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Preface

Welcome to the Developer Manual for Bright Cluster Manager 9.0.

0.1 About This Manual

This manual is aimed at helping developers who would like to program the Bright Cluster Manager in order to enhance or alter its functionality. It is not intended for end users who simply wish to submit jobs that run programs to workload managers, which is discussed in the User Manual. The developer is expected to be reasonably familiar with the parts of the Administrator Manual that is to be dealt with—primarily CMDaemon, of which cmsh and cmgui are the front ends.

This manual discusses the Python API to CMDaemon, and also covers how to program for metric collections.

0.2 About The Manuals In General

Regularly updated versions of the Bright Cluster Manager 9.0 manuals are available on updated clusters by default at /cm/shared/docs/cm. The latest updates are always online at http://support.brightcomputing.com/manuals.

- The Administrator Manual describes the general management of the cluster.
- The Installation Manual describes installation procedures for a basic cluster.
- The User Manual describes the user environment and how to submit jobs for the end user.
- The Cloudbursting Manual describes how to deploy the cloud capabilities of the cluster.
- The Developer Manual has useful information for developers who would like to program with Bright Cluster Manager.
- The OpenStack Deployment Manual describes how to deploy OpenStack with Bright Cluster Manager.
- The Edge Manual describes how to deploy Bright Edge with Bright Cluster Manager.
- The Machine Learning Manual describes how to install and configure machine learning capabilities with Bright Cluster Manager.

If the manuals are downloaded and kept in one local directory, then in most pdf viewers, clicking on a cross-reference in one manual that refers to a section in another manual opens and displays that section in the second manual. Navigating back and forth between documents is usually possible with keystrokes or mouse clicks.

For example: <Alt>-<Backarrow> in Acrobat Reader, or clicking on the bottom leftmost navigation button of xpdf, both navigate back to the previous document.

The manuals constantly evolve to keep up with the development of the Bright Cluster Manager environment and the addition of new hardware and/or applications. The manuals also regularly incorporate customer feedback. Administrator and user input is greatly valued at Bright Computing. So any comments, suggestions or corrections will be very gratefully accepted at manuals@brightcomputing.com.

There is also a feedback form available via Bright View, via the Account icon, following the clickpath:

Account→Help→Feedback
0.3 Getting Administrator-Level Support

If the reseller from whom Bright Cluster Manager was bought offers direct support, then the reseller should be contacted.

Otherwise the primary means of support is via the website https://support.brightcomputing.com. This allows the administrator to submit a support request via a web form, and opens up a trouble ticket. It is a good idea to try to use a clear subject header, since that is used as part of a reference tag as the ticket progresses. Also helpful is a good description of the issue. The followup communication for this ticket goes via standard e-mail. Section 13.2 of the Administrator Manual has more details on working with support.

0.4 Getting Developer-Level Support

Developer support is given free, within reason. For more extensive support, Bright Computing can be contacted in order to arrange a support contract.

0.5 Getting Professional Services

Bright Computing normally differentiates between professional services (customer asks Bright Computing to do something or asks Bright Computing to provide some service) and support (customer has a question or problem that requires an answer or resolution). Professional services can be provided after consulting with the reseller, or the Bright account manager.
This chapter introduces the Python API of Bright Cluster Manager.

The Python API package was completely overhauled in Bright Cluster Manager 8.2. The cmdaemon-pythoncm package now provides a pure Python connection to the cluster manager, making it possible for cluster administrators to automate cluster operations via Python.

It also makes it possible to run Python code on any operating system that supports Python 3.5 and higher.

The Bright Cluster Manager Python API uses the following extra modules:

1. pyOpenSSL
2. ply
3. lxml
4. tabulate
5. monotonic
6. humanfriendly
7. six

1.1 Getting Started

On the cluster head node itself the python3 module can simply be loaded:

Example

[root@bright90 ~]# module load python3

To execute or develop the Python code on any other machine usually requires some extra steps:

- Python 3 (3.5, 3.6, 3.7, 3.8 will work) should be installed
- The 7 extra modules listed previously should be installed using Pip
- The /cm/local/apps/python3/lib/python3.7/site-packages/pythoncm directory should be copied over to the site-packages directory of the development machine

The pythoncm module should then be loaded, to confirm everything was set up correctly:

Example
If connecting from outside the cluster, then port 8081 must not be blocked by a firewall. A certificate is needed by the Python API to identify itself to CMDaemon. The existence of the certificate on the head node should be checked. It should be copied over to the development machine, if it is needed there.

Example

```
[root@bright90 ~]# ls -al .cm/
-rw------- 1 root root 1708 Dec 11 09:25 admin.key
-rw------- 1 root root 1269 Dec 11 09:25 admin.pem
```

Example

```
[alice@bright90 ~]# ls -al .cm/
-rw------- 1 root root 1708 Dec 11 09:25 cert.key
-rw------- 1 root root 1269 Dec 11 09:25 cert.pem
```

The developer may need to contact the cluster administrator to get a certificate.

1.2 Connecting To A Cluster

The first step when working with the Python API is to establish a connection to the CMDaemon process on the cluster:

```
#!/usr/bin/env python
from pythoncm.cluster import Cluster
from pythoncm.settings import Settings
cluster = Cluster()
```

If working outside the cluster, then the settings for connecting to the cluster must be specified:

```python
settings = Settings(host='<head-node-hostname>',
port=8081,
cert_file='/some/path/cert.pem',
key_file='/some/path/cert.key',
ca_file='.../site-packages/pythoncm/etc/cacert.pem')
if not settings.check_certificate_files():
    print('Unable to load certificates')
else:
    cluster = Cluster(settings)
```

1.3 Inspecting Settings

All settings in Bright Cluster Manager are stored inside an entity. Each entity has a type and a unique name among the entities of the same type. To inspect an entity it should first be found inside the cluster:

```
node001 = cluster.get_by_name('node001')
```

If the name node001 was also given a different entity, then the type must be specified to ensure that the correct entity is returned:

```
node001 = cluster.get_by_name('node001', pythoncm.entity.Node)
node001 = cluster.get_by_name('node001', 'Node')
```
Once the node entity is found, inspecting the settings is a matter of printing the desired field:

```python
print(node001.hostname)
print(node001.mac)
```

Complex settings, such as network interfaces, have their own settings:

```python
for interfaces in node001.interfaces:
    print(interface.name, interface.ip)
```

Because many nodes could have a network interface called eth0, such a setting cannot be found from the cluster: The following code will return `None`.

```python
eth0 = cluster.get_by_name('eth0')
```

To find all eth0 interfaces, all nodes need to be found, and then iterated over:

```python
nodes = cluster.get_by_type(pythoncm.entity.Node)
all_eth0 = [interface
    for node in nodes
    for interface in node.interfaces
    if interface.name == 'eth0']
```

### 1.4 Modifying Settings

Basic entity settings are exported as Python properties and can simply be changed:

```python
node001.mac = '00:00:00:00:00:00'
node001.category = cluster.get_by_name('gpu', 'Category')
```

Similarly interfaces settings can be accessed and changed directly:

```python
node001.interfaces[0].ip = '1.2.3.4'
node001.interfaces[0].network = cluster.get_by_name('ib', 'Network')
```

Removing an interface from a node can be done in various Pythonic ways:

```python
node001.interfaces.remove(0)
del node001.interfaces[0]
node001.interfaces = [interface for interface in node001.interfaces
    if interface.name != 'eth0']
```

To add a new interface, the entity instance needs to be created first, and then added to the node:

```python
eth1 = pythoncm.entity.NetworkPhysicalInterface()
eth1.name = 'eth1'
eth1.ip = '1.2.3.4'
eth1.network = cluster.get_by_name('ib', 'Network')
node001.interfaces.append(eth1)
```

All changes are made on a local copy of the entity. The cluster has no knowledge of the changes until they are committed.

It is recommended to make many changes locally, and only commit once at the end.

The return value of the commit operation should always be checked. Committing a badly-configured node will be blocked by the head node:

```python
commit_result = node001.commit()
if not commit_result.good:
    print(commit_result)
```

An entity found from via the cluster object is removed differently.

As with commit, the result should always be checked: a removal can fail if a node is UP:

```python
remove_result = node001.remove()
if not remove_result.good:
    print(remove_result)
```
1.5 Inspecting The Entire Cluster
The example directory contains a script to inspect the entire cluster.

Example

[root@bright90 ~]# cd /cm/local/examples/cmd/pythoncm/
[root@bright90 pythoncm]# module load python3
[root@bright90 pythoncm]# ./print-all.py

The example directory also contains a script that prints all metadata for all available entities in Bright Cluster Manager:

Example

[root@bright90 pythoncm]# ./entity_info.py

1.6 Performing Operations On Entities
All Python API functionality is contained in /cm/local/apps/python3/lib/python3.7/site-packages/pythoncm.

Methods are documented inside the python code itself.

node001 = cluster.get_by_name('node001')
node001.power_on()

When operating on multiple entities, it is possible to iterate over them and do each operation individually.

nodes = cluster.get_by_type('Node')
for node in nodes:
    node.power_on()

However the same can also be done with a parallel version of the operation. When possible the parallel version should be used, because it is faster and requires less network traffic.

nodes = cluster.get_by_type('Node')
cluster.parallel.power_on(nodes)

1.7 Monitoring
All monitoring data can be accessed using the Python API.

Monitoring is a set of operations performed on entities.

For example, to get latest data for a single entity:

print(node001.get_latest_monitoring_data())

Monitoring operations on multiple operations should be done using the monitoring module:

data = cluster.monitoring.get_latest_monitoring_data([node001,
    node002,
    node003])
1.8 Examples

The best way to get going is by looking at the examples. These can be found on the head node, at `/cm/local/examples/cmd/pythoncm`:

Example

```
[root@bright90 pythoncm]# ls
add-collection.py  entity_info.py  power-parallel-status.py
add-healthcheck.py  events.py      power-status.py
add-metric.py       execute.py     print-all.py
add-node-group.py   free_port.py   range-expander-test.py
add-role.py         get-status.py  remove-node-group.py
add-user.py         health-overview.py  sample-now-checks.py
all-nodes.py        instance_by_name.py  sample-now-parallel.py
certificate-info.py latest-counter-data.py  select-devices.py
cloned-node-group.py latest-health-data.py  service.py
clone-node.py       new-nodes.py    service-status.py
cm-job-analytics.py open-close.py     set-node-status.py
create-certificate.py parallel-execute-async.py  wait-for-provisioning.py
create-ramdisk-task.py parallel-execute-check-status.py  wait-for-up.py
dump-monitoring-data.py parallel-execute.py
```

The examples can be tried out after loading the Python environment:

Example

```
[root@bright90 ~]# cd /cm/local/examples/cmd/pythoncm/
[root@bright90 pythoncm]# module load python3
[root@bright90 pythoncm]# ./power-status.py
[
  "uniqueKey": 1125899906842642,
  "oldLocalUniqueKey": 0,
  "baseType": "PowerStatus",
  "childType": ",",
  "revision": ",",
  "modified": false,
  "toBeRemoved": false,
  "readonly": false,
  "not_set_fields": [],
  "device": 38654705666,
  "host": 38654705665,
  "powerDistributionUnit": 0,
  "gpu": -1,
  "prt": 0,
  "name": "custom",
  "state": "ON",
  "msg": ",",
  "extendedMsg": ",",
  "indexes": [
    2
  ],
```
INFO (25-May-2020 18:29:28) [entity_change.py : 38] Stop event change watcher
[root@bright90 pythoncm]#
Monitoring Data Producers

This chapter covers how to add a new metrics and health checks scripts with cmsh. Five different types of Monitoring Data Producers can be added:

• **metric**: a script which produces a single value.
• **health check**: a script which produces a PASS, FAIL, UNKNOWN, or no data value.
• **collection**: a script that produces zero or more metrics, health checks, or a combination of both.
• **perpetual**: a script that is started once over the lifetime of the Bright Cluster Manager cmd process. The script produces zero or more metrics, health checks, or a combination of both on its own timing mechanism.
• **prometheus**: one or more URLs to Prometheus metric exporters.

A monitoring data producer cannot be plotted in cmsh or Bright View, because it contains no data. A producer defines measurables: metrics and/or health checks. It also generates data for these measurables, which can be plotted.

### 2.1 Measurables

There are three types of measurable:

• **metric**: a numeric value, or no data.
• **health check**: PASS/FAIL/UNKNOWN/no data.
• **enum metric**: one of a set of user-defined string based values, or no data.

### 2.2 Measurables Classes

All measurables are grouped into classes. A class is a user-defined free string field, with / as delimiters. Bright View uses this class to build a tree for easy search and access.

### 2.3 Metric Monitoring Data Producers

A metric data producer script generates one data point. For example, as in the following script:

**Example**
The script can be defined as a metric script via the monitoring setup mode of cmsh:

**Example**

```
[bright90] % monitoring setup
[bright90->monitoring->setup] % add metric my-metric
[...my-metric] % set script /path/to/my/metric
[...my-metric] % set class My/Class
[...my-metric] % set unit B
[...my-metric] % set interval 1m
[...my-metric] % commit
```

All nodes then execute the script every minute, and produce a random number.

### 2.4 Health Check Monitoring Data Producers

A health check data producer script generates one data point. The data point can be one of four possible values expected of it: **PASS**, **FAIL**, **UNKNOWN**, or **no data**. Other file descriptors can be used to provide extra information.

For example, as in the following script:

**Example**

```
[root@bright90 ~] # cat /path/to/my/health-check
#!/bin/bash
if [ $((RANDOM)) -gt 8000 ]; then
    echo "PASS"
else
    echo "FAIL"
    # Optionally provide extra information
    echo "Extra information" >&3
fi
```

The script can be defined as a health check script via the monitoring setup mode of cmsh:

**Example**

```
[bright90] % monitoring setup
[bright90->monitoring->setup] % add healthcheck my-health-check
[...my-check] % set script /path/to/my/health-check
[...my-check] % set class My/Class
[...my-check] % set interval 1m
[...my-check] % commit
```

All nodes then execute the script every minute, and produce data values with roughly 75% **PASS** and 25% **FAIL**.
2.5 Collection Monitoring Data Producers

A *collection data producer* script can generate multiple data points in one run. Data points can be a combination of metrics and health checks. Collection scripts are also allowed to produce no data.

A collection script has two modes: initialize mode and sample mode.

- **initialize**: defines the measurables that data values are generated for.
- **sample**: returns the data values for all the measurables defined in initialize mode.

During normal cluster operation the initialize mode is called only once, during boot. Afterwards, the script is called in sample mode at the desired interval.

The following example combines both of the metric and health check examples from earlier on. However, this time it is written as a single script, using JSON as the output format:

**Example**

```bash
[root@bright90 ~]# cat /path/to/my/collection
#!/usr/bin/python
import sys
import json
import random

def initialize():
    metric = {
        "metric": "my.collection.metric",
        "unit": "B",
        "class": "My/Collection"
    }
    check = {
        "check": "my.collection.check",
        "class": "My/Collection"
    }
    return [metric, check]

def sample():
    metric = {
        "metric": "my.collection.metric",
        "value": random.randint(0, 32767)
    }
    check = {
        "check": "my.collection.check",
        "info": "random with 25% failure rate",
        "value": 'PASS' if random.randint(0, 32767) > 8000 else 'FAIL'
    }
    return [metric, check]

def main():
    if len(sys.argv) > 1 and sys.argv[1] == "--initialize":
        data = initialize()
    else:
        data = sample()
    print json.dumps(data, indent=4)

if __name__ == '__main__':
    main()
```

The script can be defined as a collection script via the `monitoring_setup` mode of `cmsh`:

**Example**

```
[bright90]$ monitoring setup
[bright90->monitoring->setup]$ add collection my-collection
[...my-collection]$ set script /path/to/my/collection
[...my-collection]$ set format JSON
```

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All nodes then execute the script every minute and produce two data points upon each execution. That is, one metric and one health check per execution.

2.6 Perpetual Monitoring Data Producers

A perpetual data producer script is a special case of a collection data producer script. It is intended to be used if the script needs permanent memory storage.

Example

```
[root@bright90 ~]# cat /path/to/my/perpetual
#!/usr/bin/python
import my_sampler_module
import json
import time

# create single instance
sampler = my_sampler_module.MySampler()
# load important data into memory
sampler.load()

# Infinite loop with its own timing
delay = 0
while True:
    time.sleep(delay)
    (definitions, values, delay) = sampler.process()
    if definitions:
        # Print new measurables
        print json.dumps(definitions)
    # Print data
    print json.dumps(values)
```

The `my_sampler_module` is the part which does the important work.

Example

```
[root@bright90 ~]# cat /path/to/my/my_sampler_module.py

class MySampler:
    def __init__(self):
        self.initialized = False
        self.definitions = None

    def load(self):
        # Do time consuming work here
        metric = {
            "metric": "my.collection.metric",
            "unit": "B",
            "class": "My/Collection"
        }
        check = {
            "check": "my.collection.check",
            "class": "My/Collection"
        }
        self.definitions = [metric, check]

    def process(self):
        metric = {
            "metric": "my.collection.metric",
            "unit": "B",
            "class": "My/Collection"
        }
```
The script can be defined as a perpetual script via the monitoring setup mode of cmsh:

Example

[bright90]% monitoring setup
[bright90->monitoring->setup]% add perpetual my-perpetual
[...my-perpetual]% set script /path/to/my/perpetual
[...my-perpetual]% set format JSON
[...my-perpetual]% commit

2.8 Node Execution Filters

By default a monitoring data producer script is executed on every node. When this is not desirable, a node execution filter should be created. A node execution filter defines the nodes on which the producer script should be executed.

For example, a filter to execute the script only on cloud nodes can be configured as follows:

Example

[bright90]% monitoring setup use my-check
[...my-check]% nodeexecutionfilters
[...nodeexecutionfilters]% add type Cloud
[...nodeexecutionfilters*[Cloud*]]% set cloudnode yes
[...nodeexecutionfilters*[Cloud*]]% show

Parameter Value
------------------ ----------------------------
Base type MonitoringExecutionFilter
Name Cloud
Type Type
Head node no

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Physical node  no
Cloud node    yes
Virtual node  no
Lite node     no

 [...]nodeexecutionfilters*[Cloud*]]% commit

It is also possible to filter based on the specific resources associated with a node:

Example

[...monitoring setup use my-IB-check
[...my-IB-check]% nodeexecutionfilters
[...nodeexecutionfilters]% add resource IB
[...nodeexecutionfilters*[IB*]]% set resources IB
[...nodeexecutionfilters*[IB*]]% commit

Because of high availability, a special resource, active, is defined for the active head node.

Example

[...monitoring setup use my-metric
[...my-metric]% nodeexecutionfilters
[...nodeexecutionfilters]% active
Added active resource filter
[...nodeexecutionfilters*]% commit

2.9 Execution Multiplexers

By default a monitoring data producer script is executed once: the node executes the script only for itself.

However, some scripts, such as BMC samplers, must be sampled from the active head node for all nodes.

In the following example a BMC script is run on each node that has the ipmi or drac resource:

Example

[...monitoring setup use my-ipmi-collection
[...my-ipmi-collection]% executionmultiplexers
[...executionmultiplexers]% add resource ipmi
[...executionmultiplexers*[ipmi*]]% set resources ipmi drac
[...executionmultiplexers*[ipmi*]]% set operator OR
[...executionmultiplexers*[ipmi*]]% commit

If an execution multiplexer <multiplexer> is defined, then there should also be a node execution filter <filter> associated with it to restrict the number of nodes on which the script runs.

This is because having the script run on many nodes for many other nodes is unlikely to be a desired configuration.

The combination of the execution filter and the multiplexer should be read as:

for every node that matches filter, run script, for each node that matches multiplexer.

A more specific example, using two of the preceding examples, with a filter based on the resource IB, and multiplexers based on the IPMI/Drac resources, the combination should be read as:

for every node that matches IB, run script, for each node that matches ipmi or drac.
2.10 Monitoring Resources

Every device in Bright Cluster Manager has one or more resources. These resources are automatically calculated from:

- Roles
- Hardware
- Settings

Resources for a specific node can be viewed as follows:

Example

[bright90]% device use node001
[bright90]% monitoringresources
CentOS7u5
Ethernet
category:default

It is possible to add one or more custom resources to a device:

Example

[bright90]% device use node001
[bright90]% add userdefinedresources MyResource
[bright90]% append userdefinedresources MyOtherResource
[bright90]% # wait ~10 seconds for the settings to propagate
[bright90]% monitoringresources
CentOS7u5
Ethernet
category:default
MyResource
MyOtherResource

Any of these resources can be used to filter and multiplex monitoring data producers.

If a resources changes because of a settings change, then monitoring automatically stops or starts sampling.

2.11 Collection Monitoring Data Producers With Filter And Multiplexer

If a script has an execution multiplexer set, then it needs to determine for which nodes the script runs:

Example

[root@bright90~]# cat /path/to/my/collection
#!/usr/bin/python

import sys
import json
import random

def initialize(entity):
    metric = {
        "metric": "my.collection.metric",
        "entity": entity,
        "unit": "B",
        "class": "My/Collection"
    }
    check = {
        "check": "my.collection.check",

    }
Monitoring Data Producers

```python
def sample(entity):
    metric = {
        "metric": "my.collection.metric",
        "entity": entity,
        "value": random.randint(0, 32767)
    }
    check = {
        "check": "my.collection.check",
        "entity": entity,
        "value": 'PASS' if random.randint(0, 32767) > 8000 else 'FAIL'
    }
    return [metric, check]

def main():
    try:
        # determine for which node we are sampling
        entity = os.environ['CMD_HOSTNAME']
    except:
        sys.stderr.write('Target device not specified in environment\n')
        return

    if len(sys.argv) > 1 and sys.argv[1] == "--initialize":
        data = initialize(entity)
    else:
        data = sample(entity)
    print json.dumps(data, indent=4)

if __name__ == '__main__':
    main()
```

It can be defined with a filter to run on the active head for all nodes in the GPU category:

Example

```
[bright90]% monitoring setup
[...my-collection]% set script /path/to/my/collection
[...my-collection]% set format JSON
[...my-collection]% set interval 1m
[...nodeexecutionfilters]% active
Added active resource filter
[...nodeexecutionfilters]% exit
```

The script is then executed on the head, once for each node in the category of GPU.

2.12 Collection Monitoring Data Producers For Standalone Entities

Sometimes monitoring data does not belong to a Bright Cluster Manager entity.

For this reason the standalone monitored entity was added in Bright Cluster Manager 8.0.

This entity can be anything with a name and custom type.

Bright Cluster Manager does nothing with this kind of entity, except allow it to store monitoring data.
Each standalone entity which needs to be monitored should be added:

**Example**

```
[bright90] % monitoring standalone
[bright90->monitoring->standalone] % add MSD.0
[...standalone*{MSD.0*}] % set type Lustre
[...standalone*{MSD.0*}] % commit
[...standalone*{MSD.0*}] % add MSD.1
[...standalone*{MSD.1*}] % set type Lustre
[...standalone*{MSD.1*}] % commit
```

A script can be created that produces data for all MSD entities:

**Example**

```
[root@bright90 ~] # cat /path/to/my/collection
#!/usr/bin/python

import sys
import json

def initialize():
    msd_0 = {
        "metric": "lustre.free.space",
        "entity": "MSD.0",
        "unit": "B",
        "class": "Lustre"
    }
    msd_1 = {
        "metric": "lustre.free.space",
        "entity": "MSD.1",
        "unit": "B",
        "class": "Lustre"
    }
    return [msd_0, msd_1]

def sample():
    msd_0 = {
        "metric": "lustre.free.space",
        "entity": "MSD.0",
        "value": 12345
    }
    msd_1 = {
        "metric": "lustre.free.space",
        "entity": "MSD.1",
        "value": 54321
    }
    return [msd_0, msd_1]

def main():
    if len(sys.argv) > 1 and sys.argv[1] == "--initialize":
        data = initialize()
    else:
        data = sample()
    print json.dumps(data, indent=4)

if __name__ == '__main__':
    main()
```

It can be defined to run on only the active head node:

**Example**
The script is then executed on the active head every 5 minutes and collects one data point for each MSD.

Data for a standalone script can be viewed with the same commands as for regular Bright Cluster Manager nodes.

**Example**

```
[bright90]% monitoring standalone
[bright90->monitoring->standalone]% use MSD.0
[...standalone*{MSD.0*}]% latestmetricdata
...
lustre.free.space 12345 3m 47s
```

### 2.13 Debugging Standalone Scripts

Page 530 of the *Administrator Manual* describes how debugging information can be obtained when running `samplenow` with the `--debug` option with the `ntp healthcheck` script.

Many scripts under `/cm/local/apps/cmd/scripts/` can have their debug output inspected with `samplenow --debug`.

A recursive grep on the head node, similar to the following, should show which scripts have a settable debug environment:

```
grep -r CMD_DEBUG /cm/local/apps/cmd/scripts/
```

The debug output in the script can be specified along the lines of the following code snippet:

**Example**

```python
def debug = os.environ.get('CMD_DEBUG', '0') == '1'
if debug:
    # print stuff to fd 3
```
3 Monitoring Actions

This chapter covers how to manage monitoring-driven actions with cmsh.

3.1 Actions And Triggers

A monitoring action is a script that is executed by CMDaemon. It runs when triggered by the monitored data.

An action by itself does nothing—it needs a trigger (section 12.4.5 of the Administrator Manual) to be defined to execute the action.

By default, several actions (section 12.4.4 of the Administrator Manual) are predefined:

- **Drain**: Drain node (node refuses new WLM jobs)
- **Event**: Send an event to users with connected client
- **ImageUpdate**: Update the image on the node
- **PowerOff**: Power off a device
- **PowerOn**: Power on a device:
- **PowerReset**: Power reset a device
- **Reboot**: Reboot a node
- **Send e-mail to administrators**: Send e-mail
- **Shutdown**: Shutdown a node
- **Undrain**: Undrain node (node accepts new WLM jobs)
- **killprocess**: /cm/local/apps/cmd/scripts/actions/killprocess.pl
- **remount**: /cm/local/apps/cmd/scripts/actions/remount
- **testaction**: /cm/local/apps/cmd/scripts/actions/testaction

A new action script can be created as follows:

**Example**

```bash
[bright90]% monitoring action
[bright90->monitoring->action]% add script MyScript
[...MyScript*]% set script /path/to/MyScript
[...MyScript*]% commit
```

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### 3.2 Time Restrictions

It is possible to allow actions to only be executed at certain times, with the `allowedtime` setting.

**Example**

```
[bright90]% monitoring action
[bright90]->monitoring->action]% add script MyScript
[...MyScript%] set script /path/to/MyScript
[...MyScript%] set allowedtime "9:00-17:00"
[...MyScript%] commit
```

More complex timing restrictions are possible:

**Example**

- `monday-friday9:00-17:00`
- `monday-friday00:00-09:00;17:00-00:00;satursday-sunday`
- `november-marchmonday-saturday13:00-17:00`
- `may-septembermonday-friday09:00-18:00;satursday-sunday13:00-17:00`

Further examples can be seen in section 12.4.4 of the *Administrator Manual*, page 504.

#### 3.2.1 Time Restriction Syntax In BNF Notation

The allowed values can be written as a BNF grammar:

**Example**

```plaintext
<start> =
  time_intervals
| ""
<time_intervals> = <time_interval> ( ; <time_interval>)*
<time_interval> = <inner_time_interval> ( { time_intervals }
<inner_time_interval> =
  <day_of_week_interval>
  | <time_of_day_interval>
  | <day_of_month_interval>
  | <month_interval>
<day_of_week_interval> =
  ( <day_of_week> - <day_of_week> )
  | ( <day_of_week> , <day_of_week> )*
<day_of_week> = sunday | monday | tuesday | wednesday | thursday | friday | saturday
<time_of_day_interval> = <time_of_day> - <time_of_day>
<time_of_day> = \d?\d:\d\d
<month_interval> = ( <month> - <month> )
  | ( <month> , <month> )*
<month> = january | february | march | april | may | june | july | august | september
  | october | november | december
<day_of_month_interval> = ( <day_of_month> - <day_of_month> )
  | ( <day_of_month> , <day_of_month> )*
<day_of_month> = \d?\d
```

### 3.3 CMDaemon Environment Variables

#### 3.3.1 Standard Environment Variables Available In Action Scripts

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### 3.3 CMDaemon Environment Variables

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_ENTITY_KEY</td>
<td>The unique key of the entity that triggered the action.</td>
</tr>
<tr>
<td>CMD_ENTITY_NAME</td>
<td>The name of the entity that triggered the action.</td>
</tr>
<tr>
<td>CMD_ENTITY_TYPE</td>
<td>The type of entity that triggered the action.</td>
</tr>
<tr>
<td>CMD_MEASURABLE_NAME</td>
<td>The name of the measurable that triggered the action.</td>
</tr>
<tr>
<td>CMD_MEASURABLE_PARAMETER</td>
<td>The parameter of the measurable that triggered the action.</td>
</tr>
<tr>
<td>CMD_MEASURABLE_TYPE</td>
<td>The type of the measurable.</td>
</tr>
<tr>
<td>CMD_VALUE</td>
<td>The value that triggered the action.</td>
</tr>
<tr>
<td>CMD_RAW_VALUE</td>
<td>The raw value.</td>
</tr>
<tr>
<td>CMD_VALUE_TIME</td>
<td>The time on which the value was measured.</td>
</tr>
<tr>
<td>CMD_INFO_MESSAGE</td>
<td>Extra information sampled along with the value.</td>
</tr>
<tr>
<td>CMD_PRODUCER_NAME</td>
<td>The name of the monitoring data producer that samples the measurable.</td>
</tr>
</tbody>
</table>

...continues
...continued

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_ACTION_NAME</td>
<td>The name of the action that was triggered.</td>
</tr>
<tr>
<td>CMD_TRIGGER_NAME</td>
<td>The name of the trigger.</td>
</tr>
<tr>
<td>CMD_TRIGGER_EXPRESSION</td>
<td>The expression that was evaluated.</td>
</tr>
<tr>
<td>CMD_VALUE_EVAL</td>
<td>The result of the evaluated expression.</td>
</tr>
<tr>
<td>CMD_VALUE_COUNT</td>
<td>The number of times the expression evaluated to the same value.</td>
</tr>
<tr>
<td>CMD_SEVERITY</td>
<td>The assigned severity of the trigger.</td>
</tr>
</tbody>
</table>

All action scripts have the preceding standard environment variables set.

In cmsh, if the action object has its node environment parameter set to the value yes, then scripts running on a node are enabled with an extended environment that provides many more CMD_* environment variables. Otherwise they run in the standard environment.

A list of the standard or extended environment variables can be dumped by running the system command `env > /tmp/dumpfile` within an action script, such as the test example script, and triggering the script to run.

Many of the environment variables are similar to the ones used by initialize and finalize scripts (section E.3 of the Administrator Manual) in the node-installer environment.

### 3.3.2 Extended Environment Variables Available To Action Scripts

If the action object has its node environment parameter set to the value yes, then scripts run in an extended environment that provides many more CMD_* environment variables. Otherwise they run in the standard environment of section 3.3.1.

The following table shows the additionally available environment variables with some example values:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_ACTIVE_MASTER_IP</td>
<td>10.141.255.254</td>
</tr>
<tr>
<td>CMD_ADDED_NODES</td>
<td></td>
</tr>
</tbody>
</table>

...continues
### 3.3 CMDaemon Environment Variables

Table 3.3.2: Environment Variables For Nodes In The Extended Environment ...continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_BASE_TYPE</td>
<td></td>
</tr>
<tr>
<td>CMD_BMCIP</td>
<td></td>
</tr>
<tr>
<td>CMD_BMC_PASSWORD</td>
<td>doQNeV1qksXr590</td>
</tr>
<tr>
<td>CMD_BMCUSERID</td>
<td>4</td>
</tr>
<tr>
<td>CMD_BMC_USERNAME</td>
<td></td>
</tr>
<tr>
<td>CMD_BMC_TYPE</td>
<td>2</td>
</tr>
<tr>
<td>CMD_CATEGORY</td>
<td>default</td>
</tr>
<tr>
<td>CMD_CEPH_MDS_SOCKET</td>
<td></td>
</tr>
<tr>
<td>CMD_CEPH_MGR_SOCKET</td>
<td></td>
</tr>
<tr>
<td>CMD_CEPH_MON_SOCKET</td>
<td></td>
</tr>
<tr>
<td>CMD_CEPH_NAME</td>
<td></td>
</tr>
<tr>
<td>CMD_CEPH_OSD_ID</td>
<td></td>
</tr>
<tr>
<td>CMD_CEPH_OSD_SOCKET</td>
<td></td>
</tr>
<tr>
<td>CMD_CHASSIS</td>
<td>chassis01</td>
</tr>
<tr>
<td>CMD_CHASSIS_IP</td>
<td>10.141.1.1</td>
</tr>
<tr>
<td>CMD_CHASSIS_MEMBERS</td>
<td></td>
</tr>
<tr>
<td>CMD_CHASSIS_PASSWORD</td>
<td>secr3t</td>
</tr>
<tr>
<td>CMD_CHASSIS_SLOT</td>
<td>1</td>
</tr>
<tr>
<td>CMD_CHASSIS_USERNAME</td>
<td>ADMIN</td>
</tr>
</tbody>
</table>

...continues
Table 3.3.2: Environment Variables For Nodes In The Extended Environment …continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_CHILD_TYPE</td>
<td></td>
</tr>
<tr>
<td>CMD_CLUSTER_NAME</td>
<td>Bright 9.0 Cluster</td>
</tr>
<tr>
<td>CMD_CONFIGURATION_CREATE_DIRECTORY</td>
<td></td>
</tr>
<tr>
<td>CMD_CONFIGURATION_FILENAME</td>
<td></td>
</tr>
<tr>
<td>CMD_CONFIGURATION_GROUP_NAME</td>
<td></td>
</tr>
<tr>
<td>CMD_CONFIGURATION_MASK</td>
<td></td>
</tr>
<tr>
<td>CMD_CONFIGURATION_NAME</td>
<td></td>
</tr>
<tr>
<td>CMD_CONFIGURATION_USER_NAME</td>
<td></td>
</tr>
<tr>
<td>CMD_CREATE_RAMDISK_TOKEN_CATS</td>
<td></td>
</tr>
<tr>
<td>CMD_CREATE_RAMDISK_TOKEN_NODES</td>
<td></td>
</tr>
<tr>
<td>CMD_CURRENT_NODES</td>
<td></td>
</tr>
<tr>
<td>CMD_DATA</td>
<td></td>
</tr>
<tr>
<td>CMD_DELLFW_FTP_PASSWORD</td>
<td></td>
</tr>
<tr>
<td>CMD_DELLFW_FTP_USERNAME</td>
<td></td>
</tr>
<tr>
<td>CMD_DELLFW_PATH</td>
<td></td>
</tr>
<tr>
<td>CMD_DESTINATION_REVISION</td>
<td></td>
</tr>
<tr>
<td>CMD_DESTINATION_VERSION</td>
<td></td>
</tr>
<tr>
<td>CMD_DEVICE_HEIGHT</td>
<td>1</td>
</tr>
<tr>
<td>CMD_DEVICE_POSITION</td>
<td>10</td>
</tr>
</tbody>
</table>

...continues
Table 3.3.2: Environment Variables For Nodes In The Extended Environment ...continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_DEVICE_TYPE</td>
<td>ComputeNode</td>
</tr>
<tr>
<td>CMD_DIRECTOR</td>
<td></td>
</tr>
<tr>
<td>CMD_DIRECTOR_IP</td>
<td></td>
</tr>
<tr>
<td>CMD_DOCKER_ENDPOINTS</td>
<td></td>
</tr>
<tr>
<td>CMD_EDGE_SITE</td>
<td></td>
</tr>
<tr>
<td>CMD_ETCD_CA</td>
<td></td>
</tr>
<tr>
<td>CMD_ETCD_CAKEY</td>
<td></td>
</tr>
<tr>
<td>CMD_ETCD_CLIENT_CA</td>
<td></td>
</tr>
<tr>
<td>CMD_ETCD_CLIENT_CERT</td>
<td></td>
</tr>
<tr>
<td>CMD_ETCD_CLIENT_KEY</td>
<td></td>
</tr>
<tr>
<td>CMD_ETCD_MEMBER_CERT</td>
<td></td>
</tr>
<tr>
<td>CMD_ETCD_MEMBER_KEY</td>
<td></td>
</tr>
<tr>
<td>CMD ETHERNETSWITCH</td>
<td>switch01:1</td>
</tr>
<tr>
<td>CMD_EXISTING_REVISION</td>
<td></td>
</tr>
<tr>
<td>CMD_EXISTING_VERSION</td>
<td></td>
</tr>
<tr>
<td>CMD_EXPORTS</td>
<td></td>
</tr>
<tr>
<td>CMD_FAILONMISSINGBMC</td>
<td></td>
</tr>
<tr>
<td>CMD_FAIL_ON_FAILED_BMCOMMAND</td>
<td>YES</td>
</tr>
<tr>
<td>CMD_FSEXPORTS</td>
<td></td>
</tr>
</tbody>
</table>

...continues
Table 3.3.2: Environment Variables For Nodes In The Extended Environment ...continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_FSEXPORT_&lt;name&gt;_ALLOWWRITE</td>
<td></td>
</tr>
<tr>
<td>CMD_FSEXPORT_&lt;name&gt;_HOSTS</td>
<td></td>
</tr>
<tr>
<td>CMD_FSEXPORT_&lt;name&gt;_PATH</td>
<td></td>
</tr>
<tr>
<td>CMD_FSMOUNTS</td>
<td></td>
</tr>
<tr>
<td>CMD_FSMOUNT_&lt;name&gt;_DEVICE</td>
<td></td>
</tr>
</tbody>
</table>

where `<name>` takes these SLASH substitutions:

<table>
<thead>
<tr>
<th><code>&lt;name&gt;</code></th>
<th>example value</th>
</tr>
</thead>
<tbody>
<tr>
<td>_SLASH_cm_SLASH_shared</td>
<td>$localnfsserver:/cm/shared</td>
</tr>
<tr>
<td>_SLASH_dev_SLASH_pts</td>
<td>none</td>
</tr>
<tr>
<td>_SLASH_dev_SLASH_shm</td>
<td>none</td>
</tr>
<tr>
<td>_SLASH_home</td>
<td>$localnfsserver:/home</td>
</tr>
<tr>
<td>_SLASH_proc</td>
<td>none</td>
</tr>
<tr>
<td>_SLASH_sys</td>
<td>none</td>
</tr>
</tbody>
</table>

CMD_FSMOUNT_<name>_FILESYSTEM

where `<name>` takes these SLASH substitutions:

<table>
<thead>
<tr>
<th><code>&lt;name&gt;</code></th>
<th>example value</th>
</tr>
</thead>
<tbody>
<tr>
<td>_SLASH_cm_SLASH_shared</td>
<td>nfs</td>
</tr>
<tr>
<td>_SLASH_dev_SLASH_pts</td>
<td>devpts</td>
</tr>
<tr>
<td>_SLASH_dev_SLASH_shm</td>
<td>tmpfs</td>
</tr>
<tr>
<td>_SLASH_home</td>
<td>nfs</td>
</tr>
<tr>
<td>_SLASH_proc</td>
<td>proc</td>
</tr>
<tr>
<td>_SLASH_sys</td>
<td>sysfs</td>
</tr>
</tbody>
</table>

CMD_FSMOUNT_<name>_MOUNTPOINT

where `<name>` takes these SLASH substitutions:

<table>
<thead>
<tr>
<th><code>&lt;name&gt;</code></th>
<th>example value</th>
</tr>
</thead>
<tbody>
<tr>
<td>_SLASH_cm_SLASH_shared</td>
<td>/cm/shared</td>
</tr>
<tr>
<td>_SLASH_dev_SLASH_pts</td>
<td>/dev/pts</td>
</tr>
<tr>
<td>_SLASH_dev_SLASH_shm</td>
<td>/dev/shm</td>
</tr>
<tr>
<td>_SLASH_home</td>
<td>/home</td>
</tr>
<tr>
<td>_SLASH_proc</td>
<td>/proc</td>
</tr>
<tr>
<td>_SLASH_sys</td>
<td>/sys</td>
</tr>
</tbody>
</table>

CMD_FSMOUNT_<name>_OPTIONS

...continues
### 3.3 CMDaemon Environment Variables

Table 3.3.2: Environment Variables For Nodes In The Extended Environment...continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_GATEWAY</td>
<td>10.141.255.254</td>
</tr>
<tr>
<td>CMD_GUID</td>
<td></td>
</tr>
<tr>
<td>CMD_HAPROXY_HOST</td>
<td></td>
</tr>
<tr>
<td>CMD_HOSTNAME</td>
<td>node004</td>
</tr>
<tr>
<td>CMD_INITRD</td>
<td></td>
</tr>
<tr>
<td>CMD_INITRD_KERNEL_PARAMS</td>
<td></td>
</tr>
<tr>
<td>CMD_INITRD_KERNEL_VERSION</td>
<td></td>
</tr>
<tr>
<td>CMD_INITRD_TMPFS_SIZE</td>
<td></td>
</tr>
<tr>
<td>CMD_INSTALLMODE</td>
<td>AUTO</td>
</tr>
<tr>
<td>CMD_INSTANCE_ID</td>
<td></td>
</tr>
<tr>
<td>CMD_INTERFACES</td>
<td>BOOTIF</td>
</tr>
<tr>
<td>CMD_INTERFACE_&lt;interface&gt;_BOND</td>
<td></td>
</tr>
<tr>
<td>CMD_INTERFACE_&lt;interface&gt;_BRIDGE</td>
<td></td>
</tr>
<tr>
<td>CMD_INTERFACE_&lt;interface&gt;_DHCP</td>
<td></td>
</tr>
<tr>
<td>CMD_INTERFACE_&lt;interface&gt;_GATEWAY</td>
<td></td>
</tr>
<tr>
<td>CMD_INTERFACE_&lt;interface&gt;_IP</td>
<td>10.141.0.5</td>
</tr>
</tbody>
</table>

where `<name>` takes these SLASH substitutions:

<table>
<thead>
<tr>
<th><code>&lt;name&gt;</code></th>
<th>example value</th>
</tr>
</thead>
<tbody>
<tr>
<td>_SLASH_cm_SLASH_shared</td>
<td>rsize=32768,wsize=32768,hard,intr,async</td>
</tr>
<tr>
<td>_SLASH_dev_SLASH_pts</td>
<td>gid=5,mode-620</td>
</tr>
<tr>
<td>_SLASH_dev_SLASH_shm</td>
<td>defaults</td>
</tr>
<tr>
<td>_SLASH_home</td>
<td>rsize=32768,wsize=32768,hard,intr,async</td>
</tr>
<tr>
<td>_SLASH_proc</td>
<td>defaults,nosuid</td>
</tr>
<tr>
<td>_SLASH_sys</td>
<td>/defaults</td>
</tr>
</tbody>
</table>

...continues
Table 3.3.2: Environment Variables For Nodes In The Extended Environment...continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_INTERFACE_(&lt;interface&gt;_LANCHANNEL</td>
<td></td>
</tr>
<tr>
<td>CMD_INTERFACE_(&lt;interface&gt;_MAC</td>
<td>00:00:00:00:00:00</td>
</tr>
<tr>
<td>CMD_INTERFACE_(&lt;interface&gt;_MODE</td>
<td>1500</td>
</tr>
<tr>
<td>CMD_INTERFACE_(&lt;interface&gt;_MTU</td>
<td>1500</td>
</tr>
<tr>
<td>CMD_INTERFACE_(&lt;interface&gt;_NETMASK</td>
<td></td>
</tr>
<tr>
<td>CMD_INTERFACE_(&lt;interface&gt;_REVISION</td>
<td></td>
</tr>
<tr>
<td>CMD_INTERFACE_(&lt;interface&gt;_SLAVES</td>
<td></td>
</tr>
<tr>
<td>CMD_INTERFACE_(&lt;interface&gt;_SPEED</td>
<td></td>
</tr>
<tr>
<td>CMD_INTERFACE_(&lt;interface&gt;_STARTIF</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>CMD_INTERFACE_(&lt;interface&gt;_TYPE</td>
<td>NetworkPhysicalInterface</td>
</tr>
<tr>
<td>CMD_INTERFACE_(&lt;interface&gt;_VLANID</td>
<td></td>
</tr>
</tbody>
</table>

In the preceding CMD_INTERFACE_\(<interface>_ variables, \(<interface>_ can take the following substitutions for the network interface:

- possible values for \(<interface>_:
  - BOOTIF
  - drac0, drac1, drac2...
  - cimc0, cimc1, cimc2...
  - eth0, eth1, eth2...
  - ib0, ib1, ib2...
  - ilo0, ilo1, ilo2...
  - ipmi0, ipmi1, ipmi2...
  - rf0, rf1, rf2...
  - eno1, enp0s18f2, and other names consistent with the RHEL7 interface naming convention

CMD_IP | 10.141.0.1 |
CMD_JOBNODELIST |  |
CMD_KUBERNETES_ADMIN_CERT |  |
CMD_KUBERNETES_ADMIN_CERT_KEY |  |

...continues

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### 3.3 CMDaemon Environment Variables

**Table 3.3.2: Environment Variables For Nodes In The Extended Environment ...continued**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_KUBERNETES_ADMIN_KUBECONFIG</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBERNETES_APISERVER_ENDPOINT</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBERNETES_CACERT</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBERNETES_CLIENT_CERTIFICATE</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBERNETES_CLIENT_KEY</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBERNETES_ETCD_ACTIVE</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBERNETES_ETCD_CLIENT_ENDPOINTS</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBERNETES_KUBELET_CERTIFICATE</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBERNETES_KUBELET_ENDPOINT</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBERNETES_KUBELET_KEY</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBE_DNS_IP</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBE_DOMAIN</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBE_INTERNAL_NETWORK_CIDR</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBE_POD_NETWORK_CIDR</td>
<td></td>
</tr>
<tr>
<td>CMD_KUBE_SERVICE_NETWORK_CIDR</td>
<td></td>
</tr>
<tr>
<td>CMD_LOGGING_CONFIG</td>
<td></td>
</tr>
<tr>
<td>CMD_MAC</td>
<td>FA:16:3E:64:8E:1E</td>
</tr>
<tr>
<td>CMD_MODEL</td>
<td></td>
</tr>
<tr>
<td>CMD_MODULES</td>
<td></td>
</tr>
</tbody>
</table>

...continues
Table 3.3.2: Environment Variables For Nodes In The Extended Environment ...continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_MODULE_&lt;name&gt;</td>
<td></td>
</tr>
<tr>
<td>CMD_MOUNTS</td>
<td></td>
</tr>
<tr>
<td>CMD_NAME</td>
<td></td>
</tr>
<tr>
<td>CMD_NODEGROUPS</td>
<td></td>
</tr>
<tr>
<td>CMD_NODEGROUP_NAME</td>
<td></td>
</tr>
<tr>
<td>CMD_NODEGROUP_UID</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_CINDER_PASSWORD</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_CINDER_USERNAME</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_ENABLED</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_GLANCE_PASSWORD</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_GLANCE_USERNAME</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_KEYSTONE_INTERNAL_URL</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_KEYSTONE_PASSWORD</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_KEYSTONE_PUBLIC_URL</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_KEYSTONE_URL</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_KEYSTONE_USERNAME</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_MANAGER_PASSWORD</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_MANAGER_USERNAME</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_MESSAGE_QUEUE_HOSTS</td>
<td></td>
</tr>
</tbody>
</table>

...continues
<table>
<thead>
<tr>
<th>Variable</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_OPENSTACK_MESSAGE_QUEUE_PASSWORD</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_MESSAGE_QUEUE_USERNAME</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_NOVA_PASSWORD</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_NOVA_USERNAME</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_REGIONS</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_SERVICE_TENANT</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_SSL_ENABLED</td>
<td></td>
</tr>
<tr>
<td>CMD_OPENSTACK_TENANTS</td>
<td></td>
</tr>
<tr>
<td>CMD_OWNED_INDEX</td>
<td></td>
</tr>
<tr>
<td>CMD_PARTITION</td>
<td>base</td>
</tr>
<tr>
<td>CMD_PASSIVE_MASTER_IP</td>
<td>10.141.255.253</td>
</tr>
<tr>
<td>CMD_PDUS</td>
<td></td>
</tr>
<tr>
<td>CMD_PORT</td>
<td>8081</td>
</tr>
<tr>
<td>CMD_PORTS</td>
<td></td>
</tr>
<tr>
<td>CMD_POWER_CONTROL</td>
<td>custom</td>
</tr>
<tr>
<td>CMD_PROTOCOL</td>
<td>https</td>
</tr>
<tr>
<td>CMD_RACADM_PATH</td>
<td></td>
</tr>
<tr>
<td>CMD_RACK</td>
<td>rack01</td>
</tr>
<tr>
<td>CMD_RACK_HEIGHT</td>
<td>42</td>
</tr>
</tbody>
</table>

...continues
Table 3.3.2: Environment Variables For Nodes In The Extended Environment ...continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_RACK_ROOM</td>
<td>serverroom</td>
</tr>
<tr>
<td>CMD_READ_STRING</td>
<td></td>
</tr>
<tr>
<td>CMD_REMOVED_NODES</td>
<td></td>
</tr>
<tr>
<td>CMD_RESOLVE_NAME</td>
<td></td>
</tr>
<tr>
<td>CMD_ROLES</td>
<td></td>
</tr>
<tr>
<td>CMD_SCRIPT_TIMEOUT</td>
<td>5</td>
</tr>
<tr>
<td>CMD_SCRIPT_TIMEOUT</td>
<td>5</td>
</tr>
<tr>
<td>CMD_SHARED_MASTER_IP</td>
<td>10.141.255.252</td>
</tr>
<tr>
<td>CMD_SKIPBMC</td>
<td></td>
</tr>
<tr>
<td>CMD_SOFTWAREIMAGE</td>
<td>default-image</td>
</tr>
<tr>
<td>CMD_SOFTWAREIMAGE_PATH</td>
<td>/cm/images/default-image</td>
</tr>
<tr>
<td>CMD_STATE</td>
<td></td>
</tr>
<tr>
<td>CMD_STATUS</td>
<td></td>
</tr>
<tr>
<td>CMD_STATUS_CLOSED</td>
<td>NO</td>
</tr>
<tr>
<td>CMD_STATUS_HEALTHCHECK_FAILED</td>
<td>NO</td>
</tr>
<tr>
<td>CMD_STATUS_HEALTHCHECK_UNKNOWN</td>
<td>NO</td>
</tr>
<tr>
<td>CMD_STATUS_MESSAGE</td>
<td></td>
</tr>
<tr>
<td>CMD_STATUS_RESTART_REQUIRED</td>
<td>NO</td>
</tr>
<tr>
<td>CMD_STATUS_STATEFLAPPING</td>
<td>NO</td>
</tr>
</tbody>
</table>

...continues
### 3.3 CMDaemon Environment Variables

Table 3.3.2: Environment Variables For Nodes In The Extended Environment ...continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Example Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD_STATUS_USERMESSAGE</td>
<td></td>
</tr>
<tr>
<td>CMD.StrictUserID</td>
<td></td>
</tr>
<tr>
<td>CMD_SUBNET_MANAGER</td>
<td></td>
</tr>
<tr>
<td>CMD_SWITCH_CONTROL_SCRIPT</td>
<td></td>
</tr>
<tr>
<td>CMD_SWITCH_CONTROL_SCRIPT_TIMEOUT</td>
<td></td>
</tr>
<tr>
<td>CMD_SYSINFO_SYSTEM_MANUFACTURER</td>
<td>RDO</td>
</tr>
<tr>
<td>CMD_SYSINFO_SYSTEM_NAME</td>
<td>OpenStack Compute</td>
</tr>
<tr>
<td>CMD_TAG</td>
<td>00000000a000</td>
</tr>
<tr>
<td>CMD_TARGET_NAME</td>
<td></td>
</tr>
<tr>
<td>CMD_TARGET_NODES</td>
<td></td>
</tr>
<tr>
<td>CMD_TYPE</td>
<td></td>
</tr>
<tr>
<td>CMD_TYPES</td>
<td></td>
</tr>
<tr>
<td>CMD_UCS_DN</td>
<td>sys/rack-unit-1</td>
</tr>
<tr>
<td>CMD_USERDEFINED1</td>
<td>var1</td>
</tr>
<tr>
<td>CMD_USERDEFINED2</td>
<td>var2</td>
</tr>
<tr>
<td>CMD_VMLINUZ</td>
<td></td>
</tr>
<tr>
<td>CMD_WRITE_STRING</td>
<td></td>
</tr>
</tbody>
</table>
CMDaemon REST API

Some data from CMDaemon can be accessed via its REST API.

The REST API only allows data to be retrieved at the time of writing of this section (October 2018). Data cannot currently be updated or removed.

4.1 Authentication, And Definition Of <curlauth>

Two forms of authentication are supported:

- Basic: HTTP authentication (--basic option of curl)

The following three commands give identical results:

[alice@bright90 ~]$ curl -k --basic --user "alice:password" "https://master:8081/rest"
[alice@bright90 ~]$ curl -k --basic --user "alice:$(path to password file)" "https://master:8081/rest"
[alice@bright90 ~]$ curl --cert ~/.cm/cert.pem --key ~/.cm/cert.key -k "https://master:8081/rest"

For security, it is best to use the certificate key-based version.

For convenience, the command and authority parts of the preceding three commands—that is the string in the line that includes the text from curl to 8081 in the three curl commands—is designated by <curlauth> in this chapter. Thus, each of the commands can be represented by:

Example

[alice@bright90 ~]$ <curlauth>/rest"

This allows the reader to focus on the path segment and variables part of the API.

4.2 Browsing The API

A summary diagram of the REST API is shown in figure 4.1:
The remainder of this section elaborates upon the diagram. The API directory structure is documented within the directory itself. A GET operation on the main /rest entry point can list all subdirectories:

**Example**

```bash
[alice@bright90 ~]$ <curlauth>/rest
["v1"]
```

New lines are not part of the output by default. Setting a parameter of 1 or 2 for the `indent` variable uses newlines and an indentation of one or two spaces, which makes the API output more readable for all API resource paths:

**Example**

```bash
[alice@bright90 ~]$ <curlauth>/rest?indent=1

[ "v1"
```

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4.2 Browsing The API

Appending /v1 to the URL gives the functionality available in the first version of the REST API.

Example

```
/alice@bright90 ~]$ <curlauth>/rest/v1?indent=1
[
    "monitoring",
    "status",
    "session",
    "check"
]
```

Appending /monitoring to the URL lists the subdirectory functionality available for monitoring.

Example

```
alice@bright90 ~]$ <curlauth>/rest/v1/monitoring?indent=1
[
    "entity",
    "measurable",
    "latest",
    "dump",
    "usage"
]
```

4.2.1 Returning A Status Using /v1/status

The status resource path returns the UP/DOWN status for all devices:

Example

```
alice@bright90 ~]$ <curlauth>/rest/v1/status?indent=2
[
    {
        "hostname": "bright90",
        "status": "UP"
    },
    {
        "hostname": "node001",
        "status": "UP"
    },
    {
        "hostname": "node002",
        "status": "DOWN"
    }
]
```

The status can also be requested for a single device:

Example

```
alice@bright90 ~]$ <curlauth>/rest/v1/status?name=node001&indent=2
[
    {
        "hostname": "node001",
        "status": "UP"
    }
]
```

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The “two dots” list specification format (section 2.5.5 of the Administrator Manual) used in Bright View and cmsh can also be used in the API:

**Example**

```
[alice@bright90 ~]$ <curlauth>/rest/v1/status?name=node001..node002&indent=2
[
    {  
        "hostname": "node001",  
        "status": "UP"
    },
    {  
        "hostname": "node002",  
        "status": "DOWN"
    }
]
```

For more detailed information, the verbose parameter can be added (output truncated):

**Example**

```
[alice@bright90 ~]$ <curlauth>/rest/v1/status?verbose=1&indent=2
[
    {  
        "health_check_failed": true,  
        "health_check_unknown": false,  
        "hostname": "bright90",  
        "provisioning_failed": false,  
        "restart_required": false,  
        "status": "UP"
    },
    {  
        "health_check_failed": true,  
        "health_check_unknown": false,  
        "hostname": "node001",  
        "provisioning_failed": false,
        ...
```

### 4.2.2 Monitoring Using /v1/monitoring Entities Via /v1/monitoring/entity

The entity resource returns information about the entities that are known to the monitoring system. It is possible for an entity known to the monitoring system to have no data.

**Example**

```
[alice@bright90 ~]$ <curlauth>/rest/v1/monitoring/entity?indent=1
{
    "entities": [
    
    {  
        "key": 12884901889,  
        "name": "default",  
        "type": "Category"
    },
    
    {  
        "key": 17179869185,  
        "name": "globalnet",  
        "type": "Network"
    }
]
```
A regex matcher can be used to find entities based on a name match:
Example

```
[alice@bright90 ~]$ <curlauth>/rest/v1/monitoring/entity?like=lobal&indent=1
{
  "entities": [
    {
      "key": 17179869185,
      "name": "globalnet",
      "type": "Network"
    }
  ]
}
```

```
[alice@bright90 ~]$ <curlauth>/rest/v1/monitoring/entity?like=nod.0*1&indent=1
{
  "entities": [
    {
      "key": 38654705666,
      "name": "node001",
      "type": "PhysicalNode"
    }
  ]
}
```

**Measurables Via /v1/monitoring/measurable**

This entry returns information about the defined measurables.

Example

```
[alice@bright90 ~]$ <curlauth>/rest/v1/monitoring/measurable?indent=1
{
  "measurables": [
    {
      "key": 261993005057,
      "name": "IpForwDatagrams",
      "type": "metric"
    },
    {
      "key": 261993005058,
      "name": "IpFragCreates",
      "type": "metric"
    },
    {
      "key": 261993005059,
      "name": "IpFragFails",
      "type": "metric"
    },
    ...
typically hundreds more lines...
```

```
[alice@bright90 ~]$ <curlauth>/rest/v1/monitoring/measurable?name=loadone&indent=1
{
  "measurables": [
    {
      "key": 261993005138,
      "name": "LoadOne",
      "type": "metric"
    }
  ]
}
```
4.2 Browsing The API

```bash
[alice@bright90 ~]$ curlauth
> /rest/v1/monitoring/measurable?like=load&indent=1
{
  "measurables": [
    
    "key": 261993005136,
    "name": "LoadFifteen",
    "type": "metric"
  
  "key": 261993005137,
    "name": "LoadFive",
    "type": "metric"
  
  "key": 261993005138,
    "name": "LoadOne",
    "type": "metric"
  ]
}
```

Data Usage Via `/v1/monitoring/usage`

The usage resource is intended to show which (entity, measurable) pairs have data. For example, nodes with only 1 disk do not have data, if their associated measurables have the string `sdb` in their name.

To get the complete usage:

**Example**

```bash
[alice@bright90 ~]$ curlauth
> /rest/v1/monitoring/usage?indent=1
{
  "data": [
    
    "entity": "default",
    "measurable": "CoresTotal"
  
    "entity": "default",
    "measurable": "CoresUp"
  ]
...typically hundreds more lines...
```

It is also possible to get all the measurables for which a specific entity, such as `node001`, has data.

**Example**

```bash
[alice@bright90 ~]$ curlauth
> /rest/v1/monitoring/usage?entity=node001&indent=1
{
  "data": [
    
    "entity": "node001",
    "measurable": "IpForwDatagrams"
  
    "entity": "node001",
```

© Bright Computing, Inc.
"measurable": "IpFragCreates"
},
{
"entity": "node001",
"measurable": "IpFragFails"
},
...typically hundreds more lines...

Or all entities which have data for a specific measurable such as loadone:

Example

```
[alice@bright90 ~]$ <curlauth>/rest/v1/monitoring/usage?measurable=loadone&indent=1
{
  "data": [
    {
      "entity": "bright90",
      "measurable": "LoadOne"
    },
    {
      "entity": "node001",
      "measurable": "LoadOne"
    }
  ]
}
```

The Latest Monitoring Data Via /v1/monitoring/latest

The latest resource can be used to retrieve the last known sampled data points.

It is possible to get the latest monitoring data for all (entity, measurable) pairs.

This may result in a lot of information: about 125 bytes per (entity, measurable) pair.

Example

```
[alice@bright90 ~]$ <curlauth>/rest/v1/monitoring/latest?indent=1
{
  "data": [
    {
      "age": 47.868,
      "entity": "default",
      "measurable": "CoresTotal",
      "raw": 1.0,
      "time": 1540476088861,
      "value": "1"
    },
    {
      "age": 47.868,
      "entity": "default",
      "measurable": "CoresUp",
      "raw": 1.0,
      "time": 1540476088861,
      "value": "1"
    },
    {
      "age": 47.868,
      "entity": "default",
      "measurable": "NodesClosed",
```

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The latest data can be requested for a selection of entities and measurables.

Example

[alice@bright90 ~]$ curlauth:/rest/v1/monitoring/latest?entity=node001&indent=1
{
  "data": [
  {
    "age": 138.625,
    "entity": "node001",
    "measurable": "IpForwDatagrams",
    "raw": 0.0,
    "time": 1540476100389,
    "value": "0/s"
  },
  {
    "age": 138.625,
    "entity": "node001",
    "measurable": "IpFragCreates",
    "raw": 0.0,
    "time": 1540476100389,
    "value": "0/s"
  },
  {
    "age": 138.625,
    "entity": "node001",
    "measurable": "IpFragFails",
    "raw": 0.0,
    "time": 1540476100389,
    "value": "0/s"
  },
  ...
typically thousands more lines...

[alice@bright90 ~]$ curlauth:/rest/v1/monitoring/latest?entity=node001..node004&indent=1
...as for previous output but for the range of nodes001..node004...

[alice@bright90 ~]$ curlauth:/rest/v1/monitoring/latest?measurable=LoadOne&indent=1
{
  "data": [
  {
    "age": 114.099,
    ...
typically hundreds more lines...

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Historic Data Dump Via /v1/monitoring/dump

Dumping historic data can be done using the entry point:

Example

```
[alice@bright90 ~]$ <curlauth>/rest/v1/monitoring/dump?<options>"
```

The dump resource has several options:

- **entity**: name or range of entities
- **measurable**: name of the measurable
- **start**: time to be plotted (default: -1h)
- **end**: end to be plotted (default: now)
- **intervals**: number of interpolation intervals (default: 0, raw data)
- **epoch**: display timestamps as unix epoch (default: 0)

The time specification format is the same one used for the dumpmonitoringdata command (section 12.6.4 of the Administrator Manual).

To prevent gigabytes of data being retrieved when no options are specified, **entity** and **measurable** must be specified.

If there is a need to dump all the monitoring data, then it can be done by specifying empty strings for both entity and measurable. For example, the following command dumps all raw data for the default last hour:
Example

```
[alice@bright90 ~]$ curl -X GET -H "Authorization: Bearer <access_token>
/rest/v1/monitoring/dump?entity=&measurable=&indent=1"
{
  "data": [
    {
      "entity": "default",
      "measurable": "CoresTotal",
      "raw": 1.0,
      "time": "2018/10/25 13:15:28",
      "value": "1"
    },
    {
      "entity": "default",
      "measurable": "CoresTotal",
      "raw": 1.0,
      "time": "2018/10/25 16:35:28",
      "value": "1"
    },
    {
      "entity": "default",
      "measurable": "CoresUp",
      "raw": 1.0,
      "value": "1"
    }
  ]
  ...
typically thousands more lines...
```

4.2.3 Session Using /v1/session

The response to the sessions method is similar to the output from listing in session mode of cmsh (cmsh -c "session list")

The method lists the sessions that the cluster manager is involved with.

Example

```
[alice@bright90 ~]$ curl -X GET -H "Authorization: Bearer <access_token>
/rest/v1/session/indent=1"
{
  {
    "address": "127.0.0.1",
    "group": "admin",
    "node": "bright90",
    "type": "node",
    "username": ""
  },
  {
    "address": "10.141.255.254",
    "group": "admin",
    "type": "node",
    "username": ""
  },
  {
    "address": "10.141.0.1",
    "group": "node",
    "node": "node001",
    "type": "node",
    "username": ""
  }
```

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},
{
   "address": "10.141.0.2",
   "group": "node",
   "node": "node002",
   "type": "node",
   "username": ""
}
This chapter gives an alphabetical list of the JSON API services and entities available for Bright Cluster Manager. The API reference documentation for all available services and entities is available on the head node at:

/cm/local/apps/cmd/etc/htdocs/userportal/download/json/index.html.

It can also be accessed via the user portal of the cluster by clicking on the JSON API documentation link in the documentation section of the home page (Section 12.7.4 of the Administrator Manual).

Some examples of JSON usage are given in section 5.3

### 5.1 Services

- **5.1.1 auth**
- **5.1.2 ceph**
- **5.1.3 cert**
- **5.1.4 cloud**
- **5.1.5 device**
- **5.1.6 etcd**
- **5.1.7 gui**
- **5.1.8 job**
- **5.1.9 keyvalue**
- **5.1.10 kube**
- **5.1.11 main**
- **5.1.12 mon**
- **5.1.13 net**
- **5.1.14 openstack**
- **5.1.15 part**
- **5.1.16 proc**
- **5.1.17 prov**
- **5.1.18 serv**
- **5.1.19 session**
- **5.1.20 status**
- **5.1.21 test**
- **5.1.22 user**

### 5.2 Entities
5.2.1 AMDGPUSettings: GPUSettings

parent: GPUSettings
Parameter: gpuClockLevel
Type: unsigned integer
Description: Set the GPU clock frequency level

Parameter: memClockLevel
Type: unsigned integer
Description: Set the GPU memory clock frequency level

Parameter: powerplay
Type: string
Description: Set powerplay level

Parameter: overdrive
Type: unsigned integer
Description: This sets the percentage above maximum for the max Performance Level.

Parameter: fanspeed
Type: unsigned integer
Description: Fan speed value

Parameter: minimalGPUClock
Type: unsigned integer
Description: Minimum GPU clock speed in MHz

Parameter: minimalMemoryClock
Type: unsigned integer
Description: Minimum GPU Memory clock speed in MHz

Parameter: activityThreshold
Type: unsigned integer
Description: Workload required before clock levels change (%)

Parameter: hysteresisUp
Type: unsigned integer
Description: Delay before clock level is increased in milliseconds

Parameter: hysteresisDown
Type: unsigned integer
Description: Delay before clock level is decreased in milliseconds

5.2.2 ANFVolume: Entity

parent: Entity
Parameter: id
Type: string
Description:  Unique identifier

Parameter:  name
Type:  string
Description:  Name of the ANF volume.

Parameter:  owner
Type:  string
Description:  Owner of the Azure NetApp pool and volume

Parameter:  resourceGroup
Type:  string
Description:  The resource group where the volume was created

Parameter:  netAppAccount
Type:  string
Description:  The NetApp account name where the volume was created

Parameter:  location
Type:  string
Description:  The Azure location where the volume was created

Parameter:  size
Type:  unsigned integer
Description:  Size in TB. Should be at least 4

Parameter:  status
Type:  string
Description:  Status of the volume

Parameter:  mountPath
Type:  string
Description:  String containing IP and mount path of the volume

Parameter:  management
Type:  enum
Description:  Volume management type

Parameter:  creationTime
Type:  string
Description:  Creation time

Parameter:  sharedWith
Type:  list of strings
Description:  Other cmjob users that can use this volume for jobs.
5.2.3  ArchOSInfo: Entity
parent: Entity
Parameter: arch
Type: enum
Description: Architecture

Parameter: os
Type: enum
Description: Operating system

5.2.4  ArchOS: ArchOSInfo
parent: ArchOSInfo
Parameter: primaryImage
Type: reference to SoftwareImage
Description: Image used to boot new nodes and keep /cm/shared up to date

Parameter: shared
Type: reference to FSPart or None
Description: Shared directory

Parameter: installer
Type: reference to FSPart or None
Description: Node installer

Parameter: priority
Type: unsigned integer
Description: Priority

5.2.5  AWSIntermediateStorage: CMJobIntermediateStorage
parent: CMJobIntermediateStorage
Parameter: bucket
Type: string
Description: S3 Bucket name

Parameter: region
Type: string
Description: Region for S3 bucket

Parameter: maxObjectLifetime
Type: float
Description: Max time to store data in bucket (0 for infinite)

Parameter: maxFSxInstanceCapacity
Type: unsigned integer
Description: Maximum FSx instance size(GiB) that user can request.

Parameter: maxFSxInstanceCountPerUser
Type: unsigned integer
Description: Maximum amount of FSx instances that a user can have simultaneously.

Parameter: defaultFSxInstanceCapacity
Type: unsigned integer
Description: Default capacity of an FSx instance, used if not specified during creation.

Parameter: securityGroupFSx
Type: string
Description: Security group ID of the FSx instances

### 5.2.6 AzureDataDisk : AzureDisk

**parent**: AzureDisk

**Parameter**: lun
Type: unsigned integer
Description: Logical unit number of a block device to be attached

**Parameter**: removeOnTermination
Type: boolean
Description: If true, the drive will be removed when the instance it is attached to gets terminated

### 5.2.7 AzureDisk : Entity

**parent**: Entity

**Parameter**: name
Type: string
Description: Name of the data disk

**Parameter**: size
Type: unsigned integer
Description: Size of the drive

**Parameter**: image
Type: string
Description: URL to a source image for the disk

**Parameter**: storageAccountName
Type: string
Description: Name of a storage account to hold the disk

**Parameter**: imageContainerName
Type: string
Description: If the disk has the image url set, the image will be copied to a container with this name

**Parameter**: containerName
Type: string
Description: Name of a container in storage account to hold the disk

**Parameter**: managedDiskParameters
Type: AzureManagedDiskParameters
Description: Azure Managed Disk parameters

5.2.8 AzureExtension: Entity
parent: Entity
Parameter: name
  Type: string
  Description: User-defined name of the private cloud

Parameter: location
  Type: reference to AzureLocation
  Description: Region of the cluster extension

Parameter: resourceGroup
  Type: string
  Description: Azure resource group name for all resources in the extension

Parameter: network
  Type: reference to Network
  Description: Network associated with the extension

Parameter: extraField
  Type: list of strings
  Description: Reserved

5.2.9 AzureIntermediateStorage: CMJobIntermediateStorage
parent: CMJobIntermediateStorage
Parameter: storageAccount
  Type: string
  Description: Azure storage account name

Parameter: accessKey
  Type: string
  Description: Azure storage account access key

Parameter: container
  Type: string
  Description: Container name to place data into

Parameter: netAppSubnet
  Type: string
  Description: Subnet where ANF volumes will be created

Parameter: netAppNetwork
  Type: string
  Description: Network where the NetApp Subnet was created

Parameter: netAppAccountName
  Type: string
5.2 Entities

Description: Name of the NetApp account to create ANF volumes

Parameter: netAppServiceLevel
Type: string
Description: Service Level for newly created ANF volumes

Parameter: maxANFVolumeCapacity
Type: unsigned integer
Description: Maximum ANF volume size(TiB) that user can request.

Parameter: maxANFVolumeCountPerUser
Type: unsigned integer
Description: Maximum amount of ANF volumes that a user can have simultaneously.

Parameter: defaultANFVolumeCapacity
Type: unsigned integer
Description: Default capacity of an ANF volume, used if not specified during creation.

5.2.10 AzureLocation : CloudRegion
parent: CloudRegion

5.2.11 AzureManagedDiskParameters : Entity
parent: Entity
Parameter: id
Type: string
Description: Managed disks resource ID

Parameter: storageAccountType
Type: string
Description: Storage account type for managed disks

5.2.12 AzureOSDisk : AzureDisk
parent: AzureDisk
Parameter: cachingType
Type: enum
Description: Disk caching type

5.2.13 AzureProvider : CloudProvider
parent: CloudProvider
Parameter: subscriptionId
Type: string
Description: Azure Subscription ID.

Parameter: clientId
Type: string
Description: Azure Client ID.

Parameter: clientSecret
Type: string
Description: Azure Client Secret.

Parameter: tenantId
Type: string
Description: Tenant ID.

Parameter: defaultLocation
Type: reference to AzureLocation or None
Description: Default location to start virtual machine in.

Parameter: defaultVMSize
Type: reference to AzureVMSize or None
Description: Default cloud node VM size.

Parameter: defaultDirectorVMSize
Type: reference to AzureVMSize or None
Description: Default cloud director VM size.

Parameter: extensions
Type: list of AzureExtension
Description: List of extensions

Parameter: defaultNodeInstallerImage
Type: string
Description: Default node-installer image, can be overridden in the OS disk.

Parameter: marketplaceUsePolicy
Type: enum
Description: Preference towards using marketplace images

Parameter: useFreeMarketplaceImage
Type: boolean
Description: If set to 'true', the cloud nodes falling within the node license count will be created using a node-installer marketplace image coming from the Azure marketplace. This is the recommended default. If set to false, a legacy behavior will be enabled, which will make CMDaemon perform a (one-time) server-side copy of the node-installer image to the cluster-extension's storage account from the storage account path specified by 'defaultNodeInstallerImage'.

5.2.14 AzureSettings: CloudSettings
parent: CloudSettings
Parameter: instanceId
Type: string
Description: Instance-ID provided by Azure

Parameter: instanceUrl
Type: string
Description: Availability set resource identifier

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5.2 Entities

Parameter: nicId
Type: string
Description: Network interface identifier

Parameter: location
Type: reference to AzureLocation
Description: Virtual Machine location

Parameter: resourceGroupName
Type: string
Description: Azure Resource Group Name

Parameter: storageAccountName
Type: string
Description: Name of a storage account where boot diagnostics will be stored for this instance

Parameter: deploymentName
Type: string
Description: Name of the Azure deployment associated with this node

Parameter: publicIpName
Type: string
Description: Name of a public ip object to be assigned to the node

Parameter: VMSize
Type: reference to AzureVMSize
Description: Virtual Machine size

Parameter: disks
Type: list of AzureDisk
Description: Storage disks.

Parameter: marketplaceUsePolicy
Type: enum
Description: Preference towards using marketplace Images

Parameter: availabilityZone
Type: string
Description: Azure Availability zone where all the resources related to this VM will be allocated

Parameter: useFreeMarketplaceImage
Type: boolean
Description: If set to ‘true’, the cloud nodes falling within the node license count will be created using a node-installer marketplace image coming from the Azure marketplace. This is the recommended default. If set to false, a legacy behavior will be enabled, which will make CMDaemon perform a (one-time) server-side copy of the node-installer image to the cluster-extension’s storage account from the storage account path specified by ‘defaultNodeInstallerImage’
5.2.15  AzureVMSize : CloudType
parent : CloudType

5.2.16  BadEntityManagers : Entity
parent : Entity
Parameter:  name
Type:  string
Description:  Name

Parameter:  managers
Type:  list of strings
Description:  Managers

5.2.17  BasicResource : Entity
parent : Entity
Parameter:  name
Type:  string
Description:  Name

Parameter:  dependency
Type:  unsigned integer
Description:  Dependency on another resource, run this resource on the same node as the dependency

Parameter:  exclude
Type:  list of unsigned numbers
Description:  Do not run this resource on any node running one of the excluded resources

Parameter:  disabled
Type:  boolean
Description:  Disable the resource from being given to any node

Parameter:  stopOnRemove
Type:  boolean
Description:  Automatically stop resource when removed

5.2.18  BeeGFSAdmonRole : Role
parent : Role
Parameter:  databaseFile
Type:  string
Description:  Path to the database

Parameter:  managementNode
Type:  reference to Node
Description:  Node with a management role

Parameter:  clearDatabase
Type:  boolean
Description:  Delete database on startup
Parameter: `queryInterval`
Type: unsigned integer
Description: Interval for querying servers for new statistics data

Parameter: `authFile`
Type: string
Description: Path to the shared secret authentication file

Parameter: `fallbackExpiration`
Type: unsigned integer
Description: Time after which a connection to a fallback interface expires

Parameter: `interfacesFile`
Type: string
Description: Path to the file with a list of interfaces for communication

Parameter: `maxInternodeNumber`
Type: unsigned integer
Description: Max number of simultaneous connections to the same node

Parameter: `httpPort`
Type: unsigned integer
Description: TCP port for built-in web server

Parameter: `admonPortUDP`
Type: unsigned integer
Description: UDP port for admon service

Parameter: `netFilterFile`
Type: string
Description: Path to a file with a list of allowed IP subnets

Parameter: `tcpOnlyFilterFile`
Type: string
Description: Path to a file with a list of no DRMA IP ranges

Parameter: `logLevel`
Type: unsigned integer
Description: Log level

Parameter: `noLogDate`
Type: boolean
Description: Do not show date along with time in log

Parameter: `numberOfLogLines`
Type: unsigned integer
Description: Number of lines in log file, after which it will be rotated

Parameter: numberOfLogRotatedFiles
Type: unsigned integer
Description: Number of old log files to keep

Parameter: logFile
Type: string
Description: Path to the log file, empty means logs go to the journal

Parameter: enableMail
Type: boolean
Description: Enable email notification

Parameter: smtpSendType
Type: string
Description: How to send the email to an smtp server

Parameter: sendmailPath
Type: string
Description: Path to the sendmail binary

Parameter: checkIntervalTime
Type: unsigned integer
Description: Interval for checking for new events that must be mailed

Parameter: minimalDownTime
Type: unsigned integer
Description: Interval of node downtime after which it should be reported

Parameter: mailRecipients
Type: list of strings
Description: Email addresses to send notifications to

Parameter: resendMailTime
Type: unsigned integer
Description: Amount of time to sent email again as a reminder

Parameter: mailSender
Type: string
Description: Email address to send notifications from

Parameter: smtpServer
Type: string
Description: SMTP server to use for sending emails

Parameter: numberOfWorkers
5.2 Entities

Type: unsigned integer
Description: Number of worker threads

5.2.19 BeeGFSClientRole:

parent: Role
Parameter: managementNode
Type: reference to Node
Description: Node with a management role

Parameter: authFile
Type: string
Description: Path to the shared secret authentication file

Parameter: clientPortUDP
Type: unsigned integer
Description: UDP port for client service

Parameter: helperPortTCP
Type: unsigned integer
Description: TCP port for helper service

Parameter: communicationRetry
Type: unsigned integer
Description: Time for retries in case of a network failure

Parameter: fallbackExpiration
Type: unsigned integer
Description: Time after which a connection to a fallback interface expires

Parameter: interfacesFile
Type: string
Description: Path to the file with a list of interfaces for communication

Parameter: maxInternodeNumber
Type: unsigned integer
Description: Max number of simultaneous connections to the same node

Parameter: netFilterFile
Type: string
Description: Path to a file with a list of allowed IP subnets

Parameter: useRDMA
Type: boolean
Description: Use RDMA

Parameter: rdmaBuffersNumber
Type: unsigned integer

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Description: Number of RDMA buffers

Parameter: rdmaBufferSize
Type: unsigned integer
Description: Maximum size of a buffer that will be sent over the network

Parameter: rdmaTypeOfService
Type: unsigned integer
Description: RDMA type of service

Parameter: tcpOnlyFilterFile
Type: string
Description: Path to a file with a list of no DRMA IP ranges

Parameter: mountpoint
Type: string
Description: Path to a beegfs filesystem mountpoint

Parameter: logLevel
Type: unsigned integer
Description: Log level

Parameter: noLogDate
Type: boolean
Description: Do not show date along with time in log

Parameter: numberOfLogLines
Type: unsigned integer
Description: Number of lines in log file, after which it will be rotated

Parameter: numberOfLogRotatedFiles
Type: unsigned integer
Description: Number of old log files to keep

Parameter: logFile
Type: string
Description: Path to the log file, empty means logs go to the journal

Parameter: enableQuota
Type: boolean
Description: Enable quota

Parameter: createHardlinksAsSymlinks
Type: boolean
Description: Create a symlink when an application tries to create a hardlink

Parameter: mountSanityCheckMs
5.2 Entities

Type: unsigned integer
Description: Time in ms server has to respond after mount sanity check

Parameter: sessionCheckOnClose
Type: boolean
Description: Check for valid sessions on storage server when a file is closed

Parameter: syncOnClose
Type: boolean
Description: Sync file content on close

Parameter: targetOfflineTimeout
Type: unsigned integer
Description: Timeout until all storage targets are considered offline when no target state updates can be fetched from management server

Parameter: updateTargetStates
Type: unsigned integer
Description: Interval for storage targets states check

Parameter: enableXAttrs
Type: boolean
Description: Enable xattrs

Parameter: enableACLs
Type: boolean
Description: Enable ACLs

Parameter: fileCacheType
Type: string
Description: File read/write cache type

Parameter: preferredMetaFile
Type: string
Description: Path to a file with preffered metadata servers

Parameter: preferredStorageFile
Type: string
Description: Path to a file with preffered storage targets

Parameter: remoteFSync
Type: boolean
Description: Should fsync be executed on server to fluch cached file

Parameter: useGlobalAppendLocks
Type: boolean
**Description:** Should files, opened in append mode, be protected by locks on local machine (false) or on servers (true)

**Parameter:** useGlobalFileLocks  
**Type:** boolean  
**Description:** Should advisory locks be checked on local machine (false) or on servers (true)

**Parameter:** helperWorkersNumber  
**Type:** unsigned integer  
**Description:** Number of worker threads for helper service

### 5.2.20 BeeGFSManagementRole: Role

**Parameter:** dataDir  
**Type:** string  
**Description:** Path to the data directory

**Parameter:** allowNewServers  
**Type:** boolean  
**Description:** Allow new servers registration

**Parameter:** allowNewTargets  
**Type:** boolean  
**Description:** Allow new storage targets registration

**Parameter:** authFile  
**Type:** string  
**Description:** Path to the shared secret authentication file

**Parameter:** backlogTCP  
**Type:** unsigned integer  
**Description:** TCP listen backlog

**Parameter:** interfacesFile  
**Type:** string  
**Description:** Path to the file with a list of interfaces for communication

**Parameter:** managementPortTCP  
**Type:** unsigned integer  
**Description:** TCP port for management service

**Parameter:** managementPortUDP  
**Type:** unsigned integer  
**Description:** UDP port for management service

**Parameter:** netFilterFile  
**Type:** string
5.2 Entities

Description: Path to a file with a list of allowed IP subnets

Parameter: logLevel
Type: unsigned integer
Description: Log level

Parameter: noLogDate
Type: boolean
Description: Do not show date along with time in log

Parameter: numberOfLogLines
Type: unsigned integer
Description: Number of lines in log file, after which it will be rotated

Parameter: numberOfLogRotatedFiles
Type: unsigned integer
Description: Number of old log files to keep

Parameter: logFile
Type: string
Description: Path to the log file, empty means logs go to the journal

Parameter: enableQuota
Type: boolean
Description: Enable quota

Parameter: quotaQueryGIDFile
Type: string
Description: Path to a file with GIDs to be checked by quota

Parameter: quotaQueryGIDRange
Type: string
Description: GID range to be checked by quota

Parameter: quotaQueryUIDFile
Type: string
Description: Path to a file with UIDs to be checked by quota

Parameter: quotaQueryUIDRange
Type: string
Description: UID range to be checked by quota

Parameter: quotaQueryType
Type: string
Description: Query type for quota

Parameter: quotaQueryWithSystemUsersGroups

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Type: boolean
Description: Allow also system users/groups to be checked by quota

Parameter: quotaUpdateInterval
Type: unsigned integer
Description: Quota update interval

Parameter: targetOfflineTimeout
Type: unsigned integer
Description: Timeout until targets on a storage server are considered offline when no target status is received

Parameter: clientAutoRemove
Type: unsigned integer
Description: Time after which an unreachable node is considered dead

Parameter: numberOfWorkers
Type: unsigned integer
Description: Number of worker threads

Parameter: metaDynamicPools
Type: boolean
Description: Raise lower limits if difference in capacity becomes too large between targets

Parameter: metaInodesLowLimit
Type: string
Description: Metadata inode free space pool threshold

Parameter: metaInodesEmergencyLimit
Type: string
Description: Metadata inode free space pool threshold

Parameter: metaSpaceLowLimit
Type: string
Description: Metadata space free space pool threshold

Parameter: metaSpaceEmergencyLimit
Type: string
Description: Metadata space free space pool threshold

Parameter: storageDynamicPools
Type: boolean
Description: Raise lower limits if difference in capacity becomes too large between targets

Parameter: storageInodesLowLimit
Type: string
5.2 Entities

Description: Storage inode free space pool threshold

Parameter: storageInodesEmergencyLimit
Type: string
Description: Storage inode free space pool threshold

Parameter: storageSpaceLowLimit
Type: string
Description: Storage space free space pool threshold

Parameter: storageSpaceEmergencyLimit
Type: string
Description: Storage space free space pool threshold

5.2.21 BeeGFSMetadataRole : Role

parent : Role
Parameter: dataDir
Type: string
Description: Path to the data directory

Parameter: managementNode
Type: reference to Node
Description: Node with a management role

Parameter: authFile
Type: string
Description: Path to the shared secret authentication file

Parameter: backlogTCP
Type: unsigned integer
Description: TCP listen backlog

Parameter: fallbackExpiration
Type: unsigned integer
Description: Time after which a connection to a fallback interface expires

Parameter: interfacesFile
Type: string
Description: Path to the file with a list of interfaces for communication

Parameter: maxInternodeNumber
Type: unsigned integer
Description: Max number of simultaneous connections to the same node

Parameter: metaPortTCP
Type: unsigned integer
Description: TCP port for metadata service

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Parameter: metaPortUDP
Type: unsigned integer
Description: UDP port for metadata service

Parameter: netFilterFile
Type: string
Description: Path to a file with a list of allowed IP subnets

Parameter: useRDMA
Type: boolean
Description: Use RDMA

Parameter: rdmaTypeOfService
Type: unsigned integer
Description: RDMA type of service

Parameter: tcpOnlyFilterFile
Type: string
Description: Path to a file with a list of no DRMA IP ranges

Parameter: logLevel
Type: unsigned integer
Description: Log level

Parameter: noLogDate
Type: boolean
Description: Do not show date along with time in log

Parameter: numberOfLogLines
Type: unsigned integer
Description: Number of lines in log file, after which it will be rotated

Parameter: numberOfLogRotatedFiles
Type: unsigned integer
Description: Number of old log files to keep

Parameter: logFile
Type: string
Description: Path to the log file, empty means logs go to the journal

Parameter: clientXAttr
Type: boolean
Description: Enable client-side extended attributes

Parameter: clientACLs
Type: boolean
5.2 Entities

**Description:** Enable handling and storage of client-side ACLs

**Parameter:** `useExtendedAttributes`  
**Type:** boolean  
**Description:** Store metadata as extended attributes or not

**Parameter:** `targetAttachmentFile`  
**Type:** string  
**Description:** File with a list of targets to be grouped within the same domain for randomInternode

**Parameter:** `targetOfflineTimeout`  
**Type:** unsigned integer  
**Description:** Timeout until targets on a storage server are considered offline when no target status is received

**Parameter:** `allowUserSetPattern`  
**Type:** boolean  
**Description:** Allow non-privileged users to modify stripe pattern settings for directories they own

**Parameter:** `bindToNumaZone`  
**Type:** string  
**Description:** Zero-based NUMA zone number to which all threads of metadata process should be bound

**Parameter:** `numberOfStreamListeners`  
**Type:** unsigned integer  
**Description:** The number of threads waiting for incoming data events

**Parameter:** `numberOfWorkers`  
**Type:** unsigned integer  
**Description:** Number of worker threads

**Parameter:** `targetChooser`  
**Type:** string  
**Description:** The algorithm to choose storage targets for file creation

**Parameter:** `useAggressiveStreamPoll`  
**Type:** boolean  
**Description:** Actively poll for events instead of sleeping until an event occurs

**Parameter:** `usePerUserMsgQueues`  
**Type:** boolean  
**Description:** Use per-user queues for pending requests

5.2.22  BeeGFSStorageRole: Role

**parent:** Role  
**Parameter:** `dataDirs`  
**Type:** list of strings
Description: Path to the data directories

Parameter: managementNode
Type: reference to Node
Description: Node with a management role

Parameter: authFile
Type: string
Description: Path to the shared secret authentication file

Parameter: backlogTCP
Type: unsigned integer
Description: TCP listen backlog

Parameter: interfacesFile
Type: string
Description: Path to the file with a list of interfaces for communication

Parameter: maxInternodeNumber
Type: unsigned integer
Description: Max number of simultaneous connections to the same node

Parameter: storagePortTCP
Type: unsigned integer
Description: TCP port for storage service

Parameter: storagePortUDP
Type: unsigned integer
Description: UDP port for storage service

Parameter: netFilterFile
Type: string
Description: Path to a file with a list of allowed IP subnets

Parameter: useRDMA
Type: boolean
Description: Use RDMA

Parameter: rdmaTypeOfService
Type: unsigned integer
Description: RDMA type of service

Parameter: tcpOnlyFilterFile
Type: string
Description: Path to a file with a list of no DRMA IP ranges

Parameter: logLevel
5.2 Entities

**Type:** unsigned integer  
**Description:** Log level

**Parameter:** noLogDate  
**Type:** boolean  
**Description:** Do not show date along with time in log

**Parameter:** numberOfLogLines  
**Type:** unsigned integer  
**Description:** Number of lines in log file, after which it will be rotated

**Parameter:** numberOfLogRotatedFiles  
**Type:** unsigned integer  
**Description:** Number of old log files to keep

**Parameter:** logFile  
**Type:** string  
**Description:** Path to the log file, empty means logs go to the journal

**Parameter:** resyncSafetyThreshold  
**Type:** unsigned integer  
**Description:** Add an extra amount of time to the last successful communication timestamp, in case of a potential cache loss

**Parameter:** targetOfflineTimeout  
**Type:** unsigned integer  
**Description:** Timeout until tagrets on a storage server are considered offline when no target status is received

**Parameter:** bindToNumaZone  
**Type:** string  
**Description:** Zero-based NUMA zone number to which all threads of metadata process should be bound

**Parameter:** fileReadAheadSize  
**Type:** string  
**Description:** Byte range submitted to the kernel for read-ahead after number of bytes was already read from target

**Parameter:** fileReadAheadTriggerSize  
**Type:** string  
**Description:** Number of bytes after reading which the read-ahead is triggered

**Parameter:** fileReadSize  
**Type:** string  
**Description:** Maximum amount of data server should read in a single operation

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Parameter: `fileWriteSize`
Type: string
Description: Maximum amount of data server should write in a single operation

Parameter: `fileWriteSyncSize`
Type: string
Description: Number of bytes after which kernel will be advised to commit data

Parameter: `numberOfResyncGatherSlaves`
Type: unsigned integer
Description: Number of threads to gather filesystem information for a buddy mirror resync

Parameter: `numberOfResyncSlaves`
Type: unsigned integer
Description: Number of threads to sync filesystem information for a buddy mirror resync

Parameter: `numberOfStreamListeners`
Type: unsigned integer
Description: Number of threads waiting for incoming data events

Parameter: `numberOfWorkers`
Type: unsigned integer
Description: Number of worker threads

Parameter: `useAggressiveStreamPoll`
Type: boolean
Description: Actively poll for events instead of sleeping until an event occur

Parameter: `usePerTargetWorkers`
Type: boolean
Description: Create a separate set of workers and attach it for each storage target

Parameter: `usePerUserMsgQueues`
Type: boolean
Description: Use per-user queues for pending requests

Parameter: `workerBufferSize`
Type: string
Description: Size of network and io buffers, allocated for each worker

```yaml
5.2.23  BMCSettings: Entity
parent: Entity
Parameter: userName
Type: string
Description: Username used to send BMC commands

Parameter: userID
```
5.2 Entities

Type: integer
Description: User ID to send BMC commands

Parameter: password
Type: string
Description: Password used to send BMC commands

Parameter: powerResetDelay
Type: unsigned integer
Description: Delay used for BMC power reset, if set to > 0 power off; sleep X; power on is used

Parameter: extraArguments
Type: string
Description: Extra arguments passed to BMC commands

5.2.24 BootRole: Role

parent: Role

Parameter: nodegroups
Type: list of references to NodeGroup
Description: List of node groups which can boot from this node

Parameter: categories
Type: list of references to Category
Description: List of categories which can boot from this node

Parameter: racks
Type: list of references to Rack
Description: List of racks which can boot from this node

Parameter: softwareImages
Type: list of references to SoftwareImage
Description: List of software images from which can be booted, leave empty for all images

Parameter: allowRamdiskCreation
Type: boolean
Description: Allow the node to create ramdisks by itself, instead of waiting for them to be rsynced from the headnode

Parameter: disableAutomaticExports
Type: boolean
Description: Disable creation of automatic filesystem exports

Parameter: syncFSParts
Type: enum
Description: Sync FSParts mode

Parameter: fsparts

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**Type:** list of references to FSPart  
**Description:** FSParts

### 5.2.25 BurnConfig: Entity

**parent:** Entity  
**Parameter:** name  
**Type:** string  
**Description:** A short name to identify this burn configuration.

**Parameter:** description  
**Type:** string  
**Description:** A more extensive description of this burn configuration.

**Parameter:** configuration  
**Type:** string  
**Description:** This XML data describes which burn tests should be used.

### 5.2.26 BurnStatus: Entity

**parent:** Entity  
**Parameter:** refNodeUniqueKey  
**Type:** unsigned integer  
**Description:** Node

**Parameter:** startNewBurn  
**Type:** boolean  
**Description:** Starting new burn on next reboot

**Parameter:** burning  
**Type:** boolean  
**Description:** Currently burning

**Parameter:** information  
**Type:** string  
**Description:** Information

**Parameter:** configuration  
**Type:** string  
**Description:** Configuration

**Parameter:** error  
**Type:** string  
**Description:** Error message.

**Parameter:** warnings  
**Type:** unsigned integer  
**Description:** Number of warnings which have occurred so far.

**Parameter:** phaseName
Type: string
Description: Name of the current phase.

Parameter: phaseTime
Type: string
Description: Time past since the current phase was started.

Parameter: burnComplete
Type: string
Description: Set if the burn cycle has completed.

Parameter: burnFailed
Type: boolean
Description: Set if the burn cycle has failed.

Parameter: testStatusList
Type: list of BurnTestStatus
Description: none

Parameter: tag
Type: string
Description: Hardware tag.

5.2.27 BurnTestStatus : Entity
parent : Entity
Parameter: name
Type: string
Description: Test name.

Parameter: status
Type: string
Description: Test status.

Parameter: started
Type: boolean
Description: Indicates if test was started.

Parameter: passed
Type: boolean
Description: Indicates if test has passed.

Parameter: failed
Type: boolean
Description: Indicates if test has failed.

Parameter: warning
Type: boolean

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Description: Indicates if test produced a warning.

**5.2.28 Category : Entity**

**parent**: Entity

**Parameter**: name

Type: string

Description: Name of category

**Parameter**: fsmounts

Type: list of FSTMount

Description: Configure the entries placed in /etc/fstab

**Parameter**: staticRoutes

Type: list of StaticRoute

Description: Configure static routes for the interfaces

**Parameter**: roles

Type: list of Role

Description: Assign the roles the node should play

**Parameter**: notes

Type: string

Description: Administrator notes

**Parameter**: gpuSettings

Type: list of GPUSettings

Description: Configure the GPUs

**Parameter**: softwareImageProxy

Type: SoftwareImageProxy

Description: Software image the category will use

**Parameter**: defaultGateway

Type: IP

Description: Default gateway for the category

**Parameter**: nameServers

Type: list of strings

Description: List of name servers the category will use

**Parameter**: timeServers

Type: list of strings

Description: List of time servers the category will use

**Parameter**: searchDomains

Type: list of strings

Description: Search domains for the category
Parameter: disksetup
Type: string
Description: Node specific disk setup

Parameter: installMode
Type: string
Description: Install mode to be used by default, if none is specified in the node

Parameter: newNodeInstallMode
Type: string
Description: Install mode to be used by default, for new nodes

Parameter: excludeListFull
Type: string
Description: Exclude list for full install

Parameter: excludeListSync
Type: string
Description: Exclude list for sync install

Parameter: excludeListUpdate
Type: string
Description: Exclude list for update

Parameter: excludeListGrab
Type: string
Description: Exclude list for grabbing to an existing image

Parameter: excludeListGrabnew
Type: string
Description: Exclude list for grabbing to a new image

Parameter: initialize
Type: string
Description: Initialize script to be used for category

Parameter: finalize
Type: string
Description: Finalize script to be used for category

Parameter: raidconf
Type: string
Description: Node specific Hardware RAID configuration

Parameter: fsexports
Type: list of FSExport
Description: Configure the entries placed in /etc/exports

Parameter: `services`
Type: list of `OSServiceConfig`
Description: Manage operating system services

Parameter: `bmcSettings`
Type: `BMCSettings` or None
Description: Configure the baseboard management controller settings

Parameter: `proxySettings`
Type: `ProxySettings` or None
Description: Configure the proxy server settings

Parameter: `nodeInstallerDisk`
Type: boolean
Description: The node has it’s own node installer disk

Parameter: `installBootRecord`
Type: boolean
Description: Install boot record on local disk

Parameter: `managementNetwork`
Type: reference to `Network` or None
Description: Determines what network should be used for management traffic. If not set, partition setting is used.

Parameter: `ucsInfoConfigured`
Type: `UCSInfo` or None
Description: Configure UCS Settings

Parameter: `dellSettings`
Type: `DellSettings` or None
Description: Dell Settings

Parameter: `interactiveUser`
Type: enum
Description: Allow user login on node

Parameter: `fspartAssociations`
Type: list of `FSPartAssociation`
Description: none

Parameter: `dataNode`
Type: boolean
Description: If enabled the node will never do a FULL install without explicit user confirmation
Parameter:  excludeListManipulateScript
Type:  string
Description:  A user defined script that can be used to do custom last minute changes to the exclude lists used by cmdaemon to rsync

Parameter:  ioScheduler
Type:  string
Description:  The I/O scheduler for the disks

Parameter:  useExclusivelyFor
Type:  string
Description:  Use node exclusively for desired function: stop all other services

Parameter:  kernelVersion
Type:  string
Description:  Kernel version used

Parameter:  kernelParameters
Type:  string
Description:  Kernel parameters passed to the kernel at boot time

Parameter:  kernelOutputConsole
Type:  string
Description:  Kernel output console used at boot time

Parameter:  modules
Type:  list of KernelModule
Description:  Manage kernel modules loaded in this image

Parameter:  versionConfigFiles
Type:  boolean
Description:  Keep old versions of all config files for all nodes in this category

Parameter:  bootLoader
Type:  enum
Description:  Boot loader

Parameter:  bootLoaderProtocol
Type:  enum
Description:  Boot loader protocol for retrieving initrd and vmlinuz

Parameter:  bootLoaderFile
Type:  string
Description:  Alternative boot loader file

5.2.29  CephMDSRole: Role
parent: Role
Parameter:  mdsBeaconInterval

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Type: float
Description: The frequency (in seconds) of beacon messages sent to the monitor.

Parameter: mdsBeaconGrace
Type: float
Description: The interval without beacons before Ceph declares an MDS laggy (and possibly replace it).

Parameter: mdsTickInterval
Type: float
Description: How frequently the MDS performs internal periodic tasks.

Parameter: extraConfig
Type: list of strings
Description: Extra config parameters

5.2.30 CephMGRRole: Role
parent: Role
Parameter: modulePath
Type: string
Description: Path to load modules from

Parameter: dataPath
Type: string
Description: Path to load daemon data (such as keyring)

Parameter: beaconPeriod
Type: integer
Description: How many seconds between mgr beacons to monitors

Parameter: extraConfig
Type: list of strings
Description: Extra config parameters

5.2.31 CephMonitorRole: Role
parent: Role
Parameter: dataPath
Type: string
Description: Path to the Monitor data

Parameter: extraConfig
Type: list of strings
Description: Extra config parameters

5.2.32 CephOSDBlueStoreConfig: CephOSDConfig
parent: CephOSDConfig
Parameter: osdDevice
Type: string
5.2 Entities

**5.2.33 CephOSDConfig**: Entity

*parent*: Entity

**Parameter**: name

*Type*: string

*Description*: Name

**Parameter**: extraConfig

*Type*: list of strings

*Description*: Extra config parameters

**5.2.34 CephOSDFileStoreConfig**: CephOSDConfig

*parent*: CephOSDConfig

**Parameter**: dataPath

*Type*: string

*Description*: Path to the OSD data

**Parameter**: osdDevice

*Type*: string

*Description*: Device for storing OSD data

**Parameter**: journalDevice

*Type*: string

*Description*: Device for storing journal data

**Parameter**: journalOnOSDPartition

*Type*: boolean

*Description*: Store the journal on a partition of the OSD device

**Parameter**: journalSize

*Type*: unsigned integer

*Description*: Journal size in MiB

**5.2.35 CephOSDLegacyConfig**: CephOSDConfig

*parent*: CephOSDConfig

**Parameter**: dataPath

*Type*: string

*Description*: Path to the OSD data

**Parameter**: journalPath

*Type*: string

*Description*: Path to the journal data

**Parameter**: journalSize

*Type*: unsigned integer

*Description*: Journal size in MiB

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5.2.36 CephOSDPool: Entity

Parameter: id
Type: unsigned integer
Description: Id

Parameter: name
Type: string
Description: Name

Parameter: size
Type: unsigned integer
Description: Number of replicas

Parameter: pgp_num
Type: unsigned integer
Description: Number of Placement Groups for Placement

Parameter: pg_num
Type: unsigned integer
Description: Number of Placement Groups

Parameter: pgautoscale_mode
Type: enum
Description: Placement groups auto management mode

Parameter: crush_ruleset
Type: unsigned integer
Description: CRUSH Map Ruleset

Parameter: application
Type: string
Description: Associated application (typically one of rgw, rbd, cephfs)

Parameter: auid
Type: unsigned integer
Description: none

Parameter: min_size
Type: unsigned integer
Description: none

Parameter: crash_replay_interval
Type: unsigned integer
Description: none

Parameter: hit_set_type
5.2 Entities

Type: string
Description: none

Parameter: hashspool
Type: unsigned integer
Description: none

Parameter: hit_set_count
Type: unsigned integer
Description: none

Parameter: hit_set_period
Type: unsigned integer
Description: none

Parameter: hit_set_fpp
Type: float
Description: none

Parameter: cache_target_dirty_ratio
Type: float
Description: none

Parameter: cache_target_full_ratio
Type: float
Description: none

Parameter: target_max_bytes
Type: unsigned integer
Description: none

Parameter: target_max_objects
Type: unsigned integer
Description: none

Parameter: cache_min_flush_age
Type: unsigned integer
Description: none

Parameter: cache_min_evict_age
Type: unsigned integer
Description: none

Parameter: extraField1
Type: string
Description: none
Parameter: extraField2
Type: integer
Description: none

Parameter: extraField3
Type: unsigned integer
Description: none

Parameter: extraField4
Type: float
Description: none

Parameter: extraField5
Type: list of strings
Description: none

Parameter: extraField6
Type: list of unsigned numbers
Description: none

5.2.37 CephOSDRole : Role
parent: Role
Parameter: osdconfigs
Type: list of CephOSDConfig
Description: OSD configurations

Parameter: extraConfig
Type: list of strings
Description: none

5.2.38 CephState : Entity
parent: Entity
Parameter: version
Type: unsigned integer
Description: none

Parameter: cephNodeKeys
Type: list of unsigned numbers
Description: none

Parameter: cephNodeValues
Type: list of signed numbers
Description: none

Parameter: OSDMapIds
Type: list of unsigned numbers
Description: none
Parameter: OSDMapNodes
Type: list of unsigned numbers
Description: none

Parameter: OSDMapConfigs
Type: list of unsigned numbers
Description: none

Parameter: OSDMapConfigNames
Type: list of strings
Description: none

Parameter: OSDMapStatuses
Type: list of unsigned numbers
Description: to mark status (e.g. NEED_DELETE) using numeric constants

Parameter: OSDMapDevices
Type: list of strings
Description: in case we need to keep track of changing device names

Parameter: extraField1
Type: string
Description: none

Parameter: extraField2
Type: string
Description: none

Parameter: extraField3
Type: string
Description: none

Parameter: extraField4
Type: string
Description: none

Parameter: extraField5
Type: string
Description: none

Parameter: extraList1
Type: list of strings
Description: none

Parameter: extraList2
Type: list of strings
Description: none
Description: none

Parameter: extraList3
Type: list of unsigned numbers
Description: none

Parameter: extraList4
Type: list of unsigned numbers
Description: none

Parameter: extraList5
Type: list of unsigned numbers
Description: none

5.2.39 Ceph: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: fsid
Type: string
Description: Ceph ID

Parameter: configFilePath
Type: string
Description: Path to the Ceph config file

Parameter: adminKeyringFilePath
Type: string
Description: Path to the Ceph admin keyring file

Parameter: monitorKeyringFilePath
Type: string
Description: Path to the Ceph monitor keyring file

Parameter: adminKey
Type: string
Description: Ceph client admin key

Parameter: monitorKey
Type: string
Description: Ceph monitor key

Parameter: publicNetworks
Type: list of references to Network
Description: Public networks
5.2 Entities

Parameter: `clusterNetworks`
Type: list of references to `Network`
Description: Cluster networks

Parameter: `creationTime`
Type: timestamp
Description: Date on which the Ceph was defined

Parameter: `setupState`
Type: enum
Description: Flag to keep track of the installation state

Parameter: `version`
Type: string
Description: Ceph version of the cluster

Parameter: `monmap`
Type: string
Description: `none`

Parameter: `bootstrapped`
Type: boolean
Description: Bootstrapped

Parameter: `monitorPortV1`
Type: unsigned integer
Description: Monitor daemon port

Parameter: `monitorPortV2`
Type: unsigned integer
Description: Monitor daemon port (msgr2)

Parameter: `filestoreXattrUseOmap`
Type: boolean
Description: filestore xattr use omap

Parameter: `monAllowPoolDelete`
Type: boolean
Description: mon allow pool delete

Parameter: `monOsdFullRatio`
Type: float
Description: mon osd full ratio

Parameter: `monOsdNearfullRatio`
Type: float

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Description: mon osd nearfull ratio

Parameter: monMaxOsd
Type: unsigned integer
Description: mon max osd

Parameter: osdPoolDefaultSize
Type: unsigned integer
Description: osd pool default size

Parameter: osdPoolDefaultMinSize
Type: unsigned integer
Description: osd pool default min size

Parameter: osdPoolDefaultPgNum
Type: unsigned integer
Description: osd pool default pg num

Parameter: osdPoolDefaultPgpNum
Type: unsigned integer
Description: osd pool default pgp num

Parameter: authClusterCephx
Type: boolean
Description: auth cluster required cephx

Parameter: authServiceCephx
Type: boolean
Description: auth service required cephx

Parameter: authClientCephx
Type: boolean
Description: auth client required cephx

Parameter: extraConfig
Type: list of strings
Description: Extra config parameters

Parameter: autoAdjustCrushMap
Type: boolean
Description: Automatically Adjust CRUSH Map

Parameter: rbdCache
Type: boolean
Description: Enable caching for RADOS Block Device (RBD).

Parameter: rbdCacheSize
5.2 Entities

Parameter: rbdCacheMaxDirty
Type: unsigned integer
Description: The RBD cache size in bytes.

Parameter: rbdCacheTargetDirty
Type: unsigned integer
Description: The dirty limit in bytes at which the cache triggers write-back. If 0, uses write-through caching. Constraint: Must be less than rbd cache size.

Parameter: rbdCacheMaxDirtyAge
Type: float
Description: The number of seconds dirty data is in the cache before writeback starts.

Parameter: rbdCacheWritethroughUntilFlush
Type: boolean
Description: Start out in write-through mode, and switch to write-back after the first flush request is received.

Parameter: rbdReadaheadTriggerRequests
Type: integer
Description: Number of sequential read requests necessary to trigger read-ahead.

Parameter: rbdReadaheadMaxBytes
Type: unsigned integer
Description: Maximum size of a read-ahead request. If zero, read-ahead is disabled.

Parameter: rbdReadaheadDisableAfterBytes
Type: unsigned integer
Description: After this many bytes have been read from an RBD image, read-ahead is disabled for that image until it is closed. If zero, read-ahead stays enabled.

5.2.40 CertificateInfo: Entity
parent: Entity
Parameter: certificate
Type: Certificate
Description: Certificate

Parameter: private_key
Type: string
Description: Optional private key field.

5.2.41 CertificateRequest: Entity
parent: Entity
Parameter: CSR

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Type: string
Description: none

Parameter: sessionId
Type: unsigned integer
Description: Session id

Parameter: clientType
Type: unsigned integer
Description: Client type

Parameter: requestId
Type: unsigned integer
Description: Request id

Parameter: country
Type: string
Description: Country

Parameter: state
Type: string
Description: State

Parameter: locality
Type: string
Description: Locality

Parameter: organization
Type: string
Description: Organization

Parameter: organizationalUnit
Type: string
Description: Organizational unit

Parameter: commonName
Type: string
Description: Common name

Parameter: subjectAlternativeNames
Type: list of strings
Description: Subject alternative names

Parameter: allowAutosign
Type: boolean
Description: Allow autosign
Parameter: hasEdgeSecret
Type: boolean
Description: Has an edge secret

5.2.42 CertificateSubjectName: Entity

Parameter: country
Type: string
Description: Country

Parameter: state
Type: string
Description: State

Parameter: locality
Type: string
Description: Locality

Parameter: organization
Type: string
Description: Organization

Parameter: organizationalUnit
Type: string
Description: Organizational unit

Parameter: commonName
Type: string
Description: CommonName

Parameter: profile
Type: string
Description: Profile

Parameter: syslogin
Type: string
Description: Syslogin

Parameter: component
Type: string
Description: Component

Parameter: days
Type: integer
Description: Days

Parameter: ca
Type: boolean
Description: CA

Parameter: subjectAlternativeNames
Type: list of strings
Description: Alternative names

5.2.43 Certificate: Entity
parent: Entity
Parameter: PEM
Type: string
Description: none

Parameter: revoked
Type: boolean
Description: Certificate has been revoked and can not be used

Parameter: serialNumber
Type: integer
Description: Serial number

Parameter: remaining
Type: integer
Description: Remaining time until certificate expires

Parameter: startTime
Type: timestamp
Description: Date when certificate is valid

Parameter: expireTime
Type: timestamp
Description: Date when certificate expires

Parameter: CA
Type: boolean
Description: A CA certificate can be used sign other certificates

Parameter: hasEdgeSecret
Type: boolean
Description: Has an edge secret

Parameter: profile
Type: string
Description: Profile

Parameter: sysLogin
Type: string
5.2 Entities

Description: System log in

Parameter: component
Type: string
Description: Component

Parameter: subjectName
Type: string
Description: Subject

Parameter: issuerName
Type: string
Description: Issuer

Parameter: subjectAlternativeNames
Type: list of strings
Description: Alternative names

Parameter: country
Type: string
Description: Country

Parameter: state
Type: string
Description: State

Parameter: locality
Type: string
Description: Locality

Parameter: organization
Type: string
Description: Organization

Parameter: organizationalUnit
Type: string
Description: Organizational unit

Parameter: commonName
Type: string
Description: Name

5.2.44 Chassis:Device
parent: Device
Parameter: ip
Type: IP
Description: IP address

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Parameter: network
Type: reference to Network or None
Description: Network to which this switch is connected

Parameter: model
Type: string
Description: Device model name

Parameter: username
Type: string
Description: Chassis username

Parameter: password
Type: string
Description: Chassis password

Parameter: members
Type: list of references to Device
Description: List of devices belonging to this chassis

Parameter: slots
Type: list of strings
Description: Slot description per device in chassis

Parameter: layout
Type: string
Description: Layout definition for rackview (Format: [|–]x,y e.g: |8,3 or -2,6)

5.2.45 CloudDirectorRole: DirectorRole
parent: DirectorRole
Parameter: dependents
Type: reference to NodeGroup or None
Description: List of nodes that depend on this cloud director

5.2.46 CloudGatewayRole: Role
parent: Role

5.2.47 CloudImage: Entity
parent: Entity
Parameter: name
Type: string
Description: The name of the image.

Parameter: provider
Type: reference to CloudProvider
Description: Cloud provider

Parameter: version
Type: string
Description: The version of the image.

Parameter: description
Type: string
Description: The description.

5.2.48 CloudJobDescription: Entity
parent: Entity
Parameter: name
Type: string
Description: Job name

Parameter: script
Type: string
Description: Script path

Parameter: workloadManagerJobId
Type: string
Description: Job identifier according to the workload manager

Parameter: user
Type: string
Description: Owner of a job

Parameter: sizeOfInputData
Type: unsigned integer
Description: Size of job's input data

Parameter: sizeOfOutputData
Type: unsigned integer
Description: Size of job's output data

Parameter: expectedSizeOfOutputData
Type: unsigned integer
Description: Expected size of job's output data

Parameter: inputFiles
Type: list of strings
Description: Input files list

Parameter: expandedInputFiles
Type: list of strings
Description: Internal list of input files after labeled wildcards are resolved

Parameter: outputFiles
Type: list of strings
Description: Output files list

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Parameter:  doNotDownloadFiles
Type:  list of strings
Description:  List of output files to leave in the cloud without downloading

Parameter:  remoteOutputLists
Type:  list of strings
Description:  List of remote files which contain job output file names

Parameter:  workloadManager
Type:  string
Description:  Workload manager type

Parameter:  workingDirectory
Type:  string
Description:  Job’s working directory

Parameter:  region
Type:  string
Description:  Cloud region

Parameter:  jobQueue
Type:  string
Description:  WLM queue where the job runs

Parameter:  storageStrategy
Type:  enum
Description:  "none"

Parameter:  storageVolumeId
Type:  string
Description:  Storage Volume ID

Parameter:  storageVolumeSize
Type:  unsigned integer
Description:  Size of Storage Volume

Parameter:  storageVolumeDevicePath
Type:  string
Description:  OS device path

Parameter:  fsxInstanceId
Type:  string
Description:  "none"

Parameter:  fsxInstanceUrl
Type:  string

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### 5.2 Entities

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>fsxInstancePathOnDirector</td>
<td>none</td>
<td>string</td>
</tr>
<tr>
<td>anfVolumeId</td>
<td>none</td>
<td>string</td>
</tr>
<tr>
<td>anfVolumeUrl</td>
<td>none</td>
<td>string</td>
</tr>
<tr>
<td>anfVolumePathOnDirector</td>
<td>none</td>
<td>string</td>
</tr>
<tr>
<td>jobType</td>
<td>Defines the set of operations that will run on job.</td>
<td>enum</td>
</tr>
<tr>
<td>storageNode</td>
<td>Storage Node</td>
<td>reference to CloudNode</td>
</tr>
<tr>
<td>excludedStorageNodes</td>
<td>Job will not run on those nodes</td>
<td>list of references to CloudNode</td>
</tr>
<tr>
<td>stdOutFileNames</td>
<td>Standard output stream filenames list</td>
<td>list of strings</td>
</tr>
<tr>
<td>stdErrFileNames</td>
<td>Standard error stream filenames list</td>
<td>list of strings</td>
</tr>
<tr>
<td>uploadTime</td>
<td>Time spent on input data transfer and job pre-run preparations</td>
<td>float</td>
</tr>
<tr>
<td>downloadTime</td>
<td>Time spent on jobs job results transfer and post-run activities</td>
<td>float</td>
</tr>
<tr>
<td>maxUploadTime</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Type: float
Description: none

Parameter: maxDownloadTime
Type: float
Description: none

Parameter: jobStatus
Type: string
Description: Job status

Parameter: jobStatusTimestamp
Type: timestamp
Description: Time when the job status was last changed

Parameter: computeNodes
Type: list of references to Node
Description: List of compute nodes the job was running on

Parameter: numThreads
Type: unsigned integer
Description: none

Parameter: submissionTimestamp
Type: timestamp
Description: Time when the job was submitted

Parameter: endTimestamp
Type: timestamp
Description: Time when the job finished execution

Parameter: extraOptions
Type: list of strings
Description: none

5.2.49 CloudJobSubmissionStatus: Entity
parent: Entity
Parameter: availableExpectedTransferTimes
Type: boolean
Description: none

Parameter: expectedInputDataTransferTimeInSeconds
Type: unsigned integer
Description: none

Parameter: jobName
Type: string
5.2 Entities

Description: none

Parameter: errMsg
Type: string
Description: none

Parameter: extraOptions
Type: list of strings
Description: none

5.2.50 CloudNode : ComputeNode
parent : ComputeNode
Parameter: cloudSettings
Type: CloudSettings
Description: Submode containing all cloud node settings

5.2.51 CloudProvider : Entity
parent : Entity
Parameter: name
Type: string
Description: Name

Parameter: tags
Type: list of strings
Description: List of tags that will be assigned to all resources created by BCM under this cloud provider

5.2.52 CloudRegion : Entity
parent : Entity
Parameter: name
Type: string
Description: The name of the cloud region.

Parameter: provider
Type: reference to CloudProvider
Description: Cloud provider

5.2.53 CloudSettings : Entity
parent : Entity
Parameter: provider
Type: reference to CloudProvider
Description: Cloud provider

Parameter: externalIP
Type: IP
Description: The external IP address as set by the cloudprovider

Parameter: releaseStaticIPonTermination
Type: boolean
Description: Release Static IP on termination of the instance

Parameter: `isStorageTemplate`
Type: boolean
Description: none

Parameter: `isStorageNode`
Type: boolean
Description: none

Parameter: `tags`
Type: list of strings
Description: List of tags that will be assigned to cloud instance

Parameter: `useKernelAndInitrdFromTheSoftwareImage`
Type: boolean
Description: Make the cloud node’s node-installer download the kernel and the initrd from the software image configured for this cloud node and then reboot the cloud node to use those, instead of using the kernel and initrd already present on the node-installer’s cloud image.

5.2.54 CloudStorageActionData: Entity

param: Entity

Parameter: `jobDescription`
Type: reference to CloudJobDescription
Description: none

Parameter: `typeString`
Type: string
Description: none

Parameter: `index`
Type: unsigned integer
Description: none

Parameter: `totalActions`
Type: unsigned integer
Description: none

Parameter: `status`
Type: enum
Description: none

Parameter: `errorMessage`
Type: string
Description: none

Parameter: `isReverse`
Type: boolean
5.2 Entities

Description: none

Parameter: timeoutSecs
Type: unsigned integer
Description: none

Parameter: startTime
Type: timestamp
Description: none

Parameter: retries
Type: unsigned integer
Description: none

Parameter: workloadManager
Type: string
Description: none

Parameter: workloadManagerJobId
Type: string
Description: none

Parameter: jobName
Type: string
Description: none

Parameter: executionNode
Type: reference to Node
Description: none

Parameter: extraOptions
Type: list of strings
Description: none

5.2.55 CloudType: Entity
parent: Entity
Parameter: name
Type: string
Description: The name of the VM type.

Parameter: provider
Type: reference to CloudProvider
Description: Cloud provider

Parameter: cpu
Type: string
Description: The amount of CPU cores.
Parameter: gpu
Type: string
Description: The amount of GPUs.

Parameter: memory
Type: string
Description: The amount of operating system memory.

Parameter: disks
Type: string
Description: AWS: The amount of disks coming with the type. Azure: the maximum amount of data disk which can be attached to the VMs of this type.

Parameter: description
Type: string
Description: The description.

5.2.56 ClusterSetup: Entity
parent: Entity
Parameter: refPartitionUniqueKey
Type: unsigned integer
Description: Partition

Parameter: CMID
Type: unsigned integer
Description: CMID

Parameter: databaseVersion
Type: unsigned integer
Description: Database version

Parameter: organization
Type: string
Description: Organization

Parameter: powerOnDelay
Type: float
Description: Delay in seconds between powering on nodes

Parameter: powerOffDelay
Type: float
Description: Delay in seconds between powering off nodes

5.2.57 CMDaemonBackgroundTask: Entity
parent: Entity
Parameter: name
Type: string

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5.2 Entities

Description:  Name

Parameter:  subjects
Type:  list of unsigned numbers
Description:  Subjects

Parameter:  updates
Type:  list of strings
Description:  Updates

Parameter:  exitCode
Type:  integer
Description:  Exit code

Parameter:  runningStatus
Type:  enum
Description:  Running status

Parameter:  startTime
Type:  timestamp
Description:  Start time

Parameter:  endTime
Type:  timestamp
Description:  End time

Parameter:  isCancelable
Type:  boolean
Description:  Cancelable

Parameter:  parentTask
Type:  unsigned integer
Description:  Parent task

Parameter:  subtasks
Type:  list of unsigned numbers
Description:  Sub tasks

Parameter:  nodeKey
Type:  unsigned integer
Description:  Node key

5.2.58  CMDaemonFailoverGroupStatus : Entity
parent : Entity
Parameter:  failoverStage
Type:  integer
Description:  Failover stage

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Parameter: activeNodeKey
Type: unsigned integer
Description: Active node key

Parameter: activeUpTime
Type: timestamp
Description: Active up time

Parameter: activeDownTime
Type: timestamp
Description: Active down time

Parameter: activeUpCount
Type: unsigned integer
Description: Active up count

Parameter: failoverThreadRunning
Type: boolean
Description: Failover thread running

Parameter: infoMessage
Type: string
Description: Information messages gather during the last failover

Parameter: errorMessage
Type: string
Description: Error messages gather during the last failover

Parameter: activeGraciousShutdown
Type: boolean
Description: True if the previous active head reported a graceful shutdown

5.2.59 CMDaemonFailoverGroup: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: nodes
Type: list of references to ComputeNode
Description: List of nodes belonging to this group

Parameter: alsoTakeOverAfterGraciousShutdown
Type: boolean
Description: Also perform automatic failover if the active group member was gracefully shut down

Parameter: disableAutomaticFailover
5.2 Entities

Type: boolean
Description: When automatic failover is disabled the no node in the group will not take over if the active node is dead

Parameter: warntime
Type: unsigned integer
Description: How quickly to issue a 'late' warning

Parameter: deadtime
Type: unsigned integer
Description: How quickly to decide that a node in a group is dead

Parameter: mountScript
Type: string
Description: Script that mounts the shared storage device when a node becomes the active head node

Parameter: unmountScript
Type: string
Description: Script that unmounts the shared storage device when a node stops being the active head node

Parameter: preFailoverScript
Type: string
Description: Prefailover script will be run on all nodes before failover has begun

Parameter: postFailoverScript
Type: string
Description: Postfailover script will be run on all nodes after failover has completed

5.2.60 CMDaemonFailoverPeer: Entity
parent: Entity
Parameter: key
Type: unsigned integer
Description: Node key

Parameter: status
Type: list of strings
Description: Status

Parameter: failCount
Type: list of unsigned numbers
Description: Number of sequential times failure was detected

5.2.61 CMDaemonFailoverStatus: Entity
parent: Entity
Parameter: myKey
Type: unsigned integer

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Description: Unique key of head node to which handeled request

Parameter: masterKey
Type: unsigned integer
Description: Unique key of active head node

Parameter: masterTime
Type: unsigned integer
Description: Master time (not used)

Parameter: failoverId
Type: unsigned integer
Description: Head node with the highest failover ID will be active

Parameter: error
Type: boolean
Description: Head node is in error state

Parameter: peers
Type: list of CMDaemonFailoverPeer
Description: Peer status per head node in the failover group

5.2.62 CMDaemonFailover: Entity
parent: Entity
Parameter: secondaryHeadNode
Type: reference to HeadNode or None
Description: Secondary/failover head node

Parameter: keepalive
Type: unsigned integer
Description: Interval between pings

Parameter: warntime
Type: unsigned integer
Description: How quickly to issue a ‘late’ warning

Parameter: deadtime
Type: unsigned integer
Description: How quickly to decide that a node in a cluster is dead

Parameter: initdead
Type: unsigned integer
Description: Time between starting failover and declaring a cluster node dead

Parameter: quorumTime
Type: unsigned integer
Description: Time before deciding quorum ended in failure

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5.2 Entities

**Parameter:** mountScript  
**Type:** string  
**Description:** Script that mounts the shared storage device when a node becomes the active headnode

**Parameter:** unmountScript  
**Type:** string  
**Description:** Script that unmounts the shared storage device when a node stops being the active headnode

**Parameter:** failoverNetwork  
**Type:** reference to Network or None  
**Description:** Network for failover ping

**Parameter:** disableAutomaticFailover  
**Type:** boolean  
**Description:** When automatic failover is disabled the passive headnode will not take over if it detects the active headnode is dead

**Parameter:** preFailoverScript  
**Type:** string  
**Description:** Prefailover script will be run on both headnodes before failover has begun

**Parameter:** postFailoverScript  
**Type:** string  
**Description:** Postfailover script will be run on both headnodes after failover has completed

5.2.63 CMDaemonStatus: Entity

**Parameter:** version  
**Type:** string  
**Description:** CMDaemon version

**Parameter:** state  
**Type:** string  
**Description:** CMDaemon state

**Parameter:** myTime  
**Type:** timestamp  
**Description:** System time

**Parameter:** startTime  
**Type:** timestamp  
**Description:** CMDaemon start time

**Parameter:** uptime  
**Type:** unsigned integer  
**Description:** System uptime

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Parameter: utime
Type: float
Description: User time spend by CMDaemon

Parameter: stime
Type: float
Description: System time spend by CMDaemon

Parameter: memused
Type: unsigned integer
Description: Memory used by CMDaemon

Parameter: sessionCount
Type: unsigned integer
Description: Total Number of cmsh/cmgui/python/node sessions

Parameter: activeSessionCount
Type: unsigned integer
Description: Number of currently active sessions

Parameter: httpdNumWorkers
Type: unsigned integer
Description: Number of threads handing http requests

Parameter: httpdNumFreeWorkers
Type: unsigned integer
Description: Number of threads free to handle http requests

Parameter: httpdConnectionCounter
Type: unsigned integer
Description: Total number of http connections handled by CMDaemon

Parameter: httpdRequestCounter
Type: unsigned integer
Description: Total number of http request handled by CMDaemon

Parameter: httpdBytesRead
Type: unsigned integer
Description: Bytes read from http request

Parameter: httpdBytesWritten
Type: unsigned integer
Description: Bytes written in response to http requests

5.2.64 CMJobConfig: Entity
parent: Entity
Parameter: name
Type: string
Description: CMJob config name

Parameter: storageNodePolicies
Type: list of StorageNodePolicy
Description: Storage node policies

Parameter: activeStorageNodePolicy
Type: element of storageNodePolicies or None
Description: This policy will be used to start new storage nodes

Parameter: extraOptions
Type: list of strings
Description: Extra options

5.2.65 CMJobIntermediateStorage: Entity
parent: Entity

5.2.66 CMService: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: tokens
Type: list of strings
Description: Tokens belonging to this service

5.2.67 ComputeNode: Node
parent: Node
Parameter: installMode
Type: string
Description: Install mode to be used by default, if empty use category installMode

Parameter: nextBootInstallMode
Type: string
Description: Install mode to be used during the next boot

Parameter: blockDevicesClearedOnNextBoot
Type: list of strings
Description: List of block devices that will be cleared during the next boot

Parameter: initialize
Type: string
Description: Node specific initialize script

Parameter: finalize
Type: string
Description: Node specific finalize script

Parameter: raidconf
Type: string
Description: Node specific Hardware RAID configuration

Parameter: category
Type: reference to Category
Description: Category to which this node belongs

Parameter: disksetup
Type: string
Description: Node specific disk setup

Parameter: excludeListFull
Type: string
Description: Exclude list for full install

Parameter: excludeListSync
Type: string
Description: Exclude list for sync install

Parameter: excludeListUpdate
Type: string
Description: Exclude list for update

Parameter: excludeListGrab
Type: string
Description: Exclude list for grabbing to an existing image

Parameter: excludeListGrabnew
Type: string
Description: Exclude list for grabbing to a new image

Parameter: nodeInstallerDisk
Type: boolean
Description: The node has its own node installer disk

Parameter: installBootRecord
Type: boolean
Description: Install boot record on local disk

Parameter: managementNetwork
Type: reference to Network or None
Description: Determines what network should be used for management traffic. If not set, category or partition setting is used.
Parameter: dataNode
Type: boolean
Description: If enabled the node will never do a FULL install without explicit user confirmation

Parameter: softwareImageProxy
Type: SoftwareImageProxy or None
Description: Software image used by node

Parameter: fspartAssociations
Type: list of FSPartAssociation
Description: none

Parameter: kernelVersion
Type: string
Description: Kernel version used

Parameter: kernelParameters
Type: string
Description: Kernel parameters passed to the kernel at boot time

Parameter: kernelOutputConsole
Type: string
Description: Kernel output console used at boot time

Parameter: modules
Type: list of KernelModule
Description: Manage kernel modules loaded in this node

Parameter: bootLoader
Type: enum
Description: Boot loader

Parameter: bootLoaderProtocol
Type: enum
Description: Boot loader protocol for retrieving initrd and vmlinux

Parameter: bootLoaderFile
Type: string
Description: Alternative boot loader file

5.2.68 ConfigFileVersion: Entity
parent: Entity
Parameter: nodeKey
Type: unsigned integer
Description: Node key

Parameter: filename
Type: string
Description: File name

Parameter: content
Type: string
Description: Content of the file

Parameter: creationTime
Type: timestamp
Description: Creation time

### 5.2.69 `ConfigurationOverlay`: Entity

**parent**: Entity

**Parameter**: name
Type: string
Description: Name

**Parameter**: allHeadNodes
Type: boolean
Description: All head nodes

**Parameter**: nodes
Type: list of references to Node
Description: List of nodes belonging to this group

**Parameter**: categories
Type: list of references to Category
Description: List of categories belonging to this group

**Parameter**: customizationFiles
Type: list of CustomizationFile
Description: Config file customizations

**Parameter**: roles
Type: list of Role
Description: Assign the roles

**Parameter**: priority
Type: integer
Description: Priority of the roles, node roles have a 750 priority, and category roles 250

### 5.2.70 `ConnectivityCheckerSubSystemInfo`: SubSystemInfo

**parent**: SubSystemInfo

**Parameter**: stopped
Type: unsigned integer
Description: Stopped

**Parameter**: updateCallback
5.2 Entities

Type: unsigned integer
Description: Update callback defined

Parameter: changeCallback
Type: unsigned integer
Description: Change callback defined

Parameter: ttl
Type: unsigned integer
Description: ttl

Parameter: idOffset
Type: unsigned integer
Description: Ping ID offset

Parameter: interval
Type: unsigned integer
Description: Interval

Parameter: timeout
Type: unsigned integer
Description: Timeout

Parameter: sequence
Type: unsigned integer
Description: Sequence ID

Parameter: activeSequences
Type: unsigned integer
Description: Active ping sequences still being waited for

Parameter: activeNodeSequences
Type: unsigned integer
Description: Number of nodes in active ping sequences still being waited for

Parameter: nodes
Type: unsigned integer
Description: Nodes being pinged

Parameter: nodeSequences
Type: unsigned integer
Description: Number of pings nodes are waiting for

Parameter: updates
Type: unsigned integer
Description: Total number of handled updates
Parameter: changes
Type: unsigned integer
Description: Total number of handled changes

5.2.71 Consolidator: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: maxAge
Type: float
Description: Maximal age of historic data, 0 for infinite

Parameter: maxSamples
Type: unsigned integer
Description: Maximal samples of historic data, 0 for infinite

Parameter: interval
Type: float
Description: Sampling interval

Parameter: offset
Type: float
Description: Time offset for sampling interval

Parameter: kind
Type: enum
Description: Kind of consolidation to be done

5.2.72 ContainerInfo: Entity
parent: Entity
Parameter: name
Type: string
Description: The name of the container

Parameter: containerId
Type: string
Description: The id

Parameter: image
Type: string
Description: The name of the image

Parameter: imageId
Type: string
Description: The sha id of the image
Parameter: state
Type: string
Description: The state of the container

Parameter: startTime
Type: timestamp
Description: The time when the container started

Parameter: lastTerminationState
Type: string
Description: The last state when the container terminated

Parameter: reason
Type: string
Description: The reason for the termination

Parameter: lastExitCode
Type: integer
Description: The exit code of the container

Parameter: previousStartTime
Type: timestamp
Description: The previous start time

Parameter: previousFinishTime
Type: timestamp
Description: The previous finish time

Parameter: ready
Type: boolean
Description: Whether the container is ready or not

Parameter: restartCount
Type: integer
Description: The number of restarts of the container

Parameter: environmentVariables
Type: list of strings
Description: The environment variables passed to the container

5.2.73 CustomizationEntry: Entity
parent: Entity
Parameter: key
Type: string
Description: Name of the key

Parameter: value
Type: string
Description: Value for the key

Parameter: enabled
Type: boolean
Description: none

Parameter: action
Type: enum
Description: Determines how entries are added

Parameter: formatting
Type: string
Description: none

Parameter: extraField
Type: boolean
Description: Reserved for future use

Parameter: separator
Type: string
Description: none

5.2.74 CustomizationFile: Entity
parent: Entity
Parameter: name
Type: string
Description: none

Parameter: entries
Type: list of CustomizationEntry
Description: Config file customization entries

Parameter: label
Type: string
Description: none

Parameter: type
Type: enum
Description: Determines file type

Parameter: managedsection
Type: enum
Description: Determines how cmdaemon should customize the file

Parameter: formatting
Type: string
5.2 Entities

Description:  *none*

Parameter:  enabled
Type:  boolean
Description:  *none*

### 5.2.75  DellSettingsFirmware: Entity

**parent**: Entity

Parameter:  path
Type:  string
Description:  Path

Parameter:  ftpUser
Type:  string
Description:  FTP user

Parameter:  ftpPassword
Type:  string
Description:  FTP password

Parameter:  clearConfig
Type:  boolean
Description:  Clear config

### 5.2.76  DellSettings: Entity

**parent**: Entity

Parameter:  applyImmediately
Type:  boolean
Description:  Apply Immediately

Parameter:  modelName
Type:  string
Description:  Model Name

Parameter:  serviceTag
Type:  string
Description:  Service Tag

Parameter:  nodeInterleaving
Type:  boolean
Description:  Node Interleaving

Parameter:  snoopMode
Type:  enum
Description:  Snoop Mode

Parameter:  logicalProcessor
Type:  boolean

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Description: Logical Processor

Parameter: biosBootOrder
Type: string
Description: Bios Boot Order

Parameter: devicefirmware
Type: DellSettingsFirmware or None
Description: Device firmware

Parameter: sysprofile
Type: enum
Description: System profile

Parameter: mmioAbove4Gb
Type: boolean
Description: Mmio Above 4Gb

Parameter: ioNonPostedPrefetch
Type: boolean
Description: IO Non Posted Prefetch

Parameter: workloadProfile
Type: enum
Description: Workload Profile

Parameter: subNumaCluster
Type: boolean
Description: Sub Numa Cluster

5.2.77 DeviceStatus: Entity
parent: Entity
Parameter: refDeviceUniqueKey
Type: unsigned integer
Description: Device

Parameter: status
Type: enum
Description: Status determined by ping and report

Parameter: reportedStatus
Type: enum
Description: Reported status

Parameter: reportedStatusTimestamp
Type: unsigned integer
Description: Reported status timestamp in steady clock epoch milliseconds
5.2 Entities

Parameter: terminated
Type: boolean
Description: none

Parameter: closed
Type: boolean
Description: none

Parameter: muted
Type: boolean
Description: none

Parameter: burning
Type: boolean
Description: none

Parameter: nullIdentifier
Type: boolean
Description: none

Parameter: additionalCost
Type: boolean
Description: none

Parameter: restartRequired
Type: boolean
Description: none

Parameter: healthCheckFailed
Type: boolean
Description: none

Parameter: healthCheckUnknown
Type: boolean
Description: none

Parameter: provisioningFailed
Type: boolean
Description: none

Parameter: stateFlapping
Type: boolean
Description: none

Parameter: stateFlappingCheckTime
Type: unsigned integer
Description: none

Parameter: pingable
Type: boolean
Description: none

Parameter: sshable
Type: boolean
Description: none

Parameter: infoMessage
Type: string
Description: none

Parameter: userMessage
Type: string
Description: none

Parameter: toolMessage
Type: string
Description: none

Parameter: restartRequiredReasons
Type: list of strings
Description: none

Parameter: gracePeriod
Type: unsigned integer
Description: none

Parameter: powerResetOnUnreachableCount
Type: unsigned integer
Description: none

Parameter: failBeforeDown
Type: unsigned integer
Description: none

Parameter: updateIndex
Type: unsigned integer
Description: none

Parameter: updateDisplay
Type: boolean
Description: none

Parameter: hasClientDaemon
5.2 Entities

Type: boolean
Description: none

5.2.78 Device: Entity
parent: Entity
Parameter: tag
Type: string
Description: Hardware tag

Parameter: hostname
Type: string
Description: Hostname

Parameter: mac
Type: MAC
Description: MAC address

Parameter: defaultGateway
Type: IP
Description: Default gateway for the device

Parameter: creationTime
Type: timestamp
Description: Date on which node was defined

Parameter: partition
Type: reference to Partition
Description: Partition to which this device belongs

Parameter: ethernetSwitch
Type: SwitchPort or None
Description: Ethernet switch

Parameter: powerDistributionUnits
Type: list of PDUPort
Description: List of outlets on powerdistributionunits

Parameter: rack
Type: RackPosition or None
Description: Name of the rack in which the device resides

Parameter: indexInsideContainer
Type: unsigned integer
Description: Index inside container object (used for drawing twins/chassis inside rackview)

Parameter: powerControl
Type: string

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Description: Specifies which type of power control feature is being used (values: none, apc, custom, cloud, ipmi0, ilo0, drac0, rf0 or cimc0, openstack)

Parameter: customPowerScript
Type: string
Description: Script that will be used to perform power on/off/reset/status operations

Parameter: customPowerScriptArgument
Type: string
Description: Argument for the custom power script

Parameter: customPingScript
Type: string
Description: Script that will be used to ping a device

Parameter: customPingScriptArgument
Type: string
Description: Argument for the custom ping script

Parameter: notes
Type: string
Description: Administrator notes

Parameter: userdefined1
Type: string
Description: A free text field passed to custom scripts

Parameter: userdefined2
Type: string
Description: A free text field passed to custom scripts

Parameter: userDefinedResources
Type: list of strings
Description: User defined resources used to filter monitoring data producers

5.2.79 DIGITSRole: Role
parent: Role
Parameter: version
Type: string
Description: DIGITS version

Parameter: port
Type: unsigned integer
Description: DIGITS port

Parameter: jobsDir
Type: string
5.2 Entities

Description: Location where job files are stored. Defined in DIGITS_JOBS_DIR

Parameter: logfileFilename
Type: string
Description: File for saving log messages. Defined in DIGITS_LOGFILE_FILENAME

Parameter: logfileLevel
Type: enum
Description: Minimum log message level to be saved (DEBUG/INFO/WARNING/ERROR/Critical). Defined in DIGITS_LOGFILE_LEVEL

Parameter: serverName
Type: string
Description: The name of the server (accessible in the UI under ‘Info’). Default is the system hostname. Defined in DIGITS_SERVER_NAME

Parameter: modelStoreUrl
Type: string
Description: A list of URL’s, separated by comma. Default is the official NVIDIA store. Defined in DIGITS_MODEL_STORE_URL

Parameter: urlPrefix
Type: string
Description: A path to prepend before every URL. Sets the home-page to be at ‘http://localhost/custom-prefix’ instead of ‘http://localhost/’. Defined in DIGITS_URL_PREFIX

Parameter: caffeRoot
Type: string
Description: Path to your local Caffe build. Should contain build/tools/caffe and python/caffe/. Defined in CAFFE_ROOT

Parameter: torchRoot
Type: string
Description: Path to your local Torch build. Should contain install/bin/th. Defined in TORCH_ROOT

Parameter: tensorflowRoot
Type: string
Description: Path to your local TensorFlow build. Defined in TENSORFLOW_ROOT

5.2.80 DirectorRole
parent: Role
Parameter: syncFSParts
Type: enum
Description: Sync FSParts mode

Parameter: fsparts
Type: list of references to FSPart

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Description: FSParts

Parameter: disableAutomaticExports
Type: boolean
Description: Disable creation of automatic filesystem exports

Parameter: rsyslog
Type: enum
Description: Rsyslog target

5.2.81 DiskAssertion: Entity
parent: Entity
Parameter: name
Type: string
Description: Name.

Parameter: script
Type: string
Description: Assertion script.

Parameter: args
Type: string
Description: Script arguments.

5.2.82 DiskDevice: Entity
parent: Entity
Parameter: requiredSize
Type: string
Description: Required Size

Parameter: vendor
Type: string
Description: Required Vendor

Parameter: blockDevs
Type: list of strings
Description: Block Devices

Parameter: partitions
Type: list of DiskPartition
Description: Partitions

Parameter: assertions
Type: list of DiskAssertion
Description: Assertions
5.2.83  DiskInfo : Entity  

parent : Entity  
Parameter: name  
Type: string  
Description: none

Parameter: model  
Type: string  
Description: none

Parameter: vendor  
Type: string  
Description: none

Parameter: size  
Type: unsigned integer  
Description: none

Parameter: rev  
Type: string  
Description: none

Parameter: ioScheduler  
Type: string  
Description: none

5.2.84  DiskPartition : Entity  

parent : Entity  
Parameter: name  
Type: string  
Description: Name

Parameter: size  
Type: string  
Description: Size

Parameter: type  
Type: string  
Description: Type

Parameter: mountpoint  
Type: string  
Description: Mount point

Parameter: mountoptions  
Type: string
Description: Mount options

Parameter: filesystem
Type: string
Description: Filesystem

5.2.85 DiskRaid: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: size
Type: string
Description: Size

Parameter: level
Type: integer
Description: Level

Parameter: partitions
Type: list of strings
Description: Partitions

Parameter: mountpoint
Type: string
Description: Mount point

Parameter: mountoptions
Type: string
Description: Mount options

Parameter: filesystem
Type: string
Description: Filesystem

Parameter: swap
Type: boolean
Description: Use for swap

5.2.86 DiskSetup: Entity
parent: Entity
Parameter: devices
Type: list of DiskDevice
Description: List of block devices.

Parameter: raids
Type: list of DiskRaid
5.2 Entities

Description: List of raid devices.

Parameter: volumeGroups
Type: list of DiskVolumeGroup
Description: List of volume groups.

Parameter: diskless
Type: boolean
Description: If set the node will have its root file-system in RAM.

Parameter: maxMemSize
Type: string
Description: Maximum amount (in bytes) of RAM the root file-system can use.

5.2.87 DiskVolumeGroup: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: extentSize
Type: string
Description: Size

Parameter: physicalVolumes
Type: list of strings
Description: Physical volumes

Parameter: logicalVolumes
Type: list of DiskVolume
Description: Logical volumes

5.2.88 DiskVolume: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: size
Type: string
Description: Size

Parameter: mountpoint
Type: string
Description: Mount point

Parameter: mountoptions
Type: string

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Description: Mount options

Parameter: filesystem
Type: string
Description: Filesystem

5.2.89 DnsRole: Role
parent: Role
Parameter: nodegroups
Type: list of references to NodeGroup
Description: List of node groups which can boot from this node

Parameter: categories
Type: list of references to Category
Description: List of categories which can boot from this node

Parameter: racks
Type: list of references to Rack
Description: List of racks which can boot from this node

5.2.90 DockerHostRole: Role
parent: Role
Parameter: spool
Type: string
Description: Root of the Docker runtime

Parameter: tmpDir
Type: string
Description: Location used for temporary files (token $spool is replaced to path to docker runtime root directory)

Parameter: enableSelinux
Type: boolean
Description: Enable selinux support in docker daemon

Parameter: defaultUlimits
Type: list of strings
Description: Set the default ulimit options to use for all containers

Parameter: debug
Type: boolean
Description: Enable debug mode

Parameter: logLevel
Type: string
Description: Set the logging level

Parameter: bridgeIp
Type: string
Description: Network bridge IP

Parameter: bridge
Type: string
Description: Attach containers to a network bridge

Parameter: mtu
Type: unsigned integer
Description: Set the containers network MTU (in bytes)

Parameter: apiSockets
Type: list of strings
Description: Daemon socket(s) to connect to (-H docker daemon option)

Parameter: iptables
Type: boolean
Description: Enable addition of iptables rules

Parameter: userNamespaceRemap
Type: string
Description: User/Group setting for user namespaces

Parameter: insecureRegistries
Type: list of strings
Description: If you have a registry secured with https but do not have proper certs distributed, you can tell docker to not look for full authorization by adding the registry to this list. Accepted Format: CIDR or hostname:port

Parameter: enableTls
Type: boolean
Description: Use TLS

Parameter: verifyTls
Type: boolean
Description: Use TLS and verify the remote

Parameter: tlsCa
Type: string
Description: Trust certs signed only by this CA

Parameter: tlsCertificate
Type: string
Description: Path to TLS certificate file

Parameter: tlsKey
Type: string

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Description: Path to TLS key file

Parameter: certificatesPath
Type: string
Description: Path to docker certificates

Parameter: storageBackends
Type: list of DockerStorageBackend
Description: Docker storage backends

Parameter: containerdSocket
Type: string
Description: Path to containerd socket

Parameter: runtime
Type: string
Description: Docker runtime

Parameter: options
Type: list of strings
Description: Additional parameters for docker daemon

5.2.91 DockerStorageAufsBackend: DockerStorageBackend
parent: DockerStorageBackend
Parameter: options
Type: list of strings
Description: Extra options used for the AUFS storage backend

5.2.92 DockerStorageBackend: Entity
parent: Entity
Parameter: name
Type: string
Description: Docker storage backend name

5.2.93 DockerStorageDeviceMapperBackend: DockerStorageBackend
parent: DockerStorageBackend
Parameter: loopDataSize
Type: string
Description: Size to use when creating the loopback file for the ‘data’ device which is used for the thin pool (driver option: dm.loopdatasize)

Parameter: loopMetadataSize
Type: string
Description: Size to use when creating the loopback file for the ‘metadata’ device which is used for the thin pool (driver option: dm.loopmetadatasize)

Parameter: baseSize
Type: string
Description: Size to use when creating the base device, which limits the size of images and container (driver option: dm.basesize)

Parameter: poolDevice
Type: string
Description: Custom block storage device to use for the thin pool (driver option: dm.thinpooldev)

Parameter: filesystem
Type: string
Description: Filesystem type to use for the base device (driver option: dm.fs)

Parameter: blockSize
Type: string
Description: Custom blocksize to use for the thin pool (driver option: dm.blocksize)

Parameter: blkDiscard
Type: boolean
Description: Enables or disables the use of blkdiscard when removing devicemapper devices (driver option: dm.blkdiscard)

Parameter: mkfsArguments
Type: list of strings
Description: Extra mkfs arguments to be used when creating the base device (drive option: dm.mkfsarg)

Parameter: mountOptions
Type: list of strings
Description: Extra mount options used when mounting the thin devices (drive option: dm.mountopt)

5.2.94 DockerStorageOverlay2Backend: DockerStorageBackend
parent: DockerStorageBackend
Parameter: overrideKernelCheck
Type: boolean
Description: Override the kernel check to allow overlay2

Parameter: size
Type: string
Description: Default max size of the container (empty = unlimited)

Parameter: options
Type: list of strings
Description: Extra options used for the AUFS storage backend

5.2.95 DrainAction: Entity
parent: Entity
Parameter: node
Type: reference to Node
Description: Node

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Parameter: actions
Type: list of references to MonitoringAction
Description: Actions to execute after the node has been drained

5.2.96 DrainResult: Entity
parent: Entity
Parameter: scheduler
Type: string
Description: Scheduler

Parameter: success
Type: boolean
Description: Success

Parameter: node
Type: list of unsigned numbers
Description: Node

Parameter: queue
Type: list of unsigned numbers
Description: Queue

Parameter: result
Type: list of unsigned numbers
Description: Result

5.2.97 EC2AMI: CloudImage
parent: CloudImage
Parameter: regionAMI
Type: list of EC2RegionAMI
Description: The AMI.

Parameter: paid
Type: boolean
Description: Whether or not this AMI, when used, is charged for extra by cloud provider

5.2.98 EC2AvailabilityZone: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

5.2.99 EC2EBSStorage: EC2Storage
parent: EC2Storage
Parameter: volumeId
Type: string
Description: Volume ID assigned by EC2
Parameter: size
Type: unsigned integer
Description: Size

Parameter: persistent
Type: boolean
Description: Persistent storage will not be removed when instance is removed

Parameter: availabilityZone
Type: string
Description: Availability zone set by EC2

Parameter: creationTime
Type: timestamp
Description: Time of creation in EC2

Parameter: status
Type: string
Description: Status of EBS volume in EC2

Parameter: volumeType
Type: enum
Description: Specifies what type of EBS volume to use

Parameter: iops
Type: unsigned integer
Description: Specifies the IOPS rate for the provisioned IOPS volume type

Parameter: encrypted
Type: boolean
Description: none

Parameter: snapshotId
Type: string
Description: ID of the snapshot which should be used to instantiate the new disk. This field can be used to speed up node provisioning by first provisioning a cloud compute node, creating a snapshot of its volumes, and then setting that snapshot ID in this field for remaining cloud compute nodes.

5.2.100 EC2EphemeralStorage: EC2Storage
parent: EC2Storage
Parameter: volumeId
Type: string
Description: Ephemral ID

Parameter: size
Type: unsigned integer
Description: Size
5.2.101  EC2Provider: CloudProvider

parent: CloudProvider

Parameter: username
Type: string
Description: AWS region to be used for listing available regions

Parameter: accountId
Type: string
Description: AWS Account ID

Parameter: accessKeyId
Type: string
Description: AWS access key ID

Parameter: accessKeySecret
Type: string
Description: AWS secret access key

Parameter: VPCs
Type: list of EC2VPC
Description: List of VPCs

Parameter: defaultRegion
Type: reference to EC2Region or None
Description: Default region to start instances in

Parameter: defaultAMI
Type: reference to EC2AMI or None
Description: Default AMI to start instances with

Parameter: defaultType
Type: reference to EC2Type or None
Description: Default type for instances

Parameter: defaultDirectorType
Type: reference to EC2Type or None
Description: Default type for cloud director instances

Parameter: addJobBasedTag
Type: boolean
Description: Enable automatic cost monitoring of cloud jobs through remote labeling

Parameter: JobIdTagName
Type: string
Description: None

Parameter: JobAccountTagName
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Type: string
Description: none

Parameter: JobUserTagName
Type: string
Description: none

Parameter: JobNameTagName
Type: string
Description: none

Parameter: billingAccessKeyId
Type: string
Description: AWS billing access key ID

Parameter: billingAccessKeySecret
Type: string
Description: AWS billing secret access key

Parameter: useMarketplaceAMIs
Type: enum
Description: Preference towards using marketplace AMIs

5.2.102 EC2RegionAMI : Entity
parent : Entity
Parameter: region
Type: reference to EC2Region
Description: The cloud region containing this AMI

Parameter: amiID
Type: string
Description: The AMI ID

5.2.103 EC2Region : CloudRegion
parent : CloudRegion
Parameter: url
Type: string
Description: url

Parameter: availabilityZones
Type: list of EC2AvailabilityZone
Description: Availability zones

5.2.104 EC2Settings : CloudSettings
parent : CloudSettings
Parameter: instanceId
Type: string
Description: Instance-ID provided by EC2

Parameter: spotId
Type: string
Description: Spot-request-ID provided by EC2

Parameter: sshConnectString
Type: string
Description: SSH connection string provided by EC2

Parameter: type
Type: reference to EC2Type or None
Description: Type for instance

Parameter: region
Type: reference to EC2Region
Description: Region for instance

Parameter: ami
Type: reference to EC2AMI or None
Description: AMI used to create instance

Parameter: allocatePublicIP
Type: boolean
Description: Whether to allocate a public IP for this instance. Always true for cloud directors.

Parameter: sourceDestinationCheck
Type: boolean
Description: Whether to perform source/destination checks on the instance traffic.

Parameter: kernel
Type: string
Description: Kernel used to create instance

Parameter: initrd
Type: string
Description: Initial ramdisk used to create instance

Parameter: options
Type: string
Description: User defined options passed to EC2 on instance creation

Parameter: storage
Type: list of EC2Storage
Description: Assign EC2 storage

Parameter: cpuOptions
5.2 Entities

**Type:** string  
**Description:** CPU Options in AWS shorthand syntax (e.g: CoreCount=8,ThreadsPerCore=1)

**Parameter:** spotPrice  
**Type:** float  
**Description:** Maximum price to start instance with

**Parameter:** spotPersistent  
**Type:** boolean  
**Description:** Persistent spot instances are requested again after they are automatically stopped, because price became to high

**Parameter:** useNonDefaultVirtualizationType  
**Type:** boolean  
**Description:** none

**Parameter:** placementGroup  
**Type:** string  
**Description:** Start instance in the specified placement group

### 5.2.105 EC2Storage : Entity

**parent:** Entity  
**Parameter:** name  
**Type:** string  
**Description:** Name

**Parameter:** drive  
**Type:** string  
**Description:** Mount device as /dev/?

**Parameter:** tags  
**Type:** list of strings  
**Description:** List of tags that will be assigned to storage

### 5.2.106 EC2Type : CloudType

**parent:** CloudType  
**Parameter:** virtualizationType  
**Type:** string  
**Description:** Virtualization type.

**Parameter:** ondemandPrices  
**Type:** list of strings  
**Description:** List of on-demand prices for VMs of this type.

### 5.2.107 EC2VPC : Entity

**parent:** Entity  
**Parameter:** name  
**Type:** string
Description:  User-defined name of the private cloud

Parameter:  vpcID
Type:  string
Description:  AWS VPC identifier

Parameter:  mainRouteTable
Type:  string
Description:  Main route table AWS ID

Parameter:  defaultACL
Type:  string
Description:  Default network access controll list ID

Parameter:  internetGatewayID
Type:  string
Description:  The AWS ID of the internet gateway assigned to this VPC

Parameter:  region
Type:  reference to EC2Region
Description:  AWS region of the VPC

Parameter:  subnets
Type:  list of references to Network
Description:  Subnets (networks) associated with the VPC

Parameter:  baseAddress
Type:  IP
Description:  Base IP address of the VPC

Parameter:  netmaskBits
Type:  integer
Description:  Number of netmask Bits

Parameter:  securityGroupNode
Type:  string
Description:  Security group ID of the cloud nodes

Parameter:  securityGroupDirector
Type:  string
Description:  Security group ID of the cloud director

Parameter:  routeTableIdPublic
Type:  string
Description:  Routing table ID for the public subnet

Parameter:  routeTableIdPrivate
5.2 Entities

Type: string
Description: Routing table ID for private subnets

Parameter: manageVPCInAWS
Type: boolean
Description: Whether to create/remove VPC in AWS as they are created/removed in Bright.

Parameter: manageSecurityGroupsInAWS
Type: boolean
Description: Whether to ensure security groups are created in AWS.

Parameter: manageSubnetsInAWS
Type: boolean
Description: Whether to create/remove VPC subnets in AWS as they are created/removed in Bright.

Parameter: manageRouteTableSetupInAWS
Type: boolean
Description: Whether to create routing table entries in the VPC.

Parameter: useInternalIPForDirectorIP
Type: boolean
Description: If specified, CMDaemon will use cloud director’s internal IP, instead of a public/external IP. Useful when you have existing IP connectivity to your VPC.

Parameter: enforceDirectorIP
Type: IP
Description: If specified, CMDaemon will assume this is the cloud director’s IP address.

Parameter: customDefaultGWPrivateSubnet
Type: string
Description: Use this to override the default gateway which will be set for the routing tables of the VPC’s private subnet.

Parameter: customDefaultGWPublicSubnet
Type: string
Description: Use this to override the default gateway which will be set for the routing tables of the VPC’s public subnet.

Parameter: defaultGWPrivateSubnetType
Type: string
Description: Default gateway private subnet type.

Parameter: vpceextraField2
Type: list of strings
Description: A list of various advanced options.
5.2.108  **EdgeDirectorRole : DirectorRole**
*parent:* DirectorRole
*Parameter:* nodePowerOperations
*Type:* boolean
*Description:* Execute all power operations of nodes in the edge site on the director

*Parameter:* directorPowerOperations
*Type:* boolean
*Description:* Execute all power operation of the director on the director, note that this means it cannot be powered on

*Parameter:* nodeSelectionBootRole
*Type:* boolean
*Description:* Use the edge site as a node selection mechanism for the boot role

*Parameter:* nodeSelectionDnsRole
*Type:* boolean
*Description:* Use the edge site as a node selection mechanism for the DNS role

*Parameter:* nodeSelectionProvisioningRole
*Type:* boolean
*Description:* Use the edge site as a node selection mechanism for the provisioning role

*Parameter:* openTCPPortsOnHeadNode
*Type:* list of unsigned numbers
*Description:* The list of TCP ports that will be opened in shorewall on the head node

*Parameter:* openUDPPortsOnHeadNode
*Type:* list of unsigned numbers
*Description:* The list of UDP ports that will be opened in shorewall on the head node

*Parameter:* externallyVisibleIp
*Type:* IP
*Description:* IP that will be seen by other nodes when the director connects

*Parameter:* externallyVisibleHeadNodeIp
*Type:* IP
*Description:* Head node IP that will be use by this director

5.2.109  **EdgeSite : Entity**
*parent:* Entity
*Parameter:* name
*Type:* string
*Description:* Name

*Parameter:* contact
*Type:* list of strings
5.2 Entities

Description: Names of contacts

**Parameter:** adminEmail
**Type:** list of strings
**Description:** Administrator’s email

**Parameter:** address
**Type:** string
**Description:** Address

**Parameter:** city
**Type:** string
**Description:** City

**Parameter:** country
**Type:** string
**Description:** Country

**Parameter:** notes
**Type:** string
**Description:** Notes

**Parameter:** nodes
**Type:** list of references to ComputeNode
**Description:** List of nodes in this site

**Parameter:** switches
**Type:** list of references to Switch
**Description:** List of switches in this site

**Parameter:** secret
**Type:** string
**Description:** Edge site secret

**Parameter:** createISO
**Type:** enum
**Description:** Edge site site ISO/script for USB

**Parameter:** createIMG
**Type:** enum
**Description:** Edge site site IMG/script for MMC

5.2.110 ElasticSearchRole: Role

**parent:** Role

**Parameter:** clusterName
**Type:** string
**Description:** Elastic Search cluster name
Parameter: includeInHAProxy
Type: boolean
Description: Include this endpoint in the config of frontend HAProxy nodes

Parameter: frontendHAProxyNames
Type: list of strings
Description: If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

Parameter: network
Type: reference to Network
Description: Network on which elastic search listens.

Parameter: isBackupEndpoint
Type: boolean
Description: Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

Parameter: apiPort
Type: unsigned integer
Description: API port to bind.

5.2.111 EntityManagersMD5 : Entity
parent : Entity
Parameter: name
Type: list of strings
Description: Name.

Parameter: md5
Type: list of strings
Description: MD5.

5.2.112 Entity
Parameter: uniqueKey
Type: 64 bit unsigned
Description: Unique identifier.

Parameter: baseType
Type: string
Description: Basis instance type.

Parameter: childType
Type: string
Description: Specialized instance type.

Parameter: revision
Type: string
5.2 Entities

Description: A free text revision field

5.2.113 EtcdCluster: Entity

parent: Entity

Parameter: name
  Type: string
  Description: Name of the Etcd cluster

Parameter: heartbeatInterval
  Type: unsigned integer
  Description: Time (in milliseconds) of a heartbeat interval

Parameter: electionTimeout
  Type: unsigned integer
  Description: Time (in milliseconds) for an election to timeout

Parameter: notes
  Type: string
  Description: Notes

Parameter: ca
  Type: string
  Description: The Certificate Authority (CA) Certificate path for Etcd, used to generate certificates for Etcd.

Parameter: cakey
  Type: string
  Description: The Certificate Authority (CA) Key path for Etcd, used to generate certificates for Etcd.

Parameter: memberCertificate
  Type: string
  Description: The Certificate path to use for Etcd cluster members, signed with the Etcd CA.

Parameter: memberCertificateKey
  Type: string
  Description: The Key path to use for Etcd cluster members, signed with the Etcd CA.

Parameter: clientCertificate
  Type: string
  Description: The Client Certificate used for Etcdctl for example.

Parameter: clientCertificateKey
  Type: string
  Description: The Client Certificate Key used for Etcdctl for example.

Parameter: clientCA
  Type: string

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Description: The Certificate Authority (CA) used for client certificates. When set it is assumed client certificate and key will be generated and signed with this CA by another party. Etcd still expects the path to be correct for the Client Certificate and Key.

Parameter: clientTypeEtcd
Type: unsigned integer
Description: client type in the CLIENT_TYPE_ETCD range

Parameter: moduleFileTemplate
Type: string
Description: Template for system module file

5.2.114 EtcdHostRole: Role
parent : Role
Parameter: memberName
Type: string
Description: Human-readable name for this member ($hostname will be replaced to the node hostname)

Parameter: spool
Type: string
Description: Path to the data directory

Parameter: listenClientUrls
Type: list of strings
Description: List of URLs to listen on for client traffic

Parameter: listenPeerUrls
Type: list of strings
Description: List of URLs to listen on for peer traffic

Parameter: advertiseClientUrls
Type: list of strings
Description: List of this member’s client URLs to advertise to the public

Parameter: advertisePeerUrls
Type: list of strings
Description: List of this member’s peer URLs to advertise to the rest of the cluster

Parameter: snapshotCount
Type: unsigned integer
Description: Number of committed transactions to trigger a snapshot to disk

Parameter: maxSnapshots
Type: unsigned integer
Description: Maximum number of snapshot files to retain (0 is unlimited)

Parameter: debug
5.2 Entities

**Type:** boolean
**Description:** Drop the default log level to DEBUG for all subpackages

**Parameter:** options
**Type:** list of strings
**Description:** Additional parameters for etcd daemon

**Parameter:** etcdCluster
**Type:** reference to EtcdCluster
**Description:** The Etcd cluster instance

**Parameter:** memberCertificate
**Type:** string
**Description:** Etcd member certificate, signed with CA specified in the Etcd Cluster. When set it will overrule the value from the EtcdCluster object.

**Parameter:** memberCertificateKey
**Type:** string
**Description:** Etcd member certificate key, signed with CA specified in the Etcd Cluster. When set it will overrule the value from the EtcdCluster object.

5.2.115 EthernetSwitch : Switch

**parent:** Switch
**Parameter:** lowestPort
**Type:** integer
**Description:** Lowest port

**Parameter:** uplinks
**Type:** list of unsigned numbers
**Description:** List of ports connected to other switches.

**Parameter:** disablePortDetection
**Type:** boolean
**Description:** Disable port detection for this switch

**Parameter:** disablePortMapping
**Type:** boolean
**Description:** Disable port index mapping

**Parameter:** vlanCacheTime
**Type:** unsigned integer
**Description:** Time to cache VLAN information

5.2.116 FailoverRole : Role

**parent:** Role
**Parameter:** syncCmShared
**Type:** boolean

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**Description:** Passive head node has a local copy of /cm/shared

**Parameter:** `syncMonitoring`
**Type:** boolean
**Description:** Passive head gets updates of cmdaemon monitoring

### 5.2.117 FileContent : Entity

**parent:** Entity

**Parameter:** `filename`
**Type:** string
**Description:** Filename

**Parameter:** `content`
**Type:** string
**Description:** Content

**Parameter:** `username`
**Type:** string
**Description:** Username

**Parameter:** `permissions`
**Type:** integer
**Description:** Permissions

### 5.2.118 FPGAInfo : Entity

**parent:** Entity

**Parameter:** `vendor`
**Type:** string
**Description:** none

**Parameter:** `bdf`
**Type:** string
**Description:** none

**Parameter:** `cardType`
**Type:** string
**Description:** none

**Parameter:** `flashType`
**Type:** string
**Description:** none

**Parameter:** `dsaRunningFPGA`
**Type:** string
**Description:** none

**Parameter:** `dsaPackageInstalled`
**Type:** string
5.2 Entities

Description:  *none*

Parameter:  name
Type:  string
Description:  *none*

Parameter:  rev
Type:  string
Description:  *none*

Parameter:  serial
Type:  string
Description:  *none*

Parameter:  configMode
Type:  string
Description:  *none*

Parameter:  fanPresence
Type:  string
Description:  *none*

Parameter:  maxPowerLevel
Type:  string
Description:  *none*

Parameter:  mac0
Type:  MAC
Description:  *none*

Parameter:  mac1
Type:  MAC
Description:  *none*

Parameter:  mac2
Type:  MAC
Description:  *none*

Parameter:  mac3
Type:  MAC
Description:  *none*

5.2.119  **FSExport** : **Entity**

**parent** : **Entity**

Parameter:  name
Type:  string
Description:  Normally the same as the path, useful when exporting a path twice
Parameter: path
Type: string
Description: Path to export

Parameter: network
Type: reference to Network or None
Description: Network the interface is connected to

Parameter: hosts
Type: string
Description: Specify extra hosts-range allowed access to this export (space separated)

Parameter: automatic
Type: boolean
Description: The export was created automatically

Parameter: allowWrite
Type: boolean
Description: Allow writing

Parameter: async
Type: boolean
Description: Allow the NFS server to violate the NFS protocol and reply to requests before any changes made by that request have been committed to stable storage

Parameter: rootSquash
Type: boolean
Description: Map requests from uid/gid 0 to the anonymous uid/gid

Parameter: allSquash
Type: boolean
Description: Map all uids and gids to the anonymous user

Parameter: anonUid
Type: unsigned integer
Description: Anonymous account user id number

Parameter: anonGid
Type: unsigned integer
Description: Anonymous account group id number

Parameter: extraOptions
Type: string
Description: Extra options to be added to this export

Parameter: fsid
Type: unsigned integer
Description: Identification for exports used in failover setup. Make sure these are identical

Parameter: rdma
Type: boolean
Description: Enable NFS over RDMA

Parameter: disabled
Type: boolean
Description: Disable the export

Parameter: checkTree
Type: boolean
Description: Check tree

5.2.120 FSMount: Entity
description: What to mount.

Parameter: device
Type: string
Description: What to mount.

Parameter: mountpoint
Type: string
Description: Where to mount.

Parameter: filesystem
Type: string
Description: The file system type.

Parameter: mountoptions
Type: string
Description: What options to use for mounting.

Parameter: dump
Type: boolean
Description: Dump field in fstab, see man fstab.

Parameter: fsck
Type: enum
Description: Filesystem check field in fstab, see man fstab.

Parameter: rdma
Type: boolean
Description: Enable NFS over RDMA.

5.2.121 FSPartAssociation: Entity
description: Entity

Parameter: syncPoint
Type: string
Description: Directory the FSPart should be synchronized to on the target.

Parameter: prefix
Type: string
Description: Optional prefix to the sync point.

Parameter: fspart
Type: reference to FSPart
Description: FSPart this association is associated with.

Parameter: excludeListSync
Type: string
Description: Exclude list for sync mode provisioning.

Parameter: excludeListFull
Type: string
Description: Exclude list for full mode provisioning.

Parameter: excludeListUpdate
Type: string
Description: Exclude list for update mode provisioning.

Parameter: excludeListGrab
Type: string
Description: Exclude list for grab mode provisioning.

Parameter: excludeListGrabNew
Type: string
Description: Exclude list for grabnew mode provisioning.

Parameter: onSharedStorage
Type: boolean
Description: FSPart associations on shared storage can be used as provisioning source, but don’t need to be kept up-to-date.

Parameter: disabled
Type: boolean
Description: Do not rsync this association

5.2.122 FSPartBasicAssociation: FSPartAssociation

parent: FSPartAssociation

Parameter: isRoot
Type: boolean
Description: Indicates if this association is the root file system for the target. A node can only have one association where this is set.
5.2.123 FSPartInfo: Entity
parent: Entity
Parameter: refFSPartUniqueKey
Type: unsigned integer
Description: FSPart

Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: archOSInfo
Type: ArchOSInfo or None
Description: Detected arch/OS

Parameter: size
Type: unsigned integer
Description: Total size

Parameter: inotifyWatcherSize
Type: unsigned integer
Description: Inotify watcher size

5.2.124 FSPartProviderAssociation: FSPartAssociation
parent: FSPartAssociation
Parameter: onlyWhenActive
Type: boolean
Description: Only use provider association if the node is the active head node

5.2.125 FSPartRole: Role
parent: Role
Parameter: fsparts
Type: list of references to FSPart
Description: FSParts

Parameter: fspartSource
Type: boolean
Description: Server as source for all these FSParts

5.2.126 FSPart: Entity
parent: Entity
Parameter: path
Type: string
Description: Full source path of the filesystem part

Parameter: type
Type: enum
Description: The type of filesystem part

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Parameter: watchDirectories
Type: list of strings
Description: Watch directories for changes on the active head node, filesystem part will be marked dirty when changed

Parameter: dirtyAutoSyncDelay
Type: unsigned integer
Description: Time to wait before automatically syncing after the filesystem part became dirty, set 0 to disable

Parameter: autoDirtyDelay
Type: unsigned integer
Description: Time to wait before automatically marking an filesystem part as dirty, set 0 to disable

Parameter: preSyncScript
Type: string
Description: Script to be executed before rsync runs

Parameter: postSyncScript
Type: string
Description: Script to be executed after rsync runs

Parameter: abortOnPreSyncScriptFailure
Type: boolean
Description: Do not rsync if the pre sync script exited with a non zero exit code

Parameter: runPostOnFailure
Type: boolean
Description: Run the post rsync script even if the pre sync or sync ended with a non zero exit code

Parameter: syncScriptTimeout
Type: unsigned integer
Description: Script timeout

Parameter: rsyncAcls
Type: boolean
Description: Rsync with –acls

Parameter: rsyncXattrs
Type: boolean
Description: Rsync with –xattrs

Parameter: rsyncHardlinks
Type: boolean
Description: Rsync with –hard-links

Parameter: rsyncSparse
Type: boolean
Description: Rsync with –sparse

Parameter: rsyncNumericIds
Type: boolean
Description: Rsync with –numeric-ids

Parameter: rsyncForce
Type: boolean
Description: Rsync with –force

Parameter: rsyncPrune
Type: boolean
Description: Rsync with –prune-empty-dirs

Parameter: rsyncDelta
Type: boolean
Description: Rsync with –inplace –no-whole-file

Parameter: rsyncBlockSize
Type: unsigned integer
Description: Rsync with –block-size=<value> Max 128KB, 0 implies rsync default

Parameter: rsyncBandWidthLimit
Type: unsigned integer
Description: Rsync with –bwlimit=<value>

Parameter: rsyncCompress
Type: enum
Description: Rsync with –compress

Parameter: rsyncCompressLevel
Type: enum
Description: Rsync compression at a specific level

Parameter: extraRsyncArguments
Type: list of strings
Description: Extra rsync arguments

Parameter: excludeList
Type: string
Description: Exclude list for provisioner updates

5.2.127 FSxInstance: Entity
parent: Entity
Parameter: fsxId
Type: string

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Description: AWS assigned unique identifier

Parameter: name  
Type: string  
Description: Non-unique identifier

Parameter: owner  
Type: string  
Description: Owner of the FSx instance

Parameter: sharedWith  
Type: list of strings  
Description: Other cmjob users that can use this instance for jobs.

Parameter: vpcId  
Type: string  
Description: The VPC in which it exists

Parameter: region  
Type: string  
Description: The AWS region where the instance was created

Parameter: capacity  
Type: unsigned integer  
Description: Size in GB. Should be at least 3600

Parameter: status  
Type: string  
Description: AWS reported status of the instance

Parameter: hostname  
Type: string  
Description: Hostname of the FSx, is internal to the VPC

Parameter: management  
Type: enum  
Description: Instance management type

Parameter: creationTime  
Type: string  
Description: Creation time

5.2.128 GaleraRole: Role  
parent: Role  
Parameter: clusterName  
Type: string  
Description: Galera cluster name
5.2 Entities

Parameter: networks
Type: list of references to Network
Description: Priority list of networks on which galera plugin should bind (only one will be selected)

Parameter: mysqlPort
Type: unsigned integer
Description: Port to bind

Parameter: maxConnections
Type: unsigned integer
Description: Maximum number of connections per mariadb instance

Parameter: clusterNodes
Type: list of strings
Description: List of other nodes in the galera cluster. If empty, will be detected automatically

Parameter: weight
Type: unsigned integer
Description: Weight of the node in the weighted quorum calculation

Parameter: allowAutoBootstrap
Type: boolean
Description: Allow automatic cluster recovery in some cases

Parameter: adminUsername
Type: string
Description: Administrator username

Parameter: adminPassword
Type: string
Description: The main administrative password to the galera cluster

Parameter: healthCheckUsername
Type: string
Description: Health check username

Parameter: healthCheckPassword
Type: string
Description: Health check user password

Parameter: gcommPort
Type: unsigned integer
Description: GCOMM port to bind

Parameter: includeInHAProxy
Type: boolean
**Description:** Include this endpoint in the config of frontend HAProxy nodes

**Parameter:** frontendHAProxyNames
**Type:** list of strings
**Description:** If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

**Parameter:** isBackupEndpoint
**Type:** boolean
**Description:** Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

**Parameter:** TimeoutStartSec
**Type:** string
**Description:** Timeout in seconds for service to start

**Parameter:** TimeoutStopSec
**Type:** string
**Description:** Timeout in seconds for service to stop

5.2.129 **GenericDevice:** Device
**parent:** Device

**Parameter:** ip
**Type:** IP
**Description:** Ip address

**Parameter:** network
**Type:** reference to Network or None
**Description:** Network to which this switch is connected

**Parameter:** model
**Type:** string
**Description:** Device model name

**Parameter:** additionalHostnames
**Type:** list of strings
**Description:** List of additional hostnames that should resolve to the interfaces IP address

5.2.130 **GenericResource:** BasicResource
**parent:** BasicResource

**Parameter:** activateScript
**Type:** string
**Description:** Script to be executed when the resource is given to a node

**Parameter:** deactivateScript
**Type:** string
**Description:** Script to be executed when the resource is taken a way from a node
Parameter: checkScript
Type: string
Description: Script to be executed periodically to verify the resource is still running

Parameter: arguments
Type: list of strings
Description: Arguments to pass to the script

Parameter: scriptTimeout
Type: unsigned integer
Description: Script timeout

5.2.131 GenericRoleConfiguration: Entity

Parameter: name
Type: string
Description: Name

Parameter: createDirectory
Type: boolean
Description: Create directory if it doesn’t exist

Parameter: filename
Type: string
Description: Filename

Parameter: mask
Type: unsigned integer
Description: Filemask

Parameter: userName
Type: string
Description: User ownership applied to the file

Parameter: groupName
Type: string
Description: Group ownership applied to the file

Parameter: disabled
Type: boolean
Description: Disabled

Parameter: serviceActionOnWrite
Type: enum
Description: Action performed on service if the file changed

Parameter: serviceStopOnFailure
Type: boolean
Description: Stop services if the file write failed

5.2.132 GenericRoleEnvironment: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: value
Type: string
Description: Value

Parameter: nodeEnvironment
Type: boolean
Description: Update the node environment variables

5.2.133 GenericRoleGeneratedConfiguration: GenericRoleConfiguration
parent: GenericRoleConfiguration
Parameter: script
Type: string
Description: Script

Parameter: arguments
Type: list of strings
Description: Arguments

Parameter: timeout
Type: unsigned integer
Description: Timeout

Parameter: watch
Type: boolean
Description: Watch script for changes, and rerun

5.2.134 GenericRoleStaticConfiguration: GenericRoleConfiguration
parent: GenericRoleConfiguration
Parameter: content
Type: string
Description: Content to write into file

5.2.135 GenericRoleSymlinkConfiguration: GenericRoleConfiguration
parent: GenericRoleConfiguration
Parameter: sourceFilename
Type: string
Description: Source filename

Parameter: watch

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Type: boolean
Description: Watch source file for changes, and treat as file change

5.2.136 GenericRoleTemplatedConfiguration: GenericRoleConfiguration
parent: GenericRoleConfiguration
Parameter: templateContent
Type: string
Description: Template to use for writing file

Parameter: environmentFromKeyValueStore
Type: boolean
Description: Use key value store for extra replacement rules

5.2.137 GenericRole: Role
parent: Role
Parameter: services
Type: list of strings
Description: none

Parameter: configuration
Type: list of GenericRoleConfiguration
Description: none

Parameter: extraEnvironment
Type: list of GenericRoleEnvironment
Description: none

Parameter: excludeList
Type: list of strings
Description: Excluded paths in the node image update

5.2.138 GPUInfo: Entity
parent: Entity
Parameter: name
Type: string
Description: none

Parameter: index
Type: unsigned integer
Description: none

Parameter: pciBusId
Type: string
Description: none

Parameter: pciDevId
Type: string
Description: none

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Description: none

Parameter: pciSubSysId
Type: string
Description: none

Parameter: pciMaxLinkGen
Type: string
Description: none

Parameter: pciLinkGen
Type: string
Description: none

Parameter: pciMaxLinkWidth
Type: string
Description: none

Parameter: pciLinkWidth
Type: string
Description: none

Parameter: serial
Type: string
Description: none

Parameter: uuid
Type: string
Description: none

Parameter: vBios
Type: string
Description: none

Parameter: driverModel
Type: string
Description: none

Parameter: infoRom
Type: string
Description: none

Parameter: powerMode
Type: string
Description: none

Parameter: powerLimit
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Type: string
Description: none

Parameter: displayMode
Type: string
Description: none

Parameter: eccMode
Type: string
Description: none

Parameter: computeMode
Type: string
Description: none

Parameter: operationMode
Type: string
Description: none

Parameter: persistenceMode
Type: string
Description: none

Parameter: clocksSettings
Type: list of strings
Description: none

5.2.139 GPUSettings: Entity
parent: Entity
Parameter: name
Type: string
Description: Range of GPUs for which these settings apply

Parameter: source
Type: unsigned integer
Description: none

Parameter: unitOffset
Type: unsigned integer
Description: none

5.2.140 GpuStatusEntry: Entity
parent: Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: index

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**Type:** unsigned integer  
**Description:** GPU index for this status entry

**Parameter:** gpu  
**Type:** string  
**Description:** Name of the GPU

**Parameter:** property  
**Type:** string  
**Description:** Property name

**Parameter:** value  
**Type:** string  
**Description:** Value of the property

**Parameter:** supported  
**Type:** list of strings  
**Description:** List of supported values for this property

---

5.2.141 **GPUUnitInfo : Entity**  
**parent:** Entity  
**Parameter:** name  
**Type:** string  
**Description:** Name of this unit

**Parameter:** id  
**Type:** string  
**Description:** Numeric identifier of this unit

**Parameter:** serial  
**Type:** string  
**Description:** none

**Parameter:** driver  
**Type:** string  
**Description:** none

**Parameter:** nvml  
**Type:** string  
**Description:** none

**Parameter:** pciSpeed  
**Type:** string  
**Description:** none

**Parameter:** firmware  
**Type:** string
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Description: none

Parameter: gpu
Type: list of GPUInfo
Description: GPU information

**5.2.142 GpuUnit**: Device

parent: Device
Parameter: ip
Type: IP
Description: Ip address

Parameter: network
Type: reference to Network or None
Description: Network to which this switch is connected

Parameter: serial
Type: string
Description: Serial

Parameter: indx
Type: integer
Description: Index of the pci bus

Parameter: bmcSettings
Type: BMCSettings or None
Description: Configure the baseboard management controller settings

Parameter: exclusive
Type: boolean
Description: Run in exclusive mode

Parameter: owners
Type: list of references to Node
Description: List of nodes who have access to this gpu unit

Parameter: gpuSettings
Type: list of GPUSettings
Description: Configure the GPUs

**5.2.143 GridEngineJobQueueStat**: JobQueueStat

parent: JobQueueStat
Parameter: load
Type: float
Description: Queue queue load

Parameter: used
Type: unsigned integer

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Description: Used queue slots

Parameter: available
Type: unsigned integer
Description: Available queue slots

Parameter: total
Type: unsigned integer
Description: Total queue slots

Parameter: resv
Type: unsigned integer
Description: Reserved queue slots

5.2.144 GridEngineJobQueue : JobQueue
parent : JobQueue
Parameter: slots
Type: string
Description: Number of slots

Parameter: tmpdir
Type: string
Description: Temporary directory for queue

Parameter: prolog
Type: string
Description: Path to prolog script (e.g. root@/cm/local/apps/cmd/scripts/prolog)

Parameter: epilog
Type: string
Description: Path to epilog script

Parameter: starterMethod
Type: string
Description: Script to be executed instead of shell to run the job

Parameter: suspendMethod
Type: string
Description: Grid Engine Suspend method

Parameter: resumeMethod
Type: string
Description: Grid Engine Resume method

Parameter: terminateMethod
Type: string
Description: Grid Engine Terminate method

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Parameter: minWalltime  
Type: string  
Description: Minimum runtime for jobs in queue

Parameter: maxWalltime  
Type: string  
Description: Maximum runtime for jobs in queue

5.2.145 GridEngineJob: Job  
parent: Job

5.2.146 GridEngineParallelEnvironment: Entity  
parent: Entity

Parameter: name  
Type: string  
Description: The name of the parallel environment (to be used in the qsub -pe switch)

Parameter: slots  
Type: unsigned integer  
Description: The number of parallel processes being allowed to run in total under the PE concurrently

Parameter: userLists  
Type: list of strings  
Description: A list of user access list names

Parameter: xUserLists  
Type: list of strings  
Description: An exclude list of user access list names

Parameter: startProcedureArguments  
Type: string  
Description: The invocation command line of a start-up procedure

Parameter: stopProcedureArguments  
Type: string  
Description: The invocation command line of a shutdown procedure

Parameter: allocationRule  
Type: string  
Description: The allocation rule helps the scheduler to decide how to distribute parallel processes

Parameter: controlSlaves  
Type: boolean  
Description: Indicates if GE is the creator of the slave tasks via sge_execd and sge_shepherd

Parameter: jobIsFirstTask  
Type: boolean
Description: A value of true indicates that the GE job script already contains one of the tasks

Parameter: urgencySlots
Type: string
Description: Specifies the method to be used by GE to assess the number of slots such jobs might finally get

Parameter: accountingSummary
Type: boolean
Description: Indicates if only a single accounting record (job summary) is written to the accounting file

Parameter: extraParameters
Type: list of strings
Description: Additional parameters that will be added to PE configuration

Parameter: perPeTaskProlog
Type: string
Description: Prolog script that is started for each slave task

Parameter: perPeTaskEpilog
Type: string
Description: Epilog script that is started for each slave task

5.2.147 Group: Entity
parent : Entity
Parameter: ID
Type: string
Description: Group ID

Parameter: name
Type: string
Description: Group name

Parameter: members
Type: list of strings
Description: Users belonging to this group

5.2.148 GuiCephOsdPoolInfo: Entity
parent : Entity
Parameter: refCephOsdPoolUniqueKey
Type: unsigned integer
Description: CephOSDPool

Parameter: name
Type: string
Description: Name

Parameter: sizeBytes
Type: unsigned integer
Description: size_bytes

Parameter: numObjects
Type: unsigned integer
Description: num_objects

Parameter: numObjectClones
Type: unsigned integer
Description: num_object_clones

Parameter: numObjectCopies
Type: unsigned integer
Description: num_object_copies

Parameter: numObjectsMissingOnPrimary
Type: unsigned integer
Description: num_objects_missing_on_primary

Parameter: numObjectsDegraded
Type: unsigned integer
Description: num_objects_degraded

Parameter: numObjectsUnfound
Type: unsigned integer
Description: num_objects_unfound

Parameter: readOps
Type: unsigned integer
Description: Number of reads

Parameter: readBytes
Type: unsigned integer
Description: Total read

Parameter: writeOps
Type: unsigned integer
Description: Number of writes

Parameter: writeBytes
Type: unsigned integer
Description: Total write

5.2.149 GuiCephOverview: Entity
parent: Entity
Parameter: refCephUniqueKey
Type: unsigned integer
Description: Ceph

Parameter: status
Type: string
Description: Status

Parameter: numPgs
Type: unsigned integer
Description: Number of placement groups

Parameter: numMons
Type: unsigned integer
Description: Number of monitors

Parameter: numOsd
Type: unsigned integer
Description: Total

Parameter: numUpOsd
Type: unsigned integer
Description: Up

Parameter: numInOsd
Type: unsigned integer
Description: In

Parameter: pgsBytesTotal
Type: unsigned integer
Description: PGS Bytes Total

Parameter: pgsBytesUsed
Type: unsigned integer
Description: PGS Bytes Used

Parameter: pgsBytesAvail
Type: unsigned integer
Description: PGS Bytes Avail

Parameter: pgsDataBytes
Type: unsigned integer
Description: Amount of actual data in placement groups

Parameter: pgsReadBytesSec
Type: unsigned integer
Description: Bytes read per second for placement groups

Parameter: pgsWriteBytesSec
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Type: unsigned integer
Description: Bytes written per second for placement groups

Parameter: pgs
Type: list of GuiCephPgsInfo
Description: PGS

Parameter: osdpaths
Type: list of GuiCephOsdPoolInfo
Description: Ceph OSD Pool Information

5.2.150 GuiCephPgsInfo: Entity
parent: Entity
Parameter: stateName
Type: string
Description: State name

Parameter: version
Type: string
Description: Version

Parameter: numPgs
Type: unsigned integer
Description: Num Pgs

Parameter: dataBytes
Type: unsigned integer
Description: Data Bytes

Parameter: usedBytes
Type: unsigned integer
Description: Used Bytes

Parameter: availBytes
Type: unsigned integer
Description: Avail Bytes

Parameter: totalBytes
Type: unsigned integer
Description: Total Bytes

5.2.151 GuiClusterOverview: Entity
parent: Entity
Parameter: refPartitionUniqueKey
Type: unsigned integer
Description: Partition

Parameter: uptime

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Type: unsigned integer
Description: Uptime of the active head node

Parameter: nodesUp
Type: unsigned integer
Description: Number of nodes that are listed as up

Parameter: nodesDown
Type: unsigned integer
Description: Number of nodes that are listed as down

Parameter: nodesClosed
Type: unsigned integer
Description: Number of nodes that are listed as closed

Parameter: nodesTotal
Type: unsigned integer
Description: Number of nodes

Parameter: devicesUp
Type: unsigned integer
Description: Number of non-node devices that are listed as up

Parameter: devicesDown
Type: unsigned integer
Description: Number of non-node devices that are listed as down

Parameter: devicesClosed
Type: unsigned integer
Description: Number of non-node devices that are listed as closed

Parameter: devicesTotal
Type: unsigned integer
Description: Number of non-node devices

Parameter: gpuUnitsUp
Type: unsigned integer
Description: Number of GPU units that are listed as up

Parameter: gpuUnitsDown
Type: unsigned integer
Description: Number of GPU units that are listed as down

Parameter: gpuUnitsClosed
Type: unsigned integer
Description: Number of GPU units that are listed as closed
Parameter: gpuUnitsTotal  
Type: unsigned integer  
Description: Number of GPU units

Parameter: coresUp  
Type: unsigned integer  
Description: Sum of all cores for nodes which are up

Parameter: coresTotal  
Type: unsigned integer  
Description: Sum of all cores for nodes which are up at one time

Parameter: gpusUp  
Type: unsigned integer  
Description: Sum of all GPUs for nodes which are up

Parameter: gpusTotal  
Type: unsigned integer  
Description: Sum of all GPUs for nodes which are up at one time

Parameter: disks  
Type: list of GuiDiskUsage  
Description: Number of disks

Parameter: workload  
Type: list of GuiWorkload  
Description: Workload information

Parameter: usersLoggedIn  
Type: unsigned integer  
Description: Number of logged in users on the active head node

Parameter: usersLoggedOut  
Type: unsigned integer  
Description: Number of logged out users on the active head node

Parameter: usersTotal  
Type: unsigned integer  
Description: Number of users known to the active head node

Parameter: memoryUsed  
Type: unsigned integer  
Description: Sum of used memory over all nodes

Parameter: memoryUnused  
Type: unsigned integer
Description: Sum of unused memory over all nodes

Parameter: memoryTotal
Type: unsigned integer
Description: Sum of total memory over all nodes

Parameter: swapUsed
Type: unsigned integer
Description: Sum of used swap memory over all nodes

Parameter: swapUnused
Type: unsigned integer
Description: Sum of unused swap memory over all nodes

Parameter: swapTotal
Type: unsigned integer
Description: Sum of total swap over all nodes

Parameter: usageUser
Type: float
Description: Average user cpu usage over all nodes

Parameter: usageSystem
Type: float
Description: Average system cpu usage over all nodes

Parameter: usageIdle
Type: float
Description: Average idle cpu usage over all nodes

Parameter: usageOther
Type: float
Description: Percentage of cpu time spend on other operations

Parameter: phaseLoad
Type: float
Description: Phase load accross all APCs

Parameter: occupationRate
Type: float
Description: Formula: Average[allnodes] (min(load, cores) / cores)

Parameter: freeRate
Type: float
Description: Formula: 1 - Average[allnodes] (min(load, cores) / cores)
5.2.152  GuiCompleteOpenStackOverview: Entity

**parent**: Entity
**Parameter**: displayEntityOverview
**Type**: boolean
**Description**: Whether to display the overview of OpenStack objects.

**Parameter**: allVM
**Type**: integer
**Description**: All VMs

**Parameter**: allUpVM
**Type**: integer
**Description**: All VMs up.

**Parameter**: allErrorVM
**Type**: integer
**Description**: Number of VMs in the ERROR state.

**Parameter**: allTenants
**Type**: integer
**Description**: The number of all projects.

**Parameter**: allNetworks
**Type**: integer
**Description**: The number of all networks.

**Parameter**: allSubnets
**Type**: integer
**Description**: The number of all subnets.

**Parameter**: allRouters
**Type**: integer
**Description**: The number of all routers.

**Parameter**: allUsers
**Type**: integer
**Description**: The number of all users.

**Parameter**: displayNodeOverview
**Type**: boolean
**Description**: Whether to display the information about nodes.

**Parameter**: numUpComputeHosts
**Type**: integer
**Description**: The number of ‘up’ compute nodes.

**Parameter**: numDownComputeHosts

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Parameter: numUpNetworkNodes
Type: integer
Description: The number of 'up' network nodes.

Parameter: numDownNetworkNodes
Type: integer
Description: The number of 'down' network nodes.

Parameter: numCephOSDs
Type: integer
Description: The number of Ceph OSDs.

Parameter: cloudStatus
Type: integer
Description: none

Parameter: cloudStatusText
Type: string
Description: none

Parameter: dashboardURLs
Type: list of strings
Description: none

Parameter: keystonePublicAuthEndpointURL
Type: string
Description: none

Parameter: keystoneInternalAuthEndpointURL
Type: string
Description: none

Parameter: defaultProjectName
Type: string
Description: none

Parameter: projects
Type: list of GuiOpenStackProjectOverview
Description: none

5.2.153 GuiDiskUsage : Entity
parent : Entity
Parameter: refDeviceUniqueKey
Type: unsigned integer
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Description: Device

Parameter: mountpoint
Type: string
Description: Mountpoint

Parameter: used
Type: unsigned integer
Description: Bytes in use on this device

Parameter: free
Type: unsigned integer
Description: Bytes free on this device

5.2.154 GuiGPU: Entity

parent: Entity
Parameter: refDeviceUniqueKey
Type: unsigned integer
Description: Device

Parameter: name
Type: string
Description: Name

Parameter: memoryUsed
Type: unsigned integer
Description: Memory used

Parameter: memoryFree
Type: unsigned integer
Description: Memory free

Parameter: utilization
Type: float
Description: GPU Utilization

Parameter: powerUsage
Type: float
Description: Power usage

Parameter: temperature
Type: float
Description: Temperature

Parameter: smClock
Type: float
Description: Streaming multiprocessor clock speed

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Parameter: memoryClock
Type: float
Description: Memory clock speed

5.2.155 GuiJob : Entity
parent: Entity
Parameter: refWlmClusterUniqueKey
Type: unsigned integer
Description: WlmCluster

Parameter: refJobQueueUniqueKey
Type: unsigned integer
Description: Queue

Parameter: jobID
Type: string
Description: Job ID

Parameter: name
Type: string
Description: Name

Parameter: user
Type: string
Description: User

Parameter: runtime
Type: unsigned integer
Description: Runtime

5.2.156 GuiKubeClusterOverview : Entity
parent: Entity
Parameter: refKubeClusterUniqueKey
Type: unsigned integer
Description: KubeCluster

Parameter: name
Type: string
Description: Cluster Name

Parameter: version
Type: string
Description: Kubernetes Version

Parameter: notes
Type: string
Description: Notes

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Parameter: numNodes
Type: unsigned integer
Description: Number of nodes

Parameter: numNamespaces
Type: unsigned integer
Description: Number of namespaces

Parameter: numServices
Type: unsigned integer
Description: Number of services

Parameter: numRcs
Type: unsigned integer
Description: Number of replication controllers

Parameter: numPvs
Type: unsigned integer
Description: Number of persistent volumes

Parameter: numPvcs
Type: unsigned integer
Description: Number of persistent volumes claims

Parameter: jobs
Type: list of JobInfo
Description: Jobs

Parameter: pods
Type: list of KubePodInfo
Description: Pods

5.2.157 GuiNetworkInterface: Entity
parent: Entity
Parameter: name
Type: string
Description: Interface name

Parameter: rx
Type: unsigned integer
Description: Number of bytes received since startup

Parameter: tx
Type: unsigned integer
Description: Number of bytes transmitted since startup

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5.2.158 GuiNodeOverview: Entity

parent: Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: interfaces
Type: list of GuiNetworkInterface
Description: Detailed interface information

Parameter: disks
Type: list of GuiDiskUsage
Description: Detailed disk information

Parameter: jobs
Type: list of GuiJob
Description: Detailed job information

Parameter: gpus
Type: list of GuiGPU
Description: Detailed GPU information

Parameter: load1
Type: float
Description: Average system load over the last minute

Parameter: load5
Type: float
Description: Average system load over the last five minutes

Parameter: load15
Type: float
Description: Average system load over the last fifteen minutes

Parameter: uptime
Type: unsigned integer
Description: Uptime

Parameter: memoryUsed
Type: unsigned integer
Description: Memory used

Parameter: memoryUnused
Type: unsigned integer
Description: Memory unused

Parameter: memoryTotal
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Type:  unsigned integer
Description:  Total memory

Parameter:  swapUsed
Type:  unsigned integer
Description:  Swap memory used

Parameter:  swapUnused
Type:  unsigned integer
Description:  Swap memory unused

Parameter:  swapTotal
Type:  unsigned integer
Description:  Total swap memory

Parameter:  usageUser
Type:  float
Description:  Percentage of cpu time spend on user processes

Parameter:  usageSystem
Type:  float
Description:  Percentage of cpu time spend on system processes

Parameter:  usageIdle
Type:  float
Description:  Percentage of cpu time spend in idle

Parameter:  usageOther
Type:  float
Description:  Percentage of cpu time spend in non user/system/idle

Parameter:  usageSoftIrq
Type:  float
Description:  Percentage of cpu time spend in soft irq

Parameter:  usageIrq
Type:  float
Description:  Percentage of cpu time spend in irq

Parameter:  usageNice
Type:  float
Description:  Percentage of cpu time spend in nice

Parameter:  usageSteal
Type:  float
Description:  Percentage of cpu time spend in steal

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Parameter: usageGuest
Type: float
Description: Percentage of cpu time spend in guest

Parameter: usageWait
Type: float
Description: Percentage of cpu time spend in wait

5.2.159 GuiNodeStatus : Entity
parent : Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: status
Type: DeviceStatus
Description: Device status

Parameter: load1
Type: float
Description: Average system load over the last minute

Parameter: load5
Type: float
Description: Average system load over the last five minutes

Parameter: load15
Type: float
Description: Average system load over the last fifteen minutes

Parameter: uptime
Type: unsigned integer
Description: Uptime

Parameter: memoryUsed
Type: unsigned integer
Description: Memory used

Parameter: swapUsed
Type: unsigned integer
Description: Swap mempry used

Parameter: usageUser
Type: float
Description: Percentage of cpu time spend on user processes

Parameter: usageSystem
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**Parameter:** usageIdle
**Type:** float
**Description:** Percentage of cpu time spend in idle

**Parameter:** vcpuUsed
**Type:** integer
**Description:** Total number of vCPU used by the VMs.

**Parameter:** vcpusTotal
**Type:** integer
**Description:** none

**Parameter:** ramUsed
**Type:** integer
**Description:** The amount of RAM used by the VMs.

**Parameter:** ramTotal
**Type:** integer
**Description:** none

**Parameter:** storageUsed
**Type:** integer
**Description:** Total storage space used by OpenStack volumes.

**Parameter:** storageTotal
**Type:** integer
**Description:** none

**Parameter:** instancesRunning
**Type:** integer
**Description:** Total number of VMs in the ‘Running’ state.

**Parameter:** instancesDown
**Type:** integer
**Description:** Total number of VMs in the ‘Down’ state.

**Parameter:** instancesTotal
**Type:** integer

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Description: Total number of VMs (in any state).

Parameter: instancesError
Type: integer
Description: Total number of VMs in the 'Error' state.

Parameter: instancesPaused
Type: integer
Description: Total number VMs in the 'Paused' state.

Parameter: numberOfVolumes
Type: integer
Description: Total number of OpenStack volumes. OpenStack volumes are managed by OpenStack Cinder.

Parameter: numberOfTenants
Type: integer
Description: Total number of OpenStack projects (also known as 'tenants'). Project are managed by OpenStack Keystone.

Parameter: numberOfDisabledTenants
Type: integer
Description: Total number of disabled projects.

Parameter: numberOfSystemTenants
Type: integer
Description: none

Parameter: numberOfImages
Type: integer
Description: Total number of OpenStack images. Images are used for creating VMs. OpenStack images are managed by Glance.

Parameter: numberOfPublicImages
Type: integer
Description: The number of OpenStack images which are public, i.e. are visible to all users/projects with access to OpenStack.

Parameter: numberOfFlavors
Type: integer
Description: Total number of OpenStack flavors. Flavors define types of VMs that can be created. Flavors are managed by Nova.

Parameter: numberOfPublicFlavors
Type: integer
Description: The number of flavors visible to all tenants/users.

Parameter: numberOfNetworks
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**Type:** integer  
**Description:** Total number of OpenStack networks. Networks are managed by Neutron.

**Parameter:** numberOfPublicNetworks  
**Type:** integer  
**Description:** The number of OpenStack networks visible to all tenants/users.

**Parameter:** numberOfSubnets  
**Type:** integer  
**Description:** Subnets are part of a network. Subnets are managed by Neutron.

**Parameter:** numberOfRouters  
**Type:** integer  
**Description:** Total number of OpenStack routers. Routers are managed by Neutron and are used to interconnect Networks.

**Parameter:** numberOfUsers  
**Type:** integer  
**Description:** Total number of users known to Keystone.

**Parameter:** numberOfDisabledUsers  
**Type:** integer  
**Description:** Disabled users cannot access OpenStack.

**Parameter:** numberOfFloatingIPs  
**Type:** integer  
**Description:** Total number of floating IPs.

**Parameter:** numberOfFloatingIPsUsed  
**Type:** integer  
**Description:** The number of floating IPs which are in use by instances.

**Parameter:** numberOfSystemUsers  
**Type:** integer  
**Description:** none

**Parameter:** numberOfHypervisors  
**Type:** integer  
**Description:** Total number of hypervisors which are both 'Up' and 'Enabled'. This number does not include 'Disabled' hypervisors, or hypervisors which are 'Down'.

**Parameter:** numberOfAllDefinedHypervisors  
**Type:** integer  
**Description:** Total number of hypervisors known to OpenStack Nova. Might include old, no longer existing, hypervisors. Also includes hypervisors which are 'Down' and/or disabled.

**Parameter:** numberOfAvailabilityZones

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Type: integer

Description: Total number of AZs defined with OpenStack Host Aggregates. Those typically apply only to Nova (the compute part of OpenStack).

Parameter: numberOfHostAggregates

Type: integer

Description: Host Aggregates are an advanced concept. They are managed by Nova, and can be used to group compute hypervisors to either define new availability zones, or aggregate host sharing a common characteristic, e.g. having a GPU, or fast CPUs. Such hosts can later be exposed via flavors which refer to the given host aggregate (e.g. a flavor with GPUs).

Parameter: numberOfRoles

Type: integer

Description: Total number of roles known to OpenStack keystone. Roles, (such as e.g. ‘admin’ or ‘member’) define which operation an OpenStack user can perform on OpenStack APIs.

Parameter: status

Type: string

Description: none

Parameter: numberOfSnapshots

Type: integer

Description: Volume snapshots are managed by OpenStack Cinder.

Parameter: numberOfDomains

Type: integer

Description: Total number of domains. Domains are top-level projects, and are managed by OpenStack Keystone.

Parameter: ephemeralStorageUsed

Type: integer

Description: Ephemeral storage is the block storage bound to a VM. Ephemeral storage (unlike volume-based storage), is managed by OpenStack Nova. It can either be local to the hypervisor (low latency), or distributed (high availability).

Parameter: hypFreeDisk

Type: unsigned integer

Description: Free disk space left across all hypervisors.

Parameter: hypFreeRam

Type: unsigned integer

Description: Free memory left across all hypervisors.

Parameter: hypLocalStorage

Type: unsigned integer

Description: Local storage available across all hypervisors.

Parameter: hypLocalStorageUsed
5.2 Entities

Type: unsigned integer 
Description: Local storage used across all hypervisors.

Parameter: hypMemory 
Type: unsigned integer 
Description: Total amount of memory available across all hypervisors.

Parameter: hypMemoryUsed 
Type: unsigned integer 
Description: Total amount of memory being used across all hypervisors.

Parameter: hypVcpus 
Type: unsigned integer 
Description: Total amount of vCPUs across all hypervisors.

Parameter: hypVcpusUsed 
Type: unsigned integer 
Description: Total amount of vCPUs used across all hypervisors.

Parameter: hypCurrentWorkload 
Type: unsigned integer 
Description: none

Parameter: hypRunningVMs 
Type: unsigned integer 
Description: If this value if different than total number of running instance, you might have rouge VMs in the system.

Parameter: extra1 
Type: unsigned integer 
Description: none

Parameter: extra2 
Type: unsigned integer 
Description: none

Parameter: extra3 
Type: unsigned integer 
Description: none

Parameter: extra4 
Type: unsigned integer 
Description: none

Parameter: extra5 
Type: unsigned integer 

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Description: Total number of compute nodes (with OpenStack compute roles assigned) which are UP.

Parameter: extra6
Type: unsigned integer
Description: Total number of compute nodes (with OpenStack compute roles assigned).

Parameter: extra7
Type: unsigned integer
Description: none

Parameter: extra8
Type: unsigned integer
Description: none

Parameter: extra9
Type: unsigned integer
Description: Total number of volumes in an ERROR state.

Parameter: extra10
Type: unsigned integer
Description: none

Parameter: extraString1
Type: string
Description: none

Parameter: extraString2
Type: string
Description: none

Parameter: extraString3
Type: string
Description: none

Parameter: extraString4
Type: string
Description: none

Parameter: extraString5
Type: string
Description: none

Parameter: extraString6
Type: string
Description: none

Parameter: extraString7
Type: string
Description: none

Parameter: extraString8
Type: string
Description: none

Parameter: extraString9
Type: string
Description: none

Parameter: extraString10
Type: string
Description: none

Parameter: extraStringList
Type: list of strings
Description: none

Parameter: extraStringList2
Type: list of strings
Description: none

Parameter: extraStringList3
Type: list of strings
Description: none

Parameter: extraStringList4
Type: list of strings
Description: none

5.2.161 GuiOpenStackProjectOverview: Entity

parent: Entity
Parameter: motd
Type: string
Description: Message of the day.

Parameter: name
Type: string
Description: The name.

Parameter: UUID
Type: string
Description: Unique identifier.

Parameter: roles
Type: list of strings

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Description: Roles the user has in the project.

Parameter: numOfAllVMsInProject
Type: integer
Description: The number of all VMs owned by the project.

Parameter: numOfAllUpVMsInProject
Type: integer
Description: The number of VMs which are UP and owned by the project.

Parameter: numOfAllErrorVMsInProject
Type: integer
Description: The number of VMs in ERROR state which are owned by the project.

Parameter: numOfUserVMsInProject
Type: integer
Description: The number of VMs owned by the project and by this user.

Parameter: numOfUserUpVMsInProject
Type: integer
Description: The number of VMs owned by the project and by this user, which are UP.

Parameter: numOfUserErrorVMsInProject
Type: integer
Description: The number of VMs owned by the project and by this user, which are UP.

Parameter: allNetworks
Type: integer
Description: The number of all networks in the project.

Parameter: allSubnets
Type: integer
Description: The number of all subnets in the project.

Parameter: allRouters
Type: integer
Description: The number of all routers in the project.

Parameter: allPorts
Type: integer
Description: The number of all ports in the project.

Parameter: numOfAllUsersInProject
Type: unsigned integer
Description: Number of all users in the project.

Parameter: otherUsersInProject
5.2 Entities

Type: list of strings
Description: List of other users in the project.

5.2.162 GuiOpenStackTenantOverview: Entity
parent: Entity
Parameter: success
Type: boolean
Description: none

Parameter: vcpuUsed
Type: integer
Description: none

Parameter: vcpuMax
Type: integer
Description: none

Parameter: metaDataItemsUsed
Type: integer
Description: none

Parameter: metaDataItemsMax
Type: integer
Description: none

Parameter: ramUsed
Type: integer
Description: none

Parameter: ramMax
Type: integer
Description: none

Parameter: instancesUsed
Type: integer
Description: none

Parameter: instancesMax
Type: integer
Description: none

Parameter: instancesRunning
Type: integer
Description: none

Parameter: floatingIPsUsed
Type: integer

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Description: none
Parameter: floatingIPsMax
Type: integer
Description: none

Parameter: securityGroupsUsed
Type: integer
Description: none

Parameter: securityGroupsMax
Type: integer
Description: none

Parameter: volumesUsed
Type: integer
Description: none

Parameter: volumesMax
Type: integer
Description: none

Parameter: snapshotsUsed
Type: integer
Description: none

Parameter: snapshotsMax
Type: integer
Description: none

Parameter: injectedFilesUsed
Type: integer
Description: none

Parameter: injectedFilesMax
Type: integer
Description: none

Parameter: securityGroupRulesUsed
Type: integer
Description: none

Parameter: securityGroupRulesMax
Type: integer
Description: none

Parameter: networksUsed
5.2 Entities

Type: integer
Description: none

Parameter: networksMax
Type: integer
Description: none

Parameter: subnetsUsed
Type: integer
Description: none

Parameter: subnetsMax
Type: integer
Description: none

Parameter: routersUsed
Type: integer
Description: none

Parameter: routersMax
Type: integer
Description: none

Parameter: portsUsed
Type: integer
Description: none

Parameter: portsMax
Type: integer
Description: none

Parameter: numberOfImages
Type: integer
Description: none

Parameter: bytesUsed
Type: integer
Description: none

Parameter: bytesMax
Type: integer
Description: none

Parameter: numberOfUsers
Type: integer
Description: none
Parameter: numberOfSystemUsers
Type: integer
Description: none

Parameter: vcpuHours
Type: float
Description: none

Parameter: diskGBHours
Type: float
Description: none

Parameter: extra1
Type: integer
Description: none

Parameter: extra2
Type: integer
Description: none

Parameter: extra3
Type: integer
Description: none

Parameter: extra4
Type: integer
Description: none

Parameter: extraStringList
Type: list of strings
Description: none

5.2.163 GuiPDUBank : Entity
parent : Entity
Parameter: bank
Type: unsigned integer
Description: Bank

Parameter: load
Type: float
Description: Load

5.2.164 GuiPDUOutlet : Entity
parent : Entity
Parameter: outlet
Type: unsigned integer
Description: Outlet
Parameter: status
Type: enum
Description: Status

Parameter: assigned
Type: list of unsigned numbers
Description: Assigned

5.2.165 GuiPDUOverview: Entity
parent: Entity
Parameter: refPowerDistributionUnitUniqueKey
Type: unsigned integer
Description: none

Parameter: model
Type: string
Description: none

Parameter: outlets
Type: list of GuiPDUOutlet
Description: none

Parameter: banks
Type: list of GuiPDUBank
Description: none

5.2.166 GuiSwitchOverview: Entity
parent: Entity
Parameter: refSwitchUniqueKey
Type: unsigned integer
Description: Switch

Parameter: model
Type: string
Description: Model

Parameter: ports
Type: list of GuiSwitchPort
Description: Ports

5.2.167 GuiSwitchPort: Entity
parent: Entity
Parameter: prt
Type: integer
Description: Port

Parameter: name
Type: string
Description: Name

Parameter: status
Type: string
Description: Status

Parameter: uplink
Type: boolean
Description: Uplink

Parameter: assigned
Type: unsigned integer
Description: Unique key of the device assigned to this port

Parameter: detected
Type: string
Description: List of MAC address detected on this port

Parameter: speed
Type: unsigned integer
Description: Speed

5.2.168 GuiWorkload : Entity
parent : Entity
Parameter: name
Type: string
Description: Queue name

Parameter: scheduler
Type: string
Description: Scheduler

Parameter: slots
Type: string
Description: Slots

Parameter: nodeKeys
Type: list of unsigned numbers
Description: Node keys

Parameter: nodes
Type: string
Description: Nodes

Parameter: running
Type: unsigned integer
Description: Number of running jobs in this queue

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Parameter: queued
Type: unsigned integer
Description: Number of pending jobs in this queue

Parameter: error
Type: unsigned integer
Description: Number of jobs ended in an error state

Parameter: completed
Type: unsigned integer
Description: Number of completed jobs

Parameter: averageDuration
Type: unsigned integer
Description: Average duration of jobs

Parameter: estimatedDelay
Type: unsigned integer
Description: Estimated delay for a new job to start

5.2.169 HAProxyEntryBind : Entity
parent : Entity
Parameter: listenOn
Type: enum
Description: Where to listen for connections

Parameter: name
Type: string
Description: name of the bind location

Parameter: ip
Type: IP
Description: IP to bind to

Parameter: location
Type: string
Description: Socket to bind

Parameter: port
Type: integer
Description: Not needed if location is a socket

Parameter: portEnd
Type: integer
Description: Optional. If specified, proxy will bind to a range of ports

Parameter: parameters

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Type: string
Description: Parameters.

Parameter: disabled
Type: boolean
Description: If disabled, will not be used in config file

Parameter: network
Type: reference to Network
Description: Network an IP of which the proxy is to bind to. Takes precedence over location

5.2.170  HAProxyEntry: Entity
parent: Entity
Parameter: name
Type: string
Description: Human readable name of the entry

Parameter: bindLocations
Type: list of HAProxyEntryBind
Description: Bind locations on which HAProxy will listen for inbound connections.

Parameter: sharedSettings
Type: HAProxySharedSettings
Description: HAProxySharedSettings

Parameter: useCustomSettings
Type: boolean
Description: Instead of using the global default settings, use the values in the 'shared settings' fields. This applies only to NON-server related values.

Parameter: useCustomServerSettings
Type: boolean
Description: Instead of using the global default settings, use the values in the 'shared settings' fields. This applies only to server-related values.

Parameter: servers
Type: list of HAProxyServer
Description: Backend servers

Parameter: customCode
Type: string
Description: Custom HAProxy config content to embed with this entry.

Parameter: customCodeAfterServers
Type: string
Description: Custom HAProxy config content to embed with this entry, following the server list.

Parameter: isOpenStackEntry
5.2 Entities

Type: boolean
Description: none

Parameter: openStackEntryType
Type: string
Description: none

5.2.171 HAProxyRole

parent: Role

Parameter: HAProxyName
Type: string
Description: Name of the HAProxy. Can be referred to from API Endpoint roles to limit them to certain HAProxies.

Parameter: logTag
Type: string
Description: Log tag, use '$hostname' for host's name, leave empty for IP.

Parameter: sharedSettings
Type: HAProxySharedSettings
Description: Settings

Parameter: description
Type: string
Description: Description of the proxy.

Parameter: log
Type: string
Description: Log description.

Parameter: maxConnections
Type: integer
Description: Max process connections.

Parameter: maxConnectionRate
Type: integer
Description: Max connections per seconds.

Parameter: entries
Type: list of HAProxyEntry
Description: Manually managed entries.

Parameter: addEndpointsFromOpenStack
Type: boolean
Description: Whether to automatically inject OpenStack API endpoints. Needs to be enabled for any of the 'Include ... endpoints' fields to take effect.

Parameter: isBackupBackend

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Type: boolean
Description: Use it as backend HAProxy if no RR-DNS was configured, and non-backup proxies went down.

Parameter: isOpenStackBackendHAProxy
Type: boolean
Description: Whether to use it in config files of openstack services. If multiple backend HAProxies exists, services will be automatically spread across them.

Parameter: availabilityZone
Type: string
Description: The name of the availability zone of this HAProxy endpoint. Useful when partitioning the control plane to multiple AZs.

Parameter: onlyAutoIncludeEndpointsFromSameAZ
Type: boolean
Description: During automatic endpoint assignment to this role, only the endpoints from the same Availability Zone will be considered. To configure a node to be in an availability zone, configure a Host Aggregate.

Parameter: backendWeight
Type: float
Description: The default backend weight.

Parameter: includeOpenStackComputeEndpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackComputeMetadataEndpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackComputeEC2Endpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackComputePlacementEndpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackNetworkEndpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackAuthPublicEndpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackAuthAdminEndpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackImageStorageEndpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackImageStorageRegistries
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackBlockStorageEndpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackOrchestrationEndpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackDashboardEndpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackObjectStorageEndpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter: includeOpenStackTelemetryEndpoints
Type: boolean
Description: If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.
Parameter:  includeOpenStackBareMetalEndpoints
Type:  boolean
Description:  If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter:  includeOpenStackDataProcessingEndpoints
Type:  boolean
Description:  If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter:  includeMemcachedEndpoints
Type:  boolean
Description:  If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter:  includeElasticSearchEndpoints
Type:  boolean
Description:  If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter:  galeraClusterName
Type:  string
Description:  The name of the galera cluster which is to be associated with this HAProxy instance. If set, CMDaemon will automatically inject the HAProxy entry to forward SQL traffic to this particular cluster. 'Include galera endpoints' must also be set.

Parameter:  includeGaleraEndpoints
Type:  boolean
Description:  If enabled, CMDaemon will automatically inject the API endpoints of this type into the config file of HAProxy. It will automatically determine the destination port and host.

Parameter:  customGlobalCode
Type:  string
Description:  Custom HAProxy config code to add to the global section of the HAProxy config file.

Parameter:  customDefaultCode
Type:  string
Description:  Custom HAProxy config code to add to the 'defaults' section of the HAProxy config file. Those entries, unless redefined, will apply to all 'listen' sections.

Parameter:  customAppendCode
Type:  string
Description:  Custom HAProxy config code to append to each 'listen' section of the HAProxy config file.

Parameter:  preferIPs
Type:  boolean
Description: Prefer IPs in the config file. Can be overridden on server level.

Parameter: preserveOpenStackEntriesWithCustomServers
Type: boolean
Description: Whether or not to preserve openstack Entries which have non-openstack server entries.

Parameter: statsSocketEnabled
Type: boolean
Description: Enables socket which can be used to obtain stats from the process.

Parameter: statsSocket
Type: string
Description: Location of the stats socket. Optional.

Parameter: statsEnabled
Type: boolean
Description: Whether to enable statistics collection.

Parameter: statsScopes
Type: list of strings
Description: List of scope of statistic to activate (the ‘stats scope ...‘ directive). If empty, all stats will be displayed.

Parameter: statsPort
Type: unsigned integer
Description: Port on which statistics can be accessed.

Parameter: statsUseAuth
Type: boolean
Description: Whether to authenticate users trying to access statistics.

Parameter: statsUsername
Type: string
Description: The username.

Parameter: statsPassword
Type: string
Description: The password.

Parameter: statsURI
Type: string
Description: URI under which one can access statistics.

Parameter: openStackEndpointDefaultBindLocation
Type: string
Description: Advanced option. Path to the socket on which HAPerxy should listen for connections for automatically added OpenStack endpoints. Setting this, will disable listening for connection on network interfaces.

Parameter: openStackEndpointDefaultBindNetwork
Type: reference to Network or None
Description: Default network to listen for connections for automatically created OpenStack endpoints. If not set, listen on all interfaces.

Parameter: nbProc
Type: unsigned integer
Description: Number of HAPerxy processes. Typically only 1 should be used. It’s useful to increase it if number of file descriptors per process is being reached. See ‘nbproc’ in HAPerxy documentation for more info.

Parameter: cpuMap
Type: list of strings
Description: Allows to bind the HAPerxy process to specific CPUs. See ‘cpu-map’ in HAPerxy documentation for more info.

5.2.172 HAPerxyServer : Entity
parent : Entity
Parameter: name
Type: string
Description: The human readable name of the server entry.

Parameter: address
Type: string
Description: The IP address or hostname of the server. Specify this one, or (in separate fields of this object) a list of nodes in the ‘nodes’ field, or a node category.

Parameter: port
Type: integer
Description: The port on which the service listens for connections on this server.

Parameter: nodes
Type: list of references to Node
Description: List of nodes belonging to this group.

Parameter: category
Type: reference to Category
Description: All nodes of the selected category will be used as servers for this endpoint.

Parameter: network
Type: reference to Network
Description: Network on which any specified nodes will listen (optional)

Parameter: secondaryNetwork
Type: reference to Network
Description: Network to try if the primary network is not configure on the node

Parameter: forceIPs
Type: enum
Description: Whether to prefer IPs or hostnames in the config file

Parameter: backup
Type: boolean
Description: If ‘true’, only used when all non-backup servers are unavailable.

Parameter: check
Type: boolean
Description: Whether to enable TCP checks, if the TCP healthcheck fails, HAProxy will not route traffic to this server.

Parameter: disabled
Type: boolean
Description: This will disable the server entry in HAProxy.

Parameter: useCustomServerSettings
Type: boolean
Description: Whether to use custom (non-global default) settings for this server entry.

Parameter: inter
Type: string
Description: Interval between two consequitive TCP health check. Checks need to be enabled with ‘check’ field.

Parameter: fastInter
Type: string
Description: Interval between two consecutive health checks when the server is any of the transition states. If not specified, defaults to ‘inter’.

Parameter: downInter
Type: string
Description: Interval between two consecutive health checks when the server is in the DOWN state. If not specified, defaults to ‘inter’.

Parameter: rise
Type: integer
Description: Number of consecutive valid health checks before considering the server as UP.

Parameter: fall
Type: integer
Description: Number of consecutive invalid health checks before considering the server as DOWN.
Parameter: **maxConn**  
**Type:** integer  
**Description:** Maximum number of allowed open connections to server, 0: unlimited.

Parameter: **minConn**  
**Type:** integer  
**Description:** When set, makes the ‘maxconn’ parameter dynamically adjust to backend’s load.

Parameter: **maxQueue**  
**Type:** integer  
**Description:** Specifies the maximal number of connections which will wait in the queue for this server. ‘0’ means ‘unlimited’.

Parameter: **weight**  
**Type:** integer  
**Description:** Used to adjust server’s weight relative to other servers. The default weight is 1, and the maximal value is 256. A value of 0 means the server will not participate in load-balancing but will still accept persistent connections.

Parameter: **customOptions**  
**Type:** string  
**Description:** none

Parameter: **isOpenStackManagedServer**  
**Type:** boolean  
**Description:** none

---

**5.2.173 HAProxySharedSettings : Entity**  
**parent : Entity**

Parameter: **proxyMode**  
**Type:** enum  
**Description:** How the traffic is load-balanced by HAProxy.

Parameter: **balanceMode**  
**Type:** enum  
**Description:** How the traffic is load-balanced

Parameter: **balanceArgument**  
**Type:** string  
**Description:** Only applies to certain balance modes

Parameter: **balanceArguments**  
**Type:** string  
**Description:** Only applies to certain balance modes

Parameter: **optionRedispatch**  
**Type:** boolean

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Description: Whether to redistribute sessions in case of connection failure. Works only with HTTP mode.

Parameter: optionTCPLog
Type: boolean
Description: Enable advanced logging of TCP connections with session state and timers.

Parameter: maxConnections
Type: integer
Description: Maximum number of concurrent connections.

Parameter: timeoutConnect
Type: string
Description: The maximum time to wait for a connection attempt to a server to succeed.

Parameter: timeoutClient
Type: string
Description: The maximum inactivity time on the client side.

Parameter: timeoutServer
Type: string
Description: The maximum inactivity time on the server side.

Parameter: disabled
Type: boolean
Description: Whether to temporarily disable this entry.

Parameter: retries
Type: integer
Description: The number of retries to perform on a server after a connection failure.

Parameter: log
Type: string
Description: none

Parameter: defaultServerInter
Type: string
Description: Interval between two consecutive TCP health check. Checks need to be enabled with 'check' field.

Parameter: defaultServerFastInter
Type: string
Description: Interval between two consecutive health checks when the server is any of the transition states. If not specified, defaults to 'inter'.

Parameter: defaultServerDownInter
Type: string

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Description: Interval between two consecutive health checks when the server is in the DOWN state. If not specified, defaults to ‘inter’.

Parameter: defaultServerRise
Type: integer
Description: Number of consecutive valid health checks before considering the server as UP.

Parameter: defaultServerFall
Type: integer
Description: Number of consecutive invalid health checks before considering the server as DOWN.

Parameter: defaultServerMaxConn
Type: integer
Description: Maximum number of allowed open connections to server, 0: unlimited.

Parameter: defaultServerMinConn
Type: integer
Description: When set, makes the ‘maxconn’ parameter dynamically adjust to backend’s load.

Parameter: defaultServerMaxQueue
Type: integer
Description: Specifies the maximal number of connections which will wait in the queue for this server. ‘0’ means ‘unlimited’.

Parameter: defaultServerWeight
Type: integer
Description: Used to adjust server’s weight relative to other servers. The default weight is 1, and the maximal value is 256. A value of 0 means the server will not participate in load-balancing but will still accept persistent connections.

5.2.174 HeadNodeRole: Role
parent: Role
Parameter: failoverId
Type: unsigned integer
Description: none

Parameter: disableAutomaticExports
Type: boolean
Description: Disable creation of automatic filesystem exports

5.2.175 HeadNode: Node
parent: Node

5.2.176 IBSwitch: Switch
parent: Switch
Parameter: guid
Type: string
Description: The switch GUID
Parameter: subnetManager
Type: boolean
Description: Indicate the subnet manager is running

5.2.177 IPCPerm: Entity
parent: Entity
Parameter: key
Type: integer
Description: Message queue ID

Parameter: mode
Type: unsigned integer
Description: Access permissions

Parameter: uid
Type: integer
Description: Owner ID

Parameter: gid
Type: integer
Description: Owner group ID

Parameter: owner
Type: string
Description: Owner

Parameter: group
Type: string
Description: Group name

5.2.178 IPResource: BasicResource
parent: BasicResource
Parameter: ip
Type: IP
Description: IP

Parameter: networkDeviceName
Type: string
Description: The network device name to start this IP on. Leave blank to automatically determine based on IP.

Parameter: alias
Type: string
Description: The network device name alias

Parameter: timeout
Type: unsigned integer
Description: Timeout

5.2.179 JobInfoStatistics: Entity

parent: Entity
Parameter: refWlmClusterUniqueKey
Type: unsigned integer
Description: WlmCluster

Parameter: refJobQueueUniqueKey
Type: unsigned integer
Description: Queue

Parameter: user
Type: string
Description: none

Parameter: group
Type: string
Description: none

Parameter: account
Type: string
Description: none

Parameter: parentId
Type: string
Description: none

Parameter: intervalStart
Type: timestamp
Description: none

Parameter: intervalEnd
Type: timestamp
Description: none

Parameter: pending
Type: unsigned integer
Description: none

Parameter: running
Type: unsigned integer
Description: none

Parameter: finished
Type: unsigned integer
Description: none
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Parameter: error
Type: unsigned integer
Description: none

Parameter: total
Type: unsigned integer
Description: none

Parameter: pendingTime
Type: unsigned integer
Description: none

Parameter: runningTime
Type: unsigned integer
Description: none

Parameter: finishedTime
Type: unsigned integer
Description: none

Parameter: errorTime
Type: unsigned integer
Description: none

Parameter: nodes
Type: unsigned integer
Description: none

5.2.180 JobInfo: Entity
parent: Entity
Parameter: refWlmClusterUniqueKey
Type: unsigned integer
Description: WlmCluster

Parameter: refJobQueueUniqueKey
Type: unsigned integer
Description: Queue

Parameter: jobId
Type: string
Description: Job ID

Parameter: jobName
Type: string
Description: Job name

Parameter: user

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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>username</td>
<td>string</td>
<td>User name</td>
</tr>
<tr>
<td>group</td>
<td>string</td>
<td>User group name</td>
</tr>
<tr>
<td>account</td>
<td>string</td>
<td>Job account</td>
</tr>
<tr>
<td>parentId</td>
<td>string</td>
<td>Parent ID</td>
</tr>
<tr>
<td>nodes</td>
<td>list of unsigned numbers</td>
<td>List of job’s nodes</td>
</tr>
<tr>
<td>cgroup</td>
<td>string</td>
<td>Relative cgroup path</td>
</tr>
<tr>
<td>submitTime</td>
<td>timestamp</td>
<td>Job submit time</td>
</tr>
<tr>
<td>startTime</td>
<td>timestamp</td>
<td>Job start time</td>
</tr>
<tr>
<td>endTime</td>
<td>timestamp</td>
<td>Job end time</td>
</tr>
<tr>
<td>persistent</td>
<td>boolean</td>
<td>Whether job is persistent in DB or not</td>
</tr>
<tr>
<td>exitCode</td>
<td>integer</td>
<td>Jobscript exit code</td>
</tr>
<tr>
<td>state</td>
<td>string</td>
<td>Job status</td>
</tr>
</tbody>
</table>
5.2.181  **JobQueuePlaceholder**: Entity  
parent: Entity  
Parameter: queue  
Type: string  
Description: Name of queue  

Parameter: baseNodeName  
Type: string  
Description: Placeholder node base name  

Parameter: maxNodes  
Type: unsigned integer  
Description: Maximum number of nodes in queue  

Parameter: templateNode  
Type: reference to Node  
Description: Node that will be used as a placeholder

5.2.182  **JobQueueStat**: Entity  
parent: Entity  
Parameter: name  
Type: string  
Description: Queue name

5.2.183  **JobQueue**: Entity  
parent: Entity  
Parameter: name  
Type: string  
Description: Name of queue  

Parameter: wlmCluster  
Type: reference to WlmCluster  
Description: WlmCluster to which this node belongs  

Parameter: options  
Type: list of strings  
Description: Additional parameters that will be passed to the WLM queue configuration

5.2.184  **Job**: Entity  
parent: Entity  
Parameter: refWlmClusterUniqueKey  
Type: unsigned integer  
Description: WlmCluster

Parameter: refJobQueueUniqueKey  
Type: unsigned integer  
Description: Queue name
Parameter:  jobID
Type: string
Description: Job identifier

Parameter:  arrayID
Type: string
Description: Job array identifier

Parameter:  taskID
Type: string
Description: Job array task identifier(s)

Parameter:  parentID
Type: string
Description: Job parent identifier

Parameter:  jobname
Type: string
Description: Name of job

Parameter:  username
Type: string
Description: Job owner name

Parameter:  status
Type: string
Description: Current job status

Parameter:  project
Type: string
Description: Project name

Parameter:  priority
Type: string
Description: Job priority

Parameter:  inqueue
Type: string
Description: Shows whether job has already been queued or not

Parameter:  nodes
Type: list of strings
Description: Allocated nodes

Parameter:  cgroup
Type: string
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Description:  CGroup allocated for this job on all nodes

Parameter:  rundirectory
Type:  string
Description:  Job work directory

Parameter:  executable
Type:  string
Description:  File which is executed inside job script

Parameter:  arguments
Type:  string
Description:  Arguments of executable file

Parameter:  stdinfile
Type:  string
Description:  Standard input file

Parameter:  stdoutfile
Type:  string
Description:  Standard output file

Parameter:  stderrfile
Type:  string
Description:  Standard error file

Parameter:  submittime
Type:  string
Description:  Job submission time

Parameter:  starttime
Type:  string
Description:  Job start time (available when job is started)

Parameter:  mailOptions
Type:  string
Description:  Mail options

Parameter:  mailList
Type:  string
Description:  Mail addresses

Parameter:  mailNotify
Type:  boolean
Description:  Shows whether mail notification is requested or not

Parameter:  maxWallClock

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Type: string  
Description: Maximum available running time

Parameter: runWallClock  
Type: unsigned integer  
Description: Running time

Parameter: numberOfProcesses  
Type: unsigned integer  
Description: Number of processes

Parameter: memoryUse  
Type: unsigned integer  
Description: Memory usage

Parameter: scriptFile  
Type: string  
Description: Job script file

Parameter: numberOfNodes  
Type: unsigned integer  
Description: Number of nodes

Parameter: usergroup  
Type: string  
Description: Job user group

Parameter: commandLineInterpreter  
Type: string  
Description: Command line interpreter

Parameter: dependencies  
Type: list of strings  
Description: Job dependencies

Parameter: parallelEnvironment  
Type: string  
Description: Parallel environment

Parameter: account  
Type: string  
Description: Account name

Parameter: resourceList  
Type: list of strings  
Description: List of requested resources
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Parameter: modules
Type: list of strings
Description: Environment modules loaded for the script

Parameter: environmentVariables
Type: list of strings
Description: Additional environment variables

Parameter: debug
Type: boolean
Description: Debug mode (used when new job is submitted via CMDaemon API)

Parameter: userdefined
Type: list of strings
Description: User defined parameters

Parameter: numberOfCPUs
Type: unsigned integer
Description: Number of CPUs requested

Parameter: numberOfGPUs
Type: unsigned integer
Description: Number of GPUs requested

Parameter: exitCode
Type: integer
Description: Exit code of job

Parameter: minMemPerNode
Type: unsigned integer
Description: Minimum memory per node requested

Parameter: comment
Type: string
Description: Comment set by workload manager

Parameter: placement
Type: string
Description: Jobs are placed on nodes according to their place statements (useful for PBS, see ‘man pbs_resources’)

Parameter: pendingReasons
Type: list of strings
Description: List of pending reasons

5.2.185 JupyterHubBatchSpawner : JupyterHubSpawner
parent: JupyterHubSpawner
Parameter: wlmCluster
Type: reference to WlmCluster
Description: WLM cluster that is associated with this batch spawner

Parameter: startupPollInterval
Type: unsigned integer
Description: Polling interval (seconds) to check job state during startup (BatchSpawnerBase.startup_poll_interval)

Parameter: numberOfProcessors
Type: unsigned integer
Description: Number of processors to request from workload manager (BatchSpawnerBase.req_nprocs)

Parameter: numberOfGpus
Type: unsigned integer
Description: Number of GPUs to request from workload manager (BatchSpawnerBase.req_ngpus)

Parameter: queue
Type: string
Description: Queue name to submit job to workload manage (BatchSpawnerBase.req_queue)

Parameter: host
Type: string
Description: Host name of batch server to submit job to workload manager (BatchSpawnerBase.req_host)

Parameter: account
Type: string
Description: Account name string to pass to the workload manager (BatchSpawnerBase.req_account)

Parameter: runtime
Type: string
Description: Length of time for submitted job to run (BatchSpawnerBase.req_runtime)

Parameter: memory
Type: string
Description: Memory to request from workload manager (BatchSpawnerBase.req_memory)

Parameter: submitCommand
Type: string
Description: Command to run to submit batch scripts (BatchSpawnerBase.batch_submit_cmd)

Parameter: queryCommand
Type: string
Description: Command to run to read job status (BatchSpawnerBase.batch_query_cmd)

Parameter: cancelCommand
Type: string
Description: Command to cancel a previously submitted job (BatchSpawnerBase.batch_cancel_cmd)
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Parameter: batchScript
Type: string
Description: Template for job submission script (BatchSpawnerBase.batch_script)

5.2.186 JupyterHubGenericSpawner: JupyterHubSpawner
parent: JupyterHubSpawner

5.2.187 JupyterHubLocalProcessSpawner: JupyterHubSpawner
parent: JupyterHubSpawner
Parameter: interruptTimeout
Type: unsigned integer
Description: Seconds to wait for single-user server process to halt after SIGINT (LocalProcessSpawner.interrupt_timeout)

Parameter: termTimeout
Type: unsigned integer
Description: Seconds to wait for single-user server process to halt after SIGTERM (LocalProcessSpawner.term_timeout)

Parameter: killTimeout
Type: unsigned integer
Description: Seconds to wait for process to halt after SIGKILL before giving up (LocalProcessSpawner.kill_timeout)

5.2.188 JupyterHubLsfSpawner: JupyterHubBatchSpawner
parent: JupyterHubBatchSpawner

5.2.189 JupyterHubRole: Role
parent: Role
Parameter: version
Type: string
Description: JupyterHub version

Parameter: port
Type: unsigned integer
Description: Port for proxy (JupyterHub.port)

Parameter: hubPort
Type: unsigned integer
Description: Port for hub (JupyterHub.hub_port)

Parameter: hubIp
Type: string
Description: The ip address or hostname for the Hub process to bind to (JupyterHub.hub_ip)

Parameter: dataFilesPath
Type: string
Description: The location of jupyterhub data files (JupyterHub.data_files_path)

Parameter: pamOpenSessions
Type: boolean
Description: Enable SSL communication with HTTPS (PAMAuthenticator.open_sessions)

Parameter: enableSSL
Type: boolean
Description: Enable SSL communication with HTTPS

Parameter: cert
Type: string
Description: Path to the ssl certificate file (JupyterHub.ssl_cert)

Parameter: key
Type: string
Description: Path to the ssl key file (JupyterHub.ssl_key)

Parameter: adminUsers
Type: list of strings
Description: User with administrator privileges (Authenticator.admin_users)

Parameter: userForService
Type: string
Description: User for running cm-jupyterhub service (defined as User in /usr/lib/systemd/system/cm-jupyterhub.service)

Parameter: spawner
Type: JupyterHubSpawner
Description: Spawner settings

5.2.190 JupyterHubSlurmSpawner: JupyterHubBatchSpawner
parent: JupyterHubBatchSpawner

5.2.191 JupyterHubSpawner: Entity
parent: Entity
Parameter: name
Type: string
Description: The spawner name (not used in jupyterhub configuration)

Parameter: className
Type: string
Description: The spawner class name (JupyterHub.spawner_class)

Parameter: args
Type: list of strings
Description: Extra arguments to be passed to the single-user server (Spawner.args)

Parameter: envKeep
Type: list of strings
Description: Environment variables to keep for the spawner (Spawner.env_keep)

Parameter: envs
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5.2 Entities

**Type:** list of strings

**Description:** Extra environment variables to set for the single-user server’s process (Spawner.environment)

**Parameter:** `startTimeout`

**Type:** unsigned integer

**Description:** Timeout (in seconds) before giving up on starting of single-user server (Spawner.start_timeout)

**Parameter:** `pollInterval`

**Type:** unsigned integer

**Description:** Interval (in seconds) on which to poll the spawner for single-user server’s status (Spawner.poll_interval)

**Parameter:** `httpTimeout`

**Type:** unsigned integer

**Description:** Timeout (in seconds) before giving up on a spawned HTTP server (Spawner.http_timeout)

**Parameter:** `address`

**Type:** string

**Description:** Hostname or IP address the single-user server should listen on (Spawner.ip)

**Parameter:** `port`

**Type:** unsigned integer

**Description:** The port for single-user servers to listen on, where 0 uses a randomly allocated port number each time (Spawner.port)

**Parameter:** `notebookDirectory`

**Type:** string

**Description:** Path to the notebook directory for the single-user server (Spawner.notebook_dir)

**Parameter:** `disableUserConfig`

**Type:** boolean

**Description:** Disable per-user configuration of single-user servers (Spawner.disable_user_config)

**Parameter:** `debug`

**Type:** boolean

**Description:** Enable debug mode for the spawner (Spawner.debug)

**Parameter:** `options`

**Type:** list of strings

**Description:** List of extra options (example: c.Spawner.cpu_limit=0.5)

### 5.2.192 JupyterHubSystemdSpawner

**parent:** JupyterHubSpawner

**Parameter:** `readOnlyPaths`

**Type:** list of strings

**Description:** List of filesystem paths that should be mounted readonly for the users’ notebook server (SystemdSpawner.readonly_paths)

**Parameter:** `readWritePaths`
Type:  list of strings
Description:  List of filesystem paths that should be mounted readwrite for the users notebook server (SystemdSpawner.readwrite_paths)

Parameter:  extraPaths
Type:  list of strings
Description:  List of paths that should be prepended to the PATH environment variable for the spawned notebook server (SystemdSpawner.extra_paths)

Parameter:  isolateDevices
Type:  boolean
Description:  Setting this to true provides a separate, private /dev for each user (SystemdSpawner.isolate_devices)

Parameter:  isolateTmp
Type:  boolean
Description:  Setting this to true provides a separate, private /tmp for each user (SystemdSpawner.isolate_tmp)

Parameter:  cpuLimit
Type:  float
Description:  A float representing the total CPU-cores each user can use (SystemdSpawner.cpu_limit)

Parameter:  memoryLimit
Type:  string
Description:  Specifies the maximum memory that can be used by each individual user (SystemdSpawner.mem_limit)

Parameter:  unitNameTemplate
Type:  string
Description:  Template to form the Systemd Service unit name for each user notebook server (SystemdSpawner.unit_name_template)

Parameter:  defaultShell
Type:  string
Description:  The default shell to use for the terminal in the notebook (SystemdSpawner.default_shell)

Parameter:  userWorkingDirectory
Type:  string
Description:  The directory to spawn each user’s notebook server in (SystemdSpawner.user_workingdir)

Parameter:  disableUserSudo
Type:  boolean
Description:  Setting this to true prevents users from being able to use sudo (SystemdSpawner.disable_user_sudo)

Parameter:  useSudo
Type:  boolean
Description:  Use sudo to run systemd-run / systemctl commands (SystemdSpawner.use_sudo)
5.2 Entities

5.2.193 JupyterHubUgeSpawner : JupyterHubBatchSpawner
parent: JupyterHubBatchSpawner

5.2.194 KeepalivedEntry : Entity
parent: Entity
Parameter: name
  Type: string
  Description: The name of the entry.
Parameter: checkScriptName
  Type: string
  Description: Name of the check script to run (must be defined in the config file)
Parameter: customContent
  Type: string
  Description: Custom content to inject to config
Parameter: customContentVIP
  Type: string
  Description: Custom content to inject to config’s Virtual IP section
Parameter: password
  Type: string
  Description: VRRP Password (optional)
Parameter: virtualRouterID
  Type: unsigned integer
  Description: Unique and identical for all instances in this cluster
Parameter: priority
  Type: unsigned integer
  Description: Priority of an instance
Parameter: advertisementInterval
  Type: unsigned integer
  Description: Advertise every this many seconds
Parameter: virtualIP1
  Type: IP
  Description: First virtual IP
Parameter: virtualIP2
  Type: IP
  Description: Seconds virtual IP (optional)
Parameter: virtualIP3
  Type: IP
Description: Third virtual IP (optional)

Parameter: network
Type: reference to Network
Description: The network on which the virtual IP should be present.

5.2.195 KeepalivedRole: Role
parent: Role
Parameter: description
Type: string
Description: Description of the keepalived service (optional)

Parameter: customContent
Type: string
Description: Custom content to inject to config (optional)

Parameter: checkScriptName
Type: string
Description: use in an VRRP entry to make that entry use the script

Parameter: checkScriptPath
Type: string
Description: Command to execute (optional)

Parameter: checkScriptInterval
Type: unsigned integer
Description: Run script every so many many seconds

Parameter: checkScriptFall
Type: unsigned integer
Description: Treat service as down after that many failures of script

Parameter: checkScriptRise
Type: unsigned integer
Description: Treat service as up after that many failures of script

Parameter: configFilePath
Type: string
Description: Path to the config file

Parameter: configDirPath
Type: string
Description: Config directory

Parameter: serviceName
Type: string
Description: Linux service name
Parameter: entries
Type: list of KeepalivedEntry
Description: VRRP entries

5.2.196 KernelModule: Entity
parent: Entity
Parameter: name
Type: string
Description: The name of the kernel module.

Parameter: parameters
Type: string
Description: Options to be passed to the module.

5.2.197 KeyValuePair: Entity
parent: Entity
Parameter: key
Type: string
Description: none

Parameter: value
Type: string
Description: none

Parameter: onlydaemon
Type: boolean
Description: none

Parameter: ispattern
Type: boolean
Description: none

Parameter: priority
Type: integer
Description: none

5.2.198 KibanaRole: Role
parent: Role
Parameter: bindHost
Type: string
Description: IP address to which Kibana should bind to (listen for connections).

Parameter: port
Type: unsigned integer
Description: Port on which Kibana should listen.

Parameter: elasticUrl
Type: string
Description: Elastic Search URL. If not specified, will be detected automatically.

Parameter: customConfig
Type: string
Description: Use this field to override the entire Kibana config file.

5.2.199 KubeAppEnvironment : Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: value
Type: string
Description: Value

Parameter: nodesEnvironment
Type: boolean
Description: Add variable to the nodes environment

5.2.200 KubeAppGroup: Entity
parent: Entity
Parameter: name
Type: string
Description: Object name

Parameter: applications
Type: list of KubeApp
Description: Kubernetes applications managed by cmdaemon

Parameter: enabled
Type: boolean
Description: Enable this application group

5.2.201 KubeApp: Entity
parent: Entity
Parameter: name
Type: string
Description: Object name

Parameter: format
Type: string
Description: Configuration format

Parameter: enabled
Type: boolean
Description: Enable this application
5.2 Entities

Parameter:  config
Type:  string
Description:  Yaml or json configuration for the object

Parameter:  extraEnvironment
Type:  list of KubeAppEnvironment
Description:  none

Parameter:  excludeList
Type:  list of strings
Description:  Excluded paths in the node image update for Kubernetes nodes

Parameter:  state
Type:  integer
Description:  none

5.2.202  KubeCluster: Entity

parent:  Entity
Parameter:  name
Type:  string
Description:  Name of the Kubernetes cluster

Parameter:  authorizationMode
Type:  list of strings
Description:  Selects how to do authorization on the secure port

Parameter:  kubeConfig
Type:  string
Description:  Path to a kubeconfig file, specifying how to authenticate to API server

Parameter:  kubeClientConfig
Type:  string
Description:  Path to a kubeconfig file, specifying how to authenticate to API server

Parameter:  kubeConfigTemplate
Type:  string
Description:  Template for system kubeconfig file

Parameter:  ca
Type:  string
Description:  Filename containing the PEM-encoded certificate used for the Certification authority (CA)

Parameter:  cakey
Type:  string
Description:  Filename containing the corresponding PEM-encoded private key used for the Certification authority (CA)
Parameter: kubernetesCertificate
Type: string
Description: File containing x509 Certificate used by the Kubelets

Parameter: kubernetesKey
Type: string
Description: File containing x509 private key used by the Kubelets

Parameter: kubernetesClientCertificate
Type: string
Description: File containing x509 Certificate used for the Kubelets

Parameter: kubernetesClientKey
Type: string
Description: File containing x509 private key used for the Kubelets

Parameter: serviceAccountCertificate
Type: string
Description: File containing x509 Certificate used Service Accounts

Parameter: serviceAccountKey
Type: string
Description: File containing x509 private key used for Service Accounts

Parameter: apiAggregatorCertificate
Type: string
Description: File containing x509 Certificate used Kube API Aggregator

Parameter: apiAggregatorKey
Type: string
Description: File containing x509 private key used for Kube API Aggregator

Parameter: domain
Type: string
Description: Domain name used by the DNS

Parameter: etcdCluster
Type: reference to EtcdCluster
Description: The Etcd cluster instance

Parameter: etcdServers
Type: list of strings
Description: List of etcd servers to watch (format: [http://host:port])

Parameter: etcdPrefix
Type: string
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**Description:** The prefix for all resource paths in etcd

**Parameter:** `serviceNetwork`  
**Type:** reference to `Network`  
**Description:** Network where service cluster IPs will be assigned from (must not overlap with any IP ranges assigned to nodes for pods)

**Parameter:** `podNetwork`  
**Type:** reference to `Network`  
**Description:** Network where POD IPs will be assigned from

**Parameter:** `podNetworkNodeMask`  
**Type:** string  
**Description:** Pod Network mask size for node cidr in cluster.

**Parameter:** `internalNetwork`  
**Type:** reference to `Network`  
**Description:** Network to use to back the internal communications

**Parameter:** `kubeDnsIp`  
**Type:** IP  
**Description:** KubeDNS IP address

**Parameter:** `kubernetesApiServer`  
**Type:** string  
**Description:** Kubernetes API server address (format: [https://host:port])

**Parameter:** `kubernetesApiServerProxyPort`  
**Type:** unsigned integer  
**Description:** Kubernetes API server proxy port

**Parameter:** `appGroups`  
**Type:** list of `KubeAppGroup`  
**Description:** Kubernetes applications managed by cmdaemon

**Parameter:** `labelSets`  
**Type:** list of `KubeLabelSet`  
**Description:** Labels managed by cmdaemon

**Parameter:** `notes`  
**Type:** string  
**Description:** Notes

**Parameter:** `trustedDomains`  
**Type:** list of strings  
**Description:** Trusted domains to be included in Kubernetes related certificates as Alt Subjects.

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Parameter: clientTypeKube
Type: unsigned integer
Description: client type in the CLIENT_TYPE_KUBERNETES range

Parameter: clientTypeKubeUsers
Type: unsigned integer
Description: client type in the CLIENT_TYPE_KUBERNETES_USERS range

Parameter: clientTypeKubeServiceAccounts
Type: unsigned integer
Description: client type in the CLIENT_TYPE_KUBE_SERVICEACCOUNTS range

Parameter: moduleFileTemplate
Type: string
Description: Template for system module file

Parameter: InitializationState
Type: enum
Description: Kube Cluster Initialization State

Parameter: roleBindings
Type: list of KubeRoleBinding
Description: Kubernetes role bindings

5.2.203 KubeLabelSet: Entity
    parent: Entity
    Parameter: name
    Type: string
    Description: Object name

Parameter: labels
Type: list of strings
Description: Node labels

Parameter: nodes
Type: list of references to Node
Description: List of nodes belonging to this label set

Parameter: categories
Type: list of references to Category
Description: List of categories belonging to this label set

Parameter: overlays
Type: list of references to ConfigurationOverlay
Description: List of overlays belonging to this label set
5.2 Entities

### 5.2.204 KubeNodeLoad: Entity

**parent**: Entity

**Parameter**: refNodeUniqueKey

**Type**: unsigned integer

**Description**: Node

**Parameter**: cpu

**Type**: float

**Description**: CPU %

**Parameter**: mem

**Type**: float

**Description**: Memory % of total capacity

**Parameter**: pods

**Type**: float

**Description**: Pods % of maximum

### 5.2.205 KubePodController: Entity

**parent**: Entity

**Parameter**: name

**Type**: string

**Description**: Kubernetes pod controller name

**Parameter**: type

**Type**: string

**Description**: Kubernetes pod controller type

**Parameter**: kubeNamespace

**Type**: string

**Description**: Namespace name

**Parameter**: uid

**Type**: string

**Description**: Pod controller unique ID in Kubernetes

**Parameter**: startTime

**Type**: timestamp

**Description**: Pod controller start time

**Parameter**: creationTime

**Type**: timestamp

**Description**: Pod controller creation time

**Parameter**: resources

**Type**: list of strings

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Description: List of requested (if pending) or allocated (if started) resources

Parameter: labels
Type: list of strings
Description: List of labels assigned to the controller object

Parameter: status
Type: string
Description: Current pod controller status

Parameter: reason
Type: string
Description: Pod controller status reason

5.2.206 KubePodInfo: Entity
parent: Entity
Parameter: name
Type: string
Description: none

Parameter: podNamespace
Type: string
Description: none

Parameter: image
Type: string
Description: none

Parameter: nodes
Type: list of unsigned numbers
Description: none

Parameter: startTime
Type: timestamp
Description: none

Parameter: labels
Type: list of strings
Description: none

Parameter: status
Type: string
Description: none

Parameter: reason
Type: string
Description: none
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Parameter: message
Type: string
Description: none

Parameter: ip
Type: IP
Description: none

Parameter: replicaSets
Type: list of strings
Description: none

Parameter: ready
Type: boolean
Description: none

Parameter: volumes
Type: list of strings
Description: none

Parameter: containers
Type: list of ContainerInfo
Description: none

Parameter: creationTime
Type: timestamp
Description: none

Parameter: controllerId
Type: string
Description: none

Parameter: resources
Type: list of strings
Description: List of requested (if pending) or allocated (if started) resources

5.2.207 KubernetesApiServerProxyRole: NginxRole
parent: NginxRole
Parameter: kubeClusters
Type: list of references to KubeCluster
Description: The Kubernetes cluster instances (pointers)

5.2.208 KubernetesApiServerRole: Role
parent: Role
Parameter: kubeCluster
Type: reference to KubeCluster
Description: The Kubernetes cluster instance (pointer)
Parameter: insecurePort
Type: unsigned integer
Description: The port on which to serve unsecured, unauthenticated access.

Parameter: securePort
Type: unsigned integer
Description: The port on which to serve HTTPS with authentication and authorization (if 0, don’t serve HTTPS at all)

Parameter: advertiseAddress
Type: IP
Description: The IP address on which to advertise the apiserver to members of the cluster. When set to 0.0.0.0 the IP from the Headnode’s Management Network will be used.

Parameter: insecureBindAddress
Type: IP
Description: IP address to serve on (set to 0.0.0.0 for all interfaces)

Parameter: secureBindAddress
Type: IP
Description: The IP address on which to serve the read only and secure ports

Parameter: allowedPrivileged
Type: boolean
Description: If true, allow privileged containers

Parameter: admissionControl
Type: list of strings
Description: Ordered list of plug-ins to do admission control of resources into cluster

Parameter: eventTtl
Type: string
Description: Amount of time to retain events

Parameter: kubeletTimeout
Type: string
Description: Kubelet connections timeout

Parameter: logLevel
Type: unsigned integer
Description: Log level

Parameter: logToStdErr
Type: boolean
Description: Logging to stderr means we get it in the systemd journal

Parameter: options
### 5.2.209 KubernetesControllerRole: Role

**Parent:** Role

**Parameter:** kubeCluster

**Type:** reference to KubeCluster

**Description:** The Kubernetes cluster instance (pointer)

**Parameter:** address

**Type:** IP

**Description:** IP address to serve on (set to 0.0.0.0 for all interfaces)

**Parameter:** port

**Type:** unsigned integer

**Description:** Port that the controller-manager runs on

**Parameter:** concurrentEndpointSyncs

**Type:** unsigned integer

**Description:** Number of endpoint syncing operations that will be done concurrently

**Parameter:** namespaceSyncPeriod

**Type:** string

**Description:** Period for syncing namespace life-cycle updates

**Parameter:** nodeMonitorGracePeriod

**Type:** string

**Description:** Amount of time which we allow running Node to be unresponsive before marking it unhealthy

**Parameter:** nodeMonitorPeriod

**Type:** string

**Description:** Period for syncing NodeStatus in NodeController

**Parameter:** nodeStartupGracePeriod

**Type:** string

**Description:** Amount of time which we allow starting Node to be unresponsive before marking it unhealthy

**Parameter:** nodeSyncPeriod

**Type:** string

**Description:** Period for syncing nodes from cloudprovider

**Parameter:** podEvictionTimeout

**Type:** string

**Description:** Grace period for deleting pods on failed nodes

**Parameter:** pvClaimBinderSyncPeriod

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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>registerRetryCount</td>
<td>string</td>
<td>Period for syncing persistent volumes and persistent volume claims</td>
</tr>
<tr>
<td>resourceQuotaSyncPeriod</td>
<td>string</td>
<td>Period for syncing quota usage status in the system</td>
</tr>
<tr>
<td>logLevel</td>
<td>unsigned int</td>
<td>Log level</td>
</tr>
<tr>
<td>logToStdErr</td>
<td>boolean</td>
<td>Logging to stderr means we get it in the systemd journal</td>
</tr>
<tr>
<td>options</td>
<td>list of strings</td>
<td>Additional parameters for kube-controller-manager daemon</td>
</tr>
<tr>
<td>clusterSigningCertFile</td>
<td>string</td>
<td>Filename containing a PEM-encoded X509 CA certificate used to issue cluster-scoped certificates. (leave empty to use the value of CA)</td>
</tr>
<tr>
<td>clusterSigningKeyFile</td>
<td>string</td>
<td>Filename containing a PEM-encoded RSA or ECDSA private key used to sign cluster-scoped certificates. (leave empty to use the value of CA Key)</td>
</tr>
<tr>
<td>useServiceAccountCredentials</td>
<td>boolean</td>
<td>Flag to enable or disable use of Service Account Credentials</td>
</tr>
<tr>
<td>allocateNodeCidrs</td>
<td>boolean</td>
<td>Allocate node cidr in cluster using Pod Network and Node Mask size defined in Kubernetes Cluster Object</td>
</tr>
<tr>
<td>kubeConfig</td>
<td>string</td>
<td>Path to a kubeconfig file, specifying how to authenticate to API server.</td>
</tr>
<tr>
<td>kubernetesCertificate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.2 Entities

Type: string
Description: File containing x509 Certificate used by Kubernetes Controller Manager

Parameter: kubernetesKey
Type: string
Description: File containing x509 private key used by Kubernetes Controller Manager

5.2.210 KubernetesNodeRole: Role

Parameter: kubeCluster
Type: reference to KubeCluster
Description: The Kubernetes cluster instance (pointer)

Parameter: address
Type: IP
Description: IP address to serve on (set to 0.0.0.0 for all interfaces)

Parameter: kubeletPort
Type: unsigned integer
Description: Port that the Node’s http service runs on

Parameter: spool
Type: string
Description: Directory path for managing kubelet files

Parameter: manifestsPath
Type: string
Description: Path to the config file or directory of files

Parameter: enableServer
Type: boolean
Description: Enable Kubelet’s server

Parameter: networkPlugin
Type: string
Description: The name of the network plugin to be invoked for various events in kubelet/pod lifecycle

Parameter: cniPluginBinariesPath
Type: string
Description: The full path of the directory in which to search for CNI plugin binaries.

Parameter: hostnameOverride
Type: string
Description: If non-empty, will use this string as identification instead of the actual hostname

Parameter: cgroupRoot
Type: string
Description: Optional root cgroup to use for pods

Parameter: containerRuntime
Type: string
Description: The container runtime to use

Parameter: containerRuntimeEndpoint
Type: string
Description: The endpoint of remote runtime service

Parameter: containerRuntimeService
Type: string
Description: The container runtime systemd service

Parameter: resourceContainer
Type: string
Description: Absolute name of the resource-only container to create and run the Kubelet in

Parameter: allowedPrivileged
Type: boolean
Description: If true, allow privileged containers

Parameter: registerOnStart
Type: boolean
Description: Register the node with the apiserver

Parameter: maxPods
Type: unsigned integer
Description: Number of Pods that can run on this node

Parameter: evictionSoft
Type: list of strings
Description: Soft eviction constraints

Parameter: evictionSoftGrace
Type: list of strings
Description: Soft eviction grace period

Parameter: evictionMaxPodGrace
Type: unsigned integer
Description: Maximum allowed grace period (in sec) allowed to terminated pods

Parameter: evictionHard
Type: list of strings
Description: Hard eviction constraints

Parameter: evictionMinReclaim
5.2 Entities

**Type:** list of strings

**Description:** Minimum amount of resources reclaimed in an eviction

**Parameter:** runOnce

**Type:** boolean

**Description:** If true, exit after spawning pods from local manifests or remote urls

**Parameter:** fileCheckFrequency

**Type:** string

**Description:** Duration between checking config files for new data

**Parameter:** httpCheckFrequency

**Type:** string

**Description:** Duration between checking http for new data

**Parameter:** nodeStatusUpdateFrequency

**Type:** string

**Description:** Duration between kubelet posts of node status to master

**Parameter:** syncFrequency

**Type:** string

**Description:** Max period between synchronizing running containers and config

**Parameter:** streamingConnectionIdleTimeout

**Type:** string

**Description:** Maximum time a streaming connection can be idle before the connection is automatically closed

**Parameter:** imageGcHighThreshold

**Type:** unsigned integer

**Description:** The percent of disk usage after which image garbage collection is always run

**Parameter:** imageGcLowThreshold

**Type:** unsigned integer

**Description:** The percent of disk usage before which image garbage collection is never run

**Parameter:** lowDiskSpaceThreshold

**Type:** unsigned integer

**Description:** The absolute free disk space, in MB, to maintain

**Parameter:** oomScoreAdjust

**Type:** integer

**Description:** The oom_score_adj value for kubelet process

**Parameter:** logLevel

**Type:** unsigned integer

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**Description:** Log level

**Parameter:** logToStdErr
**Type:** boolean
**Description:** Logging to stderr means we get it in the systemd journal

**Parameter:** options
**Type:** list of strings
**Description:** Additional parameters for kubelet daemon

**Parameter:** kubeConfig
**Type:** string
**Description:** Path to a kubeconfig file, specifying how to authenticate to API server

5.2.211 KubernetesProxyRole: Role

**parent:** Role

**Parameter:** kubeCluster
**Type:** reference to KubeCluster
**Description:** The Kubernetes cluster instance (pointer)

**Parameter:** address
**Type:** IP
**Description:** IP address to serve on (set to 0.0.0.0 for all interfaces)

**Parameter:** proxyPortRangeStart
**Type:** unsigned integer
**Description:** Range of host ports (format: 'beginPort-endPort', inclusive) that may be consumed in order to proxy service traffic

**Parameter:** proxyPortRangeEnd
**Type:** unsigned integer
**Description:** Range of host ports (format: 'beginPort-endPort', inclusive) that may be consumed in order to proxy service traffic

**Parameter:** masqueradeAll
**Type:** boolean
**Description:** If using the pure iptables proxy, SNAT everything

**Parameter:** healthCheckAddress
**Type:** IP
**Description:** The IP address for the health check server to serve on

**Parameter:** healthCheckPort
**Type:** unsigned integer
**Description:** The port to bind the health check server (use 0 to disable)

**Parameter:** oomScoreAdjust
**Type:** integer
5.2 Entities

Description: The oom_score_adj value for kube-proxy process

Parameter: logLevel
Type: unsigned integer
Description: Log level

Parameter: logToStdErr
Type: boolean
Description: Logging to stderr means we get it in the systemctl journal

Parameter: options
Type: list of strings
Description: Additional parameters for kube-proxy daemon

Parameter: kubeConfig
Type: string
Description: Path to a kubeconfig file, specifying how to authenticate to API server.

Parameter: kubernetesCertificate
Type: string
Description: File containing x509 Certificate used by kube-proxy

Parameter: kubernetesKey
Type: string
Description: File containing x509 private key used by Kubernetes API server

5.2.212 KubernetesSchedulerRole: Role

Parent: Role

Parameter: kubeCluster
Type: reference to KubeCluster
Description: The Kubernetes cluster instance (pointer)

Parameter: address
Type: IP
Description: IP address to serve on (set to 0.0.0.0 for all interfaces)

Parameter: port
Type: unsigned integer
Description: Port that the scheduler’s http service runs on

Parameter: algorithmProvider
Type: string
Description: The scheduling algorithm provider to use

Parameter: policyConfig
Type: string
Description: File with scheduler policy configuration
**Parameter:** logLevel  
**Type:** unsigned integer  
**Description:** Log level

**Parameter:** logToStdErr  
**Type:** boolean  
**Description:** Logging to stderr means we get it in the systemd journal

**Parameter:** options  
**Type:** list of strings  
**Description:** Additional parameters for kube-scheduler daemon

**Parameter:** kubeConfig  
**Type:** string  
**Description:** Path to a kubeconfig file, specifying how to authenticate to API server.

**Parameter:** kubernetesCertificate  
**Type:** string  
**Description:** File containing x509 Certificate used by Kubernetes Scheduler

**Parameter:** kubernetesKey  
**Type:** string  
**Description:** File containing x509 private key used by Kubernetes Scheduler

**5.2.213 KubeRoleBinding : Entity**  
**parent :** Entity  
**Parameter:** user  
**Type:** string  
**Description:** User name (not user ID)

**Parameter:** config  
**Type:** string  
**Description:** The RBAC config to apply for the user for the Kubernetes cluster.

**Parameter:** enabled  
**Type:** boolean  
**Description:** Enable this cluster binding

**5.2.214 LabeledEntity : Entity**  
**parent :** Entity  
**Parameter:** name  
**Type:** string  
**Description:** Name

**Parameter:** introductionTime  
**Type:** timestamp  
**Description:** Introduction time

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5.2 Entities

Parameter: lastUsedTime
Type: timestamp
Description: Time entity was last used

Parameter: permanent
Type: boolean
Description: Do not allow automatic deletion

5.2.215 LdapServerRole: Role
parent: Role
Parameter: nodegroups
Type: list of references to NodeGroup
Description: List of node groups which can boot from this node

Parameter: categories
Type: list of references to Category
Description: List of categories which can boot from this node

Parameter: racks
Type: list of references to Rack
Description: List of racks which can boot from this node

5.2.216 LicenseInfo: Entity
parent: Entity
Parameter: refPartitionUniqueKey
Type: unsigned integer
Description: Partition

Parameter: macAddress
Type: string
Description: MAC address linked to the license

Parameter: licensedNodes
Type: unsigned integer
Description: Number of pre-paid nodes

Parameter: licensedAcceleratorNodes
Type: integer
Description: Number of licensed nodes with accelerators

Parameter: licensedBurstNodes
Type: integer
Description: Number of ondemand nodes

Parameter: licensedOpenStackNodes
Type: integer
Description: Number of OpenStack nodes

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Parameter:  version
Type:  string
Description:  Version

Parameter:  edition
Type:  string
Description:  Edition

Parameter:  startTime
Type:  timestamp
Description:  Time from which the license is active

Parameter:  endTime
Type:  timestamp
Description:  Time at which the license stops being valid

Parameter:  serial
Type:  integer
Description:  Serial

Parameter:  licensee
Type:  string
Description:  Licensee

Parameter:  nodeCount
Type:  unsigned integer
Description:  Nodes count with a MAC / cloud-identifier set

Parameter:  burstNodeCount
Type:  unsigned integer
Description:  Bursted nodes count

Parameter:  acceleratorNodeCount
Type:  unsigned integer
Description:  Nodes with one or more accelerators

Parameter:  openStackNodeCount
Type:  unsigned integer
Description:  Nodes part of OpenStack

Parameter:  accountingAndReporting
Type:  boolean
Description:  Accounting and reporting enabled/disabled

Parameter:  edgeSites
Type:  boolean
Description: Edge sites enabled/disabled

Parameter: message
Type: string
Description: License count message

Parameter: licenseType
Type: string
Description: License type

5.2.217 LiteMonitoredEntity: Entity
parent: Entity
Parameter: name
Type: string
Description: none

Parameter: types
Type: list of strings
Description: none

Parameter: resources
Type: list of strings
Description: none

Parameter: disabled
Type: boolean
Description: none

5.2.218 LiteMonitoringMeasurable: Entity
parent: Entity
Parameter: producer
Type: unsigned integer
Description: none

Parameter: name
Type: string
Description: none

Parameter: parameter
Type: string
Description: none

Parameter: kind
Type: string
Description: none

Parameter: disabled
Type: boolean

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Description: *none*

Parameter: cumulative
Type: boolean
Description: *none*

5.2.219 LiteNode: Device

parent: Device

Parameter: ip
Type: IP
Description: IP address

Parameter: network
Type: reference to Network or None
Description: Network to which this switch is connected

Parameter: additionalHostnames
Type: list of strings
Description: List of additional hostnames that should resolve to the interfaces IP address

5.2.220 LoginRole: Role

parent: Role

Parameter: shorewall
Type: boolean
Description: Manage shorewall

Parameter: openPorts
Type: list of OpenPort
Description: The list of ports that will be opened on the node’s firewall

5.2.221 LogstashForwarderRole: Role

parent: Role

Parameter: servers
Type: list of strings
Description: List of hosts with logstash running

Parameter: sslCert
Type: string
Description: Path to the SSL certificate

Parameter: timeout
Type: unsigned integer
Description: Timeout

Parameter: syslogFiles
Type: list of strings
Description: List of syslog files to collect
Parameter: apacheFiles
Type: list of strings
Description: List of Apache files to collect

Parameter: customConfig
Type: string
Description: Custom config for logstash-forwarder

5.2.222 LogstashServerCustomFilter
parent: LogstashServerFilter
Parameter: customConfig
Type: string
Description: Use this field to override the whole config file

5.2.223 LogstashServerCustomListener
parent: LogstashServerListener
Parameter: customConfig
Type: string
Description: Use this field to override the whole config file

5.2.224 LogstashServerCustomOutput
parent: LogstashServerOutput
Parameter: customConfig
Type: string
Description: Use this field to override the whole config file

5.2.225 LogstashServerElasticOutput
parent: LogstashServerOutput
Parameter: elasticHost
Type: string
Description: Host with elastic search. If not specified, a random host with elastic search will be found

Parameter: elasticCluster
Type: string
Description: Elastic search cluster name

5.2.226 LogstashServerFilter
parent: Entity
Parameter: name
Type: string
Description: none

5.2.227 LogstashServerListener
parent: Entity
Parameter: name
Type: string
Description: none
5.2.228 LogstashServerLocalFileListener : LogstashServerListener
parent : LogstashServerListener
Parameter: localFilesToTrack
Type: list of strings
Description: List of paths to local log files that should be tracked

Parameter: localFilesType
Type: string
Description: Type to append to local log files by logstash

5.2.229 LogstashServerLumberjackListener : LogstashServerListener
parent : LogstashServerListener
Parameter: sslCert
Type: string
Description: Path to the SSL certificate

Parameter: sslKey
Type: string
Description: Path to the SSL key

Parameter: port
Type: unsigned integer
Description: Port to listen for rsyslog

5.2.230 LogstashServerOutput : Entity
parent : Entity
Parameter: name
Type: string
Description: none

5.2.231 LogstashServerRole : Role
parent : Role
Parameter: listeners
Type: list of LogstashServerListener
Description: Logstash Listeners.

Parameter: filters
Type: list of LogstashServerFilter
Description: Logstash Filters.

Parameter: output
Type: list of LogstashServerOutput
Description: Logstash Outputs.

Parameter: customConfig
Type: string
Description: Use this field to override the whole config file.
5.2.232 LogstashServerRSyslogFilter : LogstashServerFilter
parent : LogstashServerFilter

5.2.233 LogstashServerRSyslogListener : LogstashServerListener
parent : LogstashServerListener
Parameter: sslCert
Type: string
Description: Path to the SSL certificate

Parameter: sslKey
Type: string
Description: Path to the SSL key

Parameter: port
Type: unsigned integer
Description: Port to listen for rsyslog

5.2.234 LogstashServerStdOutput : LogstashServerOutput
parent : LogstashServerOutput
Parameter: enableStdoutLog
Type: boolean
Description: Write all the output to the logfile

Parameter: codec
Type: string
Description: none

5.2.235 LSFBaseJobQueueStat : JobQueueStat
parent : JobQueueStat
Parameter: status
Type: string
Description: Queue status

Parameter: priority
Type: unsigned integer
Description: Queue priority

Parameter: njobs
Type: unsigned integer
Description: Number of all jobs in queue

Parameter: pending
Type: unsigned integer
Description: Number of pending jobs in queue

Parameter: running
Type: unsigned integer
Description: Number of running jobs in queue

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Parameter: suspended
Type: unsigned integer
Description: Number of suspended jobs in queue

5.2.236 LSFBaseJobQueue: JobQueue
parent: JobQueue
Parameter: administrators
Type: string
Description: List of queue administrators.

Parameter: corelimit
Type: unsigned integer
Description: The per-process core file size limit (in KB) for all of the processes belonging to a job from this queue.

Parameter: cpulimit
Type: string
Description: Maximum normalized CPU time and optionally, the default normalized CPU time allowed for all processes of a job running in this queue; value format: [default_limit] maximum_limit.

Parameter: chkPnt
Type: string
Description: Enables automatic checkpointing; value format: dir [period], where dir is the directory where the checkpoint files are created (do not use environment variables); period is the checkpoint period in minutes.

Parameter: datalimit
Type: unsigned integer
Description: The per-process data segment size limit (in KB) for all of the processes belonging to a job from this queue.

Parameter: description
Type: string
Description: Description of the queue that will be displayed by 'bqueues -l'

Parameter: default_host_spec
Type: string
Description: The default CPU time normalization host for the queue.

Parameter: dispatch_window
Type: string
Description: The time windows in which jobs from this queue are dispatched.

Parameter: exclusive
Type: string
Description: If Y, specifies an exclusive queue. Jobs submitted to an exclusive queue with 'bsub -x' will only be despatched to a host that has no other LSF jobs running.
Parameter: filelimit
Type: unsigned integer
Description: The per-process file size limit (in KB) for all of the processes belonging to a job from this queue.

Parameter: hjob_limit
Type: unsigned integer
Description: Maximum number of job slots that this queue can use on any host.

Parameter: hosts
Type: string
Description: A space-separated list of hosts, host groups, and host partitions on which jobs from this queue can be run.

Parameter: ignore_deadline
Type: string
Description: If Y, disables deadline constraint scheduling (starts all jobs regardless of deadline constraints).

Parameter: interactive
Type: string
Description: Causes the queue to reject interactive batch jobs (NO) or accept nothing but interactive batch jobs (ONLY). Interactive batch jobs are submitted via 'bsub -I'.

Parameter: job_accept_interval
Type: unsigned integer
Description: The number of dispatch turns to wait after dispatching a job to a host, before dispatching a second job to the same host.

Parameter: job_controls
Type: string
Description: Changes the behaviour of the SUSPEND, RESUME, and TERMINATE actions.

Parameter: pre_post_exec_user
Type: string
Description: Username for prolog and epilog execution.

Parameter: prolog
Type: string
Description: Path to prolog script (pre_exec).

Parameter: epilog
Type: string
Description: Path to epilog script (post_exec).

Parameter: job_starter
Type: string

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Description: Creates a specific environment for submitted jobs prior to execution.

Parameter: load_index
Type: string
Description: Scheduling and suspending thresholds for the specified dynamic load index.

Parameter: memlimit
Type: unsigned integer
Description: The per-process memory resident set size limit (in KB) for all of the processes belonging to a job from this queue.

Parameter: mig
Type: unsigned integer
Description: Enables automatic job migration and specifies the migration threshold, in minutes.

Parameter: new_job_sched_delay
Type: unsigned integer
Description: The maximum or minimum length of time that a new job waits before being dispatched; the behavior depends on whether the delay period specified is longer or shorter than a regular dispatch interval (MBD_SLEEP_TIME in lsb.params, 60 seconds by default).

Parameter: nice
Type: unsigned integer
Description: Adjusts the Unix scheduling priority at which jobs from this queue execute.

Parameter: pjob_limit
Type: unsigned integer
Description: The per-processor job slot limit for the queue.

Parameter: processlimit
Type: string
Description:Limits the number of concurrent processes that can be part of a job.

Parameter: proclimit
Type: string
Description: Limits the number of processors that can be allocated to the job.

Parameter: priority
Type: unsigned integer
Description: Queue priority.

Parameter: qjob_limit
Type: unsigned integer
Description: Job slot limit for the queue. Total number of job slots this queue can use.

Parameter: rerunnable
Type: string
Description: If yes, enables automatic job rerun (restart).

Parameter: require_exit_values
Type: string
Description: The exit codes that will cause the job to be requeued.

Parameter: res_req
Type: string
Description: Resource requirements used to determine eligible hosts.

Parameter: resume_cond
Type: string
Description: Use the select section of the resource requirement string to specify load thresholds. All other sections are ignored.

Parameter: run_window
Type: string
Description: Time period during which jobs in the queue are allowed to run.

Parameter: runlimit
Type: string
Description: The maximum run limit and optionally the default run limit. Value format: [default_limit] maximum_limit.

Parameter: slot_reserve
Type: unsigned integer
Description: Enables processor reservation and specifies the number of dispatch turns over which a parallel job can reserve job slots.

Parameter: stacklimit
Type: unsigned integer
Description: The per-process stack segment size limit (in KB) for all of the processes belonging to a job from this queue.

Parameter: stop_cond
Type: string
Description: Use the select section of the resource requirement string to specify load thresholds. All other sections are ignored.

Parameter: swaplimit
Type: unsigned integer
Description: The amount of total virtual memory limit (in KB) for a job from this queue.

Parameter: terminate_when
Type: string
Description: Configures the queue to invoke the TERMINATE action instead of the SUSPEND action in the specified circumstance.
Parameter:  ujob_limit
Type:  unsigned integer
Description:  The per-user job slot limit for the queue. Maximum number of slots that each user can use in this queue.

Parameter:  users
Type:  string
Description:  A list of users or user groups that can submit jobs to this queue. Use the reserved word all to specify all users.

Parameter:  r15s
Type:  string
Description:  Built-in load index: run queue length (15 sec average).

Parameter:  r1m
Type:  string
Description:  Built-in load index: run queue length (1 min average).

Parameter:  r15m
Type:  string
Description:  Built-in load index: run queue length (15 min average).

Parameter:  it
Type:  string
Description:  Built-in load index: idle time.

Parameter:  io
Type:  string
Description:  Built-in load index: disk I/O.

Parameter:  ut
Type:  string
Description:  Built-in load index: CPU utilization.

Parameter:  mem
Type:  string
Description:  Built-in load index: available memory (in MB).

Parameter:  pg
Type:  string
Description:  Built-in load index: pages in + pages out.

Parameter:  tmp
Type:  string
Description:  Built-in load index: available space in temporary file system (MB).
5.2 Entities

Type: string
Description: Built-in load index: available swap space (in MB).

Parameter: \texttt{ls}
Type: string
Description: Built-in load index.

\texttt{5.2.237 LSFBaseJob \textbackslash: Job}
parent: Job

\texttt{5.2.238 LSFGroupsSettings \textbackslash: WlmGroupsSettings}
parent: WlmGroupsSettings
Parameter: resourceEnforce
Type: list of strings
Description: Controls resource enforcement through the Linux cgroup memory and cpuset subsystem on Linux systems with cgroup support (LSB\_RESOURCE\_ENFORCE)

Parameter: processTracking
Type: boolean
Description: Enable this parameter to track processes based on job control functions such as termination, suspension, resume and other signaling, on Linux systems which support cgroups freezer subsystem (LSF\_PROCESS\_TRACKING)

Parameter: linuxCgroupAccounting
Type: boolean
Description: Enable this parameter to track processes based on CPU and memory accounting for Linux systems that support cgroup's memory and cpuacct subsystems (LSF\_LINUX\_CGROUP\_ACCT)

Parameter: jobCgroupTemplate
Type: string
Description: Template for job cgroup path ($\text{CLUSTER}$ will be replaced to LSF cluster name, $\text{JOBID}$ will be replaced to job id)

\texttt{5.2.239 LSFClientRole \textbackslash: LSFRole}
parent: LSFRole
Parameter: slots
Type: string
Description: Number of slots available on this node/category

Parameter: queues
Type: list of references to LSFJobQueue
Description: Queues this node/nodes in this category belongs to

Parameter: allQueues
Type: boolean
Description: When set, the role will provide all available queues (the queues property will then be ignored)

Parameter: gpus
Type: unsigned integer
Description: Number of gpus

Parameter: gpuDevices
Type: list of strings
Description: /dev/* available to workload management

Parameter: server
Type: boolean
Description: Is LSF server (can run jobs)

Parameter: hostModel
Type: string
Description: Host model (possible values are defined in lsf.shared)

Parameter: hostType
Type: string
Description: Host type (possible values are defined in lsf.shared)

Parameter: nodeCustomizations
Type: list of LsfNodeCustomizationEntry
Description: LSF node custom properties

5.2.240 LSFJobQueueStat : LSFBaseJobQueueStat
parent : LSFBaseJobQueueStat
5.2.241 LSFJobQueue : LSFBaseJobQueue
parent : LSFBaseJobQueue
Parameter: fairshare
Type: string
Description: Fairshare scheduling

Parameter: backfill
Type: string
Description: Backfill scheduling

Parameter: preemption
Type: string
Description: Preemption scheduling

5.2.242 LSFJob : LSFBaseJob
parent : LSFBaseJob
5.2.243 LSFRole : Role
parent : Role
Parameter: wlmCluster
Type: reference to LSFWlmCluster
Description: WLM cluster link to this WLM role
5.2 Entities

5.2.244 LSFServerRole : LSFRole
- **parent**: LSFRole
- **Parameter**: externalServer
- **Type**: boolean
- **Description**: LSF server daemons are running on some external machine

5.2.245 LSFSubmitRole : Role
- **parent**: Role
- **Parameter**: lsfWlmClusters
- **Type**: list of references to LSFWlmCluster
- **Description**: List of LSF clusters which the role belongs to

5.2.246 LSFWlmCluster : WlmCluster
- **parent**: WlmCluster
- **Parameter**: version
- **Type**: string
- **Description**: Major LSF version

- **Parameter**: prefix
- **Type**: string
- **Description**: LSF installation directory

- **Parameter**: var
- **Type**: string
- **Description**: Var directory location

- **Parameter**: dynamicCloudNodes
- **Type**: boolean
- **Description**: Cloud nodes are added dynamically to LSF

- **Parameter**: placeholders
- **Type**: list of JobQueuePlaceholder
- **Description**: Job queue node placeholders mode

- **Parameter**: cgroups
- **Type**: LSFCgroupsSettings
- **Description**: Submode containing LSF related cgroups settings

5.2.247 MemcachedRole : Role
- **parent**: Role
- **Parameter**: includeInHAProxy
- **Type**: boolean
- **Description**: Automatically include the nodes with this role in HAProxy configuration.

- **Parameter**: frontendHAProxyNames
- **Type**: list of strings
Description: If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

Parameter: isBackupEndpoint
Type: boolean
Description: none

Parameter: daemonize
Type: boolean
Description: Run memcached as a daemon

Parameter: port
Type: unsigned integer
Description: Port to listen for the incoming connections

Parameter: network
Type: reference to Network or None
Description: Network to bind the socket to

Parameter: bindToLocalInterfaceByDefault
Type: boolean
Description: Used if network is not specified. If enabled, bind only to local interface, otherwise to all available interfaces

Parameter: connections
Type: unsigned integer
Description: Maximum simultaneous connections

Parameter: logfile
Type: string
Description: Path to store log file

Parameter: logLevel
Type: unsigned integer
Description: Log level (max level: 0, min level: 2)

Parameter: initialMemoryCap
Type: unsigned integer
Description: Memory cap on start

Parameter: user
Type: string
Description: User to run the memcached
Description: Lock down all paged memory

Parameter: errorOnExhaust
Type: boolean
Description: Return error when memory is exhausted

Parameter: maxCoreFile
Type: boolean
Description: Maximize the core file size

Parameter: enableLogFile
Type: boolean
Description: Enable log file

Parameter: memGrowthFactor
Type: float
Description: Multiplier for memory growth

Parameter: minItemSize
Type: unsigned integer
Description: Allocate this minimum memory amount for the item key, value and flags

Parameter: disableCAS
Type: boolean
Description: Disable CAS

Parameter: threads
Type: unsigned integer
Description: Number of threads to process incoming connections

Parameter: useLargePages
Type: boolean
Description: Request large memory pages from OS

Parameter: otherOptions
Type: string
Description: Coma separated list of other options

---

5.2.248 MemoryInfo : Entity

parent : Entity
Parameter: location
Type: string
Description: Location

Parameter: speed
Type: string
Description: Speed

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Parameter: size
Type: string
Description: Size

Parameter: type
Type: string
Description: Type

5.2.249 MonitoringActionRunData: Entity
parent: Entity
Parameter: target
Type: unsigned integer
Description: Target node

Parameter: info
Type: string
Description: Extra information

Parameter: env
Type: list of strings
Description: Environment

5.2.250 MonitoringAction: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: runOn
Type: enum
Description: Run the action on

Parameter: allowedTime
Type: string
Description: Sets time interval during which action is allowed to be executed

Parameter: disable
Type: boolean
Description: Disable

Parameter: suppressedByGoingDown
Type: boolean
Description: Suppress running action if device is going down

5.2.251 MonitoringCacheSubSystemInfo: Entity
parent: Entity
Parameter: name
Type: string
5.2 Entities

Description: Name

Parameter: queued
Type: unsigned integer
Description: Number of samples ready for delivery

Parameter: pickup
Type: unsigned integer
Description: Number of times data has been picked up

Parameter: delivered
Type: unsigned integer
Description: Number of samples delivered the last pick up

Parameter: handled
Type: unsigned integer
Description: Total number of samples handled

5.2.252 MonitoringCategoryListExecutionFilter: MonitoringExecutionFilter
parent: MonitoringExecutionFilter
Parameter: categories
Type: list of references to Category
Description: List of categories belonging to this group

5.2.253 MonitoringCategoryListExecutionMultiplexer: MonitoringExecutionMultiplexer
parent: MonitoringExecutionMultiplexer
Parameter: categories
Type: list of references to Category
Description: List of categories belonging to this group

5.2.254 MonitoringCompareExpression: MonitoringExpression
parent: MonitoringExpression
Parameter: entities
Type: string
Description: Entities matching the regex, leave empty for all

Parameter: measurables
Type: string
Description: Measurables matching the regex, leave empty for all

Parameter: parameters
Type: string
Description: Parameters matching the regex, leave empty for all

Parameter: op
Type: enum

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Description: Operator

Parameter: grouping
Type: enum
Description: Method to group all matching entity measurable parameter

Parameter: value
Type: string
Description: Value

Parameter: useRaw
Type: boolean
Description: Use raw data instead of rate for cumulative metrics

Parameter: code
Type: string
Description: Lua code

5.2.255 MonitoringConsolidator: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: disabled
Type: boolean
Description: Disable, consolidator for all entities. Do not throw away existing data.

Parameter: consolidators
Type: list of Consolidator
Description: Consolidators

5.2.256 MonitoringDataCacheSubSystemInfo: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: size
Type: unsigned integer
Description: First plot request

Parameter: updates
Type: unsigned integer
Description: Last plot request

Parameter: requests
Type: unsigned integer
5.2 Entities

Description: Number of plot requests

5.2.257 MonitoringDataProducerAggregateNode: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal
Parameter: maxSampleAge
Type: float
Description: Maximal age of node sample to contribute

Parameter: excludeNodes
Type: list of references to Node
Description: List of nodes to exclude from the total

Parameter: excludeCategories
Type: list of references to Category
Description: List of node groups to exclude from the total

Parameter: excludeNodeGroups
Type: list of references to NodeGroup
Description: List of node groups to exclude from the total

5.2.258 MonitoringDataProducerAggregatePDU: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal
Parameter: maxSampleAge
Type: float
Description: Maximal age of node sample to contribute

Parameter: excludePDUs
Type: list of references to PowerDistributionUnit
Description: List of PDUs to exclude from the total

5.2.259 MonitoringDataProducerAlertLevel: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal

5.2.260 MonitoringDataProducerClusterTotal: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal

5.2.261 MonitoringDataProducerCMDaemonState: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal
Parameter: subsystems
Type: list of strings
Description: Subsystems

5.2.262 MonitoringDataProducerDeviceState: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal

5.2.263 MonitoringDataProducerEC2SpotPrices: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal

5.2.264 MonitoringDataProducerEthernetSwitch: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal

5.2.265 MonitoringDataProducerFuture: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal
Parameter: implements

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Type: enum
Description: Implements functionality

5.2.266 MonitoringDataProducerGalera: MonitoringDataProducer
parent: MonitoringDataProducer

5.2.267 MonitoringDataProducerGenerator: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal
Parameter: generators
Type: list of strings
Description: Generators to define

5.2.268 MonitoringDataProducerGPU: MonitoringDataProducer
parent: MonitoringDataProducer
Parameter: updateFreq
Type: float
Description: How often to update data

5.2.269 MonitoringDataProducerInternal: MonitoringDataProducer
parent: MonitoringDataProducer

5.2.270 MonitoringDataProducerJobMetadata: MonitoringDataProducer
parent: MonitoringDataProducer
Parameter: allowPreAllocate
Type: boolean
Description: Allow pre-allocate of monitoring structures, speeds up for large number of jobs. Disable if measurables per node differ a lot

Parameter: excludeMetrics
Type: list of strings
Description: Exclude metrics by name from collection

Parameter: includeMetrics
Type: list of strings
Description: Only these metrics will be samples if the set is not empty

Parameter: excludeUsers
Type: list of strings
Description: Exclude usage data for the specified users

Parameter: includeUsers
Type: list of strings
Description: Only include usage data for the specified users

Parameter: minimalUserId
Type: unsigned integer
Description: Minimal user ID

Parameter: userCode
Type: string
Description: Lua code for calculation of extra metric per user

### 5.2.271 MonitoringDataProducerJobQueue: MonitoringDataProducer

**parent**: MonitoringDataProducer  
**Parameter**: wlmClusters  
**Type**: list of references to WlmCluster  
**Description**: List of wlm clusters for which to sample, empty for all

### 5.2.272 MonitoringDataProducerJob: MonitoringDataProducer

**parent**: MonitoringDataProducer  
**Parameter**: allowPreAllocate  
**Type**: boolean  
**Description**: Allow pre-allocate of monitoring structures, speeds up for large number of jobs. Disable if measurables per node differ a lot

**Parameter**: metricSettings  
**Type**: MonitoringJobMetricSettings  
**Description**: Submode containing job metric settings

### 5.2.273 MonitoringDataProducerLua: MonitoringDataProducer

**parent**: MonitoringDataProducer  
**Parameter**: code  
**Type**: string  
**Description**: Lua code

**Parameter**: timeout  
**Type**: unsigned integer  
**Description**: Lua timeout

### 5.2.274 MonitoringDataProducerMonitoringSystem: MonitoringDataProducerInternal

**parent**: MonitoringDataProducerInternal

### 5.2.275 MonitoringDataProducerOpenStackHealth: MonitoringDataProducer

**parent**: MonitoringDataProducer

### 5.2.276 MonitoringDataProducerOpenStack: MonitoringDataProducer

**parent**: MonitoringDataProducer

### 5.2.277 MonitoringDataProducerPerpetual: MonitoringDataProducer

**parent**: MonitoringDataProducer  
**Parameter**: script  
**Type**: string  
**Description**: Script

**Parameter**: runInBash  
**Type**: boolean  
**Description**: Run the script in a bash session

**Parameter**: arguments  
**Type**: list of strings  
**Description**: Additional arguments to pass to the script

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Parameter:  format
Type:  enum
Description:  Expected output format

Parameter:  watch
Type:  boolean
Description:  Watch script for changes, and restart

5.2.278  MonitoringDataProducerPowerDistributionUnit : MonitoringDataProducerInternal
parent : MonitoringDataProducerInternal
5.2.279  MonitoringDataProducerProcMemInfo : MonitoringDataProducerInternal
parent : MonitoringDataProducerInternal
5.2.280  MonitoringDataProducerProcMount : MonitoringDataProducerInternal
parent : MonitoringDataProducerInternal
Parameter:  includeMedia
Type:  boolean
Description:  Include media mount points

Parameter:  includeRemote
Type:  boolean
Description:  Include remote mount points

Parameter:  includeDocker
Type:  boolean
Description:  Include docker mount points

Parameter:  excludeMountPoints
Type:  list of strings
Description:  Exclude mount points

5.2.281  MonitoringDataProducerProcNetDev : MonitoringDataProducerInternal
parent : MonitoringDataProducerInternal
Parameter:  excludeIf
Type:  list of strings
Description:  Exclude interfaces

5.2.282  MonitoringDataProducerProcNetSnmp : MonitoringDataProducerInternal
parent : MonitoringDataProducerInternal
5.2.283  MonitoringDataProducerProcPidStat : MonitoringDataProducerInternal
parent : MonitoringDataProducerInternal
Parameter:  pid
Type:  unsigned integer
Description:  PID to sample

Parameter:  process
Type:  string
Description:  Process
5.2 Entities

5.2.284 MonitoringDataProducerProcStat : MonitoringDataProducerInternal
parent : MonitoringDataProducerInternal
Parameter : individualCPU
Type : boolean
Description : Measure individual CPUs

5.2.285 MonitoringDataProducerProcVMStat : MonitoringDataProducerInternal
parent : MonitoringDataProducerInternal

5.2.286 MonitoringDataProducerPrometheus : MonitoringDataProducer
parent : MonitoringDataProducer
Parameter : urls
Type : list of strings
Description : One or more URLs to try connect to

Parameter : timeout
Type : unsigned integer
Description : Http get timeout

Parameter : passEnvironment
Type : boolean
Description : Pass the entity environment to the script

Parameter : username
Type : string
Description : Username used in http call

Parameter : password
Type : string
Description : Password used in http call

Parameter : https
Type : boolean
Description : https

Parameter : caPath
Type : string
Description : CA certificate path

Parameter : privateKeyPath
Type : string
Description : Certificate path

Parameter : certificatePath
Type : string
Description : Private key path

Parameter : staleTracking

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Type: boolean
Description: Enable automatic tracking of stale metrics

Parameter: includeProducerJobName
Type: boolean
Description: Automatically include producer job name in Prometheus label

Parameter: includeEntityName
Type: boolean
Description: Automatically include entity name in Prometheus label

Parameter: rules
Type: list of PrometheusRecordingRule
Description: Recording rules

5.2.287 MonitoringDataProducerRackSensor: MonitoringDataProducerInternal
   parent: MonitoringDataProducerInternal

5.2.288 MonitoringDataProducerRecorder: MonitoringDataProducer
   parent: MonitoringDataProducer

Parameter: query
Type: reference to PrometheusQuery or None
Description: Query to execute

Parameter: freeQuery
Type: string
Description: Free string query to execute

Parameter: evaluationTime
Type: string
Description: Evaluation time

Parameter: stalenessDelay
Type: float
Description: Staleness delay

Parameter: excludeBright
Type: boolean
Description: Exclude Bright data

Parameter: excludePrometheus
Type: boolean
Description: Exclude Prometheus data

Parameter: inputRules
Type: list of PrometheusRecordingRule
Description: Input recording rules
5.2 Entities

Parameter: rules
Type: list of PrometheusRecordingRule
Description: Recording rules

5.2.289 MonitoringDataProducerScript: MonitoringDataProducer
parent: MonitoringDataProducer
Parameter: script
Type: string
Description: Script

Parameter: timeout
Type: unsigned integer
Description: Script timeout

Parameter: arguments
Type: list of strings
Description: Additional arguments to pass to the script

Parameter: format
Type: enum
Description: Expected output format

5.2.290 MonitoringDataProducerSingleLineHealthCheckScript: MonitoringDataProducerSingleLineScript
parent: MonitoringDataProducerSingleLineScript
parent: MonitoringDataProducerSingleLineScript
Parameter: minimum
Type: float
Description: Minimum

Parameter: maximum
Type: float
Description: Maximum

Parameter: cumulative
Type: boolean
Description: Cumulative

Parameter: unit
Type: string
Description: Unit

5.2.292 MonitoringDataProducerSingleLineScript: MonitoringDataProducer
parent: MonitoringDataProducer
Parameter: script
Type: string

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Description: Script

Parameter: typeClass
Type: string
Description: Type class, slash(/) separated for levels

Parameter: timeout
Type: unsigned integer
Description: Script timeout

Parameter: arguments
Type: list of strings
Description: Additional arguments to pass to the script

Parameter: runInBash
Type: boolean
Description: Run the script in a bash session

5.2.293 MonitoringDataProducerSysBlockStat: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal
Parameter: excludeVirtualDisks
Type: boolean
Description: Exclude virtual disks

Parameter: excludeDisks
Type: list of strings
Description: Exclude disks

5.2.294 MonitoringDataProducerSysInfo: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal

5.2.295 MonitoringDataProducerTest: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal
Parameter: instances
Type: unsigned integer
Description: Number of instances per test

5.2.296 MonitoringDataProducer: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: description
Type: string
Description: Description

Parameter: notes
Type: string

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5.2 Entities

**Description:** Administrator notes

**Parameter:** when
Type: enum
Description: When the producer should run

**Parameter:** maxAge
Type: float
Description: Maximal age of historic data, 0 for infinite

**Parameter:** maxSamples
Type: unsigned integer
Description: Maximal samples of historic data, 0 for infinite

**Parameter:** interval
Type: float
Description: Sampling interval

**Parameter:** offset
Type: float
Description: Time offset for sampling interval

**Parameter:** startupDelay
Type: float
Description: Delay the first sampling the specified time after cmd starts

**Parameter:** intervals
Type: list of floating point numbers
Description: Out of band sampling interval

**Parameter:** gap
Type: unsigned integer
Description: Number of missed samples before we add a NaN

**Parameter:** fuzzyOffset
Type: float
Description: Automatic fuzzy offset factor [0-1]. Multiplied by interval

**Parameter:** introduceNaN
Type: boolean
Description: Introduce NaN if device goes up/down/up

**Parameter:** automaticReinitialize
Type: boolean
Description: Automatic run –initialize when a new metric has been detected

**Parameter:** disabled

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Type: boolean
Description: Disabled

Parameter: disableOnHighLoad
Type: boolean
Description: Disable when nodes are very busy

Parameter: nodeExecutionFilters
Type: list of MonitoringExecutionFilter
Description: Filter nodes which should run this data producer. If none are specified: execute on each node.

Parameter: executionMultiplexers
Type: list of MonitoringExecutionMultiplexer
Description: Execute the producer once for each entity which matches one of the criteria. If none are specified: only execute it for the node itself.

Parameter: consolidator
Type: reference to MonitoringConsolidator or None
Description: Consolidator configuration

Parameter: suppressedByGoingDown
Type: boolean
Description: Suppress running action if device is going down

Parameter: associatedUser
Type: string
Description: User associated with this measurable

5.2.297 MonitoringDataProducerTrustedTool: MonitoringDataProducer
parent: MonitoringDataProducer
Parameter: port
Type: unsigned integer
Description: Port

Parameter: localhost
Type: boolean
Description: Only listen on localhost

Parameter: secret
Type: string
Description: Secret

5.2.298 MonitoringDataProducerUserCount: MonitoringDataProducerInternal
parent: MonitoringDataProducerInternal
Parameter: customScript
Type: string
5.2 Entities

Description: Custom script

Parameter: customScriptTimeout
Type: unsigned integer
Description: Custom script timeout

Parameter: minimalUserId
Type: unsigned integer
Description: Minumal user ID

Parameter: namesInInfoMessage
Type: boolean
Description: Names in info message, could lead to lots of data

5.2.299 MonitoringDeviceStateSubSystemInfo: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: up
Type: unsigned integer
Description: Number of up devices

Parameter: down
Type: unsigned integer
Description: Number of down devices

Parameter: closed
Type: unsigned integer
Description: Number of closed devices

Parameter: muted
Type: unsigned integer
Description: Number of muted devices

5.2.300 MonitoringDrainAction: MonitoringAction
parent: MonitoringAction

5.2.301 MonitoringEmailAction: MonitoringAction
parent: MonitoringAction
Parameter: recipients
Type: list of strings
Description: Recipients

Parameter: allAdministrators
Type: boolean
Description: Also send e-mail to all administrator

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Parameter: server
Type: string
Description: The SNMP server

Parameter: sender
Type: string
Description: The sender of the e-mail

Parameter: info
Type: string
Description: Extra information passed in the e-mail

Parameter: timeout
Type: unsigned integer
Description: Timeout

Parameter: mergeDelay
Type: float
Description: Maximal action delay in order to merge with others

Parameter: mergeTrigger
Type: boolean
Description: Merge action from multiple triggers into one

Parameter: mergeMeasurable
Type: boolean
Description: Merge action from multiple measurables into one

5.2.302 MonitoringEventAction: MonitoringAction
parent: MonitoringAction
Parameter: profiles
Type: list of strings
Description: Inform all sessions with the specified profile, none is all

Parameter: userNames
Type: list of strings
Description: Inform all sessions with the specified user names, none is all

Parameter: mergeDelay
Type: float
Description: Maximal action delay in order to merge with others

5.2.303 MonitoringExecutionFilter: Entity
parent: Entity
Parameter: name
Type: string
Description: Name
Parameter:  filterOperation
Type:  enum
Description:  The filter operation to be performed

5.2.304  MonitoringExecutionMultiplexer: Entity
parent:  Entity
Parameter:  name
Type:  string
Description:  Name

Parameter:  filterOperation
Type:  enum
Description:  The filter operation to be performed

5.2.305  MonitoringExpression: Entity
parent:  Entity
Parameter:  name
Type:  string
Description:  Name

5.2.306  MonitoringGroupedExpression: MonitoringExpression
parent:  MonitoringExpression
Parameter:  op
Type:  enum
Description:  Operator

Parameter:  allowMissing
Type:  boolean
Description:  Allow missing sub expressions

Parameter:  expressions
Type:  list of MonitoringCompareExpression
Description:  Expressions

5.2.307  MonitoringHealthOverview: Entity
parent:  Entity
Parameter:  refEntityUniqueKey
Type:  unsigned integer
Description:  Entity

Parameter:  alertLevelMaximum
Type:  unsigned integer
Description:  Maximal severity of all failed triggers

Parameter:  alertLevelSum
Type:  unsigned integer
Description:  Total severity of all failed triggers
Parameter: alertLevelCount
Type: unsigned integer
Description: Total count of all failed triggers

Parameter: timestamp
Type: unsigned integer
Description: Timestamp of data

Parameter: info
Type: string
Description: Info

5.2.308 MonitoringImageUpdateAction: MonitoringAction
parent: MonitoringAction

5.2.309 MonitoringJobMetricSettings: Entity
parent: Entity
Parameter: excludeDevices
Type: list of strings
Description: Exclude block devices from metric collection (by default all the devices are sampled)

Parameter: includeDevices
Type: list of strings
Description: Only these devices will be sampled if the set is not empty

Parameter: enableAdvancedMetrics
Type: boolean
Description: Sample advanced metrics as well as basic metrics

Parameter: noGpusIsAllGpus
Type: boolean
Description: Include data from all GPUs even if the job has no GPUs defined

Parameter: excludeMetrics
Type: list of strings
Description: Exclude metrics by name from collection

Parameter: includeMetrics
Type: list of strings
Description: Only these metrics will be samples if the set is not empty

Parameter: cgroupBaseDirectory
Type: string
Description: CGroup base directory

Parameter: cgroupSearch
Type: string
5.2 Entities

Description:  Search field for finding the WLM CGroup

Parameter:  keepAliveSleep
Type:  float
Description:  Time the cgroup keepalive process sleeps

Parameter:  samplingType
Type:  enum
Description:  Type of metrics sampling

Parameter:  pickupInterval
Type:  float
Description:  High initial pickup interval

Parameter:  pickupTimes
Type:  unsigned integer
Description:  Number of times to apply the high initial pickup interval

Parameter:  pickupPriority
Type:  unsigned integer
Description:  Priority of the pickup interval change

5.2.310  MonitoringLuaExecutionFilter: MonitoringExecutionFilter
parent: MonitoringExecutionFilter
Parameter:  code
Type:  string
Description:  Lua code

Parameter:  notes
Type:  string
Description:  Notes

5.2.311  MonitoringLuaExecutionMultiplexer: MonitoringExecutionMultiplexer
parent: MonitoringExecutionMultiplexer
Parameter:  code
Type:  string
Description:  Lua code

Parameter:  notes
Type:  string
Description:  Notes

5.2.312  MonitoringMeasurableEnum: MonitoringMeasurable
parent: MonitoringMeasurable
5.2.313  MonitoringMeasurableHealthCheck: MonitoringMeasurable
parent: MonitoringMeasurable
5.2.314  MonitoringMeasurableMetric: MonitoringMeasurable
parent: MonitoringMeasurable
Parameter:  minimum

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Type: float
Description: Minimum

Parameter: maximum
Type: float
Description: Maximum

Parameter: cumulative
Type: boolean
Description: Cumulative

Parameter: unit
Type: string
Description: Unit

5.2.315 MonitoringMeasurable: Entity
parent: Entity
Parameter: producer
Type: reference to MonitoringDataProducer
Description: Monitoring data producer

Parameter: name
Type: string
Description: Name

Parameter: parameter
Type: string
Description: Parameter

Parameter: maxAge
Type: float
Description: Maximal age of historic data, 0 for infinite

Parameter: maxSamples
Type: unsigned integer
Description: Maximal samples of historic data, 0 for infinite

Parameter: disabled
Type: boolean
Description: Disable: do not process or save to disk

Parameter: gap
Type: unsigned integer
Description: Number of missed samples before we add a NaN

Parameter: introduceNaN
Type: boolean
5.2 Entities

Description: Introduce NaN if device goes up/down/up

Parameter: description
Type: string
Description: Description

Parameter: typeClass
Type: string
Description: Type class, slash(/) separated for levels

Parameter: sourceType
Type: enum
Description: Source of the measurable

Parameter: consolidator
Type: reference to MonitoringConsolidator or None
Description: Consolidator configuration

Parameter: suppressedByGoingDown
Type: boolean
Description: Suppress running action if device is going down

Parameter: access
Type: enum
Description: User access control

Parameter: associatedUser
Type: string
Description: User associated with this measurable

5.2.316 MonitoringNodeListExecutionFilter: MonitoringExecutionFilter
parent: MonitoringExecutionFilter
Parameter: nodes
Type: list of references to Node
Description: List of nodes belonging to this group

5.2.317 MonitoringNodeListExecutionMultiplexer: MonitoringExecutionMultiplexer
parent: MonitoringExecutionMultiplexer
Parameter: nodes
Type: list of references to Node
Description: List of nodes belonging to this group

5.2.318 MonitoringOverlayListExecutionFilter: MonitoringExecutionFilter
parent: MonitoringExecutionFilter
Parameter: overlays
Type: list of references to ConfigurationOverlay
Description: List of overlays belonging to this group

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5.2.319  MonitoringOverlayListExecutionMultiplexer:
MonitoringExecutionMultiplexer

parent: MonitoringExecutionMultiplexer
Parameter: overlays
Type: list of references to ConfigurationOverlay
Description: List of overlays belonging to this group

5.2.320  MonitoringPickupInterval: Entity

parent: Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: interval
Type: float
Description: Interval on which the RPC will be done

Parameter: times
Type: unsigned integer
Description: Number of times the RPC will be done with the interval

Parameter: priority
Type: unsigned integer
Description: Priority of the current pickup interval

5.2.321  MonitoringPlotterSubSystemInfo: Entity

parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: first
Type: unsigned integer
Description: First plot request

Parameter: last
Type: unsigned integer
Description: Last plot request

Parameter: count
Type: unsigned integer
Description: Number of plot requests

Parameter: samples
Type: unsigned integer
Description: Number of data samples

Parameter: sources
5.2 Entities

Type:  unsigned integer
Description:  Number of sources

5.2.322 MonitoringPowerAction:
parent:

5.2.323 MonitoringPowerOffAction:
parent:

5.2.324 MonitoringPowerOnAction:
parent:

5.2.325 MonitoringPowerResetAction:
parent:

5.2.326 MonitoringRebootAction:
parent:

5.2.327 MonitoringReplicateConfiguration:
parent:

Parameter:  node
Type:  unsigned integer
Description:  Node

Parameter:  sources
Type:  list of MonitoringReplicateSource
Description:  Sources

5.2.328 MonitoringReplicateSource:
parent:

Parameter:  source
Type:  unsigned integer
Description:  Source

Parameter:  target
Type:  unsigned integer
Description:  Target

Parameter:  last
Type:  unsigned integer
Description:  Last

Parameter:  lastSummary
Type:  unsigned integer
Description:  Last summary

Parameter:  active
Type:  boolean
Description:  Active

Parameter:  queue
Type:  unsigned integer
Description: Queue

Parameter: entities
Type: list of unsigned numbers
Description: Entities

Parameter: measurables
Type: list of unsigned numbers
Description: Measurables

5.2.329 MonitoringReplicateSubSystemInfo: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: first
Type: unsigned integer
Description: First request time

Parameter: last
Type: unsigned integer
Description: Last request time

Parameter: count
Type: unsigned integer
Description: Request count

Parameter: samples
Type: unsigned integer
Description: Total number of samples send

Parameter: sources
Type: list of unsigned numbers
Description: Data request sources

5.2.330 MonitoringResourceExecutionFilter: MonitoringExecutionFilter
parent: MonitoringExecutionFilter
Parameter: resources
Type: list of strings
Description: Resources

Parameter: op
Type: enum
Description: Operator
5.2.331  MonitoringResourceExecutionMultiplexer: MonitoringExecutionMultiplexer

**parent**: MonitoringExecutionMultiplexer

**Parameter**: resources
- **Type**: list of strings
- **Description**: Resources

**Parameter**: op
- **Type**: enum
- **Description**: Operator

5.2.332  MonitoringRole: Role

**parent**: Role

5.2.333  MonitoringScriptAction: MonitoringAction

**parent**: MonitoringAction

**Parameter**: script
- **Type**: string
- **Description**: Script

**Parameter**: arguments
- **Type**: list of strings
- **Description**: Arguments

**Parameter**: timeout
- **Type**: unsigned integer
- **Description**: Timeout

**Parameter**: nodeEnvironment
- **Type**: boolean
- **Description**: Pass the node environment to the script

**Parameter**: runInShell
- **Type**: boolean
- **Description**: Run in shell

**Parameter**: mergeDelay
- **Type**: float
- **Description**: Maximal action delay in order to merge with others

**Parameter**: mergeTrigger
- **Type**: boolean
- **Description**: Merge action from multiple triggers into one

**Parameter**: mergeMeasurable
- **Type**: boolean
- **Description**: Merge action from multiple measurables into one
5.2.334 MonitoringServiceAction: MonitoringAction
  parent: MonitoringAction
  Parameter: service
    Type: string
    Description: Service

  Parameter: arguments
    Type: list of strings
    Description: Arguments

5.2.335 MonitoringServiceRestartAction: MonitoringServiceAction
  parent: MonitoringServiceAction

5.2.336 MonitoringServiceStartAction: MonitoringServiceAction
  parent: MonitoringServiceAction

5.2.337 MonitoringServiceStopAction: MonitoringServiceAction
  parent: MonitoringServiceAction

5.2.338 MonitoringServiceSubSystemInfo: Entity
  parent: Entity
  Parameter: name
    Type: string
    Description: Name

  Parameter: stopped
    Type: boolean
    Description: Stopped

  Parameter: suspended
    Type: boolean
    Description: Suspended

  Parameter: last
    Type: unsigned integer
    Description: Last sample time

  Parameter: queued
    Type: unsigned integer
    Description: Queued items

  Parameter: handled
    Type: unsigned integer
    Description: Handled items

  Parameter: cacheMiss
    Type: unsigned integer
    Description: Miss cached count
5.2.339 MonitoringShutdownAction : MonitoringAction
parent : MonitoringAction

5.2.340 MonitoringStorageSubSystemInfo : Entity
parent : Entity
Parameter: name
  Type: string
  Description: Name

Parameter: elements
  Type: unsigned integer
  Description: Elements

Parameter: disksize
  Type: unsigned integer
  Description: Disk size

Parameter: freespace
  Type: unsigned integer
  Description: Free disk space

Parameter: usage
  Type: float
  Description: Usage

5.2.341 MonitoringSubSystemInfo : SubSystemInfo
parent : SubSystemInfo
Parameter: storage
  Type: list of MonitoringStorageSubSystemInfo
  Description: Storage

Parameter: service
  Type: list of MonitoringServiceSubSystemInfo
  Description: Service

Parameter: plotter
  Type: list of MonitoringPlotterSubSystemInfo
  Description: Plotter

Parameter: dataCache
  Type: list of MonitoringDataCacheSubSystemInfo
  Description: DataCache

Parameter: cache
  Type: list of MonitoringCacheSubSystemInfo
  Description: Cache

Parameter: replicate
Type: list of MonitoringReplicateSubSystemInfo
Description: Replicate

Parameter: deviceState
Type: list of MonitoringDeviceStateSubSystemInfo
Description: DeviceState

5.2.342 MonitoringTrigger: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: disabled
Type: boolean
Description: Disable

Parameter: severity
Type: unsigned integer
Description: Severity

Parameter: markEntityAsFailed
Type: boolean
Description: Mark entity as failed

Parameter: markEntityAsUnknown
Type: boolean
Description: Mark entity as unknown

Parameter: stateFlappingPeriod
Type: float
Description: Time period to check for state flapping

Parameter: stateFlappingCount
Type: unsigned integer
Description: Number of times states need to change in the specified period before it is considered stateflapping

Parameter: expression
Type: MonitoringExpression
Description: Expression

Parameter: enterActions
Type: list of references to MonitoringAction
Description: Actions to execute when the expression enters ‘true’ state

Parameter: duringActions

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Type: list of references to MonitoringAction
Description: Actions to execute when the expression is and has been ‘true’

Parameter: leaveActions
Type: list of references to MonitoringAction
Description: Actions to execute when the expression is was ‘true’ and no longer is

Parameter: stateFlappingActions
Type: list of references to MonitoringAction
Description: Actions to execute when the expression is state flapping

5.2.343 MonitoringTypeExecutionFilter: MonitoringExecutionFilter
parent: MonitoringExecutionFilter
Parameter: headNode
Type: boolean
Description: Head node

Parameter: physicalNode
Type: boolean
Description: Physical node

Parameter: cloudNode
Type: boolean
Description: Cloud node

Parameter: virtualNode
Type: boolean
Description: Virtual node

Parameter: virtualSMPNode
Type: boolean
Description: Virtual SMP node

Parameter: liteNode
Type: boolean
Description: Lite node

5.2.344 MonitoringTypeExecutionMultiplexer: MonitoringExecutionMultiplexer
parent: MonitoringExecutionMultiplexer
Parameter: types
Type: list of strings
Description: Types

5.2.345 MonitoringUndrainAction: MonitoringAction
parent: MonitoringAction

5.2.346 MsgQueue: Entity
parent: Entity
Parameter: refNodeUniqueKey

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Type: unsigned integer
Description: Node

Parameter: msqid
Type: integer
Description: Message queue ID

Parameter: ipcpersm
Type: IPCPerm
Description: IPC permissions

Parameter: size
Type: unsigned integer
Description: Size in bytes

Parameter: qnum
Type: unsigned integer
Description: Number of messages in the queue

5.2.347 MyrinetSwitch : Switch
parent : Switch
5.2.348 NetworkAliasInterface : NetworkInterface
parent : NetworkInterface
5.2.349 NetworkBmcInterface : NetworkInterface
parent : NetworkInterface
Parameter: gateway
Type: IP
Description: Gateway IP address, usually the head node’s IP on the BMC network.

Parameter: vlanid
Type: unsigned integer
Description: VLAN ID setting for the BMC card. When set to 0, VLAN capabilities are disabled.

Parameter: lanchannel
Type: unsigned integer
Description: LAN channel for BMC interface

5.2.350 NetworkBondInterface : NetworkInterface
parent : NetworkInterface
Parameter: mode
Type: integer
Description: Bonding mode, see bonding.txt in the kernel documentation.

Parameter: options
Type: string
Description: Options to pass to the bonding driver, see kernel documentation.

Parameter: interfaces
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Type: list of strings
Description: List of interfaces which should be channel-bonded.

5.2.351 NetworkBridgeInterface: NetworkInterface
parent: NetworkInterface
Parameter:stp
Type: boolean
Description: Spanning Tree Protocol enabled.

Parameter: forward_delay
Type: unsigned integer
Description: Frame forward delay (in seconds)

Parameter: interfaces
Type: list of strings
Description: List of interfaces which should be bridged.

5.2.352 NetworkConnection: Entity
parent: Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: source
Type: IP
Description: The source IP address

Parameter: sourcePort
Type: unsigned integer
Description: The source port

Parameter: destination
Type: IP
Description: The destination IP address

Parameter: destinationPort
Type: unsigned integer
Description: The destination port

Parameter: type
Type: enum
Description: The connection type

Parameter: state
Type: enum
Description: The connection state

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5.2.353  NetworkInterface : Entity

parent: Entity

Parameter: name
Type: string
Description: The network interface device name

Parameter: ip
Type: IP
Description: The interfaces IP address

Parameter: ipv6Ip
Type: IP
Description: The interfaces IPv6 IP address

Parameter: dhcp
Type: boolean
Description: Get the ip via DHCP, leave ip blank

Parameter: ipv6Dhcp
Type: boolean
Description: Get the IPv6IP via DHCP, leave IPv6IP blank

Parameter: bringupduringinstall
Type: enum
Description: Brings up interface during install if on

Parameter: network
Type: reference to Network or None
Description: Network the interface is connected to

Parameter: additionalHostnames
Type: list of strings
Description: List of additional hostnames that should resolve to the interfaces IP address

Parameter: startIf
Type: enum
Description: Only run this service in the specified state

Parameter: onNetworkPriority
Type: unsigned integer
Description: Priority of DNS resolution queries for the interface on its network

Parameter: connectedMode
Type: boolean
Description: IB connected mode
5.2 Entities

5.2.354  NetworkNetMapInterface : NetworkInterface
    parent : NetworkInterface
5.2.355  NetworkPhysicalInterface : NetworkInterface
    parent : NetworkInterface

Parameter:  mac
    Type:  MAC
    Description:  The interfaces MAC address

Parameter:  speed
    Type:  string
    Description:  The interfaces network speed.

Parameter:  cardtype
    Type:  string
    Description:  The type of network interface.

5.2.356  Network : Entity
    parent : Entity

Parameter:  name
    Type:  string
    Description:  Name

Parameter:  IPv6
    Type:  boolean
    Description:  IPv6 enabled

Parameter:  ipv6NetmaskBits
    Type:  unsigned integer
    Description:  Netmask or Classless Inter-Domain Routing for IPv6

Parameter:  netmaskBits
    Type:  unsigned integer
    Description:  Netmask or Classless Inter-Domain Routing

Parameter:  ipv6BaseAddress
    Type:  IP
    Description:  Base IP address for Ipv6

Parameter:  baseAddress
    Type:  IP
    Description:  Base IP address

Parameter:  broadcastAddress
    Type:  IP
    Description:  Broadcast IP address

Parameter:  domainName
Type: string
Description: Domain name

Parameter: type
Type: enum
Description: Type of network, internal: local cluster network, external: connection to outside world, global: unique network across the cloud, tunnel: cloud network, netmap: virtual network used by cloud nodes to connect to nodes inside the cluster

Parameter: mtu
Type: unsigned integer
Description: The maximum transmission unit.

Parameter: bootable
Type: boolean
Description: If set, compute nodes can boot using this network

Parameter: dynamicRangeStart
Type: IP
Description: First IP address in the network's dynamic range

Parameter: dynamicRangeEnd
Type: IP
Description: Last IP address in the network's dynamic range

Parameter: lockDownDhcpd
Type: boolean
Description: Don't respond to DHCP request of new nodes via this network

Parameter: management
Type: boolean
Description: If set, the network can be used as a management network

Parameter: gateway
Type: IP
Description: Gateway

Parameter: ipv6Gateway
Type: IP
Description: IPv6 Gateway

Parameter: notes
Type: string
Description: Administrator notes

Parameter: openStackType
Type: enum
5.2 Entities

Description: none

Parameter: openStackDNSFormat
Type: string
Description: DNS entry format for instances with floating ip assigned

Parameter: openStackIsShared
Type: boolean
Description: none

Parameter: openStackAllocationPoolStart
Type: IP
Description: none

Parameter: openStackAllocationPoolEnd
Type: IP
Description: none

Parameter: openStackVlanRange
Type: string
Description: none

Parameter: openStackVlanID
Type: integer
Description: none

Parameter: openStackHostNetwork
Type: reference to Network or None
Description: none

Parameter: openStackPhysicalNetwork
Type: string
Description: none

Parameter: openStackExtraField
Type: list of strings
Description: extra field2

Parameter: cloudSubnetID
Type: string
Description: The Cloud ID of the subnet

Parameter: EC2AvailabilityZone
Type: string
Description: The AWS availability zone inside which the subnet exists

Parameter: EC2String

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Type: string
Description: none

Parameter: allowAutosign
Type: enum
Description: Specify if certificate request from node installers can be signed automatically

Parameter: generateDNSZone
Type: enum
Description: Specify which DNS zones should be written

Parameter: excludeFromSearchDomain
Type: boolean
Description: Exclude from search domain in /etc/resolv.conf file

Parameter: searchDomainIndex
Type: unsigned integer
Description: Search domain index in /etc/resolv.conf file, set to 0 for automatic

Parameter: disableAutomaticExports
Type: boolean
Description: Disable creation of automatic filesystem exports

5.2.357 NetworkTunnelInterface: NetworkInterface
parent: NetworkInterface

5.2.358 NetworkVLANInterface: NetworkInterface
parent: NetworkInterface

Parameter: reorder_hdr
Type: boolean
Description: When set to true the VLAN device will move the ethernet header around to make it look exactly like a real ethernet device.

5.2.359 NewNode: Entity
parent: Entity

Parameter: switchPort
Type: SwitchPort or None
Description: Switch port the new node is connected to.

Parameter: mac
Type: MAC
Description: MAC address of the new node.

Parameter: firstSeen
Type: integer
Description: Uptime when the new node was first seen.

Parameter: lastSeen
Type: integer

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Description: Uptime when the new node was last seen.

Parameter: appeared
Type: string
Description: Timestamp when the new node first appeared.

5.2.360 NginxRole: Role
parent: Role

5.2.361 NodeGroup: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: nodes
Type: list of references to Node
Description: List of nodes belonging to this group

Parameter: type
Type: enum
Description: Node group type

5.2.362 NodeHierarchyResult: Entity
parent: Entity
Parameter: responsibility
Type: enum
Description: Responsibility

Parameter: nodes
Type: list of unsigned numbers
Description: Node

Parameter: rules
Type: list of unsigned numbers
Description: Rules from which nodes were derived

Parameter: responsible
Type: list of unsigned numbers
Description: List of nodes that are responsible for the node

5.2.363 NodeHierarchyRuleCategorySelection: NodeHierarchyRuleSelection
parent: NodeHierarchyRuleSelection
Parameter: categories
Type: list of references to Category
Description: List of categories

5.2.364 NodeHierarchyRuleCloudRegionSelection: NodeHierarchyRuleSelection
parent: NodeHierarchyRuleSelection
Parameter: regions

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Type: list of references to CloudRegion
Description: List of regions

5.2.365 NodeHierarchyRuleDeviceSelection: NodeHierarchyRuleSelection
parent: NodeHierarchyRuleSelection
Parameter: devices
Type: list of references to Device
Description: List of devices

5.2.366 NodeHierarchyRuleEdgeSiteSelection: NodeHierarchyRuleSelection
parent: NodeHierarchyRuleSelection
Parameter: edgesites
Type: list of references to EdgeSite
Description: List of edgesites

5.2.367 NodeHierarchyRuleNodeGroupSelection: NodeHierarchyRuleSelection
parent: NodeHierarchyRuleSelection
Parameter: nodegroups
Type: list of references to NodeGroup
Description: List of nodegroups

5.2.368 NodeHierarchyRuleNodeSelection: NodeHierarchyRuleSelection
parent: NodeHierarchyRuleSelection
Parameter: nodes
Type: list of references to Node
Description: List of nodes

5.2.369 NodeHierarchyRuleRackSelection: NodeHierarchyRuleSelection
parent: NodeHierarchyRuleSelection
Parameter: racks
Type: list of references to Rack
Description: List of racks

5.2.370 NodeHierarchyRuleRoleSelection: NodeHierarchyRuleSelection
parent: NodeHierarchyRuleSelection
Parameter: director
Type: boolean
Description: Director

Parameter: boot
Type: boolean
Description: Boot

Parameter: provisioning
Type: boolean
Description: Provisioning

Parameter: dns
Type: boolean
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Description: DNS

Parameter: ldap
Type: boolean
Description: LDAP

5.2.371 NodeHierarchyRuleSelection : Entity
parent : Entity
Parameter: name
Type: string
Description: Name

Parameter: operation
Type: enum
Description: Operation

5.2.372 NodeHierarchyRule : Entity
parent : Entity
Parameter: name
Type: string
Description: Name

Parameter: description
Type: string
Description: description

Parameter: disabled
Type: boolean
Description: Disabled

Parameter: priority
Type: unsigned integer
Description: Priority

Parameter: allowSelf
Type: boolean
Description: Allow node to serve itself

Parameter: locationMatch
Type: boolean
Description: Source and target node locations need to match

Parameter: sources
Type: list of NodeHierarchyRuleSelection
Description: Source selection

Parameter: targets
Type: list of NodeHierarchyRuleSelection

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Description: Target selection

Parameter: director
Type: boolean
Description: Director

Parameter: dhcp
Type: boolean
Description: DHCP

Parameter: dns
Type: boolean
Description: DNS

Parameter: ntp
Type: boolean
Description: NTP

Parameter: vpn
Type: boolean
Description: VPN

Parameter: ldap
Type: boolean
Description: LDAP

Parameter: provisioning
Type: boolean
Description: Provisioning

Parameter: mount
Type: boolean
Description: Mount

Parameter: sshProxy
Type: boolean
Description: SSH proxy

Parameter: cmdaemonConfiguration
Type: boolean
Description: Configuration

Parameter: cmdaemonRpcForward
Type: boolean
Description: RPC forward

Parameter: cmdaemonEvents
5.2 Entities

Parameter: cmdaemonStatus
Type: boolean
Description: Status

Parameter: cmdaemonWebSocket
Type: boolean
Description: Web socket for lite nodes

Parameter: monitoringCollectCache
Type: boolean
Description: Monitoring collect

Parameter: monitoringRemoteSample
Type: boolean
Description: Monitoring sample

Parameter: distribution
Type: enum
Description: Distribution

5.2.373 NodeHierarchyRuleTypeSelection: NodeHierarchyRuleSelection
parent: NodeHierarchyRuleSelection
Parameter: headNode
Type: boolean
Description: Head node

Parameter: physicalNode
Type: boolean
Description: Physical node

Parameter: cloudNode
Type: boolean
Description: Cloud node

Parameter: virtualNode
Type: boolean
Description: Virtual node

Parameter: liteNode
Type: boolean
Description: Lite node

Parameter: ethernetSwitch
Type: boolean

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Description: Ethernet switch

Parameter: ibSwitch
Type: boolean
Description: IB switch

Parameter: rackSensor
Type: boolean
Description: Rack sensor

Parameter: powerDistributionUnit
Type: boolean
Description: Power distribution unit

Parameter: genericDevice
Type: boolean
Description: Power distribution unit

Parameter: chassis
Type: boolean
Description: Chassis

5.2.374 Node : Device
parent : Device
Parameter: cmdaemonUrl
Type: string
Description: none

Parameter: interfaces
Type: list of NetworkInterface
Description: Ip on the management network

Parameter: provisioningInterface
Type: element of interfaces
Description: Network interface on which the node will receive software image updates

Parameter: fsmounts
Type: list of FSMount
Description: Configure the entries placed in /etc/fstab

Parameter: fsexports
Type: list of FSExport
Description: Configure the entries placed in /etc/exports

Parameter: staticRoutes
Type: list of StaticRoute
Description: Configure static routes for the interfaces
5.2 Entities

Parameter: roles
Type: list of Role
Description: Assign the roles the node should play

Parameter: services
Type: list of OSServiceConfig
Description: Manage operating system services

Parameter: pxelabel
Type: string
Description: PXE Label to be displayed when this node boots

Parameter: customRemoteConsoleScript
Type: string
Description: Script that will be used to remote console a device

Parameter: customRemoteConsoleScriptArgument
Type: string
Description: Argument for the custom remote console script

Parameter: provisioningTransport
Type: enum
Description: Defines what transport protocol should be used for provisioning. Options are RSYNC-SSH or RSYNCDAEMON. The latter is the default, is a bit less secure but faster.

Parameter: gpuSettings
Type: list of GPUSettings
Description: Configure the GPUs

Parameter: ucsInfoConfigured
Type: UCSInfo or None
Description: Configure UCS Settings

Parameter: dellSettings
Type: DellSettings or None
Description: Dell Settings

Parameter: excludeListManipulateScript
Type: string
Description: A user defined script that can be used to do custom last minute changes to the exclude lists used by cmdaemon to rsync

Parameter: ioScheduler
Type: string
Description: The I/O scheduler for the disks

Parameter: useExclusivelyFor
Type: string
Description: Use node exclusively for desired function: stop all other services

Parameter: bmcSettings
Type: BMCSettings or None
Description: Configure the baseboard management controller settings

Parameter: proxySettings
Type: ProxySettings or None
Description: Configure the proxy server settings

Parameter: versionConfigFiles
Type: boolean
Description: Keep old versions of all config files for this node

5.2.375 NvidiaGPUSettings : GPUSettings
parent : GPUSettings
Parameter: powerLimit
Type: string
Description: An upper limit on how much power a GPU can use

Parameter: eccMode
Type: string
Description: Set the ECC mode in which the GPU runs

Parameter: computeMode
Type: string
Description: Set the compute mode in which the GPU runs

Parameter: clockSyncBoostMode
Type: string
Description: Set the clock sync boost among the GPUs in group

Parameter: clockSpeeds
Type: string
Description: Set the streaming multiprocessor/memory clock speed of the GPU

5.2.376 OpenPort : Entity
parent : Entity
Parameter: port
Type: unsigned integer
Description: Port

Parameter: protocol
Type: enum
Description: Protocol

Parameter: address
5.2.377  OpenStackApiAgent : OpenStackApiEntity
parent : OpenStackApiEntity
Parameter: serviceType
Type: string
Description: The type of the service, e.g. compute, networking.

Parameter: binary
Type: string
Description: The name of the binary/process representing the agent.

Parameter: host
Type: string
Description: The host running the service.

Parameter: currentState
Type: string
Description: The current state of the agent.

Parameter: lastSeen
Type: string
Description: The last time this agent reported itself to be alive.

Parameter: availabilityZone
Type: string
Description: In which AZ this agent is located (not applicable to all agents).

Parameter: status
Type: string
Description: The status of the service.

Parameter: extra
Type: string
Description: Additional information about the service.

5.2.378  OpenStackApiDomain : OpenStackApiEntity
parent : OpenStackApiEntity
Parameter: enabled
Type: boolean
Description: Whether the domain is enabled in OpenStack.

Parameter: description
Type: string
Description: Human-readable description of the domain.
5.2.379  OpenStackApiEndpoint : OpenStackApiEntity

parent : OpenStackApiEntity
Parameter: serviceUUID
Type: string
Description: Service

Parameter: interface
Type: enum
Description: Type of endpoint

Parameter: url
Type: string
Description: URL of the endpoint

Parameter: region
Type: string
Description: Region of the endpoint

Parameter: enabled
Type: boolean
Description: Can be used by the user to disable endpoint

Parameter: brightManaged
Type: boolean
Description: none

Parameter: brightManagedInfo
Type: string
Description: none

5.2.380  OpenStackApiEntity : Entity

parent : Entity
Parameter: name
Type: string
Description: The name of this OpenStack object.

Parameter: UUID
Type: string
Description: The unique identifier of the object.

Parameter: ownerUniqueKey
Type: unsigned integer
Description: none

Parameter: addedFromBright
Type: boolean
Description: Whether or not the object was created via Bright APIs (e.g. with CMSH), as opposed to being created directly in OpenStack (e.g. with OpenStack dashboard).

Parameter: addedTimestamp
Type: timestamp
Description: The time when the object was first created within CMDaemon. The creation might have happened either directly via Bright’s API (e.g. via cmsh), or by the object being discovered by CMDaemon in OpenStack).

Parameter: lastUpdateFromOpenStackTimestamp
Type: timestamp
Description: The last time some changes in the object were pulled from OpenStack to be stored in CMDaemon.

Parameter: lastUpdateFromBrightTimestamp
Type: timestamp
Description: The last time this object was modified via Bright APIs (as opposed to being modified directly in OpenStack).

5.2.381 OpenStackApiFlavor: OpenStackApiEntity

Parameter: disk
Type: unsigned integer
Description: Size of the root disk of a VM. This is the disk which will contain the image/volumes used as the source. This block device is managed by Nova.

Parameter: ephemeral
Type: unsigned integer
Description: Size of the ephemeral disk of a VM. Optional. This block device is managed by Nova.

Parameter: swap
Type: unsigned integer
Description: Size of the swap disk of a VM. This block device is managed by Nova.

Parameter: vcpus
Type: unsigned integer
Description: Number of virtual CPUs a VM will have.

Parameter: ram
Type: unsigned integer
Description: The amount of system memory (RAM) the VM will have.

Parameter: rxTxFactor
Type: float
Description: Receive/transmit factor

Parameter: isPublic
Type: boolean

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Description: Whether the flavor will be visible to everyone

Parameter: enabled
Type: boolean
Description: Whether the flavor is enabled

Parameter: extraspecs
Type: string
Description: A dictionary containing custom extra specifications for the flavor

Parameter: deleted
Type: boolean
Description: Whether this flavor has been marked as deleted in Nova

Parameter: projectUUIDs
Type: list of strings
Description: The list of projects which have access to this Flavor

5.2.382 OpenStackApiFloatingIP:OpenStackApiEntity
parent: OpenStackApiEntity
Parameter: portUUID
Type: string
Description: The OpenStack port associated with this floating IP.

Parameter: routerUUID
Type: string
Description: The OpenStack router associated with this floating IP.

Parameter: projectUUID
Type: string
Description: The OpenStack project which owns this floating IP.

Parameter: floatingNetworkUUID
Type: string
Description: The OpenStack network which provided this IP.

Parameter: floatingIPAddress
Type: string
Description: The floating IP address.

Parameter: fixedIPAddress
Type: string
Description: The fixed IP address.

5.2.383 OpenStackApiGroup:OpenStackApiEntity
parent: OpenStackApiEntity
Parameter: description
Type: string
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Description: String describing the API group

Parameter: domainUUID
Type: string
Description: The OpenStack domain which owns this OpenStack group

5.2.384 OpenStackApiHostAggregate: OpenStackApiEntity

parent: OpenStackApiEntity

Parameter: originalID
Type: unsigned integer
Description: Host aggregates default to having integers as 'UUID', to work around this limitation, Bright stores a custom-created string as the UUID of the host aggregate. This field contains the original ID of the host aggregate, as visible in OpenStack.

Parameter: hosts
Type: list of strings
Description: Names of hosts in this aggregate

Parameter: availabilityZone
Type: string
Description: If this host aggregate is to define a nova availability nova, define the name of that zone here.

Parameter: deleted
Type: boolean
Description: None

Parameter: metadata
Type: string
Description: A JSON containing the metadata associated with the host aggregate.

Parameter: updateFromRoles
Type: boolean
Description: None

Parameter: nodes
Type: list of references to ComputeNode
Description: Nodes in this aggregate

5.2.385 OpenStackApiHypervisor: OpenStackApiEntity

parent: OpenStackApiEntity

Parameter: type
Type: string
Description: The type of the hypervisor.

Parameter: freeDisk
Type: unsigned integer

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Description: Free disk space available.

Parameter: freeRam
Type: unsigned integer
Description: Free RAM available.

Parameter: localStorage
Type: unsigned integer
Description: Total size of local storage.

Parameter: localStorageUsed
Type: unsigned integer
Description: Amount of local storage being used.

Parameter: memory
Type: unsigned integer
Description: Amount of RAM

Parameter: memoryUsed
Type: unsigned integer
Description: Amount of RAM being used.

Parameter: runningVMs
Type: unsigned integer
Description: Number of VMs running on the host.

Parameter: vcpus
Type: unsigned integer
Description: Number of VCPUs available in this host (this number does not include overallocation).

Parameter: vcpusUsed
Type: unsigned integer
Description: Number of VCPUs being used.

Parameter: currentWorkload
Type: unsigned integer
Description: Current workload, as reported by OpenStack.

Parameter: status
Type: string
Description: Current status of the hypervisor.

Parameter: state
Type: string
Description: Current state (UP/DOWN) of the hypervisor.

Parameter: ip
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Type:  IP
Description:  IP address of the hypervisor.

Parameter: cpuInfo
Type:  string
Description:  CPU information.

5.2.386 OpenStackApiImage: OpenStackApiEntity
parent:  OpenStackApiEntity
Parameter: projectUUID
Type:  string
Description:  The OpenStack project which owns the image.

Parameter: containerFormat
Type:  string
Description:  Container format of the image file.

Parameter: diskFormat
Type:  string
Description:  Disk format of the image.

Parameter: createdAt
Type:  string
Description:  When the image was added to OpenStack.

Parameter: updatedAt
Type:  string
Description:  When the image was last updated in OpenStack.

Parameter: visibility
Type:  string
Description:  Visibility status of the image.

Parameter: isProtected
Type:  boolean
Description:  Whether the image is protected from accidental removal. Protected images cannot be removed.

Parameter: minDisk
Type:  unsigned integer
Description:  Minimum amount of root disk space a flavor has to provide in order to be able to run this image.

Parameter: minRam
Type:  unsigned integer
Description:  Minimum amount of RAM a flavor has to provide in order to be able to run this image.

Parameter: file

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Type: string
Description: Name of the image file.

Parameter: size
Type: unsigned integer
Description: Size of the image file.

Parameter: tags
Type: list of strings
Description: Image tags applied to the image. OpenStack allows to e.g. list images based on certain tags.

Parameter: propertyArchitecture
Type: string
Description: Optional property.

Parameter: propertyHypervisorType
Type: string
Description: Optional property.

Parameter: propertyInstanceUUID
Type: string
Description: Optional property.

Parameter: propertyImgConfigDrive
Type: string
Description: Optional property.

Parameter: propertyKernelID
Type: string
Description: Optional property.

Parameter: propertyOSDistro
Type: string
Description: Optional property.

Parameter: propertyOSVersion
Type: string
Description: Optional property.

Parameter: propertyRamdiskID
Type: string
Description: Optional property.

Parameter: propertyVMMode
Type: string
Description: Optional property.

Parameter: `propertyHWDiskBus`
Type: string
Description: Optional libvirt-specific property.

Parameter: `propertyHWRngModel`
Type: string
Description: Optional libvirt-specific property.

Parameter: `propertyHWMachineType`
Type: string
Description: Optional libvirt-specific property.

Parameter: `propertyHWSCSIModel`
Type: string
Description: Optional libvirt-specific property.

Parameter: `propertyHWSerialPortCount`
Type: unsigned integer
Description: Optional libvirt-specific property.

Parameter: `propertyHWVideoModel`
Type: string
Description: Optional libvirt-specific property.

Parameter: `propertyHWVideoRam`
Type: unsigned integer
Description: Optional libvirt-specific property.

Parameter: `propertyOSCommandLine`
Type: string
Description: Optional libvirt-specific property.

Parameter: `propertyHWVifModel`
Type: string
Description: Optional libvirt-specific property.

Parameter: `propertyOSType`
Type: string
Description: Optional property.

Parameter: `propertyAutoDiskConfig`
Type: string
Description: Optional property.
5.2.387  OpenStackApiNetwork: OpenStackApiEntity

parent: OpenStackApiEntity
Parameter: projectUUID
Type: string
Description: OpenStack project owning this network.

Parameter: subnetUUIDs
Type: list of strings
Description: OpenStack subnets contained in this Network.

Parameter: status
Type: string
Description: Operational status of the network.

Parameter: providerNetworkType
Type: string
Description: Provider network type.

Parameter: providerPhysicalNetwork
Type: string
Description: Name of the underlying provider network.

Parameter: providerSegmentationID
Type: integer
Description: Segmentation ID (e.g. VLAN or VXLAN ID).

Parameter: routerExternal
Type: boolean
Description: Whether or not the network is to be considered as an external network.

Parameter: shared
Type: boolean
Description: Whether everyone can see this network and create ports on it.

Parameter: adminStateUp
Type: boolean
Description: Administrative state of the network.

Parameter: MTU
Type: unsigned integer
Description: Maximum transfer unit on layer-2.

5.2.388  OpenStackApiPort: OpenStackApiEntity

parent: OpenStackApiEntity
Parameter: macAddress
Type: string
Description: The (layer-2) MAC address of the port.

Parameter: status
Type: string
Description: Current status of the port.

Parameter: adminStateUp
Type: boolean
Description: Administrative state of the port.

Parameter: deviceOwner
Type: string
Description: Device which owns the port.

Parameter: projectUUID
Type: string
Description: The OpenStack project which owns the port.

Parameter: deviceUUID
Type: string
Description: The OpenStack Device which owns the port.

Parameter: networkUUID
Type: string
Description: The OpenStack network on which the port is located.

Parameter: securityGroupUUIDs
Type: list of strings
Description: Security groups applied to the port.

Parameter: bindingHostUUID
Type: string
Description: Binding host.

Parameter: bindingVifType
Type: string
Description: Binding vif type.

Parameter: bindingVnicType
Type: string
Description: Binding vnic type.

Parameter: ips
Type: list of OsapiPortIP
Description: IP addresses active on the port
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**5.2.389  OpenStackApiProject : OpenStackApiEntity**

**parent : OpenStackApiEntity**

**Parameter:** description

**Type:** string

**Description:** The custom description of the project.

**Parameter:** enabled

**Type:** boolean

**Description:** Whether or not the project is enabled and can be used by users.

**Parameter:** domainUUID

**Type:** string

**Description:** The OpenStack domain which owns this project. Domains are top-level projects.

**Parameter:** parentProjectUUID

**Type:** string

**Description:** The parent OpenStack project.

**Parameter:** brightManaged

**Type:** boolean

**Description:** Whether the project was created from within Bright APIs.

**Parameter:** internal

**Type:** boolean

**Description:** Whether the project is designated for internal use by OpenStack.

**Parameter:** removed

**Type:** boolean

**Description:** Whether the project has been marked as removed from OpenStack.

**Parameter:** removeTime

**Type:** timestamp

**Description:** The time at which the project has been removed.

**Parameter:** motd

**Type:** string

**Description:** Message of the day.

**Parameter:** quotaInstances

**Type:** unsigned integer

**Description:** The maximum number of object of this type which can be owned simultaneously by the project.

**Parameter:** quotaVCPUs

**Type:** unsigned integer

**Description:** The maximum number of object of this type which can be owned simultaneously by the project.

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Parameter: quotaRam
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

Parameter: quotaInjectedFiles
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

Parameter: quotaInjectedFileContent
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

Parameter: quotaVolumes
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

Parameter: quotaVolumeSnapshots
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

Parameter: quotaTotalSizeOfVolumesAndSnapshots
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

Parameter: quotaSecurityGroups
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

Parameter: quotaSecurityGroupRules
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

Parameter: quotaFloatingIPs
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

Parameter: quotaNetworks
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

Parameter: quotaPorts
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

Parameter: quotaSubnets
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

Parameter: quotaRouters
Type: unsigned integer
Description: The maximum number of object of this type which can be owned simultaneously by the project.

5.2.390 OpenStackApiRoleAssignment: OpenStackApiEntity
parent: OpenStackApiEntity
Parameter: projectUUID
Type: string
Description: The role needs to be assigned within either a Project or to a Domain (which, in keystone, internally are top-level projects).

Parameter: domainUUID
Type: string
Description: The role needs to be assigned within either a Project or to a Domain (which, in keystone, internally are top-level projects).

Parameter: userUUID
Type: string
Description: The role (within a Project or Domain) needs to be assigned to either a OpenStack User or a OpenStack user group.

Parameter: groupUUID
Type: string
Description: The role (within a Project or Domain) needs to be assigned to either a OpenStack User or a OpenStack user group.

Parameter: roleUUID
Type: string
Description: This UUID does not really exists in OpenStack. Role assignment are one of the few OpenStack objects which does not have a real UUID.

5.2.391 OpenStackApiRole: OpenStackApiEntity
parent: OpenStackApiEntity
Parameter: domainUUID
Type: string
5.2 Entities

Description: none

5.2.392 OpenStackApiRouter : OpenStackApiEntity
parent: OpenStackApiEntity
Parameter: status
Type: string
Description: Current status of the router

Parameter: adminStateUp
Type: boolean
Description: Administrative state of the router (can be used to bring the router down temporarily)

Parameter: projectUUID
Type: string
Description: Project owning the router

Parameter: externalGatewayNetworkUUID
Type: string
Description: OpenStack network object which is this router’s external network

Parameter: externalGatewayEnableSNAT
Type: boolean
Description: Whether or not this router should have SNAT enabled

Parameter: host
Type: string
Description: Network node hosting the router

Parameter: ha
Type: tri-boolean
Description: Whether that’s a Highly Available router

5.2.393 OpenStackApiSecurityGroup : OpenStackApiEntity
parent: OpenStackApiEntity
Parameter: description
Type: string
Description: The description.

Parameter: projectUUID
Type: string
Description: The OpenStack project which owns this security group.

Parameter: rules
Type: list of OsapiSecurityGroupRule
Description: The set of OpenStack security group rules which compose this security group.
### OpenStackApiServer: OpenStackApiEntity

**Parameter:** `projectUUID`  
**Type:** string  
**Description:** OpenStack project which owns this server.

**Parameter:** `userUUID`  
**Type:** string  
**Description:** OpenStack user which owns this server.

**Parameter:** `hostUUID`  
**Type:** string  
**Description:** OpenStack host which hosts this server.

**Parameter:** `flavorUUID`  
**Type:** string  
**Description:** OpenStack flavor used for this server.

**Parameter:** `imageUUID`  
**Type:** string  
**Description:** OpenStack image used for this server.

**Parameter:** `status`  
**Type:** string  
**Description:** Current status of the server.

**Parameter:** `vmState`  
**Type:** string  
**Description:** Current status of the VM.

**Parameter:** `createdAt`  
**Type:** string  
**Description:** The date when the server was first created.

**Parameter:** `updatedAt`  
**Type:** string  
**Description:** Last update date.

**Parameter:** `launchedAt`  
**Type:** string  
**Description:** The last time this server was started.

**Parameter:** `host`  
**Type:** string  
**Description:** Name of the host, which hosts the server.

**Parameter:** `hypervisorHostname`
5.2 Entities

Type: string
Description: Hypervisor name.

Parameter: instanceName
Type: string
Description: The name of the VM instance which represents this server.

Parameter: availabilityZone
Type: string
Description: The name of availability zone in which the server is located.

Parameter: faultCreatedAt
Type: string
Description: The time the fault status was created.

Parameter: faultDetails
Type: string
Description: Details of the fault.

Parameter: faultMessage
Type: string
Description: The error message.

Parameter: defaultHost
Type: reference to ComputeNode
Description: Default host for this instance

Parameter: securityGroupUUIDs
Type: list of strings
Description: OpenStack security groups associated with this server.

5.2.395 OpenStackApiService : OpenStackApiEntity
parent : OpenStackApiEntity
Parameter: description
Type: string
Description: The description of the service

Parameter: enabled
Type: boolean
Description: Whether or not the service is enabled

Parameter: type
Type: string
Description: The type of the service

5.2.396 OpenStackApiStack : OpenStackApiEntity
parent : OpenStackApiEntity
Parameter: projectUUID

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Type: string
Description: Reserved for future use.

**Parameter:** createdAt
Type: string
Description: Reserved for future use.

**Parameter:** updatedAt
Type: string
Description: Reserved for future use.

**Parameter:** status
Type: string
Description: Reserved for future use.

**Parameter:** statusReason
Type: string
Description: Reserved for future use.

**Parameter:** theParent
Type: string
Description: Reserved for future use.

**Parameter:** owner
Type: string
Description: Reserved for future use.

**Parameter:** description
Type: string
Description: Reserved for future use.

**Parameter:** templateDescription
Type: string
Description: Reserved for future use.

**Parameter:** resources
Type: list of OsapiStackResource
Description: Reserved for future use.

**5.2.397 OpenStackApiSubnet : OpenStackApiEntity**

**parent : OpenStackApiEntity**

**Parameter:** enableDHCP
Type: boolean
Description: Determines whether OpenStack should run DHCP server on this subnet.

**Parameter:** networkUUID
Type: string
5.2 Entities

Description: The OpenStack network which contains the subnet.

Parameter: projectUUID
Type: string
Description: The OpenStack project which owns the subnet.

Parameter: DNSNameservers
Type: list of strings
Description: DNS name servers advertised by the DHCP server on this subnet.

Parameter: IPVersion
Type: enum
Description: IP Protocol version.

Parameter: CIDR
Type: string
Description: The CIDR defining the subnet, for example: 10.42.0.0/16.

Parameter: allocationPools
Type: list of OsapiSubnetAllocationPool
Description: List if IP ranges used for dynamically assigned IPs on this subnet (via DHCP). For external networks, this defines the floating IP range.

Parameter: gatewayIP
Type: IP
Description: IP of the gateway for this network.

5.2.398 OpenStackApiUser : OpenStackApiEntity
parent : OpenStackApiEntity
Parameter: description
Type: string
Description: The description.

Parameter: email
Type: string
Description: Email address of the user.

Parameter: domainUUID
Type: string
Description: The domain which owns this user.

Parameter: defaultProjectUUID
Type: string
Description: The default project of this user. User should have a role within this project.

Parameter: password
Type: string
**Description:** The password of this user.

**Parameter:** enabled
**Type:** boolean
**Description:** Whether the user is active and can log in.

**Parameter:** groupUUIDs
**Type:** list of strings
**Description:** OpenStack groups this user is part of.

---

**5.2.399** *OpenStackApiVolumeSnapshot : OpenStackApiEntity*
**parent:** OpenStackApiEntity
**Parameter:** description
**Type:** string
**Description:** The description of the volume snapshot.

**Parameter:** status
**Type:** string
**Description:** Current status of the snapshot.

**Parameter:** createdAt
**Type:** string
**Description:** When has the volume snapshot been created.

**Parameter:** size
**Type:** unsigned integer
**Description:** The total size of the snapshot.

**Parameter:** volumeUUID
**Type:** string
**Description:** A OpenStack volume related to this volume snapshot.

**Parameter:** projectUUID
**Type:** string
**Description:** The OpenStack project which owns this volume snapshot.

---

**5.2.400** *OpenStackApiVolume : OpenStackApiEntity*
**parent:** OpenStackApiEntity
**Parameter:** description
**Type:** string
**Description:** The description

**Parameter:** availabilityZone
**Type:** string
**Description:** The availability zone where the volume is stored.

**Parameter:** status
**Type:** string
Description: The current status of the volume

Parameter: createdAt
Type: string
Description: When the volume was created by Cinder.

Parameter: size
Type: unsigned integer
Description: Size of the volume.

Parameter: volumeTypeUUID
Type: string
Description: OpenStack volume type of this volume.

Parameter: projectUUID
Type: string
Description: The OpenStack project which owns this volume.

Parameter: encrypted
Type: boolean
Description: Whether the volume is encrypted.

Parameter: userUUID
Type: string
Description: OpenStack user which created this volume.

Parameter: bootable
Type: string
Description: Whether the volume can be used to boot a new VM.

Parameter: snapshotUUID
Type: string
Description: OpenStack volume snapshot associated with this volume.

Parameter: sourceVolumeUUID
Type: string
Description: If set, this is the volume which was the source for this volume.

Parameter: attachmentDevice
Type: string
Description: Attachment device.

Parameter: attachmentHostname
Type: string
Description: Attachment hostname.

Parameter: attachmentUUID

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Type: string
Description: Attachment UUID.

Parameter: attachmentServerUUID
Type: string
Description: Attachment server.

Parameter: attachmentVolumeUUID
Type: string
Description: Attachment volume UUID.

Parameter: metadataAttachedMode
Type: string
Description: Metadata attached mode.

Parameter: metadataReadonly
Type: string
Description: Metadata readonly.

5.2.401 OpenStackApiVolumeType: OpenStackApiEntity
parent: OpenStackApiEntity
Parameter: extraSpecs
Type: string
Description: A JSON string containing any extra, custom, fields for this volume type.

Parameter: isPublic
Type: boolean
Description: Whether this type is visible to all Projects

Parameter: projectUUIDs
Type: list of strings
Description: Projects with access

5.2.402 OpenStackAuthBackendHybrid: OpenStackAuthBackend
parent: OpenStackAuthBackend
Parameter: defaultRoles
Type: list of strings
Description: Roles for users signed via LDAP

Parameter: defaultProject
Type: string
Description: Project for users signed via LDAP

Parameter: defaultDomain
Type: string
Description: Domain for users signed via LDAP
5.2.403  OpenStackAuthBackendLDAPGroupSettings : Entity

parent : Entity

Parameter:  treeDn
Type:  string
Description:  Search base for groups

Parameter:  filter
Type:  string
Description:  LDAP search filter for groups

Parameter:  objectClass
Type:  string
Description:  LDAP objectclass for groups

Parameter:  idAttribute
Type:  string
Description:  LDAP attribute mapped to group id

Parameter:  nameAttribute
Type:  string
Description:  LDAP attribute mapped to group name

Parameter:  memberAttribute
Type:  string
Description:  LDAP attribute mapped to show group membership

Parameter:  descAttribute
Type:  string
Description:  LDAP attribute mapped to group description

Parameter:  ignoredAttributes
Type:  list of strings
Description:  List of attributes stripped off the group on update

Parameter:  allowCreate
Type:  boolean
Description:  Allow group creation in LDAP backend

Parameter:  allowUpdate
Type:  boolean
Description:  Allow group updates in LDAP backend

Parameter:  allowDelete
Type:  boolean
Description:  Allow group deletion in LDAP backend

Parameter:  additionalAttributeMappings

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Type: list of strings
Description: List of additional LDAP attributes used for mapping additional attribute mappings for groups. Attribute mapping format is [LDAP Attr]:[Group Attr]

5.2.404 OpenStackAuthBackendLDAPProjectSettings: Entity

parent: Entity

Parameter: treeDn
Type: string
Description: Search base for projects

Parameter: filter
Type: string
Description: LDAP search filter for projects

Parameter: objectClass
Type: string
Description: LDAP objectclass for projects

Parameter: idAttribute
Type: string
Description: LDAP attribute mapped to project id

Parameter: memberAttribute
Type: string
Description: LDAP attribute mapped to show project membership

Parameter: nameAttribute
Type: string
Description: LDAP attribute mapped to project name

Parameter: descAttribute
Type: string
Description: LDAP attribute mapped to project description

Parameter: enabledAttribute
Type: string
Description: LDAP attribute mapped to project enabled flag

Parameter: domainIdAttribute
Type: string
Description: LDAP attribute mapped to project domain id

Parameter: ignoredAttributes
Type: list of strings
Description: List of attributes stripped off the project on update

Parameter: allowCreate
5.2 Entities

Type: boolean
Description: Allow project creation in LDAP backend

Parameter: allowUpdate
Type: boolean
Description: Allow project updates in LDAP backend

Parameter: allowDelete
Type: boolean
Description: Allow project deletion in LDAP backend

Parameter: enabledEmulation
Type: boolean
Description: Alternative method to determine if a project is enabled or not by checking if they are a member of the ‘enabled emulation dn’ group

Parameter: enabledEmulationDn
Type: string
Description: DN of the group entry to hold enabled projects when using enabled emulation

Parameter: additionalAttributeMappings
Type: list of strings
Description: List of additional LDAP attributes used for mapping additional attribute mappings for projects. Attribute mapping format is [LDAP Attr]>:[Project Attr]

5.2.405 OpenStackAuthBackendLDAPRoleSettings: Entity

parent: Entity
Parameter: treeDn
Type: string
Description: Search base for roles

Parameter: filter
Type: string
Description: LDAP search filter for roles

Parameter: objectClass
Type: string
Description: LDAP objectclass for roles

Parameter: idAttribute
Type: string
Description: LDAP attribute mapped to role id

Parameter: nameAttribute
Type: string
Description: LDAP attribute mapped to role name

Parameter: memberAttribute

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Type:  string  
**Description:** LDAP attribute mapped to show role membership

**Parameter:** ignoredAttributes  
**Type:** list of strings  
**Description:** List of attributes stripped off the role on update

**Parameter:** allowCreate  
**Type:** boolean  
**Description:** Allow role creation in LDAP backend

**Parameter:** allowUpdate  
**Type:** boolean  
**Description:** Allow role updates in LDAP backend

**Parameter:** allowDelete  
**Type:** boolean  
**Description:** Allow role deletion in LDAP backend

**Parameter:** additionalAttributeMappings  
**Type:** list of strings  
**Description:** List of additional LDAP attributes used for mapping additional attribute mappings for roles. Attribute mapping format is [LDAP Attr]>:[Role Attr]

**5.2.406 OpenStackAuthBackendLDAP : OpenStackAuthBackend**

**parent:** OpenStackAuthBackend  
**Parameter:** useSqlBackendForAssignments  
**Type:** boolean  
**Description:** Use SQL backend for project and role management

**Parameter:** url  
**Type:** string  
**Description:** URL for connecting to the LDAP server

**Parameter:** username  
**Type:** string  
**Description:** User BindDN to query the LDAP server

**Parameter:** password  
**Type:** string  
**Description:** Password for BindDN to query the LDAP server

**Parameter:** suffix  
**Type:** string  
**Description:** LDAP server suffix

**Parameter:** useDumbMember
5.2 Entities

Type: boolean
Description: If true, will add a dummy member to groups. This is required if the objectclass for groups requires the ‘member’ attribute.

Parameter: dumbMember
Type: string
Description: DN of the ‘dummy member’ to use

Parameter: allowSubtreeDelete
Type: boolean
Description: Delete subtrees using the subtree delete control

Parameter: queryScope
Type: enum
Description: The LDAP scope for queries

Parameter: aliasDereferencing
Type: enum
Description: The LDAP dereferencing option for queries

Parameter: chaseReferrals
Type: boolean
Description: Referral chasing behavior for queries

Parameter: tls
Type: boolean
Description: Enable TLS for communicating with LDAP servers

Parameter: ca
Type: string
Description: CA certificate file path for communicating with LDAP servers

Parameter: caDir
Type: string
Description: CA certificate directory path for communicating with LDAP servers

Parameter: userSettings
Type: OpenStackAuthBackendLDAPUserSettings
Description: User-related LDAP backend settings

Parameter: groupSettings
Type: OpenStackAuthBackendLDAPGroupSettings
Description: Group-related LDAP backend settings

Parameter: projectSettings
Type: OpenStackAuthBackendLDAPProjectSettings

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Description: Project-related LDAP backend settings

Parameter: roleSettings
Type: OpenStackAuthBackendLDAPRoleSettings
Description: Role-related LDAP backend settings

Parameter: sqlBackend
Type: OpenStackAuthBackendSQL
Description: SQL Backend settings

Parameter: useConnectionPool
Type: boolean
Description: Enable LDAP connection pooling

Parameter: connectionPoolSize
Type: unsigned integer
Description: Connection pool size

Parameter: connectionPoolLifetime
Type: unsigned integer
Description: Connection lifetime in seconds

Parameter: useAuthPool
Type: boolean
Description: Enable LDAP connection pooling for end user authentication

Parameter: authPoolSize
Type: unsigned integer
Description: End user auth connection pool size

Parameter: authPoolLifetime
Type: unsigned integer
Description: End user auth connection lifetime in seconds

5.2.407 OpenStackAuthBackendLDAPUserSettings: Entity

parent: Entity
Parameter: treeDn
Type: string
Description: Search base for users

Parameter: filter
Type: string
Description: LDAP search filter for users

Parameter: objectClass
Type: string
Description: LDAP objectclass for users

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5.2 Entities

Parameter: idAttribute
Type: string
Description: LDAP attribute mapped to user id

Parameter: nameAttribute
Type: string
Description: LDAP attribute mapped to user name

Parameter: mailAttribute
Type: string
Description: LDAP attribute mapped to user email

Parameter: passwordAttribute
Type: string
Description: LDAP attribute mapped to user password

Parameter: enabledAttribute
Type: string
Description: LDAP attribute mapped to user enabled flag

Parameter: enabledAttributeInverted
Type: boolean
Description: Invert the meaning of the boolean enabled values

Parameter: groupMemberMappedAttribute
Type: string
Description: LDAP attribute mapped to group member value

Parameter: enabledMask
Type: unsigned integer
Description: Bitmask integer to indicate the bit that the enabled value is stored in if the LDAP server represents ‘enabled’ as a bit on an integer rather than a boolean. A value of ‘0’ indicates the mask is not used.

Parameter: enabledDefault
Type: string
Description: Default value to enable users. This should match an appropriate int value if the LDAP server uses non-boolean (bitmask) values to indicate if a user is enabled or disabled.

Parameter: ignoredAttributes
Type: list of strings
Description: List of attributes stripped off the user on update

Parameter: defaultProjectIdAttribute
Type: string
Description: LDAP attribute mapped to default_project_id for users

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Parameter: allowCreate
Type: boolean
Description: Allow user creation in LDAP backend

Parameter: allowUpdate
Type: boolean
Description: Allow user updates in LDAP backend

Parameter: allowDelete
Type: boolean
Description: Allow user deletion in LDAP backend

Parameter: enabledEmulation
Type: boolean
Description: Alternative method to determine if a user is enabled or not by checking if they are a member of the ‘enabled emulation dn’ group

Parameter: enabledEmulationDn
Type: string
Description: DN of the group entry to hold enabled users when using enabled emulation

Parameter: additionalAttributeMappings
Type: list of strings
Description: List of additional LDAP attributes used for mapping additional attribute mappings for users. Attribute mapping format is [LDAP Attr]:[User Attr]

5.2.408 OpenStackAuthBackendSQL : OpenStackAuthBackend
parent : OpenStackAuthBackend
Parameter: database
Type: string
Description: none

Parameter: username
Type: string
Description: none

Parameter: password
Type: string
Description: none

Parameter: hostname
Type: string
Description: none

5.2.409 OpenStackAuthBackend : Entity
parent : Entity
Parameter: name
Type: string
Parameters:

**identityDriver**
- **Type:** string
- **Description:** Driver to use for authentication

**assignmentDriver**
- **Type:** string
- **Description:** Driver to use for authentication

**domain**
- **Type:** string
- **Description:** Domain to be served by this backend

### 5.2.410 OpenStackBareMetalApiRole: Role

**parent:** Role

**includeInHAProxy**
- **Type:** boolean
- **Description:** Automatically include the nodes with this role in HAProxy configuration.

**frontendHAProxyNames**
- **Type:** list of strings
- **Description:** If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

**isBackupEndpoint**
- **Type:** boolean
- **Description:** Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

**network**
- **Type:** reference to Network
- **Description:** Network on which API endpoints listens.

**apiPort**
- **Type:** unsigned integer
- **Description:** This field can be used to override the default port this service will listen on.

**extraStringList**
- **Type:** list of strings
- **Description:** Number of worker threads.

### 5.2.411 OpenStackBareMetalConductorRole: Role

**parent:** Role

**extraStringList**
- **Type:** list of strings
- **Description:** Reserved for future use

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5.2.412  OpenStackBareMetalDiscoverdDNSMasqRole: Role
  parent: Role
  Parameter: extraStringList
  Type: list of strings
  Description: Reserved for future use.

5.2.413  OpenStackBareMetalDiscoverdRole: Role
  parent: Role
  Parameter: extraStringList
  Type: list of strings
  Description: Reserved for future use.

5.2.414  OpenStackBlockStorage: OpenStackStorage
  parent: OpenStackStorage
  Parameter: volumeUUID
  Type: string
  Description: Volume UUID assigned by OpenStack

  Parameter: size
  Type: unsigned integer
  Description: Size

  Parameter: persistent
  Type: boolean
  Description: Persistent storage will not be removed when instance is removed

  Parameter: creationTime
  Type: timestamp
  Description: Time of creation in EC2

  Parameter: status
  Type: string
  Description: Status of volume in OpenStack

  Parameter: extraBool
  Type: boolean
  Description: none

  Parameter: extraStringList
  Type: list of strings
  Description: none

  Parameter: extraKey
  Type: unsigned integer
  Description: none
5.2 Entities

5.2.415  OpenStackComputeApiEC2Role: Role

parent: Role
Parameter: includeInHAProxy
Type: boolean
Description: Automatically include the nodes with this role in HAProxy configuration.

Parameter: frontendHAProxyNames
Type: list of strings
Description: If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

Parameter: isBackupEndpoint
Type: boolean
Description: Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

Parameter: network
Type: reference to Network
Description: Network on which API endpoints listens.

Parameter: apiPort
Type: unsigned integer
Description: This field can be used to override the default port this service will listen on.

Parameter: workers
Type: unsigned integer
Description: Number of worker threads.

5.2.416  OpenStackComputeApiMetadataRole: Role

parent: Role
Parameter: includeInHAProxy
Type: boolean
Description: Automatically include the nodes with this role in HAProxy configuration.

Parameter: frontendHAProxyNames
Type: list of strings
Description: If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

Parameter: isBackupEndpoint
Type: boolean
Description: Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

Parameter: network
Type: reference to Network
Description: Network on which api listens.
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Parameter:  apiPort
Type:  unsigned integer
Description:  This field can be used to override the default port this service will listen on.

Parameter:  workers
Type:  unsigned integer
Description:  Number of worker threads.

5.2.417  OpenStackComputeApiPlacementRole : Role
parent:  Role
Parameter:  includeInHAProxy
Type:  boolean
Description:  Automatically include the nodes with this role in HAProxy configuration.

Parameter:  frontendHAProxyNames
Type:  list of strings
Description:  If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

Parameter:  isBackupEndpoint
Type:  boolean
Description:  Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

Parameter:  network
Type:  reference to Network
Description:  Network on which API endpoints listens.

Parameter:  apiPort
Type:  unsigned integer
Description:  This field can be used to override the default port this service will listen on.

Parameter:  workers
Type:  unsigned integer
Description:  Number of worker threads.

5.2.418  OpenStackComputeApiRole : Role
parent:  Role
Parameter:  includeInHAProxy
Type:  boolean
Description:  Automatically include the nodes with this role in HAProxy configuration.

Parameter:  frontendHAProxyNames
Type:  list of strings
Description:  If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

Parameter:  isBackupEndpoint

Type: boolean
Description: Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

Parameter: network
Type: reference to Network
Description: Network on which API endpoints listens.

Parameter: apiPort
Type: unsigned integer
Description: This field can be used to override the default port this service will listen on.

Parameter: workers
Type: unsigned integer
Description: Number of worker threads.

Parameter: memcachedServers
Type: list of strings
Description: Coma separated list of endpoints

Parameter: autoResolveLocalMemcached
Type: boolean
Description: If 'Memcached servers' is not specified, but there is a local memcached, then use it

Parameter: notifyApiFaults
Type: boolean
Description: none

Parameter: maxLimit
Type: unsigned integer
Description: Max number of objects nova-api returns in one page of results.

5.2.419 OpenStackComputeConductorRole : Role
parent : Role
Parameter: workersCount
Type: unsigned integer
Description: Number of workers for the OpenStack Conductor service. Zero value - use all available cpus

5.2.420 OpenStackComputeRole : Role
parent : Role
Parameter: computeDriver
Type: enum
Description: Compute Driver to use for nova-compute. Anything other than the default of libvirt will require additional manual configuration.

Parameter: libvirtDomain
Type: enum

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Description: The libvirt Domain.

Parameter: libvirtCPUMode
Type: enum
Description: Libvirt CPU Mode

Parameter: libvirtCPUModel
Type: string
Description: Libvirt CPU Model

Parameter: libvirtInjectPassword
Type: tri-boolean
Description: Inject the admin password at boot time, without an agent

Parameter: libvirtInjectKey
Type: tri-boolean
Description: Inject the ssh public key at boot time

Parameter: libvirtInjectPartition
Type: string
Description: The partition to inject to: -2 => disable, -1 => inspect (libguestfs only), 0 => not partitioned, >0 => partition number

Parameter: imageBackends
Type: list of OpenStackNovaImageBackend
Description: Using image backends

Parameter: statePath
Type: string
Description: The directory where nova-compute will keep the information about its state.

Parameter: instancesPath
Type: string
Description: The directory where nova-compute will keep information about instances (and, with some storage backends, their disks).

Parameter: libvirtdCustom
Type: list of strings
Description: Custom lines to be added to the libvirtd.conf

Parameter: vcpuPinSet
Type: string
Description: Defines which physical cpus instance can use

Parameter: resumeGuestsOnHostBoot
Type: boolean
5.2 Entities

**Description:** Determines whether nova-compute should automatically resume (start) VMs after a hypervisor restart

**Parameter:** vifPluggingTimeOut

**Type:** unsigned integer

**Description:** Number of seconds to wait for neutron vif plugging events

**Parameter:** vifPluggingIsFatal

**Type:** boolean

**Description:** Fail instance boot if vif plugging fails

**Parameter:** fsmounts

**Type:** list of FSMount

**Description:** Configure the entries placed in /etc/fstab

**Parameter:** diskCachemodes

**Type:** string

**Description:** Specific cachemodes to use for different disk types e.g: file=directsync,block=none

**Parameter:** delayForAutomaticServerEvacuation

**Type:** integer

**Description:** Delay, in seconds, after which the vms on the host will be evacuated once the host is marked as DOWN. Value of zero disables this feature

5.2.421 OpenStackComputeSchedulerRole: Role

**parent:** Role

**Parameter:** hostDiscoveryInterval

**Type:** unsigned integer

**Description:** Number of seconds in intervals for nova scheduler to discover new hypervisor hosts

5.2.422 OpenStackComputeVNCProxyRole: Role

**parent:** Role

**Parameter:** includeInHAProxy

**Type:** boolean

**Description:** Automatically include the nodes with this role in HAProxy configuration.

**Parameter:** frontendHAProxyNames

**Type:** list of strings

**Description:** If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

**Parameter:** isBackupEndpoint

**Type:** boolean

**Description:** Configure this API endpoint as a ‘backup’ backend in HAProxy (only used if primary backends are down).

**Parameter:** network

**Type:** reference to Network

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Description: Network on which API endpoints listens.

Parameter: apiPort
Type: unsigned integer
Description: This field can be used to override the default port this service will listen on.

Parameter: novncProxyBaseUrl
Type: string
Description: Novnc proxy base URL.

Parameter: workers
Type: unsigned integer
Description: Number of worker threads.

5.2.423 OpenStackDashboardRole: Role

parent: Role

Parameter: memcachedServer
Type: string
Description: Hostname or IP of the memcached server to be used to speed up Horizon.

Parameter: autoResolveLocalMemcached
Type: boolean
Description: If 'Memcached server' is not specified, but there is a local memcached, then use it

Parameter: allowedHosts
Type: list of strings
Description: List of DNS-names or IP addresses of the host running the dashboard.

Parameter: allowAllHosts
Type: boolean
Description: Shortcut for the '*' in the allowed hosts.

Parameter: apiResultPageSize
Type: unsigned integer
Description: Controls the number of items to be shown per page if API pagination is possible.

Parameter: sessionTimeout
Type: unsigned integer
Description: Seconds of inactivity until user is considered as logged out.

Parameter: apiResultLimit
Type: unsigned integer
Description: Number of object to display before providing a paging element.

Parameter: debug
Type: boolean

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5.2 Entities

**Description:** Controls whether exceptions generate HTTP 500 response and a display of sensitive information

**Parameter:** timeZone  
**Type:** string  
**Description:** Time zone identifier

**Parameter:** openstackKeystoneUrl  
**Type:** string  
**Description:** URL of the Keystone

**Parameter:** enableSSL  
**Type:** boolean  
**Description:** HTTPS support for OpenStack Dashboard

### 5.2.424 OpenStackDataProcessingApiRole: Role

**parent:** Role  
**Parameter:** includeInHAProxy  
**Type:** boolean  
**Description:** Reserved for future use

**Parameter:** frontendHAProxyNames  
**Type:** list of strings  
**Description:** Reserved for future use

**Parameter:** isBackupEndpoint  
**Type:** boolean  
**Description:** Reserved for future use

**Parameter:** network  
**Type:** reference to Network  
**Description:** Network on which api listens

**Parameter:** apiPort  
**Type:** unsigned integer  
**Description:** none

### 5.2.425 OpenStackDBaaSRole: Role

**parent:** Role  
**Parameter:** runTroveAPI  
**Type:** boolean  
**Description:** Reserved for future use

**Parameter:** runTaskManager  
**Type:** boolean  
**Description:** Reserved for future use

**Parameter:** runTroveGuestAgent

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Type: boolean
Description: Reserved for future use

Parameter: runTroveScheduler
Type: boolean
Description: Reserved for future use

Parameter: runTroveConductor
Type: boolean
Description: Reserved for future use

Parameter: extraBool1
Type: boolean
Description: Reserved for future use

Parameter: extraBool2
Type: boolean
Description: Reserved for future use

Parameter: extraBool3
Type: boolean
Description: Reserved for future use

Parameter: extraLong1
Type: integer
Description: Reserved for future use

Parameter: extraStringList1
Type: list of strings
Description: Reserved for future use

Parameter: extraStringList2
Type: list of strings
Description: Reserved for future use

5.2.426 OpenStackDefaultUserRole : Entity
parent : Entity
Parameter: name
Type: string
Description: OpenStack user role name

Parameter: tenants
Type: list of strings
Description: Associated OpenStack project names. These project will be created if do not exist yet. The project names may contain ${username} that will be replaced to a particular user name
5.2 Entities

5.2.427 OpenStackIdentityApiRole: Role

parent: Role
Parameter: includeInHAProxy
Type: boolean
Description: Automatically include the nodes with this role in HAProxy configuration.

Parameter: frontendHAProxyNames
Type: list of strings
Description: If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

Parameter: isBackupEndpoint
Type: boolean
Description: Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

Parameter: network
Type: reference to Network
Description: Network on which API endpoints listens.

Parameter: networkForAdmin
Type: reference to Network
Description: Network on which the Admin api endpoint listens on.

Parameter: apiPort
Type: unsigned integer
Description: This field can be used to override the default port this service will listen on.

Parameter: apiPortForAdmin
Type: unsigned integer
Description: This field can be used to override the default port this service will listen on.

Parameter: workers
Type: unsigned integer
Description: Number of worker threads.

Parameter: workersForAdmin
Type: unsigned integer
Description: Number of worker threads for the admin endpoint.

Parameter: tokenPersistenceBackend
Type: enum
Description: Only applicable to non-fernet tokens

Parameter: caching
Type: boolean
Description: Enable caching globally. Must be enabled for other individual caching layers (e.g. roles, tokens, services) to work. Those individual layers can then be disabled individually.

Parameter: tokenCacheBackend
Type: enum
Description: Where to cache various resources, to speed up their retrieval. Caching speeds up retrieval, at the risk of data being slightly out of date.

Parameter: cacheResources
Type: boolean
Description: Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.

Parameter: cacheResourcesTime
Type: unsigned integer
Description: Determines the amount of time after which the cached values are considered too old, and instead should be retrieved from the actual backend.

Parameter: cacheRoles
Type: boolean
Description: Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.

Parameter: cacheRolesTime
Type: unsigned integer
Description: Determines the amount of time after which the cached values are considered too old, and instead should be retrieved from the actual backend.

Parameter: cacheIdentity
Type: boolean
Description: Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.

Parameter: cacheIdentityTime
Type: unsigned integer
Description: Determines the amount of time after which the cached values are considered too old, and instead should be retrieved from the actual backend.

Parameter: cacheDomainConfig
Type: boolean
Description: Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.

Parameter: cacheDomainConfigTime
Type: unsigned integer
Description: Determines the amount of time after which the cached values are considered too old, and instead should be retrieved from the actual backend.
Parameter: cacheServiceCatalog
Type: boolean
Description: Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.

Parameter: cacheServiceCatalogTime
Type: unsigned integer
Description: Determines the amount of time after which the cached values are considered too old, and instead should be retrieved from the actual backend.

Parameter: cacheTokens
Type: boolean
Description: Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.

Parameter: cacheTokensTime
Type: unsigned integer
Description: Determines the amount of time after which the cached values are considered too old, and instead should be retrieved from the actual backend.

Parameter: memcachedServer
Type: string
Description: Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.

Parameter: autoResolveLocalMemcached
Type: boolean
Description: If 'Memcached server' is not specified, but there is a local memcached on this node, then use it.

Parameter: enableAdminEndpoint
Type: boolean
Description: Whether the admin endpoint should be enable. In most cases there’s no reason to disable it.

5.2.428 OpenStackImageApiRole : Role
  parent: Role
Parameter: includeInHAProxy
Type: boolean
Description: Automatically include the nodes with this role in HAPerxy configuration.

Parameter: frontendHAProxyNames
Type: list of strings
Description: If set to a name of HAPerxy, automatically configure the nodes having this role only behind that particular HAPerxy.

Parameter: isBackupEndpoint
Type: boolean
**Description:**  Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

**Parameter:**  network  
Type: reference to Network or None  
Description:  Network on which API endpoints listens.

**Parameter:**  apiPort  
Type:  unsigned integer  
Description:  This field can be used to override the default port this service will listen on.

**Parameter:**  workers  
Type:  unsigned integer  
Description:  Number of worker threads.

**Parameter:**  imageBackends  
Type:  list of OpenStackImageBackend  
Description:  Using image storage backends.

**Parameter:**  enableHTTPStore  
Type:  boolean  
Description:  Enables glance HTTP store.

5.2.429  OpenStackImageBackendCeph: OpenStackImageBackend  
parent: OpenStackImageBackend  
Parameter:  rbdStoreUser  
Type:  string  
Description:  RADOS user to authenticate as.

**Parameter:**  rbdStorePool  
Type:  string  
Description:  RADOS pool in which images are stored.

**Parameter:**  rbdStoreChunkSize  
Type:  unsigned integer  
Description:  Images will be chunked into objects of this size (in megabytes).

**Parameter:**  rbdStoreCephConf  
Type:  string  
Description:  Path to the ceph configuration file to use.

5.2.430  OpenStackImageBackendFS: OpenStackImageBackend  
parent: OpenStackImageBackend  
Parameter:  filesystemBackendStoragePath  
Type:  string  
Description:  Directory path for filesystem backend storage of images.

**Parameter:**  isOnSharedStorage
5.2 Entities

- **5.2.431 OpenStackImageBackend**: Entity
  - **Attribute**: `parent`
    - **Type**: Entity
  - **Parameter**: `name`
    - **Type**: string
    - **Description**: Backend name
  - **Parameter**: `defaultStore`
    - **Type**: string
    - **Description**: Which backend scheme should be used by Glance
  - **Parameter**: `showImageDirectUrl`
    - **Type**: boolean
    - **Description**: Return the URL that references where the data is stored on the backend storage system.

- **5.2.432 OpenStackIntermediateStorage**: CMJobIntermediateStorage
  - **Attribute**: `parent`
    - **Type**: CMJobIntermediateStorage
  - **Parameter**: `container`
    - **Type**: string
    - **Description**: Container name to place data into

- **5.2.433 OpenStackMessageQueueServerRole**: Role
  - **Attribute**: `parent`
    - **Type**: Role
  - **Parameter**: `messageQueueBackend`
    - **Type**: enum
    - **Description**: Message queue backend.
  - **Parameter**: `cookie`
    - **Type**: string
    - **Description**: This value is typically managed by CMDaemon and there’s typically no reason to change it. The cookie is shared across all instances of a RabbitMQ cluster.
  - **Parameter**: `HAMode`
    - **Type**: boolean
    - **Description**: Whether or not replicate all queues and exchanges across all message brokers (nodes). The value of ‘false’ implies that no ha-mode policy will be set.
  - **Parameter**: `messageTTL`
    - **Type**: integer
    - **Description**: Number of seconds after which messages are removed from queue if not consumed. The value of ‘-1’ means no TTL (messages persist, i.e. don’t set ‘message-ttl’ policy). The value of 0 means deliver immediately or delete if the delivery is impossible (not recommended).
Parameter: statisticsCollectionInterval
Type: integer
Description: Number of seconds specifying how often internal statistics should be collected. Low values might have detrimental impact on the performance.

Parameter: nagelsAlgorithm
Type: boolean
Description: Enabling groups together small TCP traffic. When enabled, message transmit latency will increase, but network utilisation will drop. It is recommended to have this option disabled, unless network bandwidth starts becoming an issue.

5.2.434 OpenStackNetworkApiRole : Role
parent: Role
Parameter: includeInHAProxy
Type: boolean
Description: Automatically include the nodes with this role in HAProxy configuration.

Parameter: frontendHAProxyNames
Type: list of strings
Description: If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

Parameter: isBackupEndpoint
Type: boolean
Description: Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

Parameter: network
Type: reference to Network
Description: Network on which API endpoints listens.

Parameter: apiPort
Type: unsigned integer
Description: This field can be used to override the default port this service will listen on.

Parameter: workers
Type: unsigned integer
Description: Number of worker threads.

Parameter: rpcWorkers
Type: unsigned integer
Description: Number of RPC worker threads. It makes sense to increase this value if neutron-server is slow in processing AMQP messages or if you have a lot of Neutron agents.

5.2.435 OpenStackNetworkDHCPAgentRole : Role
parent: Role
Parameter: dnsmasqCustom
Type: list of strings
5.2 Entities

**Description:** Custom lines to be added to the dnsmasq.bright.conf

**Parameter:** DHCPDomain
**Type:** string
**Description:** DHCP domain.

**Parameter:** option1
**Type:** boolean
**Description:** none

**Parameter:** option2
**Type:** boolean
**Description:** none

**Parameter:** option3
**Type:** string
**Description:** none

---

5.2.436 **OpenStackNetworkL3AgentRole:** Role
**parent:** Role
**Parameter:** agentmode
**Type:** string
**Description:** Agent mode, when using Distributed Virtual Routers (DVR), set to dvr on compute nodes and dvr_snat on network nodes. Otherwise set to legacy.

**Parameter:** option1
**Type:** boolean
**Description:** none

**Parameter:** option2
**Type:** boolean
**Description:** none

**Parameter:** option3
**Type:** string
**Description:** none

---

5.2.437 **OpenStackNetworkMetadataAgentRole:** Role
**parent:** Role
**Parameter:** option1
**Type:** boolean
**Description:** none

**Parameter:** option2
**Type:** boolean
**Description:** none

**Parameter:** option3
**Type:** string
**Description:** none

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Type: string
Description: none

5.2.438 OpenStackNetworkOVSAgentRole: Role
parent: Role
Parameter: enableDistributedRouters
Type: boolean
Description: Enable distributed virtual routers (DVR).

Parameter: option1
Type: boolean
Description: none

Parameter: option2
Type: boolean
Description: none

Parameter: option3
Type: string
Description: none

5.2.439 OpenStackNovaImageBackendCeph: OpenStackNovaImageBackend
parent: OpenStackNovaImageBackend
Parameter: rbdUser
Type: string
Description: The RADOS client name for accessing rbd volumes

Parameter: rbdSecretUuid
Type: string
Description: The libvirt uuid of the secret for the rbd_uservolume

Parameter: libvirtImagesRbdPool
Type: string
Description: The RADOS pool in which rbd volumes are stored

Parameter: libvirtImagesRbdCephConf
Type: string
Description: Path to the ceph configuration file to use

5.2.440 OpenStackNovaImageBackendCow: OpenStackNovaImageBackend
parent: OpenStackNovaImageBackend
Parameter: useCowImages
Type: boolean
Description: Whether to use cow images.

5.2.441 OpenStackNovaImageBackend: Entity
parent: Entity
Parameter: name
5.2 Entities

Type: string
Description: Backend Name

Parameter: libvirtImagesType
Type: string
Description: Libvirt images type

5.2.442 OpenStackObjectAccountRole: Role
parent: Role
Parameter: network
Type: reference to Network
Description: Network on which api listens

Parameter: apiPort
Type: unsigned integer
Description: This field can be used to override the default port this service will listen on.

Parameter: workers
Type: unsigned integer
Description: Number of worker threads.

5.2.443 OpenStackObjectApiRole: Role
parent: Role
Parameter: network
Type: reference to Network
Description: Network on which api listens

Parameter: apiPort
Type: unsigned integer
Description: This field can be used to override the default port this service will listen on.

Parameter: workers
Type: unsigned integer
Description: Number of worker threads.

Parameter: allowPublicContainerAccess
Type: boolean
Description: Whether or not to allow public access to the container

5.2.444 OpenStackObjectContainerRole: Role
parent: Role
Parameter: network
Type: reference to Network
Description: Network on which api listens

Parameter: apiPort
Type: unsigned integer
**Description:** This field can be used to override the default port this service will listen on.

**Parameter:** workers
**Type:** unsigned integer
**Description:** Number of worker threads.

### 5.2.445 OpenStackObjectStoreRole: Role

**parent:** Role

**Parameter:** network
**Type:** reference to Network
**Description:** Network on which api listens

**Parameter:** apiPort
**Type:** unsigned integer
**Description:** This field can be used to override the default port this service will listen on.

**Parameter:** workers
**Type:** unsigned integer
**Description:** Number of worker threads.

### 5.2.446 OpenStackOrchestrationApiRole: Role

**parent:** Role

**Parameter:** includeInHAProxy
**Type:** boolean
**Description:** Automatically include the nodes with this role in HAProxy configuration.

**Parameter:** frontendHAProxyNames
**Type:** list of strings
**Description:** If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

**Parameter:** isBackupEndpoint
**Type:** boolean
**Description:** Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

**Parameter:** network
**Type:** reference to Network
**Description:** Network on which API endpoints listens.

**Parameter:** apiPort
**Type:** unsigned integer
**Description:** This field can be used to override the default port this service will listen on.

**Parameter:** apiPortCnf
**Type:** unsigned integer
**Description:** This field can be used to override the default port this service will listen on.
5.2 Entities

Parameter: workers
Type: unsigned integer
Description: Number of worker threads.

Parameter: maxHeaderLine
Type: unsigned integer
Description: Maximum size of the header line.

5.2.447 OpenStackOrchestrationRole: Role
parent: Role
Parameter: workers
Type: unsigned integer
Description: Number of worked threads of the heat-engine process

Parameter: maxResourcesPerStack
Type: unsigned integer
Description: Maximum number of resources per stack.

Parameter: rpcResponseTimeout
Type: unsigned integer
Description: Amount of seconds to wait for a reply for AMQP messages.

5.2.448 OpenStackSettingsAdvanced: Entity
parent: Entity
Parameter: customAMQPHost
Type: string
Description: Custom AMQP host used by OpenStack Service. This can be used to redirect OpenStack service to a custom HA AMQP cluster.

Parameter: customBackendHAProyHost
Type: string
Description: Custom backend HAProy host

Parameter: lastResortBackendHAProyHost
Type: string
Description: When determining HAProy host dynamically for a given node, if no UP Haproy hosts were found, this one will be used as a fallback.

Parameter: allowCrossAZBackendHAProyConnections
Type: boolean
Description: Used when dynamically determining the host of HA proxy node

Parameter: backendHAProyesForNodes
Type: list of strings
Description: none

Parameter: determineBackendHAProyesDynamically
Type: boolean
Description: Reserved for future use.

Parameter: encryptApiEndpoints
Type: boolean
Description: Encrypt API calls with SSL. This will configure OpenStack API endpoints to use default SSL certificates. Note, if you enable it, you will still have to configure a proper SSL certificate for the endpoints.

Parameter: rbdSecretUuid
Type: string
Description: Default secret UUID for new Ceph storage roles

Parameter: enableExtraValidation
Type: boolean
Description: Enable extra validation for OpenStack entities

Parameter: extraBool1
Type: boolean
Description: none

Parameter: extraBool2
Type: boolean
Description: none

Parameter: extraBool3
Type: boolean
Description: none

Parameter: extraBool4
Type: boolean
Description: none

Parameter: agentDownTime
Type: unsigned integer
Description: After how long agent is considered down. Should be twice as long as report interval

Parameter: agentReportInterval
Type: unsigned integer
Description: How often (seconds) should various OpenStack agent report to their core components. Only applies to OpenStack components which have support for that feature (e.g. Neutron).

Parameter: enableTelemetryService
Type: boolean
Description: none

Parameter: enableDataProcessingService
Type: boolean
Description: none
Parameter: enableBareMetalService
Type: boolean
Description: none

Parameter: maintainServicesInOpenStack
Type: boolean
Description: Whether CMDaemon should automatically maintain service entries in keystone

Parameter: maintainEndpointsInOpenStack
Type: boolean
Description: Whether CMDaemon should automatically maintain endpoint entries in keystone

Parameter: customPublicHostnameForMaintainedEndpoints
Type: string
Description: none

Parameter: customInternalHostnameForMaintainedEndpoints
Type: string
Description: none

Parameter: servicesExcludedFromMaintenance
Type: list of strings
Description: none

Parameter: enableCallbacksFromOpenStack
Type: boolean
Description: none

Parameter: maintainHostAggregates
Type: boolean
Description: Whether CMDaemon should automatically update Host Aggregates

Parameter: enableRabbitMqSsl
Type: boolean
Description: none

Parameter: revocationCacheTime
Type: unsigned integer
Description: Configures the value of 'revocation_cache_time' in various OpenStack config files.

Parameter: regionName
Type: string
Description: The name of the cloud region represented by this cluster.

Parameter: regionExternalKeystoneURL
Type: string
Description: Set this to keystone auth RUL if your Keystone is running only in a external region of this cloud.

Parameter: cinderExchange
Type: string
Description: Cinder RabbitMQ notification exchange name

Parameter: keystoneExchange
Type: string
Description: Keystone RabbitMQ notification exchange name

Parameter: neutronExchange
Type: string
Description: Neutron RabbitMQ notification exchange name

Parameter: glanceExchange
Type: string
Description: Glance RabbitMQ notification exchange name

Parameter: novaExchange
Type: string
Description: Nova RabbitMQ notification exchange name

Parameter: heatExchange
Type: string
Description: Heat RabbitMQ notification exchange name

Parameter: saharaExchange
Type: string
Description: Sahara RabbitMQ notification exchange name

Parameter: ironicExchange
Type: string
Description: Ironic RabbitMQ notification exchange name

Parameter: troveExchange
Type: string
Description: Trove RabbitMQ notification exchange name

Parameter: periodicCleanupInterval
Type: unsigned integer
Description: none

Parameter: glanceAllowedCrossOriginURLs
Type: list of strings
**Description:** List of the Horizon Dashboard URLs (domain names or IPs) which are allowed to upload directly to Glance API. This field should contain all URLs under which the end users can access Horizon. This is needed image upload via the browser to work. Not relevant for uploading images via the CLI.

**Parameter:** scriptToRunForNewProjects

**Type:** string

**Description:** This, user defined, script will executed on the head node for each new Project (tenant) which gets created to OpenStack. This makes it possible to customize the new project e.g. by creating a default networking environment for it.

**Parameter:** deployedComponents

**Type:** list of strings

**Description:** none

**Parameter:** extraString1

**Type:** string

**Description:** Name of configuration group to use as a rabbit mq cluster for OpenStack.

**Parameter:** extraString2

**Type:** string

**Description:** none

**Parameter:** extraString3

**Type:** string

**Description:** none

**Parameter:** extraString4

**Type:** string

**Description:** none

**Parameter:** extraInt1

**Type:** integer

**Description:** none

**Parameter:** extraStringList1

**Type:** list of strings

**Description:** none

**Parameter:** extraStringList2

**Type:** list of strings

**Description:** none

**Parameter:** extraStringList3

**Type:** list of strings

**Description:** none

**Parameter:** extraStringList4

**Type:** list of strings

**Description:** none

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Type: list of strings
Description: none

Parameter: dontStartServices
Type: list of strings
Description: Don’t autostart these OpenStack services

5.2.449 OpenStackSettingsAuthentication : Entity
parent : Entity
Parameter: defaultDomainId
Type: string
Description: Domain to use for all Identity API v2 requests

Parameter: domainConfigDir
Type: string
Description: Path for domain specific identity configuration files

Parameter: keystoneTokenFormat
Type: enum
Description: Format of the Keystone token

Parameter: authBackends
Type: list of OpenStackAuthBackend
Description: Auth backends

Parameter: customPublicAuthHost
Type: string
Description: Custom public keystone auth host.

Parameter: customInternalAuthHost
Type: string
Description: Custom internal keystone auth host.

Parameter: tokenValidityMinutes
Type: unsigned integer
Description: How long tokens should be valid, in minutes. Does not apply to Fernet tokens (where token validity is determined by how often keys are rotated).

5.2.450 OpenStackSettingsCMDaemonInteractions : Entity
parent : Entity
Parameter: cmdaemonIdentityURL
Type: string
Description: The OpenStack Keystone identity URL which CMDaemon should use when connecting to OpenStack.

Parameter: cmdaemonOpenStackInterfaceDriver
Type: enum
5.2 Entities

**Description:** Method which should be used by CMDaemon to talk to OpenStack. libcurl is typically faster.

**Parameter:** disableObjectRetrieval  
**Type:** boolean  
**Description:** By default CMDaemon will retrieve the various OpenStack objects (like users, VMs, projects, subnets, routers) from OpenStack periodically. This disabled the said retrieval. It will reduce the load on OpenStack API endpoints, at the expenses of not being able to view/edit OpenStack object modified directly via OpenStack APIs.

**Parameter:** storeOpenStackObjectsInCMDaemonDatabase  
**Type:** boolean  
**Description:** Whether to cache the state of OpenStack objects in CMDaemon’s database. It makes sense to disable this for large OpenStack clouds and/or to reduce the load on CMDaemon’s database.

**Parameter:** objectRetrievalInterval  
**Type:** unsigned integer  
**Description:** If OpenStack object retrieval is enabled, how often should it be performed. 1 -> every 30 seconds, 2 -> every 60 seconds, etc. Increasing this value will reduce the load on OpenStack APIs.

**Parameter:** objectTypesToExcludeFromRetrieval  
**Type:** list of strings  
**Description:** By default CMDaemon retrieves many types of objects from OpenStack for the purposes of displaying them in Bright UI. If you want to restrict the set of types of retrieved from OpenStack to reduce the load on particular parts of OpenStack control plane, set the names of these objects in this field.

**Parameter:** objectTypesToExcludeFromDBStorage  
**Type:** list of strings  
**Description:** Named of classes of OpenStack object which should be excluded from being stored (cached) in CMDaemon’s database. Useful if certain types of object in your cloud change too often which causes a lot of load in CMDaemon’s database. The names of classes should be Pythoncm class names, e.g. ‘OpenStackApiServer’, ‘OpenStackApiProject’.

**Parameter:** maxConcurrentActions  
**Type:** unsigned integer  
**Description:** Maximum number of concurrent interactions with OpenStack APIs. Increase this value to reduce the amount of time a OpenStack API interaction is waiting to be execute, at the expense of load on OpenStack APIs.

**Parameter:** preferAdminToken  
**Type:** boolean  
**Description:** Prefer to use admin token for API calls whenever possible. This should only be enabled during the OpenStack deployment phase.

**Parameter:** apiCallAttempts  
**Type:** unsigned integer  
**Description:** How many times a API call to OpenStack is attempted before giving up.

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Parameter: enableMqListener
Type: boolean
Description: Enable MessageQueue event listener. This will cause CMDaemon to listen on OpenStack notification queue for notifications about e.g. created/modified objects, and retrieve (if retrieval is not disabled) the changes immediately (instead of pooling for changes periodically).

Parameter: imageUUIDForHealthchecks
Type: string
Description: none

Parameter: monitoringDataValidity
Type: unsigned integer
Description: How long old monitoring info (removed tenants, etc) should be kept in the database.

Parameter: monitoringDataValidityVMs
Type: unsigned integer
Description: How long old monitoring info (for VMs) should be kept in the database.

Parameter: extraOptions
Type: list of strings
Description: Various, advanced, flags.

5.2.451 OpenStackSettingsCollection: Entity
parent: Entity
Parameter: credentials
Type: OpenStackSettingsCredentials
Description: Submode containing credential configuration

Parameter: database
Type: OpenStackSettingsDatabase
Description: Submode containing OpenStack DB settings

Parameter: advanced
Type: OpenStackSettingsAdvanced
Description: Various advanced OpenStack settings

Parameter: authentication
Type: OpenStackSettingsAuthentication
Description: Authentication-related OpenStack settings

Parameter: userPortal
Type: OpenStackSettingsUserPortal
Description: Settings for OpenStack page in User Portal

Parameter: cmdaemonInteractions
Type: OpenStackSettingsCMDaemonInteractions
Description: Advanced setting on how CMDaemon interacts with OpenStack
Parameter: users
Type: OpenStackSettingsUsers
Description: User related settings

Parameter: logging
Type: OpenStackSettingsLogging
Description: Submode containing logging settings

Parameter: ports
Type: OpenStackSettingsPorts
Description: Global settings of ports of individual OpenStack services

Parameter: networking
Type: OpenStackSettingsNetworking
Description: Global networking (neutron) settings

Parameter: compute
Type: OpenStackSettingsCompute
Description: Global compute (nova) settings

Parameter: quota
Type: OpenStackSettingsQuota
Description: Resource quota (limits) settings

5.2.452 OpenStackSettingsCompute : Entity
parent : Entity
Parameter: VNCProxyHostname
Type: string
Description: The hostname, or IP address, which will be used by the OpenStack end users using the horizon dashboard to access the VNC consoles of their VMs. Typically this should be the externally-reachable address/hostname of the head node, or, in some other cases, one of the HAProxy nodes.

Parameter: cpuAllocationRatio
Type: float
Description: Allocation ratio for the CPU. Hypervisor with 16 cores, and allocation ratio of 1.0 will effectively be capable of hosting VM consuming in total 32 vCPUs. The less CPU-hungry the VMs are, the larger this ratio can be.

Parameter: ramAllocationRatio
Type: float
Description: RAM allocation ratio. Modern hypervisor make use of Kernel same memory page merging. If multiple VMs have memory page which are identical, those pages are automatically merged by the hypervisor’s kernel. If the VMs are expected to have little to no identical memory pages, it’s best to have this value set to 1.0 (meaning no overallocation).

Parameter: ramWeightMultiplier
Type: float

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Description: This field determines how hosts with more or less available RAM are weighed. A positive value will result in the scheduler preferring hosts with more available RAM, and a negative number will result in the scheduler preferring hosts with less available RAM. Another way to look at it is that positive values for this option will tend to spread instances across many hosts, while negative values will tend to fill up (stack) hosts as much as possible before scheduling to a less-used host. The absolute value, whether positive or negative, controls how strong the RAM weigher is relative to other weighers. This option is only used by the FilterScheduler and its subclasses; if you use a different scheduler, this option has no effect. Also note that this setting only affects scheduling if the 'ram' weigher is enabled.

Parameter: diskAllocationRatio
Type: float
Description: Disk allocation ratio.

Parameter: schedulerFilters
Type: list of strings
Description: OpenStack nova-scheduler filters which are used to determine which hypervisor host are eligible for hosting a specific VM. For the full list of available names see /usr/lib/python2.7/site-packages/nova/scheduler/filters on one of the OpenStack controller nodes.

Parameter: reservedHostMemory
Type: unsigned integer
Description: The amount of operating memory reserver for the hypervisor's operating system (and therefore not used for hosting VMs).

Parameter: maxInstancesPerHost
Type: unsigned integer
Description: Maximum number of instances per host. Must go in hand with having the 'NumInstancesFilter' scheduler filter set.

Parameter: schedulerMaxAttempts
Type: unsigned integer
Description: How many times nova-scheduler should attempt to schedule a VM onto a hypervisor. This happens e.g. when creating a new VM, or unshelving an existing (but shelved) VM.

Parameter: liveMigrationEnabled
Type: boolean
Description: Whether or not live migration is enable. This is migration of running VM between hypervisor hosts. For live migration to work properly it’s required to either have homogenous hypervisor CPUs, or alternatively, nova-compute configure to use the set of CPU flags representing the smaller common denominator between all hypervisor nodes.

Parameter: liveMigrationRetries
Type: unsigned integer
Description: The amount of times a live migration attempt will be attempted.

Parameter: defaultAvailabilityZone
Type: string
Description: AZ for hosts not inside any az-defining host aggregates
5.2.453 OpenStackSettingsCredentials: Entity

**parent**: Entity

**Parameter**: serviceProjectName

**Type**: string

**Description**: The name of the project(tenant) used for OpenStack’s internal services

**Parameter**: adminToken

**Type**: string

**Description**: A special token which can be used to give access to Keystone’s APIs. This field should be set only when deploying OpenStack.

**Parameter**: adminUserPassword

**Type**: string

**Description**: The password for the cloud ‘admin’ user

**Parameter**: adminUserName

**Type**: string

**Description**: none

**Parameter**: CMDaemonOpenStackUsername

**Type**: string

**Description**: Part of credentials used by CMDaemon to auth with OpenStack

**Parameter**: CMDaemonOpenStackPassword

**Type**: string

**Description**: Part of credentials used by CMDaemon to auth with OpenStack

**Parameter**: CMDaemonOpenStackProjectUUID

**Type**: string

**Description**: Part of credentials used by CMDaemon to auth with OpenStack

**Parameter**: CMDaemonOpenStackProjectName

**Type**: string

**Description**: Part of credentials used by CMDaemon to auth with OpenStack

**Parameter**: CMDaemonOpenStackDomainUUID

**Type**: string

**Description**: Part of credentials used by CMDaemon to auth with OpenStack

**Parameter**: novaUsername

**Type**: string

**Description**: Credentials of an internal OpenStack service user

**Parameter**: novaPassword

**Type**: string

**Description**: Credentials of an internal OpenStack service user

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Parameter: userEC2Username
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: userEC2Password
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: keystoneUsername
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: keystonePassword
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: glanceUsername
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: glancePassword
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: cinderUsername
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: cinderPassword
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: heatUsername
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: heatPassword
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: neutronUsername
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: neutronPassword
Type: string
5.2 Entities

Description: Credentials of an internal OpenStack service user

Parameter: radosGatewayUsername
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: radosGatewayPassword
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: metadataProxySharedSecret
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: troveUsername
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: trovePassword
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: messageQueueUsername
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: messageQueuePassword
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: ceilometerUsername
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: ceilometerPassword
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: saharaUsername
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: saharaPassword
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: ironicUsername

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Type: string
Description: Credentials of an internal OpenStack service user

Parameter: ironicPassword
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: swiftUsername
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: swiftPassword
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: novaUserUUID
Type: string
Description: OpenStack user UUID of the internal ‘nova’ service user

Parameter: neutronUserUUID
Type: string
Description: OpenStack user UUID of the internal ‘neutron’ service user

Parameter: heatDAUsername
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: heatDAPassword
Type: string
Description: Credentials of an internal OpenStack service user

Parameter: extraString1
Type: string
Description: none

Parameter: extraString2
Type: string
Description: none

Parameter: extraString3
Type: string
Description: none

Parameter: extraString4
Type: string
Description: none

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5.2 Entities

Parameter: `extraString5`
Type: `string`
Description: `none`

Parameter: `extraString6`
Type: `string`
Description: `none`

Parameter: `extraString7`
Type: `string`
Description: `none`

Parameter: `extraString8`
Type: `string`
Description: `none`

Parameter: `extraString9`
Type: `string`
Description: `none`

Parameter: `extraString10`
Type: `string`
Description: `none`

5.2.454  **OpenStackSettingsDatabase**: Entity

Parent: `Entity`

Parameter: `novaDBName`
Type: `string`
Description: Internal OpenStack SQL database access credentials

Parameter: `novaDBUsername`
Type: `string`
Description: Internal OpenStack SQL database access credentials

Parameter: `novaDBPassword`
Type: `string`
Description: Internal OpenStack SQL database access credentials

Parameter: `novaDBHost`
Type: `string`
Description: Internal OpenStack SQL database access credentials

Parameter: `novaApiDBName`
Type: `string`
Description: Internal OpenStack SQL database access credentials

Parameter: `novaApiDBUsername`

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Type: string  
Description: Internal OpenStack SQL database access credentials

Parameter: novaApiDBPassword
Type: string  
Description: Internal OpenStack SQL database access credentials

Parameter: novaApiDBHost
Type: string  
Description: Internal OpenStack SQL database access credentials

Parameter: cinderDBName
Type: string  
Description: Internal OpenStack SQL database access credentials

Parameter: cinderDBUsername
Type: string  
Description: Internal OpenStack SQL database access credentials

Parameter: cinderDBPassword
Type: string  
Description: Internal OpenStack SQL database access credentials

Parameter: cinderDBHost
Type: string  
Description: Internal OpenStack SQL database access credentials

Parameter: glanceDBName
Type: string  
Description: Internal OpenStack SQL database access credentials

Parameter: glanceDBUsername
Type: string  
Description: Internal OpenStack SQL database access credentials

Parameter: glanceDBPassword
Type: string  
Description: Internal OpenStack SQL database access credentials

Parameter: glanceDBHost
Type: string  
Description: Internal OpenStack SQL database access credentials

Parameter: keystoneDBName
Type: string  
Description: Internal OpenStack SQL database access credentials
Parameter: keystoneDBUsername
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: keystoneDBPassword
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: keystoneDBHost
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: swiftDBName
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: swiftDBUsername
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: swiftDBPassword
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: swiftDBHost
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: heatDBName
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: heatDBUsername
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: heatDBPassword
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: heatDBHost
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: neutronDBName
Type: string

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Description: Internal OpenStack SQL database access credentials

Parameter: neutronDBUsername
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: neutronDBPassword
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: neutronDBHost
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: troveDBName
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: troveDBUsername
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: troveDBPassword
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: troveDBHost
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: ceilometerDBName
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: ceilometerDBUsername
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: ceilometerDBPassword
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: ceilometerDBHost
Type: string
Description: Internal OpenStack SQL database access credentials

Parameter: ceilometerDBHost2
Type:  string  
Description:  none

Parameter:  ceilometerDBHost3  
Type:  string  
Description:  none

Parameter:  saharaDBName  
Type:  string  
Description:  Internal OpenStack SQL database access credentials

Parameter:  saharaDBUsername  
Type:  string  
Description:  Internal OpenStack SQL database access credentials

Parameter:  saharaDBPassword  
Type:  string  
Description:  Internal OpenStack SQL database access credentials

Parameter:  saharaDBHost  
Type:  string  
Description:  Internal OpenStack SQL database access credentials

Parameter:  ironicDBName  
Type:  string  
Description:  Internal OpenStack SQL database access credentials

Parameter:  ironicDBUsername  
Type:  string  
Description:  Internal OpenStack SQL database access credentials

Parameter:  ironicDBPassword  
Type:  string  
Description:  Internal OpenStack SQL database access credentials

Parameter:  ironicDBHost  
Type:  string  
Description:  Internal OpenStack SQL database access credentials

Parameter:  extraString1  
Type:  string  
Description:  none

Parameter:  extraString2  
Type:  string  
Description:  none
Parameter: extraString3
Type: string
Description: none

Parameter: extraString4
Type: string
Description: none

Parameter: extraString5
Type: string
Description: none

Parameter: extraString6
Type: string
Description: none

Parameter: extraString7
Type: string
Description: none

Parameter: extraString8
Type: string
Description: none

Parameter: extraString9
Type: string
Description: none

Parameter: extraString10
Type: string
Description: none

5.2.455 OpenStackSettingsLogging : Entity
parent : Entity
Parameter: defaultApiCallLogLevelRequest
Type: enum
Description: Log verbocity of HTTP requests from CMDaemon to OpenStack as logged in /var/spool/cmd/openstack.log.

Parameter: defaultApiCallLogLevelReply
Type: enum
Description: Log verbocity of HTTP replies from OpenStack to CMDaemon as logged in /var/spool/cmd/openstack.log.

Parameter: logTokens
Type: enum
Description: Under which conditions tokens should be logged in /var/spool/cmd/openstack.log

Parameter: maxContentToLog
5.2 Entities

Type: unsigned integer
Description: When logging HTTP traffic content to /var/spool/cmd/openstack.log, how many characters of content to include.

Parameter: maxTokenToLog
Type: unsigned integer
Description: When logging tokens to /var/spool/cmd/openstack.log, how many characters of token to include.

Parameter: debugApiCalls
Type: boolean
Description: Debug API calls from CMDaemon to OpenStack

Parameter: apiCallsToDebug
Type: list of strings
Description: Debug specific API calls made from CMDaemon to OpenStack

Parameter: centralizedLogging
Type: boolean
Description: None

Parameter: globalDebug
Type: boolean
Description: Whether to enable ‘debug’ mode for all OpenStack services. Warning, this will generate a huge volumes of logs.

Parameter: globalComputeDebug
Type: boolean
Description: Whether to enable ‘debug’ mode for all OpenStack Nova services. Warning, this will generate a huge volumes of logs.

Parameter: globalNetworkDebug
Type: boolean
Description: Whether to enable ‘debug’ mode for all OpenStack Neutron services. Warning, this will generate a huge volumes of logs.

Parameter: globalImageStorageDebug
Type: boolean
Description: Whether to enable ‘debug’ mode for all OpenStack Glance services. Warning, this will generate a huge volumes of logs.

Parameter: globalBlockStorageDebug
Type: boolean
Description: Whether to enable ‘debug’ mode for all OpenStack Cinder services. Warning, this will generate a huge volumes of logs.

Parameter: globalOrchestrationDebug
Type: boolean

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Description: Whether to enable ‘debug’ mode for all OpenStack Heat services. Warning, this will generate a huge volumes of logs.

Parameter: globalAuthenticationDebug
Type: boolean
Description: Whether to enable ‘debug’ mode for all OpenStack Keystone services. Warning, this will generate a huge volumes of logs.

Parameter: globalDashboardDebug
Type: boolean
Description: Whether to enable ‘debug’ mode for all OpenStack Horizon services. Warning, this will generate a huge volumes of logs.

Parameter: globalDataProcessingDebug
Type: boolean
Description: none

Parameter: globalMeteringDebug
Type: boolean
Description: none

Parameter: globalBareMetalDebug
Type: boolean
Description: none

Parameter: extraBool1
Type: boolean
Description: none

Parameter: extraBool2
Type: boolean
Description: none

Parameter: extraBool3
Type: boolean
Description: none

Parameter: extraBool4
Type: boolean
Description: none

5.2.456 OpenStackSettingsNetworking: Entity
parent: Entity
Parameter: rescheduleNetworkResources
Type: boolean
Description: none

Parameter: 13HAEnabled
5.2 Entities

Type: tri-boolean
Description: Enable HA routers in the L3 agent.

Parameter: l3HAMinAgentsPerRouter
Type: unsigned integer
Description: Minimum number of L3 agents which a HA router will be scheduled on. If it is set to 0 then the router will be scheduled on every agent. (Used only when 'L3 HA enabled' is set.)

Parameter: l3HAMaxAgentsPerRouter
Type: unsigned integer
Description: Maximum number of L3 agents which a HA router will be scheduled on. If it is set to 0 then the router will be scheduled on every agent. (Used only when 'L3 HA enabled' is set.)

Parameter: DHCPAgentsPerNetwork
Type: unsigned integer
Description: Number of DHCP agents scheduled to host a tenant network. If this number is greater than 1, the scheduler automatically assigns multiple DHCP agents for a given tenant network, providing high availability for DHCP service.

Parameter: automaticL3AgentFailover
Type: tri-boolean
Description: Automatically reschedule routers from offline L3 agents to online L3 agents.

Parameter: routerAutoSchedule
Type: tri-boolean
Description: Allow auto scheduling of routers to L3 agent.

Parameter: networkAutoSchedule
Type: tri-boolean
Description: Allow auto scheduling networks to DHCP agent.

Parameter: VXLANGroupIP
Type: IP
Description: When configured, send broadcast traffic to this multicast group. When unconfigured (0.0.0.0), disables multicast VXLAN mode.

Parameter: routerInternalNetworkIP
Type: IP
Description: IP address for the router on the internal network.

Parameter: L2Population
Type: boolean
Description: Enables population of the VXLAN forwarding table.

Parameter: enableFloatingIPs
Type: boolean
Description: Enable Floating IPs

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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enableRouters</td>
<td>boolean</td>
<td>Enable routers. (Currently only affects Horizon.)</td>
</tr>
<tr>
<td>enableDistributedRouters</td>
<td>boolean</td>
<td>Enable distributed virtual routers (DVR). When enabled only admin can create centralized routers.</td>
</tr>
<tr>
<td>enableFirewalls</td>
<td>boolean</td>
<td>Enable firewall-as-a-service.</td>
</tr>
<tr>
<td>enableLoadBalancers</td>
<td>boolean</td>
<td>Enable loadbalancer-as-a-service.</td>
</tr>
<tr>
<td>enableVPNs</td>
<td>boolean</td>
<td>Enable VPN-as-a-service.</td>
</tr>
<tr>
<td>enableTrunkPortPlugin</td>
<td>boolean</td>
<td>Allows for creating (nested) VLANs in OpenStack, i.e. connecting multiple OpenStack networks to a VM using a single virtual NIC.</td>
</tr>
<tr>
<td>ML2TypeDrivers</td>
<td>list of strings</td>
<td>List of type drivers to enable in the ML2 plugin.</td>
</tr>
<tr>
<td>ML2MechanismDrivers</td>
<td>list of strings</td>
<td>List of mechanism drivers to enable in the ML2 plugin.</td>
</tr>
<tr>
<td>ML2EnablePortSecurityPlugin</td>
<td>boolean</td>
<td>Enable ML2 port security extension driver in the ML2 plugin.</td>
</tr>
<tr>
<td>ML2TypeDriversBehaviour</td>
<td>enum</td>
<td>Determines if ‘ML2 type drivers’ settings should be appended to built-in type drivers, or should override them.</td>
</tr>
<tr>
<td>ML2MechanismDriversBehaviour</td>
<td>enum</td>
<td>Determines if ‘ML2 mechanism drivers’ settings should be appended to built-in mechanism drivers, or should override them.</td>
</tr>
</tbody>
</table>
Parameter: extraBool1
Type: boolean
Description: Enable IPv6.

Parameter: extraBool2
Type: boolean
Description: none

Parameter: extraBool3
Type: boolean
Description: none

Parameter: extraBool4
Type: boolean
Description: none

5.2.457 OpenStackSettingsPorts: Entity
parent: Entity
Parameter: keystoneAuthAdminPort
Type: unsigned integer
Description: The default port

Parameter: keystoneAuthPublicPort
Type: unsigned integer
Description: The default port

Parameter: swiftEndpointPort
Type: unsigned integer
Description: The default port

Parameter: swiftObjectPort
Type: unsigned integer
Description: The default port

Parameter: swiftContainerPort
Type: unsigned integer
Description: The default port

Parameter: swiftAccountPort
Type: unsigned integer
Description: The default port

Parameter: glanceEndpointPort
Type: unsigned integer
Description: The default port

Parameter: cinderEndpointPort

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Type: unsigned integer
Description: The default port

Parameter: heatEndpointPort
Type: unsigned integer
Description: The default port

Parameter: neutronEndpointPort
Type: unsigned integer
Description: The default port

Parameter: novaOSAPIEndpointPort
Type: unsigned integer
Description: The default port

Parameter: novaEC2APIEndpointPort
Type: unsigned integer
Description: The default port

Parameter: novaMetaAPIEndpointPort
Type: unsigned integer
Description: The default port

Parameter: novaNoVNCProxyPort
Type: unsigned integer
Description: The default port

Parameter: novaPlacementAPIEndpointPort
Type: unsigned integer
Description: The default port

Parameter: troveEndpointPort
Type: unsigned integer
Description: The default port

Parameter: AMQPPort
Type: unsigned integer
Description: The default port

Parameter: saharaEndpointPort
Type: unsigned integer
Description: The default port

Parameter: ceilometerEndpointPort
Type: unsigned integer
Description: The default port
5.2 Entities

Parameter: ironicEndpointPort  
Type: unsigned integer  
Description: The default port

Parameter: galeraEndpointPort  
Type: unsigned integer  
Description: The default port

Parameter: backendEndpointPortOffset  
Type: unsigned integer  
Description: none

Parameter: offsetEndpointPortsOnlyOnConflict  
Type: boolean  
Description: none

Parameter: extraInt1  
Type: unsigned integer  
Description: none

Parameter: extraInt2  
Type: unsigned integer  
Description: none

Parameter: extraInt3  
Type: unsigned integer  
Description: none

Parameter: extraInt4  
Type: unsigned integer  
Description: none

Parameter: extraInt5  
Type: unsigned integer  
Description: none

Parameter: extraInt6  
Type: unsigned integer  
Description: none

Parameter: extraInt7  
Type: unsigned integer  
Description: none

Parameter: extraInt8  
Type: unsigned integer

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Description: \textit{none}

Parameter: extraInt9
Type: unsigned integer
Description: \textit{none}

\textbf{5.2.458 OpenStackSettingsQuota: Entity}

\textit{parent: Entity}

Parameter: makeStickyForNewTenants
Type: boolean
Description: Make the quotas sticky for new new tenants

Parameter: quotaInstances
Type: unsigned integer
Description: Default maximum number of VMs a project may have

Parameter: quotaVCPUs
Type: unsigned integer
Description: Default maximum number of vCPUs which can be allocated by a project

Parameter: quotaRam
Type: unsigned integer
Description: Default maximum amount of memory which can be allocated by a project

Parameter: quotaInjectedFiles
Type: unsigned integer
Description: Default maximum number of injected files

Parameter: quotaInjectedFilesContentSize
Type: unsigned integer
Description: Default maximum size of the content of files injected to VMs

Parameter: quotaKeyPairs
Type: unsigned integer
Description: Default maximum number of key pair per project

Parameter: quotaMetadataItems
Type: unsigned integer
Description: Default maximum number of custom metadata items

Parameter: quotaServerGroups
Type: unsigned integer
Description: Default maximum number of server groups

Parameter: quotaServerGroupMembers
Type: unsigned integer
Description: Default maximum number of server group members

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Parameter: quotaVolumes
  Type: unsigned integer
  Description: Default maximum number of volumes per project

Parameter: quotaVolumeSnapshots
  Type: unsigned integer
  Description: Default maximum number of volume snapshots per project

Parameter: quotaVolumesAndSnapshotsSize
  Type: unsigned integer
  Description: Default maximum size of all volumes and snapshots per project

Parameter: quotaBackups
  Type: unsigned integer
  Description: Default maximum number of volume backups per project

Parameter: quotaBackupsSize
  Type: unsigned integer
  Description: Default maximum size of all volume backups per project

Parameter: quotaConsistencyGroups
  Type: unsigned integer
  Description: Default maximum number of consistency groups

Parameter: quotaSecurityGroups
  Type: unsigned integer
  Description: Default maximum number of security groups per project

Parameter: quotaSecurityGroupRules
  Type: unsigned integer
  Description: Default maximum number of security rules per project

Parameter: quotaNetworks
  Type: unsigned integer
  Description: Default maximum number of networks per project

Parameter: quotaPorts
  Type: unsigned integer
  Description: Default maximum number of network ports per project

Parameter: quotaSubnets
  Type: unsigned integer
  Description: Default maximum number of subnets per project

Parameter: quotaFloatingIPs
  Type: unsigned integer
Description: Default maximum number of floating IPs per project

Parameter: quotaRouters
Type: unsigned integer
Description: Default maximum number of routers per project

Parameter: quotaFirewalls
Type: unsigned integer
Description: Default maximum number of firewalls per project

Parameter: quotaFirewallPolicies
Type: unsigned integer
Description: Default maximum number of firewall policies per project

Parameter: quotaFirewallRules
Type: unsigned integer
Description: Default maximum number of firewall rules per project

Parameter: quotaPools
Type: unsigned integer
Description: Default maximum number of LB pools per project

Parameter: quotaVIPs
Type: unsigned integer
Description: Default maximum number of LB virtual IPs per project

Parameter: quotaImagesSize
Type: unsigned integer
Description: Default maximum size of images which can be uploaded per projects

Parameter: quotaMaxSingleImageSize
Type: unsigned integer
Description: Default maximum size of a individual image which can be uploaded

Parameter: quotaImageProperties
Type: unsigned integer
Description: Default maximum number of custom properties per image

Parameter: quotaImageTags
Type: unsigned integer
Description: Default maximum number of tags per image

Parameter: quotaImageMembers
Type: unsigned integer
Description: Default maximum number of projects a image can be shared with

Parameter: extraInt1
5.2 Entities

Type: unsigned integer
Description: none

Parameter: extraInt2
Type: unsigned integer
Description: none

Parameter: extraInt3
Type: unsigned integer
Description: none

Parameter: extraInt4
Type: unsigned integer
Description: none

Parameter: extraInt5
Type: unsigned integer
Description: none

Parameter: extraInt6
Type: unsigned integer
Description: none

5.2.459 OpenStackSettings: VirtualNodeSettings

parent: VirtualNodeSettings
Parameter: instanceID
Type: string
Description: Instance-ID assigned by OpenStack

Parameter: name
Type: string
Description: Instance-name

Parameter: storage
Type: list of OpenStackStorage
Description: Assign storage

Parameter: availabilityZone
Type: string
Description: AZ

Parameter: region
Type: string
Description: AZ

Parameter: tenant
Type: string

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Description: Tenant name

Parameter: openStackFlavor
Type: reference to OpenStackApiFlavor or None
Description: OpenStack Flavor

Parameter: options
Type: string
Description: User defined options passed to OpenStack on instance creation

Parameter: openStackImage
Type: string
Description: OpenStack image ID used for Bright instances, it should be an iPXE image

Parameter: defaultHost
Type: reference to ComputeNode or None
Description: Default host for this instance

Parameter: extraBool
Type: boolean
Description: none

Parameter: extraStringList
Type: list of strings
Description: none

Parameter: extraKey
Type: unsigned integer
Description: none

5.2.460 OpenStackSettingsUserPortal: Entity
parent: Entity
Parameter: enabled
Type: boolean
Description: Whether the OpenStack overview should be included in the user portal. If this is set to false, no OpenStack-related information will be shown in the user portal.

Parameter: displayOverviewOnlyOpenStackUsers
Type: boolean
Description: Display overview only of open stack users

Parameter: displayEntityOverview
Type: boolean
Description: Display entity overview

Parameter: displayNodeOverview
Type: boolean
5.2 Entities

Description: Display node overview

Parameter: displayNumOfUsersInProject
Type: boolean
Description: Display number of users in project

Parameter: displayNamesOfOtherUsersInProject
Type: boolean
Description: Display names of users in project

Parameter: determineCloudStatusAutomatically
Type: boolean
Description: Determine whether the cloud is operational

Parameter: cloudStatus
Type: enum
Description: Determines the current status of the cloud reported to the users in the user portal

Parameter: cloudStatusText
Type: list of strings
Description: Custom string visible in the user portal which outlines the current of the cloud as reported by the user portal, e.g. a MOTD

Parameter: determineDashboardURLsAutomatically
Type: boolean
Description: Determine the URL to the horizon dashboard (shown in user portal) automatically

Parameter: dashboardURLs
Type: list of strings
Description: Custom list of URLs users can use to access the Horizon Dashboard via the user portal

Parameter: determineKeystoneURLsAutomatically
Type: boolean
Description: Determine keystone URLs automatically

Parameter: keystonePublicURL
Type: string
Description: Set a custom public URL here if determining the keystone URLs automatically is set to false.

Parameter: keystoneInternalURL
Type: string
Description: Set a custom internal URL here if determining the keystone URLs automatically is set to false.

5.2.461 OpenStackSettingsUsers: Entity
parent: Entity
Parameter: rcWriteOutMode

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Type: enum
Description: Whether or not to write out .openstackrc files for user. And if so, whether to do it for all users on the system, or only for those which have a matching username in OpenStack.

Parameter: writeOutPassword
Type: boolean
Description: Whether to also write out .openstackrc_password containing the password. This applies only to new users created via Bright’s APIs (as OpenStack does not store the password string).

Parameter: defaultUserRoleName
Type: string
Description: Name of the default user role, needed by several OpenStack services

Parameter: migrationScriptPath
Type: string
Description: Path to a script that will be executed should user be added to ldap. Default one is /cm/local/apps/cluster-tools/bin/cm-user-migration

Parameter: initScriptPath
Type: string
Description: Path to a script that will be executed should user be added to OpenStack. Default one is /cm/local/apps/cluster-tools/bin/cm-user-init

Parameter: extraBool1
Type: boolean
Description: none

Parameter: extraBool2
Type: boolean
Description: none

Parameter: extraBool3
Type: boolean
Description: none

Parameter: extraBool4
Type: boolean
Description: none

Parameter: extraString1
Type: string
Description: none

Parameter: extraString2
Type: string
Description: none

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5.2 Entities

Parameter: extraString3
Type: string
Description: none

Parameter: extraString4
Type: string
Description: none

Parameter: extraInt1
Type: integer
Description: none

Parameter: extraStringList1
Type: list of strings
Description: none

Parameter: extraStringList2
Type: list of strings
Description: none

Parameter: extraStringList3
Type: list of strings
Description: none

Parameter: extraStringList4
Type: list of strings
Description: none

5.2.462 OpenStackStorage: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: drive
Type: string
Description: Mount device as /dev/?

5.2.463 OpenStackTelemetryAgentCentralRole: Role
parent: Role
Parameter: extraStringList
Type: list of strings
Description: Reserved for future use

5.2.464 OpenStackTelemetryAgentComputeRole: Role
parent: Role
Parameter: workloadPartitioning
Type: boolean

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Description:  Reserved for future use.

Parameter:  extraStringList
Type:  list of strings
Description:  Reserved for future use.

5.2.465  OpenStackTelemetryAgentIpmiRole: Role
parent:  Role
Parameter:  extraStringList
Type:  list of strings
Description:  Reserved for future use.

5.2.466  OpenStackTelemetryAgentNotificationRole: Role
parent:  Role
Parameter:  extraStringList
Type:  list of strings
Description:  Reserved for future use.

5.2.467  OpenStackTelemetryAlarmEvaluatorRole: Role
parent:  Role
Parameter:  extraStringList
Type:  list of strings
Description:  Reserved for future use.

5.2.468  OpenStackTelemetryAlarmNotifierRole: Role
parent:  Role
Parameter:  extraStringList
Type:  list of strings
Description:  Reserved for future use.

5.2.469  OpenStackTelemetryApiRole: Role
parent:  Role
Parameter:  includeInHAProxy
Type:  boolean
Description:  Automatically include the nodes with this role in HAProxy configuration.

Parameter:  frontendHAProxyNames
Type:  list of strings
Description:  If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

Parameter:  isBackupEndpoint
Type:  boolean
Description:  Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

Parameter:  network
Type:  reference to Network
5.2 Entities

**Description:** Network on which api listens

**Parameter:** apiPort
**Type:** unsigned integer
**Description:** This field can be used to override the default port this service will listen on.

**Parameter:** extraStringList
**Type:** list of strings
**Description:** Reserved for future use

### 5.2.470 OpenStackTelemetryCollectorRole: Role
**Parent:** Role

**Parameter:** network
**Type:** reference to Network
**Description:** Network on which api listens

**Parameter:** udpPort
**Type:** unsigned integer
**Description:** Non default UDP port

**Parameter:** extraStringList
**Type:** list of strings
**Description:** Reserved for future use

### 5.2.471 OpenStack: Entity
**Parent:** Entity

**Parameter:** name
**Type:** string
**Description:** Name of the OpenStack instance.

**Parameter:** enabled
**Type:** boolean
**Description:** If disabled, it disables any CMDaemon interaction with the OpenStack deployment

**Parameter:** preventRemoval
**Type:** boolean
**Description:** If set, OpenStack deployment cannot be removed. Prevents accidental removals

**Parameter:** version
**Type:** string
**Description:** Version of OpenStack the instance is using.

**Parameter:** distribution
**Type:** string
**Description:** OpenStack distribution the instance is using.

**Parameter:** deploymentConfiguration
**Type:** string

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Description: Configuration used for deploying this OpenStack instance

Parameter: imageForBrightInstances
Type: string
Description: OpenStack image UUID used for Bright managed instances

Parameter: defaultFlavor
Type: string
Description: Default flavor for Bright managed instances

Parameter: extraStringList
Type: list of strings
Description: none

Parameter: deploymentStage
Type: string
Description: none

Parameter: settings
Type: OpenStackSettingsCollection
Description: Submode containing OpenStack settings

5.2.472 OpenStackUserRole: Entity
parent: Entity
Parameter: name
Type: string
Description: OpenStack user role name

Parameter: roleUUID
Type: string
Description: OpenStack role UUID

Parameter: projectUUIDs
Type: list of strings
Description: OpenStack Project UUIDs with that role

5.2.473 OpenStackVolumeApiRole: Role
parent: Role
Parameter: includeInHAProxy
Type: boolean
Description: Automatically include the nodes with this role in HAProxy configuration.

Parameter: frontendHAProxyNames
Type: list of strings
Description: If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

Parameter: isBackupEndpoint
Type: boolean
Description: Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

Parameter: network
Type: reference to Network
Description: Network on which API endpoints listens.

Parameter: apiPort
Type: unsigned integer
Description: This field can be used to override the default port this service will listen on.

Parameter: workers
Type: unsigned integer
Description: Number of worker threads.

Parameter: defaultVolumeTypeName
Type: string
Description: The name of the default volume type. If not set, new volumes will not have a volume type set, unless explicitly requested.

5.2.474 OpenStackVolumeBackend3PAR : OpenStackVolumeBackend
parent: OpenStackVolumeBackend
Parameter: driverType
Type: enum
Description: Driver type (iSCSI or FibreChannel)

Parameter: apiUrl
Type: string
Description: 3PAR WSAPI Server Url

Parameter: username
Type: string
Description: 3PAR Super user username

Parameter: password
Type: string
Description: 3PAR Super user password

Parameter: sanIP
Type: string
Description: IP address of SAN controller for SSH access to the array

Parameter: sanLogin
Type: string
Description: Username for SAN controller for SSH access to the array

Parameter: sanPassword
Type: string
Description: Password for SAN controller for SSH access to the array

Parameter: cpg
Type: list of strings
Description: List of the CPG(s) to use for volume creation

Parameter: cpgSnap
Type: string
Description: The CPG to use for Snapshots for volumes

Parameter: snapshotRetention
Type: unsigned integer
Description: The time in hours to retain a snapshot

Parameter: snapshotExpiration
Type: unsigned integer
Description: The time in hours when a snapshot expires and is deleted

Parameter: iscsiIps
Type: list of strings
Description: List of target iSCSI addresses to use

Parameter: iscsiChapEnabled
Type: boolean
Description: Enable CHAP authentication for iSCSI connections

Parameter: debug
Type: boolean
Description: Enable HTTP debugging to 3PAR

5.2.475 OpenStackVolumeBackendCeph : OpenStackVolumeBackend
parent : OpenStackVolumeBackend
Parameter: rbdPool
Type: string
Description: RADOS pool in which volumes are stored

Parameter: rbdFlattenVolumeFromSnapshot
Type: boolean
Description: Flatten volumes created from snapshots to remove dependency

Parameter: rbdMaxCloneDepth
Type: unsigned integer
Description: Maximum number of nested clones that can be taken of a volume before enforcing a flatten prior to next clone. A value of zero disables cloning

Parameter: rbdUser
5.2 Entities

Parameter: rbdSecretUuid
Type: string
Description: The libvirt uuid of the secret for the rbd_uservolumes

Parameter: rbdCephConf
Type: string
Description: Path to the ceph configuration file to use

5.2.476  OpenStackVolumeBackendDellStorageCenter : OpenStackVolumeBackend
parent : OpenStackVolumeBackend
Parameter: driverType
Type: enum
Description: Driver type (iSCSI or FibreChannel)

Parameter: sanIP
Type: string
Description: IP address of Enterprise Manager

Parameter: sanLogin
Type: string
Description: Enterprise Manager user name

Parameter: sanPassword
Type: string
Description: Enterprise Manager password

Parameter: ssn
Type: unsigned integer
Description: Storage Center serial number to use

Parameter: apiPort
Type: unsigned integer
Description: Enterprise Manager API port

Parameter: serverFolder
Type: string
Description: Name of the server folder to use on the Storage Center

Parameter: volumeFolder
Type: string
Description: Name of the volume folder to use on the Storage Center

Parameter: iscsiIp
Type: string
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**Description:** The Storage Center iSCSI IP address

**Parameter:** `iscsiPort`
**Type:** unsigned integer
**Description:** The Storage Center iSCSI port

---

### 5.2.477 OpenStackVolumeBackendGPFS: OpenStackVolumeBackend

**parent:** OpenStackVolumeBackend

**Parameter:** `imagesDir`
**Type:** string
**Description:** Path of the Image service repository in GPFS

**Parameter:** `imagesShareMode`
**Type:** enum
**Description:** Type of image copy to be used

**Parameter:** `maxCloneDepth`
**Type:** unsigned integer
**Description:** Upper limit on the number of indirections required to reach a specific block due to snapshots or clones

**Parameter:** `mountPointBase`
**Type:** string
**Description:** Path of the GPFS directory where Block Storage volume and snapshot files are stored

**Parameter:** `sparseVolumes`
**Type:** boolean
**Description:** Specifies that volumes are created as sparse files which initially consume no space

**Parameter:** `storagePool`
**Type:** string
**Description:** Storage pool that volumes are assigned to

---

### 5.2.478 OpenStackVolumeBackendNetApp: OpenStackVolumeBackend

**parent:** OpenStackVolumeBackend

**Parameter:** `storageFamily`
**Type:** enum
**Description:** Storage family.

**Parameter:** `storageProtocol`
**Type:** enum
**Description:** Storage protocol.

**Parameter:** `hostname`
**Type:** string
**Description:** Hostname of the NetApp server. The value of this option should be the IP address of either the cluster management LIF or the SVM management LIF
Parameter: port
Type: unsigned integer
Description: Port of the NetApp server

Parameter: transportType
Type: string
Description: Transport protocol for communicating with the storage system or proxy server

Parameter: login
Type: string
Description: Administrative user account name used to access the storage system or proxy server

Parameter: password
Type: string
Description: Password for the administrative user account

Parameter: vserver
Type: string
Description: The storage virtual machine (previously called a Vserver) name on the storage cluster on which provisioning of block storage volumes should occur

Parameter: allowMultiAttach
Type: boolean
Description: Allow operations that require multiple attachments to a volume

Parameter: hostType
Type: string
Description: Defines the type of operating system for all initiators that can access a LUN

Parameter: osType
Type: string
Description: Defines the type of operating system that will access a LUN exported from Data ONTAP

Parameter: spaceReservation
Type: boolean
Description: If enabled, LUNs are thick provisioned. If space reservation is disabled, storage space is allocated on demand

Parameter: poolNameSearchPattern
Type: string
Description: Regex used to restrict provisioning to the specified pools

Parameter: partnerBackend
Type: string
Description: The name of the config.conf stanza for a Data ONTAP (7-mode) HA partner

Parameter: webServicePath

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Type: string
Description: The path to the E-Series proxy application on a proxy server

Parameter: controllerIps
Type: list of strings
Description: List of hostnames/ips of controllers to which the provisioning should be restricted

Parameter: saPassword
Type: string
Description: Password for the NetApp E-Series storage array

Parameter: sizeMultiplier
Type: float
Description: When creating volumes, the quantity to be multiplied to the requested OpenStack volume size to ensure enough space is available on the SVM

Parameter: nfsSharesConfig
Type: string
Description: Path to a file with NFS exports

Parameter: copyOffloadToolPath
Type: string
Description: The path of the NetApp copy offload tool binary

Parameter: cacheClean
Type: unsigned integer
Description: Percentage of available space for an NFS share below which a cache will be cleaned

Parameter: cacheCleanStop
Type: unsigned integer
Description: Percentage of available space for an NFS share, above which files not recently accessed will not be cleaned

Parameter: expiryMinutes
Type: unsigned integer
Description: Files that have not been accessed after this interval will be cleaned

Parameter: vfiler
Type: string
Description: vFiler unit on which provisioning of block storage volumes will be done

5.2.479 OpenStackVolumeBackendNFS:OpenStackVolumeBackend
parent: OpenStackVolumeBackend
Parameter: nfsDiskUtil
Type: string
Description: Using disk utility.

Parameter: nfsMountPointBase
5.2 Entities

**Type:** string
**Description:** Base dir containing mount points for nfs shares.

**Parameter:** nfsSparsedVolumes
**Type:** boolean
**Description:** Create volumes as sparsed files which take no space. If set to False volume is created as regular file.

**Parameter:** nfsSharesConfig
**Type:** string
**Description:** File with the list of available nfs shares.

**Parameter:** nfsShares
**Type:** list of strings
**Description:** List of available nfs shares.

### 5.2.480 OpenStackVolumeBackendSolidFire: OpenStackVolumeBackend

**parent:** OpenStackVolumeBackend

**Parameter:** sanIP
**Type:** string
**Description:** IP address of MVIP

**Parameter:** sanLogin
**Type:** string
**Description:** Username for MVIP

**Parameter:** sanPassword
**Type:** string
**Description:** Password for MVIP

**Parameter:** accountPrefix
**Type:** string
**Description:** Create SolidFire accounts with this prefix (string 'hostname' is special and will create a prefix using the cinder node hostname)

**Parameter:** templateAccountName
**Type:** string
**Description:** Account name on the SolidFire Cluster to use as owner of template/cache volumes

**Parameter:** allowTenantQoS
**Type:** boolean
**Description:** Allow tenants to specify QoS on create

**Parameter:** allowTemplateCaching
**Type:** boolean
**Description:** Create an internal cache of copy of images when a bootable volume is created to eliminate fetch from glance and qemu conversion on subsequent calls

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Parameter: apiPort
Type: unsigned integer
Description: SolidFire API port

Parameter: emulate512
Type: boolean
Description: Set 512 byte emulation on volume creation

5.2.481 OpenStackVolumeBackend: Entity
parent: Entity
Parameter: name
Type: string
Description: Backend Name

Parameter: volumeDriver
Type: string
Description: Driver to use for volume creation

5.2.482 OpenStackVolumeBackupBackendCeph: OpenStackVolumeBackupBackend
parent: OpenStackVolumeBackupBackend
Parameter: backupCephUser
Type: string
Description: The Ceph user to connect with

Parameter: backupCephChunkSize
Type: unsigned integer
Description: The chunk size in bytes that a backup will be broken into before transfer to backup store

Parameter: backupCephPool
Type: string
Description: RADOS pool in which backups are stored

Parameter: backupCephStripeUnit
Type: unsigned integer
Description: RBD stripe unit to use when creating a backup image

Parameter: backupCephStripeCount
Type: unsigned integer
Description: RBD stripe count to use when creating a backup image

Parameter: restoreDiscardExcessBytes
Type: boolean
Description: If True, always discard excess bytes when restoring volumes

Parameter: backupDriver
Type: string
Description: Driver to use for backups
5.2 Entities

Parameter: backupCephConf
Type: string
Description: Path to the ceph configuration file to use

5.2.483 OpenStackVolumeBackupBackend: Entity

parent: Entity
Parameter: name
Type: string
Description: Backend name

5.2.484 OpenStackVolumeBackupRole: Role

parent: Role
Parameter: backupBackends
Type: list of OpenStackVolumeBackupBackend
Description: Using volume backup backends

5.2.485 OpenStackVolumeRole: Role

parent: Role
Parameter: glanceApiVersion
Type: string
Description: Version of Glance API to use

Parameter: volumeBackends
Type: list of OpenStackVolumeBackend
Description: Using volume storage backends

5.2.486 OpenStackVolumeSchedulerRole: Role

parent: Role
Parameter: volumeScheduleAttempts
Type: unsigned integer
Description: How many times Cinder scheduler should attempt to schedule a creation of a volume.

5.2.487 OpenvSwitchRole: Role

parent: Role
Parameter: extraString1
Type: string
Description: none

Parameter: extraString2
Type: string
Description: none

Parameter: extraString3
Type: string
Description: none

Parameter: extraString4
Type: string

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Description:  

Parameter:  extraInt1  
Type:  integer  
Description:  

Parameter:  extraStringList1  
Type:  list of strings  
Description:  

Parameter:  extraStringList2  
Type:  list of strings  
Description:  

Parameter:  extraStringList3  
Type:  list of strings  
Description:  

Parameter:  extraStringList4  
Type:  list of strings  
Description:  

5.2.488  OsapiPortIP : Entity  
parent : Entity  
Parameter:  IP  
Type:  string  
Description:  The IP address  

Parameter:  subnetUUID  
Type:  string  
Description:  The OpenStack subnet containing the port  

5.2.489  OsapiSecurityGroupRule : OpenStackApiEntity  
parent : OpenStackApiEntity  
Parameter:  direction  
Type:  enum  
Description:  Traffic direction impacted by the rule, ingress: towards the VM, egress: out of the VM  

Parameter:  etherType  
Type:  enum  
Description:  IP protocol version  

Parameter:  portRangeMin  
Type:  unsigned integer  
Description:  Port range start  

Parameter:  portRangeMax  
Type:  unsigned integer  

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Description: Port range end

Parameter: protocol
Type: string
Description: Custom string

Parameter: remoteGroupUUID
Type: string
Description: Optional remote security group impacted by this rule

Parameter: remoteIPPrefix
Type: string
Description: Remote CIDR impacted by this rule, e.g. 10.12.0.0/16

Parameter: projectUUID
Type: string
Description: Project owning this rule

5.2.490 OsapiStackResource : Entity
parent : Entity
Parameter: UUID
Type: string
Description: The UUID of the stack

Parameter: name
Type: string
Description: The name of the stack

Parameter: updatedAt
Type: string
Description: When was the last time the stack was updated

Parameter: status
Type: string
Description: Current state of the stack

Parameter: statusReason
Type: string
Description: Additional status text of the stack

Parameter: type
Type: string
Description: Type of the stack

5.2.491 OsapiSubnetAllocationPool : Entity
parent : Entity
Parameter: start
Type: IP

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**Description:** The start of the IP range.

**Parameter:** end  
**Type:** IP  
**Description:** The end of the IP range.

### 5.2.492 OSCloudDisk: Entity

**parent:** Entity  
**Parameter:** name  
**Type:** string  
**Description:** Name of the disk

**Parameter:** bootIndex  
**Type:** integer  
**Description:** Defines the order in which a hypervisor will try devices when attempting to boot the guest from storage. Setting a negative value indicates that the device should not be used for booting

**Parameter:** size  
**Type:** unsigned integer  
**Description:** Size of the disk

**Parameter:** diskBus  
**Type:** string  
**Description:** Hypervisor-specific details about disk bus type

**Parameter:** deviceType  
**Type:** string  
**Description:** Hypervisor-specific details about disk device type

**Parameter:** removeOnTermination  
**Type:** boolean  
**Description:** If true, the drive will be removed when the instance it is attached to gets terminated

### 5.2.493 OSCloudEphemeralDisk: OSCloudDisk

**parent:** OSCloudDisk  
**Parameter:** format  
**Type:** string  
**Description:** Filesystem to format the disk

### 5.2.494 OSCloudExtension: Entity

**parent:** Entity  
**Parameter:** name  
**Type:** string  
**Description:** User-defined name of the private cloud

**Parameter:** region  
**Type:** reference to OSCloudRegion
5.2 Entities

**Description:** Region of the cluster extension

**Parameter:** network  
**Type:** reference to Network  
**Description:** Network associated with the extension

**Parameter:** floatingIpNetworkId  
**Type:** string  
**Description:** Floating IP Network UUID or name

**Parameter:** stackId  
**Type:** string  
**Description:** Heat stack ID

**Parameter:** defaultDirectorSecGroupId  
**Type:** string  
**Description:** Default security group ID/name for the cloud director

**Parameter:** defaultCnodeSecGroupId  
**Type:** string  
**Description:** Default security group ID/name for the cloud nodes

**Parameter:** extraField  
**Type:** list of strings  
**Description:** A list of various advanced options

---

**OSCloudFlavor**

**parent:** CloudType

**Parameter:** id  
**Type:** string  
**Description:** The ID of the flavor

---

**OSCloudProvider**

**parent:** CloudProvider

**Parameter:** cloudApiType  
**Type:** string  
**Description:** Cloud provider type

**Parameter:** authUrl  
**Type:** string  
**Description:** Keystone URL

**Parameter:** username  
**Type:** string  
**Description:** Username

**Parameter:** password  
**Type:** string

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Description: Password

Parameter: projectId
Type: string
Description: Project ID

Parameter: projectName
Type: string
Description: Project Name

Parameter: projectDomainId
Type: string
Description: Project Domain Id

Parameter: userDomainId
Type: string
Description: User Domain Id

Parameter: keyPairName
Type: string
Description: SSH Key Pair Name

Parameter: openStackVersion
Type: string
Description: OpenStack release version (e.g. 2015.1.3)

Parameter: openStackVersionName
Type: string
Description: OpenStack release codename (e.g. Kilo)

Parameter: extensions
Type: list of OSCloudExtension
Description: List of extensions

Parameter: defaultRegion
Type: reference to OSCloudRegion or None
Description: Default region to start instances

Parameter: defaultFlavor
Type: reference to OSCloudFlavor or None
Description: Default cloud node flavor

Parameter: defaultDirectorFlavor
Type: reference to OSCloudFlavor or None
Description: Default cloud director Flavor

Parameter: defaultImage
Type: string
Description: Default node-installer image, can be overridden in the OS disk

5.2.497  **OSCloudRegion : CloudRegion**

parent: CloudRegion
Parameter: id
Type: string
Description: The ID of the region

5.2.498  **OSCloudSettings : CloudSettings**

parent: CloudSettings
Parameter: instanceId
Type: string
Description: Unique ID of the instance in OpenStack (the UUID).

Parameter: secGroupId
Type: string
Description: Security group name/ID

Parameter: region
Type: reference to OSCloudRegion
Description: The region of the cloud the VM is located in.

Parameter: flavor
Type: reference to OSCloudFlavor
Description: Instance Flavor (the type of the VM).

Parameter: image
Type: string
Description: The name of the cloud image used for creating the VM.

Parameter: disks
Type: list of OSCloudDisk
Description: Definitions of storage devices of the VM.

Parameter: availabilityZone
Type: string
Description: Availability zone the VM is supposed to be created in. If left empty, the availability zone will be automatically assigned by the cloud.

5.2.499  **OSCloudSwapDisk : OSCloudDisk**

parent: OSCloudDisk

5.2.500  **OSCloudVolumeDisk : OSCloudDisk**

parent: OSCloudDisk
Parameter: imageId
Type: string
Description: Image ID to use as source for this disk

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Parameter: snapshotId
Type: string
Description: Snapshot ID to use as source for this disk

Parameter: volumeId
Type: string
Description: Volume ID to use as source for this disk

### 5.2.501 OSServiceConfig: Entity

**parent**: Entity
Parameter: name
Type: string
Description: Name

Parameter: monitored
Type: boolean
Description: CMDaemon will periodically check if the service is running

Parameter: autostart
Type: boolean
Description: CMDaemon will restart a failed service

Parameter: runIf
Type: enum
Description: Only run this service in the specified state

Parameter: belongsToRole
Type: boolean
Description: Service is initialized as part of an assigned role

Parameter: addFromRole
Type: boolean
Description: none

Parameter: fromGenericRole
Type: boolean
Description: none

Parameter: roleKey
Type: unsigned integer
Description: none

Parameter: extraKey
Type: unsigned integer
Description: none

Parameter: internal
5.2 Entities

**Parameter:** easeType
**Type:** boolean
**Description:** none

**Parameter:** sicknessCheckScript
**Type:** string
**Description:** Script for sickness checking (no script means no sickness checks)

**Parameter:** sicknessCheckScriptTimeout
**Type:** unsigned integer
**Description:** Timeout after which the script is killed

**Parameter:** sicknessCheckInterval
**Type:** unsigned integer
**Description:** Sickness checks interval (rounded up to 30s monitoring interval)

**Parameter:** scriptTimeout
**Type:** integer
**Description:** Service operation timeout

### 5.2.502 OSService: Entity

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>parent</td>
<td>Entity</td>
<td>parent : Entity</td>
</tr>
<tr>
<td>refOSServiceConfigUniqueKey</td>
<td>unsigned integer</td>
<td>OSServiceConfig</td>
</tr>
<tr>
<td>name</td>
<td>string</td>
<td>none</td>
</tr>
<tr>
<td>status</td>
<td>enum</td>
<td>none</td>
</tr>
<tr>
<td>refNodeUniqueKey</td>
<td>unsigned integer</td>
<td>Node</td>
</tr>
<tr>
<td>isRealService</td>
<td>boolean</td>
<td>none</td>
</tr>
<tr>
<td>sicknessMessage</td>
<td>string</td>
<td>none</td>
</tr>
</tbody>
</table>
Description: none

5.2.503 Package: Entity
parent: Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: type
Type: enum
Description: Type of package manager

Parameter: name
Type: string
Description: Name

Parameter: version
Type: string
Description: Version

Parameter: release
Type: string
Description: Release

Parameter: arch
Type: string
Description: Version

Parameter: buildDate
Type: timestamp
Description: Build date

Parameter: installDate
Type: timestamp
Description: Install date

Parameter: size
Type: unsigned integer
Description: Size

Parameter: installed
Type: boolean
Description: Installed

5.2.504 Partition: Entity
parent: Entity
Parameter: name
Type: string
Description:  Name

Parameter:  clusterName
Type:  string
Description:  Cluster name

Parameter:  primaryHeadNode
Type:  reference to HeadNode
Description:  Primary head node

Parameter:  failover
Type:  CMDaemonFailover
Description:  Manage failover setup for this cluster

Parameter:  timezone
Type:  string
Description:  Time zone

Parameter:  adminEmail
Type:  list of strings
Description:  Administrator’s email

Parameter:  slaveName
Type:  string
Description:  Default prefix to identify nodes. eg node003 (basename = node)

Parameter:  slaveDigits
Type:  unsigned integer
Description:  Number of digits used to identify nodes. eg node003 (digits = 3)

Parameter:  nameServers
Type:  list of strings
Description:  Name servers

Parameter:  nameServersFromDhcp
Type:  list of strings
Description:  Name servers provided by dhcp, edit the name servers property instead

Parameter:  timeServers
Type:  list of strings
Description:  Time servers

Parameter:  searchDomains
Type:  list of strings
Description:  Search domains

Parameter:  externallyVisibleIp

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Type: IP
Description: IP that external sites see when headnode connects

Parameter: externalNetwork
Type: reference to Network
Description: External network

Parameter: defaultCategory
Type: reference to Category
Description: Default category for new nodes

Parameter: archOS
Type: list of ArchOS
Description: Architecture operating system

Parameter: burnConfigs
Type: list of BurnConfig
Description: Burn configurations

Parameter: failoverGroups
Type: list of CMDaemonFailoverGroup
Description: Failover group configurations

Parameter: resourcePools
Type: list of ResourcePool
Description: Resource pools

Parameter: defaultBurnConfig
Type: element of burnConfigs
Description: Default burn configuration

Parameter: bmcSettings
Type: BMCSettings or None
Description: Configure the baseboard management controller settings

Parameter: snmpSettings
Type: SNMPSettings or None
Description: Configure the cluster wide SNMP settings

Parameter: managementNetwork
Type: reference to Network
Description: Determines what network should be used for management traffic.

Parameter: notes
Type: string
Description: Administrator notes
Parameter: provisioningNodeAutoUpdateTimeout
Type: unsigned integer
Description: Time, in seconds, when an image on a provisioning node is considered out of date and automatically updated when needed (0 to disable automatic updates)

Parameter: relayHost
Type: string
Description: Display the configured relay host

Parameter: ucsProfiles
Type: list of UCSInfo
Description: Pre-defined UCS Profiles

Parameter: noZeroConf
Type: boolean
Description: Add nozeroconf to network configuration

Parameter: proxySettings
Type: ProxySettings or None
Description: Configure the proxy server settings

Parameter: autosign
Type: enum
Description: Sign certificates for node installer request according to network settings.

5.2.505 PBSJobQueueStat : JobQueueStat
parent : JobQueueStat
Parameter: running
Type: unsigned integer
Description: Running jobs

Parameter: queued
Type: unsigned integer
Description: Queued jobs

Parameter: held
Type: unsigned integer
Description: Held jobs

Parameter: waiting
Type: unsigned integer
Description: Waiting jobs

5.2.506 PBSJobQueue : JobQueue
parent : JobQueue
Parameter: queueType
Type: enum

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Description: Pbs Pro queue type

Parameter: fromRouteOnly
Type: boolean
Description: Receive jobs from route queues only

Parameter: routeHeldJobs
Type: boolean
Description: Specifies whether jobs in the held state can be routed from this queue

Parameter: routeWaitingJobs
Type: boolean
Description: Specifies whether jobs whose execution_time attribute value is in the future can be routed from this queue

Parameter: routeLifetime
Type: unsigned integer
Description: The maximum time a job is allowed to reside in a routing queue

Parameter: routeRetryTime
Type: unsigned integer
Description: Route retry time in routing queue

Parameter: routes
Type: list of strings
Description: Route of queue path (route_destination parameter in qmgr)

Parameter: defaultQueue
Type: boolean
Description: Specifies the queue which is to accept jobs when no queue is requested

Parameter: minWalltime
Type: string
Description: Minimum runtime of jobs running in a queue

Parameter: maxWalltime
Type: string
Description: Maximum runtime of jobs running in a queue

Parameter: defaultWalltime
Type: string
Description: Maximum runtime of jobs running in a queue

Parameter: maxQueued
Type: unsigned integer
Description: Maximum number allowed to reside in a queue at any given time (0 is the same as infinite)
5.2 Entities

Parameter: priority
Type: integer
Description: Priority of a queue against other queues of the same type [-1024; 1024]

Parameter: enabled
Type: boolean
Description: When true, a queue will accept new jobs; when false, a queue is disabled and will not accept jobs

Parameter: started
Type: boolean
Description: Jobs may be scheduled for execution from this queue; when false, a queue is considered stopped

Parameter: aclHostEnable
Type: boolean
Description: When true directs the server to use the acl_hosts access list for the named queue

5.2.507 PBSJob : Job
parent : Job
5.2.508 PbsProCgroupsSettings : WlmCgroupsSettings
parent : WlmCgroupsSettings
Parameter: jobCgroupTemplate
Type: string
Description: Template for job cgroup path ($JOBID will be replaced by job id, while $ESCAPE_JOBID will be replaced by systemd-escape of job id)

5.2.509 PbsProClientRole : PbsProRole
parent : PbsProRole
Parameter: slots
Type: unsigned integer
Description: Number of slots available on this node/category

Parameter: queues
Type: list of references to PbsProJobQueue
Description: Queues this node/nodes in this category belongs to

Parameter: allQueues
Type: boolean
Description: When set, the role will provide all available queues. (The queues property will then be ignored.)

Parameter: gpus
Type: unsigned integer
Description: Number of gpus

Parameter: gpuDevices
Type: list of strings
Description: /dev/* available to workload management

Parameter: properties
Type: list of strings
Description: Node properties (a ‘pnames’ node attribute)

Parameter: momSettings
Type: PbsProMomSettings
Description: Submode containing pbs_mom daemon settings

Parameter: commSettings
Type: PbsProCommSettings
Description: Submode containing pbs_comm settings

Parameter: nodeCustomizations
Type: list of WlmNodeCustomizationEntry
Description: PBS Pro node custom properties

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Description: Location of endpoint’s pbs_comm daemon (PBS_LEAF_ROUTERS parameter in pbs.conf)

Parameter: leafName
Type: string
Description: Leaf name (PBS_LEAF_NAME parameter in pbs.conf)

Parameter: leafManagementFqdn
Type: boolean
Description: Leaf name in pbs.conf is appended with FQDN from management network

Parameter: startMom
Type: boolean
Description: Configure pbs_mom daemon start (PBS_START_MOM parameter in pbs.conf)

Parameter: spool
Type: string
Description: PBS Pro mom spool directory

5.2.515 PbsProRole : Role
parent : Role
Parameter: wlmCluster
Type: reference to PbsProWlmCluster
Description: WLM cluster link to this WLM role

5.2.516 PbsProServerRole : PbsProRole
parent : PbsProRole
Parameter: externalServer
Type: boolean
Description: PBS Pro server daemons are running on some external machine

Parameter: commSettings
Type: PbsProCommSettings
Description: Submode containing pbs_comm settings

5.2.517 PbsProSubmitRole : Role
parent : Role
Parameter: pbsProWlmClusters
Type: list of references to PbsProWlmCluster
Description: List of PBSPro clusters which the role belongs to

5.2.518 PbsProWlmCluster : WlmCluster
parent : WlmCluster
Parameter: version
Type: string
Description: Major PBS Pro version

Parameter: placeholders
Type: list of JobQueuePlaceholder

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Description: Job queue node placeholders mode

Parameter: cgroups
Type: PbsProCgroupsSettings
Description: Submode containing PBS Pro related cgroups settings

Parameter: enableJobHistory
Type: boolean
Description: Keep all job attribute information in PBS Pro

Parameter: jobHistoryDuration
Type: string
Description: Specifies the length of time that PBS will keep each job’s history

Parameter: prefix
Type: string
Description: Pbs Pro installation directory

Parameter: spool
Type: string
Description: PBS Pro server spool directory

Parameter: subType
Type: enum
Description: PBS Pro subtype

5.2.519 PDUPort: Entity
parent: Entity
Parameter: pdu
Type: reference to PowerDistributionUnit
Description: Pointer to a power distribution unit

Parameter: prt
Type: unsigned integer
Description: Port number on the power distribution unit

5.2.520 PhysicalNode: ComputeNode
parent: ComputeNode

5.2.521 PingResult: Entity
parent: Entity
Parameter: source
Type: unsigned integer
Description: Source

Parameter: destination
Type: unsigned integer
Description: Destination
Parameter: result
Type: enum
Description: Result of the ping operation

Parameter: latency
Type: float
Description: Round trip latency

Parameter: sequenceId
Type: unsigned integer
Description: Sequence ID

### 5.2.522 PingStatisticsGlobalInformation: Entity
parent: Entity
Parameter: count
Type: unsigned integer
Description: none

Parameter: average
Type: float
Description: none

Parameter: minimum
Type: float
Description: none

Parameter: maximum
Type: float
Description: none

Parameter: uniformity
Type: float
Description: none

### 5.2.523 PingStatisticsPairInformation: Entity
parent: Entity
Parameter: source
Type: unsigned integer
Description: none

Parameter: destination
Type: unsigned integer
Description: none

Parameter: count
Type: unsigned integer
Description: none
Parameter: average
Type: float
Description: none

Parameter: minimum
Type: float
Description: none

Parameter: maximum
Type: float
Description: none

Parameter: uniformity
Type: float
Description: none

5.2.524 PingStatisticsSourceInformation: Entity
parent: Entity
Parameter: source
Type: unsigned integer
Description: none

Parameter: count
Type: unsigned integer
Description: none

Parameter: average
Type: float
Description: none

Parameter: minimum
Type: float
Description: none

Parameter: maximum
Type: float
Description: none

Parameter: uniformity
Type: float
Description: none

5.2.525 PingStatistics: Entity
parent: Entity
Parameter: totalOk
Type: unsigned integer
Description: Total number of pings that returned OK

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Parameter: `totalError`
Type: unsigned integer
Description: Total number of pings that returned error

Parameter: `totalFailed`
Type: unsigned integer
Description: Total number of pings that returned failed

Parameter: `totalTimeout`
Type: unsigned integer
Description: Total number of pings that returned timeout

Parameter: `totalNoAddress`
Type: unsigned integer
Description: Total number of pings had no address

Parameter: `totalUnreachable`
Type: unsigned integer
Description: Total number of pings that returned unreachable

Parameter: `total`
Type: unsigned integer
Description: Total number of pings done

Parameter: `pairInformation`
Type: list of `PingStatisticsPairInformation`
Description: Ping pair information statistics

Parameter: `sourceInformation`
Type: list of `PingStatisticsSourceInformation`
Description: Ping source information statistics

Parameter: `globalInformation`
Type: `PingStatisticsGlobalInformation`
Description: Ping global information statistics

Parameter: `results`
Type: list of `PingResult`
Description: Raw ping results

---

5.2.526  **PowerDistributionUnit : Device**

parent: `Device`

Parameter: `ip`
Type: IP
Description: IP address

Parameter: `network`
**Type:** reference to Network or None

**Description:** Network to which this unit is connected

**Parameter:** model

**Type:** string

**Description:** PowerDistributionUnit model name

**Parameter:** ports

**Type:** integer

**Description:** Number of outlets

**Parameter:** banks

**Type:** integer

**Description:** Number of banks

**Parameter:** phases

**Type:** integer

**Description:** Number of phases

**Parameter:** snmpSettings

**Type:** SNMPSettings or None

**Description:** Configure the cluster wide SNMP settings

**Parameter:** firmware

**Type:** string

**Description:** Firmware revision

**Parameter:** controlScript

**Type:** string

**Description:** none

**Parameter:** controlScriptTimeout

**Type:** unsigned integer

**Description:** none

**5.2.527** PowerOperationHistory: Entity

**parent:** Entity

**Parameter:** refDeviceUniqueKey

**Type:** unsigned integer

**Description:** Device

**Parameter:** executionTime

**Type:** unsigned integer

**Description:** Execution time in milliseconds after epoch

**Parameter:** operation

**Type:** enum
Description: Operation

Parameter: success
Type: boolean
Description: Success

5.2.528 PowerOperationStatus : Entity
parent : Entity
Parameter: state
Type: enum
Description: State of the operation

Parameter: operation
Type: enum
Description: Operation to be performed

Parameter: executionTime
Type: timestamp
Description: Execution time

Parameter: info
Type: string
Description: Extra information about the power operation

Parameter: retries
Type: unsigned integer
Description: Number of retries

Parameter: devices
Type: list of unsigned numbers
Description: Devices

Parameter: index
Type: list of unsigned numbers
Description: Indexes of power operation

Parameter: gpus
Type: list of unsigned numbers
Description: GPUs

5.2.529 PowerOperation : Entity
parent : Entity
Parameter: devices
Type: list of unsigned numbers
Description: Devices

Parameter: pduPorts
Type: list of unsigned numbers

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Description: A list of (PDU, port) pairs

Parameter: sessionId
Type: unsigned integer
Description: Session id

Parameter: force
Type: boolean
Description: Set to true to also do power operation on closed devices

Parameter: delay
Type: unsigned integer
Description: Delay between sequencial operations in milliseconds

Parameter: deviceDelay
Type: list of unsigned numbers
Description: Individual device delay in milliseconds

Parameter: headIndex
Type: unsigned integer
Description: Should be 0

Parameter: operation
Type: enum
Description: Operation to be performed

Parameter: gpus
Type: list of unsigned numbers
Description: GPUs

Parameter: retryCount
Type: unsigned integer
Description: Number of times to retry on failure

Parameter: retryDelay
Type: unsigned integer
Description: Delay between consecutive tries in milliseconds

5.2.530 PowerStatus : Entity
parent : Entity
Parameter: device
Type: unsigned integer
Description: Device

Parameter: host
Type: unsigned integer
Description: none

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Parameter: powerDistributionUnit
Type: unsigned integer
Description: none

Parameter: gpu
Type: integer
Description: none

Parameter: prt
Type: unsigned integer
Description: none

Parameter: name
Type: string
Description: none

Parameter: state
Type: enum
Description: none

Parameter: msg
Type: string
Description: none

Parameter: extendedMsg
Type: string
Description: none

Parameter: indexes
Type: list of unsigned numbers
Description: none

Parameter: tracker
Type: unsigned integer
Description: none

Parameter: retries
Type: unsigned integer
Description: none

5.2.531 PreJobOutput : Entity
parent : Entity
Parameter: measurable
Type: unsigned integer
Description: none

Parameter: value
Type: float
Description: none

Parameter: output
Type: string
Description: none

Parameter: failed
Type: boolean
Description: none

Parameter: reschedule
Type: boolean
Description: none

5.2.532 PreJobResult: Entity
parent: Entity
Parameter: hostname
Type: string
Description: none

Parameter: nodeKey
Type: unsigned integer
Description: none

Parameter: output
Type: list of PreJobOutput
Description: none

5.2.533 Processor: Entity
parent: Entity
Parameter: vendor
Type: string
Description: Vendor

Parameter: family
Type: string
Description: Family

Parameter: model
Type: string
Description: Model

Parameter: modelName
Type: string
Description: Model name

Parameter: cores
5.2 Entities

Type: integer
Description: Cores

Parameter: ID
Type: unsigned integer
Description: ID

Parameter: coreID
Type: unsigned integer
Description: Core ID

Parameter: IDLevel
Type: string
Description: ID level

Parameter: stepping
Type: unsigned integer
Description: Stepping

Parameter: speed
Type: string
Description: Speed

Parameter: cacheSize
Type: string
Description: Cache size

Parameter: cacheAlignment
Type: string
Description: Cache alignment

Parameter: flags
Type: string
Description: Flags

Parameter: bogomips
Type: string
Description: Bogomips

Parameter: TLBSIZE
Type: string
Description: TLB size

Parameter: addressSizes
Type: string
Description: Address sizes

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Parameter: powerManagement
Type: string
Description: Power management

Parameter: FPU
Type: boolean
Description: FPU

Parameter: FPUException
Type: boolean
Description: FPU exception

Parameter: wp
Type: boolean
Description: WP

Parameter: availableGovernors
Type: list of strings
Description: Available governors

Parameter: currentGovernor
Type: string
Description: Current governor

5.2.534 Process: Entity
parent: Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: pid
Type: integer
Description: Process ID

Parameter: ppid
Type: integer
Description: Parent PID

Parameter: uid
Type: integer
Description: Owner UID

Parameter: gid
Type: integer
Description: Process’ group ID

Parameter: state
5.2 Entities

Type: string
Description: Process’ state

Parameter: cmd
Type: string
Description: The command name

Parameter: size
Type: unsigned integer
Description: Virtual memory size(KB)

Parameter: rss
Type: unsigned integer
Description: Resident memory size

Parameter: nbthreads
Type: integer
Description: Number of threads spawned

Parameter: nbfiledescs
Type: integer
Description: Number of held file descriptors

Parameter: cputime
Type: unsigned integer
Description: CPU time

Parameter: cpuuse
Type: float
Description: CPU percentage use

Parameter: username
Type: string
Description: Owner name

Parameter: groupname
Type: string
Description: Group name

5.2.535 Profile: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: tokens
Type: list of strings

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Description: Tokens

Parameter: accessServices
Type: list of strings
Description: Services

Parameter: nonuser
Type: boolean
Description: True if profile not assignable to users.

5.2.536 ProgramRunnerInput : Entity
parent : Entity
Parameter: user
Type: string
Description: none

Parameter: startInShell
Type: boolean
Description: none

Parameter: cmd
Type: string
Description: none

Parameter: info
Type: string
Description: none

Parameter: args
Type: list of strings
Description: none

Parameter: env
Type: list of strings
Description: none

Parameter: datacin
Type: string
Description: none

Parameter: mergeCoutCerr
Type: boolean
Description: none

Parameter: maxruntime
Type: unsigned integer
Description: none
5.2 Entities

Parameter: updateinterval
Type: unsigned integer
Description: none

Parameter: priority
Type: integer
Description: none

Parameter: tracker
Type: unsigned integer
Description: none

Parameter: logger
Type: enum
Description: none

5.2.537 ProgramRunnerKill: Entity
parent: Entity
Parameter: node
Type: unsigned integer
Description: Node key

Parameter: running
Type: integer
Description: Running

Parameter: trackers
Type: list of unsigned numbers
Description: Tackers

Parameter: results
Type: list of signed numbers
Description: results

5.2.538 ProgramRunnerOutput: Entity
parent: Entity
Parameter: node
Type: unsigned integer
Description: none

Parameter: datacout
Type: string
Description: none

Parameter: datacerr
Type: string
Description: none

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Parameter: exitcode
Type: integer
Description: none

Parameter: signal
Type: integer
Description: none

Parameter: pid
Type: integer
Description: none

Parameter: runtime
Type: unsigned integer
Description: none

Parameter: state
Type: unsigned integer
Description: none

5.2.539 ProgramRunnerStatus : Entity
parent : Entity
Parameter: startTime
Type: timestamp
Description: none

Parameter: runtime
Type: unsigned integer
Description: none

Parameter: sid
Type: unsigned integer
Description: none

Parameter: running
Type: integer
Description: none

Parameter: unknown
Type: integer
Description: none

Parameter: internal
Type: boolean
Description: none

Parameter: nodes
5.2 Entities

Type: list of unsigned numbers
Description: none

Parameter: state
Type: list of unsigned numbers
Description: none

Parameter: input
Type: ProgramRunnerInput
Description: none

5.2.540 ProjectManager: Entity
parent: Entity
Parameter: users
Type: list of strings
Description: List of users managed

Parameter: accounts
Type: list of strings
Description: List of accounts managed

Parameter: op
Type: enum
Description: Job needs to belong to one of the users and/or accounts

5.2.541 PrometheusQueryDrilldown: Entity
parent: Entity
Parameter: name
Type: string
Description: The name of the drill down

Parameter: parameters
Type: list of strings
Description: Parameters to be passed to the drill down query

Parameter: query
Type: reference to PrometheusQuery or None
Description: Query to execute

5.2.542 PrometheusQuery: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: query
Type: string
Description: PromQL Query

Parameter: typeClass
Type: string
Description: Type class, slash(/) separated for levels

Parameter: description
Type: string
Description: Description

Parameter: notes
Type: string
Description: Notes

Parameter: startTime
Type: string
Description: Default query start time

Parameter: endTime
Type: string
Description: Default end start time

Parameter: interval
Type: float
Description: Interval

Parameter: stalenessDelay
Type: float
Description: Staleness delay

Parameter: access
Type: enum
Description: User access control

Parameter: unit
Type: string
Description: Unit of measure for the query results

Parameter: drilldown
Type: list of PrometheusQueryDrilldown
Description: Manage the drilldown queries

5.2.543 PrometheusRecordingRule: Entity
parent: Entity
Parameter: name
Type: string
Description: Name
**Parameter:** sourceLabels
**Type:** list of strings
**Description:** Source labels to be translated into target

**Parameter:** targetLabel
**Type:** string
**Description:** Target label

**Parameter:** valueRegex
**Type:** string
**Description:** Regex the value must match for this rule to be applied

**Parameter:** valueReplace
**Type:** string
**Description:** Replace value with regex replace (use $1 for matchers)

**Parameter:** disabled
**Type:** boolean
**Description:** Disable this rule

**Parameter:** keepOriginalLabels
**Type:** boolean
**Description:** Keep original labels

### 5.2.544 ProvisioningNodeStatus: Entity

**parent:** Entity

**Parameter:** slotsCapacity
**Type:** unsigned integer
**Description:** Number of provisioning requests this node can handle in parallel.

**Parameter:** slotsUsed
**Type:** unsigned integer
**Description:** Number of provisioning requests currently being handled by this node.

**Parameter:** nodeKey
**Type:** unsigned integer
**Description:** The provisioning node.

**Parameter:** drained
**Type:** boolean
**Description:** Drained and not available for future request

**Parameter:** imageKeys
**Type:** list of unsigned numbers
**Description:** none

**Parameter:** upToDate

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Type: list of booleans
Description: none

Parameter: nodeGroupKeys
Type: list of unsigned numbers
Description: Node groups this provisioning node will provide images for.

Parameter: categoryKeys
Type: list of unsigned numbers
Description: Categories this provisioning node will provide images for.

Parameter: rackKeys
Type: list of unsigned numbers
Description: Racks this provisioning node will provide images for.

5.2.545 ProvisioningProcessorJob : Entity
parent : Entity
Parameter: jobID
Type: unsigned integer
Description: Internal provisioning system job ID.

Parameter: requestID
Type: unsigned integer
Description: Provisioning request ID.

Parameter: source
Type: reference to Node
Description: Source node.

Parameter: sourcePath
Type: string
Description: Path on the source node.

Parameter: destination
Type: reference to Node
Description: Destination node.

Parameter: destinationPath
Type: string
Description: Path on the destination node.

Parameter: isFromNodeInstaller
Type: boolean
Description: Set if the request came from the node-installer.

Parameter: userName
Type: string
5.2 Entities

Description:  Rsync username.

Parameter:  password
Type:  string
Description:  Rsync password.

Parameter:  rsyncdPort
Type:  unsigned integer
Description:  Rsync port.

Parameter:  includelist
Type:  string
Description:  Rsync include list.

Parameter:  excludelist
Type:  string
Description:  Rsync exclude list.

Parameter:  dryrun
Type:  boolean
Description:  If set, a dry run will be performed, no data is written.

Parameter:  syncMode
Type:  unsigned integer
Description:  Sync mode.

Parameter:  state
Type:  unsigned integer
Description:  Job state.

Parameter:  errorMessage
Type:  string
Description:  Error message.

Parameter:  errorDetails
Type:  string
Description:  Error details.

Parameter:  fspart
Type:  reference to FSPart
Description:  FSPart

5.2.546  ProvisioningRequestStatus: Entity
parent : Entity
Parameter:  requestIDs
Type:  list of unsigned numbers
Description:  Provisioning request IDs.

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Parameter: sourceNodeKey
Type: unsigned integer
Description: Source node handling the provisioning request.

Parameter: sourcePath
Type: string
Description: Path on the source node.

Parameter: destinationNodeKey
Type: unsigned integer
Description: Destination node for the provisioning request.

Parameter: destinationPath
Type: string
Description: Path on the destination node.

Parameter: dryRun
Type: boolean
Description: In dry-run mode no data is actually written. See provisioning log for results.

Parameter: syncMode
Type: unsigned integer
Description: Sync mode used for the provisioning request.

Parameter: state
Type: unsigned integer
Description: State of the provisioning request.

Parameter: errorMessage
Type: string
Description: Error message.

Parameter: errorDetails
Type: string
Description: Detailed error message.

Parameter: jobFailureCounter
Type: unsigned integer
Description: Number of times the provisioning job has failed.

Parameter: isFromNodeInstaller
Type: boolean
Description: Set if the request came from the node-installer.

Parameter: requesterSessions
Type: list of unsigned numbers
Description: none

Parameter: schedulerInfo
Type: list of strings
Description: Details on how the provisioning request was scheduled.

5.2.547 ProvisioningRole : Role

parent : Role

Parameter: maxProvisioningNodes
Type: unsigned integer
Description: Maximum number of nodes that can be provisioned in parallel

Parameter: localImages
Type: list of references to SoftwareImage
Description: List of software images provided from local disk

Parameter: includeRevisionsOfLocalImages
Type: boolean
Description: Include revisions of local images

Parameter: sharedImages
Type: list of references to SoftwareImage
Description: List of software images provided from shared storage

Parameter: allImages
Type: enum
Description: When set, the role will provide all available images. (The images property will then be ignored.)

Parameter: nodegroups
Type: list of references to NodeGroup
Description: List of node groups for which to provide images

Parameter: categories
Type: list of references to Category
Description: List of categories for which to provide images

Parameter: racks
Type: list of references to Rack
Description: List of racks for which to provide images

Parameter: localProvisioning
Type: boolean
Description: Speeds up initial provisioning of cloud directors and cloud provisioning nodes. When enabled, if a software image is used as the rootfs of the provisioning node and is also to be used by that node to provision other cloud nodes, during the initial FULL install that image will be transferred only once to the provisioning node, instead of twice.
5.2.548  ProvisioningStatus: Entity
parent: Entity
Parameter: provisioningRequestStatusList
Type: list of ProvisioningRequestStatus
Description: none

Parameter: provisioningNodeStatusList
Type: list of ProvisioningNodeStatus
Description: none

5.2.549  ProxySettings: Entity
parent: Entity
Parameter: proxyHttp
Type: string
Description: HTTP proxy address which will be used for the node connections to HTTP resources

Parameter: proxyHttpUser
Type: string
Description: HTTP proxy username for authentication

Parameter: proxyHttpPass
Type: string
Description: HTTP proxy password for authentication

Parameter: proxyHttps
Type: string
Description: HTTPS proxy address which will be used for the node connections to HTTPS resources

Parameter: proxyHttpsUser
Type: string
Description: HTTPS proxy username for authentication

Parameter: proxyHttpsPass
Type: string
Description: HTTPS proxy password for authentication

Parameter: proxyFtp
Type: string
Description: FTP proxy address which will be used for the node connections to FTP resources

Parameter: proxyFtpUser
Type: string
Description: FTP proxy username for authentication

Parameter: proxyFtpPass
Type: string
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Description: FTP proxy password for authentication

Parameter: noProxy
Type: list of strings
Description: Hosts to be accessed without proxy

5.2.550 RackPosition: Entity
parent: Entity
Parameter: rack
Type: reference to Rack
Description: Name of the rack in which the device resides

Parameter: position
Type: unsigned integer
Description: Position of the node in the rack, top is 1

Parameter: height
Type: unsigned integer
Description: Height of the node

5.2.551 RackSensor: Device
parent: Device
Parameter: ip
Type: IP
Description: Ip address

Parameter: network
Type: reference to Network or None
Description: Network to which this switch is connected

Parameter: model
Type: string
Description: RackSensor model name

Parameter: sensors
Type: list of Sensor
Description: Sensors in the rackmon kit

Parameter: snmpSettings
Type: SNMPSettings or None
Description: Configure the cluster wide SNMP settings

5.2.552 Rack : Entity
parent: Entity
Parameter: name
Type: string
Description: Name

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Parameter:  room
Type:  string
Description:  Name of the room

Parameter:  xCoordinate
Type:  unsigned integer
Description:  Position in the room

Parameter:  yCoordinate
Type:  unsigned integer
Description:  Position in the room

Parameter:  height
Type:  unsigned integer
Description:  Height

Parameter:  width
Type:  unsigned integer
Description:  Width

Parameter:  depth
Type:  unsigned integer
Description:  Depth

Parameter:  angle
Type:  unsigned integer
Description:  Angle of the rack, 90 face right, 180 face backwards, 270 face left

Parameter:  inverted
Type:  boolean
Description:  Inverted racks have position 1 at the bottom

Parameter:  notes
Type:  string
Description:  Administrator notes

5.2.553  RadosGatewayRole : Role
parent : Role
Parameter:  serverRoot
Type:  string
Description:  Fast CGI server root path

Parameter:  serverSocket
Type:  string
Description:  Fast CGI server socket

Parameter:  serverPort
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Type: unsigned integer
Description: Gateway port

Parameter: serverScript
Type: string
Description: Fast CGI server script content

Parameter: module
Type: string
Description: Apache fastcgi module file name

Parameter: enableKeystoneAuthentication
Type: boolean
Description: Indicates if RadosGW will be able to authenticate via Keystone tokens

Parameter: keystoneAcceptedRoles
Type: list of strings
Description: Accepted by RadosGW OpenStack user roles

Parameter: keystoneTokensCacheSize
Type: unsigned integer
Description: When the Ceph Object Gateway gets the ticket, it looks at the tenant, and the user roles that are assigned to that ticket, and accepts/rejects the request according to the rgw keystone accepted roles configurable.

Parameter: keystoneRevocationInterval
Type: unsigned integer
Description: Keystone tokens revocation interval

Parameter: nssDbPath
Type: string
Description: Path to NSS database directory

5.2.554 RemoteNodeInstallerInteraction : Entity
parent : Entity
Parameter: node
Type: reference to ComputeNode
Description: The node requesting interaction.

Parameter: description
Type: string
Description: The description of the interaction.

Parameter: firstSeen
Type: integer
Description: The first time this interaction was requested.

Parameter: lastSeen
Type: integer
Description: The last time this interaction was requested.

Parameter: appeared
Type: string
Description: The first time this interaction was requested.

Parameter: wasConfirmed
Type: boolean
Description: Whether the interaction has been confirmed.

Parameter: wasDenied
Type: boolean
Description: Whether the interaction has been denied (rejected).

Parameter: invalid
Type: boolean
Description: Whether the interaction was found to be invalid.

5.2.555 RemoteSetupExecution : Entity
parent: Entity
Parameter: id
Type: integer
Description: A unique identified of the remote cm-*-setup execution.

Parameter: inputConfig
Type: string
Description: cm-*-setup yaml input configuration file (used with '-c' flag).

Parameter: exitCode
Type: integer
Description: The return exit code from cm-setup (once the execution has been completed).

Parameter: signal
Type: integer
Description: Number identifying the signal which interrupted the execution.

Parameter: datacout
Type: list of strings
Description: Data which was emitted on stdout from cm-*-setup.

5.2.556 ResourcePoolStatus : Entity
parent: Entity
Parameter: nodes
Type: list of unsigned numbers
Description: Nodes

Parameter: nodeStatus
5.2 Entities

Parameter: resourceKeys
Type: list of unsigned numbers
Description: Resource key

Parameter: resourceStatus
Type: list of unsigned numbers
Description: Resource status

Parameter: resourceMessages
Type: list of strings
Description: Resource message

5.2.557 ResourcePool: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: nodes
Type: list of references to Node
Description: List of nodes who share the resources

Parameter: configurationOverlay
Type: reference to ConfigurationOverlay
Description: Configuration overlay which defines the nodes that share the resources

Parameter: priority
Type: list of floating point numbers
Description: Distribution priorities for the nodes

Parameter: hostname
Type: string
Description: Hostname all IP resources will point to

Parameter: resources
Type: list of BasicResource
Description: Resources to be divided among the given nodes

Parameter: waitTime
Type: unsigned integer
Description: How long to wait after a node goes down before migrating it’s resources

Parameter: disabled
Type: boolean

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Description: Disabled the entire resource pool

Parameter: generateDNSZone
Type: enum
Description: Specify which DNS zones should be written

5.2.558 Role: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: addServices
Type: boolean
Description: Add services to nodes which belong to this node. Be careful setting this to false.

Parameter: fspartAssociations
Type: list of FSPartAssociation
Description: Provisioning associations linked to this role

5.2.559 Route: Entity
parent: Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: destination
Type: IP
Description: The destination network or destination host.

Parameter: gateway
Type: IP
Description: Gateway

Parameter: netmask
Type: IP
Description: The netmask for the destination

Parameter: flags
Type: string
Description: Flags

Parameter: metric
Type: unsigned integer
Description: The ‘distance’ to the target (usually counted in hops)

Parameter: ref
Type: unsigned integer
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Description: Number of references to this route

Parameter: use
Type: unsigned integer
Description: Number of lookups for the route

Parameter: interface
Type: string
Description: none

5.2.560 ScaleAdvancedSettings: Entity
parent: Entity
Parameter: debug2
Type: boolean
Description: Print very low level debug messages to the log

Parameter: maxThreads
Type: unsigned integer
Description: Maximum number of threads for sequential operations

Parameter: powerOperationTimeout
Type: unsigned integer
Description: Power Operation Timeout (in seconds)

Parameter: connectionRetryInterval
Type: unsigned integer
Description: Connection to CMDaemon retry interval (in seconds)

Parameter: logFile
Type: string
Description: Path to cm-scale logs file

Parameter: pinQueues
Type: boolean
Description: Pin workload to its queue nodes

Parameter: mixLocations
Type: boolean
Description: Allow to map workload to different locations (for example, cloud and local)

Parameter: failedNodeIsHealthy
Type: boolean
Description: Do not start a new node instead of a failed one

Parameter: azureDiskAccountNodes
Type: unsigned integer
Description: Number of nodes that can share the same Azure disk account

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Parameter: azureDiskImageName
Type: string
Description: Image name for Azure disks

Parameter: azureDiskContainerName
Type: string
Description: Container name for Azure disks

Parameter: azureDiskAccountPrefix
Type: string
Description: Prefix for randomly generated Azure disk account names

Parameter: options
Type: list of strings
Description: Additional parameters that will be passed to cm-scale daemon

5.2.561 ScaleDynamicNodesProvider: ScaleResourceProvider
parent: ScaleResourceProvider
Parameter: templateNode
Type: reference to Node
Description: Template node

Parameter: nodeRange
Type: string
Description: Node range

Parameter: networkInterface
Type: string
Description: Which node network interface will be changed on cloning (incremented)

Parameter: startTemplateNode
Type: boolean
Description: Should template node be started automatically

Parameter: stopTemplateNode
Type: boolean
Description: Should template node be stopped automatically

Parameter: removeNodes
Type: boolean
Description: Should nodes be removed from Bright Cluster Manager configuration upon the node termination

Parameter: leaveFailedNodes
Type: boolean
Description: Failed nodes will not be touched in order to allow administrator to investigate why they were failed
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Parameter: neverTerminate
Type: unsigned integer
Description: Number of nodes that cm-scale powers off and allows to remain, instead of terminating

5.2.562 ScaleEngine : Entity
parent: Entity
Parameter: name
Type: string
Description: HPC workload engine name

Parameter: trackers
Type: list of ScaleTracker
Description: Workload trackers

Parameter: workloadsPerNode
Type: unsigned integer
Description: Number of workloads that can be scheduled to the same node at the same time

Parameter: priority
Type: unsigned integer
Description: Workload engine priority

Parameter: ageFactor
Type: float
Description: Fairsharing coefficient for workload age significance

Parameter: engineFactor
Type: float
Description: Fairsharing coefficient for engine priority significance

Parameter: maxNodes
Type: unsigned integer
Description: Allowed running nodes limit

Parameter: notes
Type: string
Description: Engine related notes

Parameter: options
Type: list of strings
Description: Additional engine related parameters that will be passed to cm-scale daemon

5.2.563 ScaleGenericEngine : ScaleEngine
parent: ScaleEngine

5.2.564 ScaleGenericTracker : ScaleTracker
parent: ScaleTracker
Parameter: handler
Type: string

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Description: Full path to python module that produces workload entities for cm-scale

5.2.565 ScaleHpcEngine: ScaleEngine
parent: ScaleEngine
Parameter: wlmCluster
Type: reference to WlmCluster
Description: WLM cluster that will be used by cm-scale

5.2.566 ScaleHpcQueueTracker: ScaleTracker
parent: ScaleTracker
Parameter: queue
Type: string
Description: Tracking job queue

5.2.567 ScaleKubeEngine: ScaleEngine
parent: ScaleEngine
Parameter: cluster
Type: reference to KubeCluster
Description: Kubernetes cluster which pods will be tracked

Parameter: cpuBusyThreshold
Type: float
Description: CPU load % that defines if node is too busy for new pods

Parameter: memoryBusyThreshold
Type: float
Description: Memory load % that defines if node is too busy for new pods

5.2.568 ScaleKubeNamespaceTracker: ScaleTracker
parent: ScaleTracker
Parameter: controllerNamespace
Type: string
Description: Tracking Kubernetes namespace name

Parameter: object
Type: enum
Description: Type of Kubernetes objects to track

5.2.569 ScalePendingWorkload: Entity
parent: Entity
Parameter: workloadId
Type: string
Description: Workload that waits for nodes

Parameter: nodes
Type: list of references to Node
Description: List of managed nodes

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5.2.570  **ScaleResourceProvider : Entity**

**parent :** Entity  
**Parameter :** name  
**Type :** string  
**Description :** Resource provider name

**Parameter :** enabled  
**Type :** boolean  
**Description :** Resource provider is currently enabled

**Parameter :** priority  
**Type :** unsigned integer  
**Description :** Node provider priority

**Parameter :** wholeTime  
**Type :** unsigned integer  
**Description :** A compute node running time (in minutes) before it is stopped if no workload requires it

**Parameter :** stoppingAllowancePeriod  
**Type :** unsigned integer  
**Description :** A time (in minutes) just before the end of the wholeTime period prior to which all power off (or terminate) operations must be started

**Parameter :** keepRunning  
**Type :** string  
**Description :** Nodes that should not be stopped or terminated even if they are unused (range format)

**Parameter :** extraNodes  
**Type :** list of strings  
**Description :** Nodes that should be started before regular nodes

**Parameter :** extraNodeIdleTime  
**Type :** unsigned integer  
**Description :** Time, in seconds, that extra nodes can remain unused (after this time they are stopped)

**Parameter :** extraNodeStart  
**Type :** boolean  
**Description :** Automatically start extra node before the first compute node is started

**Parameter :** extraNodeStop  
**Type :** boolean  
**Description :** Automatically stop extra node after the last compute node stops

**Parameter :** defaultResources  
**Type :** list of strings

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Description: List of default resources in format [name=value]

Parameter: options
Type: list of strings
Description: Additional resource provider related parameters that will be passed to cm-scale daemon

5.2.571 ScaleServerRole : Role
parent: Role
Parameter: engines
Type: list of ScaleEngine
Description: Submode containing workload engines settings

Parameter: resourceProviders
Type: list of ScaleResourceProvider
Description: List of resource providers

Parameter: dryRun
Type: boolean
Description: Run in dry run mode

Parameter: debug
Type: boolean
Description: Print debug messages to the log

Parameter: runInterval
Type: unsigned integer
Description: Frequency of cm-scale decision making (in seconds)

Parameter: advancedSettings
Type: ScaleAdvancedSettings
Description: Submode containing advanced settings

5.2.572 ScaleStaticNodesProvider : ScaleResourceProvider
parent: ScaleResourceProvider
Parameter: nodes
Type: list of references to Node
Description: List of managed nodes

Parameter: nodegroups
Type: list of references to NodeGroup
Description: List of managed nodegroups

5.2.573 ScaleTracker : Entity
parent: Entity
Parameter: name
Type: string
Description: Tracker name
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**Parameter:** enabled  
**Type:** boolean  
**Description:** Tracker is currently enabled or disabled

**Parameter:** pendingWorkloads  
**Type:** list of ScalePendingWorkload  
**Description:** List of pending workloads

**Parameter:** assignCategory  
**Type:** reference to Category  
**Description:** Category that should be assigned to managed nodes

**Parameter:** primaryOverlays  
**Type:** list of references to ConfigurationOverlay  
**Description:** Configuration overlays that managed nodes are added to when they are required by workload

**Parameter:** secondaryOverlays  
**Type:** list of references to ConfigurationOverlay  
**Description:** Configuration overlays that the managed nodes are added to when no longer on load

**Parameter:** queueLengthThreshold  
**Type:** unsigned integer  
**Description:** Number of pending workloads/jobs that triggers the nodes bursting

**Parameter:** ageThreshold  
**Type:** unsigned integer  
**Description:** Workload/job pending time threshold that triggers the nodes bursting for this workload (in seconds)

**Parameter:** options  
**Type:** list of strings  
**Description:** Additional tracker related parameters

**5.2.574 Semaphore:** Entity  
**parent:** Entity  
**Parameter:** refNodeUniqueKey  
**Type:** unsigned integer  
**Description:** Node

**Parameter:** semid  
**Type:** integer  
**Description:** Semaphore Set ID

**Parameter:** ipcperm  
**Type:** IPCPerm  
**Description:** IPC permissions
Parameter: nsems
Type: unsigned integer
Description: Number of semaphores in the set

5.2.575 Sensor: Entity
parent: Entity
Parameter: type
Type: enum
Description: Sensor type

Parameter: name
Type: string
Description: Sensor name

Parameter: prt
Type: unsigned integer
Description: Sensor port

5.2.576 Session: Entity
parent: Entity
Parameter: eventCounter
Type: unsigned integer
Description: none

Parameter: queuedEventSize
Type: unsigned integer
Description: none

Parameter: clientType
Type: unsigned integer
Description: none

Parameter: acknowledgedKeepAlive
Type: integer
Description: none

Parameter: nodeKey
Type: unsigned integer
Description: none

Parameter: remoteAddress
Type: IP
Description: none

Parameter: username
Type: string
Description: none
Parameter: group
Type: string
Description: none

5.2.577 SharedMemory: Entity
parent: Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: shmid
Type: integer
Description: Shared memory ID

Parameter: ipcperm
Type: IPCPerm
Description: IPC permissions

Parameter: size
Type: unsigned integer
Description: Size in bytes

Parameter: cpid
Type: integer
Description: Creator PID

Parameter: nattch
Type: integer
Description: Number of attaches

5.2.578 SlurmAccountingRole: Role
parent: Role
Parameter: dbdPort
Type: unsigned integer
Description: The port number that the Slurm Database Daemon (slurmd) listens to for work

Parameter: storageHost
Type: string
Description: Defines the name of the host the MySQL database is running where slurmd is going to store the data

Parameter: storagePort
Type: unsigned integer
Description: The port number that the Slurm Database Daemon (slurmd) communicates with the database

Parameter: storageLoc
Type: string

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**Description:** The name of the database as the location where slurmd accounting records are written.

**Parameter:** storageUser

**Type:** string

**Description:** Defines the name of the user to connect to the MySQL database with to store the job accounting data.

**Parameter:** slurmWlmClusters

**Type:** list of references to SlurmWlmCluster

**Description:** List of Slurm clusters which can make use of this SlurmAccountingRole (slurmd).

### 5.2.579 SlurmCgroupsSettings: WlmCgroupsSettings

**parent:** WlmCgroupsSettings

**Parameter:** allowedDevicesFile

**Type:** string

**Description:** If ConstrainDevices is true then this file has to be used to declare the devices that need to be allowed by default for all the jobs.

**Parameter:** taskAffinity

**Type:** boolean

**Description:** If true then set a default task affinity to bind each step task to a subset of the allocated cores using sched_setaffinity.

**Parameter:** constrainCores

**Type:** boolean

**Description:** If true then constrain allowed cores to the subset of allocated resources.

**Parameter:** constrainRAMSpace

**Type:** boolean

**Description:** If true then constrain the job’s RAM usage.

**Parameter:** constrainSwapSpace

**Type:** boolean

**Description:** If true then constrain the job’s swap space usage.

**Parameter:** constrainDevices

**Type:** boolean

**Description:** If true constrain the job’s allowed devices based on GRES allocated resources.

**Parameter:** allowedRamSpace

**Type:** float

**Description:** Constrain the job cgroup RAM to this percentage of the allocated memory. The percentage supplied may be expressed as floating point number, e.g. 98.5. If the AllowedRAMSpace limit is exceeded, the job steps will be killed and a warning message will be written to standard error. Also see ConstrainRAMSpace. The default value is 100.

**Parameter:** allowedSwapSpace

**Type:** float
Description: Constrain the job cgroup swap space to this percentage of the allocated memory

Parameter: `maxRAMPercent`
Type: float
Description: Set an upper bound in percent of total RAM on the RAM constraint for a job

Parameter: `maxSwapPercent`
Type: float
Description: Set an upper bound (in percent of total RAM) on the amount of RAM+Swap that may be used for a job

Parameter: `minRAMSpace`
Type: unsigned integer
Description: Set a lower bound (in MB) on the memory limits defined by AllowedRAMSpace and AllowedSwapSpace

Parameter: `jobCgroupTemplate`
Type: string
Description: Template for job cgroup path ($UID will be replaced to user ID, $JOBID will be replaced to job id)

Parameter: `allowedKmemSpace`
Type: unsigned integer
Description: Constrain the job cgroup kernel memory to this amount of the allocated memory (in bytes)

Parameter: `constrainKmemSpace`
Type: boolean
Description: Specifies if Slurm will constrain the job’s Kmem RAM usage

Parameter: `minKmemSpace`
Type: unsigned integer
Description: Set a lower bound (in MB) on the memory limits defined by AllowedKmemSpace

Parameter: `maxKmemPercent`
Type: float
Description: Set an upper bound in percent of total Kmem for a job

Parameter: `memorySwappiness`
Type: float
Description: Configure the kernel’s priority for swapping out anonymous pages (such as program data) verses file cache pages for the job cgroup (either ConstrainRAMSpace or ConstrainSwapSpace must be enabled in order for this parameter to be applied)

5.2.580 SlurmClientRole: SlurmRole
parent: SlurmRole
Parameter: `slots`
Type: unsigned integer

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Description: Number of slots available on this node/category (set 0 for default)

Parameter: queues
Type: list of references to SlurmJobQueue
Description: Queues this node/nodes in this category belongs to

Parameter: allQueues
Type: boolean
Description: When set, the role will provide all available queues (the queues property will then be ignored)

Parameter: nodeAddr
Type: string
Description: Name that a node should be referred to in establishing a communications path

Parameter: coresPerSocket
Type: unsigned integer
Description: Number of cores in a single physical processor socket

Parameter: features
Type: list of strings
Description: A list of arbitrary strings indicative of some characteristic associated with the node

Parameter: tcpPort
Type: unsigned integer
Description: The port number that the Slurm compute node daemon, slurmd, listens to for work on this particular node

Parameter: realMemory
Type: unsigned integer
Description: Size of real memory on the node in MegaBytes

Parameter: sockets
Type: unsigned integer
Description: Number of physical processor sockets/chips on the node

Parameter: threadsPerCore
Type: unsigned integer
Description: Number of logical threads in a single physical core

Parameter: tmpDisk
Type: unsigned integer
Description: Total size of temporary disk storage in TmpFS in MegaBytes

Parameter: weight
Type: integer

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**Description:** The priority of the node for scheduling purposes

**Parameter:** boards  
**Type:** unsigned integer  
**Description:** Number of baseboards in nodes with a baseboard controller

**Parameter:** socketsPerBoard  
**Type:** unsigned integer  
**Description:** Number of physical processor sockets/chips on a baseboard

**Parameter:** powerSavingAllowed  
**Type:** boolean  
**Description:** Enable Slurm power saving for particular nodes, categories or configuration overlays

**Parameter:** reason  
**Type:** string  
**Description:** Identifies the reason for a node being in a particular state

**Parameter:** cpuSpecList  
**Type:** list of strings  
**Description:** A comma delimited list of Slurm abstract CPU IDs on which Slurm compute node daemons (slurmd, slurmstepd) will be confined

**Parameter:** coreSpecCount  
**Type:** unsigned integer  
**Description:** Number of cores in a single physical processor socket

**Parameter:** memSpecLimit  
**Type:** unsigned integer  
**Description:** Limit on combined real memory allocation for compute node daemons (slurmd, slurmstepd), in megabytes

**Parameter:** nodeCustomizations  
**Type:** list of WlmNodeCustomizationEntry  
**Description:** Slurm node custom properties

**Parameter:** genericResources  
**Type:** list of SlurmGenericResource  
**Description:** Slurm generic resources settings

5.2.581 SlurmGenericResource: Entity

**parent:** Entity  
**Parameter:** alias  
**Type:** string  
**Description:** Unique alias name of the generic resource

**Parameter:** name  
**Type:** string  

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**Description:** Name of the generic resource in Slurm

**Parameter:** count  
**Type:** string  
**Description:** Number of resources of this type available on this node (a suffix K, M, G, T or P may be used to multiply the number by 1024, 1048576, etc. respectively)

**Parameter:** cores  
**Type:** string  
**Description:** Specify the first thread CPU index numbers for the specific cores which can use this resource (e.g. '0,1,2,3' or '0-3')

**Parameter:** type  
**Type:** string  
**Description:** An arbitrary string identifying the type of device

**Parameter:** file  
**Type:** string  
**Description:** Fully qualified pathname of the device files associated with a resource (simple regular expressions are supported)

**Parameter:** consumable  
**Type:** boolean  
**Description:** Multiple jobs can use the same generic resource

5.2.582 SlurmJobQueueAccessList : Entity  
**parent:** Entity  
**Parameter:** wlmCluster  
**Type:** reference to WlmCluster  
**Description:** WLM cluster link to this job queue access list

**Parameter:** slurmJobQueue  
**Type:** list of references to SlurmJobQueue  
**Description:** List of queues that can be submitted to. If none is specified, this access list will submit to all job queues in the specified WlmCluster.

5.2.583 SlurmJobQueueStat : JobQueueStat  
**parent:** JobQueueStat  
**Parameter:** memory  
**Type:** string  
**Description:** Memory

**Parameter:** cpus  
**Type:** unsigned integer  
**Description:** CPUs

**Parameter:** total  
**Type:** unsigned integer
5.2 Entities

Description: Total nodes

Parameter: usable
Type: unsigned integer

Description: Usable nodes

Parameter: free
Type: unsigned integer

Description: Free nodes

Parameter: limit
Type: unsigned integer

Description: Node limit

Parameter: timeLimit
Type: string

Description: Time limit

Parameter: other
Type: string

Description: Other traits

5.2.584 SlurmJobQueue: JobQueue

parent: JobQueue

Parameter: allocNodes
Type: string

Description: Allocate nodes

Parameter: defaultQueue
Type: boolean

Description: Set this as the default queue

Parameter: minNodes
Type: string

Description: Minimal nodes one job has to use

Parameter: maxNodes
Type: string

Description: Maximal nodes one job can use

Parameter: defaultTime
Type: string

Description: Default job runtime

Parameter: maxTime
Type: string

Description: Maximal job runtime

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Parameter: priorityJobFactor
Type: integer
Description: Partition factor used by priority/multifactor plugin in calculating job priority

Parameter: priorityTier
Type: integer
Description: Jobs submitted to a partition with a higher priority tier value will be dispatched before pending jobs in partition with lower priority tier value

Parameter: hidden
Type: boolean
Description: Hide from all

Parameter: disableRoot
Type: boolean
Description: Do not allow root to run jobs

Parameter: rootOnly
Type: boolean
Description: Only allow root to run jobs

Parameter: allowGroups
Type: string
Description: Specify user groups which are allowed to run jobs

Parameter: overSubscribe
Type: string
Description: Controls the ability of the partition to execute more than one job at a time on each resource

Parameter: status
Type: string
Description: Queue status

Parameter: totalNodes
Type: unsigned integer
Description: Total number of nodes part of this queue

Parameter: totalCPUs
Type: unsigned integer
Description: Total number of CPUs available to this queue

Parameter: alternate
Type: string
Description: Partition name of alternate partition to be used if the state of this partition is DRAIN or INACTIVE
Parameter: graceTime  
Type: unsigned integer  
Description: Specifies, in units of seconds, the preemption grace time to be extended to a job which has been selected for preemption

Parameter: defMemPerCPU  
Type: string  
Description: Default real memory size available per allocated CPU in MegaBytes

Parameter: maxMemPerCPU  
Type: string  
Description: Maximum real memory size available per allocated CPU in MegaBytes

Parameter: defMemPerNode  
Type: string  
Description: Default real memory size available per allocated node in MegaBytes

Parameter: maxMemPerNode  
Type: string  
Description: Maximum real memory size available per allocated node in MegaBytes

Parameter: preemptMode  
Type: string  
Description: Mechanism used to preempt jobs from this partition

Parameter: reqResv  
Type: string  
Description: Specifies users of this partition are required to designate a reservation when submitting a job

Parameter: SelectTypeParameters  
Type: string  
Description: Partition-specific resource allocation type

Parameter: allowAccounts  
Type: string  
Description: Specify accounts which are allowed to run jobs

Parameter: allowQos  
Type: string  
Description: Specify qos which are allowed to run jobs

Parameter: denyGroups  
Type: string  
Description: Specify groups which are denied to run jobs

Parameter: denyAccounts

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Type: string
Description: Specify accounts which are denied to run jobs

Parameter: denyQos
Type: string
Description: Specify qos which are denied to run jobs

Parameter: lln
Type: boolean
Description: Schedule resources to jobs on the least loaded nodes

Parameter: maxCPUsPerNode
Type: string
Description: Maximum number of CPUs on any node available to all jobs from this partition

Parameter: tresBillingWeights
Type: list of strings
Description: Billing weights of each TRES type that will be used in calculating the usage of a job

5.2.585 SlurmJob: Job
parent: Job

5.2.586 SlurmRole: Role
parent: Role
Parameter: wlmCluster
Type: reference to SlurmWlmCluster
Description: WLM cluster link to this WLM role

5.2.587 SlurmServerRole: SlurmRole
parent: SlurmRole
Parameter: scheduler
Type: string
Description: Scheduler to use in combination with slurm

Parameter: externalServer
Type: boolean
Description: Slurm server daemons are running on some external machine

5.2.588 SlurmSubmitRole: Role
parent: Role
Parameter: slurmJobQueueAccessList
Type: list of SlurmJobQueueAccessList
Description: List of slurm clusters and their associated queues that can be submitted to

5.2.589 SlurmWlmCluster: WlmCluster
parent: WlmCluster
Parameter: placeholders
Type: list of JobQueuePlaceholder
Description: Job queue node placeholders mode
5.2 Entities

Parameter: cgroups
Type: SlurmCgroupsSettings
Description: Submode containing Slurm related cgroups settings

Parameter: powerSavingEnabled
Type: boolean
Description: Enable power saving options into slurm.conf

Parameter: suspendTime
Type: integer
Description: Nodes which remain idle for this number of seconds will be placed into power save mode by SuspendProgram

Parameter: suspendTimeout
Type: unsigned integer
Description: Maximum time permitted (in second) between when a node suspend request is issued and when the node shutdown

Parameter: resumeTimeout
Type: unsigned integer
Description: Maximum time permitted (in second) between when a node is resume request is issued and when the node is actually available for use

Parameter: suspendProgram
Type: string
Description: Program that will be executed when a node remains idle for an extended period of time

Parameter: resumeProgram
Type: string
Description: Program that will be executed when a suspended node is needed by a submitted jobs

Parameter: prologSlurmctld
Type: string
Description: Fully qualified pathname of a program for the slurmctld daemon to execute before granting a new job allocation (e.g. /usr/local/slurm/prolog_controller)

Parameter: prolog
Type: string
Description: Fully qualified pathname of a program for the slurmd to execute whenever it is asked to run a job step from a new job allocation (e.g. /usr/local/slurm/prolog)

Parameter: epilog
Type: string
Description: Fully qualified pathname of a script to execute as user root on every node when a user’s job completes (e.g. /usr/local/slurm/epilog)

Parameter: fastSchedule

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Type:  unsigned integer
Description:  Controls how a node’s configuration specifications in slurm.conf are used

Parameter:  gresTypes
Type:  list of strings
Description:  A list of generic resources to be managed

Parameter:  prefix
Type:  string
Description:  Slurm root installation directory

Parameter:  etc
Type:  string
Description:  Slurm configuration files directory

Parameter:  stateSave
Type:  string
Description:  Directory into which the Slurm controller saves its state

Parameter:  version
Type:  string
Description:  Major Slurm version

Parameter:  slurmConfFileTemplate
Type:  string
Description:  Template for slurm.conf file

Parameter:  gresConfFileTemplate
Type:  string
Description:  Template for gres.conf file

5.2.590  SNMPSettings : Entity
parent : Entity
Parameter:  version
Type:  enum
Description:  none

Parameter:  timeout
Type:  float
Description:  SNMP timeout, set to 0 for default

Parameter:  vlanTimeout
Type:  float
Description:  SNMP timeout for VLAN calls, set to 0 for default

Parameter:  retries
Type:  integer
5.2 Entities

Description:  SNMP retries, set to -1 for default

Parameter:  readString
Type:  string
Description:  SNMP read-only community string

Parameter:  writeString
Type:  string
Description:  SNMP read-write community string

Parameter:  securityName
Type:  string
Description:  Security name

Parameter:  context
Type:  string
Description:  None

Parameter:  authProtocol
Type:  enum
Description:  Authentication protocol

Parameter:  privProtocol
Type:  enum
Description:  Privacy protocol

Parameter:  authKey
Type:  string
Description:  Authentication key

Parameter:  privKey
Type:  string
Description:  Privacy key

Parameter:  securityLevel
Type:  enum
Description:  Security level

Parameter:  filename
Type:  string
Description:  Filename for SNMP testing

5.2.591  SnmpTrapRole: Role
parent: Role
Parameter:  event
Type:  boolean
Description:  Enable events

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**Parameter:** mail
**Type:** boolean
**Description:** Enable mail

**Parameter:** recipients
**Type:** list of strings
**Description:** Recipients

**Parameter:** allAdministrators
**Type:** boolean
**Description:** Also send e-mail to all administrators as defined in partition

**Parameter:** access
**Type:** string
**Description:** Access string

**Parameter:** server
**Type:** string
**Description:** The SNMP server

**Parameter:** sender
**Type:** string
**Description:** The sender of the e-mail

**Parameter:** arguments
**Type:** list of strings
**Description:** Additional script arguments

**Parameter:** alternativeScript
**Type:** string
**Description:** Alternative script

5.2.592 SoftwareImageFileSelection : Entity
- **parent:** Entity
- **Parameter:** name
  **Type:** string
  **Description:** Name

- **Parameter:** patterns
  **Type:** list of strings
  **Description:** Patterns to be included

- **Parameter:** watch
  **Type:** boolean
  **Description:** Watch files with inotify
5.2.593 SoftwareImageProxy : Entity
parent : Entity
Parameter: parentSoftwareImage
Type: reference to SoftwareImage
Description: Parent software image

Parameter: revisionID
Type: integer
Description: Revision ID

5.2.594 SoftwareImageRevisionInfo : Entity
parent : Entity
Parameter: image
Type: reference to SoftwareImage or None
Description: none

Parameter: revisionID
Type: integer
Description: Revision ID

Parameter: creationTime
Type: timestamp
Description: Revision creation time

Parameter: removalTime
Type: timestamp
Description: Revision removal time

Parameter: description
Type: string
Description: Revision Description

5.2.595 SoftwareImage : Entity
parent : Entity
Parameter: name
Type: string
Description: Name

Parameter: path
Type: string
Description: Base directory of the image

Parameter: originalImage
Type: unsigned integer
Description: Image from which this one will be cloned

Parameter: fileOperationInProgress
Type: boolean

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Description:  

Parameter:  kernelVersion
Type:  string
Description:  Kernel version used

Parameter:  kernelParameters
Type:  string
Description:  Kernel parameters passed to the kernel at boot time

Parameter:  kernelOutputConsole
Type:  string
Description:  Kernel output console used at boot time

Parameter:  creationTime
Type:  timestamp
Description:  Creation time

Parameter:  modules
Type:  list of KernelModule
Description:  Manage kernel modules loaded in this image

Parameter:  enableSOL
Type:  boolean
Description:  Enable Serial console Over LAN

Parameter:  SOLPort
Type:  string
Description:  Serial port to use for SOL, usually ttyS0 or ttyS1

Parameter:  SOLSpeed
Type:  string
Description:  Baud rate to use for SOL

Parameter:  SOLFlowControl
Type:  boolean
Description:  Enable to use hardware flow control for SOL

Parameter:  notes
Type:  string
Description:  Administrator notes

Parameter:  fspart
Type:  reference to FSPart or None
Description:  Internal pointer to the FSPart associated with this image

Parameter:  bootfspart
5.2 Entities

Type: reference to FSPart or None
Description: Internal pointer to the FSPart associated with the boot directory of this image

Parameter: revisionDescription
Type: string
Description: none

Parameter: revisionID
Type: integer
Description: none

Parameter: parentSoftwareImage
Type: reference to SoftwareImage or None
Description: none

Parameter: revisionHistory
Type: list of SoftwareImageRevisionInfo
Description: none

5.2.596 StandaloneMonitoredEntity: Entity
parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: type
Type: string
Description: Optional type in case name matches another entity

Parameter: data
Type: string
Description: Data that will be passed to the script environment

Parameter: notes
Type: string
Description: Notes

5.2.597 StaticRoute: Entity
parent: Entity
Parameter: name
Type: string
Description: Generally a unique combination of gateway ip and netmaskbits

Parameter: ip
Type: IP
Description: IP of the node

Parameter: gateway

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Type:  IP  
Description:  Gateway IP address

Parameter:  netmaskBits  
Type:  unsigned integer  
Description:  Netmask bits

Parameter:  network  
Type:  reference to Network  
Description:  Network the interface is connected to

Parameter:  networkDeviceName  
Type:  string  
Description:  Name of network device

5.2.598  StatusCollectorSubSystemInfo: StatusSubSystemInfo  
parent: StatusSubSystemInfo  
Parameter:  nodes  
Type:  unsigned integer  
Description:  none

Parameter:  updates  
Type:  unsigned integer  
Description:  none

Parameter:  merges  
Type:  unsigned integer  
Description:  none

5.2.599  StatusControllerSubSystemInfo: StatusSubSystemInfo  
parent: StatusSubSystemInfo  
Parameter:  updates  
Type:  unsigned integer  
Description:  none

Parameter:  reports  
Type:  unsigned integer  
Description:  none

Parameter:  nodes  
Type:  unsigned integer  
Description:  none

Parameter:  icmpPingCount  
Type:  unsigned integer  
Description:  none

Parameter:  checkUrlCount  

5.2 Entities

Type: unsigned integer
Description: none

Parameter: customScriptCount
Type: unsigned integer
Description: none

Parameter: customFunctionCount
Type: unsigned integer
Description: none

5.2.600 StatusManagerSubSystemInfo : StatusSubSystemInfo
parent: StatusSubSystemInfo
Parameter: nodes
Type: unsigned integer
Description: none

Parameter: events
Type: unsigned integer
Description: none

5.2.601 StatusRuleSubSystemInfo : StatusSubSystemInfo
parent: StatusSubSystemInfo
Parameter: rules
Type: unsigned integer
Description: none

Parameter: updates
Type: unsigned integer
Description: none

Parameter: checks
Type: unsigned integer
Description: none

5.2.602 StatusSubSystemInfo : SubSystemInfo
parent: SubSystemInfo
Parameter: stopped
Type: boolean
Description: Stopped

Parameter: suspended
Type: boolean
Description: Suspended

5.2.603 StatusTimeoutSubSystemInfo : StatusSubSystemInfo
parent: StatusSubSystemInfo
Parameter: active

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Type: unsigned integer
Description: none

Parameter: registered
Type: unsigned integer
Description: none

Parameter: handled
Type: unsigned integer
Description: none

5.2.604 StatusTransitionSubSystemInfo: StatusSubSystemInfo

parent: StatusSubSystemInfo
Parameter: handled
Type: unsigned integer
Description: none

Parameter: transitions
Type: list of unsigned numbers
Description: Transition matrices: from -> to

5.2.605 StorageNodePolicy: Entity

parent: Entity
Parameter: name
Type: string
Description: Name

Parameter: exportedDirectories
Type: list of strings
Description: Exported directories

Parameter: minStorageVolumeSize
Type: unsigned integer
Description: Minimal size of storage volume

Parameter: defaultJobOutputSize
Type: unsigned integer
Description: Default size of job output data

Parameter: storageVolumeFilesystem
Type: string
Description: Filesystem type of storage volume

Parameter: shareStorageVolumeBetweenJobs
Type: boolean
Description: Share storage volumes between jobs

Parameter: scalingUpFactor
5.2 Entities

**Type:** float
**Description:** Scaling up factor

**Parameter:** storageNodeNamePrefix
**Type:** string
**Description:** Storage node name prefix

**Parameter:** storagePrototype
**Type:** reference to CloudNode
**Description:** Template node used for instantiating cloud storage nodes

**Parameter:** maxStorageNodeCount
**Type:** unsigned integer
**Description:** Maximum number of storage nodes

**Parameter:** maxJobsPerNode
**Type:** unsigned integer
**Description:** Maximum number of jobs that can be run on a single storage node simultaneously

**Parameter:** storageNodeIdleTimeLimit
**Type:** unsigned integer
**Description:** After that timeout storage node will be shut down

**Parameter:** terminateStorageNodes
**Type:** boolean
**Description:** Terminate storage nodes instead of powering them off

**Parameter:** cloudOperationTimeout
**Type:** unsigned integer
**Description:** Timeout for various cloud job operations

**Parameter:** maxDownloadTime
**Type:** unsigned integer
**Description:** Maximum time job results data transfer can take

**Parameter:** maxUploadTime
**Type:** unsigned integer
**Description:** Maximum time job input data transfer can take

**Parameter:** intermediateStorage
**Type:** CMJobIntermediateStorage
**Description:** Place to store data to be accessible from storage node

**Parameter:** extraOptions
**Type:** list of strings
**Description:** Extra options for jobs
5.2.606  **StorageRole**

  **parent** : Role

  **Parameter**: nfsThreads
  **Type**: unsigned integer
  **Description**: Number of nfs threads (0 for don’t touch the current config file value)

  **Parameter**: disableNFS1
  **Type**: boolean
  **Description**: Disable NFS1, NFS threads needs to be set

  **Parameter**: disableNFS2
  **Type**: boolean
  **Description**: Disable NFS2, NFS threads needs to be set

  **Parameter**: disableNFS3
  **Type**: boolean
  **Description**: Disable NFS3, NFS threads needs to be set

  **Parameter**: disableNFS4
  **Type**: boolean
  **Description**: Disable NFS4, NFS threads needs to be set

  **Parameter**: nfs4grace
  **Type**: unsigned integer
  **Description**: NFS4 grace period (0 for don’t touch the current config file value)

  **Parameter**: statdPort
  **Type**: unsigned integer
  **Description**: Stat daemon port (0 for don’t touch the current config file value)

  **Parameter**: statdOutgoingPort
  **Type**: unsigned integer
  **Description**: Stat daemon outgoing port (0 for don’t touch the current config file value)

  **Parameter**: mountdPort
  **Type**: unsigned integer
  **Description**: Mount daemon port (0 for don’t touch the current config file value)

  **Parameter**: rquotadPort
  **Type**: unsigned integer
  **Description**: Rquota daemon port (0 for don’t touch the current config file value)

  **Parameter**: lockdTcpPort
  **Type**: unsigned integer
  **Description**: Lock daemon TCP port (0 for don’t touch the current config file value)

  **Parameter**: lockdUdpPort
5.2 Entities

Type: unsigned integer
Description: Lock daemon UDP port (0 for don’t touch the current config file value)

Parameter: rdmaPort
Type: unsigned integer
Description: RDMA port (0 for don’t touch the current config file value)

5.2.607 StringListObject : Entity
parent : Entity
Parameter: list
Type: list of strings
Description: List

5.2.608 SubnetManagerRole : Role
parent : Role
Parameter: interconnect
Type: enum
Description: Type of interconnect

Parameter: ibl2mtu
Type: enum
Description: IB L2 MTU Value

5.2.609 SubSystemInfo : Entity
parent : Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: name
Type: string
Description: Name

Parameter: timestamp
Type: timestamp
Description: Time

5.2.610 SwitchPort : Entity
parent : Entity
Parameter: ethernetSwitch
Type: reference to EthernetSwitch
Description: Pointer to an ethernet switch

Parameter: prt
Type: integer
Description: Port number on the switch
### 5.2.611 Switch:Device

**parent**: Device  
**Parameter**: ip  
**Type**: IP  
**Description**: IP address

**Parameter**: network  
**Type**: reference to Network or None  
**Description**: Network to which this switch is connected

**Parameter**: ports  
**Type**: integer  
**Description**: Number of ports

**Parameter**: model  
**Type**: string  
**Description**: The switch model

**Parameter**: snmpSettings  
**Type**: SNMPSettings or None  
**Description**: Configure the cluster wide SNMP settings

**Parameter**: members  
**Type**: list of references to Switch  
**Description**: List of switches belonging to this stack

**Parameter**: controlScript  
**Type**: string  
**Description**: Custom control script that provides switch functionality

**Parameter**: controlScriptTimeout  
**Type**: unsigned integer  
**Description**: Control script timeout

### 5.2.612 SyncInfo:Entity

**parent**: Entity  
**Parameter**: node  
**Type**: reference to Node  
**Description**: none

**Parameter**: provisioningNode  
**Type**: reference to Node  
**Description**: none

**Parameter**: fspart  
**Type**: reference to FSPart
5.2 Entities

Description: none

Parameter: mode
Type: enum
Description: none

Parameter: type
Type: enum
Description: none

Parameter: dryRun
Type: boolean
Description: none

Parameter: startTime
Type: timestamp
Description: none

Parameter: endTime
Type: timestamp
Description: none

Parameter: exitCode
Type: integer
Description: none

Parameter: signal
Type: integer
Description: none

Parameter: numberOfFiles
Type: unsigned integer
Description: The count of all ‘files’ (in the generic sense), which includes directories, symlinks, etc.

Parameter: numberOfTransferedFiles
Type: unsigned integer
Description: The count of normal files that were updated via rsync’s delta-transfer algorithm, which does not include created dirs, symlinks, etc.

Parameter: numberOfCreatedFiles
Type: unsigned integer
Description: The count of normal files that were created.

Parameter: numberOfDeletedFiles
Type: unsigned integer
Description: The count of normal files that were deleted.
Parameter: totalFileSize
Type: unsigned integer
Description: The total sum of all file sizes in the transfer. This does not count any size for directories or special files, but does include the size of symlinks.

Parameter: totalTransferredFileSize
Type: unsigned integer
Description: The total sum of all files sizes for just the transferred files.

Parameter: literalData
Type: unsigned integer
Description: How much unmatched file-update data we had to send to the receiver for it to recreate the updated files.

Parameter: matchedData
Type: unsigned integer
Description: How much data the receiver got locally when recreating the updated files.

Parameter: fileListSize
Type: unsigned integer
Description: How big the file-list data was when the sender sent it to the receiver. This is smaller than the in-memory size for the file list due to some compressing of duplicated data when rsync sends the list.

Parameter: fileListGenerationTime
Type: float
Description: The number of seconds that the sender spent creating the file list. This requires a modern rsync on the sending side for this to be present.

Parameter: fileListTransferTime
Type: float
Description: The number of seconds that the sender spent sending the file list to the receiver.

Parameter: totalSent
Type: unsigned integer
Description: The count of all the bytes that rsync sent from the client side to the server side.

Parameter: totalReceived
Type: unsigned integer
Description: The count of all non-message bytes that rsync received by the client side from the server side. ‘Non-message’ bytes means that we don’t count the bytes for a verbose message that the server sent to us, which makes the stats more consistent.

Parameter: transferSpeed
Type: float
Description: Transfer speed

Parameter: speedup
Type: float
Description: Speedup

**5.2.613 SyncSource : Entity**

parent : Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: fspart
Type: reference to FSPart
Description: none

Parameter: priority
Type: unsigned integer
Description: none

**5.2.614 SyncTarget : Entity**

parent : Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: fspart
Type: reference to FSPart
Description: none

Parameter: target
Type: string
Description: none

Parameter: prefix
Type: string
Description: none

Parameter: excludeList
Type: string
Description: none

Parameter: root
Type: boolean
Description: none

Parameter: priority
Type: unsigned integer
Description: none
SysInfoCollector: Entity

parent: Entity
Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Device

Parameter: processors
Type: list of Processor
Description: none

Parameter: disks
Type: list of DiskInfo
Description: none

Parameter: gpus
Type: list of GPUInfo
Description: none

Parameter: fpgas
Type: list of FPGAInfo
Description: none

Parameter: memory
Type: list of MemoryInfo
Description: none

Parameter: biosVersion
Type: string
Description: none

Parameter: biosVendor
Type: string
Description: none

Parameter: biosDate
Type: string
Description: none

Parameter: motherboardManufacturer
Type: string
Description: none

Parameter: motherboardName
Type: string
Description: none

Parameter: memoryTotal
5.2 Entities

Parameter: memorySwap
Type: unsigned integer
Description: none

Parameter: diskCount
Type: unsigned integer
Description: none

Parameter: diskTotalSpace
Type: unsigned integer
Description: none

Parameter: osName
Type: string
Description: none

Parameter: osVersion
Type: string
Description: none

Parameter: osFlavor
Type: string
Description: none

Parameter: vendorTag
Type: string
Description: none

Parameter: systemName
Type: string
Description: none

Parameter: systemManufacturer
Type: string
Description: none

Parameter: mountPoints
Type: list of FSMount
Description: none

Parameter: nics
Type: list of strings
Description: none
Parameter: `bootIf`
Type: string
Description: *none*

Parameter: `partitions`
Type: list of strings
Description: *none*

Parameter: `interconnects`
Type: list of strings
Description: *none*

Parameter: `raidControllers`
Type: list of strings
Description: *none*

Parameter: `virtualCluster`
Type: boolean
Description: *none*

Parameter: `clusterRandomNumber`
Type: unsigned integer
Description: *none*

Parameter: `updateCount`
Type: unsigned integer
Description: *none*

5.2.616 **UCSAdaptorEthCompQueueProfile** : UCSBase
parent: UCSBase
Parameter: `count`
Type: unsigned integer
Description: Count

5.2.617 **UCSAdaptorEthGenProfile** : UCSBase
parent: UCSBase
Parameter: `order`
Type: string
Description: Order

Parameter: `rateLimit`
Type: string
Description: Rate limit

Parameter: `trustedClassOfService`
Type: boolean
Description: Trusted class of service
Parameter: uplinkFailbackTimeout
Type: string
Description: Uplink failback timeout

Parameter: uplinkFailover
Type: boolean
Description: Uplink failover

Parameter: vlan
Type: string
Description: Vlan

Parameter: vlanMode
Type: string
Description: Vlan mode

### 5.2.618 UCSAdaptorEthInterruptProfile: UCSBase
parent: UCSBase
Parameter: coalescingTime
Type: unsigned integer
Description: Coalescing time

Parameter: coalescingType
Type: string
Description: Coalescing type

Parameter: count
Type: unsigned integer
Description: Count

Parameter: mode
Type: string
Description: Mode

### 5.2.619 UCSAdaptorEthOffloadProfile: UCSBase
parent: UCSBase
Parameter: largeReceive
Type: boolean
Description: Large receive

Parameter: tcpRxChecksum
Type: boolean
Description: Tcp rx checksum

Parameter: tcpSegment
Type: boolean
Description: Tcp segment
Parameter: tcpTxChecksum
Type: boolean
Description: Tcp tx checksum

5.2.620 UCSAdaptorEthRecvQueueProfile: UCSBase
parent: UCSBase
Parameter: count
Type: unsigned integer
Description: Count

Parameter: ringSize
Type: unsigned integer
Description: Ring size

5.2.621 UCSAdaptorEthUSNICProfile: UCSBase
parent: UCSBase
Parameter: classOfService
Type: unsigned integer
Description: Class of service

Parameter: coalescingTime
Type: unsigned integer
Description: Coalescing time

Parameter: coalescingType
Type: string
Description: Coalescing type

Parameter: completionQueueCount
Type: unsigned integer
Description: Completion queue count

Parameter: interruptCount
Type: unsigned integer
Description: Interrupt count

Parameter: largeReceive
Type: boolean
Description: Large receive

Parameter: receiveQueueCount
Type: unsigned integer
Description: Receive queue count

Parameter: receiveQueueRingSize
Type: unsigned integer
Description: Receive queue ring size
5.2 Entities

Parameter: tcpRxChecksum
Type: boolean
Description: Tcp rx checksum

Parameter: tcpSegment
Type: boolean
Description: Tcp segment

Parameter: tcpTxChecksum
Type: boolean
Description: Tcp tx checksum

Parameter: transmitQueueCount
Type: unsigned integer
Description: Transmit queue count

Parameter: transmitQueueRingSize
Type: unsigned integer
Description: Transmit queue ring size

Parameter: usnicCount
Type: unsigned integer
Description: Usnic count

5.2.622 UCSAdaptorEthWorkQueueProfile: UCSBase
parent : UCSBase
Parameter: count
Type: unsigned integer
Description: Count

Parameter: ringSize
Type: unsigned integer
Description: Ring size

5.2.623 UCSAdaptorExtEthIf: UCSBase
parent : UCSBase
Parameter: portId
Type: unsigned integer
Description: Port ID

Parameter: ifType
Type: string
Description: Interface type

Parameter: mac
Type: string
Description: MAC

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Parameter: linkState
Type: string
Description: Link State

Parameter: transport
Type: string
Description: Transport

Parameter: adminSpeed
Type: string
Description: Admin Speed

Parameter: operSpeed
Type: string
Description: Operation Speed

Parameter: adaptorPortProfiles
Type: UCSAdaptorPortProfiles or None
Description: none

5.2.624 UCSAdaptorExtIpV6RssHashProfile: UCSBase
parent: UCSBase
Parameter: ipHash
Type: boolean
Description: Ip hash

Parameter: tcpHash
Type: boolean
Description: Tcp hash

5.2.625 UCSAdaptorFcCdbWorkQueueProfile: UCSBase
parent: UCSBase
Parameter: count
Type: unsigned integer
Description: Count

Parameter: ringSize
Type: unsigned integer
Description: Ring size

5.2.626 UCSAdaptorFcErrorRecoveryProfile: UCSBase
parent: UCSBase
Parameter: errorDetectTimeout
Type: unsigned integer
Description: Error detect timeout

Parameter: fcpErrorRecovery
Type: boolean
Description: Fcp error recovery

Parameter: linkDownTimeout
Type: unsigned integer
Description: Link down timeout

Parameter: portDownIoRetryCount
Type: unsigned integer
Description: Port down IO retry count

Parameter: portDownTimeout
Type: unsigned integer
Description: Port down timeout

Parameter: resourceAllocationTimeout
Type: unsigned integer
Description: Resource allocation timeout

5.2.627 UCSAdaptorFcGenProfile: UCSBase
parent: UCSBase
Parameter: classOfService
Type: unsigned integer
Description: Class of service

Parameter: mac
Type: string
Description: MAC

Parameter: maxDataFieldSize
Type: unsigned integer
Description: Max data field size

Parameter: order
Type: string
Description: Order

Parameter: persistentLunBind
Type: boolean
Description: Persistent lun bind

Parameter: rateLimit
Type: string
Description: Rate limit

Parameter: vlan
Type: string
Description: Vlan

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5.2.628 UCSAdaptorFcInterruptProfile : UCSBase
parent : UCSBase
Parameter: mode
Type: string
Description: Mode

5.2.629 UCSAdaptorFcPortFLogiProfile : UCSBase
parent : UCSBase
Parameter: retries
Type: string
Description: Retries
Parameter: timeout
Type: unsigned integer
Description: Timeout

5.2.630 UCSAdaptorFcPortPLogiProfile : UCSBase
parent : UCSBase
Parameter: retries
Type: unsigned integer
Description: Retries
Parameter: timeout
Type: unsigned integer
Description: Timeout

5.2.631 UCSAdaptorFcPortProfile : UCSBase
parent : UCSBase
Parameter: ioThrottleCount
Type: unsigned integer
Description: Io throttle count
Parameter: lunsPerTarget
Type: unsigned integer
Description: Luns per target

5.2.632 UCSAdaptorFcRecvQueueProfile : UCSBase
parent : UCSBase
Parameter: ringSize
Type: unsigned integer
Description: Ring size

5.2.633 UCSAdaptorFcWorkQueueProfile : UCSBase
parent : UCSBase
Parameter: ringSize
Type: unsigned integer
Description: Ring size
5.2.634 UCSAdaptorHostEthIf : UCSBase

parent : UCSBase
Parameter: channelNumber
Type: unsigned integer
Description: Channel number

Parameter: classOfService
Type: unsigned integer
Description: Class of service

Parameter: ifType
Type: string
Description: If type

Parameter: iscsiBoot
Type: boolean
Description: Iscsi boot

Parameter: mac
Type: string
Description: MAC

Parameter: mtu
Type: unsigned integer
Description: MTU

Parameter: name
Type: string
Description: Name

Parameter: portProfile
Type: string
Description: Port profile

Parameter: pxeBoot
Type: boolean
Description: PXE boot

Parameter: uplinkPort
Type: unsigned integer
Description: Uplink port

Parameter: usnicCount
Type: unsigned integer
Description: Usnic count

Parameter: adaptorEthGenProfile
Type: UCSAdaptorEthGenProfile or None
Description: none

Parameter: adaptorEthCompQueueProfile
Type: UCSAdaptorEthCompQueueProfile or None
Description: none

Parameter: adaptorEthInterruptProfile
Type: UCSAdaptorEthInterruptProfile or None
Description: none

Parameter: adaptorEthOffloadProfile
Type: UCSAdaptorEthOffloadProfile or None
Description: none

Parameter: adaptorEthRecvQueueProfile
Type: UCSAdaptorEthRecvQueueProfile or None
Description: none

Parameter: adaptorEthUSNICProfile
Type: UCSAdaptorEthUSNICProfile or None
Description: none

Parameter: adaptorEthWorkQueueProfile
Type: UCSAdaptorEthWorkQueueProfile or None
Description: none

Parameter: adaptorExtIpV6RssHashProfile
Type: UCSAdaptorExtIpV6RssHashProfile or None
Description: none

Parameter: adaptorIpV6RssHashProfile
Type: UCSAdaptorIpV6RssHashProfile or None
Description: none

Parameter: adaptorIpV4RssHashProfile
Type: UCSAdaptorIpV4RssHashProfile or None
Description: none

Parameter: adaptorRssProfile
Type: UCSAdaptorRssProfile or None
Description: none

5.2.635 UCSAdaptorHostFcIf: UCSBase
parent: UCSBase
Parameter: adminPersistentBindings
Type: string

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Description: Admin persistent bindings

Parameter: channelNumber
Type: unsigned integer
Description: Channel number

Parameter: ifType
Type: string
Description: If type

Parameter: name
Type: string
Description: Name

Parameter: portProfile
Type: string
Description: Port profile

Parameter: sanBoot
Type: boolean
Description: San boot

Parameter: uplinkPort
Type: unsigned integer
Description: Uplink port

Parameter: wwnn
Type: string
Description: Wnnn

Parameter: wwpn
Type: string
Description: Wwpn

Parameter: adaptorFcDbWorkQueueProfile
Type: UCSAdaptorFcDbWorkQueueProfile or None
Description: none

Parameter: adaptorFcErrorRecoveryProfile
Type: UCSAdaptorFcErrorRecoveryProfile or None
Description: none

Parameter: adaptorFcGenProfile
Type: UCSAdaptorFcGenProfile or None
Description: none

Parameter: adaptorFcInterruptProfile
Type: UCSAdaptorFcInterruptProfile or None
Description: none

Parameter: adaptorFcPortFLogiProfile
Type: UCSAdaptorFcPortFLogiProfile or None
Description: none

Parameter: adaptorFcPortPLogiProfile
Type: UCSAdaptorFcPortPLogiProfile or None
Description: none

Parameter: adaptorFcPortProfile
Type: UCSAdaptorFcPortProfile or None
Description: none

Parameter: adaptorFcRecvQueueProfile
Type: UCSAdaptorFcRecvQueueProfile or None
Description: none

Parameter: adaptorFcWorkQueueProfile
Type: UCSAdaptorFcWorkQueueProfile or None
Description: none

5.2.636 UCSAdaptorIpV4RssHashProfile: UCSBase
parent: UCSBase
Parameter: ipHash
Type: boolean
Description: Ip hash

Parameter: tcpHash
Type: boolean
Description: Tcp hash

5.2.637 UCSAdaptorIpV6RssHashProfile: UCSBase
parent: UCSBase
Parameter: ipHash
Type: boolean
Description: Ip hash

Parameter: tcpHash
Type: boolean
Description: Tcp hash

5.2.638 UCSAdaptorPortProfiles: UCSBase
parent: UCSBase
Parameter: portProfilesCount
Type: unsigned integer
5.2 Entities

Description: Port Profiles Count

Parameter: portProfilesName
Type: string
Description: Port Profiles Name

5.2.639 UCSAdaptorRssProfile : UCSBase
parent : UCSBase
Parameter: receiveSideScaling
Type: string
Description: Receive Side Scaling

5.2.640 UCSBase : Entity
parent : Entity
Parameter: dn
Type: string
Description: none

Parameter: additionalattributes
Type: string
Description: Additional attributes that may need to be set

5.2.641 UCSBiosBootDevGrp : UCSBase
parent : UCSBase
Parameter: order
Type: unsigned integer
Description: Boot order

Parameter: descr
Type: string
Description: Device name

Parameter: type
Type: string
Description: Device type

Parameter: biosBootDev
Type: list of UCSBiosBootDev
Description: none

5.2.642 UCSBiosBootDev : UCSBase
parent : UCSBase
Parameter: order
Type: unsigned integer
Description: Boot order

Parameter: descr
Type: string
Description: Device name

5.2.643 UCSBiosSettings: UCSBase
parent: UCSBase
Parameter: biosVfIntelHyperThreadingTech
Type: UCSBiosVfIntelHyperThreadingTech or None
Description: Intel hyper threading tech

Parameter: biosVfAdjacentCacheLinePrefetch
Type: UCSBiosVfAdjacentCacheLinePrefetch or None

Parameter: biosVfAltitude
Type: UCSBiosVfAltitude or None

Parameter: biosVfASPMSupport
Type: UCSBiosVfASPMSupport or None

Parameter: biosVfConsoleRedirection
Type: UCSBiosVfConsoleRedirection or None

Parameter: biosVfCoreMultiProcessing
Type: UCSBiosVfCoreMultiProcessing or None

Parameter: biosVfCPUEnergyPerformance
Type: UCSBiosVfCPUEnergyPerformance or None

Parameter: biosVfCPUFrequencyFloor
Type: UCSBiosVfCPUFrequencyFloor or None

Parameter: biosVfCPUPerformance
Type: UCSBiosVfCPUPerformance or None

Parameter: biosVfCPUPowerManagement
Type: UCSBiosVfCPUPowerManagement or None

Parameter: biosVfDCUPrefetch
Type: UCSBiosVfDCUPrefetch or None
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>biosVfDemandScrub</td>
<td>UCSBiosVfDemandScrub or None</td>
<td>none</td>
</tr>
<tr>
<td>biosVfDirectCacheAccess</td>
<td>UCSBiosVfDirectCacheAccess or None</td>
<td>none</td>
</tr>
<tr>
<td>biosVfDRAMClockThrottling</td>
<td>UCSBiosVfDRAMClockThrottling or None</td>
<td>none</td>
</tr>
<tr>
<td>biosVfDramRefreshRate</td>
<td>UCSBiosVfDramRefreshRate or None</td>
<td>none</td>
</tr>
<tr>
<td>biosVfEnhancedIntelSpeedStepTech</td>
<td>UCSBiosVfEnhancedIntelSpeedStepTech or None</td>
<td>none</td>
</tr>
<tr>
<td>biosVfExecuteDisableBit</td>
<td>UCSBiosVfExecuteDisableBit or None</td>
<td>none</td>
</tr>
<tr>
<td>biosVfFRB2Enable</td>
<td>UCSBiosVfFRB2Enable or None</td>
<td>none</td>
</tr>
<tr>
<td>biosVfHardwarePrefetch</td>
<td>UCSBiosVfHardwarePrefetch or None</td>
<td>none</td>
</tr>
<tr>
<td>biosVfIntelTurboBoostTech</td>
<td>UCSBiosVfIntelTurboBoostTech or None</td>
<td>none</td>
</tr>
<tr>
<td>biosVfIntelVirtualizationTechnology</td>
<td>UCSBiosVfIntelVirtualizationTechnology or None</td>
<td>none</td>
</tr>
<tr>
<td>biosVfIntelVTForDirectedIO</td>
<td>UCSBiosVfIntelVTForDirectedIO or None</td>
<td>none</td>
</tr>
<tr>
<td>biosVfLegacyUSBSupport</td>
<td>UCSBiosVfLegacyUSBSupport or None</td>
<td>none</td>
</tr>
</tbody>
</table>
Description: none

Parameter: biosVfLOMPortOptionROM
Type: UCSBiosVfLOMPortOptionROM or None
Description: none

Parameter: biosVfLvDIMMSupport
Type: UCSBiosVfLvDIMMSupport or None
Description: none

Parameter: biosVfMemoryInterleave
Type: UCSBiosVfMemoryInterleave or None
Description: none

Parameter: biosVfMemoryMappedIOAbove4GB
Type: UCSBiosVfMemoryMappedIOAbove4GB or None
Description: none

Parameter: biosVfNUMAOptimized
Type: UCSBiosVfNUMAOptimized or None
Description: none

Parameter: biosVfOnboardStorage
Type: UCSBiosVfOnboardStorage or None
Description: none

Parameter: biosVfOnboardStorageSWStack
Type: UCSBiosVfOnboardStorageSWStack or None
Description: none

Parameter: biosVfOSBootWatchdogTimer
Type: UCSBiosVfOSBootWatchdogTimer or None
Description: none

Parameter: biosVfOSBootWatchdogTimerPolicy
Type: UCSBiosVfOSBootWatchdogTimerPolicy or None
Description: none

Parameter: biosVfOSBootWatchdogTimerTimeout
Type: UCSBiosVfOSBootWatchdogTimerTimeout or None
Description: none

Parameter: biosVfPatrolScrub
Type: UCSBiosVfPatrolScrub or None
Description: none

Parameter: biosVfPCIOptionROMs
Type: UCSBiosVfPCIOptionROMs or None
Description: none

Parameter: biosVfPCISlotOptionROMEnable
Type: UCSBiosVfPCISlotOptionROMEnable or None
Description: none

Parameter: biosVfProcessorC1E
Type: UCSBiosVfProcessorC1E or None
Description: none

Parameter: biosVfProcessorC6Report
Type: UCSBiosVfProcessorC6Report or None
Description: none

Parameter: biosVfPStateCoordType
Type: UCSBiosVfPStateCoordType or None
Description: none

Parameter: biosVfQPIConfig
Type: UCSBiosVfQPIConfig or None
Description: none

Parameter: biosVfSelectMemoryRASConfiguration
Type: UCSBiosVfSelectMemoryRASConfiguration or None
Description: none

Parameter: biosVfTPMSupport
Type: UCSBiosVfTPMSupport or None
Description: none

Parameter: biosVfUCSMBootOrderRuleControl
Type: UCSBiosVfUCSMBootOrderRuleControl or None
Description: none

Parameter: biosVfUSBEmulation
Type: UCSBiosVfUSBEmulation or None
Description: none

Parameter: biosVfUSBPortsConfig
Type: UCSBiosVfUSBPortsConfig or None
Description: none

Parameter: biosVfVgaPriority
Type: UCSBiosVfVgaPriority or None
Description: none

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5.2.644 UCSBiosVfAdjacentCacheLinePrefetch : UCSBase
parent : UCSBase
Parameter: vpAdjacentCacheLinePrefetch
Type: string
Description: Adjacent cache line prefetch

5.2.645 UCSBiosVfAltitude : UCSBase
parent : UCSBase
Parameter: vpAltitude
Type: string
Description: Altitude

5.2.646 UCSBiosVfASPMSupport : UCSBase
parent : UCSBase
Parameter: vpASPMSupport
Type: string
Description: ASPM support

5.2.647 UCSBiosVfConsoleRedirection : UCSBase
parent : UCSBase
Parameter: vpBaudRate
Type: string
Description: Baud rate
Parameter: vpConsoleRedirection
Type: string
Description: Console redirection
Parameter: vpFlowControl
Type: string
Description: Flow control
Parameter: vpPuttyKeyPad
Type: string
Description: Putty key pad
Parameter: vpRedirectionAfterPOST
Type: string
Description: Redirection after POST
Parameter: vpTerminalType
Type: string
Description: Terminal type

5.2.648 UCSBiosVfCoreMultiProcessing : UCSBase
parent : UCSBase
Parameter: vpCoreMultiProcessing
Type: string
5.2 Entities

Description:  Core multi processing

5.2.649 UCSBiosVfCPUEnergyPerformance: UCSBase
parent: UCSBase
Parameter: vpCPUEnergyPerformance
Type: string
Description:  CPU energy performance

5.2.650 UCSBiosVfCPUFrequencyFloor: UCSBase
parent: UCSBase
Parameter: vpCPUFrequencyFloor
Type: string
Description:  CPU frequency floor

5.2.651 UCSBiosVfCPUPerformance: UCSBase
parent: UCSBase
Parameter: vpCPUPerformance
Type: string
Description:  CPU performance

5.2.652 UCSBiosVfCPUPowerManagement: UCSBase
parent: UCSBase
Parameter: vpCPUPowerManagement
Type: string
Description:  CPU power management

5.2.653 UCSBiosVfDCUPrefetch: UCSBase
parent: UCSBase
Parameter: vpIPPrefetch
Type: string
Description:  IP prefetch

Parameter: vpStreamerPrefetch
Type: string
Description:  Streamer prefetch

5.2.654 UCSBiosVfDemandScrub: UCSBase
parent: UCSBase
Parameter: vpDemandScrub
Type: string
Description:  Demand scrub

5.2.655 UCSBiosVfDirectCacheAccess: UCSBase
parent: UCSBase
Parameter: vpDirectCacheAccess
Type: string
Description:  Direct cache access

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5.2.656 UCSBiosVfDRAMClockThrottling: UCSBase
parent: UCSBase
Parameter: vpDRAMClockThrottling
Type: string
Description: DRAM clock throttling

5.2.657 UCSBiosVfDramRefreshRate: UCSBase
parent: UCSBase
Parameter: vpDramRefreshRate
Type: string
Description: Dram refresh rate

5.2.658 UCSBiosVfEnhancedIntelSpeedStepTech: UCSBase
parent: UCSBase
Parameter: vpEnhancedIntelSpeedStepTech
Type: string
Description: Enhanced intel speed step tech

5.2.659 UCSBiosVfExecuteDisableBit: UCSBase
parent: UCSBase
Parameter: vpExecuteDisableBit
Type: string
Description: Execute disable bit

5.2.660 UCSBiosVfFRB2Enable: UCSBase
parent: UCSBase
Parameter: vpFRB2Enable
Type: string
Description: FR b2 enable

5.2.661 UCSBiosVfHardwarePrefetch: UCSBase
parent: UCSBase
Parameter: vpHardwarePrefetch
Type: string
Description: Hardware prefetch

5.2.662 UCSBiosVfIntelHyperThreadingTech: UCSBase
parent: UCSBase
Parameter: vpIntelHyperThreadingTech
Type: string
Description: Intel hyper threading tech

5.2.663 UCSBiosVfIntelTurboBoostTech: UCSBase
parent: UCSBase
Parameter: vpIntelTurboBoostTech
Type: string
Description: Intel turbo boost tech
<table>
<thead>
<tr>
<th>Entity Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCSBiosVFIntelVirtualizationTechnology</td>
<td>Intel virtualization technology</td>
</tr>
<tr>
<td>UCSBiosVFIntelVTForDirectedIO</td>
<td>Intel VTDAT support</td>
</tr>
<tr>
<td>UCSBiosVFIntelVTForDirectedIO</td>
<td>Intel VT for directed IO</td>
</tr>
<tr>
<td>UCSBiosVFLegacyUSBSupport</td>
<td>Legacy USB support</td>
</tr>
<tr>
<td>UCSBiosVFLOMPor0OptionROM</td>
<td>LOM port 0 state</td>
</tr>
<tr>
<td>UCSBiosVFLOMPor1OptionROM</td>
<td>LOM port 1 state</td>
</tr>
<tr>
<td>UCSBiosVFLOMPortsAllOptionROM</td>
<td>LOM ports all state</td>
</tr>
<tr>
<td>UCSBiosVF LvDIMMSupport</td>
<td>Lv DDR mode</td>
</tr>
<tr>
<td>UCSBiosVFMemoryInterleave</td>
<td>vpChannelInterLeave</td>
</tr>
</tbody>
</table>
Type: string
Description: Channel inter leave

Parameter: vpRankInterLeave
Type: string
Description: Rank inter leave

5.2.670 UCSBiosVfMemoryMappedIOAbove4GB : UCSBase
parent : UCSBase
Parameter: vpMemoryMappedIOAbove4GB
Type: string
Description: Memory mapped IO above 4GB

5.2.671 UCSBiosVfNUMAOptimized : UCSBase
parent : UCSBase
Parameter: vpNUMAOptimized
Type: string
Description: NUMA optimized

5.2.672 UCSBiosVfOnboardStorageSWStack : UCSBase
parent : UCSBase
Parameter: vpOnboardSCUStorageSWStack
Type: string
Description: Onboard SCU storage SW stack

5.2.673 UCSBiosVfOnboardStorage : UCSBase
parent : UCSBase
Parameter: vpOnboardSCUStorageSupport
Type: string
Description: Onboard SCU storage support

5.2.674 UCSBiosVfOSBootWatchdogTimerPolicy : UCSBase
parent : UCSBase
Parameter: vpOSBootWatchdogTimerPolicy
Type: string
Description: OS boot watchdog timer policy

5.2.675 UCSBiosVfOSBootWatchdogTimer : UCSBase
parent : UCSBase
Parameter: vpOSBootWatchdogTimer
Type: string
Description: OS boot watchdog timer

5.2.676 UCSBiosVfOSBootWatchdogTimerTimeout : UCSBase
parent : UCSBase
Parameter: vpOSBootWatchdogTimerTimeout
Type: string
Description: OS boot watchdog timer timeout
5.2.677 UCSBiosVfPatrolScrub: UCSBase
parent: UCSBase
Parameter: vpPatrolScrub
Type: string
Description: Patrol scrub

5.2.678 UCSBiosVfPCIOptionROMs: UCSBase
parent: UCSBase
Parameter: vpPCIOptionROMs
Type: string
Description: PCI option ROMs

5.2.679 UCSBiosVfPCISlotOptionROMEnable: UCSBase
parent: UCSBase
Parameter: vpSlot1LinkSpeed
Type: string
Description: Slot1 link speed
Parameter: vpSlot1State
Type: string
Description: Slot1 state
Parameter: vpSlot2LinkSpeed
Type: string
Description: Slot2 link speed
Parameter: vpSlot2State
Type: string
Description: Slot2 state
Parameter: vpSlotMezzState
Type: string
Description: Slot mezz state

5.2.680 UCSBiosVfProcessorC1E: UCSBase
parent: UCSBase
Parameter: vpProcessorC1E
Type: string
Description: Processor c1 e

5.2.681 UCSBiosVfProcessorC6Report: UCSBase
parent: UCSBase
Parameter: vpProcessorC6Report
Type: string
Description: Processor c6 report

5.2.682 UCSBiosVfPStateCoordType: UCSBase
parent: UCSBase
Parameter: vpPStateCoordType
Type: string
Description: P state coord type

5.2.683 UCSBiosVfQPIConfig: UCSBase
parent : UCSBase
Parameter: vpQPILinkFrequency
Type: string
Description: QPI link frequency

5.2.684 UCSBiosVfSelectMemoryRASConfiguration : UCSBase
parent : UCSBase
Parameter: vpSelectMemoryRASConfiguration
Type: string
Description: Select memory RAS configuration

5.2.685 UCSBiosVfTPMSupport : UCSBase
parent : UCSBase
Parameter: vpTPMSupport
Type: string
Description: TPM support

5.2.686 UCSBiosVfUCSMBootOrderRuleControl : UCSBase
parent : UCSBase
Parameter: vpUCSMBootOrderRule
Type: string
Description: UCSM boot order rule

5.2.687 UCSBiosVfUSBEmulation : UCSBase
parent : UCSBase
Parameter: vpUSBEmul6064
Type: string
Description: USB Emulation Support

5.2.688 UCSBiosVfUSBPortsConfig : UCSBase
parent : UCSBase
Parameter: vpAllUsbDevices
Type: string
Description: All usb devices

Parameter: vpUsbPortFront
Type: string
Description: Usb port front

Parameter: vpUsbPortInternal
Type: string
Description: Usb port internal

Parameter: vpUsbPortKVM
Type: string
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Description: Usb port KVM

Parameter: vpUsbPortRear
Type: string
Description: Usb port rear

Parameter: vpUsbPortSDCard
Type: string
Description: Usb port SD card

Parameter: vpUsbPortVMedia
Type: string
Description: Usb port V media

5.2.689 UCSBiosVfVgaPriority: UCSBase
parent: UCSBase
Parameter: vpVgaPriority
Type: string
Description: Vga priority

5.2.690 UCSCommNtpProvider: UCSBase
parent: UCSBase
Parameter: description
Type: string
Description: Description

Parameter: ntpEnable
Type: string
Description: NTP enable

Parameter: ntpServer
Type: list of strings
Description: NTP server

5.2.691 UCSCommSyslogClient: UCSBase
parent: UCSBase
Parameter: adminState
Type: boolean
Description: Admin state

Parameter: hostname
Type: string
Description: Hostname

Parameter: name
Type: string
Description: Name

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5.2.692 UCSCommSyslog : UCSBase

parent : UCSBase

Parameter: adminState
Type: boolean
Description: Admin state

Parameter: descr
Type: string
Description: Descr

Parameter: localSeverity
Type: string
Description: Local severity

Parameter: name
Type: string
Description: Name

Parameter: port
Type: unsigned integer
Description: Port

Parameter: proto
Type: string
Description: Proto

Parameter: remoteSeverity
Type: string
Description: Remote severity

Parameter: commSyslogClientPrimary
Type: UCSCommSyslogClient or None
Description: none

Parameter: commSyslogClientSecondary
Type: UCSCommSyslogClient or None
Description: none

5.2.693 UCSEquipmentIndicatorLed : UCSBase

parent : UCSBase

Parameter: color
Type: string
Description: Color

Parameter: id
Type: unsigned integer

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Description: Id

Parameter: name
Type: string
Description: Name

Parameter: operState
Type: string
Description: Oper state

5.2.694 UCSEquipmentLocatorLed: UCSBase
parent: UCSBase
Parameter: adminState
Type: string
Description: Admin state

Parameter: color
Type: string
Description: Color

Parameter: id
Type: unsigned integer
Description: Id

Parameter: name
Type: string
Description: Name

Parameter: operState
Type: string
Description: Oper state

5.2.695 UCSFaultInst: UCSBase
parent: UCSBase
Parameter: ack
Type: string
Description: Ack

Parameter: cause
Type: string
Description: Cause

Parameter: code
Type: string
Description: Code

Parameter: created
Type: string

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Description: Created

Parameter: descr
Type: string
Description: Descr

Parameter: affectedDN
Type: string
Description: Affected DN

Parameter: highestSeverity
Type: string
Description: Highest severity

Parameter: id
Type: unsigned integer
Description: Id

Parameter: lastTransition
Type: string
Description: Last transition

Parameter: lc
Type: string
Description: Lc

Parameter: occur
Type: unsigned integer
Description: Occur

Parameter: origSeverity
Type: string
Description: Orig severity

Parameter: prevSeverity
Type: string
Description: Prev severity

Parameter: rule
Type: string
Description: Rule

Parameter: severity
Type: string
Description: Severity

Parameter: tags
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Type: string
Description: Tags

Parameter: type
Type: string
Description: Type

5.2.696 UCSFirmwareRunning: UCSBase
parent: UCSBase
Parameter: type
Type: string
Description: Type

Parameter: deployment
Type: string
Description: Deployment

Parameter: version
Type: string
Description: Version

5.2.697 UCSInfo: UCSBase
parent: UCSBase
Parameter: ucsDeviceType
Type: integer
Description: none

Parameter: profileName
Type: string
Description: none

Parameter: ntpSettings
Type: UCSCommNtpProvider or None
Description: none

Parameter: syslogSettings
Type: UCSCommSyslog or None
Description: none

Parameter: biosSettings
Type: UCSBiosSettings or None
Description: none

Parameter: lsbootDef
Type: UCSLsbootDef or None
Description: none

Parameter: biosBootOrder
Type: list of UCSBiosBootDevGrp
Description: none

Parameter: vicAdapterSettings
Type: list of UCSAdaptorHostEthIf
Description: none

Parameter: fcAdapterSettings
Type: list of UCSAdaptorHostFcIf
Description: none

Parameter: ucsStatus
Type: UCSStatus or None
Description: none

Parameter: firmwareRunning
Type: list of UCSFirmwareRunning
Description: none

Parameter: vicPhysicalInterfaces
Type: list of UCSAdaptorExtEthIf
Description: none

5.2.698 UCSLogs : UCSBase
parent: UCSBase
Parameter: faultInst
Type: list of UCSFaultInst
Description: none

5.2.699 UCSLsbootDef : UCSBase
parent: UCSBase
Parameter: name
Type: string
Description: Boot policy

Parameter: purpose
Type: string
Description: Purpose

Parameter: lsbootOnUpdate
Type: string
Description: Reboot on update

Parameter: lsbootVirtualMedia
Type: list of UCSLsbootVirtualMedia
Description: none

Parameter: lsbootLan
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Type: list of UCSbootLan
Description: none

Parameter: lsbootStorage
Type: list of UCSbootStorage
Description: none

Parameter: lsbootEfi
Type: list of UCSbootEfi
Description: none

5.2.700 UCSbootEfi : UCSBase
parent : UCSBase
Parameter: order
Type: unsigned integer
Description: Boot order

Parameter: access
Type: string
Description: Access type

Parameter: type
Type: string
Description: Device type

5.2.701 UCSbootLan : UCSBase
parent : UCSBase
Parameter: order
Type: unsigned integer
Description: Boot order

Parameter: access
Type: string
Description: Access type

Parameter: type
Type: string
Description: Device type

Parameter: prot
Type: string
Description: Protocol

5.2.702 UCSbootStorage : UCSBase
parent : UCSBase
Parameter: order
Type: unsigned integer

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Description:  Boot order

Parameter:  access
Type:  string
Description:  Access type

Parameter:  type
Type:  string
Description:  Device type

5.2.703 UCSLsbootVirtualMedia : UCSBase
parent : UCSBase
Parameter:  order
Type:  unsigned integer
Description:  Boot order

Parameter:  access
Type:  string
Description:  Access type

Parameter:  type
Type:  string
Description:  Device type

5.2.704 UCSStatus : UCSBase
parent : UCSBase
Parameter:  model
Type:  string
Description:  none

Parameter:  serial
Type:  string
Description:  none

Parameter:  uuid
Type:  string
Description:  none

Parameter:  vendor
Type:  string
Description:  none

Parameter:  equipmentLocatorLed
Type:  UCSEquipmentLocatorLed or None
Description:  none

Parameter:  equipmentIndicatorLed
Type:  list of UCSEquipmentIndicatorLed
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Description: none

5.2.705 UGEcgroupsSettings : WlmCgroupsSettings

Parameter: enabled
  Type: boolean
  Description: If true then settings are configured

Parameter: cpuset
  Type: boolean
  Description: If true then UGE puts the job into a cpuset cgroup with the specific CPU ids assigned

Parameter: freezer
  Type: boolean
  Description: If true than the whole job is frozen by the kernel

Parameter: freezePeTasks
  Type: boolean
  Description: If false then slave tasks are not put in the freezer, otherwise all slave tasks are frozen (also slaves on remote hosts)

Parameter: killing
  Type: boolean
  Description: If true then UGE signals all processes forkedstarted by the job until all of them are killed

Parameter: forcedNuma
  Type: boolean
  Description: If true then on NUMA machines only local memory is allowed to be used when the job requested memory allocation with -mbind cores:strict

Parameter: vmemLimit
  Type: boolean
  Description: Specifies if virtual memory can be limited with cgroups (h_vmem_limit)

Parameter: memFreeHard
  Type: boolean
  Description: If true then kernel ensures that the job does not use more main memory than required (m_mem_free_hard)

Parameter: memFreeSoft
  Type: boolean
  Description: If true (and hard memory limit is turned off) then the requested memory with m_mem_free is a soft limit (m_mem_free_soft)

Parameter: minMemoryLimit
  Type: string
  Description: A host based minimum memory limit, in bytes or values like 10M, 1G (min_memory_limit)

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**Parameter:** jobCgroupTemplate  
**Type:** string  
**Description:** Template for job cgroup path ($JOBID will be replaced to job id)

**Parameter:** options  
**Type:** list of strings  
**Description:** Additional UGE cgroup options

**Parameter:** devices  
**Type:** list of strings  
**Description:** Configurations for cgroup devices

**5.2.706** UGEClientRole: UGERole

**parent:** UGERole  
**Parameter:** execHost  
**Type:** boolean  
**Description:** Specifies if host is allowed to run Grid Engine jobs

**Parameter:** adminHost  
**Type:** boolean  
**Description:** Specifies if host is administrative one

**Parameter:** slots  
**Type:** string  
**Description:** Number of slots available on this node/category

**Parameter:** queues  
**Type:** list of references to UGEJobQueue  
**Description:** Queues this node/nodes in this category belongs to

**Parameter:** allQueues  
**Type:** boolean  
**Description:** When set, the role will provide all available queues. (The queues property will then be ignored.)

**Parameter:** gpus  
**Type:** unsigned integer  
**Description:** Number of gpus

**Parameter:** gpuDevices  
**Type:** list of strings  
**Description:** Custom gpu RSMAP

**Parameter:** micDevices  
**Type:** list of strings  
**Description:** Custom phi RSMAP
Parameter: cgroups
Type: UGEcgroupsSettings
Description: Submode containing UGE related cgroups settings

Parameter: nodeCustomizations
Type: list of WlmNodeCustomizationEntry
Description: Grid Engine node custom properties

Parameter: prolog
Type: string
Description: Path to prolog script that is configured at local level (e.g. root@/cm/local/apps/cmd/scripts/prolog)

Parameter: epilog
Type: string
Description: Path to epilog script that is configured at global level

5.2.707 UGEJobQueueStat: GridEngineJobQueueStat
parent: GridEngineJobQueueStat

5.2.708 UGEJobQueue: GridEngineJobQueue
parent: GridEngineJobQueue
Parameter: pelist
Type: list of strings
Description: Parallel environments associated with queue

5.2.709 UGEJob: GridEngineJob
parent: GridEngineJob

5.2.710 UGEParallelEnvironment: GridEngineParallelEnvironment
parent: GridEngineParallelEnvironment
Parameter: daemonForksSlaves
Type: boolean
Description: Defines if every task of a tightly integrated parallel job gets started individually

Parameter: masterForksSlaves
Type: boolean
Description: Indicates if limits set for the master task are multiplied by the number of slots granted on the host

5.2.711 UGERole: Role
parent: Role
Parameter: wlmCluster
Type: reference to UGEWlmCluster
Description: WLM cluster link to this WLM role

5.2.712 UGEServerRole: UGERole
parent: UGERole
Parameter: externalServer
Type: boolean
Description: Grid Engine server daemon is running on some external machine

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Parameter: prolog
Type: string
Description: Path to prolog script that is configured at global level

Parameter: epilog
Type: string
Description: Path to epilog script that is configured at global level

5.2.713 UGESubmitRole: Role
parent: Role
Parameter: ugeWlmClusters
Type: list of references to UGEWlmCluster
Description: List of UGE clusters which the role belongs to

5.2.714 UGEWlmCluster: WlmCluster
parent: WlmCluster
Parameter: parallelEnvironments
Type: list of UGEParallelEnvironment
Description: UGE Parallel Environments

Parameter: cgroups
Type: UGEcgroupsSettings
Description: Submode containing UGE related cgroups settings

Parameter: placeholders
Type: list of JobQueuePlaceholder
Description: Job queue node placeholders mode

Parameter: prefix
Type: string
Description: UGE installation directory

Parameter: cell
Type: string
Description: UGE cell directory location

Parameter: version
Type: string
Description: Major UGE version

5.2.715 User: Entity
parent: Entity
Parameter: name
Type: string
Description: User Name

Parameter: ID
Type: string
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Description: User ID number

Parameter: commonName
Type: string
Description: Full user name

Parameter: surname
Type: string
Description: Surname

Parameter: groupID
Type: string
Description: Base group of this user

Parameter: loginShell
Type: string
Description: Login shell

Parameter: homeDirectory
Type: string
Description: Home directory

Parameter: password
Type: string
Description: Password

Parameter: homeDirOperation
Type: boolean
Description: Set to true: to create or move home directory if needed

Parameter: shadowMin
Type: unsigned integer
Description: Indicates the minimum number of days required between password changes

Parameter: shadowMax
Type: unsigned integer
Description: Indicates the maximum number of days for which the user password remains valid.

Parameter: shadowWarning
Type: unsigned integer
Description: The number of days of advance warning given to the user before the user password expires

Parameter: shadowInactive
Type: unsigned integer
Description: Indicates the number of days of inactivity allowed for the user

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Parameter: shadowLastChange
Type: unsigned integer
Description: Indicates the number of days between January 1, 1970 and the day when the user password was last changed

Parameter: shadowExpire
Type: unsigned integer
Description: Indicates the date on which the user login will be disabled

Parameter: email
Type: string
Description: email

Parameter: profile
Type: string
Description: Profile for Authorization

Parameter: certSerialNumber
Type: integer
Description: Serial number of certificate assigned to user

Parameter: projectManager
Type: ProjectManager or None
Description: Project manager

Parameter: notes
Type: string
Description: Administrator notes

Parameter: homepage
Type: string
Description: Home page

Parameter: information
Type: string
Description: Information added by CMDaemon

Parameter: writeSshProxyConfig
Type: boolean
Description: Write ssh proxy config

Parameter: extraFields
Type: list of strings
Description: none

Parameter: extraValues
Type: list of strings
Description: *none*

Parameter: extraReadable
Type: list of strings
Description: *none*

Parameter: extraDescriptions
Type: list of strings
Description: *none*

Parameter: extraDefaults
Type: list of strings
Description: *none*

5.2.716 Validation: Entity

parent: Entity
Parameter: code
Type: unsigned integer
Description: Code

Parameter: field
Type: string
Description: Field

Parameter: msg
Type: string
Description: Message

Parameter: warning
Type: integer
Description: Warning

5.2.717 VersionInfo: Entity

parent: Entity
Parameter: refPartitionUniqueKey
Type: unsigned integer
Description: Partition

Parameter: cmVersion
Type: string
Description: *none*

Parameter: cmdaemonVersion
Type: string
Description: *none*

Parameter: cmdaemonBuild
Type: string
Description:  *none*

Parameter:  databaseVersion
Type:  integer
Description:  *none*

5.2.718  VirtualNodeSettings : Entity
parent:  Entity

5.2.719  VirtualNode : ComputeNode
parent:  ComputeNode
Parameter:  virtualNodeSettings
Type:  OpenStackSettings
Description:  Submode containing all virtual node settings

5.2.720  VirtualSMPNode : ComputeNode
parent:  ComputeNode
Parameter:  disableV SMPNode
Type:  boolean
Description:  Disabled

Parameter:  primaryNode
Type:  reference to PhysicalNode
Description:  Primary node of the virtual SMP group

Parameter:  members
Type:  list of references to PhysicalNode
Description:  Nodes belonging to the virtual SMP group

Parameter:  vsmpSettings
Type:  V SMPSettings or None
Description:  Submode containing all VSMP specific settings

5.2.721  V SMPSettings : Entity
parent:  Entity

5.2.722  WillChange : Entity
parent:  Entity
Parameter:  changeBaseType
Type:  string
Description:  Base type

Parameter:  key
Type:  unsigned integer
Description:  Key

Parameter:  parameter
Type:  string
Description:  Parameter
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Parameter:  autoChange
Type:  integer
Description:  Auto change

5.2.723  WlmCgroupsSettings : Entity
parent:  Entity
Parameter:  mountPoint
Type:  string
Description:  Where cgroups is mounted

Parameter:  autoMount
Type:  boolean
Description:  If true then workload manager tries to mount a subsystem if it is not mounted yet

5.2.724  WlmCluster : Entity
parent:  Entity
Parameter:  name
Type:  string
Description:  Name

Parameter:  moduleFileTemplate
Type:  string
Description:  Template content for system module file

Parameter:  primaryServer
Type:  reference to Node or None
Description:  The WLM primary server (where the active WLM daemon will be running). This parameter has no effect in HA setup controlled by Bright.

5.2.725  WlmNodeCustomizationEntry : Entity
parent:  Entity
Parameter:  key
Type:  string
Description:  Name of the key

Parameter:  value
Type:  string
Description:  Value for the key

Parameter:  enabled
Type:  boolean
Description:  Add the key/value to workload management node configuration or not

Parameter:  notes
Type:  string
Description:  Administrator notes

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5.3 JSON Examples

**complete.sh**

```bash
#!/bin/bash

URL=https://localhost:8081/json/
user=root
pass=secretrootpassword

echo "========== login ==========="
curl -c curl.cookiest.txt -i -k -X POST -d '{"service":"login", "username":"root", "password":"$pass"}' $URL; echo
echo "======== master ==========
```
curl --cookie curl.cookiest.txt -i -k -X POST -d '{"service":"cmdevice","call":"getNode","arg":"master"}' $URL; echo
echo "========== logout ==========
curl --cookie curl.cookiest.txt -i -k -X POST -d '{"service":"logout"}' $URL; echo
echo "======== denied ==========
curl --cookie curl.cookiest.txt -i -k -X POST -d '{"service":"cmdevice","call":"getNode","arg":"master"}' $URL; echo

rm -f curl.cookiest.txt

echo "========== cert ==========
curl --cert $HOME/.cm/admin.pem --key $HOME/.cm/admin.key -i -k -X POST -d '{"service":"cmdevice","call":"getNode","arg":"master"}' $URL; echo
```

**curl.sh**

```bash
#!/bin/bash

URL=https://localhost:8081/json/

if [ -z "$1" ]; then
  read -p "pass: " -s $pass
else
  pass=$1
fi

curl -c curl.cookiest.txt -i -k -X POST -d '{"service":"login", "username":"root", "password":"$pass"}' $URL

# curl --cookie curl.cookiest.txt -i -k -X POST -d '{"service":"
# cmssession","call":"getLastEvents","args":[0,256]}' $URL

curl --cookie curl.cookiest.txt -i -k -X POST -d '{"service":"cmmain","call":"getProfile"}' $URL

curl --cookie curl.cookiest.txt -i -k -X POST -d '{"service":"cmmain","call":"getSubjectName"}' $URL
```

**devices.sh**

```bash
#!/bin/bash

URL=https://localhost:8081/json/

if [ "$1" == "gzip" ]; then
```
wget --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key --header='Accept-
Encoding: gzip' --no-check-certificate --server-response -qO- $URL --post-data='{"service":"cmdevice","call":"getDevices"}';
else
  wget --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key --no-check-certificate --server-response -qO- $URL --post-data='{"service":"cmdevice","call":"getDevices"}';
fi

Tip: run as ./devices.sh | python -mjson.tool.

loadone.sh

#!/bin/bash
URL=https://localhost:8081/json/
# not perfect but gets the job done
function jsonval {
  temp=`echo $json | sed 's/\\/\//g' | sed 's/[{}]/g' | awk -v k="text" '{n=split($0,a,""});
for (i=1; i<n; i++) print a[i]}' | sed 's/"/\"/g' | sed 's/\[\]/\]/g' | grep -w $prop'
  r=$(echo ${temp##*|} | tr \] ' ' | tr ' ' '\n' | cut -d: -f2 | sort -n)
  echo $(echo $r | cut -d ' ' -f 1)
}

prop='uniqueKey'
node=master
json=`wget --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key \
  --no-check-certificate --server-response -qO- $URL --post-data='{"service":"cmdevice","call":"getDevice","arg":"$node"}';

nkey=$(jsonval)
if [ -z $nkey ]; then
  echo $json
  exit 1
fi
  echo "$node.uniqueKey = $nkey"

json=`wget --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key \
  --no-check-certificate --server-response -qO- $URL --post-data='{"service":"cmmon","call":"getMonitoringMeasurable","name":"LoadOne"}';

mkey=$(jsonval)
  echo "loadone.uniqueKey = $mkey"

now=$(date +%s)
day=$((now-86400))
echo "now is $now"
echo "day is $day"
cat <<EOF > /tmp/plot.json
  { "service" : "cmmon", 
    "call" : "plot", 
    "request" : { "entities" : [$nkey], 
      "measurables" : [$mkey], 
      "intervals" : 25, 
      "rangeStart" : $((day*1000)), 
      "rangeEnd" : $((now*1000))
  }
EOF

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login.sh
#!/bin/bash
URL=https://localhost:8081/json/
user=$USER
pass=secretpassword
wget --keep-session-cookies --save-cookies cookie.txt --no-check-certificate --server-response -qO- $URL --post-data='{"service":"login","username":"$user","password":"$pass"}';
echo

logout.sh
#!/bin/bash
URL=https://localhost:8081/json/
wget --load-cookies cookie.txt --no-check-certificate --server-response -qO- $URL --post-data='{"service":"logout"}';
rm cookie.txt
echo

node001.sh
#!/bin/bash
source url
if [ -z "$1" ]; then
    node=node001
else
    node=$1
fi

curl --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key \
--no-check-certificate --server-response -Q- $URL --post-data='{"service":"cmdevice","call":"getDevice","arg": "$node"}'; | python -mjson.tool

basic_information.sh
#!/bin/bash
URL=https://localhost:8081/json/
curl --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key \
--no-check-certificate --server-response -Q- $URL --post-data='{"service":"cmpart","call": "getBasicEntityInformation"}';
push_to_CMDaemon.sh

In the following example, the health check ManagedServicesOK, is pushed to CMDaemon with a FAIL value.

Example

[root@bright90 ~]# cat push_to_CMDaemon.sh
#!/bin/bash
URL="https://master:8081/monitoring/push/ManagedServicesOk?info=brol&class=Push/Single&healthcheck=yes"; value="FAIL"
curl --cert $HOME/.cm/admin.pem --key $HOME/.cm/admin.key -i -k -X POST -d "$value" $URL; echo

Its behavior can be verified by checking the latest value for ManagedServicesOK before and after the push_to_CMDaemon.sh script is run:

Example

[root@bright90 ~]# curl --cert ~/.cm/admin.pem --key ~/.cm/admin.key -k "https://master:8081/rest/v1/monitoring/latest?measurable=ManagedServicesOK&entity=bright90&indent=1" 
{ "data": [ 
{ 
"age": 89.735, 
"entity": "bright90", 
"measurable": "ManagedServicesOk", 
"raw": 0.0, 
"time": 1586450030968, 
"value": "PASS" 
} 
]
}
[root@bright90 ~]#/push_to_CMDaemon.sh
HTTP/1.1 200 OK
Content-Length: 55
Content-Type: application/json

{
 "values": {
  "added": 1,
  "provided": 1
 }
}
[root@bright90 ~]# curl --cert ~/.cm/admin.pem --key ~/.cm/admin.key -k "https://master:8081/rest/v1/monitoring/latest?measurable=ManagedServicesOK&entity=bright90&indent=1" 
{ "data": [ 
{ 
"age": 3.357, 
"entity": "bright90", 
"info": "brol", 
"measurable": "ManagedServicesOk", 
"raw": 2.0, 
"time": 1586450124437, 
"value": "FAIL" 
} 
]}

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A metric version of the push, using the measurable push-test-02 might look like:

```bash
#!/bin/bash
value=$(date +%s)
curl --cert $HOME/.cm/admin.pem --key $HOME/.cm/admin.key -i -k -X POST -d "$value" $URL; echo
```

A collection can be pushed as follows: To initialize (once):

```bash
#!/bin/bash
URL='https://localhost:8081/monitoring/initialize'
curl --cert $HOME/.cm/admin.pem --key $HOME/.cm/admin.key -i -k -X POST -d 
'[
"metric":"push-collection-01","class":"Push/Collection"],
"metric": "push-collection-02",
"class": "Push/Collection"
]' $URL; echo
```

After initializing, sampling can be done with:

```bash
#!/bin/bash
URL='https://localhost:8081/monitoring/push'
curl --cert $HOME/.cm/admin.pem --key $HOME/.cm/admin.key -i -k -X POST -d 
'[
"metric": "push-collection-01","value":31],
"metric": "push-collection-02","value":32,"info": "Some message"
]' $URL; echo
```