opt** directory.

# Using the Huawei Chef Plug-in

[4.1 Configuring Data Sources](#_EN-US_TOPIC_0193288908)

## Configuring Data Sources

Method 1

Edit the **recipes/default.rb** file in **starter cookbook**. The following describes how to obtain the BIOS attributes.

* Add the following parameters to obtain the BIOS attributes.

ibmc\_bios 'get bios' do   
 sensitive true   
 ibmc\_host '112.93.129.9'   
 ibmc\_port 443   
 ibmc\_username 'root'   
 ibmc\_password 'chajian12#$'   
 attribute 'QuietBoot'   
 action :get   
 end

The parameters are described as follows:

**sensitive true**: shielded sensitive information

**ibmc\_host**: iBMC host name (domain name, IPv4 address, or IPv6 address)

**ibmc\_port**: iBMC port number

**ibmc\_username**: iBMC user name

**ibmc\_password**: iBMC password

**attribute**: BIOS attributes (For details, see 5.2.1.1 Attribute Description.)

**action**: the action to be performed. In this example, the value is **get**.

* Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T06:42:50-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T06:42:50-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T06:42:50-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T06:42:50-04:00] INFO: Chef-client pid: 1143   
[2019-07-19T06:42:50-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T06:43:03-04:00] WARN: Run List override has been provided.   
[2019-07-19T06:43:03-04:00] WARN: Original Run List: []   
[2019-07-19T06:43:03-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T06:43:03-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T06:43:03-04:00] INFO: Run List expands to [starter]   
[2019-07-19T06:43:03-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T06:43:03-04:00] INFO: Running start handlers   
[2019-07-19T06:43:03-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T06:43:04-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T06:43:04-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T06:43:04-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_bios[get bios] action get[2019-07-19T06:43:04-04:00] INFO: Processing ibmc\_bios[get bios] action get (starter::default line 9)   
[2019-07-19T06:43:06-04:00] INFO:   
[172.171.100.3]   
----------------------------------------------------------------------   
QuietBoot : Enabled   
----------------------------------------------------------------------   
   
   
[2019-07-19T06:43:06-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T06:43:06-04:00] INFO: Chef Run complete in 2.932147075 seconds   
[2019-07-19T06:43:06-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T06:43:06-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T06:43:06-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 16 seconds

Method 2

Add the following data sources to the **attributes/default.rb** file in **starter cookbook**:

default['ibmc']['main'] = {   
 'host': 'ibmc-host',   
 'port': 443,   
 'username': 'ibmc-user',   
 'password': 'ibmc-pass'   
}

The parameters are described as follows:

* **host**: iBMC host name (domain name, IPv4 address, or IPv6 address)
* **port**: iBMC port number
* **username**: iBMC user name
* **password**: iBMC password

# Command Functions and Examples

[5.1 Functions](#_EN-US_TOPIC_0193288900)

[5.2 Examples](#_EN-US_TOPIC_0193288894)

## Functions

The Huawei Chef plug-in provides the command invoking query and configuration interfaces. Table 5-1 describes the command functions.

Command functions

| Command | Function | Description and Example |
| --- | --- | --- |
| **ibmc\_bios** | Queries and sets BIOS attributes, and restores BIOS default settings. | 5.2.1 Managing BIOS Attributes |
| **ibmc\_firmware\_inband** | Queries and upgrades the in-band firmware (RAID controller card and NIC). | 5.2.2 Managing the In-Band Firmware |
| **ibmc\_firmware\_outband** | Queries and upgrades the out-of-band firmware (iBMC, BIOS, and CPLD). | 5.2.3 Managing the Out-of-Band Firmware |
| **ibmc\_health\_cpu** | Queries the CPU health status. | 5.2.4.1 Querying the CPU Health Status |
| **ibmc\_health\_drive** | Queries the drive health status. | 5.2.4.2 Querying the Drive Health Status |
| **ibmc\_health\_fan** | Queries the fan health status. | 5.2.4.3 Querying the Fan Health Status |
| **ibmc\_health\_memory** | Queries the memory health status. | 5.2.4.4 Querying the Memory Health Status |
| **ibmc\_health\_psu** | Queries the power supply health status. | 5.2.4.5 Querying the Power Supply Health Status |
| **ibmc\_health\_raid** | Queries the RAID controller card health status. | 5.2.4.6 Querying the RAID Controller Card Health Status |
| **ibmc\_health\_network\_adapter** | Queries the NIC health status. | 5.2.4.7 Querying the NIC Health Status |
| **ibmc\_indicator\_led** | Sets the chassis indicator status. | 5.2.5 Setting the Chassis Indicator Status |
| **ibmc\_license** | Queries license information, and installs, exports, and deletes the license. | 5.2.6 Managing the iBMC License |
| **ibmc\_ethernet\_dns** | Sets DNS information. | 5.2.7 Setting DNS Information |
| **ibmc\_ethernet\_ipv4** | Sets the IPv4 network. | 5.2.8 Setting the IPv4 Network |
| **ibmc\_ethernet\_ipv6** | Sets the IPv6 network. | 5.2.9 Setting the IPv6 Network |
| **ibmc\_ethernet\_ipversion** | Sets an IP version. | 5.2.10 Setting an IP Version |
| **ibmc\_ethernet\_vlan** | Configures a VLAN. | 5.2.11 Configuring a VLAN |
| **ibmc\_ethernet** | Queries iBMC network port information. | 5.2.12 Querying iBMC Network Port Information |
| **ibmc\_ntp** | Queries and sets the NTP service. | 5.2.13 Managing the NTP Service |
| **ibmc\_boot** | Queries the startup configuration, sets the startup sequence, and sets the startup parameters of system resources. | 5.2.14 Managing the Boot Configuration |
| **ibmc\_cpu** | Queries CPU information. | 5.2.15 Querying CPU Information |
| **ibmc\_drive** | Queries drive information. | 5.2.16 Querying Drive Information |
| **ibmc\_os\_eth** | Queries the MAC address and network port. | 5.2.17 Querying the MAC Address and Network Port Information |
| **ibmc\_memory** | Queries memory information. | 5.2.18 Querying Memory Information |
| **ibmc\_sys\_power** | Controls the system power. | 5.2.19 Controlling the System Power |
| **ibmc\_system** | Queries product information and sets asset labels. | 5.2.20 Managing Product Information |
| **ibmc\_raid** | Queries RAID controller card information. | 5.2.21 Querying RAID Controller Card Information |
| **ibmc\_network\_adapter** | Queries NIC information. | 5.2.22 Querying NIC Information |
| **ibmc\_os\_deploy** | Deploys an OS. | 5.2.23 Deploying an OS |
| **ibmc\_restart** | Restarts the iBMC. | 5.2.24 Restarting the iBMC |
| **ibmc\_service** | Queries and sets network service information. | 5.2.25 Managing Network Service |
| **ibmc\_smtp** | Queries and sets the SMTP service information. | 5.2.26 Managing the SMTP Service |
| **ibmc\_smtp\_recipient** | Sets the SMTP receiver mailbox information | 5.2.27 Setting the SMTP Receiver Mailbox Information |
| **ibmc\_snmp** | Queries and sets the SNMP service information. | 5.2.28 Managing the SNMP Service |
| **ibmc\_sp** | Sets the SP service and queries the OS deployment and SP upgrade result. | 5.2.29 Managing the SP Service |
| **ibmc\_sp\_firmware** | Queries and upgrades the SP firmware. | 5.2.30 Managing the SP Firmware |
| **ibmc\_user** | Queries iBMC user information, creates and deletes an iBMC user, and modifies iBMC user information. | 5.2.31 Managing the iBMC User |
| **ibmc\_vmm** | Connects to or disconnects from the virtual media. | 5.2.32 Managing the Virtual Media |

## Examples

For details about how to configure data sources, see 4.1 Configuring Data Sources. This topic uses Method 2 as an example.

### Managing BIOS Attributes

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| get | Queries BIOS attributes. | attribute | Indicates BIOS attributes. This parameter is mandatory. For details, see Table 5-3. |
| set | Sets BIOS attributes. | attribute |
| value | Indicates the BIOS attribute value. This parameter is mandatory. For details, see Table 5-3. |
| restore | Restores default BIOS settings. | - | - |

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 | * **Enabled** (default value) * **Disabled** |
| C6Enable | Character string | CPU C6 state setting | * **Enabled** * **Auto**: automatic (default value) * **Disabled** |
| NumaEn | Character string | NUMA setting | * **Enabled** (default value) * **Disabled** |
| PCIeSRIOVSupport | Character string | PCIe SR-IOV setting | * **Enabled** * **Disabled** (default value) |
| PCIeARISupport | Character string | PCIe ARI setting | * **Enabled** * **Disabled** (default value) |
| VTdSupport | Character string | VT-D 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 setting | * **Enabled** (default value) * **Disabled** |
| PassThroughDMA | Character string | Pass-through DMA 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**: This parameter is set for each channel separately. |
| 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** |

#### Examples

##### Querying BIOS Attributes

The following describes how to query the **QuickBoot** attribute as an example.

Query the setting of the **QuickBoot** attribute.

Write the following script.

ibmc\_bios 'get' do   
 attribute 'QuickBoot'   
 action :get   
end

The parameters are described as follows:

* **attribute**: indicates BIOS attributes. For details, see Table 5-3.
* **action**: queries BIOS attributes. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T12:10:41-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T12:10:41-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T12:10:41-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T12:10:41-04:00] INFO: Chef-client pid: 8060   
[2019-07-19T12:10:41-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T12:10:55-04:00] WARN: Run List override has been provided.   
[2019-07-19T12:10:55-04:00] WARN: Original Run List: []   
[2019-07-19T12:10:55-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T12:10:55-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T12:10:55-04:00] INFO: Run List expands to [starter]   
[2019-07-19T12:10:55-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T12:10:55-04:00] INFO: Running start handlers   
[2019-07-19T12:10:55-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T12:10:55-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T12:10:55-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T12:10:55-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_bios[get] action get[2019-07-19T12:10:55-04:00] INFO: Processing ibmc\_bios[get] action get (starter::default line 9)   
[2019-07-19T12:10:57-04:00] INFO:   
[172.171.100.3]   
----------------------------------------------------------------------   
QuickBoot : Disabled   
----------------------------------------------------------------------   
   
   
[2019-07-19T12:10:57-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T12:10:57-04:00] INFO: Chef Run complete in 2.730663185 seconds   
[2019-07-19T12:10:57-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T12:10:57-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T12:10:57-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 16 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| QuickBoot | Quick boot mode. For details, see Table 5-3. |

----End

##### Setting BIOS Attributes

The following describes how to set the **QuickBoot** attribute as an example.

Set **QuickBoot** to **Enabled**.

Write the following script.

ibmc\_bios 'set' do   
 attribute 'QuickBoot'   
 value 'Enabled'   
 action :set   
end

The parameters are described as follows:

* **attribute**: indicates BIOS attributes. For details, see Table 5-3.
* **value**: indicates the BIOS attribute value. For details, see Table 5-3.
* **action**: sets BIOS attributes. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

##### Restoring Default BIOS Settings

Write the following script.

ibmc\_bios 'restore' do   
 action :restore   
end

The parameters are described as follows:

**action**: restores default BIOS settings. The value is **restore**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Managing the In-Band Firmware

This function is supported for only V5 servers whose BIOS version is 0.39 or later.

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| get | Queries the in-band firmware version. | - | - |
| upgrade | Upgrades the in-band firmware. | image\_uri | Indicates the URI of the upgrade package. This parameter is mandatory.   * The upgrade file must be in the .zip format. * HTTPS, SFTP, NFS, CIFS, and SCP file transfer protocols are supported. The path cannot contain the following special characters: || ; && $ | >> > < Example: **protocol://username:password@hostname/directory/Firmware.zip** |
| signature\_uri | Indicates the digital signature address of the upgrade package. This parameter is mandatory.   * The signature file must be in the .asc format. * HTTPS, SFTP, NFS, CIFS, and SCP file transfer protocols are supported. The path cannot contain the following special characters: || ; && $ | >> > <.   Example: **protocol://username:password@hostname/directory/Firmware.zip.asc** |
| parameter | This parameter is mandatory. Currently, the value can be only **all**, indicating the entire upgrade package or a specified upgrade package. |
| mode | Indicates the upgrade mode. This parameter is mandatory. Optional values are as follows:   * Auto * Full * Recover * APP * Driver |
| active\_method | Indicates the upgrade effective mode. This parameter is mandatory. Currently, the value can be only **OSRestart**. |

#### Examples

##### Querying the In-Band Firmware Information

Write the following script.

ibmc\_firmware\_inband 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the in-band firmware information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T12:22:03-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T12:22:03-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T12:22:03-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T12:22:03-04:00] INFO: Chef-client pid: 4106   
[2019-07-19T12:22:03-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T12:22:17-04:00] WARN: Run List override has been provided.   
[2019-07-19T12:22:17-04:00] WARN: Original Run List: []   
[2019-07-19T12:22:17-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T12:22:17-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T12:22:17-04:00] INFO: Run List expands to [starter]   
[2019-07-19T12:22:17-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T12:22:17-04:00] INFO: Running start handlers   
[2019-07-19T12:22:17-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T12:22:17-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T12:22:17-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T12:22:17-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_firmware\_inband[get] action get[2019-07-19T12:22:17-04:00] INFO: Processing ibmc\_firmware\_inband[get] action get (starter::default line 9)   
[2019-07-19T12:22:21-04:00] INFO:   
[172.171.100.3]   
[PCIeCards]   
------------------------------------------------------------   
DeviceName : SR150-M   
DeviceLocator : mainboard   
Position : RAID Card1   
   
[Controllers]   
Model : SAS3408   
FirmwareVersion : 5.030.01-1330   
Manufacturer : LSI   
   
----------------------------------------   
VendorId : 0x1000   
Description : Storage Controller Collection   
DeviceId : 0x0017   
SubsystemId : 0xd213   
CardType : StorageControllers   
SubsystemVendorId : 0x19e5   
   
[BDFNumber]   
BDF : 0000:1c:00.0   
RootBDF : 0000:17:02.0   
------------------------------------------------------------   
DeviceName : LOM   
DeviceLocator : mainboard   
Position : LOM   
   
[Controllers]   
Model : X722   
FirmwareVersion : 3.33,0x80000f09   
Manufacturer : Intel Corporation   
   
----------------------------------------   
VendorId : 0x8086   
Description : Intel Corporation Ethernet Connection X722 for 10GbE SFP+ (rev 09)   
MacAddress : dc:99:14:c8:fe:7b   
DeviceId : 0x37d0   
SubsystemId : 0xd123   
CardType : NIC   
SubsystemVendorId : 0x19e5   
   
[BDFNumber]   
BDF : 0000:1a:00.0   
RootBDF : 0000:19:03.0   
----------------------------------------   
VendorId : 0x8086   
Description : Intel Corporation Ethernet Connection X722 for 10GbE SFP+ (rev 09)   
MacAddress : dc:99:14:c8:fe:7c   
DeviceId : 0x37d0   
SubsystemId : 0xd123   
CardType : NIC   
SubsystemVendorId : 0x19e5   
   
[BDFNumber]   
BDF : 0000:1a:00.1   
RootBDF : 0000:19:03.0   
----------------------------------------   
VendorId : 0x8086   
Description : Intel Corporation Ethernet Connection X722 for 1GbE (rev 09)   
MacAddress : dc:99:14:c8:fe:7d   
DeviceId : 0x37d1   
SubsystemId : 0xd123   
CardType : NIC   
SubsystemVendorId : 0x19e5   
   
[BDFNumber]   
BDF : 0000:1a:00.2   
RootBDF : 0000:19:03.0   
----------------------------------------   
VendorId : 0x8086   
Description : Intel Corporation Ethernet Connection X722 for 1GbE (rev 09)   
MacAddress : dc:99:14:c8:fe:7e   
DeviceId : 0x37d1   
SubsystemId : 0xd123   
CardType : NIC   
SubsystemVendorId : 0x19e5   
   
[BDFNumber]   
BDF : 0000:1a:00.3   
RootBDF : 0000:19:03.0   
------------------------------------------------------------   
   
   
[2019-07-19T12:22:21-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T12:22:21-04:00] INFO: Chef Run complete in 4.163753107 seconds   
[2019-07-19T12:22:21-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T12:22:21-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T12:22:21-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 17 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| DeviceName | Device name |
| DeviceLocator | Silkscreen information |
| Position | Location information |
| Model | Model of the network adapter controller |
| FirmwareVersion | Firmware version of the network adapter controller |
| Manufacturer | Manufacturer of the network adapter controller |
| VendorId | Vendor ID |
| Description | Description |
| MacAddress | MAC address |
| DeviceId | Device ID |
| SubsystemId | Subsystem ID |
| CardType | Card type |
| SubsystemVendorId | Subsystem vendor ID |
| BDF | BDF |
| RootBDF | Root BDF |

----End

##### Upgrading the In-Band Firmware

The following describes how to upgrade the RAID controller card firmware as an example.

Write the following script.

ibmc\_firmware\_inband 'upgrade' do   
 image\_uri 'nfs://172.171.200.11/data/RAID-SR150M\_SP150(3408)-FW-V112(5.030.01-1330).zip'   
 signature\_uri 'nfs://172.171.200.11/data/RAID-SR150M\_SP150(3408)-FW-V112(5.030.01-1330).zip.asc'   
 parameter 'all'   
 mode 'Auto'   
 active\_method 'OSRestart'   
 action :upgrade   
end

The parameters are described as follows:

* **action**: upgrades the in-band firmware. The value is **upgrade**.
* For more information about other parameters, see 5.2.2.1 Attribute Description.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Managing the Out-of-Band Firmware

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| get | Queries the out-of-band firmware version. | - | - |
| upgrade | Upgrades the out-of-band firmware.  NOTE  The BIOS or CPLD upgrade takes effect only after the system is powered off. | image\_uri | Indicates the URI of the upgrade package.   * The file URI must be a string containing a maximum of 256 characters. * The upgrade file must be in the .hpm format. * Local path: **/home/**.   Example: **/home/ubuntu/2288H\_V5\_5288\_V5-iBMC-V318.hpm**   * Remote path: Input format is 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.   Example: **protocol://username:password@hostname/directory/2288H\_V5\_5288\_V5-iBMC-V318.hpm** |

#### Examples

##### Querying the Out-of-Band Firmware Information

Write the following script.

ibmc\_firmware\_outband 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the out-of-band firmware information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T12:59:01-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T12:59:01-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T12:59:01-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T12:59:01-04:00] INFO: Chef-client pid: 31920   
[2019-07-19T12:59:01-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T12:59:15-04:00] WARN: Run List override has been provided.   
[2019-07-19T12:59:15-04:00] WARN: Original Run List: []   
[2019-07-19T12:59:15-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T12:59:15-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T12:59:15-04:00] INFO: Run List expands to [starter]   
[2019-07-19T12:59:15-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T12:59:15-04:00] INFO: Running start handlers   
[2019-07-19T12:59:15-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T12:59:15-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T12:59:15-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T12:59:15-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_firmware\_outband[get] action get[2019-07-19T12:59:15-04:00] INFO: Processing ibmc\_firmware\_outband[get] action get (starter::default line 9)   
[2019-07-19T12:59:20-04:00] INFO:   
[172.171.100.3]   
----------------------------------------   
Name : ActiveBMC   
SoftwareId: BMC-iBMC   
PositionId: U4282   
Version : 3.30   
Updateable: True   
Health : OK   
State : Enabled   
----------------------------------------   
Name : BackupBMC   
SoftwareId: BMC-iBMC   
PositionId: U4282   
Version : 3.38   
Updateable: True   
Health : OK   
State : StandbySpare   
----------------------------------------   
Name : ActiveUboot   
SoftwareId: UBOOT-UBOOT   
PositionId: None   
Version : 2.1.13 (Dec 24 2018 - 20:23:20)   
Updateable: False   
Health : OK   
State : Enabled   
----------------------------------------   
Name : BackupUboot   
SoftwareId: UBOOT-UBOOT   
PositionId: None   
Version : 2.1.13 (Dec 24 2018 - 20:23:20)   
Updateable: False   
Health : OK   
State : StandbySpare   
----------------------------------------   
Name : Bios   
SoftwareId: BIOS-BIOS   
PositionId: U47   
Version : 1.09   
Updateable: True   
Health : OK   
State : Enabled   
----------------------------------------   
Name : chassisPS1   
SoftwareId: PSU-DPS-550AB-23 A   
PositionId: None   
Version : DC:02f PFC:018   
Updateable: True   
Health : OK   
State : Enabled   
----------------------------------------   
Name : chassisPS2   
SoftwareId: PSU-DPS-550AB-23 A   
PositionId: None   
Version : DC:02f PFC:000   
Updateable: True   
Health : OK   
State : Enabled   
----------------------------------------   
Name : MainBoardCPLD   
SoftwareId: CPLD-Mainboard   
PositionId: U4269   
Version : 2.09   
Updateable: True   
Health : OK   
State : Enabled   
----------------------------------------   
Name : chassisDiskBP1CPLD   
SoftwareId: CPLD-BC11EHBC   
PositionId: U3   
Version : 1.10   
Updateable: True   
Health : OK   
State : Enabled   
----------------------------------------   
   
   
[2019-07-19T12:59:20-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T12:59:20-04:00] INFO: Chef Run complete in 5.936967731 seconds   
[2019-07-19T12:59:20-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T12:59:20-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T12:59:20-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 19 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| Name | Firmware name |
| SoftwareId | Firmware ID |
| PositionId | Position ID of the firmware |
| Version | Firmware version |
| Updateable | Whether the firmware can be updated:   * True * False |
| Health | Firmware health status |
| State | Firmware enabling status |

----End

##### Upgrading the Out-of-Band Firmware

The following describes how to remotely upgrade out-of-band firmware as an example.

Write the following script.

ibmc\_firmware\_outband 'upgrade' do   
 image\_uri 'nfs://172.171.200.11//data/2488H\_V5/cpldimage.hpm'   
 action :upgrade   
end

The parameters are described as follows:

* **image\_uri**: indicates the URI of the upgrade package. For details, see 5.2.3.1 Attribute Description.
* **action**: upgrades the out-of-band firmware. The value is **upgrade**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Managing the System Health Status

#### Querying the CPU Health Status

Write the following script.

ibmc\_health\_cpu 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the CPU health status. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T08:00:40-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T08:00:40-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T08:00:40-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T08:00:40-04:00] INFO: Chef-client pid: 32129   
[2019-07-19T08:00:40-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T08:00:53-04:00] WARN: Run List override has been provided.   
[2019-07-19T08:00:53-04:00] WARN: Original Run List: []   
[2019-07-19T08:00:53-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T08:00:53-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T08:00:53-04:00] INFO: Run List expands to [starter]   
[2019-07-19T08:00:53-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T08:00:53-04:00] INFO: Running start handlers   
[2019-07-19T08:00:53-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T08:00:54-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T08:00:54-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T08:00:54-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_health\_cpu[get] action get[2019-07-19T08:00:54-04:00] INFO: Processing ibmc\_health\_cpu[get] action get (starter::default line 9)   
[2019-07-19T08:00:57-04:00] INFO:   
[172.171.100.3]   
--------------------------------   
[Summary]   
HealthRollup : OK   
--------------------------------   
Id : 1   
Name : CPU1   
Health : OK   
State : Enabled   
--------------------------------   
Id : 2   
Name : CPU2   
Health : OK   
State : Enabled   
--------------------------------   
   
   
[2019-07-19T08:00:57-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T08:00:57-04:00] INFO: Chef Run complete in 3.560043926 seconds   
[2019-07-19T08:00:57-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T08:00:57-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T08:00:57-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 17 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| HealthRollup | Summary CPU health status |
| Id | CPU ID |
| Name | CPU name |
| Health | CPU health status |
| State | CPU enabling status |

----End

#### Querying the Drive Health Status

Write the following script.

ibmc\_health\_drive 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the drive health status. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T10:06:52-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T10:06:52-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T10:06:52-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T10:06:52-04:00] INFO: Chef-client pid: 22045   
[2019-07-19T10:06:52-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T10:07:05-04:00] WARN: Run List override has been provided.   
[2019-07-19T10:07:05-04:00] WARN: Original Run List: []   
[2019-07-19T10:07:05-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T10:07:05-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T10:07:05-04:00] INFO: Run List expands to [starter]   
[2019-07-19T10:07:05-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T10:07:05-04:00] INFO: Running start handlers   
[2019-07-19T10:07:05-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T10:07:06-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T10:07:06-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T10:07:06-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_health\_drive[get] action get[2019-07-19T10:07:06-04:00] INFO: Processing ibmc\_health\_drive[get] action get (starter::default line 9)   
[2019-07-19T10:07:11-04:00] INFO:   
[172.171.100.3]   
----------------------------   
[Summary]   
HealthRollup : OK   
----------------------------   
Id : 0   
Name : Disk0   
Health : OK   
State : Enabled   
----------------------------   
Id : 1   
Name : Disk1   
Health : OK   
State : Enabled   
----------------------------   
Id : 2   
Name : Disk2   
Health : OK   
State : Enabled   
----------------------------   
Id : 3   
Name : Disk3   
Health : OK   
State : Enabled   
----------------------------   
Id : 4   
Name : Disk4   
Health : OK   
State : Enabled   
----------------------------   
Id : 5   
Name : Disk5   
Health : OK   
State : Enabled   
----------------------------   
Id : 6   
Name : Disk6   
Health : OK   
State : Enabled   
----------------------------   
Id : 7   
Name : Disk7   
Health : OK   
State : Enabled   
----------------------------   
   
   
[2019-07-19T10:07:11-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T10:07:11-04:00] INFO: Chef Run complete in 6.188811956 seconds   
[2019-07-19T10:07:11-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T10:07:11-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T10:07:11-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 19 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| HealthRollup | Summary drive health status |
| Id | Drive ID |
| Name | Drive name |
| Health | Drive health status |
| State | Drive enabling status |

----End

#### Querying the Fan Health Status

Write the following script.

ibmc\_health\_fan 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the fan health status. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T10:10:24-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T10:10:24-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T10:10:24-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T10:10:24-04:00] INFO: Chef-client pid: 30763   
[2019-07-19T10:10:24-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T10:10:38-04:00] WARN: Run List override has been provided.   
[2019-07-19T10:10:38-04:00] WARN: Original Run List: []   
[2019-07-19T10:10:38-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T10:10:38-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T10:10:38-04:00] INFO: Run List expands to [starter]   
[2019-07-19T10:10:38-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T10:10:38-04:00] INFO: Running start handlers   
[2019-07-19T10:10:38-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T10:10:38-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T10:10:38-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T10:10:38-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_health\_fan[get] action get[2019-07-19T10:10:38-04:00] INFO: Processing ibmc\_health\_fan[get] action get (starter::default line 9)   
[2019-07-19T10:10:40-04:00] INFO:   
[172.171.100.3]   
-----------------------------------   
[Summary]   
Count : 4   
HealthRollup : OK   
   
[TemperatureSummary]   
Count : 19   
HealthRollup : OK   
-----------------------------------   
MemberId : 0   
Name : Fan Module1 Front   
State : Enabled   
Health : OK   
-----------------------------------   
MemberId : 1   
Name : Fan Module2 Front   
State : Enabled   
Health : OK   
-----------------------------------   
MemberId : 2   
Name : Fan Module3 Front   
State : Enabled   
Health : OK   
-----------------------------------   
MemberId : 3   
Name : Fan Module4 Front   
State : Enabled   
Health : OK   
-----------------------------------   
   
   
[2019-07-19T10:10:40-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T10:10:40-04:00] INFO: Chef Run complete in 2.602880121 seconds   
[2019-07-19T10:10:40-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T10:10:40-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T10:10:40-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 16 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| Summary (summary information about fan modules): | |
| Count | Number of current fan modules |
| HealthRollup | Summary fan health status |
| TemperatureSummary (information about the temperature sensor): | |
| Count | Name of the temperature sensor |
| HealthRollup | Summary temperature sensor health status |
| Information about each fan module: | |
| MemberId | Fan module ID |
| Name | Fan module name |
| State | Fan module enabling status |
| Health | Fan module health status |

----End

#### Querying the Memory Health Status

Write the following script.

ibmc\_health\_memory 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the memory health status. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T10:25:58-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T10:25:58-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T10:25:58-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T10:25:58-04:00] INFO: Chef-client pid: 4411   
[2019-07-19T10:25:58-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T10:26:14-04:00] WARN: Run List override has been provided.   
[2019-07-19T10:26:14-04:00] WARN: Original Run List: []   
[2019-07-19T10:26:14-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T10:26:14-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T10:26:14-04:00] INFO: Run List expands to [starter]   
[2019-07-19T10:26:14-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T10:26:14-04:00] INFO: Running start handlers   
[2019-07-19T10:26:14-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T10:26:14-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T10:26:14-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T10:26:14-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_health\_memory[get] action get[2019-07-19T10:26:14-04:00] INFO: Processing ibmc\_health\_memory[get] action get (starter::default line 9)   
[2019-07-19T10:26:24-04:00] INFO:   
[172.171.100.3]   
-----------------------------------   
[Summary]   
HealthRollup : OK   
-----------------------------------   
DeviceLocator : DIMM000   
Health : OK   
State : Enabled   
-----------------------------------   
DeviceLocator : DIMM010   
Health : OK   
State : Enabled   
-----------------------------------   
DeviceLocator : DIMM100   
Health : OK   
State : Enabled   
-----------------------------------   
DeviceLocator : DIMM110   
Health : OK   
State : Enabled   
-----------------------------------   
   
   
[2019-07-19T10:26:24-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T10:26:24-04:00] INFO: Chef Run complete in 10.200799654 seconds   
[2019-07-19T10:26:24-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T10:26:24-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T10:26:24-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 25 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| HealthRollup | Summary memory health status |
| DeviceLocator | Memory silkscreen information |
| Health | Memory health status |
| State | Memory enabling status |

----End

#### Querying the Power Supply Health Status

Write the following script.

ibmc\_health\_psu 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the power supply health status. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T10:27:43-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T10:27:43-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T10:27:43-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T10:27:43-04:00] INFO: Chef-client pid: 9592   
[2019-07-19T10:27:43-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T10:27:56-04:00] WARN: Run List override has been provided.   
[2019-07-19T10:27:56-04:00] WARN: Original Run List: []   
[2019-07-19T10:27:56-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T10:27:56-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T10:27:56-04:00] INFO: Run List expands to [starter]   
[2019-07-19T10:27:56-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T10:27:56-04:00] INFO: Running start handlers   
[2019-07-19T10:27:56-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T10:27:56-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T10:27:56-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T10:27:57-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_health\_psu[get] action get[2019-07-19T10:27:57-04:00] INFO: Processing ibmc\_health\_psu[get] action get (starter::default line 9)   
[2019-07-19T10:28:02-04:00] INFO:   
[172.171.100.3]   
----------------------------------------   
[Summary]   
HealthRollup : Critical   
----------------------------------------   
Name : PS1   
Health : OK   
State : Enabled   
----------------------------------------   
Name : PS2   
Health : Critical   
State : Enabled   
----------------------------------------   
   
   
[2019-07-19T10:28:02-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T10:28:02-04:00] INFO: Chef Run complete in 6.216223467 seconds   
[2019-07-19T10:28:02-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T10:28:02-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T10:28:02-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 19 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| HealthRollup | Summary power supply unit (PSU) health status |
| Name | PSU name |
| Health | PSU health status |
| State | PSU enabling status |

----End

#### Querying the RAID Controller Card Health Status

Write the following script.

ibmc\_health\_raid 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the RAID controller card health status. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T10:29:27-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T10:29:28-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T10:29:28-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T10:29:28-04:00] INFO: Chef-client pid: 14122   
[2019-07-19T10:29:28-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T10:29:41-04:00] WARN: Run List override has been provided.   
[2019-07-19T10:29:41-04:00] WARN: Original Run List: []   
[2019-07-19T10:29:41-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T10:29:41-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T10:29:41-04:00] INFO: Run List expands to [starter]   
[2019-07-19T10:29:41-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T10:29:41-04:00] INFO: Running start handlers   
[2019-07-19T10:29:41-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T10:29:41-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T10:29:41-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T10:29:41-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_health\_raid[get] action get[2019-07-19T10:29:41-04:00] INFO: Processing ibmc\_health\_raid[get] action get (starter::default line 9)   
[2019-07-19T10:29:46-04:00] INFO:   
[172.171.100.3]   
----------------------------------------   
[Summary]   
HealthRollup : OK   
----------------------------------------   
Id : 0   
Name : RAID Card1 Controller   
Health : OK   
State : Enabled   
CapacitanceStatus: None   
----------------------------------------   
   
   
[2019-07-19T10:29:46-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T10:29:46-04:00] INFO: Chef Run complete in 5.26627885 seconds   
[2019-07-19T10:29:46-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T10:29:46-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T10:29:46-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 18 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| HealthRollup | Summary RAID controller card health status |
| Id | RAID controller card ID |
| Name | RAID controller card name |
| Health | RAID controller card health status |
| State | RAID controller card enabling status |
| CapacitanceStatus | Capacitor status |

----End

#### Querying the NIC Health Status

Write the following script.

ibmc\_health\_network\_adapter 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the NIC health status. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T10:31:12-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T10:31:12-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T10:31:12-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T10:31:12-04:00] INFO: Chef-client pid: 18879   
[2019-07-19T10:31:12-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T10:31:25-04:00] WARN: Run List override has been provided.   
[2019-07-19T10:31:25-04:00] WARN: Original Run List: []   
[2019-07-19T10:31:25-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T10:31:25-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T10:31:25-04:00] INFO: Run List expands to [starter]   
[2019-07-19T10:31:25-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T10:31:25-04:00] INFO: Running start handlers   
[2019-07-19T10:31:25-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T10:31:26-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T10:31:26-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T10:31:26-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_health\_network\_adapter[get] action get[2019-07-19T10:31:26-04:00] INFO: Processing ibmc\_health\_network\_adapter[get] action get (starter::default line 9)   
[2019-07-19T10:31:30-04:00] INFO:   
[172.171.100.3]   
--------------------------------------   
[Summary]   
HealthRollup : OK   
--------------------------------------   
Id : mainboardLOM   
Name : mainboardLOM   
Manufacturer : Intel   
Model : X722   
Health : OK   
State : Enabled   
--------------------------------------   
   
   
[2019-07-19T10:31:30-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T10:31:30-04:00] INFO: Chef Run complete in 4.0911147 seconds   
[2019-07-19T10:31:30-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T10:31:30-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T10:31:30-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 17 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| HealthRollup | Summary NIC health status |
| Id | NIC ID |
| Name | NIC name |
| Manufacturer | NIC manufacturer |
| Model | NIC model |
| Health | NIC health status |
| State | NIC enabling status |

----End

### Setting the Chassis Indicator Status

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| set | Sets the chassis indicator status. | state | Indicates the status of the indicator on the chassis. This parameter is mandatory. Optional values are as follows:   * **Lit**: steady on * **Off** * **Blinking** |

#### Examples

Write the following script.

ibmc\_indicator\_led 'light up' do   
 state 'Lit'   
 action :set   
end

The parameters are described as follows:

* **state**: indicates the indicator status. For details, see 5.2.5.1 Attribute Description.
* **action**: sets the chassis indicator status. The value is **set**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Managing the iBMC License

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| get | Queries the license information. | - | - |
| install | Installs a license.  NOTE  The V3 servers and some V5 servers do not support this function. For details, see the [iBMC user guides](https://support.huawei.com/enterprise/en/management-software/ibmc-pid-8060757?category=operation-maintenance&subcategory=user-guide). | source | Indicates the license source. This parameter is mandatory. Optional values are as follows:   * **iBMC** (default value) * **FusionDirector** * **eSight** |
| type | Indicates the license file installation mode. This parameter is mandatory. Currently, the value can be only **URI** (local or remote path). |
| content | Indicates the URI of the license file. This parameter is mandatory.   * The license file must be in the .xml format. * Local path and remote path are supported.   + - Local path   Example: **/home/ubuntu/license.xml**   * + - Remote path   Input format: File Transfer Protocol://User name:Password@IP address of the remote server/directory/file name  Supported file transfer protocols include HTTPS, SFTP, NFS, SCP, and CIFS.  Example: **protocol://username:password@hostname/directory/license.xml** |
| export | Exports a license | export\_to | Indicates the export path. This parameter is mandatory. Both local and remote paths are supported.   * Local path   Example: **/home/ubuntu/license.xml**   * Remote path   Input format: File Transfer Protocol://User name:Password@IP address of the remote server/directory/file name  Supported file transfer protocols include HTTPS, SFTP, NFS, SCP, and CIFS.  Example: **protocol://username:password@hostname/directory/license.xml** |
| delete | Deletes a license | - | - |

#### Examples

##### Querying License Information

Write the following script.

ibmc\_license 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries license information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-20T07:17:26-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-20T07:17:26-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-20T07:17:26-04:00] INFO: Platform: x86\_64-linux   
[2019-07-20T07:17:26-04:00] INFO: Chef-client pid: 14527   
[2019-07-20T07:17:26-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-20T07:17:39-04:00] WARN: Run List override has been provided.   
[2019-07-20T07:17:39-04:00] WARN: Original Run List: []   
[2019-07-20T07:17:39-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-20T07:17:39-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-20T07:17:39-04:00] INFO: Run List expands to [starter]   
[2019-07-20T07:17:39-04:00] INFO: Starting Chef Run for admin   
[2019-07-20T07:17:39-04:00] INFO: Running start handlers   
[2019-07-20T07:17:39-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-20T07:17:39-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-20T07:17:39-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-20T07:17:40-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_license[get] action get[2019-07-20T07:17:40-04:00] INFO: Processing ibmc\_license[get] action get (starter::default line 9)   
[2019-07-20T07:17:44-04:00] INFO:   
[172.171.100.7]   
Id: LicenseService   
Name: License Service   
Capability: Local,Remote   
DeviceESN: BBE301BAB4A05D4505E63E2C35E4EC1B95159F6E   
InstalledStatus: NotInstalled   
RevokeTicket:   
LicenseClass: NotInstalled   
LicenseStatus: N/A   
LicenseInfo:   
 CustomerInfo:   
 Customer:   
 Country:   
 Office:   
 NodeInfo:   
 ESN:   
 Name:   
 FileFormatVersion:   
 SaleInfo:   
 OfferingProduct:   
 SaleItem:   
 Name:   
 IsControlled: Controlled   
 ValidDate:   
 Value: 0   
 FeatureKey:   
 Group:   
 Name: Smart Provisioning, Data Accquisition   
 IsControlled: Controlled   
 ValidDate:   
 Value: 0   
 State: N/A   
 RemoteControlValue: 1   
 Description:   
 ProductName:   
 GeneralInfo:   
 LicenseType:   
 CopyRight:   
 Creator:   
 LSN:   
 CreateTime:   
 GraceDay: 0   
 Issuer:   
AlarmInfo:   
 FileState: N/A   
 RemainCommissioningDay: 0   
 RemainGraceDay: 0   
 ProductESNMatchState: N/A   
 ProductESNValidState: Valid   
 ProductVersionMatchState: N/A   
   
   
[2019-07-20T07:17:44-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-20T07:17:44-04:00] INFO: Chef Run complete in 5.171609378 seconds   
[2019-07-20T07:17:44-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-20T07:17:44-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-20T07:17:44-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 18 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| Id | License service resource ID |
| Name | License service resource name |
| Capability | License management capability:   * **Local**: supports the local license management. * **Remote**: supports the remote license management. |
| DeviceESN | Device ESN |
| InstalledStatus | Installation status of the license file:   * NotInstalled * Installed * Installing |
| RevokeTicket | License expiration code |
| LicenseClass | License file level during the license management. This field is invalid during the remote license management. Optional values are as follows:   * **NotInstalled**: The license is not installed. * **Advanced**: The license file level is advanced. |
| LicenseStatus | License status:   * **N/A**: undefined * **Default** * **GracePeriod** * **Normal** * **Emergency** * **Commissioning** * **Unknown** |
| LicenseInfo (license file information): | |
| * CustomerInfo (license user information): | |
| Customer | License user name |
| Country | Country or region where the license user is located |
| Office | City where the license user is located |
| * NodeInfo (authorized device information): | |
| ESN | Authorized device ESN |
| Name | Authorized device name |
| * FileFormatVersion | License file format version |
| * SaleInfo (license sales information): | |
| OfferingProduct | Product information |
| SaleItem | License sales item information |
| Name | Sales item code |
| IsControlled | Whether the feature is controlled based on the authorized value |
| ValidDate | Authorization end date |
| Value | Sales volume |
| FeatureKey | Function authorization item corresponding to a sales item |
| Group | Name of the group to which the authorization item belongs |
| Name | Authorization feature name |
| IsControlled | Whether the feature is controlled based on the authorized value:   * Controlled * Uncontrolled |
| ValidDate | Authorization end date |
| Value | The value of an authorization item. The value of a function item can only be **0** or **1**. **255** indicates that the value is unknown. |
| State | Status of a controller item during local license management. The default status is **N/A**.   * **N/A**: undefined * **Default** * **GracePeriod** * **Normal** * **Emergency** |
| RemoteControlValue | Authorized value of the remote license |
| Description | Sales item description |
| ProductName | Product name |
| * GeneralInfo (basic license information): | |
| LicenseType | License type |
| CopyRight | License file copyright information |
| Creator | License issuer |
| LSN | License SN |
| CreateTime | Date on which the license is created |
| GraceDay | License grace period (days) |
| Issuer | License applicant |
| AlarmInfo (license alarm information): | |
| FileState | Whether the license file is normal:   * Normal * Incorrect |
| RemainCommissioningDay | Number of remaining days in the commissioning state |
| RemainGraceDay | Number of remaining days in the grace period |
| ProductESNMatchState | Whether the ESN of the license file matches the actual product ESN:   * Matched * Unmatched |
| ProductESNValidState | Whether the product ESN is valid:   * Valid * Invalid |
| ProductVersionMatchState | Whether the product version in the license file matches the actual product version:   * Matched * Unmatched |

----End

##### Installing a License

The following describes how to install a local license as an example.

Write the following script.

ibmc\_license 'install' do   
 type 'URI'   
 content '/home/license1288.xml'   
 action :install   
end

The parameters are described as follows:

* **type**: For details, see 5.2.6.1 Attribute Description.
* **content**: For details, see 5.2.6.1 Attribute Description.
* **action**: installs a license. The value is **install**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

##### Exporting a License

The following describes how to export a license to a local path as an example.

Write the following script.

ibmc\_license 'export' do   
 export\_to '/home/license1288.xml'   
 action :export   
end

The parameters are described as follows:

* **export\_to**: For details, see 5.2.6.1 Attribute Description.
* **action**: exports a license. The value is **export**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

##### Deleting a License

Write the following script.

ibmc\_license 'delete' do   
 action :delete   
end

The parameters are described as follows:

**action**: deletes a license. The value is **delete**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Setting DNS Information

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| set | Sets DNS information. | address\_origin | Indicates the mode for obtaining the DNS server information. This parameter is optional. Optional values are as follows:   * Static * IPv4 * IPv6 |
| hostname | Indicates the iBMC host name. This parameter is optional. |
| domain | Indicates the server domain name. This parameter is optional. |
| preferred\_server | Indicates the IP address of the preferred DNS server. This parameter is optional. |
| alternate\_server | Indicates the IP address of the alternate DNS server. This parameter is optional. |

#### Examples

The following describes how to set the mode for obtaining the DNS server information to **Static**.

Write the following script.

ibmc\_ethernet\_dns 'set' do   
 address\_origin 'Static'   
 action :set   
end

The parameters are described as follows:

* **address\_origin**: indicates the mode for obtaining the DNS server information. For details about the value range, see 5.2.7.1 Attribute Description.
* **action**: sets DNS information. The value is **set**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Setting the IPv4 Network

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| set | Sets the IPv4 network. | address | Indicates the IPv4 address of the iBMC network port. This parameter is optional. |
| origin | Indicates the mode for obtaining the IPv4 address. This parameter is optional. Optional values are as follows:   * Static * DHCP |
| gateway | Indicates the IPv4 gateway address of the iBMC network port. This parameter is optional. |
| mask | Indicates the subnet mask of the iBMC network port. This parameter is optional. |

#### Examples

Write the following script.

ibmc\_ethernet\_ipv4 'set' do   
 address '10.10.10.2'   
 origin 'Static'   
 gateway '10.10.10.1'   
 mask '255.255.255.0'   
 action :set   
end

The parameters are described as follows:

* **action**: sets the IPv4 network. The value is **set**.
* For more information about other parameters, see 5.2.8.1 Attribute Description.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Setting the IPv6 Network

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| set | Sets the IPv6 network. | address | Indicates the IPv6 address of the iBMC network port. This parameter is optional. |
| origin | Indicates the mode for obtaining the IPv6 address. This parameter is optional. Optional values are as follows:   * Static * DHCPv6 |
| gateway | Indicates the IPv6 gateway address of the iBMC network port. This parameter is optional. |
| prefix\_len | Indicates the prefix length of the IPv6 address. This parameter is optional. The value is an integer. |

#### Examples

The following describes how to set the mode for obtaining the IPv6 address to **Static**.

Write the following script.

ibmc\_ethernet\_ipv6 'set' do   
 origin 'Static'   
 action :set   
end

The parameters are described as follows:

* **origin**: indicates the mode for obtaining the IPv6 address. For details about the value range, see 5.2.9.1 Attribute Description.
* **action**: sets the IPv6 network. The value is **set**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Setting an IP Version

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| set | Sets an IP version. | version | Indicates the IP protocol. This parameter is mandatory. Optional values are as follows:   * IPv4AndIPv6 * IPv4 * IPv6 |

#### Examples

The following describes how to set the IP protocol version to **IPv4AndIPv6**.

Write the following script.

ibmc\_ethernet\_ipversion 'set' do   
 version 'IPv4AndIPv6'   
 action :set   
end

The parameters are described as follows:

* **version**: indicates an IP protocol. For details, see 5.2.10.1 Attribute Description.
* **action**: sets an IP protocol version. The value is **set**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Configuring a VLAN

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| set | Configures a VLAN. | enabled | Indicates the VLAN enabling status. This parameter is optional.   * true * false |
| id | Indicates the VLAN ID. This parameter is optional. The value is an integer.  The value ranges from 1 to 4094.  NOTE  If the VLAN is disabled (**enabled** is set to **false**), you do not need to set the ID. |

#### Examples

Write the following script.

ibmc\_ethernet\_vlan 'set' do   
 enabled true   
 id 1111   
 action :set   
end

The parameters are described as follows:

* **enabled**: indicates the VLAN enabling status. For details, see 5.2.11.1 Attribute Description.
* **id**: indicates the VLAN ID. For details, see 5.2.11.1 Attribute Description.
* **action**: configures a VLAN. The value is **set**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Querying iBMC Network Port Information

Write the following script.

ibmc\_ethernet 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries iBMC network port information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T10:32:55-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T10:32:55-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T10:32:55-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T10:32:55-04:00] INFO: Chef-client pid: 23273   
[2019-07-19T10:32:55-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T10:33:08-04:00] WARN: Run List override has been provided.   
[2019-07-19T10:33:08-04:00] WARN: Original Run List: []   
[2019-07-19T10:33:08-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T10:33:08-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T10:33:08-04:00] INFO: Run List expands to [starter]   
[2019-07-19T10:33:08-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T10:33:08-04:00] INFO: Running start handlers   
[2019-07-19T10:33:08-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T10:33:08-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T10:33:08-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T10:33:08-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_ethernet[get] action get[2019-07-19T10:33:09-04:00] INFO: Processing ibmc\_ethernet[get] action get (starter::default line 9)   
[2019-07-19T10:33:12-04:00] INFO:   
[172.171.100.3]   
[DNS]   
   
HostName : 2102311TXHN0J7000356   
FQDN : 2102311TXHN0J7000356.   
DNSAddressOrigin : Static   
PreferredServer :   
AlternateServer :   
   
[VLAN]   
VLANEnable : False   
VLANId : 0   
   
[IP]   
   
IPVersion : IPv4AndIPv6   
PermanentMACAddress : dc:99:14:c8:fe:78   
IPv6DefaultGateway : 2017:171::1   
   
[IPv4Addresses]   
----------------------------------------   
SubnetMask : 255.255.0.0   
AddressOrigin : Static   
Gateway : 172.171.0.1   
Address : 172.171.100.3   
----------------------------------------   
   
[IPv6Addresses]   
----------------------------------------   
AddressOrigin : Static   
PrefixLength : 64   
Address : 2017:171::1:15   
----------------------------------------   
AddressOrigin : LinkLocal   
PrefixLength : 64   
Address : fe80::de99:14ff:fec8:fe78   
----------------------------------------   
AddressOrigin : SLAAC   
PrefixLength : 64   
Address : 2017:171::de99:14ff:fec8:fe78   
----------------------------------------   
AddressOrigin : SLAAC   
PrefixLength : 64   
Address : 2017:180::de99:14ff:fec8:fe78   
----------------------------------------   
   
NetworkPortMode : Fixed   
   
[ManagementNetworkPort]   
PortNumber : 1   
Type : Dedicated   
   
[ManagementNetworkPort@AllowableValues]   
----------------------------------------   
PortNumber : 1   
Type : Dedicated   
LinkStatus : Connected   
----------------------------------------   
PortNumber : 1   
Type : LOM   
LinkStatus : Disconnected   
----------------------------------------   
PortNumber : 2   
Type : LOM   
LinkStatus : Disconnected   
----------------------------------------   
PortNumber : 3   
Type : LOM   
LinkStatus : Disconnected   
----------------------------------------   
PortNumber : 4   
Type : LOM   
LinkStatus : Connected   
----------------------------------------   
   
[AdaptivePort]   
   
   
[2019-07-19T10:33:12-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T10:33:12-04:00] INFO: Chef Run complete in 4.042535205 seconds   
[2019-07-19T10:33:12-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T10:33:12-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T10:33:12-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 17 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| DNS: | |
| HostName | iBMC host name |
| FQDN | Fully qualified domain name (FQDN) of iBMC |
| DNSAddressOrigin | Mode for obtaining DNS information:   * Static * IPv4 * IPv6 |
| PreferredServer | IP address of the preferred DNS server |
| AlternateServer | IP address of the alternate DNS server |
| VLAN: | |
| VLANEnable | VLAN enabling status:   * true * false |
| VLANId | VLAN ID |
| IP: | |
| IPVersion | IP protocol version |
| PermanentMACAddress | Permanent MAC address of an iBMC network port |
| IPv6DefaultGateway | IPv6 gateway address |
| IPv4Addresses (IPv4 information of an iBMC network port): | |
| SubnetMask | Subnet mask of the IPv4 address |
| AddressOrigin | Mode for obtaining the IPv4 address:   * Static * DHCP * SLAAC * LinkLocal |
| Gateway | IPv4 gateway address |
| Address | IPv4 address |
| IPv6Addresses (IPv6 information of an iBMC network port): | |
| AddressOrigin | Mode for obtaining the IPv6 address:   * **Static** * **DHCP** * **SLAAC** * LinkLocal |
| PrefixLength | Prefix length of an IPv6 address |
| Address | IPv6 address |
| NetworkPortMode | Network port mode |
| ManagementNetworkPort (management network port information): | |
| PortNumber | Silkscreen number |
| Type | Network port type |
| ManagementNetworkPort@AllowableValues (information about all available iBMC network ports): | |
| PortNumber | Silkscreen number |
| Type | Network port type |
| LinkStatus | Network port link status:   * Connected * Disconnected |
| AdaptivePort (Self-adaptation information of each network port) | |

----End

### Managing the NTP Service

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| get | Queries the NTP service information. | - | - |
| set | Sets the NTP service. | ntp\_addr\_origin | Indicates the NTP mode. This parameter is mandatory. Optional values are as follows:   * Static * IPv4 * IPv6 |
| service\_enabled | Indicates the NTP service enabling status. This parameter is optional.   * true * false |
| pre\_ntp\_server | Indicates the address of the preferred NTP server. This parameter is optional. |
| alt\_ntp\_server | Indicates the address of the alternate NTP server. This parameter is optional. |
| min\_polling\_interval | Indicates the minimum polling interval. This parameter is optional. The value ranges from 3 to 17. |
| max\_polling\_interval | Indicates the maximum polling interval. This parameter is optional. The value ranges from 3 to 17. |
| server\_auth\_enabled | Indicates the server authentication enabling status. This parameter is optional.   * true * false |

#### Examples

##### Queries the NTP Service Information

Write the following script.

ibmc\_ntp 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the NTP service information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-20T07:54:29-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-20T07:54:29-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-20T07:54:29-04:00] INFO: Platform: x86\_64-linux   
[2019-07-20T07:54:29-04:00] INFO: Chef-client pid: 12090   
[2019-07-20T07:54:29-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-20T07:54:43-04:00] WARN: Run List override has been provided.   
[2019-07-20T07:54:43-04:00] WARN: Original Run List: []   
[2019-07-20T07:54:43-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-20T07:54:43-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-20T07:54:43-04:00] INFO: Run List expands to [starter]   
[2019-07-20T07:54:43-04:00] INFO: Starting Chef Run for admin   
[2019-07-20T07:54:43-04:00] INFO: Running start handlers   
[2019-07-20T07:54:43-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-20T07:54:43-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-20T07:54:43-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-20T07:54:43-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_ntp[get] action get[2019-07-20T07:54:43-04:00] INFO: Processing ibmc\_ntp[get] action get (starter::default line 9)   
[2019-07-20T07:54:46-04:00] INFO:   
[172.171.100.7]   
ServiceEnabled : True   
PreferredNtpServer : 172.171.208.7   
AlternateNtpServer :   
NtpAddressOrigin : Static   
ServerAuthenticationEnabled : True   
MinPollingInterval : 3   
MaxPollingInterval : 6   
   
   
[2019-07-20T07:54:46-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-20T07:54:46-04:00] INFO: Chef Run complete in 3.409889662 seconds   
[2019-07-20T07:54:46-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-20T07:54:46-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-20T07:54:46-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 16 seconds

For details about the output items, see 5.2.13.1 Attribute Description.

----End

##### Setting the NTP Service

Write the following script.

ibmc\_ntp 'set' do   
 ntp\_addr\_origin 'Static'   
 service\_enabled true   
 pre\_ntp\_server '10.1.1.3'   
 min\_polling\_interval 6   
 max\_polling\_interval 10   
 server\_auth\_enabled true   
 action :set   
end

The parameters are described as follows:

* **action**: sets the NTP service. The value is **set**.
* For more information about other parameters, see Table 5-13.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Managing the Boot Configuration

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| get | Queries the boot configuration. | - | - |
| set\_order | Sets the boot sequence. | seq | Indicates the boot sequence. This parameter is mandatory. Optional values are as follows:  Any sequence of the four values **['Pxe','Hdd','Cd','Others']** |
| set\_override | Sets the boot parameter of a system resource. | target | Indicates the current boot device of the system. This parameter is mandatory.   * None * Pxe * Floppy * Cd * Hdd * BiosSetup |
| enabled | Indicates the enabling status of system boot parameter. This parameter is mandatory. Optional 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. |
| mode | Indicates the boot mode. This parameter is mandatory. Optional values are as follows:   * Legacy * UEFI |

#### Examples

##### Querying the Boot Configuration

Write the following script.

ibmc\_boot 'get boot info' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the boot configuration. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-20T07:59:50-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-20T07:59:50-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-20T07:59:50-04:00] INFO: Platform: x86\_64-linux   
[2019-07-20T07:59:50-04:00] INFO: Chef-client pid: 25560   
[2019-07-20T07:59:50-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-20T08:00:04-04:00] WARN: Run List override has been provided.   
[2019-07-20T08:00:04-04:00] WARN: Original Run List: []   
[2019-07-20T08:00:04-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-20T08:00:04-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-20T08:00:04-04:00] INFO: Run List expands to [starter]   
[2019-07-20T08:00:04-04:00] INFO: Starting Chef Run for admin   
[2019-07-20T08:00:04-04:00] INFO: Running start handlers   
[2019-07-20T08:00:04-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-20T08:00:04-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-20T08:00:04-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-20T08:00:04-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_boot[get boot info] action get[2019-07-20T08:00:04-04:00] INFO: Processing ibmc\_boot[get boot info] action get (starter::default line 9)   
[2019-07-20T08:00:08-04:00] INFO:   
[172.171.100.7]   
BootSourceOverrideTarget :Hdd   
BootSourceOverrideEnabled :Once   
BootSourceOverrideMode :UEFI   
BootModeConfigOverIpmiEnabled :True   
BootupSequence :Hdd,Cd,Pxe,Others   
   
   
[2019-07-20T08:00:08-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-20T08:00:08-04:00] INFO: Chef Run complete in 4.308135459 seconds   
[2019-07-20T08:00:08-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-20T08:00:08-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-20T08:00:08-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 17 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| BootSourceOverrideTarget | For details, see 5.2.14.1 Attribute Description. |
| BootSourceOverrideEnabled |
| BootSourceOverrideMode |
| BootupSequence |
| BootModeConfigOverIpmiEnabled | Enabling status of boot mode switching over IPMI   * True * False |

----End

##### Setting the Boot Sequence

The following describes how to set the boot sequence to **['Cd', 'Pxe', 'Hdd', 'Others']**.

Write the following script.

ibmc\_boot 'set boot order' do   
 seq ['Cd', 'Pxe', 'Hdd', 'Others']   
 action :set\_order   
end

The parameters are described as follows:

**action**: sets the boot sequence. The value is **set\_order**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

##### Setting the System Resource Boot Parameter

Write the following script.

ibmc\_os\_boot 'set\_override' do   
 target 'BiosSetup'   
 enabled 'Once'   
 mode 'UEFI'   
 action :set\_override   
end

The parameters are described as follows:

**action**: sets the boot parameter of a system resource. The value is **set\_override**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Querying CPU Information

Write the following script.

ibmc\_cpu 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries CPU information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T11:01:13-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T11:01:13-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T11:01:13-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T11:01:13-04:00] INFO: Chef-client pid: 28847   
[2019-07-19T11:01:13-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T11:01:27-04:00] WARN: Run List override has been provided.   
[2019-07-19T11:01:27-04:00] WARN: Original Run List: []   
[2019-07-19T11:01:27-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T11:01:27-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T11:01:27-04:00] INFO: Run List expands to [starter]   
[2019-07-19T11:01:27-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T11:01:27-04:00] INFO: Running start handlers   
[2019-07-19T11:01:27-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T11:01:27-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T11:01:27-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T11:01:27-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_cpu[get] action get[2019-07-19T11:01:27-04:00] INFO: Processing ibmc\_cpu[get] action get (starter::default line 9)   
[2019-07-19T11:01:32-04:00] INFO:   
[172.171.100.3]   
--------------------------------------------------   
Count : 2   
Model : Central Processor   
   
[Summary]   
HealthRollup : OK   
--------------------------------------------------   
Id : 1   
Name : CPU1   
Position : mainboard   
L2CacheKiB : 8192   
L3CacheKiB : 11264   
SerialNumber : 287AB83FF1EE6469   
Temperature : 34   
L1CacheKiB : 512   
EnabledSetting : True   
FrequencyMHz : 2100   
OtherParameters : 64-bit Capable| Multi-Core| Hardware Thread| Execute Protection| Enhanced Virtualization| Power/Performance Control   
PartNumber : 41020679   
DeviceLocator : CPU1   
ProcessorType : CPU   
ProcessorArchitecture : x86   
InstructionSet : x86-64   
Manufacturer : Intel(R) Corporation   
Model : Intel(R) Xeon(R) Silver 4110 CPU @ 2.10GHz   
MaxSpeedMHz : 4000   
TotalCores : 8   
TotalThreads : 16   
Socket : 0   
   
[Status]   
Health : OK   
State : Enabled   
   
[ProcessorId]   
IdentificationRegisters : 54-06-05-00-FF-FB-EB-BF   
--------------------------------------------------   
Id : 2   
Name : CPU2   
Position : mainboard   
L2CacheKiB : 8192   
L3CacheKiB : 11264   
SerialNumber : 2881B76E9C65196F   
Temperature : 34   
L1CacheKiB : 512   
EnabledSetting : True   
FrequencyMHz : 2100   
OtherParameters : 64-bit Capable| Multi-Core| Hardware Thread| Execute Protection| Enhanced Virtualization| Power/Performance Control   
PartNumber : 41020679   
DeviceLocator : CPU2   
ProcessorType : CPU   
ProcessorArchitecture : x86   
InstructionSet : x86-64   
Manufacturer : Intel(R) Corporation   
Model : Intel(R) Xeon(R) Silver 4110 CPU @ 2.10GHz   
MaxSpeedMHz : 4000   
TotalCores : 8   
TotalThreads : 16   
Socket : 1   
   
[Status]   
Health : OK   
State : Enabled   
   
[ProcessorId]   
IdentificationRegisters : 54-06-05-00-FF-FB-EB-BF   
--------------------------------------------------   
   
   
[2019-07-19T11:01:32-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T11:01:32-04:00] INFO: Chef Run complete in 4.536411833 seconds   
[2019-07-19T11:01:32-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T11:01:32-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T11:01:32-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 18 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| Count | Number of current CPU resources |
| Model | CPU resource model |
| HealthRollup | Summary CPU resource health status |
| Id | CPU resource ID |
| Name | CPU resource name |
| Position | CPU resource position |
| L2CacheKiB | L2 cache of the CPU resource |
| L3CacheKiB | L3 cache of the CPU resource |
| SerialNumber | CPU resource serial number (SN) |
| Temperature | CPU resource temperature |
| L1CacheKiB | L1 cache of the CPU resource |
| EnabledSetting | CPU resource enabling status |
| FrequencyMHz | CPU resource frequency |
| OtherParameters | Other parameters |
| PartNumber | CPU resource part number |
| DeviceLocator | CPU resource silkscreen |
| ProcessorType | CPU resource type |
| ProcessorArchitecture | CPU resource architecture |
| InstructionSet | CPU resource instruction set |
| Manufacturer | CPU resource manufacturer |
| Model | CPU resource model |
| MaxSpeedMHz | Maximum CPU resource frequency |
| TotalCores | Total number of the CPU resource cores |
| TotalThreads | Total number of the CPU resource threads |
| Socket | CPU resource socket number |
| Status | CPU resource status, including:   * **State**: whether a CPU is isolated * **CPU**: CPU health status |
| IdentificationRegisters | CPU resource SN |

----End

### Querying Drive Information

Write the following script.

ibmc\_drive 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries drive information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T11:03:40-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T11:03:40-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T11:03:40-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T11:03:40-04:00] INFO: Chef-client pid: 2558   
[2019-07-19T11:03:40-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T11:03:53-04:00] WARN: Run List override has been provided.   
[2019-07-19T11:03:53-04:00] WARN: Original Run List: []   
[2019-07-19T11:03:53-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T11:03:53-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T11:03:53-04:00] INFO: Run List expands to [starter]   
[2019-07-19T11:03:53-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T11:03:53-04:00] INFO: Running start handlers   
[2019-07-19T11:03:53-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T11:03:53-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T11:03:53-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T11:03:53-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_drive[get] action get[2019-07-19T11:03:54-04:00] INFO: Processing ibmc\_drive[get] action get (starter::default line 9)   
[2019-07-19T11:04:02-04:00] INFO:   
[172.171.100.3]   
--------------------------------------------------   
Id : 0   
Name : Disk0   
Position : HDDPlane   
   
[Status]   
Health : OK   
State : Enabled   
   
Manufacturer : SEAGATE   
Model : ST1000NX0423   
Protocol : SATA   
FailurePredicted : False   
CapacityBytes : 998999326720   
HotspareType : None   
IndicatorLED : Off   
PredictedMediaLifeLeftPercent : None   
MediaType : HDD   
SerialNumber : W471SYTA   
CapableSpeedGbs : 6   
NegotiatedSpeedGbs : 6   
Revision : TN04   
StatusIndicator : OK   
TemperatureCelsius : 32   
BDF : None   
PowerState : Spun Up   
HoursOfPoweredUp : 4320   
FirmwareStatus : Online   
SASAddress : 3602e20980b06001,0000000000000000   
PatrolState : DoneOrNotPatrolled   
RebuildState : DoneOrNotRebuilt   
RebuildProgress : None   
Type : Disk   
SpareforLogicalDrives : None   
Volumes : RAIDStorage0-LogicalDrive0   
SASSmartInformation : None   
SATASmartInformation   
 AttributeRevision : None   
 AttributeRevisionNumber : None   
 AttributeItemList : None   
--------------------------------------------------   
Id : 1   
Name : Disk1   
Position : HDDPlane   
   
[Status]   
Health : OK   
State : Enabled   
   
Manufacturer : SEAGATE   
Model : ST1000NX0423   
Protocol : SATA   
FailurePredicted : False   
CapacityBytes : 998999326720   
HotspareType : None   
IndicatorLED : Off   
PredictedMediaLifeLeftPercent : None   
MediaType : HDD   
SerialNumber : W471SYP3   
CapableSpeedGbs : 6   
NegotiatedSpeedGbs : 6   
Revision : TN04   
StatusIndicator : OK   
TemperatureCelsius : 33   
BDF : None   
PowerState : Spun Up   
HoursOfPoweredUp : 4320   
FirmwareStatus : Online   
SASAddress : 3602e20980b06003,0000000000000000   
PatrolState : DoneOrNotPatrolled   
RebuildState : DoneOrNotRebuilt   
RebuildProgress : None   
Type : Disk   
SpareforLogicalDrives : None   
Volumes : RAIDStorage0-LogicalDrive0   
SASSmartInformation : None   
SATASmartInformation   
 AttributeRevision : None   
 AttributeRevisionNumber : None   
 AttributeItemList : None   
--------------------------------------------------   
Id : 2   
Name : Disk2   
Position : HDDPlane   
   
[Status]   
Health : OK   
State : Enabled   
   
Manufacturer : SEAGATE   
Model : ST1000NX0423   
Protocol : SATA   
FailurePredicted : False   
CapacityBytes : 998999326720   
HotspareType : None   
IndicatorLED : Off   
PredictedMediaLifeLeftPercent : None   
MediaType : HDD   
SerialNumber : W471SYQV   
CapableSpeedGbs : 6   
NegotiatedSpeedGbs : 6   
Revision : TN04   
StatusIndicator : OK   
TemperatureCelsius : 35   
BDF : None   
PowerState : Spun Down   
HoursOfPoweredUp : 4288   
FirmwareStatus : UnconfiguredGood   
SASAddress : 3602e20980b06005,0000000000000000   
PatrolState : DoneOrNotPatrolled   
RebuildState : DoneOrNotRebuilt   
RebuildProgress : None   
Type : Disk   
SpareforLogicalDrives : None   
Volumes : None   
SASSmartInformation : None   
SATASmartInformation   
 AttributeRevision : None   
 AttributeRevisionNumber : None   
 AttributeItemList : None   
--------------------------------------------------   
Id : 3   
Name : Disk3   
Position : HDDPlane   
   
[Status]   
Health : OK   
State : Enabled   
   
Manufacturer : SEAGATE   
Model : ST1000NX0423   
Protocol : SATA   
FailurePredicted : False   
CapacityBytes : 998999326720   
HotspareType : None   
IndicatorLED : Off   
PredictedMediaLifeLeftPercent : None   
MediaType : HDD   
SerialNumber : W471LN5T   
CapableSpeedGbs : 6   
NegotiatedSpeedGbs : 6   
Revision : TN04   
StatusIndicator : OK   
TemperatureCelsius : 36   
BDF : None   
PowerState : Spun Down   
HoursOfPoweredUp : 4288   
FirmwareStatus : UnconfiguredGood   
SASAddress : 3602e20980b06007,0000000000000000   
PatrolState : DoneOrNotPatrolled   
RebuildState : DoneOrNotRebuilt   
RebuildProgress : None   
Type : Disk   
SpareforLogicalDrives : None   
Volumes : None   
SASSmartInformation : None   
SATASmartInformation   
 AttributeRevision : None   
 AttributeRevisionNumber : None   
 AttributeItemList : None   
--------------------------------------------------   
Id : 4   
Name : Disk4   
Position : HDDPlane   
   
[Status]   
Health : OK   
State : Enabled   
   
Manufacturer : SEAGATE   
Model : ST1000NX0423   
Protocol : SATA   
FailurePredicted : False   
CapacityBytes : 998999326720   
HotspareType : None   
IndicatorLED : Off   
PredictedMediaLifeLeftPercent : None   
MediaType : HDD   
SerialNumber : W471SY2D   
CapableSpeedGbs : 6   
NegotiatedSpeedGbs : 6   
Revision : TN04   
StatusIndicator : OK   
TemperatureCelsius : 36   
BDF : None   
PowerState : Spun Down   
HoursOfPoweredUp : 4067   
FirmwareStatus : UnconfiguredGood   
SASAddress : 3602e20980b06000,0000000000000000   
PatrolState : DoneOrNotPatrolled   
RebuildState : DoneOrNotRebuilt   
RebuildProgress : None   
Type : Disk   
SpareforLogicalDrives : None   
Volumes : None   
SASSmartInformation : None   
SATASmartInformation   
 AttributeRevision : None   
 AttributeRevisionNumber : None   
 AttributeItemList : None   
--------------------------------------------------   
Id : 5   
Name : Disk5   
Position : HDDPlane   
   
[Status]   
Health : OK   
State : Enabled   
   
Manufacturer : SEAGATE   
Model : ST1000NX0423   
Protocol : SATA   
FailurePredicted : False   
CapacityBytes : 998999326720   
HotspareType : None   
IndicatorLED : Off   
PredictedMediaLifeLeftPercent : None   
MediaType : HDD   
SerialNumber : W471LMR6   
CapableSpeedGbs : 6   
NegotiatedSpeedGbs : 6   
Revision : TN04   
StatusIndicator : OK   
TemperatureCelsius : 36   
BDF : None   
PowerState : Spun Down   
HoursOfPoweredUp : 4067   
FirmwareStatus : UnconfiguredGood   
SASAddress : 3602e20980b06002,0000000000000000   
PatrolState : DoneOrNotPatrolled   
RebuildState : DoneOrNotRebuilt   
RebuildProgress : None   
Type : Disk   
SpareforLogicalDrives : None   
Volumes : None   
SASSmartInformation : None   
SATASmartInformation   
 AttributeRevision : None   
 AttributeRevisionNumber : None   
 AttributeItemList : None   
--------------------------------------------------   
Id : 6   
Name : Disk6   
Position : HDDPlane   
   
[Status]   
Health : OK   
State : Enabled   
   
Manufacturer : SEAGATE   
Model : ST1000NX0423   
Protocol : SATA   
FailurePredicted : False   
CapacityBytes : 998999326720   
HotspareType : None   
IndicatorLED : Off   
PredictedMediaLifeLeftPercent : None   
MediaType : HDD   
SerialNumber : W471SZJQ   
CapableSpeedGbs : 6   
NegotiatedSpeedGbs : 6   
Revision : TN04   
StatusIndicator : OK   
TemperatureCelsius : 36   
BDF : None   
PowerState : Spun Down   
HoursOfPoweredUp : 4067   
FirmwareStatus : UnconfiguredGood   
SASAddress : 3602e20980b06004,0000000000000000   
PatrolState : DoneOrNotPatrolled   
RebuildState : DoneOrNotRebuilt   
RebuildProgress : None   
Type : Disk   
SpareforLogicalDrives : None   
Volumes : None   
SASSmartInformation : None   
SATASmartInformation   
 AttributeRevision : None   
 AttributeRevisionNumber : None   
 AttributeItemList : None   
--------------------------------------------------   
Id : 7   
Name : Disk7   
Position : HDDPlane   
   
[Status]   
Health : OK   
State : Enabled   
   
Manufacturer : SEAGATE   
Model : ST1000NX0423   
Protocol : SATA   
FailurePredicted : False   
CapacityBytes : 998999326720   
HotspareType : None   
IndicatorLED : Off   
PredictedMediaLifeLeftPercent : None   
MediaType : HDD   
SerialNumber : W471Q24V   
CapableSpeedGbs : 6   
NegotiatedSpeedGbs : 6   
Revision : TN04   
StatusIndicator : OK   
TemperatureCelsius : 36   
BDF : None   
PowerState : Spun Down   
HoursOfPoweredUp : 4067   
FirmwareStatus : UnconfiguredGood   
SASAddress : 3602e20980b06006,0000000000000000   
PatrolState : DoneOrNotPatrolled   
RebuildState : DoneOrNotRebuilt   
RebuildProgress : None   
Type : Disk   
SpareforLogicalDrives : None   
Volumes : None   
SASSmartInformation : None   
SATASmartInformation   
 AttributeRevision : None   
 AttributeRevisionNumber : None   
 AttributeItemList : None   
--------------------------------------------------   
   
   
[2019-07-19T11:04:02-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T11:04:02-04:00] INFO: Chef Run complete in 8.605990625 seconds   
[2019-07-19T11:04:02-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T11:04:02-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T11:04:02-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 22 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| Id | Drive ID |
| Name | Drive name |
| Position | Drive position |
| Status | Drive status, including:   * **State**: whether a drive is isolated * **Health**: drive health status |
| Manufacturer | Drive manufacturer |
| Model | Drive model |
| Protocol | Protocol used by the drive |
| FailurePredicted | Whether a drive predictive failure is detected:   * true * false |
| CapacityBytes | Drive capacity (byte) |
| HotspareType | Drive hot spare status |
| IndicatorLED | Drive location indicator status |
| PredictedMediaLifeLeftPercent | Remaining drive service life (%) |
| MediaType | Drive medium type |
| SerialNumber | Drive SN |
| CapableSpeedGbs | Maximum transmission rate of a drive port |
| NegotiatedSpeedGbs | Negotiated rate of a drive port |
| Revision | Drive version information |
| StatusIndicator | Drive indicator status |
| TemperatureCelsius | Current drive temperature |
| BDF | Drive BDF |
| PowerState | Drive power supply status |
| HoursOfPoweredUp | Drive running duration during power-on |
| FirmwareStatus | Drive firmware status |
| SASAddress | Drive SAS address |
| PatrolState | Drive patrol status |
| RebuildState | Drive data rebuild status |
| RebuildProgress | Drive data rebuild progress |
| Type | Drive type |
| SpareforLogicalDrives | List of logical drives to which a dedicated hot spare drive belongs |
| Volumes | List of logical drives |
| SASSmartInformation | SMART information of the SAS interface |
| SATASmartInformation (SMART information of the SATA interface) | |
| AttributeRevision | SMART attribute version number |
| AttributeRevisionNumber | Number of SMART attributes |
| AttributeItemList | List of SMART attributes |

----End

### Querying the MAC Address and Network Port Information

Write the following script.

ibmc\_os\_eth 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the MAC address and network port information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T11:06:02-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T11:06:02-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T11:06:02-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T11:06:02-04:00] INFO: Chef-client pid: 9166   
[2019-07-19T11:06:02-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T11:06:18-04:00] WARN: Run List override has been provided.   
[2019-07-19T11:06:18-04:00] WARN: Original Run List: []   
[2019-07-19T11:06:18-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T11:06:18-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T11:06:18-04:00] INFO: Run List expands to [starter]   
[2019-07-19T11:06:18-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T11:06:18-04:00] INFO: Running start handlers   
[2019-07-19T11:06:18-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T11:06:18-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T11:06:18-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T11:06:18-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_os\_eth[get] action get[2019-07-19T11:06:18-04:00] INFO: Processing ibmc\_os\_eth[get] action get (starter::default line 9)   
[2019-07-19T11:06:24-04:00] INFO:   
[172.171.100.3]   
Id : mainboardLOMPort1   
MACAddress : DC:99:14:C8:FE:7B   
PermanentMACAddress : DC:99:14:C8:FE:7B   
LinkStatus : NoLink   
   
[IPv4Addresses]   
   
[IPv6Addresses]   
   
[VLANs]   
----------------------------------------   
Id : mainboardLOMPort2   
MACAddress : DC:99:14:C8:FE:7C   
PermanentMACAddress : DC:99:14:C8:FE:7C   
LinkStatus : NoLink   
   
[IPv4Addresses]   
   
[IPv6Addresses]   
   
[VLANs]   
----------------------------------------   
Id : mainboardLOMPort3   
MACAddress : DC:99:14:C8:FE:7D   
PermanentMACAddress : DC:99:14:C8:FE:7D   
LinkStatus : NoLink   
   
[IPv4Addresses]   
   
[IPv6Addresses]   
   
[VLANs]   
----------------------------------------   
Id : mainboardLOMPort4   
MACAddress : DC:99:14:C8:FE:7E   
PermanentMACAddress : DC:99:14:C8:FE:7E   
LinkStatus : None   
   
[IPv4Addresses]   
   
[IPv6Addresses]   
   
[VLANs]   
----------------------------------------   
   
   
[2019-07-19T11:06:24-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T11:06:24-04:00] INFO: Chef Run complete in 6.167806446 seconds   
[2019-07-19T11:06:24-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T11:06:24-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T11:06:24-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 21 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| Id | Network port ID |
| MACAddress | MAC address of a network port |
| PermanentMACAddress | Permanent MAC address of a network port |
| LinkStatus | Network port link status |
| IPv4Addresses | IPv4 address |
| IPv6Addresses | IPv6 address |
| VLANs | Access path of a VLANs resource node |

----End

### Querying Memory Information

Write the following script.

ibmc\_memory 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries memory information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-19T11:08:53-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-19T11:08:53-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-19T11:08:53-04:00] INFO: Platform: x86\_64-linux   
[2019-07-19T11:08:53-04:00] INFO: Chef-client pid: 16224   
[2019-07-19T11:08:53-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-19T11:09:06-04:00] WARN: Run List override has been provided.   
[2019-07-19T11:09:06-04:00] WARN: Original Run List: []   
[2019-07-19T11:09:06-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-19T11:09:06-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-19T11:09:06-04:00] INFO: Run List expands to [starter]   
[2019-07-19T11:09:06-04:00] INFO: Starting Chef Run for admin   
[2019-07-19T11:09:06-04:00] INFO: Running start handlers   
[2019-07-19T11:09:06-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-19T11:09:07-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-19T11:09:07-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-19T11:09:07-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_memory[get] action get[2019-07-19T11:09:07-04:00] INFO: Processing ibmc\_memory[get] action get (starter::default line 9)   
[2019-07-19T11:09:12-04:00] INFO:   
[172.171.100.3]   
--------------------------------------------------   
TotalSystemMemoryGiB : 32   
   
[Summary]   
HealthRollup : OK   
--------------------------------------------------   
DeviceLocator : DIMM000   
CapacityMiB : 8192   
Manufacturer : Hynix   
OperatingSpeedMhz : 2666   
SerialNumber : 925676EC   
MemoryDeviceType : DDR4   
DataWidthBits : 72   
RankCount : 1   
PartNumber : None   
MediumTemperatureCelsius : 0   
MinVoltageMillivolt : 1200   
RemainingServiceLifePercent: None   
ControllerTemperatureCelsius: 0   
Position : mainboard   
Technology : Synchronous| Registered (Buffered)   
   
[MemoryLocation]   
Socket : 0   
Controller : 0   
Channel : 0   
Slot : 0   
   
[Status]   
State : Enabled   
Health : OK   
--------------------------------------------------   
DeviceLocator : DIMM010   
CapacityMiB : 8192   
Manufacturer : Hynix   
OperatingSpeedMhz : 2666   
SerialNumber : 92567672   
MemoryDeviceType : DDR4   
DataWidthBits : 72   
RankCount : 1   
PartNumber : None   
MediumTemperatureCelsius : 0   
MinVoltageMillivolt : 1200   
RemainingServiceLifePercent: None   
ControllerTemperatureCelsius: 0   
Position : mainboard   
Technology : Synchronous| Registered (Buffered)   
   
[MemoryLocation]   
Socket : 0   
Controller : 0   
Channel : 1   
Slot : 0   
   
[Status]   
State : Enabled   
Health : OK   
--------------------------------------------------   
DeviceLocator : DIMM100   
CapacityMiB : 8192   
Manufacturer : Hynix   
OperatingSpeedMhz : 2666   
SerialNumber : 9256764D   
MemoryDeviceType : DDR4   
DataWidthBits : 72   
RankCount : 1   
PartNumber : None   
MediumTemperatureCelsius : 0   
MinVoltageMillivolt : 1200   
RemainingServiceLifePercent: None   
ControllerTemperatureCelsius: 0   
Position : mainboard   
Technology : Synchronous| Registered (Buffered)   
   
[MemoryLocation]   
Socket : 1   
Controller : 1   
Channel : 0   
Slot : 0   
   
[Status]   
State : Enabled   
Health : OK   
--------------------------------------------------   
DeviceLocator : DIMM110   
CapacityMiB : 8192   
Manufacturer : Hynix   
OperatingSpeedMhz : 2666   
SerialNumber : 925675AC   
MemoryDeviceType : DDR4   
DataWidthBits : 72   
RankCount : 1   
PartNumber : None   
MediumTemperatureCelsius : 0   
MinVoltageMillivolt : 1200   
RemainingServiceLifePercent: None   
ControllerTemperatureCelsius: 0   
Position : mainboard   
Technology : Synchronous| Registered (Buffered)   
   
[MemoryLocation]   
Socket : 1   
Controller : 1   
Channel : 1   
Slot : 0   
   
[Status]   
State : Enabled   
Health : OK   
--------------------------------------------------   
   
   
[2019-07-19T11:09:12-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-19T11:09:12-04:00] INFO: Chef Run complete in 6.118070832 seconds   
[2019-07-19T11:09:12-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-19T11:09:12-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-19T11:09:12-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 19 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| TotalSystemMemoryGiB | Total memory capacity (GB) |
| HealthRollup | Summary memory health status |
| DeviceLocator | Memory silkscreen |
| CapacityMiB | Memory capacity (MB) |
| Manufacturer | Memory manufacturer |
| OperatingSpeedMhz | Memory speed |
| SerialNumber | Memory SN |
| MemoryDeviceType | Memory type |
| DataWidthBits | Memory bandwidth |
| RankCount | Number of ranks of the memory |
| PartNumber | Memory part number |
| MediumTemperatureCelsius | Memory medium temperature |
| MinVoltageMillivolt | Minimum memory voltage |
| RemainingServiceLifePercent | Remaining memory service life |
| ControllerTemperatureCelsius | Memory controller temperature |
| Position | Memory position |
| Technology | Memory technology |
| MemoryLocation (memory position information): | |
| Socket | Socket of the CPU connected to the memory |
| Controller | Memory controller number |
| Channel | Memory channel number |
| Slot | Memory slot number |
| Status (memory status): | |
| State | Memory enabling status |
| Health | Memory health status |

----End

### Controlling the System Power

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| set | Sets the power type of the system power. | reset\_type | Indicates the power type of the system power. This parameter is mandatory. Optional values are as follows:   * **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 |

#### Examples

The following describes how to set the power type to **On**.

Write the following script.

ibmc\_sys\_power 'set' do   
 reset\_type 'ForceRestart'   
 action :set   
end

The parameters are described as follows:

* **reset\_type**: indicates the power type of the system power. For details, see 5.2.19.1 Attribute Description.
* **action**: sets the power type f the system power. The value is **set**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Managing Product Information

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| get | Queries product information. | - | - |
| set | Sets asset tags. | asset\_tag | Indicates the asset tag name. This parameter is optional. |
| product\_alias | Indicates the product alias. This parameter is optional. |

#### Examples

##### Querying Product Information

Write the following script.

ibmc\_system 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries product information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-20T10:13:14-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-20T10:13:14-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-20T10:13:14-04:00] INFO: Platform: x86\_64-linux   
[2019-07-20T10:13:14-04:00] INFO: Chef-client pid: 2136   
[2019-07-20T10:13:14-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-20T10:13:28-04:00] WARN: Run List override has been provided.   
[2019-07-20T10:13:28-04:00] WARN: Original Run List: []   
[2019-07-20T10:13:28-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-20T10:13:28-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-20T10:13:28-04:00] INFO: Run List expands to [starter]   
[2019-07-20T10:13:28-04:00] INFO: Starting Chef Run for admin   
[2019-07-20T10:13:28-04:00] INFO: Running start handlers   
[2019-07-20T10:13:28-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-20T10:13:28-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-20T10:13:28-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-20T10:13:28-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_system[get] action get[2019-07-20T10:13:28-04:00] INFO: Processing ibmc\_system[get] action get (starter::default line 9)   
[2019-07-20T10:13:34-04:00] INFO:   
[172.171.100.7]   
Name : Computer System   
AssetTag : puppet-test-server   
Manufacturer : Huawei   
Model : 2488 V5   
SerialNumber : 2102312BDU10JA000178   
UUID : 02AB0D57-4857-9D57-E811-92DD90161F12   
HostName : None   
ProductAlias : None   
ProductVersion : V5   
HostingRole : ApplicationServer   
BiosVersion : 1.10   
DeviceOwnerID : 2102312BDU10JA000178   
DeviceSlotID : 0   
PowerState : On   
   
[Status]   
State : Enabled   
Health : Critical   
   
   
[2019-07-20T10:13:34-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-20T10:13:34-04:00] INFO: Chef Run complete in 6.203922024 seconds   
[2019-07-20T10:13:34-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-20T10:13:34-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-20T10:13:34-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 19 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| Name | Product name |
| AssetTag | Asset tag |
| Manufacturer | Product manufacturer |
| Model | Product model |
| SerialNumber | Product SN |
| UUID | Globally Unique Identifier (GUID) of the product |
| HostName | Host name |
| ProductAlias | Product alias |
| ProductVersion | Product version |
| HostingRole | Host role of the system |
| BiosVersion | BIOS version |
| DeviceOwnerID | Device owner ID |
| DeviceSlotID | Device slot ID |
| PowerState | System power supply status |
| Status (status of the entire device): | |
| State | Enabling status of the entire device |
| Health | Health status of the entire device |

----End

##### Setting Asset Tags

Write the following script.

ibmc\_system 'set' do   
 asset\_tag 'chef test'   
 action :set   
end

The parameters are described as follows:

* **asset\_tag**: indicates the asset tag name.
* **action**: sets the asset tag. The value is **set**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Querying RAID Controller Card Information

Write the following script.

ibmc\_raid 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries RAID controller card information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-22T08:01:24-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-22T08:01:24-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-22T08:01:24-04:00] INFO: Platform: x86\_64-linux   
[2019-07-22T08:01:24-04:00] INFO: Chef-client pid: 9301   
[2019-07-22T08:01:24-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-22T08:01:38-04:00] WARN: Run List override has been provided.   
[2019-07-22T08:01:38-04:00] WARN: Original Run List: []   
[2019-07-22T08:01:38-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-22T08:01:38-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-22T08:01:38-04:00] INFO: Run List expands to [starter]   
[2019-07-22T08:01:38-04:00] INFO: Starting Chef Run for admin   
[2019-07-22T08:01:38-04:00] INFO: Running start handlers   
[2019-07-22T08:01:38-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-22T08:01:38-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-22T08:01:38-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-22T08:01:38-04:00] INFO: Storing updated cookbooks/starter/attributes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_raid[get] action get[2019-07-22T08:01:38-04:00] INFO: Processing ibmc\_raid[get] action get (starter::default line 9)   
[2019-07-22T08:01:40-04:00] INFO:   
[172.171.100.10]   
------------------------------------------------------------   
Id : 0   
Name : RAID Card1 Controller   
   
[Status]   
Health : OK   
State : Enabled   
   
SpeedGbps : None   
FirmwareVersion : None   
Manufacturer : None   
Model : None   
SupportedDeviceProtocols : None   
SASAddress : None   
ConfigurationVersion : None   
MaintainPDFailHistory : None   
CopyBackState : None   
SmarterCopyBackState : None   
JBODState : None   
MinStripeSizeBytes : None   
MaxStripeSizeBytes : None   
CapacitanceName : None   
DriverName : None   
DriverVersion : None   
MemorySizeMiB : None   
CachePinnedState : None   
Mode : None   
BDF : 0000:17:02.0   
SupportedRAIDLevels : None   
OOBSupport : False   
Type : LSI SAS3008   
DDRECCCount : None   
   
[CapacitanceStatus] : None   
   
Volumes : None   
Drives : None   
------------------------------------------------------------   
   
   
[2019-07-22T08:01:40-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-22T08:01:40-04:00] INFO: Chef Run complete in 2.648785266 seconds   
[2019-07-22T08:01:40-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-22T08:01:40-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-22T08:01:40-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 16 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| Id | ID of the RAID controller card |
| Name | Name of the RAID controller card |
| Status | RAID controller card status:   * **Health**: RAID controller card health status * **State**: RAID controller card enabling status |
| SpeedGbps | RAID controller card port rate |
| FirmwareVersion | Firmware version of the RAID controller card |
| Manufacturer | Manufacturer of the RAID controller card |
| Model | Model of the RAID controller card |
| SupportedDeviceProtocols | Protocol supported by the RAID controller card |
| SASAddress | SAS address of the RAID controller card |
| ConfigurationVersion | Configuration version of the RAID controller card |
| MaintainPDFailHistory | Enabling status of the fault recording function of the RAID controller card |
| CopyBackState | Enabling status of the copyback function of the RAID controller card |
| SmarterCopyBackState | Enabling status of the SMART error copyback function of the RAID controller card |
| JBODState | Enabling status of the drive pass-through function |
| MinStripeSizeBytes | Minimum stripe size (bytes) |
| MaxStripeSizeBytes | Maximum stripe size (bytes) |
| CapacitanceName | Name of the RAID controller card capacitor |
| DriverName | Name of the RAID controller card drive |
| DriverVersion | Version of the RAID controller card drive |
| MemorySizeMiB | Capacity of the RAID controller card memory |
| CachePinnedState | Enabling status of Cache Pinned |
| Mode | Mode of the RAID controller card drive |
| BDF | BDF of the RAID controller card |
| SupportedRAIDLevels | RAID level supported by the RAID controller card |
| OOBSupport | Whether the out-of-band management is supported for the RAID controller card |
| Type | Type of the RAID controller card |
| DDRECCCount | Number of correctable errors in the memory of the RAID controller card |
| CapacitanceStatus | Capacitor status |
| Volumes | List of logical drives |
| Drives | List of logical drives to which a dedicated hot spare drive belongs |

----End

### Querying NIC Information

Write the following script.

ibmc\_network\_adapter 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries NIC information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-20T10:20:08-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-20T10:20:08-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-20T10:20:08-04:00] INFO: Platform: x86\_64-linux   
[2019-07-20T10:20:08-04:00] INFO: Chef-client pid: 20898   
[2019-07-20T10:20:08-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-20T10:20:21-04:00] WARN: Run List override has been provided.   
[2019-07-20T10:20:21-04:00] WARN: Original Run List: []   
[2019-07-20T10:20:21-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-20T10:20:21-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-20T10:20:21-04:00] INFO: Run List expands to [starter]   
[2019-07-20T10:20:21-04:00] INFO: Starting Chef Run for admin   
[2019-07-20T10:20:21-04:00] INFO: Running start handlers   
[2019-07-20T10:20:21-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-20T10:20:22-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-20T10:20:22-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-20T10:20:22-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_network\_adapter[get] action get[2019-07-20T10:20:22-04:00] INFO: Processing ibmc\_network\_adapter[get] action get (starter::default line 9)   
[2019-07-20T10:20:33-04:00] INFO:   
[172.171.100.7]   
------------------------------------------   
Count : 1   
   
[Summary]   
HealthRollup : OK   
------------------------------------------   
Id : mainboardLOM   
Name : LOM   
Manufacturer : Intel   
Model : X722   
CardManufacturer : Huawei   
CardModel : 2\*(10GE+GE)   
DeviceLocator : LOM   
Position : mainboard   
RootBDF : 0000:34:03.0   
   
[Status]   
Health : OK   
State : Enabled   
   
[Ports]   
------------------------------------------   
Id : 1   
Name : 1   
PhysicalPortNumber : 1   
LinkStatus : Up   
NetworkAddresses : 48:57:02:AB:0D:5A   
PortType : ElectricalPort   
------------------------------------------   
Id : 2   
Name : 2   
PhysicalPortNumber : 2   
LinkStatus : Down   
NetworkAddresses : 48:57:02:AB:0D:5B   
PortType : ElectricalPort   
------------------------------------------   
Id : 3   
Name : 3   
PhysicalPortNumber : 3   
LinkStatus : Down   
NetworkAddresses : 48:57:02:AB:0D:59   
PortType : OpticalPort   
------------------------------------------   
Id : 4   
Name : 4   
PhysicalPortNumber : 4   
LinkStatus : Down   
NetworkAddresses : 48:57:02:AB:0D:58   
PortType : OpticalPort   
------------------------------------------   
   
   
[2019-07-20T10:20:33-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-20T10:20:33-04:00] INFO: Chef Run complete in 11.153879979 seconds   
[2019-07-20T10:20:33-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-20T10:20:33-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-20T10:20:33-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 24 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| Count | Number of current NICs |
| HealthRollup | Summary NIC health status |
| Id | NIC ID |
| Name | NIC name |
| Manufacturer | NIC manufacturer |
| Model | NIC model |
| CardManufacturer | NIC vendor |
| CardModel | NIC model |
| DeviceLocator | NIC silkscreen |
| Position | NIC position |
| RootBDF | Root BDF of the NIC |
| Status (NIC status): | |
| Health | NIC health status |
| State | NIC enabling status |
| Ports (network port information): | |
| Id | Network port ID |
| Name | Network port name |
| PhysicalPortNumber | Network port silkscreen |
| LinkStatus | Network port link status |
| NetworkAddresses | Network address of the network port |
| PortType | Network port type |

----End

### Deploying an OS

This function is supported for only V5 servers.

This function is available only after the iBMC license is imported.

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| install | Deploys an OS. | file | Indicates the path of the configuration file. This parameter is mandatory. The path of the configuration file must be a local path. |

#### Examples

Connect to the mirror **ibmc\_vmm**. For details, see 5.2.32.2.1 Connecting to the Virtual Media.

Create a **.json** file in the local directory and add the following content to the file.

{   
 "InstallMode": "Recommended",   
 "OSType": "ESXi6.5",   
 "BootType": "UEFIBoot",   
 "RootPwd": "Huawei12#$",   
 "HostName": "puppet",   
 "Autopart": true,   
 "AutoPosition": true,   
 "Language": "" ,   
 "TimeZone": "" ,   
 "Keyboard": "" ,   
 "CheckFirmware": false,   
 "Software": [],   
 "NetCfg": [   
 {   
 "Device":{   
 "Name": "eth1",   
 "MAC":"80:B5:75:53:F9:DC"   
 },   
 "IPv4Addresses":[   
 {   
 "Address": "172.171.110.4",   
 "SubnetMask":"255.255.0.0",   
 "Gateway": "172.171.0.1",   
 "AddressOrigin": "Static"   
 }   
 ]   
 }   
 ]   
}

Write the following script.

ibmc\_os\_deploy 'install' do   
 file '/home/os\_deploy\_config\_file\_path.json'   
 action :install   
end

The parameters are described as follows:

* **file**: path of the configuration file
* **action**: deploys an OS. The value is **install**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Restarting the iBMC

Write the following script.

ibmc\_restart 'restart' do   
 action :restart   
end

The parameters are described as follows:

**action**: restarts the iBMC. The value is **restart**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Managing Network Service

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| get | Queries the network service information. | protocol | Indicates the service protocol supported by iBMC. This parameter is optional. Optional values are as follows:   * HTTP * HTTPS * SNMP * VirtualMedia * IPMI * SSH * KVMIP * SSDP * VNC |
| set | Sets the network service information. | protocol | Indicates the service protocol supported by iBMC. This parameter is mandatory. Optional values are as follows:   * HTTP * HTTPS * SNMP * VirtualMedia * IPMI * SSH * KVMIP * SSDP * VNC |
| state | Indicates the service enabling status. This parameter is optional. Optional values are as follows:   * true * false |
| port | Indicates the service port number. This parameter is optional. |
| notify\_ttl | Indicates the lifetime of the SSDP service message. This parameter is optional. The value ranges from 1 to 255. |
| notify\_ipv6\_scope | Indicates the IPv6 multicast range of the SSDP service message. This parameter is optional. Optional values are as follows:   * **Link**: link-local scope * **Site**: site-local scope * **Organization**: organization-local scope |
| notify\_multi\_cast\_interval | Indicates the multicast interval of the SSDP service message. This parameter is optional. The unit is second. |

#### Examples

##### Querying the Network Service Information

Write the following script.

ibmc\_service 'get all service' do   
 action :get   
end

The parameters are described as follows:

**action**: queries all service information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-20T10:23:17-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-20T10:23:17-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-20T10:23:17-04:00] INFO: Platform: x86\_64-linux   
[2019-07-20T10:23:17-04:00] INFO: Chef-client pid: 28767   
[2019-07-20T10:23:17-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-20T10:23:30-04:00] WARN: Run List override has been provided.   
[2019-07-20T10:23:30-04:00] WARN: Original Run List: []   
[2019-07-20T10:23:30-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-20T10:23:30-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-20T10:23:30-04:00] INFO: Run List expands to [starter]   
[2019-07-20T10:23:30-04:00] INFO: Starting Chef Run for admin   
[2019-07-20T10:23:30-04:00] INFO: Running start handlers   
[2019-07-20T10:23:30-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-20T10:23:30-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-20T10:23:30-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-20T10:23:31-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_service[get all service] action get[2019-07-20T10:23:31-04:00] INFO: Processing ibmc\_service[get all service] action get (starter::default line 9)   
[2019-07-20T10:23:34-04:00] INFO:   
[172.171.100.7]   
   
[VirtualMedia]   
State : True   
Port : 8208   
   
[HTTP]   
State : True   
Port : 80   
   
[KVMIP]   
State : True   
Port : 2198   
   
[IPMI]   
State : True   
Port : 623   
   
[SNMP]   
State : True   
Port : 161   
   
[SSH]   
State : True   
Port : 22   
   
[HTTPS]   
State : True   
Port : 443   
   
[SSDP]   
State : False   
Port : 1900   
NotifyTTL : 2   
NotifyIPv6Scope : Site   
NotifyMulticastIntervalSeconds : 600   
   
[Video]   
State : True   
Port : 2199   
   
[VNC]   
State : False   
Port : 5900   
   
   
[2019-07-20T10:23:34-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-20T10:23:34-04:00] INFO: Chef Run complete in 3.349333024 seconds   
[2019-07-20T10:23:34-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-20T10:23:34-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-20T10:23:34-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 16 seconds

For details about the output items, see 5.2.25.1 Attribute Description.

----End

##### Setting the Network Service Information

The following describes how to set the HTTP service.

Write the following script.

ibmc\_service 'set HTTP service' do   
 protocol 'HTTP'   
 state true   
 port 80   
 action :set   
end

The parameters are described as follows:

* **action**: sets the HTTP service. The value is **set**.
* For more information about other parameters, see 5.2.25.1 Attribute Description.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Managing the SMTP Service

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| get | Queries the SMTP service information. | - | - |
| set | Sets the SMTP service information. | service\_enabled | Indicates the SMTP service enabling status. This parameter is optional.   * true * false |
| server\_addr | Indicates the SMTP server address. This parameter is optional. |
| tls\_enabled | Indicates whether to enable TLS. This parameter is optional.   * true * false |
| anonymous\_login\_enabled | Indicates whether to enable anonymous login. This parameter is optional.   * true * false |
| sender\_addr | Indicates the sender email address. This parameter is optional. |
| sender\_password | Indicates the sender password. This parameter is optional. |
| sender\_username | Indicates the sender user name. This parameter is optional. |
| email\_subject | Indicates the email subject. This parameter is optional. |
| email\_subject\_contains | Indicates the additional information about the subject. This parameter is optional. Optional values are as follows:   * **HostName**: host name * **BoardSN**: board serial number * **ProductAssetTag**: product asset tag |
| alarm\_severity | Indicates the alarm severity. This parameter is optional. Optional values are as follows:   * **Normal** (normal or above) * **Minor** (minor or above) * **Major** (major or above) * **Critical** |

#### Examples

##### Querying the SMTP Service Information

Write the following script.

ibmc\_smtp 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the SMTP service information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-20T10:24:40-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-20T10:24:40-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-20T10:24:40-04:00] INFO: Platform: x86\_64-linux   
[2019-07-20T10:24:40-04:00] INFO: Chef-client pid: 32345   
[2019-07-20T10:24:40-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-20T10:24:53-04:00] WARN: Run List override has been provided.   
[2019-07-20T10:24:53-04:00] WARN: Original Run List: []   
[2019-07-20T10:24:53-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-20T10:24:53-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-20T10:24:53-04:00] INFO: Run List expands to [starter]   
[2019-07-20T10:24:53-04:00] INFO: Starting Chef Run for admin   
[2019-07-20T10:24:53-04:00] INFO: Running start handlers   
[2019-07-20T10:24:53-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-20T10:24:53-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-20T10:24:53-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-20T10:24:53-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_smtp[get] action get[2019-07-20T10:24:53-04:00] INFO: Processing ibmc\_smtp[get] action get (starter::default line 9)   
[2019-07-20T10:24:56-04:00] INFO:   
[172.171.100.7]   
[SMTP]   
------------------------------------------------------------   
ServiceEnabled : False   
ServerAddress : smtp.huawei.com   
TLSEnabled : False   
AnonymousLoginEnabled : False   
SenderUserName : Huawei-iBMC   
SenderAddress : powershell@huawei.com   
EmailSubject : iBMC Alarm Notification   
EmailSubjectContains : HostName, BoardSN   
AlarmSeverity : Critical   
   
[RecipientAddresses]   
+------------+----------------+---------------+-----------+   
| MemberId | EmailAddress | Description | Enabled |   
|------------+----------------+---------------+-----------|   
| 0 | | | False |   
| 1 | | | False |   
| 2 | | | False |   
| 3 | | | False |   
+------------+----------------+---------------+-----------+   
   
   
[2019-07-20T10:24:56-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-20T10:24:56-04:00] INFO: Chef Run complete in 3.34906943 seconds   
[2019-07-20T10:24:56-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-20T10:24:56-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-20T10:24:56-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 16 seconds

For details about the output items, see 5.2.26.1 Attribute Description.

----End

##### Setting the SMTP Service Information

Write the following script.

ibmc\_smtp 'set' do   
 service\_enabled true   
 server\_addr '172.171.205.203'   
 tls\_enabled true   
 anonymous\_login\_enabled true   
 sender\_addr '172.171.201.9'   
 sender\_password 'Huawei12#$'   
 sender\_username 'qinrui@126.com'   
 email\_subject 'Server Alert123'   
 email\_subject\_contains 'HostName'   
 alarm\_severity 'Critical'   
 action :set   
end

For details about the parameters, see 5.2.26.1 Attribute Description.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Setting the SMTP Receiver Mailbox Information

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| set | Sets the SMTP receiver mailbox information. | index | Indicates the index of the SMTP receiver mailbox. This parameter is optional. The value ranges from 1 to 4.  A maximum of four receiver email addresses are supported. |
| address | Indicates the email address for receiving alarms. This parameter is optional. |
| desc | Indicates description of the receiver email address. This parameter is optional. |
| enabled | Indicates the enabling status of the alarm receiving function of the SMTP receiver mailbox. This parameter is optional.   * true * false |

#### Examples

Write the following script.

ibmc\_smtp\_recipient 'set' do   
 index 1   
 address 'smtptest@it.software.com'   
 desc 'smtptest'   
 enabled true   
 action :set   
end

The parameters are described as follows:

* **action**: sets the SMTP receiver mailbox information. The value is **set**.
* For more information about other parameters, see 5.2.27.1 Attribute Description.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Managing the SNMP Service

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| get | Queries the SNMP service information. | - | - |
| set | Sets the SNMP service information. | v1\_enabled | Indicates the SNMPv1 enabling status. This parameter is optional.   * true * false |
| v2\_enabled | Indicates the SNMPv2 enabling status. This parameter is optional.   * true * false |
| long\_password\_enabled | Indicates the enabling status of the long password function. This parameter is optional.   * true * false |
| rw\_community\_enabled | Indicates the read-write community name enabling status. This parameter is optional.   * true * false |
| readonly\_community | Indicates the read-only community name. This parameter is optional. The value must meet the following requirements:   * 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. |
| readwrite\_community | Indicates the read-write community name. This parameter is optional. The value must meet the following requirements:   * 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 | Indicates the V3 authentication algorithm. This parameter is optional. Optional values are as follows:   * MD5 * SHA1 |
| v3\_priv\_protocol | Indicates the V3 encryption algorithm. This parameter is optional. Optional values are as follows:   * DES * AES |
| service\_enabled | Indicates the enabling status of the trap function. This parameter is optional.   * true * false |
| trap\_version | Indicates the trap version. This parameter is mandatory. Optional values are as follows:   * V1 * V2C * V3 |
| trap\_v3\_user | Indicates the SNMPv3 user name (valid when the value of **trap\_version** is **V3**). This parameter is mandatory. |
| trap\_mode | Indicates the reporting mode. This parameter is mandatory. Optional values are as follows:   * **OID**: OID mode * **EventCode**: event code mode * **PreciseAlarm**: precise alarm mode |
| trap\_server\_identity | Indicates the host ID. This parameter is optional. Optional values are as follows:   * **HostName**: host name * **BoardSN**: board serial number * **ProductAssetTag**: product asset tag   (This parameter is valid when **trap\_mode** is set to **OID** or **PreciseAlarm**.) |
| community\_name | Indicates the community name. This parameter is optional. The value must meet the following requirements:   * 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. |
| alarm\_severity | Indicates the alarm severity. This parameter is optional. Optional values are as follows:   * **Normal** (normal or above) * **Minor** (minor or above) * **Major** (major or above) * **Critical** |
| trap\_server1~4 | Trap server   * **enabled**: server enabling status. This parameter is optional.   + - true     - false * **address**: trap server address. The value can be an IPv4 address, IPv6 address, or domain name. * **port**: trap server port number. The value must be a digit ranging from 1 to 65535. |

#### Examples

##### Querying the SNMP Service Information

Write the following script.

ibmc\_snmp 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the SNMP service information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-20T10:29:37-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-20T10:29:37-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-20T10:29:37-04:00] INFO: Platform: x86\_64-linux   
[2019-07-20T10:29:37-04:00] INFO: Chef-client pid: 13282   
[2019-07-20T10:29:37-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-20T10:29:50-04:00] WARN: Run List override has been provided.   
[2019-07-20T10:29:50-04:00] WARN: Original Run List: []   
[2019-07-20T10:29:50-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-20T10:29:50-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-20T10:29:50-04:00] INFO: Run List expands to [starter]   
[2019-07-20T10:29:50-04:00] INFO: Starting Chef Run for admin   
[2019-07-20T10:29:50-04:00] INFO: Running start handlers   
[2019-07-20T10:29:50-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-20T10:29:50-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-20T10:29:50-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-20T10:29:51-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_snmp[get] action get[2019-07-20T10:29:51-04:00] INFO: Processing ibmc\_snmp[get] action get (starter::default line 9)   
[2019-07-20T10:29:53-04:00] INFO:   
[172.171.100.7]   
[SNMP]   
------------------------------------   
SnmpV1Enabled : True   
SnmpV2CEnabled : True   
SnmpV3Enabled : True   
LongPasswordEnabled : True   
RWCommunityEnabled : True   
SnmpV3AuthProtocol : SHA1   
SnmpV3PrivProtocol : AES   
   
[SnmpTrapNotification]   
------------------------------------   
ServiceEnabled : True   
TrapVersion : V3   
TrapV3User : root   
TrapMode : PreciseAlarm   
TrapServerIdentity : HostName   
AlarmSeverity : Normal   
   
[TrapServers]   
------------------------------------   
MemberId : 0   
BobEnabled : False   
Enabled : True   
TrapServerAddress : 172.171.123.222   
TrapServerPort : 161   
------------------------------------   
MemberId : 1   
BobEnabled : False   
Enabled : True   
TrapServerAddress : 172.171.205.11   
TrapServerPort : 162   
------------------------------------   
MemberId : 2   
BobEnabled : False   
Enabled : True   
TrapServerAddress : 172.171.205.12   
TrapServerPort : 162   
------------------------------------   
MemberId : 3   
BobEnabled : False   
Enabled : False   
TrapServerAddress : 192.168.2.8   
TrapServerPort : 164   
------------------------------------   
   
   
[2019-07-20T10:29:53-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-20T10:29:53-04:00] INFO: Chef Run complete in 2.960795462 seconds   
[2019-07-20T10:29:53-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-20T10:29:53-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-20T10:29:53-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 16 seconds

For details about the output items, see 5.2.28.1 Attribute Description.

----End

##### Setting the SNMP Service Information

Write the following script.

ibmc\_snmp 'set' do   
 v1\_enabled true   
 v2\_enabled false   
 long\_pass\_enabled true   
 rw\_community\_enabled false   
 readonly\_community ' Chef1234#$'   
 readwrite\_community ' Chef456#$'   
 v3\_auth\_protocol 'MD5'   
 v3\_priv\_protocol 'DES'   
 service\_enabled false   
 trap\_version 'V2C'   
 trap\_v3\_user 'root'   
 trap\_mode 'EventCode'   
 trap\_server\_identity 'BoardSN'   
 community\_name 'Chef1246#$'   
 alarm\_severity 'Critical'   
 trap\_server1\_enabled false   
 trap\_server2\_enabled true   
 trap\_server3\_enabled true   
 trap\_server4\_enabled false   
 trap\_server3\_address 172.171.205.203   
 trap\_server3\_port   
 action :set   
end

For details about the parameters, see 5.2.28.1 Attribute Description.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Managing the SP Service

This function is supported for only V5 servers whose BIOS version is 0.39 or later.

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| set | Enables the SP service. | start\_enabled | Enables the boot from SP. This parameter is optional.   * true * false |
| sys\_restart\_delay\_seconds | System restart time. This parameter is optional.  The value is an integer greater than 0. |
| timeout | Timeout interval for SP deployment. The value ranges from 300 to 86400. The default value is **7200**. The unit is second. |
| finished | Deployment transaction status. This parameter is optional.   * **true**: Deployment transaction is completed. * **false**: Deployment transaction is not completed. |
| result | Queries the OS deployment and SP upgrade results. | - | - |

#### Examples

##### Setting the SP Service

Write the following script.

ibmc\_sp 'set' do   
 start\_enabled true   
 sys\_restart\_delay\_seconds 7200   
 timeout 10800   
 finished true   
 action :set   
end

The parameters are described as follows:

* **action**: enables the SP service. The value is **set**.
* For more information about other parameters, see 5.2.29.1 Attribute Description.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

##### Querying the OS Deployment and SP Upgrade Results

Write the following script.

ibmc\_sp 'get sp result' do   
 action :result   
end

The parameters are described as follows:

**action**: queries the OS deployment and SP upgrade results. The value is **result**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-29T10:47:58-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-29T10:47:58-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-29T10:47:58-04:00] INFO: Platform: x86\_64-linux   
[2019-07-29T10:47:58-04:00] INFO: Chef-client pid: 14996   
[2019-07-29T10:47:58-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-29T10:48:11-04:00] WARN: Run List override has been provided.   
[2019-07-29T10:48:11-04:00] WARN: Original Run List: []   
[2019-07-29T10:48:11-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-29T10:48:11-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-29T10:48:11-04:00] INFO: Run List expands to [starter]   
[2019-07-29T10:48:11-04:00] INFO: Starting Chef Run for admin   
[2019-07-29T10:48:11-04:00] INFO: Running start handlers   
[2019-07-29T10:48:11-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-29T10:48:12-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-29T10:48:12-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-29T10:48:12-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_sp[get sp result] action result[2019-07-29T10:48:12-04:00] INFO: Processing ibmc\_sp[get sp result] action result (starter::default line 9)   
[2019-07-29T10:48:16-04:00] INFO:   
[172.171.100.1]   
------------------------------------------------------------   
[OSInstall]   
   
------------------------------------------------------------   
   
   
[2019-07-29T10:48:16-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-29T10:48:16-04:00] INFO: Chef Run complete in 4.949062911 seconds   
[2019-07-29T10:48:16-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-29T10:48:16-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-29T10:48:16-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 18 seconds

----End

### Managing the SP Firmware

This function is supported for only V5 servers whose BIOS version is 0.39 or later.

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| get | Queries the SP firmware information. | - | - |
| upgrade | Upgrades the SP firmware. | image\_uri | Indicates the URI of the upgrade package. This parameter is mandatory.   * The upgrade file must be in the .iso format. * Only the CIFS and NFS protocols are supported. The path cannot contain the following special characters: || ; && $ | >> > <   Example: **nfs://username:password@hostname/Firmware.ISO** |
| parameter | This parameter is mandatory. Currently, the value can be only **all**. |
| mode | Indicates the upgrade mode. This parameter is mandatory. Optional values are as follows:   * Auto * Full * Recover * APP * Driver |
| active\_method | Indicates the upgrade effective mode. This parameter is mandatory. Currently, the value can be only **OSRestart**. |

#### Examples

##### Querying the SP Firmware Information

Write the following script.

ibmc\_sp\_firmware 'get' do   
 action :get   
end

The parameters are described as follows:

**action**: queries the SP firmware information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-20T10:38:10-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-20T10:38:10-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-20T10:38:10-04:00] INFO: Platform: x86\_64-linux   
[2019-07-20T10:38:10-04:00] INFO: Chef-client pid: 2661   
[2019-07-20T10:38:10-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-20T10:38:23-04:00] WARN: Run List override has been provided.   
[2019-07-20T10:38:23-04:00] WARN: Original Run List: []   
[2019-07-20T10:38:23-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-20T10:38:23-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-20T10:38:23-04:00] INFO: Run List expands to [starter]   
[2019-07-20T10:38:23-04:00] INFO: Starting Chef Run for admin   
[2019-07-20T10:38:23-04:00] INFO: Running start handlers   
[2019-07-20T10:38:23-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-20T10:38:24-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-20T10:38:24-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-20T10:38:24-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_sp\_firmware[get] action get[2019-07-20T10:38:24-04:00] INFO: Processing ibmc\_sp\_firmware[get] action get (starter::default line 9)   
[2019-07-20T10:38:27-04:00] INFO:   
[172.171.100.7]   
   
[Version]   
OSVersion : 1.19   
APPVersion : 1.19   
DataVersion : 1.19   
SysRestartDelaySeconds : 7200   
SPStartEnabled : True   
   
   
[2019-07-20T10:38:27-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-20T10:38:27-04:00] INFO: Chef Run complete in 3.525379223 seconds   
[2019-07-20T10:38:27-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-20T10:38:27-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-20T10:38:27-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 17 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| OSVersion | OS version |
| APPVersion | Application version |
| DataVersion | Data version |
| SysRestartDelaySeconds | OS restart delay duration |
| SPStartEnabled | Enabling status of boot from SP |

----End

##### Upgrading the SP Firmware

Write the following script.

ibmc\_sp\_firmware `upgrade` do   
 image\_uri 'nfs://172.171.200.11/data/2488H\_V5/SmartProvisioning-V118.zip'   
 parameter 'all'   
 active\_method 'OSRestart'   
 mode 'Auto'   
 action :upgrade   
end

The parameters are described as follows:

* **action**: upgrades the SP firmware. The value is **upgrade**.
* For more information about other parameters, see 5.2.29.1 Attribute Description.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Managing the iBMC User

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| get | Queries the iBMC user information. | - | - |
| set | Creates an iBMC user. | username | Indicates the name of the new user. This parameter is mandatory.   * Value: a string of 1 to 16 characters * 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 | Indicates the password of the new user. This parameter is mandatory.   * 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 | Indicates the user role type. This parameter is mandatory. The options are as follows:   * Administrator * Operator * Commonuser * NoAccess * CustomRole1 * CustomRole2 * CustomRole3 * CustomRole4 |
| delete | Deletes an iBMC user. | username | Indicates the name of the user to be deleted. This parameter is mandatory. |
| set | Modifies the iBMC user information. | username | Indicates the name of the user whose information needs to be modified. This parameter is mandatory. |
| new\_username | Specifies the new user name. This parameter is optional.   * Value: a string of 1 to 16 characters * 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: :<>&,'"/\% |
| new\_password | Specifies the new password. This parameter is optional.   * 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. |
| new\_role | Indicates the role of the new user. This parameter is optional. |
| locked | Indicates the locking status of the user. This parameter is optional. This attribute will lock the account service when the lock threshold is exceeded. When this attribute is set to **true**, the account is locked. The administrator can set this attribute to **false** to unlock the account, or the account service will be unlocked once the lock duration has elapsed.   * **true** * **false** (default value) |
| enabled | Indicates the user enabling status. This parameter is optional. The administrator can use this attribute to disable an account which has the permission to delete user information. When the attribute is set to **true**, the user can log in to the system. When the attribute is set to **false**, the account is disabled and the user cannot log in to the system.   * true * false |

#### Examples

##### Querying the iBMC User Information

Write the following script.

ibmc\_user 'get user' do   
 action :get   
end

The parameters are described as follows:

**action**: queries all iBMC user information. The value is **get**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

The command output is as follows:

[root@chef chef-repo]# chef-client -z -o starter   
[2019-07-20T10:39:38-04:00] INFO: Started chef-zero at chefzero://localhost:1 with repository at /home/chef-repo   
 One version per cookbook   
   
Starting Chef Client, version 14.12.9   
[2019-07-20T10:39:38-04:00] INFO: \*\*\* Chef 14.12.9 \*\*\*   
[2019-07-20T10:39:38-04:00] INFO: Platform: x86\_64-linux   
[2019-07-20T10:39:38-04:00] INFO: Chef-client pid: 6675   
[2019-07-20T10:39:38-04:00] INFO: The plugin path /etc/chef/ohai/plugins does not exist. Skipping...   
[2019-07-20T10:39:51-04:00] WARN: Run List override has been provided.   
[2019-07-20T10:39:51-04:00] WARN: Original Run List: []   
[2019-07-20T10:39:51-04:00] WARN: Overridden Run List: [recipe[starter]]   
[2019-07-20T10:39:51-04:00] INFO: Run List is [recipe[starter]]   
[2019-07-20T10:39:51-04:00] INFO: Run List expands to [starter]   
[2019-07-20T10:39:51-04:00] INFO: Starting Chef Run for admin   
[2019-07-20T10:39:51-04:00] INFO: Running start handlers   
[2019-07-20T10:39:51-04:00] INFO: Start handlers complete.   
resolving cookbooks for run list: ["starter"]   
[2019-07-20T10:39:51-04:00] INFO: Loading cookbooks [starter@1.0.0, chef-ibmc-cookbook@1.0.0]   
[2019-07-20T10:39:51-04:00] INFO: Skipping removal of obsoleted cookbooks from the cache   
Synchronizing Cookbooks:   
[2019-07-20T10:39:51-04:00] INFO: Storing updated cookbooks/starter/recipes/default.rb in the cache.   
 - starter (1.0.0)   
 - chef-ibmc-cookbook (1.0.0)   
Installing Cookbook Gems:   
Compiling Cookbooks...   
Converging 1 resources   
Recipe: starter::default   
 \* ibmc\_user[get user] action get[2019-07-20T10:39:52-04:00] INFO: Processing ibmc\_user[get user] action get (starter::default line 9)   
[2019-07-20T10:39:56-04:00] INFO:   
[172.171.100.7]   
------------------------------------------------------------   
UserId : 2   
UserName : Administrator   
RoleId : Administrator   
Locked : False   
Enabled : True   
LoginInterface : Web,SNMP,IPMI,SSH,SFTP,Local,Redfish   
AccountInsecurePromptEnabled: True   
------------------------------------------------------------   
UserId : 3   
UserName : root   
RoleId : Administrator   
Locked : False   
Enabled : True   
LoginInterface : Web,SNMP,IPMI,SSH,SFTP,Local,Redfish   
AccountInsecurePromptEnabled: False   
------------------------------------------------------------   
UserId : 5   
UserName : puppet23   
RoleId : Operator   
Locked : False   
Enabled : True   
LoginInterface : Web,SNMP,IPMI,SSH,SFTP,Local,Redfish   
AccountInsecurePromptEnabled: True   
------------------------------------------------------------   
   
   
[2019-07-20T10:39:56-04:00] WARN: Skipping final node save because override\_runlist was given   
[2019-07-20T10:39:56-04:00] INFO: Chef Run complete in 4.495722842 seconds   
[2019-07-20T10:39:56-04:00] INFO: Skipping removal of unused files from the cache   
   
Running handlers:   
[2019-07-20T10:39:56-04:00] INFO: Running report handlers   
Running handlers complete   
[2019-07-20T10:39:56-04:00] INFO: Report handlers complete   
Chef Client finished, 1/1 resources updated in 17 seconds

The returned information is described as follows:

| Output Item | Description |
| --- | --- |
| UserId | iBMC user ID |
| UserName | For details, see 5.2.31.1 Attribute Description. |
| RoleId |
| Locked |
| Enabled |
| LoginInterface | Login interface |
| AccountInsecurePromptEnabled | Enabling status of the account risk notification function |

----End

##### Creating an iBMC User

The following describes how to create an iBMC user named test1.

Write the following script.

ibmc\_user 'add user' do   
 username 'test1'   
 password 'chajian123#$'   
 role 'Commonuser'   
 action :add   
end

The parameters are described as follows:

**action**: creates an iBMC user. The value is **add**.

For more information about other parameters, see 5.2.31.1 Attribute Description.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

##### Modifying the iBMC User Information

The following describes how to modify the user name test1 to test2.

Write the following script.

ibmc\_user 'update user' do   
 username 'test1'   
 new\_username 'test2'   
 action :set   
end

The parameters are described as follows:

* **action**: modifies the iBMC user information. The value is **set**.
* For more information about other parameters, see 5.2.31.1 Attribute Description.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

##### Deleting an iBMC User

The following describes how to delete the iBMC user test2.

Write the following script.

ibmc\_user 'delete user' do   
 username 'test2'   
 action :delete   
end

The parameters are described as follows:

* **username**: name of the user to be deleted.
* **action**: delete an iBMC user. The value is **delete**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

### Managing the Virtual Media

#### Attribute Description

Attribute description

| Action | Action Description | Attribute | Attribute Description |
| --- | --- | --- | --- |
| connect | Connects to the virtual media. | image | Indicates the URI of the virtual media image. This parameter is mandatory. Only NFS, CIFS, and HTTPS protocols are supported.  Example: **protocol://username:password@hostname/directory/vmm.iso** |
| disconnect | Disconnects from the virtual media. | - | - |

#### Examples

##### Connecting to the Virtual Media

Write the following script.

ibmc\_vmm 'connect' do   
 image 'nfs://172.171.200.11/data/VMware-VMvisor-Installer-6.7.0-8169922.x86\_64.iso'   
 action :connect   
end

The parameters are described as follows:

* **image**: URI of the virtual media image. For details, see 5.2.32.1 Attribute Description.
* **action**: connects to the virtual media. The value is **connect**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End

##### Disconnecting from the Virtual Media

Write the following script.

ibmc\_vmm 'disconnect' do   
 action :disconnect   
end

The parameters are described as follows:

**action**: disconnects from the virtual media. The value is **disconnect**.

Run the **chef-client -z -o starter** command in the **/home/chef-repo/** directory.

----End