

Bright Cluster Manager 8.2

# Developer Manual

Revision: e3a856a

Date: Tue Jan 15 2019



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# Preface

Welcome to the *Developer Manual* for Bright Cluster Manager 8.2.

## 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 8.2 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](mailto: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 12.2 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.

# 1

## Bright Cluster Manager Python API

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 2.7.5 and higher.

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

1. `pyOpenSSL==17.5.0`
2. `ply`
3. `lxml`
4. `tabulate`
5. `monotonic`
6. `humanfriendly`
7. `six >= 1.10`

### 1.1 Getting Started

On the cluster head node itself the `python2` module can simply be loaded:

#### Example

```
[root@bright82 ~]# module load python2
```

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

- Python 2.7.15 (recommended) should be installed
- The 7 extra modules listed previously should be installed using Pip
- The `bright82:/cm/local/apps/python2/lib/python2.7/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

```
[alice@desktop ~]# python -c "import pythoncm"
```

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@bright82 ~]# 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@bright82 ~]# 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

cluster = Cluster()
```

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

```
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.find_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.find_by_name('node001', pythoncm.entity.Node)
node001 = cluster.find_by_name('node001', 'Node')
```

Once the node entity is found, inspecting the settings is a matter of printing the desired field:



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

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

```
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`.

```
eth0 = cluster.find_by_name('eth0')
```

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

```
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:

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

Similarly interfaces settings can be accessed and changed directly:

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

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

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

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

```
eth1 = pythoncm.entity.NetworkPhysicalInterface()
eth1.name = 'eth1'
eth1.ip = '1.2.3.4'
eth1.network = cluster.find_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:

```
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:

```
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@bright82 ~]# cd /cm/local/examples/cmd/pythoncm/  
[root@bright82 pythoncm]# module load python2  
[root@bright82 pythoncm]# ./printall.py
```

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

### Example

```
[root@bright82 pythoncm]# ./entity-info.py
```

## 1.6 Performing Operations On Entities

All Python API functionality is contained in `/cm/local/apps/python2/lib/python2.7/site-packages/pythoncm`.

Methods are documented inside the python code itself.

```
node001 = cluster.find_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.find_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.find_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@bright82 pythoncm]# ls
add-node-group.py          free_port.py              range-expander-test.py
add-role.py               get-status.py            remove-node-group.py
certificate-info.py       health-overview.py       sample-now-checks.py
clone-node-group.py       instance_by_name.py      sample-now-parallel.py
clone-node.py             latest-health-data.py    select-devices.py
create-certificate.py     open-close.py            service-status.py
create-ramdisk-task.py    parallel-execute.py      set-node-image.py
dump-monitoring-data.py   power-parallel-status.py wait-for-provisioning.py
events.py                 power-status.py          wait-for-up.py
execute.py                print-all.py
```

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

### Example

```
[root@bright82 ~]# cd /cm/local/examples/cmd/pythoncm/
[root@bright82 pythoncm]# module load python2
[root@bright82 pythoncm]# ./power-status.py
success: True
[
  {
    "state": "ON",
    "retries": 0,
    "uniqueKey": 1125899906842659,
    "name": "custom",
    "toBeRemoved": false,
    "baseType": "PowerStatus",
    "extendedMsg": "",
    "childType": "",
    "not_set_fields": [],
    "modified": false,
    "indexes": [
      62
    ],
    "host": 38654705665,
    "prt": 0,
    "readonly": false,
    "oldLocalUniqueKey": 0,
    "tracker": 0,
    "msg": "",
    "device": 38654705666,
    "gpu": -1,
    "powerDistributionUnit": 0,
    "revision": ""
  }
]
[root@bright82 pythoncm]#
```



# 2

## 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 measurable: 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

```
[root@bright82 ~]# cat /path/to/my/metric
#!/bin/bash
echo $((RANDOM))
# Optionally provide extra information
echo "Extra information" >&3
```

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

### Example

```
[bright82]% monitoring setup
[bright82->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@bright82 ~]# 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

```
[bright82]% monitoring setup
[bright82->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

```
[root@bright82 ~]# 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

```
[bright82]% monitoring setup
[bright82->monitoring->setup]% add collection my-collection
[...my-collection]% set script /path/to/my/collection
[...my-collection]% set format JSON
```

```
[...my-collection]% set interval 1m
[...my-collection]% commit
```

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@bright82 ~]# 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@bright82 ~]# 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",
```



```

        "value": random.randint(0, 32767)}
check = {"check" : "my.collection.check",
        "value" : 'PASS' if random.randint(0, 32767) > 8000 else 'FAIL'}
values = metric, check
# return definitions once, afterwards they never change
# but new definitions could be added this way
definitions = self.definitions
self.definitions = None
return definitions, values, 60

```

The script can be defined as a perpetual script via the `monitoring setup` mode of `cmsh`:

### Example

```

[bright82]% monitoring setup
[bright82->monitoring->setup]% add perpetual my-perpetual
[...my-perpetual]% set script /path/to/my/perpetual
[...my-perpetual]% set format JSON
[...my-perpetual]% commit

```

## 2.7 Prometheus Monitoring Data Producers

Prometheus is a monitoring and alerting toolkit (<https://prometheus.io>). A Prometheus monitoring data producer script parses data from a Prometheus exporter (<https://prometheus.io/docs/instrumenting/exporters/>)

The script can be defined as a Prometheus script via the `monitoring setup` mode of `cmsh`:

### Example

```

[bright82]% monitoring setup
[bright82->monitoring->setup]% add prometheus my-prometheus-exporter
[...my-prometheus-exporter]% set urls http://my.prometheus.exporter:80
[...my-prometheus-exporter]% set interval 1m
[...my-prometheus-exporter]% commit

```

If multiple URLs are defined, then only the data values from the first successful HTTP GET are used.

## 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

```

[bright82]% 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

```
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

```
[bright82]% 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

```
[bright82]% 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

```
[bright82]% 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

```
[bright82]% device use node001
[bright82]% monitoringresources
CentOS7u5
Ethernet
category:default
```

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

### Example

```
[bright82]% device use node001
[bright82]% add userdefinedresources MyResource
[bright82]% append userdefinedresources MyOtherResource
[bright82]% # wait ~10 seconds for the settings to propagate
[bright82]% 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@bright82~]# 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",
```

```

        "entity": entity,
        "class": "My/Collection"}
    return [metric, check]

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

```

[bright82]% monitoring setup
[bright82->monitoring->setup]% add collection my-collection
[...my-collection]% set script /path/to/my/collection
[...my-collection]% set format JSON
[...my-collection]% set interval 1m
[...my-collection]% nodeexecutionfilters
[...nodeexecutionfilters]% active
Added active resource filter
[...nodeexecutionfilters]% exit
[...my-collection]% executionmultiplexers
[...executionmultiplexers]% add category
[...executionmultiplexers*[GPU*]% add category GPU
[...executionmultiplexers*[GPU*]% commit

```

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

```
[bright82]% monitoring standalone
[bright82->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@bright82 ~]# 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}
            "class": "Lustre"}
    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

```
[bright82]% monitoring setup
[bright82->monitoring->setup]% add collection my-collection
[...my-collection]% set script /path/to/my/collection
[...my-collection]% set format JSON
[...my-collection]% set interval 5m
[...my-collection]% nodeexecutionfilters
[...nodeexecutionfilters]% active
Added active resource filter
[...nodeexecutionfilters]% commit
```

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

```
[bright82]% monitoring standalone
[bright82->monitoring->standalone]% use MSD.0
[...standalone*[MSD.0*]]% latestmetricdata
...
lustre.free.space          12345          3m 47s
```

# 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 11.4.5 of the *Administrator Manual*) to be defined to execute the action.

By default, several actions (section 11.4.4 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

```
[bright82]% monitoring action
[bright82->monitoring->action]% add script MyScript
[...MyScript*]% set script /path/to/MyScript
[...MyScript*]% commit
```

## 3.2 Time Restrictions

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

### Example

```
[bright82]% monitoring action
[bright82->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;saturday-sunday
november-marchmonday-saturday13:00-17:00
may-septembermonday-friday09:00-18:00;saturday-sunday13:00-17:00
```

Further examples can be seen in section 11.4.4 of the *Administrator Manual*, page 448.

### 3.2.1 Time Restriction Syntax In BNF Notation

The allowed values can be written as a BNF grammar:

### Example

```
<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
```

### 3.2.2 Environment Variables Available In Action Scripts



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

---

...continues

...continued

Name	Description
CMD_ACTION_NAME	The name of the action that was triggered.
CMD_TRIGGER_NAME	The name of the trigger.
CMD_TRIGGER_EXPRESSION	The expression that was evaluated.
CMD_VALUE_EVAL	The result of the evaluated expression.
CMD_VALUE_COUNT	The number of times the expression evaluated to the same value.
CMD_SEVERITY	The assigned severity of the trigger.

All action scripts have the preceding 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 unextended environment.

A list of the unextended 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.

# 4

## 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`)
- Certificate: Certificate-based authentication (`--cert` option of `curl`).

The following three commands give identical results:

```
[alice@bright82 ~]# curl -k --basic --user "alice:password" "https://master:8081/rest"
[alice@bright82 ~]# curl -k --basic --user "alice:$(<path to password file>)" "https://master:8081/rest"
[alice@bright82 ~]# 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@bright82 ~]# <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:

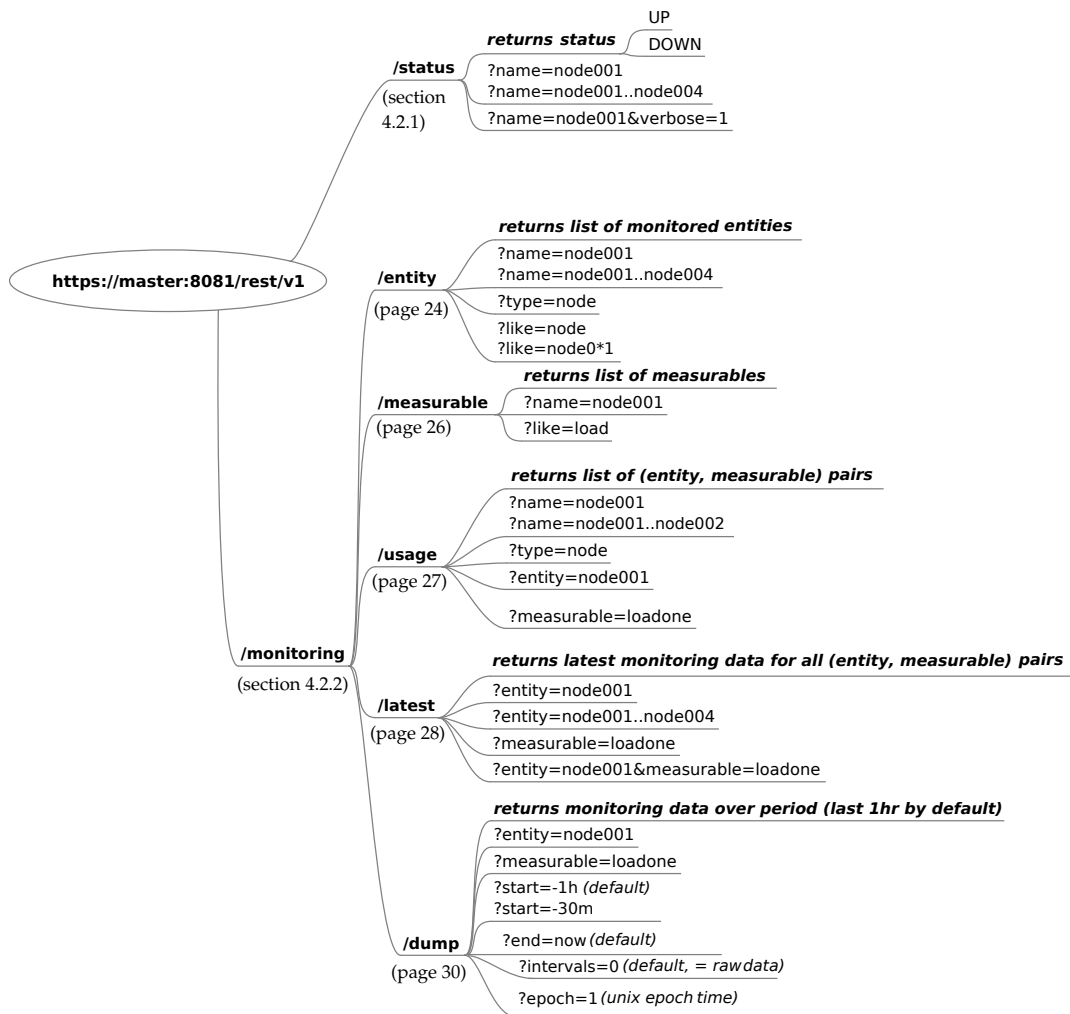


Figure 4.1: REST API Summary Tree

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

```
[alice@bright82 ~]# <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

```
[alice@bright82 ~]# <curlauth>/rest?indent=1"
```

```
[
  "v1"
]
```

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

### Example

```
[alice@bright82 ~]# <curlauth>/rest/v1?indent=1"
[
  "monitoring",
  "status"
]
```

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

### Example

```
[alice@bright82 ~]# <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@bright82 ~]# <curlauth>/rest/v1/status?indent=2"
[
  {
    "hostname": "bright82",
    "status": "UP"
  },
  {
    "hostname": "node001",
    "status": "UP"
  },
  {
    "hostname": "node002",
    "status": "DOWN"
  }
]
```

The status can also be requested for a single device:

### Example

```
[alice@bright82 ~]# <curlauth>/rest/v1/status?name=node001&indent=2"
[
  {
    "hostname": "node001",
    "status": "UP"
  }
]
```

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@bright82 ~]# <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@bright82 ~]# <curlauth>/rest/v1/status?verbose=1&indent=2"
[
  {
    "health_check_failed": true,
    "health_check_unknown": false,
    "hostname": "bright82",
    "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@bright82 ~]# <curlauth>/rest/v1/monitoring/entity?indent=1"
{
  "entities": [
    {
      "key": 12884901889,
      "name": "default",
      "type": "Category"
    },
    {
      "key": 17179869185,
      "name": "globalnet",
      "type": "Network"
    }
  ]
}
```

```
    },
    {
      "key": 17179869186,
      "name": "internalnet",
      "type": "Network"
    },
  ],
  ...
[alice@bright82 ~]# <curlauth>/rest/v1/monitoring/entity?name=node001&indent=1"
{
  "entities": [
    {
      "key": 38654705666,
      "name": "node001",
      "type": "PhysicalNode"
    }
  ]
}
[alice@bright82 ~]# <curlauth>/rest/v1/monitoring/entity?type=node&indent=1"
{
  "entities": [
    {
      "key": 38654705665,
      "name": "bright82",
      "type": "HeadNode"
    },
    {
      "key": 38654705666,
      "name": "node001",
      "type": "PhysicalNode"
    },
    {
      "key": 38654705667,
      "name": "node002",
      "type": "PhysicalNode"
    }
  ]
}
[alice@bright82 ~]# <curlauth>/rest/v1/monitoring/entity?name=node001..node002&indent=1"
{
  "entities": [
    {
      "key": 38654705666,
      "name": "node001",
      "type": "PhysicalNode"
    },
    {
      "key": 38654705667,
      "name": "node002",
      "type": "PhysicalNode"
    }
  ]
}
```

A regex matcher can be used to find entities based on a name match:

## Example

```
[alice@bright82 ~]# <curlauth>/rest/v1/monitoring/entity?like=lobal&indent=1"
{
  "entities": [
    {
      "key": 17179869185,
      "name": "globalnet",
      "type": "Network"
    }
  ]
}
[alice@bright82 ~]# <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@bright82 ~]# <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@bright82 ~]# <curlauth>/rest/v1/monitoring/measurable?name=loadone&indent=1"
{
  "measurables": [
    {
      "key": 261993005138,
      "name": "LoadOne",
      "type": "metric"
    }
  ]
}
```



```

]
}
[alice@bright82 ~]# <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

```

[alice@bright82 ~]# <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

```

[alice@bright82 ~]# <curlauth>/rest/v1/monitoring/usage?entity=node001&indent=1"
{
  "data": [
    {
      "entity": "node001",
      "measurable": "IpForwDatagrams"
    },
    {
      "entity": "node001",

```

```

    "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@bright82 ~]# <curlauth>/rest/v1/monitoring/usage?measurable=loadone&indent=1"
{
  "data": [
    {
      "entity": "bright82",
      "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@bright82 ~]# <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",

```

```

    "raw": 0.0,
    "time": 1540476088861,
    "value": "0"
  },
  {
    "age": 47.868,
    "entity": "default",
    "measurable": "NodesDown",
    "raw": 0.0,
    "time": 1540476088861,
    "value": "0"
  },
  ...typically thousands more lines...

```

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

### Example

```

[alice@bright82 ~]# <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 hundreds more lines...

```

```

[alice@bright82 ~]# <curlauth>/rest/v1/monitoring/latest?entity=node001..node004&indent=1"
...as for previous output but for the range of nodes001..node004...

```

```

[alice@bright82 ~]# <curlauth>/rest/v1/monitoring/latest?measurable=LoadOne&indent=1"
{
  "data": [
    {
      "age": 114.099,

```

```

    "entity": "bright82",
    "measurable": "LoadOne",
    "raw": 0.03,
    "time": 1540476351361,
    "value": "0.03"
  },
  {
    "age": 155.07,
    "entity": "node001",
    "measurable": "LoadOne",
    "raw": 0.0,
    "time": 1540476310390,
    "value": "0"
  }
]
}
[alice@bright82 ~]# <curlauth>/rest/v1/monitoring/latest?entity=node001&measurable=LoadOne&indent=1"
{
  "data": [
    {
      "age": 106.706,
      "entity": "node001",
      "measurable": "LoadOne",
      "raw": 0.0,
      "time": 1540476790390,
      "value": "0"
    }
  ]
}

```

### Historic Data Dump Via /v1/monitoring/dump

Dumping historic data can be done using the entry point:

#### Example

```
[alice@bright82 ~]# <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 11.6.4 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@bright82 ~]# <curlauth>/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,
      "time": "2018/10/25 13:49:28",
      "value": "1"
    },
    ...typically thousands more lines...
  ]
}
```



# 5

## Bright Cluster Manager JSON API

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/downloads/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 11.7.3 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 **sync**
- 5.1.21 **test**
- 5.1.22 **user**

## 5.2 Entities

### 5.2.1 AMDGPUSettings (parent: GPUSettings)



Parameter	Type	Description
gpuClockLevel	unsigned integer	Set the GPU clock frequency level
memClockLevel	unsigned integer	Set the GPU memory clock frequency level
powerplay	string	Set powerplay level
overdrive	unsigned integer	This sets the percentage above maximum for the max Performance Level.
fanspeed	unsigned integer	Fan speed value
minimalGPUClock	unsigned integer	Minimum GPU clock speed in MHz
minimalMemoryClock	unsigned integer	Minimum GPU Memory clock speed in MHz
activityThreshold	unsigned integer	Workload required before clock levels change (%)
hysteresisUp	unsigned integer	Delay before clock level is increased in milliseconds
hysteresisDown	unsigned integer	Delay before clock level is decreased in milliseconds

### 5.2.2 AzureDataDisk (parent: AzureDisk)

Parameter	Type	Description
lun	unsigned integer	Logical unit number of a block device to be attached
removeOnTermination	boolean	If true, the drive will be removed when the instance it is attached to gets terminated

### 5.2.3 AzureDisk (parent: Entity)

Parameter	Type	Description
name	string	Name of the data disk

...continues

*...continued*

Parameter	Type	Description
size	unsigned integer	Size of the drive
image	string	URL to a source image for the disk
storageAccountName	string	Name of a storage account to hold the disk
imageContainerName	string	If the disk has the image url set, the image will be copied to a container with this name
containerName	string	Name of a container in storage account to hold the disk
managedDiskParameters	AzureManagedDisk\ Parameters or None	Azure Managed Disk parameters

#### 5.2.4 AzureIntermediateStorage (parent: CMSubIntermediateStorage)

Parameter	Type	Description
storageAccount	string	Azure storage account name
accessKey	string	Azure storage account access key
container	string	Container name to place data into

#### 5.2.5 AzureLocation (parent: CloudRegion)

Parameter	Type	Description
-----------	------	-------------

#### 5.2.6 AzureManagedDiskParameters (parent: Entity)

Parameter	Type	Description
id	string	Managed disks resource ID
storageAccountType	enum	Storage account type for managed disks

#### 5.2.7 AzureOSDisk (parent: AzureDisk)

Parameter	Type	Description
cachingType	enum	Disk caching type

#### 5.2.8 AzureProvider (parent: CloudProvider)

Parameter	Type	Description
subscriptionId	string	Azure Subscription ID.
clientId	string	Azure Client ID.
clientSecret	string	Azure Client Secret.
tenantId	string	Tenant ID.
defaultLocation	reference AzureLocation	to Default location to start virtual machine in.
defaultVMSize	reference AzureVMSize	to Default cloud node VM size.
defaultDirectorVMSize	reference AzureVMSize	to Default cloud director VM size.
resourceGroup	string	Azure Resource Group name.
storageAccountName	string	Default storage account name for resources inside the provider
defaultNodeInstallerImage	string	Default node-installer image, can be overridden in the OS disk.
useManagedDisks	boolean	Use Azure managed disks for Azure cloud nodes.

### 5.2.9 AzureSettings (parent: CloudSettings)

Parameter	Type	Description
instanceId	string	Instance-ID provided by Azure
instanceUrl	string	Availability set resource identifier
nicId	string	Network interface identifier

...continues

*...continued*

Parameter	Type	Description
location	reference AzureLocation	to Virtual Machine location
resourceGroupName	string	Azure Resource Group Name
storageAccountName	string	Name of a storage account where boot diagnostics will be stored for this instance
publicIpName	string	Name of a public ip object to be assigned to the node
VMSize	reference AzureVMSize	to Virtual Machine size
disks	list of AzureDisk	Storage disks.

#### 5.2.10 AzureVMSize (parent: [CloudType](#))

Parameter	Type	Description
-----------	------	-------------

#### 5.2.11 BadEntityManagers (parent: [Entity](#))

Parameter	Type	Description
name	string	Name
managers	list of strings	Managers

#### 5.2.12 BasicResource (parent: [Entity](#))

Parameter	Type	Description
name	string	Name
dependency	unsigned integer	Dependency on another resource, run this resource on the same node as the dependency
exclude	list of unsigned numbers	Do not run this resource on any node running one of the excluded resources

*...continues*

*...continued*

Parameter	Type	Description
disabled	boolean	Disable the resource from being given to any node
stopOnRemove	boolean	Automatically stop resource when removed

### 5.2.13 BeeGFSAdmonRole (parent: Role)

Parameter	Type	Description
databaseFile	string	Path to the database
managementNode	reference to Node	Node with a management role
clearDatabase	boolean	Delete database on startup
queryInterval	unsigned integer	Interval for querying servers for new statistics data
authFile	string	Path to the shared secret authentication file
fallbackExpiration	unsigned integer	Time after which a connection to a fallback interface expires
interfacesFile	string	Path to the file with a list of interfaces for communication
maxInternodeNumber	unsigned integer	Max number of simultaneous connections to the same node

*...continues*

*...continued*

Parameter	Type	Description
httpPort	unsigned integer	TCP port for built-in web server
admonPortUDP	unsigned integer	UDP port for admon service
netFilterFile	string	Path to a file with a list of allowed IP subnets
tcpOnlyFilterFile	string	Path to a file with a list of no DRMA IP ranges
logLevel	unsigned integer	Log level
noLogDate	boolean	Do not show date along with time in log
numberOfLogLines	unsigned integer	Number of lines in log file, after which it will be rotated
numberOfLogRotatedFiles	unsigned integer	Number of old log files to keep
logFile	string	Path to the log file, empty means logs go to the journal
enableMail	boolean	Enable email notification
smtpSendType	string	How to send the email to an smtp server
sendmailPath	string	Path to the sendmail binary

*...continues*

*...continued*

Parameter	Type	Description
<code>checkIntervalTime</code>	unsigned integer	Interval for checking for new events that must be mailed
<code>minimalDownTime</code>	unsigned integer	Interval of node downtime after which it should be reported
<code>mailRecipients</code>	list of strings	Email addresses to send notifications to
<code>resendMailTime</code>	unsigned integer	Amount of time to sent email again as a reminder
<code>mailSender</code>	string	Email address to send notifications from
<code>smtpServer</code>	string	SMTP server to use for sending emails
<code>numberOfWorkers</code>	unsigned integer	Number of worker threads

#### 5.2.14 BeeGFSCientRole (parent: Role)

Parameter	Type	Description
<code>managementNode</code>	reference to Node	Node with a management role
<code>authFile</code>	string	Path to the shared secret authentication file
<code>clientPortUDP</code>	unsigned integer	UDP port for client service
<code>helperPortTCP</code>	unsigned integer	TCP port for helper service
<code>communicationRetry</code>	unsigned integer	Time for retries in case of a network failure
<code>fallbackExpiration</code>	unsigned integer	Time after which a connection to a fallback interface expires

*...continues*

*...continued*

<b>Parameter</b>	<b>Type</b>	<b>Description</b>
<code>interfacesFile</code>	string	Path to the file with a list of interfaces for communication
<code>maxInternodeNumber</code>	unsigned integer	Max number of simultaneous connections to the same node
<code>netFilterFile</code>	string	Path to a file with a list of allowed IP subnets
<code>useRDMA</code>	boolean	Use RDMA
<code>rdmaBuffersNumber</code>	unsigned integer	Number of RDMA buffers
<code>rdmaBufferSize</code>	unsigned integer	Maximum size of a buffer that will be sent over the network
<code>rdmaTypeOfService</code>	unsigned integer	RDMA type of service
<code>tcpOnlyFilterFile</code>	string	Path to a file with a list of no DRMA IP ranges
<code>mountpoint</code>	string	Path to a beegfs filesystem mountpoint
<code>logLevel</code>	unsigned integer	Log level
<code>noLogDate</code>	boolean	Do not show date along with time in log

*...continues*



*...continued*

Parameter	Type	Description
numberOfLogLines	unsigned integer	Number of lines in log file, after which it will be rotated
numberOfLogRotatedFiles	unsigned integer	Number of old log files to keep
logFile	string	Path to the log file, empty means logs go to the journal
enableQuota	boolean	Enable quota
createHardlinksAsSymlinks	boolean	Create a symlink when an application tries to create a hardlink
mountSanityCheckMs	unsigned integer	Time in ms server has to respond after mount sanity check
sessionCheckOnClose	boolean	Check for valid sessions on storage server when a file is closed
syncOnClose	boolean	Sync file content on close
targetOfflineTimeout	unsigned integer	Timeout until all storage targets are considered offline when no target state updates can be fetched from management server
updateTargetStates	unsigned integer	Interval for storage targets states check

*...continues*

*...continued*

Parameter	Type	Description
enableXAttrs	boolean	Enable xattrs
enableACLs	boolean	Enable ACLs
fileCacheType	string	File read/write cache type
preferredMetaFile	string	Path to a file with preferred metadata servers
preferredStorageFile	string	Path to a file with preferred storage targets
remoteFSync	boolean	Should fsync be executed on server to flush cached file
useGlobalAppendLocks	boolean	Should files, opened in append mode, be protected by locks on local machine (false) or on servers (true)
useGlobalFileLocks	boolean	Should advisory locks be checked on local machine (false) or on servers (true)
helperWorkersNumber	unsigned integer	Number of worker threads for helper service

### 5.2.15 BeeGFSManagementRole (parent: Role)

Parameter	Type	Description
dataDir	string	Path to the data directory
allowNewServers	boolean	Allow new servers registration
allowNewTargets	boolean	Allow new storage targets registration
authFile	string	Path to the shared secret authentication file

*...continues*

*...continued*

Parameter	Type	Description
backlogTCP	unsigned integer	TCP listen backlog
interfacesFile	string	Path to the file with a list of interfaces for communication
managementPortTCP	unsigned integer	TCP port for management service
managementPortUDP	unsigned integer	UDP port for management service
netFilterFile	string	Path to a file with a list of allowed IP subnets
logLevel	unsigned integer	Log level
noLogDate	boolean	Do not show date along with time in log
numberOfLogLines	unsigned integer	Number of lines in log file, after which it will be rotated
numberOfLogRotatedFiles	unsigned integer	Number of old log files to keep
logFile	string	Path to the log file, empty means logs go to the journal
enableQuota	boolean	Enable quota

*...continues*

*...continued*

Parameter	Type	Description
quotaQueryGIDFile	string	Path to a file with GIDs to be checked by quota
quotaQueryGIDRange	string	GID range to be checked by quota
quotaQueryUIDFile	string	Path to a file with UIDs to be checked by quota
quotaQueryUIDRange	string	UID range to be checked by quota
quotaQueryType	string	Query type for quota
quotaQueryWithSystemUsersGroups	boolean	Allow also system users/groups to be checked by quota
quotaUpdateInterval	unsigned integer	Quota update interval
targetOfflineTimeout	unsigned integer	Timeout until targets on a storage server are considered offline when no target status is received
clientAutoRemove	unsigned integer	Time after which an unreachable node is considered dead
numberOfWorkers	unsigned integer	Number of worker threads
metaDynamicPools	boolean	Raise lower limits if difference in capacity becomes too large between targets

*...continues*

*...continued*

Parameter	Type	Description
metaInodesLowLimit	string	Metadata inode free space pool threshold
metaInodesEmergencyLimit	string	Metadata inode free space pool threshold
metaSpaceLowLimit	string	Metadata space free space pool threshold
metaSpaceEmergencyLimit	string	Metadata space free space pool threshold
storageDynamicPools	boolean	Raise lower limits if difference in capacity becomes too large between targets
storageInodesLowLimit	string	Storage inode free space pool threshold
storageInodesEmergencyLimit	string	Storage inode free space pool threshold
storageSpaceLowLimit	string	Storage space free space pool threshold
storageSpaceEmergencyLimit	string	Storage space free space pool threshold

### 5.2.16 BeeGFSMetadataRole (parent: Role)

Parameter	Type	Description
dataDir	string	Path to the data directory
managementNode	reference to Node	Node with a management role
authFile	string	Path to the shared secret authentication file
backlogTCP	unsigned integer	TCP listen backlog
fallbackExpiration	unsigned integer	Time after which a connection to a fallback interface expires

*...continues*

*...continued*

<b>Parameter</b>	<b>Type</b>	<b>Description</b>
<code>interfacesFile</code>	string	Path to the file with a list of interfaces for communication
<code>maxInternodeNumber</code>	unsigned integer	Max number of simultaneous connections to the same node
<code>metaPortTCP</code>	unsigned integer	TCP port for metadata service
<code>metaPortUDP</code>	unsigned integer	UDP port for metadata service
<code>netFilterFile</code>	string	Path to a file with a list of allowed IP subnets
<code>useRDMA</code>	boolean	Use RDMA
<code>rdmaTypeOfService</code>	unsigned integer	RDMA type of service
<code>tcpOnlyFilterFile</code>	string	Path to a file with a list of no DRMA IP ranges
<code>logLevel</code>	unsigned integer	Log level
<code>noLogDate</code>	boolean	Do not show date along with time in log
<code>numberOfLogLines</code>	unsigned integer	Number of lines in log file, after which it will be rotated

*...continues*

*...continued*

Parameter	Type	Description
numberOfLogRotatedFiles	unsigned integer	Number of old log files to keep
logFile	string	Path to the log file, empty means logs go to the journal
clientXAttrs	boolean	Enable client-side extended attributes
clientACLs	boolean	Enable handling and storage of client-side ACLs
useExtendedAttributes	boolean	Store metadata as extended attributes or not
targetAttachmentFile	string	File with a list of tagrets to be grouped within the same domain for randominternode
targetOfflineTimeout	unsigned integer	Timeout until tagrets on a storage server are considered offline when no target status is received
allowUserSetPattern	boolean	Allow non-privileged users to modify stripe pattern settings for directories they own
bindToNumaZone	string	Zero-based NUMA zone number to which all threads of metadata process should be bound
numberOfStreamListeners	unsigned integer	The number of threads waiting for incoming data events

*...continues*

*...continued*

Parameter	Type	Description
numberOfWorkers	unsigned integer	Number of worker threads
targetChooser	string	The algorithm to choose storage targets for file creation
useAggressiveStreamPoll	boolean	Actively poll for events instead of sleeping until an event occur
usePerUserMsgQueues	boolean	Use per-user queues for pending requests

### 5.2.17 BeeGFSStorageRole (parent: Role)

Parameter	Type	Description
dataDirs	list of strings	Path to the data directories
managementNode	reference to Node	Node with a management role
authFile	string	Path to the shared secret authentication file
backlogTCP	unsigned integer	TCP listen backlog
interfacesFile	string	Path to the file with a list of interfaces for communication
maxInternodeNumber	unsigned integer	Max number of simultaneous connections to the same node
storagePortTCP	unsigned integer	TCP port for storage service

*...continues*



*...continued*

Parameter	Type	Description
storagePortUDP	unsigned integer	UDP port for storage service
netFilterFile	string	Path to a file with a list of allowed IP subnets
useRDMA	boolean	Use RDMA
rdmaTypeOfService	unsigned integer	RDMA type of service
tcpOnlyFilterFile	string	Path to a file with a list of no DRMA IP ranges
logLevel	unsigned integer	Log level
noLogDate	boolean	Do not show date along with time in log
numberOfLogLines	unsigned integer	Number of lines in log file, after which it will be rotated
numberOfLogRotatedFiles	unsigned integer	Number of old log files to keep
logFile	string	Path to the log file, empty means logs go to the journal
resyncSafetyThreshold	unsigned integer	Add an extra amount of time to the last successful communication timestamp, in case of a potential cache loss

*...continues*

*...continued*

Parameter	Type	Description
targetOfflineTimeout	unsigned integer	Timeout until tagrets on a storage server are considered offline when no target status is received
bindToNumaZone	string	Zero-based NUMA zone number to which all threads of metadata process should be bound
fileReadAheadSize	string	Byte range submitted to the kernel for read-ahead after number of bytes was already read from target
fileReadAheadTrig\gerSize	string	Number of bytes after reading which the read-ahead is triggered
fileReadSize	string	Maximum amount of data server should read in a single operation
fileWriteSize	string	Maximum amount of data server should write in a single operation
fileWriteSyncSize	string	Number of bytes after which kernel will be advised to commit data
numberOfResyncGat\herSlaves	unsigned integer	Number of threads to gather filesystem information for a buddy mirror resync
numberOfResyncSlaves	unsigned integer	Number of threads to sync filesystem information for a buddy mirror resync

*...continues*

*...continued*

Parameter	Type	Description
numberOfStream\Listeners	unsigned integer	Number of threads waiting for incoming data events
numberOfWorkers	unsigned integer	Number of worker threads
useAggressive\StreamPoll	boolean	Actively poll for events instead of sleeping until an event occur
usePerTargetWorkers	boolean	Create a separate set of workers and attach it for each storage target
usePerUserMsgQueues	boolean	Use per-user queues for pending requests
workerBufferSize	string	Size of network and io buffers, allocated for each worker

#### 5.2.18 BMCSettings (parent: Entity)

Parameter	Type	Description
userName	string	Username used to send BMC commands
userID	integer	User ID to send BMC commands
password	string	Password used to send BMC commands
powerResetDelay	unsigned integer	Delay used for BMC power reset, if set to > 0 power off; sleep X; power on is used

#### 5.2.19 BootRole (parent: Role)

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

*...continues*

*...continued*

Parameter	Type	Description
racks	list of references to Rack	List of racks which can boot from this node
softwareImages	list of references to SoftwareImage	List of software images from which can be booted, leave empty for all images
excludeTftpboot	boolean	Exclude tftpboot from rsyncing
excludeNodeInstaller	boolean	Exclude node installer from rsyncing
allowRamdiskCreation	boolean	Allow the node to create ramdisks by itself, instead of waiting for them to be rsynced from the headnode

### 5.2.20 BurnConfig (parent: Entity)

Parameter	Type	Description
name	string	A short name to identify this burn configuration.
description	string	A more extensive description of this burn configuration.
configuration	string	This XML data describes which burn tests should be used.

### 5.2.21 BurnStatus (parent: Entity)

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	Node
startNewBurn	boolean	Starting new burn on next reboot
burning	boolean	Currently burning

*...continues*

*...continued*

Parameter	Type	Description
information	string	Information
configuration	string	Configuration
error	string	Error message.
warnings	unsigned integer	Number of warnings which have occurred so far.
phaseName	string	Name of the current phase.
phaseTime	string	Time past since the current phase was started.
burnComplete	string	Set if the burn cycle has completed.
burnFailed	boolean	Set if the burn cycle has failed.
testStatusList	list of BurnTestStatus	
tag	string	Hardware tag.

### 5.2.22 BurnTestStatus (parent: Entity)

Parameter	Type	Description
name	string	Test name.
status	string	Test status.
started	boolean	Indicates if test was started.
passed	boolean	Indicates if test has passed.

*...continues*

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Parameter	Type	Description
failed	boolean	Indicates if test has failed.
warning	boolean	Indicates if test produced a warning.

### 5.2.23 Category (parent: [Entity](#))

Parameter	Type	Description
name	string	Name of category
fsmounts	list of <a href="#">FSMount</a>	Configure the entries placed in <code>/etc/fstab</code>
staticRoutes	list of <a href="#">StaticRoute</a>	Configure static routes for the interfaces
roles	list of <a href="#">Role</a>	Assign the roles the node should play
notes	string	Administrator notes
cpuspeedGovernor	string	Current governor for frequency scaling
gpuSettings	list of <a href="#">GPUSettings</a>	Configure the GPUs
softwareImageProxy	<a href="#">SoftwareImageProxy</a>	Software image the category will use
defaultGateway	IP	Default gateway for the category

*...continues*

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
<code>nameServers</code>	list of strings	List of name servers the category will use
<code>timeServers</code>	list of strings	List of time servers the category will use
<code>searchDomains</code>	list of strings	Search domains for the category
<code>disksetup</code>	string	Node specific disk setup
<code>installMode</code>	string	Installmode to be used by default, if none is specified in the node
<code>newNodeInstallMode</code>	string	Installmode to be used by default, for new nodes
<code>excludeListFull</code>	string	Exclude list for full install
<code>excludeListSync</code>	string	Exclude list for sync install
<code>excludeListUpdate</code>	string	Exclude list for update
<code>excludeListGrab</code>	string	Exclude list for grabbing to an existing image
<code>excludeListGrabnew</code>	string	Exclude list for grabbing to a new image
<code>initialize</code>	string	Initialize script to be used for category

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Parameter	Type	Description
finalize	string	Finalize script to be used for category
raidconf	string	Node specific Hardware RAID configuration
fsexports	list of FSExport	Configure the entries placed in /etc/exports
services	list of OSServiceConfig	Manage operating system services
bmcSettings	BMCSettings or None	Configure the baseboard management controller settings
proxySettings	ProxySettings or None	Configure the proxy server settings
installBootRecord	boolean	Install boot record on local disk
managementNetwork	reference to Network or None	Determines what network should be used for management traffic. If not set, partition setting is used.
ucsInfoConfigured	UCSInfo or None	Configure UCS Settings
dellSettings	DellSettings or None	Dell Settings
interactiveUser	enum	Allow user login on node

*...continues*



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Parameter	Type	Description
fspartAssociations	list of FSPartAssociation	
dataNode	boolean	If enabled the node will never do a FULL install without explicit user confirmation
excludeListManipulateScript	string	A user defined script that can be used to do custom last minute changes to the exclude lists used by cmdaemon to rsync
ioScheduler	string	The I/O scheduler for the disks
useExclusivelyFor	string	Use node exclusively for desired function: stop all other services
kernelVersion	string	Kernel version used
kernelParameters	string	Kernel parameters passed to the kernel at boot time
modules	list of KernelModule	Manage kernel modules loaded in this image
versionConfigFiles	boolean	Keep old versions of all config files for all nodes in this category

#### 5.2.24 CephMDSRole (parent: Role)

Parameter	Type	Description
mdsBeaconInterval	float	The frequency (in seconds) of beacon messages sent to the monitor.
mdsBeaconGrace	float	The interval without beacons before Ceph declares an MDS laggy (and possibly replace it).

*...continues*

*...continued*

Parameter	Type	Description
mdsTickInterval	float	How frequently the MDS performs internal periodic tasks.
extraConfig	list of strings	Extra config parameters

**5.2.25 CephMGRRole (parent: Role)**

Parameter	Type	Description
modulePath	string	Path to load modules from
dataPath	string	Path to load daemon data (such as keyring)
beaconPeriod	integer	How many seconds between mgr beacons to monitors
extraConfig	list of strings	Extra config parameters

**5.2.26 CephMonitorRole (parent: Role)**

Parameter	Type	Description
dataPath	string	Path to the Monitor data
extraConfig	list of strings	Extra config parameters

**5.2.27 CephOSDBlueStoreConfig (parent: CephOSDConfig)**

Parameter	Type	Description
osdDevice	string	device to store OSD data

**5.2.28 CephOSDConfig (parent: Entity)**

Parameter	Type	Description
name	string	Name
extraConfig	list of strings	Extra config parameters

**5.2.29 CephOSDFileStoreConfig (parent: CephOSDConfig)**

Parameter	Type	Description
dataPath	string	Path to the OSD data
osdDevice	string	Device for storing OSD data
journalDevice	string	Device for storing journal data
journalOnOSDPartition	boolean	Store the journal on a partition of the OSD device
journalSize	unsigned integer	Journal size in MiB

### 5.2.30 CephOSDLegacyConfig (parent: [CephOSDConfig](#))

Parameter	Type	Description
dataPath	string	Path to the OSD data
journalPath	string	Path to the journal data
journalSize	unsigned integer	Journal size in MiB

### 5.2.31 CephOSDPool (parent: [Entity](#))

Parameter	Type	Description
id	unsigned integer	Id
name	string	Name
size	unsigned integer	Number of replicas
pgp_num	unsigned integer	Number of Placement Groups for Placement
pg_num	unsigned integer	Number of Placement Groups

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Parameter	Type	Description
crush_ruleset	unsigned integer	CRUSH Map Ruleset
application	string	Associated application (typically one of rgw, rbd, cephfs)
auid	unsigned integer	
min_size	unsigned integer	
crash_replay_interval	unsigned integer	
hit_set_type	string	
hashpspool	unsigned integer	
hit_set_count	unsigned integer	
hit_set_period	unsigned integer	
hit_set_fpp	float	
cache_target_\dirty_ratio	float	
cache_target_\full_ratio	float	
target_max_bytes	unsigned integer	
target_max_objects	unsigned integer	

*...continues*

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Parameter	Type	Description
cache_min_flush_age	unsigned integer	
cache_min_evict_age	unsigned integer	
extraField1	string	
extraField2	integer	
extraField3	unsigned integer	
extraField4	float	
extraField5	list of strings	
extraField6	list of unsigned numbers	

### 5.2.32 CephOSDRole (parent: Role)

Parameter	Type	Description
osdconfigs	list of CephOSDConfig	OSD configurations
extraConfig	list of strings	

### 5.2.33 CephState (parent: Entity)

Parameter	Type	Description
version	unsigned integer	
cephNodeKeys	list of unsigned numbers	
cephNodeValues	list of signed numbers	
OSDMapIds	list of unsigned numbers	

*...continues*

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Parameter	Type	Description
OSDMapNodes	list of unsigned numbers	
OSDMapConfigs	list of unsigned numbers	
OSDMapConfigNames	list of strings	
OSDMapStatuses	list of unsigned numbers	to mark status (e.g. NEED_DELETE) using numeric constants
OSDMapDevices	list of strings	in case we need to keep track of changing device names
extraField1	string	
extraField2	string	
extraField3	string	
extraField4	string	
extraField5	string	
extraList1	list of strings	
extraList2	list of strings	
extraList3	list of unsigned numbers	
extraList4	list of unsigned numbers	
extraList5	list of unsigned numbers	

### 5.2.34 Ceph (parent: `Entity`)

Parameter	Type	Description
name	string	Name

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Parameter	Type	Description
fsid	string	Ceph ID
configFilePath	string	Path to the Ceph config file
adminKeyringFilePath	string	Path to the Ceph admin keyring file
monitorKeyringFile\Path	string	Path to the Ceph monitor keyring file
adminKey	string	Ceph client admin key
monitorKey	string	Ceph monitor key
publicNetworks	list of references to Network	Public networks
clusterNetworks	list of references to Network	Cluster networks
creationTime	timestamp	Date on which the Ceph was defined
setupState	enum	Flag to keep track of the installation state
version	string	Ceph version of the cluster
monmap	string	
bootstrapped	boolean	Bootstrapped

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Parameter	Type	Description
monitorPort	unsigned integer	Monitor daemon port
filestoreXattrUseOmap	boolean	filestore xattr use omap
monAllowPoolDelete	boolean	mon allow pool delete
monOsdFullRatio	float	mon osd full ratio
monOsdNearfullRatio	float	mon osd nearfull ratio
monMaxOsd	unsigned integer	mon max osd
osdPoolDefaultSize	unsigned integer	osd pool default size
osdPoolDefaultMinSize	unsigned integer	osd pool default min size
osdPoolDefaultPgNum	unsigned integer	osd pool default pg num
osdPoolDefaultPgpNum	unsigned integer	osd pool default pgp num
authClusterCephx	boolean	auth cluster required cephx
authServiceCephx	boolean	auth service required cephx

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Parameter	Type	Description
authClientCephx	boolean	auth client required cephx
extraConfig	list of strings	Extra config parameters
autoAdjustCrushMap	boolean	Automatically Adjust CRUSH Map
rdCache	boolean	Enable caching for RADOS Block Device (RBD).
rdCacheSize	unsigned integer	The RBD cache size in bytes.
rdCacheMaxDirty	unsigned integer	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.
rdCacheTargetDirty	unsigned integer	The dirty target before the cache begins writing data to the data storage. Does not block writes to the cache. Constraint: Must be less than rbd cache max dirty.
rdCacheMaxDirtyAge	float	The number of seconds dirty data is in the cache before writeback starts.
rdCacheWritethr\  oughUntilFlush	boolean	Start out in write-through mode, and switch to write-back after the first flush request is received.
rdReadaheadTrig\  gerRequests	integer	Number of sequential read requests necessary to trigger read-ahead.
rdReadaheadMaxBytes	unsigned integer	Maximum size of a read-ahead request. If zero, read-ahead is disabled.
rdReadaheadDisa\  bleAfterBytes	unsigned integer	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.

### 5.2.35 CertificateInfo (parent: Entity)

Parameter	Type	Description
certificate	Certificate	Certificate
private_key	string	Optional private key field.

### 5.2.36 CertificateRequest (parent: Entity)

Parameter	Type	Description
CSR	string	
sessionId	unsigned integer	Session id
clientType	unsigned integer	Client type
requestId	unsigned integer	Request id
country	string	Country
state	string	State
locality	string	Locality
organization	string	Organization
organizationalUnit	string	Organizational unit
commonName	string	Common name
subjectAlternativeNames	list of strings	Subject alternative names
allowAutosign	boolean	Allow autosign

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Parameter	Type	Description
hasEdgeSecret	boolean	Has an edge secret

### 5.2.37 CertificateSubjectName (parent: Entity)

Parameter	Type	Description
country	string	Country
state	string	State
locality	string	Locality
organization	string	Organization
organizationalUnit	string	Organizational unit
commonName	string	CommonName
profile	string	Profile
syslogin	string	Syslogin
component	string	Component
days	integer	Days

*...continues*

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Parameter	Type	Description
ca	boolean	CA
subjectAlternativeNames	list of strings	Alternative names

### 5.2.38 Certificate (parent: [Entity](#))

Parameter	Type	Description
PEM	string	
revoked	boolean	Certificate has been revoked and can not be used
serialNumber	integer	Serial number
remaining	integer	Remaining time until certificate expires
startTime	timestamp	Date when certificate is valid
expireTime	timestamp	Date when certificate expires
CA	boolean	A CA certificate can be used sign other certificates
hasEdgeSecret	boolean	Has an edge secret
profile	string	Profile
sysLogin	string	System log in

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Parameter	Type	Description
component	string	Component
subjectName	string	Subject
issuerName	string	Issuer
subjectAlternative\Names	list of strings	Alternative names
country	string	Country
state	string	State
locality	string	Locality
organization	string	Organization
organizationalUnit	string	Organizational unit
commonName	string	Name

### 5.2.39 CgroupControllerBlkio (parent: CgroupController)

Parameter	Type	Description
weight	unsigned integer	Specifies per cgroup weight (system parameter: weight)
weightDevice	list of strings	Specifies the relative proportion (weight) of I/O access on specific devices available to a cgroup; values take the format 'major:minor weight', (system parameter: weight_device)

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Parameter	Type	Description
leafWeight	unsigned integer	Specifies per cgroup weight while competing with the its child cgroups (system parameter: leaf_weight)
leafWeightDevice	list of strings	Specifies the relative proportion (weight) of I/O access on specific devices available to a cgroup while competing with the its child cgroups; values take the format 'major:minor weight', (system parameter: leaf_weight_device)
throttleReadBpsDevice	list of strings	Specifies the upper limit on the number of read operations a device can perform in bytes per second; values take the format format 'major:minor rate_bytes_per_second' (system parameter: throttle.read_bps_device)
throttleWriteBps\ Device	list of strings	Specifies the upper limit on the number of write operations a device can perform in bytes per second; values take the format format 'major:minor rate_bytes_per_second' (system parameter: throttle.write_bps_device)
throttleReadIops\ Device	list of strings	Specifies upper limit on read rate from the device in IO per second; values take the format format 'major:minor rate_io_per_second' (system parameter: throttle.read_iops_device)
throttleWriteIops\ Device	list of strings	Specifies upper limit on write rate from the device in IO per second; values take the format format 'major:minor rate_io_per_second' (system parameter: throttle.write_iops_device)

#### 5.2.40 CgroupControllerCpuacct (parent: CgroupController)

Parameter	Type	Description
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#### 5.2.41 CgroupControllerCpuset (parent: CgroupController)

Parameter	Type	Description
cpus	list of strings	Specifies a list of CPU cores to which a cgroup has access (system parameter: cpus)

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Parameter	Type	Description
<code>cpuExclusive</code>	boolean	Specifies whether the CPUs specified by CPUs are exclusively allocated to this CPU set and cannot be shared with other CPU sets (system parameter: <code>cpu_exclusive</code> )
<code>mems</code>	list of strings	Specifies the memory nodes to which a cgroup has access (system parameter: <code>mems</code> )
<code>memoryExclusive</code>	boolean	Specifies whether the memory nodes specified by <code>cpuset.mems</code> are exclusively allocated to this CPU set and cannot be shared with other CPU sets (system parameter: <code>mem_exclusive</code> )
<code>memoryHardwall</code>	boolean	Specifies whether the kernel allocates pages and buffers to the memory nodes specified by <code>cpuset.mems</code> exclusively to this CPU set and cannot be shared with other CPU sets (system parameter: <code>mem_hardwall</code> )
<code>memoryMigrate</code>	boolean	Specifies whether memory pages are allowed to migrate between memory nodes if the value of <code>cpuset.mems</code> changes (system parameter: <code>memory_migrate</code> )
<code>memoryPressureEnabled</code>	boolean	Specifies whether the memory pressure statistic should be gathered (system parameter: <code>memory_pressure_enabled</code> )
<code>memorySpreadPage</code>	boolean	Specifies whether file system buffers are distributed between the allocated memory nodes (system parameter: <code>memory_spread_page</code> )

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Parameter	Type	Description
memorySpreadSlab	boolean	Specifies whether I/O slab caches are distributed between the allocated memory nodes (system parameter: memory_spread_slab)
schedLoadBalance	boolean	Specifies whether the kernel should attempt to balance CPU load by moving processes between the CPU cores allocated to a CPU set (system parameter: sched_load_balance)
schedRelaxDomainLevel	integer	If cpuset.sched_load_balance is set to true, specifies a load-balancing scheme (system parameter: sched_relax_domain_level)

#### 5.2.42 CgroupControllerCpu (parent: CgroupController)

Parameter	Type	Description
cfsPeriodUs	integer	Specifies a period of time in microseconds for how regularly a cgroup access to CPU resources should be reallocated (system parameter: cfs_period_us)
cfsQuotaUs	integer	Specifies the total amount of time in microseconds for which all tasks in a cgroup can run during one period (system parameter: cfs_quota_us)
shares	unsigned integer	Integer positive value that specifies a relative share of CPU time available to the tasks in a cgroup (system parameter: shares)

#### 5.2.43 CgroupControllerDevices (parent: CgroupController)

Parameter	Type	Description
allow	list of strings	Specifies devices to which tasks in a cgroup have access; format of each entry: 'type major:minor access' (system parameter: allow)
deny	list of strings	Specifies devices that tasks in a cgroup cannot access; format of each entry: 'type major:minor access' (system parameter: deny)

#### 5.2.44 CgroupControllerFreezer (parent: CgroupController)



Parameter	Type	Description
State	string	If FROZEN is set, the cgroup, if not already freezing, enters FREEZING state along with all its descendant cgroups; if THAWED is set, the self-state of the cgroup is changed to THAWED (system parameter: state)

#### 5.2.45 CgroupControllerHugetlb (parent: CgroupController)

Parameter	Type	Description
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#### 5.2.46 CgroupControllerMemory (parent: CgroupController)

Parameter	Type	Description
limitInBytes	string	Sets the maximum amount of user memory in bytes, including file cache (system parameter: limit_in_bytes)
memswLimitInBytes	string	Sets the maximum amount for the sum of memory and swap usage in bytes (system parameter: memsw.limit_in_bytes)
softLimitInBytes	string	When the system detects memory contention or low memory, control groups are forced to restrict their consumption to their soft limits (system parameter: soft_limit_in_bytes)
swappiness	unsigned integer	Sets the tendency of the kernel to swap out process memory used by tasks in this cgroup instead of reclaiming pages from the page cache (system parameter: swappiness)

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Parameter	Type	Description
<code>moveChargeAtImmigrate</code>	boolean	Allows moving charges associated with a task along with task migration (system parameter: <code>move_charge_at_immigrate</code> )
<code>useHierarchy</code>	boolean	Specifies whether memory usage should be accounted for throughout a hierarchy of cgroups (system parameter: <code>use_hierarchy</code> )
<code>oomControl</code>	boolean	Enables or disables the Out of Memory killer for a cgroup (system parameter: <code>oom_control</code> )
<code>kmemLimitInBytes</code>	string	Set hard limit for kernel memory in bytes (system parameter: <code>kmem.limit_in_bytes</code> )
<code>kmemTcpLimitInBytes</code>	string	Set hard limit for tcp buf memory in bytes (system parameter: <code>kmem.tcp.limit_in_bytes</code> )

**5.2.47 CgroupControllerNetcls (parent: `CgroupController`)**

Parameter	Type	Description
<code>classId</code>	string	Traffic control handle (system parameter: <code>classid</code> )

**5.2.48 CgroupControllerNetprio (parent: `CgroupController`)**

Parameter	Type	Description
<code>ifpriomap</code>	list of strings	Priorities assigned to traffic originating from process in this group and leaving the system on various interfaces; format: a list of pairs 'interface priority' (system parameter: <code>ifpriomap</code> )

**5.2.49 CgroupControllerNs (parent: `CgroupController`)**

Parameter	Type	Description
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**5.2.50 CgroupControllerPerf (parent: `CgroupController`)**

Parameter	Type	Description
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**5.2.51 CgroupController (parent: `Entity`)**

Parameter	Type	Description
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Parameter	Type	Description
name	string	Cgroup controller name
enabled	boolean	Attach controller to cgroup
extraParameters	list of strings	Specify extra parameters using format name=value for each parameter

### 5.2.52 CgroupRule (parent: Entity)

Parameter	Type	Description
user	string	User (or user group if prefixed with @) name the rule is applied to (* represents all)
command	string	A process name or a full command path of a process
controllerNames	list of strings	Cgroup controller names attached to the control group

### 5.2.53 CgroupSupervisorRole (parent: Role)

Parameter	Type	Description
root	string	A directory path where root cgroup is mounted
cgroups	list of Cgroup	Cgroups managed by Bright Cluster Manager
cpuMountPoint	string	A directory path where the cpu controller is mounted
cpuacctMountPoint	string	A directory path where the cpuacct controller is mounted

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
cpusetMountPoint	string	A directory path where the cpuset controller is mounted
memoryMountPoint	string	A directory path where the memory controller is mounted
hugetlbMountPoint	string	A directory path where the hugetlb controller is mounted
perfeventMountPoint	string	A directory path where the perf_event controller is mounted
netclsMountPoint	string	A directory path where the net_cls controller is mounted
nsMountPoint	string	A directory path where the ns controller is mounted
freezerMountPoint	string	A directory path where the freezer controller is mounted
netprioMountPoint	string	A directory path where the net_prio controller is mounted
blkioMountPoint	string	A directory path where the blkio controller is mounted

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Parameter	Type	Description
devicesMountPoint	string	A directory path where the devices controller is mounted
collectMetrics	boolean	Collect job and managed cgroup metrics

**5.2.54 Cgroup (parent: *Entity*)**

Parameter	Type	Description
name	string	Name of the control group with all parent cgroup names delimited with '/' (e.g. 'projects/users/cmsupport')
isTemplate	boolean	Specifies if the cgroup is a template that can be used in cgroup rules (variables used for specifying cgroup paths in templates: %u - user name, %U - UID, %g - group name, %G - GID, %p - process name, %P - PID)
managed	boolean	Managed by Bright Cluster Manager
cgControllers	list of CgroupController	Cgroup controllers attached to control group
rules	list of CgroupRule	Cgroup rules applied to control group
adminUser	string	Name of the user, which owns all of control group's files excepting tasks file
adminGroup	string	Name of the user group, which owns all of control group's files excepting tasks file

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Parameter	Type	Description
taskUser	string	Name of the user, which owns tasks file of the control group
taskGroup	string	Name of the user group, which owns tasks file of the control group
notifyOnRelease	boolean	Execute the release agent
releaseAgent	string	Command to be executed when a NotifyOnRelease is triggered

### 5.2.55 Chassis (parent: Device)

Parameter	Type	Description
ip	IP	Ip address
network	reference to Network or None	Network to which this switch is connected
model	string	Device model name
username	string	Chassis username
password	string	Chassis password
members	list of references to Device	List of devices belonging to this chassis
slots	list of strings	Slot description per device in chassis

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Parameter	Type	Description
layout	string	Layout definition for rackview (Format: [l-]x,y e.g: 18,3 or -2,6)

**5.2.56 CloudDirectorRole (parent: Role)**

Parameter	Type	Description
dependents	reference NodeGroup	to List of nodes that depend on this cloud director
offloadStatusCheck	boolean	Perform node status checks for all nodes in the cloud region from the director

**5.2.57 CloudGatewayRole (parent: Role)**

Parameter	Type	Description
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**5.2.58 CloudImage (parent: Entity)**

Parameter	Type	Description
name	string	The name of the image.
provider	reference CloudProvider	to Cloud provider
version	string	The version of the image.
description	string	The description.

**5.2.59 CloudJobDescription (parent: Entity)**

Parameter	Type	Description
name	string	Job name
script	string	Script path
jobId	string	Job identifier

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
user	string	Owner of a job
sizeofInputData	unsigned integer	Size of job's input data
sizeofOutputData	unsigned integer	Size of job's output data
inputFiles	list of strings	Input files list
outputFiles	list of strings	Output files list
excludeList	list of strings	Exclude list
remoteOutputLists	list of strings	List of remote files which contain job output file names
workloadManager	string	Workload manager type
workingDirectory	string	Job's working directory
region	string	Cloud region
storageVolumeId	string	Storage Volume ID
storageVolumeSize	unsigned integer	Size of Storage Volume

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Parameter	Type	Description
storageVolumeDevice\Path	string	OS device path
storageNode	reference CloudNode	to Storage Node
excludedStorageNodes	list of references CloudNode	to Job will not run on those nodes
stdOutFileNames	list of strings	Standard output stream filenames list
stdErrFileNames	list of strings	Standard error stream filenames list
uploadTime	float	Time spent on input data transfer and job pre-run preparations
downloadTime	float	Time spent on jobs job results transfer and post-run activities
maxUploadTime	float	
maxDownloadTime	float	
jobStatus	string	Job status
pathDelimiter	string	
computeNodes	list of references Node	to List of compute nodes the job was running on

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Parameter	Type	Description
numThreads	unsigned integer	
extraOptions	list of strings	

**5.2.60 CloudJobSubmissionStatus (parent: Entity)**

Parameter	Type	Description
availableExpected\ TransferTimes	boolean	
expectedInputData\ TransferTimeInSeconds	unsigned integer	
errMsg	string	
extraOptions	list of strings	

**5.2.61 CloudNode (parent: ComputeNode)**

Parameter	Type	Description
cloudSettings	CloudSettings	Submode containing all cloud node settings

**5.2.62 CloudProvider (parent: Entity)**

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

**5.2.63 CloudRegion (parent: Entity)**

Parameter	Type	Description
name	string	The name of the cloud region.
provider	reference to CloudProvider	Cloud provider

**5.2.64 CloudSettings (parent: Entity)**

Parameter	Type	Description
provider	reference CloudProvider	to Cloud provider
externalIP	IP	The external IP address as set by the cloudprovider
releaseStaticIPOn\ Termination	boolean	Release Static IP on termination of the instance
isStorageTemplate	boolean	
isStorageNode	boolean	
tags	list of strings	List of tags that will be assigned to cloud instance
userKernelAndInitrd\ FromTheSoftwareImage	boolean	Make the cloud node's node-installer download the kernel and the initrd from the software image configured for this cloud node and then re-boot the cloud node to use those, instead of using the kernel and initrd already present on the node-installer's cloud image.

### 5.2.65 CloudStaticIP (parent: Entity)

Parameter	Type	Description
ip	IP	The public static IP address.
provider	reference CloudProvider	to Cloud provider
region	reference CloudRegion	to Cloud region in which this IP is located

### 5.2.66 CloudStorageActionData (parent: Entity)

Parameter	Type	Description
jobDescription	reference CloudJobDescription	to
typeString	string	

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Parameter	Type	Description
index	unsigned integer	
totalActions	unsigned integer	
status	enum	
isReverse	boolean	
timeoutSecs	unsigned integer	
startTime	timestamp	
retries	unsigned integer	
workloadManager	string	
jobId	string	
executionNode	reference to Node	
extraOptions	list of strings	

### 5.2.67 CloudType (parent: Entity)

Parameter	Type	Description
name	string	The name of the VM type.
provider	reference to CloudProvider	Cloud provider
cpu	string	The amount of CPU cores.
gpu	string	The amount of GPUs.

*...continues*

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Parameter	Type	Description
memory	string	The amount of operating system memory.
disks	string	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.
description	string	The description.

### 5.2.68 ClusterSetup (parent: Entity)

Parameter	Type	Description
refPartitionUniqueKey	unsigned integer	Partition
CMID	unsigned integer	CMID
databaseVersion	unsigned integer	Database version
organization	string	Organization
powerOnDelay	float	Delay in seconds between powering on nodes
powerOffDelay	float	Delay in seconds between powering off nodes

### 5.2.69 CMDaemonBackgroundTask (parent: Entity)

Parameter	Type	Description
name	string	Name
subjects	list of unsigned numbers	Subjects
updates	list of strings	Updates

*...continues*

*...continued*

Parameter	Type	Description
exitCode	integer	Exit code
runningStatus	enum	Running status
startTime	timestamp	Start time
endTime	timestamp	End time
isCancelable	boolean	Cancelable
parentTask	unsigned integer	Parent task
subtasks	list of unsigned numbers	Sub tasks
nodeKey	unsigned integer	Node key

### 5.2.70 CMDaemonFailoverGroupStatus (parent: [Entity](#))

Parameter	Type	Description
failoverStage	integer	Failover stage
activeNodeKey	unsigned integer	Active node key
activeUpTime	timestamp	Active up time
activeDownTime	timestamp	Active down time
activeUpCount	unsigned integer	Active up count
failoverThreadRunning	boolean	Failover thread running

*...continues*

*...continued*

Parameter	Type	Description
infoMessage	string	Information messages gather during the last failover
errorMessage	string	Error messages gather during the last failover
activeGraciousShut\down	boolean	True if the previous active head reported a graceful shutdown

### 5.2.71 CMDaemonFailoverGroup (parent: Entity)

Parameter	Type	Description
name	string	Name
nodes	list of references to ComputeNode	List of nodes belonging to this group
alsoTakeOverAfter\GraciousShutdown	boolean	Also perform automatic failover if the active group member was gracefully shut down
disableAutomaticFail\over	boolean	When automatic failover is disabled the no node in the group will not take over if the active node is dead
warntime	unsigned integer	How quickly to issue a 'late' warning
deadtime	unsigned integer	How quickly to decide that a node in a group is dead
mountScript	string	Script that mounts the shared storage device when a node becomes the active head node

*...continues*

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Parameter	Type	Description
unmountScript	string	Script that unmounts the shared storage device when a node stoppes being the active head node
preFailoverScript	string	Prefailover script will be run on all nodes before failover has begun
postFailoverScript	string	Postfailover script will be run on all nodes after failover has completed

### 5.2.72 CMDaemonFailoverPeer (parent: *Entity*)

Parameter	Type	Description
key	unsigned integer	Node key
status	list of strings	Status
failCount	list of unsigned numbers	Number of sequential times failure was detected

### 5.2.73 CMDaemonFailoverStatus (parent: *Entity*)

Parameter	Type	Description
myKey	unsigned integer	Unique key of head node to which handeled request
masterKey	unsigned integer	Unique key of active head node
masterTime	unsigned integer	Master time (not used)
failoverId	unsigned integer	Head node with the highest failover ID will be active

*...continues*



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Parameter	Type	Description
error	boolean	Head node is in error state
peers	list CMDaemonFailoverPeer	of Peer status per head node in the failover group

#### 5.2.74 CMDaemonFailover (parent: Entity)

Parameter	Type	Description
secondaryHeadNode	reference to HeadNode or None	Secondary/failover head node
keepalive	unsigned integer	Interval between pings
warntime	unsigned integer	How quickly to issue a 'late' warning
deadtime	unsigned integer	How quickly to decide that a node in a cluster is dead
initdead	unsigned integer	Time between starting failover and declaring a cluster node dead
quorumTime	unsigned integer	Time before deciding quorum ended in failure
mountScript	string	Script that mounts the shared storage device when a node becomes the active headnode
unmountScript	string	Script that unmounts the shared storage device when a node stoppes being the active headnode

*...continues*

*...continued*

Parameter	Type	Description
failoverNetwork	reference to Network or None	Network for failover ping
disableAutomaticFailover	boolean	When automatic failover is disabled the passive headnode will not take over if it detects the active headnode is dead
preFailoverScript	string	Prefailover script will be run on both headnodes before failover has begun
postFailoverScript	string	Postfailover script will be run on both headnodes after failover has completed

### 5.2.75 CMDaemonStatus (parent: Entity)

Parameter	Type	Description
version	string	CMDaemon version
state	string	CMDaemon state
myTime	timestamp	System time
startTime	timestamp	CMDaemon start time
uptime	unsigned integer	System uptime
utime	float	User time spend by CMDaemon
stime	float	System time spend by CMDaemon

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Parameter	Type	Description
memused	unsigned integer	Memory used by CMDaemon
sessionCount	unsigned integer	Total Number of cmsh/cmgui/python/node sessions
activeSessionCount	unsigned integer	Number of currently active sessions
httpdNumWorkers	unsigned integer	Number of threads handing http requests
httpdNumFreeWorkers	unsigned integer	Number of threads free to handle http requests
httpdConnection\Counter	unsigned integer	Total number of http connections handled by CMDaemon
httpdRequestCounter	unsigned integer	Total number of http request handled by CMDaemon
httpdBytesRead	unsigned integer	Bytes read from http request
httpdBytesWritten	unsigned integer	Bytes written in response to http requests

### 5.2.76 CMService (parent: Entity)

Parameter	Type	Description
name	string	Name
tokens	list of strings	Tokens belonging to this service

### 5.2.77 CMSubConfig (parent: Entity)

Parameter	Type	Description
name	string	CMSub config name
storageNodePolicies	list of StorageNodePolicy	Storage node policies

*...continues*

*...continued*

Parameter	Type	Description
activeStorageNodePolicy	element of storageNodePolicies or None	This policy will be used to start new storage nodes
extraOptions	list of strings	Extra options

### 5.2.78 CMSubIntermediateStorage (parent: Entity)

Parameter	Type	Description
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### 5.2.79 ComputeNode (parent: Node)

Parameter	Type	Description
installMode	string	Installmode to be used by default, if empty use category installMode
nextBootInstallMode	string	Installmode to be used during the next boot
blockDevicesClearedOnNextBoot	list of strings	List of block devices that will be cleared during the next boot
initialize	string	Node specific initialize script
finalize	string	Node specific finalize script
raidconf	string	Node specific Hardware RAID configuration
category	reference to Category	Category to which this node belongs
disksetup	string	Node specific disk setup

*...continues*

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Parameter	Type	Description
excludeListFull	string	Exclude list for full install
excludeListSync	string	Exclude list for sync install
excludeListUpdate	string	Exclude list for update
excludeListGrab	string	Exclude list for grabbing to an existing image
excludeListGrabnew	string	Exclude list for grabbing to a new image
installBootRecord	boolean	Install boot record on local disk
managementNetwork	reference to Network or None	Determines what network should be used for management traffic. If not set, category or partition setting is used.
dataNode	boolean	If enabled the node will never do a FULL install without explicit user confirmation
softwareImageProxy	SoftwareImageProxy or None	Software image used by node
fspartAssociations	list of FSPartAssociation	
kernelVersion	string	Kernel version used
kernelParameters	string	Kernel parameters passed to the kernel at boot time

*...continues*

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

### 5.2.80 ConfigFileVersion (parent: Entity)

Parameter	Type	Description
nodeKey	unsigned integer	Node key
filename	string	File name
content	string	Content of the file
creationTime	timestamp	Creation time

### 5.2.81 ConfigurationOverlay (parent: Entity)

Parameter	Type	Description
name	string	Name
nodes	list of references to Node	List of nodes belonging to this group
categories	list of references to Category	List of categories belonging to this group
customizationFiles	list of CustomizationFile	Config file customizations
roles	list of Role	Assign the roles
priority	integer	Priority of the roles, node roles have a 750 priority, and category roles 250

### 5.2.82 Consolidator (parent: Entity)

Parameter	Type	Description
name	string	Name

*...continues*

*...continued*

Parameter	Type	Description
maxAge	float	Maximal age of historic data, 0 for infinite
maxSamples	unsigned integer	Maximal samples of historic data, 0 for infinite
interval	float	Sampling interval
offset	float	Time offset for sampling interval
kind	enum	Kind of consolidation to be done

### 5.2.83 ContainerInfo (parent: Entity)

Parameter	Type	Description
name	string	The name of the container
containerId	string	The id
image	string	The name of the image
imageId	string	The sha id of the image
state	string	The state of the container
startTime	timestamp	The time when the container started
lastTerminationState	string	The last state when the container terminated
reason	string	The reason for the termination

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Parameter	Type	Description
lastExitCode	integer	The exit code of the container
previousStartTime	timestamp	The previous start time
previousFinishTime	timestamp	The previous finish time
ready	boolean	Whether the container is ready or not
restartCount	integer	The number of restarts of the container
environmentVariables	list of strings	The environment variables passed to the container

#### 5.2.84 CustomizationEntry (parent: [Entity](#))

Parameter	Type	Description
key	string	Name of the key
value	string	Value for the key
enabled	boolean	
action	enum	Determines how entries are added
formatting	string	
extraField	boolean	Reserved for future use
separator	string	



**5.2.85 CustomizationFile (parent: Entity)**

Parameter	Type	Description
name	string	
entries	list of CustomizationEntry	Config file customization entries
label	string	
type	enum	Determines file type
managedsection	enum	Determines how cmdaemon should customize the file
formatting	string	
enabled	boolean	

**5.2.86 DellSettingsFirmware (parent: Entity)**

Parameter	Type	Description
path	string	Path
ftpUser	string	FTP user
ftpPassword	string	FTP password
clearConfig	boolean	Clear config

**5.2.87 DellSettings (parent: Entity)**

Parameter	Type	Description
applyImmediately	boolean	Apply Immediately
modelName	string	Model Name

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Parameter	Type	Description
serviceTag	string	Service Tag
nodeInterleaving	boolean	Node Interleaving
snoopMode	enum	Snoop Mode
logicalProcessor	boolean	Logical Processor
biosBootOrder	string	Bios Boot Order
devicefirmware	DellSettingsFirm\ware or None	Device firmware
sysprofile	enum	System profile
mmioAbove4Gb	boolean	Mmio Above 4Gb
ioNonPostedPrefetch	boolean	IO Non Posted Prefetch
workloadProfile	enum	Workload Profile
subNumaCluster	boolean	Sub Numa Cluster

**5.2.88 Device (parent: *Entity*)**

Parameter	Type	Description
tag	string	Hardware tag
hostname	string	Hostname
mac	MAC	MAC address
defaultGateway	IP	Default gateway for the device

*...continues*

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Parameter	Type	Description
creationTime	timestamp	Date on which node was defined
partition	reference Partition	to Partition to which this device belongs
ethernetSwitch	SwitchPort or None	Ethernet switch
powerDistribution\ Units	list of PDUPort	List of outlets on powerdistributionunits
rack	RackPosition None	or Name of the rack in which the device resides
indexInsideContainer	unsigned integer	Index inside container object (used for drawing twins/chassis inside rackview)
powerControl	string	Specifies which type of power control feature is being used (values: none, apc, custom, cloud, ipmi0, ilo0, drac0, rf0 or cimc0, openstack)
customPowerScript	string	Script that will be used to perform power on/off/reset/status operations
customPowerScript\ Argument	string	Argument for the custom power script
customPingScript	string	Script that will be used to ping a device
customPingScript\ Argument	string	Argument for the custom ping script

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Parameter	Type	Description
notes	string	Administrator notes
userdefined1	string	A free text field passed to custom scripts
userdefined2	string	A free text field passed to custom scripts
userDefinedResources	list of strings	User defined resources used to filter monitoring data producers

### 5.2.89 DevStatus (parent: *Entity*)

Parameter	Type	Description
refDeviceUniqueKey	unsigned integer	Device
status	enum	
previousStatus	enum	
previousStatusChange	timestamp	
previousStatusTime	timestamp	
forcedClosed	boolean	
disablePing	boolean	
restartRequired	integer	
healthCheckFailed	boolean	

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Parameter	Type	Description
healthCheckUnknown	boolean	
provisioningFailed	boolean	
pingable	integer	
sshable	integer	
infoMessage	string	
userMessage	string	
displayMessage	boolean	
stateFlapping	boolean	
failBeforeDown	unsigned integer	
eventSeverity	integer	
reconnectCount	unsigned integer	
powerOnTime	timestamp	

### 5.2.90 DIGITSRole (parent: Role)

Parameter	Type	Description
version	string	DIGITS version
port	unsigned integer	DIGITS port
jobsDir	string	Location where job files are stored. Defined in DIGITS_JOBS_DIR

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Parameter	Type	Description
logfileFilename	string	File for saving log messages. Defined in DIGITS_LOGFILE_FILENAME
logfileLevel	enum	Minimum log message level to be saved (DEBUG/INFO/WARNING/ERROR/CRITICAL). Defined in DIGITS_LOGFILE_LEVEL
serverName	string	The name of the server (accessible in the UI under 'Info'). Default is the system hostname. Defined in DIGITS_SERVER_NAME
modelStoreUrl	string	A list of URL's, separated by comma. Default is the official NVIDIA store. Defined in DIGITS_MODEL_STORE_URL
urlPrefix	string	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
caffeRoot	string	Path to your local Caffe build. Should contain build/tools/caffe and python/caffe/. Defined in CAFFE_ROOT
torchRoot	string	Path to your local Torch build. Should contain install/bin/th. Defined in TORCH_ROOT
tensorflowRoot	string	Path to your local TensorFlow build. Defined in TENSORFLOW_ROOT

### 5.2.91 DiskAssertion (parent: *Entity*)

Parameter	Type	Description
name	string	Name.
script	string	Assertion script.

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Parameter	Type	Description
args	string	Script arguments.

**5.2.92 DiskDevice (parent: Entity)**

Parameter	Type	Description
requiredSize	string	Required Size
vendor	string	Required Vendor
blockDevs	list of strings	Block Devices
partitions	list of DiskPartition	Partitions
assertions	list of DiskAssertion	Assertions

**5.2.93 DiskInfo (parent: Entity)**

Parameter	Type	Description
name	string	
model	string	
vendor	string	
size	unsigned integer	
rev	string	
isSMART	boolean	
ioScheduler	string	

**5.2.94 DiskPartition (parent: Entity)**

Parameter	Type	Description
name	string	Name

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Parameter	Type	Description
size	string	Size
type	string	Type
mountpoint	string	Mount point
mountoptions	string	Mount options
filesystem	string	Filesystem

### 5.2.95 DiskRaid (parent: [Entity](#))

Parameter	Type	Description
name	string	Name
size	string	Size
level	integer	Level
partitions	list of strings	Partitions
mountpoint	string	Mount point
mountoptions	string	Mount options
filesystem	string	Filesystem
swap	boolean	Use for swap

### 5.2.96 DiskSetup (parent: [Entity](#))

Parameter	Type	Description
devices	list of <a href="#">DiskDevice</a>	List of block devices.

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Parameter	Type	Description
raids	list of DiskRaid	List of raid devices.
volumeGroups	list of DiskVolumeGroup	List of volume groups.
diskless	boolean	If set the node will have its root file-system in RAM.
maxMemSize	string	Maximum amount (in bytes) of RAM the root file-system can use.

**5.2.97 DiskVolumeGroup (parent: Entity)**

Parameter	Type	Description
name	string	Name
extentSize	string	Size
physicalVolumes	list of strings	Physical volumes
logicalVolumes	list of DiskVolume	Logical volumes

**5.2.98 DiskVolume (parent: Entity)**

Parameter	Type	Description
name	string	Name
size	string	Size
mountpoint	string	Mount point
mountoptions	string	Mount options
filesystem	string	Filesystem

**5.2.99 DnsRole (parent: Role)**

Parameter	Type	Description
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Parameter	Type	Description
nodegroups	list of references to NodeGroup	List of node groups which can boot from this node
categories	list of references to Category	List of categories which can boot from this node
racks	list of references to Rack	List of racks which can boot from this node

### 5.2.100 DockerHostRole (parent: Role)

Parameter	Type	Description
spool	string	Root of the Docker runtime
tmpDir	string	Location used for temporary files (token \$spool is replaced to path to docker runtime root directory)
enableSelinux	boolean	Enable selinux support in docker daemon
defaultUlimits	list of strings	Set the default ulimit options to use for all containers
debug	boolean	Enable debug mode
logLevel	string	Set the logging level
bridgeIp	string	Network bridge IP
bridge	string	Attach containers to a network bridge

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Parameter	Type	Description
mtu	unsigned integer	Set the containers network MTU (in bytes)
apiSockets	list of strings	Daemon socket(s) to connect to (-H docker daemon option)
iptables	boolean	Enable addition of iptables rules
userNamespaceRemap	string	User/Group setting for user namespaces
insecureRegistries	list of strings	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
enableTls	boolean	Use TLS
verifyTls	boolean	Use TLS and verify the remote
tlsCa	string	Trust certs signed only by this CA
tlsCertificate	string	Path to TLS certificate file
tlsKey	string	Path to TLS key file
certificatesPath	string	Path to docker certificates

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Parameter	Type	Description
storageBackends	list of DockerStorageBackend	Docker storage backends
containerdSocket	string	Path to containerd socket
runtime	string	Docker runtime
options	list of strings	Additional parameters for docker daemon

#### 5.2.101 DockerStorageAufsBackend (parent: DockerStorageBackend)

Parameter	Type	Description
options	list of strings	Extra options used for the AUFS storage backend

#### 5.2.102 DockerStorageBackend (parent: Entity)

Parameter	Type	Description
name	string	Docker storage backend name

#### 5.2.103 DockerStorageDeviceMapperBackend (parent: DockerStorageBackend)

Parameter	Type	Description
loopDataSize	string	Size to use when creating the loopback file for the 'data' device which is used for the thin pool (driver option: dm.loopdatasize)
loopMetadataSize	string	Size to use when creating the loopback file for the 'metadadata' device which is used for the thin pool (driver option: dm.loopmetadatasize)
baseSize	string	Size to use when creating the base device, which limits the size of images and container (driver option: dm.basesize)

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Parameter	Type	Description
poolDevice	string	Custom block storage device to use for the thin pool (driver option: dm.thinpooldev)
filesystem	string	Filesystem type to use for the base device (driver option: dm.fs)
blockSize	string	Custom blocksize to use for the thin pool (driver option: dm.blocksize)
blkDiscard	boolean	Enables or disables the use of blkdiscard when removing devicemapper devices (driver option: dm.blkdiscard)
mkfsArguments	list of strings	Extra mkfs arguments to be used when creating the base device (drive option: dm.mkfsarg)
mountOptions	list of strings	Extra mount options used when mounting the thin devices (drive option: dm.mountopt)

#### 5.2.104 DockerStorageOverlay2Backend (parent: [DockerStorageBackend](#))

Parameter	Type	Description
overrideKernelCheck	boolean	Override the kernel check to allow overlay2
size	string	Default max size of the container (empty = unlimited)
options	list of strings	Extra options used for the AUFS storage backend

#### 5.2.105 DrainAction (parent: [Entity](#))

Parameter	Type	Description
node	reference to Node	Node
actions	list of references to MonitoringAction	Actions to execute after the node has been drained

#### 5.2.106 DrainResult (parent: [Entity](#))

Parameter	Type	Description
scheduler	string	Scheduler
success	boolean	Success
node	list of unsigned numbers	Node
queue	list of unsigned numbers	Queue
result	list of unsigned numbers	Result

#### 5.2.107 EC2AMI (parent: CloudImage)

Parameter	Type	Description
regionAMI	list of EC2RegionAMI	The AMI.

#### 5.2.108 EC2AvailabilityZone (parent: Entity)

Parameter	Type	Description
name	string	Name

#### 5.2.109 EC2EBSStorage (parent: EC2Storage)

Parameter	Type	Description
volumeId	string	Volume ID assigned by EC2 EC2
size	unsigned integer	Size
persistent	boolean	Persistent storage will not be removed when instance is removed
availabilityZone	string	Availability zone set by EC2

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Parameter	Type	Description
creationTime	timestamp	Time of creation in EC2
status	string	Status of EBS volume in EC2
volumeType	enum	Specifies what type of EBS volume to use
iops	unsigned integer	Specifies the IOPS rate for the provisioned IOPS volume type
encrypted	boolean	
snapshotId	string	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.

#### 5.2.110 EC2EphemeralStorage (parent: EC2Storage)

Parameter	Type	Description
volumeId	string	Ephemral ID
size	unsigned integer	Size

#### 5.2.111 EC2Provider (parent: CloudProvider)

Parameter	Type	Description
username	string	EC2 Username
accountId	string	AWS Account ID
accessKeyId	string	AWS access key ID

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Parameter	Type	Description
accessKeySecret	string	AWS secret access key
VPCs	list of EC2VPC	List of VPCs
defaultRegion	reference to EC2Region or None	Default region to start instances in
defaultAMI	reference to EC2AMI or None	Default AMI to start instances with
defaultType	reference to EC2Type or None	Default type for instances
defaultDirectorType	reference to EC2Type or None	Default type for cloud director instances

**5.2.112 EC2RegionAMI (parent: Entity)**

Parameter	Type	Description
region	reference to EC2Region	The cloud region containing this AMI
amiID	string	The AMI ID

**5.2.113 EC2Region (parent: CloudRegion)**

Parameter	Type	Description
url	string	url
availabilityZones	list of EC2AvailabilityZone	Availability zones

**5.2.114 EC2Settings (parent: CloudSettings)**

Parameter	Type	Description
instanceId	string	Instance-ID provided by EC2
spotId	string	Spot-request-ID provided by EC2

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Parameter	Type	Description
sshConnectString	string	SSH connection string provided by EC2
type	reference to EC2Type	Type for instance
region	reference to EC2Region	Region for instance
ami	reference to EC2AMI	AMI used to create instance
cloudStaticIP	reference to EC2StaticIP	The Static IP of an instance
kernel	string	Kernel used to create instance
initrd	string	Initial ramdisk used to create instance
options	string	User defined options passed to EC2 on instance creation
storage	list of EC2Storage	Assign EC2 storage
spotPrice	float	Maximum price to start instance with
spotPersistent	boolean	Persistent spot instances are requested again after they are automatically stopped, because price became to high

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Parameter	Type	Description
useNonDefaultVirtualizationType	boolean	
placementGroup	string	Start instance in the specified placement group

**5.2.115 EC2StaticIP (parent: CloudStaticIP)**

Parameter	Type	Description
domain	string	Whether the is a EC2 address or a VPC address
associationId	string	The association ID for a VPC-based elastic IP
allocationId	string	The allocation ID for a VPC-based elastic IP
instanceId	string	The ID of the instance (VM) which has this IP assigned

**5.2.116 EC2Storage (parent: Entity)**

Parameter	Type	Description
name	string	Name
drive	string	Mount device as /dev/?
tags	list of strings	List of tags that will be assigned to storage

**5.2.117 EC2Type (parent: CloudType)**

Parameter	Type	Description
virtualizationType	string	Virtualization type.
ondemandPrices	list of strings	List of on-demand prices for VMs of this type.

**5.2.118 EC2VPC (parent: Entity)**

Parameter	Type	Description
name	string	User-defined name of the private cloud

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Parameter	Type	Description
vpcID	string	AWS VPC identifier
mainRouteTable	string	Main route table AWS ID
defaultACL	string	Default network access controll list ID
internetGatewayID	string	The AWS ID of the internet gateway assigned to this VPC
region	reference EC2Region	to AWS region of the VPC
subnets	list of references Network	to Subnets (networks) associated with the VPC
baseAddress	IP	Base IP address of the VPC
netmaskBits	integer	Number of netmask Bits
securityGroupNode	string	Security group ID of the cloud nodes
securityGroupDirector	string	Security group ID of the cloud director
routeTableIdPublic	string	Routing table ID for the public subnet
routeTableIdPrivate	string	Routing table ID for private subnets

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Parameter	Type	Description
manageVPCInAWS	boolean	Whether to create/remove VPC in AWS as they are created/removed in Bright.
manageSecurityGroupsInAWS	boolean	Whether to ensure security groups are created in AWS.
manageSubnetsInAWS	boolean	Whether to create/remove VPC subnets in AWS as they are created/removed in Bright.
manageRouteTableSetUpInAWS	boolean	Whether to create routing table entries in the VPC.
useInternalIPForDirectorIP	boolean	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.
enforceDirectorIP	IP	If specified, CMDaemon will assume this is the cloud director's IP address.
customDefaultGWPrivateSubnet	string	Use this to override the default gateway which will be set for the routing tables of the VPC's private subnet.
customDefaultGWPublicSubnet	string	Use this to override the default gateway which will be set for the routing tables of the VPC's public subnet.

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Parameter	Type	Description
defaultGWPrivateSubnetType	string	Default gateway private subnet type.
vpceExtraField2	list of strings	A list of various advanced options.

**5.2.119 EdgeDirectorRole (parent: Role)**

Parameter	Type	Description
offloadStatusCheck	boolean	Perform node status checks for all nodes in the edge site from the director
nodePowerOperations	boolean	Execute all power operations of nodes in the edge site on the director
directorPowerOperations	boolean	Execute all power operation of the director on the director, note that this means it cannot be powered on
nodeSelectionBootRole	boolean	Use the edge site as a node selection mechanism for the boot role
nodeSelectionDnsRole	boolean	Use the edge site as a node selection mechanism for the DNS role
nodeSelectionProvisioningRole	boolean	Use the edge site as a node selection mechanism for the provisioning role
openTCPPortsOnHeadNode	list of unsigned numbers	The list of TCP ports that will be opened in shore-wall on the head node

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Parameter	Type	Description
openUDPPortsOnHead\ Node	list of unsigned numbers	The list of UDP ports that will be opened in shore-wall on the head node
externallyVisibleIp	IP	IP that will be seen by other nodes when the director connects

**5.2.120 EdgeSite (parent: [Entity](#))**

Parameter	Type	Description
name	string	Name
contact	list of strings	Names of contacts
adminEmail	list of strings	Administrator's email
address	string	Address
city	string	City
country	string	Country
notes	string	Notes
nodes	list of references to ComputeNode	List of nodes in this site
secret	string	Edge site secret

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Parameter	Type	Description
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**5.2.121 ElasticSearchRole (parent: Role)**

Parameter	Type	Description
clusterName	string	Elastic Search cluster name
includeInHAProxy	boolean	Include this endpoint in the config of frontend HAProxy nodes
frontendHAProxyNames	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
network	reference to Network	Network on which elastic search listens
isBackupEndpoint	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).
apiPort	unsigned integer	API port to bind

**5.2.122 EntityManagersMD5 (parent: Entity)**

Parameter	Type	Description
name	list of strings	Name
md5	list of strings	MD5

**5.2.123 (Entity)**

Parameter	Type	Description
uniqueKey	64 bit unsigned	Unique identifier
baseType	string	Basis instance type
childType	string	Specialized instance type
revision	string	A free text revision field

**5.2.124 EtcdCluster (parent: Entity)**

Parameter	Type	Description
name	string	Name of the Etcd cluster
heartBeatInterval	unsigned integer	Time (in milliseconds) of a heartbeat interval
electionTimeout	unsigned integer	Time (in milliseconds) for an election to timeout
notes	string	Notes
ca	string	The Certificate Authority (CA) Certificate path for Etcd, used to generate certificates for Etcd.
cakey	string	The Certificate Authority (CA) Key path for Etcd, used to generate certificates for Etcd.
memberCertificate	string	The Certificate path to use for Etcd cluster members, signed with the Etcd CA.
memberCertificateKey	string	The Key path to use for Etcd cluster members, signed with the Etcd CA.
clientCertificate	string	The Client Certificate used for Etdctl for example.
clientCertificateKey	string	The Client Certificate Key used for Etdctl for example.

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Parameter	Type	Description
clientCA	string	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.
clientTypeEtcd	unsigned integer	client type in the CLIENT_TYPE_ETCD range
moduleFileTemplate	string	Template for system module file

**5.2.125 EtcdHostRole (parent: Role)**

Parameter	Type	Description
memberName	string	Human-readable name for this member (\$hostname will be replaced to the node hostname)
spool	string	Path to the data directory
listenClientUrls	list of strings	List of URLs to listen on for client traffic
listenPeerUrls	list of strings	List of URLs to listen on for peer traffic
advertiseClientUrls	list of strings	List of this member's client URLs to advertise to the public
advertisePeerUrls	list of strings	List of this member's peer URLs to advertise to the rest of the cluster

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Parameter	Type	Description
snapshotCount	unsigned integer	Number of committed transactions to trigger a snapshot to disk
maxSnapshots	unsigned integer	Maximum number of snapshot files to retain (0 is unlimited)
debug	boolean	Drop the default log level to DEBUG for all subpackages
options	list of strings	Additional parameters for etcd daemon
etcdCluster	reference EtcdCluster	to The Etcd cluster instance
memberCertificate	string	Etcd member certificate, signed with CA specified in the Etcd Cluster. When set it will overrule the value from the EtcdCluster object.
memberCertificateKey	string	Etcd member certificate key, signed with CA specified in the Etcd Cluster. When set it will overrule the value from the EtcdCluster object.

#### 5.2.126 EthernetSwitch (parent: Switch)

Parameter	Type	Description
lowestPort	integer	Lowest port
uplinks	list of unsigned numbers	List of ports connected to other switches.
disablePortDetection	boolean	Disable port detection for this switch

#### 5.2.127 FailoverRole (parent: Role)

Parameter	Type	Description
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#### 5.2.128 FakeJobQueueStat (parent: JobQueueStat)

Parameter	Type	Description
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#### 5.2.129 FakeJobQueue (parent: JobQueue)

Parameter	Type	Description
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#### 5.2.130 FakeJob (parent: Job)

Parameter	Type	Description
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**5.2.131 FakeWlmClientRole (parent: Role)**

Parameter	Type	Description
queues	list of strings	Queues this node/nodes in this category belongs to
allQueues	boolean	When set, the role will provide all available queues. (The queues property will then be ignored.)

**5.2.132 FakeWlmServerRole (parent: Role)**

Parameter	Type	Description
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**5.2.133 FileInfo (parent: Entity)**

Parameter	Type	Description
path	string	
size	unsigned integer	
md5sum	string	
owner_name	string	
owner_uid	unsigned integer	
group_name	string	
group_gid	unsigned integer	
perm	unsigned integer	
mtime	timestamp	

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Parameter	Type	Description
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**5.2.134 FileSyncConfig (parent: Entity)**

Parameter	Type	Description
name	string	Name
srcNode	reference to Node	Source node
dstNodes	list of references to Node	Destination nodes
fileset	list of strings	File Set
enabled	boolean	Enable syncing files associated with this config
syncInterval	unsigned integer	Controls the interval, in seconds, at which the files get synchronized regardless of changes in them. Set to 0 to disable.

**5.2.135 FileSyncStatus (parent: Entity)**

Parameter	Type	Description
fileSyncConfigKey	unsigned integer	Unique key of the file sync config
ok	boolean	Whether files on the source node are in sync with destination nodes
nodesOutOfSync	list of unsigned numbers	Unique keys of nodes out of sync
nodesOutOfSyncPattern	string	Name pattern of node out of sync (if any)

**5.2.136 FSExport (parent: Entity)**

Parameter	Type	Description
name	string	Normally the same as the path, useful when exporting a path twice

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Parameter	Type	Description
path	string	Path to export
network	reference to Network or None	Network the interface is connected to
hosts	string	Specify extra hosts-range allowed access to this export (space separated)
isCustom	boolean	Indicates if this fsexport was created by a user (true) or automatically (false)
allowWrite	boolean	Allow writing
async	boolean	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
rootSquash	boolean	Map requests from uid/gid 0 to the anonymous uid/gid
allSquash	boolean	Map all uids and gids to the anonymous user
anonUid	unsigned integer	Anonymous account user id number
anonGid	unsigned integer	Anonymous account group id number
extraOptions	string	Extra options to be added to this export

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Parameter	Type	Description
fsid	unsigned integer	Identification for exports used in failover setup. Make sure these are identical
rdma	boolean	Enable NFS over RDMA.

**5.2.137 FSMount (parent: [Entity](#))**

Parameter	Type	Description
device	string	What to mount.
mountpoint	string	Where to mount.
filesystem	string	The file system type.
mountoptions	string	What options to use for mounting.
dump	boolean	Dump field in fstab, see man fstab.
fsck	enum	Filesystem check field in fstab, see man fstab.
rdma	boolean	Enable NFS over RDMA.

**5.2.138 FSPartAssociation (parent: [Entity](#))**

Parameter	Type	Description
syncPoint	string	Directory the FSPart should be synchronized to on the target.
prefix	string	Optional prefix to the sync point.
fspart	reference to FSPart	FSPart this association is associated with.

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Parameter	Type	Description
<code>excludeListSync</code>	string	Exclude list for sync mode provisioning.
<code>excludeListFull</code>	string	Exclude list for full mode provisioning.
<code>excludeListUpdate</code>	string	Exclude list for update mode provisioning.
<code>excludeListGrab</code>	string	Exclude list for grab mode provisioning.
<code>excludeListGrabNew</code>	string	Exclude list for grabnew mode provisioning.
<code>onSharedStorage</code>	boolean	FSPart associations on shared storage can be used as provisioning source, but don't need to be kept up-to-date.

#### 5.2.139 FSPartBasicAssociation (parent: [FSPartAssociation](#))

Parameter	Type	Description
<code>isRoot</code>	boolean	Indicates if this association is the root file system for the target. A node can only have one association where this is set.

#### 5.2.140 FSPartProviderAssociation (parent: [FSPartAssociation](#))

Parameter	Type	Description
<code>onlyWhenActive</code>	boolean	

#### 5.2.141 FSPart (parent: [Entity](#))

Parameter	Type	Description
<code>path</code>	string	Full source path of the FSPart.
<code>locked</code>	boolean	If locked an FSPart can not be distributed by the provisioning system.
<code>belongsToImage</code>	boolean	Set if the FSPart is a software image.

#### 5.2.142 GaleraRole (parent: [Role](#))

Parameter	Type	Description
clusterName	string	Galera cluster name
networks	list of references to Network	Priority list of networks on which galera plugin should bind (only one will be selected)
mysqlPort	unsigned integer	Port to bind
maxConnections	unsigned integer	Maximum number of connections per mariadb instance
clusterNodes	list of strings	List of other nodes in the galera cluster. If empty, will be detected automatically
weight	unsigned integer	Weight of the node in the weighted quorum calculation
allowAutoBootstrap	boolean	Allow automatic cluster recovery in some cases
adminUsername	string	Administrator username
adminPassword	string	The main administrative password to the galera cluster
healthCheckUsername	string	Health check username

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Parameter	Type	Description
healthCheckPassword	string	Health check user password
gcommPort	unsigned integer	GCOMM port to bind
includeInHAProxy	boolean	Include this endpoint in the config of frontend HAProxy nodes
frontendHAProxyNames	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
isBackupEndpoint	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).
TimeoutStartSec	string	Timeout in seconds for service to start
TimeoutStopSec	string	Timeout in seconds for service to stop

#### 5.2.143 GenericDevice (parent: Device)

Parameter	Type	Description
ip	IP	Ip address
network	reference to Network or None	Network to which this switch is connected
model	string	Device model name
additionalHostnames	list of strings	List of additional hostnames that should resolve to the interfaces IP address

**5.2.144 GenericResource (parent: BasicResource)**

Parameter	Type	Description
activateScript	string	Script to be executed when the resource is given to a node
deactivateScript	string	Script to be executed when the resource is taken a way from a node
checkScript	string	Script to be executed periodically to verify the resource is still running
arguments	list of strings	Arguments to pass to the script
scriptTimeout	unsigned integer	Script timeout

**5.2.145 GenericRoleConfiguration (parent: Entity)**

Parameter	Type	Description
name	string	Name
createDirectory	boolean	Create directory if it doesn't exist
filename	string	Filename
mask	unsigned integer	Filemask
userName	string	User ownership applied to the file
groupName	string	Group ownership applied to the file
disabled	boolean	Disabled

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Parameter	Type	Description
<code>serviceActionOnWrite</code>	enum	Action performed on service if the file changed
<code>serviceStopOnFailure</code>	boolean	Stop services if the file write failed

**5.2.146 GenericRoleEnvironment (parent: `Entity`)**

Parameter	Type	Description
<code>name</code>	string	Name
<code>value</code>	string	Value
<code>nodeEnvironment</code>	boolean	Update the node environment variables

**5.2.147 GenericRoleGeneratedConfiguration (parent: `GenericRoleConfiguration`)**

Parameter	Type	Description
<code>script</code>	string	Script
<code>arguments</code>	list of strings	Arguments
<code>timeout</code>	unsigned integer	Timeout
<code>watch</code>	boolean	Watch script for for changes, and rerun

**5.2.148 GenericRoleStaticConfiguration (parent: `GenericRoleConfiguration`)**

Parameter	Type	Description
<code>content</code>	string	Content to write into file

**5.2.149 GenericRoleSymlinkConfiguration (parent: `GenericRoleConfiguration`)**

Parameter	Type	Description
<code>sourceFilename</code>	string	Source filename
<code>watch</code>	boolean	Watch source file for for changes, and treat as file change

**5.2.150 GenericRoleTemplatedConfiguration (parent: `GenericRoleConfiguration`)**

Parameter	Type	Description
templateContent	string	Template to use for writing file
environmentFromKey\ ValueStore	boolean	Use key value store for extra replacement rules

### 5.2.151 GenericRole (parent: Role)

Parameter	Type	Description
services	list of strings	
configuration	list of GenericRoleConfiguration	
extraEnvironment	list of GenericRoleEnvironment	
excludeList	list of strings	Excluded paths in the node image update

### 5.2.152 GPUInfo (parent: Entity)

Parameter	Type	Description
name	string	
index	unsigned integer	
pciBusId	string	
pciDevId	string	
pciSubSysId	string	
pciMaxLinkGen	string	
pciLinkGen	string	
pciMaxLinkWidth	string	

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Parameter	Type	Description
pciLinkWidth	string	
serial	string	
uuid	string	
vBios	string	
driverModel	string	
infoRom	string	
powerMode	string	
powerLimit	string	
displayMode	string	
eccMode	string	
computeMode	string	
operationMode	string	
persistenceMode	string	
clocksSettings	list of strings	

### 5.2.153 GPUSettings (parent: Entity)

Parameter	Type	Description
name	string	Range of GPUs for which these settings apply
source	unsigned integer	
unitOffset	unsigned integer	

### 5.2.154 GpuStatusEntry (parent: Entity)

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	Node
index	unsigned integer	GPU index for this status entry
gpu	string	Name of the GPU
property	string	Property name
value	string	Value of the property
supported	list of strings	List of supported values for this property

### 5.2.155 GPUUnitInfo (parent: Entity)

Parameter	Type	Description
name	string	Name of this unit
id	string	Numeric identifier of this unit
serial	string	
driver	string	
nvml	string	
pciSpeed	string	
firmware	string	
gpu	list of GPUInfo	GPU information

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...continues

*...continued*

Parameter	Type	Description
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**5.2.156 GpuUnit (parent: Device)**

Parameter	Type	Description
ip	IP	Ip address
network	reference to Network or None	Network to which this switch is connected
serial	string	Serial
indx	integer	Index of the pci bus
bmcSettings	BMCSettings or None	Configure the baseboard management controller settings
exclusive	boolean	Run in exclusive mode
owners	list of references to Node	List of nodes who have access to this gpu unit
gpuSettings	list of GPUSettings	Configure the GPUs

**5.2.157 GridEngineJobQueueStat (parent: JobQueueStat)**

Parameter	Type	Description
load	float	Queue load
used	unsigned integer	Used slots
available	unsigned integer	Available slots
total	unsigned integer	Total slots

**5.2.158 GridEngineJobQueue (parent: JobQueue)**

Parameter	Type	Description
slots	string	Number of slots

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Parameter	Type	Description
tmpdir	string	Temporary directory for queue
prolog	string	Path to prolog script
epilog	string	Path to epilog script
starterMethod	string	Script to be executed instead of shell to run the job
suspendMethod	string	Grid Engine Suspend method
resumeMethod	string	Grid Engine Resume method
terminateMethod	string	Grid Engine Terminate method
minWalltime	string	Minimum runtime for jobs in queue
maxWalltime	string	Maximum runtime for jobs in queue

#### 5.2.159 GridEngineJob (parent: Job)

Parameter	Type	Description
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#### 5.2.160 GridEngineParallelEnvironment (parent: Entity)

Parameter	Type	Description
name	string	The name of the parallel environment (to be used in the qsub -pe switch)
slots	unsigned integer	The number of parallel processes being allowed to run in total under the PE concurrently
userLists	list of strings	A list of user access list names

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Parameter	Type	Description
xUserLists	list of strings	An exclude list of user access list names
startProcedureArguments	string	The invocation command line of a start-up procedure
stopProcedureArguments	string	The invocation command line of a shutdown procedure
allocationRule	string	The allocation rule helps the scheduler to decide how to distribute parallel processes
controlSlaves	boolean	Indicates if GE is the creator of the slave tasks via sge_execd and sge_shepherd
jobIsFirstTask	boolean	A value of true indicates that the GE job script already contains one of the tasks
urgencySlots	string	Specifies the method to be used by GE to assess the number of slots such jobs might finally get
accountingSummary	boolean	Indicates if only a single accounting record (job summary) is written to the accounting file
extraParameters	list of strings	Additional parameters that will be added to PE configuration
perPeTaskProlog	string	Prolog script that is started for each slave task
perPeTaskEpilog	string	Epilog script that is started for each slave task

**5.2.161 Group (parent: Entity)**

Parameter	Type	Description
groupID	string	Group ID
group	string	Group name
groupMembers	list of strings	User belonging to this group

**5.2.162 GuiCephOsdPoolInfo (parent: Entity)**

Parameter	Type	Description
refCephOSDPoolUni\queKey	unsigned integer	CephOSDPool
name	string	Name
sizeBytes	unsigned integer	size_bytes
numObjects	unsigned integer	num_objects
numObjectClones	unsigned integer	num_object_clones
numObjectCopies	unsigned integer	num_object_copies
numObjectsMissingOn\Primary	unsigned integer	num_objects_missing_on_primary
numObjectsDegraded	unsigned integer	num_objects_degraded
numObjectsUnfound	unsigned integer	num_objects_unfound
readOps	unsigned integer	Number of reads
readBytes	unsigned integer	Total read
writeOps	unsigned integer	Number of writes

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Parameter	Type	Description
writeBytes	unsigned integer	Total write

**5.2.163 GuiCephOverview (parent: Entity)**

Parameter	Type	Description
refCephUniqueKey	unsigned integer	Ceph
status	string	Status
numPgs	unsigned integer	Number of placement groups
numMons	unsigned integer	Number of monitors
numOsds	unsigned integer	Total
numUpOsds	unsigned integer	Up
numInOsds	unsigned integer	In
pgsBytesTotal	unsigned integer	PGS Bytes Total
pgsBytesUsed	unsigned integer	PGS Bytes Used
pgsBytesAvail	unsigned integer	PGS Bytes Avail

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Parameter	Type	Description
pgsDataBytes	unsigned integer	Amount of actual data in placement groups
pgsReadBytesSec	unsigned integer	Bytes read per second for placement groups
pgsWriteBytesSec	unsigned integer	Bytes written per second for placement groups
pgs	list of GuiCephPgsInfo	PGS
osdpools	list of GuiCephOsdPoolInfo	Ceph OSD Pool Information

#### 5.2.164 GuiCephPgsInfo (parent: [Entity](#))

Parameter	Type	Description
stateName	string	State name
version	string	Version
numPgs	unsigned integer	Num Pgs
dataBytes	unsigned integer	Data Bytes
usedBytes	unsigned integer	Used Bytes
availBytes	unsigned integer	Avail Bytes
totalBytes	signed integer	Total Bytes

#### 5.2.165 GuiClusterOverview (parent: [Entity](#))

Parameter	Type	Description
refPartitionUniqueKey	unsigned integer	Partition
uptime	unsigned integer	Uptime of the active head node

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
nodesUp	unsigned integer	Number of nodes that are listed as up
nodesDown	unsigned integer	Number of nodes that are listed as down
nodesClosed	unsigned integer	Number of nodes that are listed as closed
nodesTotal	unsigned integer	Number of nodes
devicesUp	unsigned integer	Number of non-node devices that are listed as up
devicesDown	unsigned integer	Number of non-node devices that are listed as down
devicesClosed	unsigned integer	Number of non-node devices that are listed as closed
devicesTotal	unsigned integer	Number of non-node devices
gpuUnitsUp	unsigned integer	Number of GPU units that are listed as up
gpuUnitsDown	unsigned integer	Number of GPU units that are listed as down
gpuUnitsClosed	unsigned integer	Number of GPU units that are listed as closed
gpuUnitsTotal	unsigned integer	Number of GPU units

*...continues*

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Parameter	Type	Description
coresUp	unsigned integer	Sum of all cores for nodes which are up
coresTotal	unsigned integer	Sum of all cores for nodes which are up at one time
gpusUp	unsigned integer	Sum of all GPUs for nodes which are up
gpusTotal	unsigned integer	Sum of all GPUs for nodes which are up at one time
disks	list of GuiDiskUsage	Number of disks
workload	list of GuiWorkload	Workload information
usersLoggedIn	unsigned integer	Number of logged in users on the active head node
usersLoggedOut	unsigned integer	Number of logged out users on the active head node
usersTotal	unsigned integer	Number of users known to the active head node
memoryUsed	unsigned integer	Sum of used memory over all nodes
memoryUnused	unsigned integer	Sum of unused memory over all nodes

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Parameter	Type	Description
memoryTotal	unsigned integer	Sum of total memory over all nodes
swapUsed	unsigned integer	Sum of used swap memory over all nodes
swapUnused	unsigned integer	Sum of unused swap memory over all nodes
swapTotal	unsigned integer	Sum of total swap over all nodes
usageUser	float	Average user cpu usage over all nodes
usageSystem	float	Average system cpu usage over all nodes
usageIdle	float	Average idle cpu usage over all nodes
usageOther	float	Percentage of cpu time spend on other operations
phaseLoad	float	Phase load accross all APCs
occupationRate	float	Formula: $\text{Average}\{\text{allnodes}\} (\text{min}(\text{load}, \text{cores}) / \text{cores})$
freeRate	float	Formula: $1 - \text{Average}\{\text{allnodes}\} (\text{min}(\text{load}, \text{cores}) / \text{cores})$

### 5.2.166 GuiCompleteOpenStackOverview (parent: [Entity](#))

Parameter	Type	Description
displayEntityOverview	boolean	Whether to display the overview of OpenStack objects.
allVM	integer	All VMs
allUpVM	integer	All VMs up.

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Parameter	Type	Description
allErrorVM	integer	Number of VMs in the ERROR state.
allTenants	integer	The number of all projects.
allNetworks	integer	The number of all networks.
allSubnets	integer	The number of all subnets.
allRouters	integer	The number of all routers.
allUsers	integer	The number of all users.
displayNodeOverview	boolean	Whether to display the information about nodes.
numUpComputeHosts	integer	The number of 'up' compute nodes.
numDownComputeHosts	integer	The number of 'down' compute nodes.
numUpNetworkNodes	integer	The number of 'up' network nodes.
numDownNetworkNodes	integer	The number of 'down' network nodes.
numCephOSDs	integer	The number of Ceph OSDs.

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Parameter	Type	Description
cloudStatus	integer	
cloudStatusText	string	
dashboardURLs	list of strings	
keystonePublicAuth\ EndpointURL	string	
keystoneInternal\ AuthEndpointURL	string	
defaultProjectName	string	
projects	list of GuiOpenStackProjectOverview	

**5.2.167 GuiDiskUsage (parent: Entity)**

Parameter	Type	Description
refDeviceUniqueKey	unsigned integer	Device
mountpoint	string	Mountpoint
used	unsigned integer	Bytes in use on this device
free	unsigned integer	Bytes free on this device

**5.2.168 GuiGPU (parent: *Entity*)**

Parameter	Type	Description
refDeviceUniqueKey	unsigned integer	Device
name	string	Name
memoryUsed	unsigned integer	Memory used
memoryFree	unsigned integer	Memory free
utilization	float	GPU Utilization
powerUsage	float	Power usage
temperature	float	Temperature
smClock	float	Streaming multiprocessor clock speed
memoryClock	float	Memory clock speed

**5.2.169 GuiJob (parent: *Entity*)**

Parameter	Type	Description
jobID	string	Job ID
scheduler	string	Scheduler
name	string	Name
user	string	User
runtime	unsigned integer	Runtime

**5.2.170 GuiKubeClusterOverview (parent: *Entity*)**

Parameter	Type	Description
refKubeClusterUni\queKey	unsigned integer	KubeCluster

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Parameter	Type	Description
name	string	Cluster Name
version	string	Kubernetes Version
notes	string	Notes
numNodes	unsigned integer	Number of nodes
numNamespaces	unsigned integer	Number of namespaces
numServices	unsigned integer	Number of services
numRcs	unsigned integer	Number of replication controllers
numPvs	unsigned integer	Number of persistent volumes
numPvcs	unsigned integer	Number of persistent volumes claims
jobs	list of JobInfo	Jobs
Pods	list of KubePodInfo	Pods

**5.2.171 GuiNetworkInterface (parent: Entity)**

Parameter	Type	Description
name	string	Interface name
rx	unsigned integer	Number of bytes received since startup
tx	unsigned integer	Number of bytes transmitted since startup

**5.2.172 GuiNodeOverview (parent: Entity)**

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	Node

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Parameter	Type	Description
interfaces	list of GuiNetworkInterface	Detailed interface information
disks	list of GuiDiskUsage	Detailed disk information
jobs	list of GuiJob	Detailed job information
gpus	list of GuiGPU	Detailed GPU information
load1	float	Average system load over the last minute
load5	float	Average system load over the last five minutes
load15	float	Average system load over the last fifteen minutes
uptime	unsigned integer	Uptime
memoryUsed	unsigned integer	Memory used
memoryUnused	unsigned integer	Memory unused
memoryTotal	unsigned integer	Total memory
swapUsed	unsigned integer	Swap memory used

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Parameter	Type	Description
swapUnused	unsigned integer	Swap memory unused
swapTotal	unsigned integer	Total swap memory
usageUser	float	Percentage of cpu time spend on user processes
usageSystem	float	Percentage of cpu time spend on system processes
usageIdle	float	Percentage of cpu time spend in idle
usageOther	float	Percentage of cpu time spend in non user/system/idle
usageSoftIrq	float	Percentage of cpu time spend in soft irq
usageIrq	float	Percentage of cpu time spend in irq
usageNice	float	Percentage of cpu time spend in nice
usageSteal	float	Percentage of cpu time spend in steal
usageGuest	float	Percentage of cpu time spend in guest
usageWait	float	Percentage of cpu time spend in wait

### 5.2.173 GuiNodeStatus (parent: Entity)

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	
devstatus	DevStatus	Device status
load1	float	Average system load over the last minute

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Parameter	Type	Description
load5	float	Average system load over the last five minutes
load15	float	Average system load over the last fifteen minutes
uptime	unsigned integer	Uptime
memoryUsed	unsigned integer	Memory used
swapUsed	unsigned integer	Swap mempry used
usageUser	float	Percentage of cpu time spend on user processes
usageSystem	float	Percentage of cpu time spend on system processes
usageIdle	float	Percentage of cpu time spend in idle

#### 5.2.174 GuiOpenStackOverview (parent: [Entity](#))

Parameter	Type	Description
success	boolean	
vcpuUsed	integer	Total number of vCPU used by the VMs.
vcpusTotal	integer	
ramUsed	integer	The amount of RAM used by the VMs.
ramTotal	integer	
storageUsed	integer	Total storage space used by OpenStack volumes.

*...continues*

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Parameter	Type	Description
storageTotal	integer	
instancesRunning	integer	Total number of VMs in the 'Running' state.
instancesDown	integer	Total number of VMs in the 'Down' state.
instancesTotal	integer	Total number of VMs (in any state).
instancesError	integer	Total number of VMs in the 'Error' state.
instancesPaused	integer	Total number VMs in the 'Paused' state.
numberOfVolumes	integer	Total number of OpenStack volumes. OpenStack volumes are managed by OpenStack Cinder.
numberOfTenants	integer	Total number of OpenStack projects (also known as 'tenants'). Project are managed by OpenStack Keystone.
numberOfDisabledTenants	integer	Total number of disabled projects.
numberOfSystemTenants	integer	
numberOfImages	integer	Total number of OpenStack images. Images are used for creating VMs. OpenStack images are managed by Glance.

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Parameter	Type	Description
numberOfPublicImages	integer	The number of OpenStack images which are public, i.e. are visible to all users/projects with access to OpenStack.
numberOfFlavors	integer	Total number of OpenStack flavors. Flavors define types of VMs that can be created. Flavors are managed by Nova.
numberOfPublicFlavors	integer	The number of flavors visible to all tenants/users.
numberOfNetworks	integer	Total number of OpenStack networks. Networks are managed by Neutron.
numberOfPublicNetworks	integer	The number of OpenStack networks visible to all tenants/users.
numberOfSubnets	integer	Subnets are part of a network. Subnets are managed by Neutron.
numberOfRouters	integer	Total number of OpenStack routers. Routers are managed by Neutron and are used to interconnect Networks.
numberOfUsers	integer	Total number of users known to Keystone.
numberOfDisabledUsers	integer	Disabled users cannot access OpenStack.
numberOfFloatingIPs	integer	Total number of floating IPs.

*...continues*



*...continued*

Parameter	Type	Description
numberOfFloatingIPs\Used	integer	The number of floating IPs which are in use by instances.
numberOfSystemUsers	integer	
numberOfHypervisors	integer	Total number of hypervisors which are both 'Up' and 'Enabled'. This number does not include 'Disabled' hypervisors, or hypervisors which are 'Down'.
numberOfAllDefined\Hypervisors	integer	Total number of hypervisors known to OpenStack Nova. Might include old, no longer existing, hypervisors. Also includes hypervisors which are 'Down' and/or disabled.
numberOfAvailabil\ityZones	integer	Total number of AZs defined with OpenStack Host Aggregates. Those typically apply only to Nova (the compute part of OpenStack).
numberOfHostAggre\gates	integer	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).

*...continues*

*...continued*

Parameter	Type	Description
numberOfRoles	integer	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.
status	string	
numberOfSnapshots	integer	Volume snapshots are managed by OpenStack Cinder.
numberOfDomains	integer	Total number of domains. Domains are top-level projects, and are managed by OpenStack Keystone.
ephemeralStorageUsed	integer	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).
hypFreeDisk	unsigned integer	Free disk space left across all hypervisors.
hypFreeRam	unsigned integer	Free memory left across all hypervisors.
hypLocalStorage	unsigned integer	Local storage available across all hypervisors.
hypLocalStorageUsed	unsigned integer	Local storage used across all hypervisors.
hypMemory	unsigned integer	Total amount of memory available across all hypervisors.

*...continues*

*...continued*

Parameter	Type	Description
hypMemoryUsed	unsigned integer	Total amount of memory being used across all hypervisors.
hypVcpus	unsigned integer	Total amount of vCPUs across all hypervisors.
hypVcpusUsed	unsigned integer	Total amount of vCPUs used across all hypervisors.
hypCurrentWorkload	unsigned integer	
hypRunningVMs	unsigned integer	If this value is different than total number of running instance, you might have rogue VMs in the system.
extra1	unsigned integer	
extra2	unsigned integer	
extra3	unsigned integer	
extra4	unsigned integer	
extra5	unsigned integer	Total number of compute nodes (with OpenStack compute roles assigned) which are UP.
extra6	unsigned integer	Total number of compute nodes (with OpenStack compute roles assigned).

*...continues*

*...continued*

Parameter	Type	Description
extra7	unsigned integer	
extra8	unsigned integer	
extra9	unsigned integer	Total number of volumes in an ERROR state.
extra10	unsigned integer	
extraString1	string	
extraString2	string	
extraString3	string	
extraString4	string	
extraString5	string	
extraString6	string	
extraString7	string	
extraString8	string	
extraString9	string	
extraString10	string	
extraStringList	list of strings	

*...continues*

*...continued*

Parameter	Type	Description
extraStringList2	list of strings	
extraStringList3	list of strings	
extraStringList4	list of strings	

### 5.2.175 GuiOpenStackProjectOverview (parent: [Entity](#))

Parameter	Type	Description
motd	string	Message of the day.
name	string	The name.
UUID	string	Unique identifier.
roles	list of strings	Roles the user has in the project.
numOfAllVMsInProject	integer	The number of all VMs owned by the project.
numOfAllUpVMsInProject	integer	The number of VMs which are UP and owned by the project.
numOfAllErrorVMsInProject	integer	The number of VMs in ERROR state which are owned by the project.
numOfUserVMsInProject	integer	The number of VMs owned by the project and by this user.

*...continues*

*...continued*

Parameter	Type	Description
numOfUserUpVMsInProject	integer	The number of VMs owned by the project and by this user, which are UP.
numOfUserErrorVMsInProject	integer	The number of VMs owned by the project and by this user, which are UP.
allNetworks	integer	The number of all networks in the project.
allSubnets	integer	The number of all subnets in the project.
allRouters	integer	The number of all routers in the project.
allPorts	integer	The number of all ports in the project.
numOfAllUsersInProject	unsigned integer	Number of all users in the project.
otherUsersInProject	list of strings	List of other users in the project.

### 5.2.176 GuiOpenStackTenantOverview (parent: [Entity](#))

Parameter	Type	Description
success	boolean	
vcpuUsed	integer	
vcpuMax	integer	
metaDataItemsUsed	integer	
metaDataItemsMax	integer	
ramUsed	integer	

*...continues*

*...continued*

Parameter	Type	Description
ramMax	integer	
instancesUsed	integer	
instancesMax	integer	
instancesRunning	integer	
floatingIPsUsed	integer	
floatingIPsMax	integer	
securityGroupsUsed	integer	
securityGroupsMax	integer	
volumesUsed	integer	
volumesMax	integer	
snapshotsUsed	integer	
snapshotsMax	integer	
injectedFilesUsed	integer	
injectedFilesMax	integer	
securityGroupRules\ Used	integer	

*...continues*

*...continued*

<b>Parameter</b>	<b>Type</b>	<b>Description</b>
securityGroupRulesMax	integer	
networksUsed	integer	
networksMax	integer	
subnetsUsed	integer	
subnetsMax	integer	
routersUsed	integer	
routersMax	integer	
portsUsed	integer	
portsMax	integer	
numberOfImages	integer	
bytesUsed	integer	
bytesMax	integer	
numberOfUsers	integer	
numberOfSystemUsers	integer	
vcpuHours	float	

*...continues*



*...continued*

Parameter	Type	Description
diskGBHours	float	
extra1	integer	
extra2	integer	
extra3	integer	
extra4	integer	
extraStringList	list of strings	

**5.2.177 GuiPDUBank (parent: Entity)**

Parameter	Type	Description
bank	unsigned integer	Bank
load	float	Load

**5.2.178 GuiPDUOutlet (parent: Entity)**

Parameter	Type	Description
outlet	unsigned integer	Outlet
status	enum	Status
assigned	list of unsigned numbers	Assigned

**5.2.179 GuiPDUOverview (parent: Entity)**

Parameter	Type	Description
refPowerDistributionUnitUniqueKey	unsigned integer	
model	string	

*...continues*

*...continued*

Parameter	Type	Description
outlets	list of GuiPDUOutlet	
banks	list of GuiPDUBank	

**5.2.180 GuiSwitchOverview (parent: Entity)**

Parameter	Type	Description
refSwitchUniqueKey	unsigned integer	Switch
model	string	Model
ports	list of GuiSwitchPort	Ports

**5.2.181 GuiSwitchPort (parent: Entity)**

Parameter	Type	Description
prt	integer	Port
name	string	Name
status	string	Status
uplink	boolean	Uplink
assigned	unsigned integer	Unique key of the device assigned to this port
detected	string	List of MAC address detected on this port
speed	unsigned integer	Speed

**5.2.182 GuiWorkload (parent: Entity)**

Parameter	Type	Description
name	string	Queue name

*...continues*

*...continued*

Parameter	Type	Description
<code>scheduler</code>	string	Scheduler
<code>slots</code>	string	Slots
<code>nodes</code>	string	Nodes
<code>running</code>	unsigned integer	Number of running jobs in this queue
<code>queued</code>	unsigned integer	Number of pending jobs in this queue
<code>error</code>	unsigned integer	Number of jobs ended in an error state
<code>completed</code>	unsigned integer	Number of completed jobs
<code>averageDuration</code>	unsigned integer	Average duration of jobs
<code>estimatedDelay</code>	unsigned integer	Estimated delay for a new job to start

### 5.2.183 HAProxyEntryBind (parent: `Entity`)

Parameter	Type	Description
<code>listenOn</code>	enum	Where to listen for connections
<code>name</code>	string	name of the bind location
<code>ip</code>	IP	IP to bind to
<code>location</code>	string	Socket to bind
<code>port</code>	integer	Not needed if location is a socket

*...continues*

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Parameter	Type	Description
portEnd	integer	Optional. If specified, proxy will bind to a range of ports
parameters	string	Parameters.
disabled	boolean	If disabled, will not be used in config file
network	reference to Network	Network an IP of which the proxy is to bind to. Takes precedence over location

#### 5.2.184 HAProxyEntry (parent: Entity)

Parameter	Type	Description
name	string	Human readable name of the entry
bindLocations	list of HAProxyEntryBind	Bind locations on which HAProxy will listen for inbound connections.
sharedSettings	HAProxySharedSet\ tings	HAProxySharedSettings
useCustomSettings	boolean	Instead of using the global default settings, use the values in the 'shared settings' fields. This applies only to NON-server related values.
useCustomServerSet\ tings	boolean	Instead of using the global default settings, use the values in the 'shared settings' fields. This applies only to server-related values.

*...continues*

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Parameter	Type	Description
servers	list of HAProxyServer	Backend servers
customCode	string	Custom HAProxy config content to embed with this entry.
customCodeAfter\ Servers	string	Custom HAProxy config content to embed with this entry, following the server list.
isOpenStackEntry	boolean	
openStackEntryType	string	

**5.2.185 HAProxyRole (parent: Role)**

Parameter	Type	Description
HAProxyName	string	Name of the HAProxy. Can be referred to from API Endpoint roles to limit them to certain HAProxies.
logTag	string	Log tag, use '\$hostname' for host's name, leave empty for IP.
sharedSettings	HAProxySharedSet\ tings	Settings
description	string	Description of the proxy.
log	string	Log description.
maxConnections	integer	Max process connections.

*...continues*

*...continued*

Parameter	Type	Description
<code>maxConnectionRate</code>	integer	Max connections per seconds.
<code>entries</code>	list of <code>HAProxyEntry</code>	Manually managed entries.
<code>addEndpointsFrom\OpenStack</code>	boolean	Whether to automatically inject OpenStack API endpoints. Needs to be enabled for any of the 'Include ... endpoints' fields to take effect.
<code>isBackupBackend</code>	boolean	Use it as backend HAProxy if no RR-DNS was configured, and non-backup proxies went down.
<code>isOpenStackBackend\HAProxy</code>	boolean	Whether to use it in config files of openstack services. If multiple backend HAProxies exists, services will be automatically spread across them.
<code>availabilityZone</code>	string	The name of the availability zone of this HAProxy endpoint. Useful when partitioning the control plane to multiple AZs.
<code>onlyAutoIncludeEnd\pointsFromSameAZ</code>	boolean	During automatic endpoint assignemnt 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.
<code>backendWeight</code>	float	The default backend weight.
<code>includeOpenStackCom\puteEndpoints</code>	boolean	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.

*...continues*

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Parameter	Type	Description
<code>includeOpenStackCom\</code> <code>puteMetadataEndpoints</code>	boolean	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.
<code>includeOpenStackCom\</code> <code>puteEC2Endpoints</code>	boolean	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.
<code>includeOpenStackCom\</code> <code>putePlacementEndpoints</code>	boolean	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.
<code>includeOpenStackNet\</code> <code>workEndpoints</code>	boolean	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.
<code>includeOpenStack\</code> <code>AuthPublicEndpoints</code>	boolean	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.
<code>includeOpenStack\</code> <code>AuthAdminEndpoints</code>	boolean	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.

*...continues*

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Parameter	Type	Description
<code>includeOpenStack\ ImageStorageEndpoints</code>	boolean	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.
<code>includeOpenStack\ ImageStorageRegistries</code>	boolean	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.
<code>includeOpenStack\ BlockStorageEndpoints</code>	boolean	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.
<code>includeOpenStack\ OrchestrationEndpoints</code>	boolean	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.
<code>includeOpenStack\ DashboardEndpoints</code>	boolean	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.
<code>includeOpenStack\ ObjectStorageEndpoints</code>	boolean	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.

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Parameter	Type	Description
<code>includeOpenStack\TelemetryEndpoints</code>	boolean	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.
<code>includeOpenStack\BareMetalEndpoints</code>	boolean	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.
<code>includeOpenStack\DataProcessingEndpoints</code>	boolean	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.
<code>includeMemcached\Endpoints</code>	boolean	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.
<code>includeElastic\SearchEndpoints</code>	boolean	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.
<code>galeraClusterName</code>	string	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.

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Parameter	Type	Description
includeGaleraEnd\points	boolean	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.
customGlobalCode	string	Custom HAProxy config code to add to the global section of the HAProxy config file.
customDefaultCode	string	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.
customAppendCode	string	Custom HAProxy config code to append to each 'listen' section of the HAProxy config file.
preferIPs	boolean	Prefer IPs in the config file. Can be overridden on server level.
preserveOpenStack\EntriesWithCustomServers	boolean	Whether or not to preserve openstack Entries which have non-openstack server entries.
statsSocketEnabled	boolean	Enables socket which can be used to obtain stats from the process.
statsSocket	string	Location of the stats socket. Optional.
statsEnabled	boolean	Whether to enable statistics collection.

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Parameter	Type	Description
<code>statsScopes</code>	list of strings	List of scope of statistic to activate (the 'stats scope ...' directive). If empty, all stats will be displayed.
<code>statsPort</code>	unsigned integer	Port on which statistics can be accessed.
<code>statsUseAuth</code>	boolean	Whether to authenticate users trying to access statistics.
<code>statsUsername</code>	string	The username.
<code>statsPassword</code>	string	The password.
<code>statsURI</code>	string	URI under which one can access statistics.
<code>openStackEndpoint\ DefaultBindLocation</code>	string	Advanced option. Path to the socket on which HAProxy should listen for connections for automatically added OpenStack endpoints. Setting this, will disable listening for connection on network interfaces.
<code>openStackEndpoint\ DefaultBindNetwork</code>	reference to Network or None	Default network to listen for connections for automatically created OpenStack endpoints. If not set, listen on all interfaces.
<code>nbProc</code>	unsigned integer	Number of HAProxy 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 HAProxy documentation for more info.

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Parameter	Type	Description
cpuMap	list of strings	Allows to bind the HAProxy process to specific CPUs. See 'cpu-map' in HAProxy documentation for more info.

### 5.2.186 HAProxyServer (parent: Entity)

Parameter	Type	Description
name	string	The human readable name of the server entry.
address	string	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.
port	integer	The port on which the service listens for connections on this server.
nodes	list of references to Node	List of nodes belonging to this group.
category	reference to Category	All nodes of the selected category will be used as servers for this endpoint.
network	reference to Network	Network on which any specified nodes will listen (optional)
secondaryNetwork	reference to Network	Network to try if the primary network is not configure on the node

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Parameter	Type	Description
<code>forceIPs</code>	enum	Whether to prefer IPs or hostnames in the config file
<code>backup</code>	boolean	If 'true', only used when all non-backup servers are unavailable.
<code>check</code>	boolean	Whether to enable TCP checks, if the TCP healthcheck fails, HAProxy will not route traffic to this server.
<code>disabled</code>	boolean	This will disable the server entry in HAProxy.
<code>useCustomServerSet\</code> <code>tings</code>	boolean	Whether to use custom (non-global default) settings for this server entry.
<code>inter</code>	string	Interval between two consecutive TCP health check. Checks need to be enabled with 'check' field.
<code>fastInter</code>	string	Interval between two consecutive health checks when the server is any of the transition states. If not specified, defaults to 'inter'.
<code>downInter</code>	string	Interval between two consecutive health checks when the server is in the DOWN state. If not specified, defaults to 'inter'.

*...continues*

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Parameter	Type	Description
rise	integer	Number of consecutive valid health checks before considering the server as UP.
fall	integer	Number of consecutive invalid health checks before considering the server as DOWN.
maxConn	integer	Maximum number of allowed open connections to server, 0: unlimited.
minConn	integer	When set, makes the 'maxconn' parameter dynamically adjust to backend's load.
maxQueue	integer	Specifies the maximal number of connections which will wait in the queue for this server. '0' means 'unlimited'.
weight	integer	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.
customOptions	string	
isOpenStackManaged\Server	boolean	

### 5.2.187 HAProxySharedSettings (parent: `Entity`)

Parameter	Type	Description
proxyMode	enum	How the traffic is load-balanced by HAProxy.
balanceMode	enum	How the traffic is load-balanced
balanceArgument	string	Only applies to certain balance modes

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Parameter	Type	Description
<code>balanceArguments</code>	string	Only apply to certain balance modes
<code>optionRedispatch</code>	boolean	Whether to redistributed a sessions in case of connection failure. Works only with HTTP mode
<code>optionTCPLog</code>	boolean	Enable advanced logging of TCP connections with session state and timers.
<code>maxConnections</code>	integer	Maximum number of concurrent connections.
<code>timeoutConnect</code>	string	The maximum time to wait for a connection attempt to a server to succeed.
<code>timeoutClient</code>	string	The maximum inactivity time on the client side.
<code>timeoutServer</code>	string	The maximum inactivity time on the server side.
<code>disabled</code>	boolean	Whether to temporarily disable this entry.
<code>retries</code>	integer	The number of retries to perform on a server after a connection failure.
<code>log</code>	string	
<code>defaultServerInter</code>	string	Interval between two consecutive TCP health check. Checks need to be enabled with 'check' field.

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Parameter	Type	Description
defaultServerFastInter	string	Interval between two consecutive health checks when the server is any of the transition states. If not specified, defaults to 'inter'.
defaultServerDownInter	string	Interval between two consecutive health checks when the server is in the DOWN state. If not specified, defaults to 'inter'.
defaultServerRise	integer	Number of consecutive valid health checks before considering the server as UP.
defaultServerFall	integer	Number of consecutive invalid health checks before considering the server as DOWN.
defaultServerMaxConn	integer	Maximum number of allowed open connections to server, 0: unlimited.
defaultServerMinConn	integer	When set, makes the 'maxconn' parameter dynamically adjust to backend's load.
defaultServerMaxQueue	integer	Specifies the maximal number of connections which will wait in the queue for this server. '0' means 'unlimited'.
defaultServerWeight	integer	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.

#### 5.2.188 HeadNodeRole (parent: Role)

Parameter	Type	Description
failoverId	unsigned integer	

#### 5.2.189 HeadNode (parent: Node)

Parameter	Type	Description
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#### 5.2.190 IBSwitch (parent: Switch)



Parameter	Type	Description
guid	string	The switch GUID
subnetManager	boolean	Indicate the subnet manager is running

### 5.2.191 IPCPerm (parent: Entity)

Parameter	Type	Description
key	integer	Message queue ID
mode	unsigned integer	Access permissions
uid	integer	Owner ID
gid	integer	Owner group ID
owner	string	Owner
group	string	Group name

### 5.2.192 IPResource (parent: BasicResource)

Parameter	Type	Description
ip	IP	IP
networkDeviceName	string	The network device name to start this IP on. Leave blank to automatically determine based on IP.
alias	string	The network device name alias
timeout	unsigned integer	Timeout

### 5.2.193 JobInfoStatistics (parent: Entity)

Parameter	Type	Description
wlm	string	

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Parameter	Type	Description
queue	string	
user	string	
group	string	
account	string	
intervalStart	timestamp	
intervalEnd	timestamp	
pending	unsigned integer	
running	unsigned integer	
finished	unsigned integer	
error	unsigned integer	
pendingTime	unsigned integer	
runningTime	unsigned integer	
finishedTime	unsigned integer	
errorTime	unsigned integer	
nodes	unsigned integer	

**5.2.194 JobInfo (parent: *Entity*)**

Parameter	Type	Description
wlm	string	Workload manager name

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
queue	string	Queue name
jobId	string	Job ID
jobName	string	Job name
user	string	User name
group	string	User group name
account	string	Job account
nodes	list of unsigned numbers	List of job's nodes
cgroup	string	Relative cgroup path
submitTime	timestamp	Job submit time
startTime	timestamp	Job start time
endTime	timestamp	Job end time
persistent	boolean	Whether job is persistent in DB or not

*...continues*

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Parameter	Type	Description
exitCode	integer	Jobsript exit code
state	string	Job state

**5.2.195 JobQueuePlaceholder (parent: Entity)**

Parameter	Type	Description
queue	string	Name of queue
baseNodeName	string	Placeholder node base name
maxNodes	unsigned integer	Maximum number of nodes in queue
templateNode	reference to Node	Node that will be used as a placeholder

**5.2.196 JobQueueStat (parent: Entity)**

Parameter	Type	Description
name	string	Queue name

**5.2.197 JobQueue (parent: Entity)**

Parameter	Type	Description
name	string	Name of queue
nodes	list of strings	Nodes associated with queue

**5.2.198 Job (parent: Entity)**

Parameter	Type	Description
jobID	string	Job identifier
arrayID	string	Job array identifier

*...continues*

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
taskID	string	Job array task identifier(s)
parentID	string	Job parent identifier
queue	string	Queue name of job
jobname	string	Name of job
username	string	Job owner name
status	string	Current job status
project	string	Project name
priority	string	Job priority
inqueue	string	Shows whether job has already been queued or not
nodes	list of strings	Allocated nodes
cgroup	string	CGroup allocated for this job on all nodes
rundirectory	string	Job work directory

*...continues*

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
executable	string	File which is executed inside job script
arguments	string	Arguments of executable file
stdinfile	string	Standard input file
stdoutfile	string	Standard output file
stderrfile	string	Standard error file
submittime	string	Job submission time
starttime	string	Job start time (available when job is started)
mailOptions	string	Mail oprions
mailList	string	Mail addresses
mailNotify	boolean	Shows whether mail notification is requested or not
maxWallClock	string	Maximum available running time
runWallClock	unsigned integer	Running time

*...continues*

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
numberOfProcesses	unsigned integer	Number of processes
memoryUse	unsigned integer	Memory usage
scriptFile	string	Job script file
numberOfNodes	unsigned integer	Number of nodes
usergroup	string	Job user group
commandLineInterpreter	string	Command line interpreter
dependencies	list of strings	Job dependencies
parallelEnvironment	string	Parallel environment
account	string	Account name
resourceList	list of strings	List of requested resources
modules	list of strings	Environment modules loaded for the script
environmentVariables	list of strings	Additional environment variables

*...continues*

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Parameter	Type	Description
debug	boolean	Debug mode (used when new job is submitted via CMDaemon API)
userdefined	list of strings	User defined parameters
numberOfCPUs	unsigned integer	Number of CPUs requested
exitCode	integer	Exit code of job
minMemPerNode	unsigned integer	Minimum memory per node requested
comment	string	Comment set by workload manager
placement	string	Jobs are placed on nodes according to their place statements (useful for PBS, see 'man pbs_resources')
fake	boolean	Simulation mode
pendingReasons	list of strings	List of pending reasons

### 5.2.199 JupyterHubBatchSpawner (parent: [JupyterHubSpawner](#))

Parameter	Type	Description
startupPollInterval	unsigned integer	Polling interval (seconds) to check job state during startup (BatchSpawnerBase.startup_poll_interval)
numberOfProcessors	unsigned integer	Number of processors to request from workload manager (BatchSpawnerBase.req_nprocs)
numberOfGpus	unsigned integer	Number of GPUs to request from workload manager (BatchSpawnerBase.req_ngpus)

*...continues*



*...continued*

Parameter	Type	Description
queue	string	Queue name to submit job to workload manager (BatchSpawnerBase.req_queue)
host	string	Host name of batch server to submit job to workload manager (BatchSpawnerBase.req_host)
account	string	Account name string to pass to the workload manager (BatchSpawnerBase.req_account)
runtime	string	Length of time for submitted job to run (BatchSpawnerBase.req_runtime)
memory	string	Memory to request from workload manager (BatchSpawnerBase.req_memory)
submitCommand	string	Command to run to submit batch scripts (BatchSpawnerBase.batch_submit_cmd)
queryCommand	string	Command to run to read job status (BatchSpawnerBase.batch_query_cmd)
cancelCommand	string	Command to cancel a previously submitted job (BatchSpawnerBase.batch_cancel_cmd)
batchScript	string	Template for job submission script (BatchSpawnerBase.batch_script)

### 5.2.200 JupyterHubGenericSpawner (parent: [JupyterHubSpawner](#))

Parameter	Type	Description
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### 5.2.201 JupyterHubLocalProcessSpawner (parent: [JupyterHubSpawner](#))

Parameter	Type	Description
interruptTimeout	unsigned integer	Seconds to wait for single-user server process to halt after SIGINT (LocalProcessSpawner.interrupt_timeout)

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Parameter	Type	Description
termTimeout	unsigned integer	Seconds to wait for single-user server process to halt after SIGTERM (LocalProcessSpawner.term_timeout)
killTimeout	unsigned integer	Seconds to wait for process to halt after SIGKILL before giving up (LocalProcessSpawner.kill_timeout)

### 5.2.202 JupyterHubLsfSpawner (parent: JupyterHubBatchSpawner)

Parameter	Type	Description
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### 5.2.203 JupyterHubRole (parent: Role)

Parameter	Type	Description
version	string	JupyterHub version
port	unsigned integer	Port for proxy (JupyterHub.port)
hubPort	unsigned integer	Port for hub (JupyterHub.hub_port)
hubIp	string	The ip address or hostname for the Hub process to bind to (JupyterHub.hub_ip)
dataFilePath	string	The location of jupyterhub data files (JupyterHub.data_files_path)
pamOpenSessions	boolean	Enable SSL communication with HTTPS (PAMAuthenticator.open_sessions)

*...continues*

*...continued*

Parameter	Type	Description
<code>enableSSL</code>	boolean	Enable SSL communication with HTTPS
<code>cert</code>	string	Path to the ssl certificate file (JupyterHub.ssl_cert)
<code>key</code>	string	Path to the ssl key file (JupyterHub.ssl_key)
<code>adminUsers</code>	list of strings	User with administrator privileges (Authenticator.admin_users)
<code>userForService</code>	string	User for running cm-jupyterhub service (defined as User in /usr/lib/systemd/system/cm-jupyterhub.service)
<code>spawner</code>	JupyterHubSpawner	Spawner settings

#### 5.2.204 JupyterHubSlurmSpawner (parent: JupyterHubBatchSpawner)

Parameter	Type	Description
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#### 5.2.205 JupyterHubSpawner (parent: Entity)

Parameter	Type	Description
<code>name</code>	string	The spawner name (not used in jupyterhub configuration)
<code>className</code>	string	The spawner class name (JupyterHub.spawner_class)
<code>args</code>	list of strings	Extra arguments to be passed to the single-user server (Spawner.args)
<code>envKeep</code>	list of strings	Environment variables to keep for the spawner (Spawner.env_keep)

*...continues*

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Parameter	Type	Description
<code>envs</code>	list of strings	Extra environment variables to set for the single-user server's process ( <code>Spawner.environment</code> )
<code>startTimeout</code>	unsigned integer	Timeout (in seconds) before giving up on starting of single-user server ( <code>Spawner.start_timeout</code> )
<code>pollInterval</code>	unsigned integer	Interval (in seconds) on which to poll the spawner for single-user server's status ( <code>Spawner.poll_interval</code> )
<code>httpTimeout</code>	unsigned integer	Timeout (in seconds) before giving up on a spawned HTTP server ( <code>Spawner.http_timeout</code> )
<code>address</code>	string	Hostname or IP address the single-user server should listen on ( <code>Spawner.ip</code> )
<code>port</code>	unsigned integer	The port for single-user servers to listen on, where 0 uses a randomly allocated port number each time ( <code>Spawner.port</code> )
<code>notebookDirectory</code>	string	Path to the notebook directory for the single-user server ( <code>Spawner.notebook_dir</code> )
<code>disableUserConfig</code>	boolean	Disable per-user configuration of single-user servers ( <code>Spawner.disable_user_config</code> )
<code>debug</code>	boolean	Enable debug mode for the spawner ( <code>Spawner.debug</code> )

*...continues*

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Parameter	Type	Description
<code>options</code>	list of strings	List of extra options (example: <code>c.Spawner.cpu_limit=0.5</code> )

### 5.2.206 JupyterHubSystemdSpawner (parent: [JupyterHubSpawner](#))

Parameter	Type	Description
<code>readOnlyPaths</code>	list of strings	List of filesystem paths that should be mounted readonly for the users' notebook server ( <code>SystemdSpawner.readonly_paths</code> )
<code>readWritePaths</code>	list of strings	List of filesystem paths that should be mounted readwrite for the users notebook server ( <code>SystemdSpawner.readwrite_paths</code> )
<code>extraPaths</code>	list of strings	List of paths that should be prepended to the PATH environment variable for the spawned notebook server ( <code>SystemdSpawner.extra_paths</code> )
<code>isolateDevices</code>	boolean	Setting this to true provides a separate, private <code>/dev</code> for each user ( <code>SystemdSpawner.isolate_devices</code> )
<code>isolateTmp</code>	boolean	Setting this to true provides a separate, private <code>/tmp</code> for each user ( <code>SystemdSpawner.isolate_tmp</code> )
<code>cpuLimit</code>	float	A float representing the total CPU-cores each user can use ( <code>SystemdSpawner.cpu_limit</code> )

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Parameter	Type	Description
memoryLimit	string	Specifies the maximum memory that can be used by each individual user (SystemdSpawner.mem_limit)
unitNameTemplate	string	Template to form the Systemd Service unit name for each user notebook server (SystemdSpawner.unit_name_template)
defaultShell	string	The default shell to use for the terminal in the notebook (SystemdSpawner.default_shell)
userWorkingDirectory	string	The directory to spawn each user's notebook server in (SystemdSpawner.user_workingdir)
disableUserSudo	boolean	Setting this to true prevents users from being able to use sudo (SystemdSpawner.disable_user_sudo)
useSudo	boolean	Use sudo to run systemd-run / systemctl commands (SystemdSpawner.use_sudo)

### 5.2.207 JupyterHubTorqueSpawner (parent: JupyterHubBatchSpawner)

Parameter	Type	Description
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### 5.2.208 JupyterHubUgeSpawner (parent: JupyterHubBatchSpawner)

Parameter	Type	Description
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### 5.2.209 KeepalivedEntry (parent: Entity)

Parameter	Type	Description
name	string	The name of the entry.
checkScriptName	string	Name of the check script to run (must be defined in the config file)

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*...continued*

Parameter	Type	Description
customContent	string	Custom content to inject to config
customContentVIP	string	Custom content to inject to config's Virtual IP section
password	string	VRRP Password (optional)
virtualRouterID	unsigned integer	Unique and identical for all instances in this cluster
priority	unsigned integer	Priority of an instance
advertisementInterval	unsigned integer	Advertise every this many seconds
virtualIP1	IP	First virtual IP
virtualIP2	IP	Seconds virtual IP (optional)
virtualIP3	IP	Third virtual IP (optional)
network	reference to Network	The network on which the virtual IP should be present.

### 5.2.210 KeepalivedRole (parent: Role)

Parameter	Type	Description
description	string	Description of the keepalived service (optional)
customContent	string	Custom content to inject to config (optional)
checkScriptName	string	use in an VRRP entry to make that entry use the script

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Parameter	Type	Description
checkScriptPath	string	Command to execute (optional)
checkScriptInterval	unsigned integer	Run script every so many many seconds
checkScriptFall	unsigned integer	Treat service as down after that many failures of script
checkScriptRise	unsigned integer	Treat service as up after that many failures of script
configFilePath	string	Path to the config file
configDirPath	string	Config directory
serviceName	string	Linux service name
entries	list of KeepalivedEntry	VRRP entries

#### 5.2.211 KernelModule (parent: [Entity](#))

Parameter	Type	Description
name	string	The name of the kernel module.
parameters	string	Options to be passed to the module.

#### 5.2.212 KeyValuePair (parent: [Entity](#))

Parameter	Type	Description
key	string	
value	string	
onlydaemon	boolean	
ispattern	boolean	
priority	integer	

#### 5.2.213 KibanaRole (parent: [Role](#))



Parameter	Type	Description
bindHost	string	IP address to which Kibana should bind to (listen for connections).
port	unsigned integer	Port on which Kibana should listen.
elasticUrl	string	Elastic Search URL. If not specified, will be detected automatically.
customConfig	string	Use this field to override the entire Kibana config file.

#### 5.2.214 KubeAppEnvironment (parent: Entity)

Parameter	Type	Description
name	string	Name
value	string	Value
nodesEnvironment	boolean	Add variable to the nodes environment

#### 5.2.215 KubeAppGroup (parent: Entity)

Parameter	Type	Description
name	string	Object name
applications	list of KubeApp	Kubernetes applications managed by cmdaemon
enabled	boolean	Enable this application group

#### 5.2.216 KubeApp (parent: Entity)

Parameter	Type	Description
name	string	Object name
format	string	Configuration format

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Parameter	Type	Description
enabled	boolean	Enable this application
config	string	Yaml or json configuration for the object
extraEnvironment	list of KubeAppEnvironment	
excludeList	list of strings	Excluded paths in the node image update for Kubernetes nodes
state	integer	

### 5.2.217 KubeCluster (parent: Entity)

Parameter	Type	Description
name	string	Name of the Kubernetes cluster
authorizationMode	list of strings	Selects how to do authorization on the secure port
kubeConfig	string	Path to a kubeconfig file, specifying how to authenticate to API server
kubeClientConfig	string	Path to a kubeconfig file, specifying how to authenticate to API server
kubeConfigTemplate	string	Template for system kubeconfig file
ca	string	Filename containing the PEM-encoded certificate used for the Certification authority (CA)

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Parameter	Type	Description
cakey	string	Filename containing the corresponding PEM-encoded private key used for the Certification authority (CA)
kubernetesCertificate	string	File containing x509 Certificate used by the Kubelets
kubernetesKey	string	File containing x509 private key used by the Kubelets
kubernetesClient\ Certificate	string	File containing x509 Certificate used for the Kubelets
kubernetesClientKey	string	File containing x509 private key used for the Kubelets
serviceAccount\ Certificate	string	File containing x509 Certificate used Service Accounts
serviceAccountKey	string	File containing x509 private key used for Service Accounts
apiAggregator\ Certificate	string	File containing x509 Certificate used Kube API Aggregator
apiAggregatorKey	string	File containing x509 private key used for Kube API Aggregator

*...continues*

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Parameter	Type	Description
domain	string	Domain name used by the DNS
etcdCluster	reference to EtcCluster	The Etcd cluster instance
etcdServers	list of strings	List of etcd servers to watch (format: [http://host:port])
etcdPrefix	string	The prefix for all resource paths in etcd
serviceNetwork	reference to Network	Network where service cluster IPs will be assigned from (must not overlap with any IP ranges assigned to nodes for pods)
podNetwork	reference to Network	Network where POD IPs will be assigned from
podNetworkNodeMask	string	Pod Network mask size for node cidr in cluster.
internalNetwork	reference to Network	Network to use to back the internal communications
kubeDnsIp	IP	KubeDNS IP address
kubernetesApiServer	string	Kubernetes API server address (format: [https://host:port])
kubernetesApiServerProxyPort	unsigned integer	Kubernetes API server proxy port

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Parameter	Type	Description
appGroups	list of KubeAppGroup	Kubernetes applications managed by cmdaemon
labelSets	list of KubeLabelSet	Labels managed by cmdaemon
notes	string	Notes
trustedDomains	list of strings	Trusted domains to be included in Kubernetes related certificates as Alt Subjects.
clientTypeKube	unsigned integer	client type in the CLIENT_TYPE_KUBERNETES range
clientTypeKubeUsers	unsigned integer	client type in the CLIENT_TYPE_KUBERNETES_USERS range
clientTypeKube\ ServiceAccounts	unsigned integer	client type in the CLIENT_TYPE_KUBE_SERVICEACCOUNTS range
moduleFileTemplate	string	Template for system module file

**5.2.218 KubeLabelSet (parent: Entity)**

Parameter	Type	Description
name	string	Object name
labels	list of strings	Node labels
nodes	list of references to Node	List of nodes belonging to this label set
categories	list of references to Category	List of categories belonging to this label set

*...continues*

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Parameter	Type	Description
overlays	list of references to ConfigurationOverlay	List of overlays belonging to this label set

**5.2.219 KubeNodeLoad (parent: Entity)**

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	Node
cpu	float	CPU %
mem	float	Memory % of total capacity
Pods	float	Pods % of maximum

**5.2.220 KubePodController (parent: Entity)**

Parameter	Type	Description
name	string	Kubernetes pod controller name
type	string	Kubernetes pod controller type
kubeNamespace	string	Namespace name
uid	string	Pod controller unique ID in Kubernetes
startTime	timestamp	Pod controller start time
creationTime	timestamp	Pod controller creation time
resources	list of strings	List of requested (if pending) or allocated (if started) resources

*...continues*

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Parameter	Type	Description
labels	list of strings	List of labels assigned to the controller object
status	string	Current pod controller status
reason	string	Pod controller status reason

### 5.2.221 KubePodInfo (parent: [Entity](#))

Parameter	Type	Description
name	string	
podNamespace	string	
image	string	
nodes	list of unsigned numbers	
startTime	timestamp	
labels	list of strings	
status	string	
reason	string	
message	string	
ip	IP	
replicaSets	list of strings	

*...continues*

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Parameter	Type	Description
ready	boolean	
volumes	list of strings	
containers	list of ContainerInfo	
creationTime	timestamp	
controllerId	string	
resources	list of strings	List of requested (if pending) or allocated (if started) resources

### 5.2.222 KubernetesApiServerProxyRole (parent: NginxRole)

Parameter	Type	Description
kubeClusters	list of references to KubeCluster	The Kubernetes cluster instances (pointers)

### 5.2.223 KubernetesApiServerRole (parent: Role)

Parameter	Type	Description
kubeCluster	reference to KubeCluster	The Kubernetes cluster instance (pointer)
insecurePort	unsigned integer	The port on which to serve unsecured, unauthenticated access.
securePort	unsigned integer	The port on which to serve HTTPS with authentication and authorization (if 0, don't serve HTTPS at all)

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Parameter	Type	Description
advertiseAddress	IP	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.
insecureBindAddress	IP	IP address to serve on (set to 0.0.0.0 for all interfaces)
secureBindAddress	IP	The IP address on which to serve the read only and secure ports
allowedPrivileged	boolean	If true, allow privileged containers
admissionControl	list of strings	Ordered list of plug-ins to do admission control of resources into cluster
eventTtl	string	Amount of time to retain events
kubeletTimeout	string	Kubelet connections timeout
logLevel	unsigned integer	Log level
logToStdErr	boolean	Logging to stderr means we get it in the systemd journal
options	list of strings	Additional parameters for kube-apiserver daemon

#### 5.2.224 KubernetesControllerRole (parent: Role)

Parameter	Type	Description
kubeCluster	reference to KubeCluster	The Kubernetes cluster instance (pointer)
address	IP	IP address to serve on (set to 0.0.0.0 for all interfaces)

*...continues*

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Parameter	Type	Description
port	unsigned integer	Port that the controller-manager runs on
concurrentEndpoint\ Syncs	unsigned integer	Number of endpoint syncing operations that will be done concurrently
namespaceSyncPeriod	string	Period for syncing namespace life-cycle updates
nodeMonitorGrace\ Period	string	Amount of time which we allow running Node to be unresponsive before marking it unhealthy
nodeMonitorPeriod	string	Period for syncing NodeStatus in NodeController
nodeStartupGrace\ Period	string	Amount of time which we allow starting Node to be unresponsive before marking it unhealthy
nodeSyncPeriod	string	Period for syncing nodes from cloudprovider
podEvictionTimeout	string	Grace period for deleting pods on failed nodes
pvClaimBinderSync\ Period	string	Period for syncing persistent volumes and persistent volume claims
registerRetryCount	string	Number of retries for initial node registration
resourceQuotaSync\ Period	string	Period for syncing quota usage status in the system

*...continues*

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Parameter	Type	Description
logLevel	unsigned integer	Log level
logToStdErr	boolean	Logging to stderr means we get it in the systemd journal
options	list of strings	Additional parameters for kube-controller-manager daemon
clusterSigningCertFile	string	Filename containing a PEM-encoded X509 CA certificate used to issue cluster-scoped certificates. (leave empty to use the value of CA)
clusterSigningKeyFile	string	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)
useServiceAccountCredentials	boolean	Flag to enable or disable use of Service Account Credentials
allocateNodeCidrs	boolean	Allocate node cidr in cluster using Pod Network and Node Mask size defined in Kubernetes Cluster Object
kubeConfig	string	Path to a kubeconfig file, specifying how to authenticate to API server.
kubernetesCertificate	string	File containing x509 Certificate used by Kubernetes Controller Manager
kubernetesKey	string	File containing x509 private key used by Kubernetes Controller Manager

### 5.2.225 KubernetesNodeRole (parent: Role)

Parameter	Type	Description
kubeCluster	reference to KubeCluster	The Kubernetes cluster instance (pointer)

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Parameter	Type	Description
address	IP	IP address to serve on (set to 0.0.0.0 for all interfaces)
kubeletPort	unsigned integer	Port that the Node's http service runs on
spool	string	Directory path for managing kubelet files
manifestsPath	string	Path to the config file or directory of files
enableServer	boolean	Enable Kubelet's server
hostNetworkSources	list of strings	List of sources from which the Kubelet allows pods to use of host network
networkPlugin	string	The name of the network plugin to be invoked for various events in kubelet/pod lifecycle
cniPluginBinariesPath	string	The full path of the directory in which to search for CNI plugin binaries.
hostnameOverride	string	If non-empty, will use this string as identification instead of the actual hostname
cgroupRoot	string	Optional root cgroup to use for pods
dockerSpool	string	Absolute path to the Docker state root directory

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Parameter	Type	Description
<code>dockerEndpoint</code>	string	Docker endpoint address
<code>resourceContainer</code>	string	Absolute name of the resource-only container to create and run the Kubelet in
<code>allowedPrivileged</code>	boolean	If true, allow privileged containers
<code>registerOnStart</code>	boolean	Register the node with the apiserver
<code>maxPods</code>	unsigned integer	Number of Pods that can run on this node
<code>evictionSoft</code>	list of strings	Soft eviction constraints
<code>evictionSoftGrace</code>	list of strings	Soft eviction grace period
<code>evictionMaxPodGrace</code>	unsigned integer	Maximum allowed grace period (in sec) allowed to terminated pods
<code>evictionHard</code>	list of strings	Hard eviction constraints
<code>evictionMinReclaim</code>	list of strings	Minimum amount of resources reclaimed in an eviction
<code>runOnce</code>	boolean	If true, exit after spawning pods from local manifests or remote urls

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Parameter	Type	Description
fileCheckFrequency	string	Duration between checking config files for new data
httpCheckFrequency	string	Duration between checking http for new data
nodeStatusUpdate\ Frequency	string	Duration between kubelet posts of node status to master
syncFrequency	string	Max period between synchronizing running containers and config
streamingConnection\ IdleTimeout	string	Maximum time a streaming connection can be idle before the connection is automatically closed
imageGcHighThreshold	unsigned integer	The percent of disk usage after which image garbage collection is always run
imageGcLowThreshold	unsigned integer	The percent of disk usage before which image garbage collection is never run
lowDiskSpaceThreshold	unsigned integer	The absolute free disk space, in MB, to maintain
oomScoreAdjust	integer	The oom_score_adj value for kubelet process
logLevel	unsigned integer	Log level
logToStdErr	boolean	Logging to stderr means we get it in the systemd journal
options	list of strings	Additional parameters for kubelet daemon
kubeConfig	string	Path to a kubeconfig file, specifying how to authenticate to API server

### 5.2.226 KubernetesProxyRole (parent: Role)

Parameter	Type	Description
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Parameter	Type	Description
<code>kubeCluster</code>	reference <code>KubeCluster</code>	to The Kubernetes cluster instance (pointer)
<code>address</code>	IP	IP address to serve on (set to 0.0.0.0 for all interfaces)
<code>proxyPortRangeStart</code>	unsigned integer	Range of host ports (format: 'beginPort-endPort', inclusive) that may be consumed in order to proxy service traffic
<code>proxyPortRangeEnd</code>	unsigned integer	Range of host ports (format: 'beginPort-endPort', inclusive) that may be consumed in order to proxy service traffic
<code>masqueradeAll</code>	boolean	If using the pure iptables proxy, SNAT everything
<code>healthCheckAddress</code>	IP	The IP address for the health check server to serve on
<code>healthCheckPort</code>	unsigned integer	The port to bind the health check server (use 0 to disable)
<code>oomScoreAdjust</code>	integer	The <code>oom_score_adj</code> value for kube-proxy process
<code>logLevel</code>	unsigned integer	Log level
<code>logToStdErr</code>	boolean	Logging to stderr means we get it in the systemd journal

*...continues*

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Parameter	Type	Description
options	list of strings	Additional parameters for kube-proxy daemon
kubeConfig	string	Path to a kubeconfig file, specifying how to authenticate to API server.
kubernetesCertificate	string	File containing x509 Certificate used by kube-proxy
kubernetesKey	string	File containing x509 private key used by Kubernetes API server

### 5.2.227 KubernetesSchedulerRole (parent: Role)

Parameter	Type	Description
kubeCluster	reference KubeCluster	to The Kubernetes cluster instance (pointer)
address	IP	IP address to serve on (set to 0.0.0.0 for all interfaces)
port	unsigned integer	Port that the scheduler's http service runs on
algorithmProvider	string	The scheduling algorithm provider to use
policyConfig	string	File with scheduler policy configuration
logLevel	unsigned integer	Log level
logToStdErr	boolean	Logging to stderr means we get it in the systemd journal

*...continues*



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Parameter	Type	Description
options	list of strings	Additional parameters for kube-scheduler daemon
kubeConfig	string	Path to a kubeconfig file, specifying how to authenticate to API server.
kubernetesCertificate	string	File containing x509 Certificate used by Kubernetes Scheduler
kubernetesKey	string	File containing x509 private key used by Kubernetes Scheduler

**5.2.228 KubeRoleBinding (parent: Entity)**

Parameter	Type	Description
uid	unsigned integer	The User ID (users are in LDAP so we refer to the user, and not the other way around)
kubeCluster	reference KubeCluster	to The Kube cluster instance
config	string	The RBAC config to apply for the user for the Kubernetes cluster.
enabled	boolean	Enable this cluster binding

**5.2.229 LabeledEntity (parent: Entity)**

Parameter	Type	Description
name	string	Name
introductionTime	timestamp	Introduction time
lastUsedTime	timestamp	Time entity was last used
permanent	boolean	Do not allow automatic deletion

**5.2.230 LdapServerRole (parent: Role)**

Parameter	Type	Description
nodegroups	list of references to NodeGroup	List of node groups which can boot from this node
categories	list of references to Category	List of categories which can boot from this node
racks	list of references to Rack	List of racks which can boot from this node

### 5.2.231 LicenseInfo (parent: Entity)

Parameter	Type	Description
refPartitionUniqueKey	unsigned integer	Partition
macAddress	string	MAC address linked to the license
licensedNodes	unsigned integer	Number of pre-paid nodes
licensedGPUs	unsigned integer	Numer of pre-paid GPUs
licensedBurstNodes	integer	Number of ondemand nodes
licensedBurstGPUs	integer	Number of ondemand GPUs
licensedHadoopNodes	integer	Number of Data Science nodes
licensedOpenStack\Nodes	integer	Number of OpenStack nodes
version	string	Version

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Parameter	Type	Description
edition	string	Edition
startTime	timestamp	Time from which the license is active
endTime	timestamp	Time at which the license stops being valid
serial	integer	Serial
licensee	string	Licensee
nodeCount	unsigned integer	Nodes count with a MAC / cloud-identifier set
burstNodeCount	unsigned integer	Bursting nodes count
gpuCount	unsigned integer	GPUs active
hadoopNodeCount	unsigned integer	Nodes used for Data Science
openStackNodeCount	unsigned integer	Nodes part of OpenStack
accountingAndReporting	boolean	Accounting and reporting enabled/disabled
edgeSites	boolean	Edge sites enabled/disabled

*...continues*

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Parameter	Type	Description
message	string	License count message

**5.2.232 LiteMonitoredEntity (parent: Entity)**

Parameter	Type	Description
name	string	
types	list of strings	
resources	list of strings	
disabled	boolean	

**5.2.233 LiteMonitoringMeasurable (parent: Entity)**

Parameter	Type	Description
producer	unsigned integer	
name	string	
parameter	string	
kind	string	
disabled	boolean	
cumulative	boolean	

**5.2.234 LiteNode (parent: Device)**

Parameter	Type	Description
ip	IP	Ip address
network	reference to Network or None	Network to which this switch is connected

*...continues*

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Parameter	Type	Description
additionalHostnames	list of strings	List of additional hostnames that should resolve to the interfaces IP address

**5.2.235 LoginRole (parent: Role)**

Parameter	Type	Description
shorewall	boolean	Manage shorewall

**5.2.236 LogstashForwarderRole (parent: Role)**

Parameter	Type	Description
servers	list of strings	List of hosts with logstash running
sslCert	string	Path to the SSL certificate
timeout	unsigned integer	Timeout
sysLogFiles	list of strings	List of syslog files to collect
apacheFiles	list of strings	List of Apache files to collect
customConfig	string	Custom config for logstash-forwarder

**5.2.237 LogstashServerCustomFilter (parent: LogstashServerFilter)**

Parameter	Type	Description
customConfig	string	Use this field to override the whole config file

**5.2.238 LogstashServerCustomListener (parent: LogstashServerListener)**

Parameter	Type	Description
customConfig	string	Use this field to override the whole config file

**5.2.239 LogstashServerCustomOutput (parent: LogstashServerOutput)**

Parameter	Type	Description
customConfig	string	Use this field to override the whole config file

**5.2.240 LogstashServerElasticOutput (parent: LogstashServerOutput)**

Parameter	Type	Description
<code>elasticHost</code>	string	Host with elastic search. If not specified, a random host with elastic search will be found
<code>elasticCluster</code>	string	Elastic search cluster name

#### 5.2.241 LogstashServerFilter (parent: `Entity`)

Parameter	Type	Description
<code>name</code>	string	

#### 5.2.242 LogstashServerListener (parent: `Entity`)

Parameter	Type	Description
<code>name</code>	string	

#### 5.2.243 LogstashServerLocalFileListener (parent: `LogstashServerListener`)

Parameter	Type	Description
<code>localFilesToTrack</code>	list of strings	List of paths to local log files that should be tracked
<code>localFileType</code>	string	Type to append to local log files by logstash

#### 5.2.244 LogstashServerLumberjackListener (parent: `LogstashServerListener`)

Parameter	Type	Description
<code>sslCert</code>	string	Path to the SSL certificate
<code>sslKey</code>	string	Path to the SSL key
<code>port</code>	unsigned integer	Port to listen for rsyslog

#### 5.2.245 LogstashServerOutput (parent: `Entity`)

Parameter	Type	Description
<code>name</code>	string	

#### 5.2.246 LogstashServerRole (parent: `Role`)

Parameter	Type	Description
listeners	list LogstashServerListener	of Logstash Listeners.
filters	list LogstashServerFilter	of Logstash Filters.
output	list LogstashServerOutput	of Logstash Outputs.
customConfig	string	Use this field to override the whole config file.

#### 5.2.247 LogstashServerRSyslogFilter (parent: LogstashServerFilter)

Parameter	Type	Description
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#### 5.2.248 LogstashServerRSyslogListener (parent: LogstashServerListener)

Parameter	Type	Description
sslCert	string	Path to the SSL certificate
sslKey	string	Path to the SSL key
port	unsigned integer	Port to listen for rsyslog

#### 5.2.249 LogstashServerStdOutput (parent: LogstashServerOutput)

Parameter	Type	Description
enableStdoutLog	boolean	Write all the output to the logfile
codec	string	

#### 5.2.250 LSFBaseJobQueueStat (parent: JobQueueStat)

Parameter	Type	Description
status	string	Queue status
priority	unsigned integer	Queue priority
njobs	unsigned integer	Number of all jobs in queue
pending	unsigned integer	Number of pending jobs in queue
running	unsigned integer	Number of running jobs in queue
suspended	unsigned integer	Number of suspended jobs in queue

**5.2.251 LSFBaseJobQueue** (parent: [JobQueue](#))



Parameter	Type	Description
<code>administrators</code>	string	List of queue administrators.
<code>corelimit</code>	unsigned integer	The per-process core file size limit (in KB) for all of the processes belonging to a job from this queue.
<code>cpulimit</code>	string	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.
<code>chkPnt</code>	string	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.
<code>datalimit</code>	unsigned integer	The per-process data segment size limit (in KB) for all of the processes belonging to a job from this queue.
<code>description</code>	string	Description of the queue that will be displayed by 'bqueues -l'
<code>default_host_spec</code>	string	The default CPU time normalization host for the queue.
<code>dispatch_window</code>	string	The time windows in which jobs from this queue are dispatched.

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Parameter	Type	Description
<code>exclusive</code>	string	If Y, specifies an exclusive queue. Jobs submitted to an exclusive queue with <code>'bsub -x'</code> will only be despatched to a host that has no other openlava jobs running.
<code>filelimit</code>	unsigned integer	The per-process file size limit (in KB) for all of the processes belonging to a job from this queue.
<code>hjob_limit</code>	unsigned integer	Maximum number of job slots that this queue can use on any host.
<code>hosts</code>	string	A space-separated list of hosts, host groups, and host partitions on which jobs from this queue can be run.
<code>ignore_deadline</code>	string	If Y, disables deadline constraint scheduling (starts all jobs regardless of deadline constraints).
<code>interactive</code>	string	Causes the queue to reject interactive batch jobs (NO) or accept nothing but interactive batch jobs (ONLY). Interactive batch jobs are submitted via <code>'bsub -I'</code> .
<code>job_accept_interval</code>	unsigned integer	The number of dispatch turns to wait after dispatching a job to a host, before dispatching a second job to the same host.
<code>job_controls</code>	string	Changes the behaviour of the SUSPEND, RESUME, and TERMINATE actions.

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Parameter	Type	Description
<code>pre_post_exec_user</code>	string	Username for prolog and epilog execution.
<code>prolog</code>	string	Path to prolog script ( <code>pre_exec</code> ).
<code>epilog</code>	string	Path to epilog script ( <code>post_exec</code> ).
<code>job_starter</code>	string	Creates a specific environment for submitted jobs prior to execution.
<code>load_index</code>	string	Scheduling and suspending thresholds for the specified dynamic load index.
<code>memlimit</code>	unsigned integer	The per-process memory resident set size limit (in KB) for all of the processes belonging to a job from this queue.
<code>mig</code>	unsigned integer	Enables automatic job migration and specifies the migration threshold, in minutes.
<code>new_job_sched_delay</code>	unsigned integer	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 ( <code>MBD_SLEEP_TIME</code> in <code>lsb.params</code> , 60 seconds by default).

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Parameter	Type	Description
nice	unsigned integer	Adjusts the Unix scheduling priority at which jobs from this queue execute.
pjob_limit	unsigned integer	The per-processor job slot limit for the queue.
processlimit	string	Limits the number of concurrent processes that can be part of a job.
proclimit	string	Limits the number of processors that can be allocated to the job.
priority	unsigned integer	Queue priority.
qjob_limit	unsigned integer	Job slot limit for the queue. Total number of job slots this queue can use.
rerunnable	string	If yes, enables automatic job rerun (restart).
require_exit_values	string	The exit codes that will cause the job to be requeued.
res_req	string	Resource requirements used to determine eligible hosts.
resume_cond	string	Use the select section of the resource requirement string to specify load thresholds. All other sections are ignored.

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Parameter	Type	Description
<code>run_window</code>	string	Time period during which jobs in the queue are allowed to run.
<code>runlimit</code>	string	The maximum run limit and optionally the default run limit. Value format: [default_limit] maximum_limit.
<code>slot_reserve</code>	unsigned integer	Enables processor reservation and specifies the number of dispatch turns over which a parallel job can reserve job slots.
<code>stacklimit</code>	unsigned integer	The per-process stack segment size limit (in KB) for all of the processes belonging to a job from this queue.
<code>stop_cond</code>	string	Use the select section of the resource requirement string to specify load thresholds. All other sections are ignored.
<code>swaplimit</code>	unsigned integer	The amount of total virtual memory limit (in KB) for a job from this queue.
<code>terminate_when</code>	string	Configures the queue to invoke the TERMINATE action instead of the SUSPEND action in the specified circumstance.
<code>ujob_limit</code>	unsigned integer	The per-user job slot limit for the queue. Maximum number of slots that each user can use in this queue.

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Parameter	Type	Description
users	string	A list of users or user groups that can submit jobs to this queue. Use the reserved word all to specify all users.
r15s	string	Built-in load index: run queue length (15 sec average).
r1m	string	Built-in load index: run queue length (1 min average).
r15m	string	Built-in load index: run queue length (15 min average).
it	string	Built-in load index: idle time.
io	string	Built-in load index: disk I/O.
ut	string	Built-in load index: CPU utilization.
mem	string	Built-in load index: available memory (in MB).
pg	string	Built-in load index: pages in + pages out.
tmp	string	Built-in load index: available space in temporary file system (MB).

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Parameter	Type	Description
swp	string	Built-in load index: available swap space (in MB).
ls	string	Built-in load index.

**5.2.252 LSFBaseJob (parent: Job)**

Parameter	Type	Description
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**5.2.253 LSFCgroupsSettings (parent: WlmCgroupsSettings)**

Parameter	Type	Description
resourceEnforce	list of strings	Controls resource enforcement through the Linux cgroup memory and cpuset subsystem on Linux systems with cgroup support (LSB_RESOURCE_ENFORCE)
processTracking	boolean	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)
linuxCgroupAccounting	boolean	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)
jobCgroupTemplate	string	Template for job cgroup path (\$CLUSTER will be replaced to LSF cluster name, \$JOBID will be replaced to job id)

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Parameter	Type	Description
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#### 5.2.254 LSFClientRole (parent: Role)

Parameter	Type	Description
slots	string	Number of slots available on this node/category
queues	list of strings	Queues this node/nodes (in this category) belongs to
allQueues	boolean	When set, the role will provide all available queues (the queues property will then be ignored)
gpus	unsigned integer	Number of gpus
gpuDevices	list of strings	/dev/* available to workload management
server	boolean	Is LSF server (can run jobs)
hostModel	string	Host model (possible values are defined in lsf.shared)
hostType	string	Host type (possible values are defined in lsf.shared)
nodeCustomizations	list of WlmNodeCustomizationEntry	LSF node custom properties

#### 5.2.255 LSFJobQueueStat (parent: LSFBaseJobQueueStat)

Parameter	Type	Description
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#### 5.2.256 LSFJobQueue (parent: LSFBaseJobQueue)

Parameter	Type	Description
fairshare	string	Fairshare scheduling
backfill	string	Backfill scheduling
preemption	string	Preemption scheduling

#### 5.2.257 LSFJob (parent: LSFBaseJob)



Parameter	Type	Description
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### 5.2.258 LSFServerRole (parent: Role)

Parameter	Type	Description
<code>externalServer</code>	boolean	LSF server daemons are running on some external machine
<code>prefix</code>	string	Directory where LSF is installed
<code>var</code>	string	Var directory location
<code>placeholders</code>	list of JobQueuePlaceholder	Job queue node placeholders mode
<code>cgroups</code>	LSFCgroupsSettings	Submode containing LSF related cgroups settings

### 5.2.259 MemcachedRole (parent: Role)

Parameter	Type	Description
<code>includeInHAProxy</code>	boolean	Automatically include the nodes with this role in HAProxy configuration.
<code>frontendHAProxyNames</code>	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
<code>isBackupEndpoint</code>	boolean	
<code>daemonize</code>	boolean	Run memcached as a daemon
<code>port</code>	unsigned integer	Port to listen for the incoming connections
<code>network</code>	reference to Network or None	Network to bind the socket to

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Parameter	Type	Description
bindToLocalInter\faceByDefault	boolean	Used if network is not specified. If enabled, bind only to local interface, otherwise to all available interfaces
connections	unsigned integer	Maximum simultaneous connections
logfile	string	Path to store log file
logLevel	unsigned integer	Log level (max level: 0, min level: 2)
initialMemoryCap	unsigned integer	Memory cap on start
user	string	User to run the memcached
lockMem	boolean	Lock down all paged memory
errorOnExhaust	boolean	Return error when memory is exhausted
maxCoreFile	boolean	Maximize the core file size
enableLogFile	boolean	Enable log file
memGrowthFactor	float	Multiplier for memory growth
minItemSize	unsigned integer	Allocate this minimum memory amount for the item key, value and flags

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Parameter	Type	Description
disableCAS	boolean	Disable CAS
threads	unsigned integer	Number of threads to process incoming connections
useLargePages	boolean	Request large memory pages from OS
otherOptions	string	Coma separated list of other options

**5.2.260 MemoryInfo (parent: Entity)**

Parameter	Type	Description
location	string	Location
speed	string	Speed
size	string	Size
type	string	Type

**5.2.261 MonitoringActionRunData (parent: Entity)**

Parameter	Type	Description
target	unsigned integer	Target node
info	string	Extra information
env	list of strings	Environment

**5.2.262 MonitoringAction (parent: Entity)**

Parameter	Type	Description
name	string	Name

*...continues*

*...continued*

Parameter	Type	Description
runOn	enum	Run the action on
allowedTime	string	Sets time interval during which action is allowed to be executed
disable	boolean	Disable
suppressedByGoingDown	boolean	Suppress running action if device is going down

#### 5.2.263 MonitoringCacheSubSystemInfo (parent: *Entity*)

Parameter	Type	Description
name	string	Name
queued	unsigned integer	Number of samples ready for delivery
pickup	unsigned integer	Number of times data has been picked up
delivered	unsigned integer	Number of samples delivered the last pick up
handled	unsigned integer	Total number of samples handled

#### 5.2.264 MonitoringCategoryListExecutionFilter (parent: *MonitoringExecutionFilter*)

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

#### 5.2.265 MonitoringCategoryListExecutionMultiplexer (parent: *MonitoringExecutionMultiplexer*)

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

#### 5.2.266 MonitoringCompareExpression (parent: *MonitoringExpression*)

Parameter	Type	Description
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Parameter	Type	Description
entities	string	Entities matching the regex, leave empty for all
measurables	string	Measurables matching the regex, leave empty for all
parameters	string	Parameters matching the regex, leave empty for all
op	enum	Operator
grouping	enum	Method to group all matching entity measurable parameter
value	string	Value
useRaw	boolean	Use raw data instead of rate for cumulative metrics

**5.2.267 MonitoringConsolidator (parent: Entity)**

Parameter	Type	Description
name	string	Name
disabled	boolean	Disable, consolidator for all entities. Do not throw away existing data.
consolidators	list of Consolidator	Consolidators

**5.2.268 MonitoringDataCacheSubSystemInfo (parent: Entity)**

Parameter	Type	Description
name	string	Name
size	unsigned integer	First plot request

*...continues*

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Parameter	Type	Description
updates	unsigned integer	Last plot request
requests	unsigned integer	Number of plot requests

#### 5.2.269 **MonitoringDataProducerAggregateNode** (parent: [MonitoringDataProducerInternal](#))

Parameter	Type	Description
maxSampleAge	float	Maximal age of node sample to contribute
excludeNodes	list of references to Node	List of nodes to exclude from the total
excludeCategories	list of references to Category	List of node groups to exclude from the total
excludeNodeGroups	list of references to NodeGroup	List of node groups to exclude from the total

#### 5.2.270 **MonitoringDataProducerAlertLevel** (parent: [MonitoringDataProducerInternal](#))

Parameter	Type	Description
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#### 5.2.271 **MonitoringDataProducerClusterTotal** (parent: [MonitoringDataProducerInternal](#))

Parameter	Type	Description
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#### 5.2.272 **MonitoringDataProducerCMDaemonState** (parent: [MonitoringDataProducerInternal](#))

Parameter	Type	Description
subsystems	list of strings	Subsystems

#### 5.2.273 **MonitoringDataProducerDeviceState** (parent: [MonitoringDataProducerInternal](#))

Parameter	Type	Description
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#### 5.2.274 **MonitoringDataProducerEC2SpotPrices** (parent: [MonitoringDataProducerInternal](#))

Parameter	Type	Description
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#### 5.2.275 **MonitoringDataProducerEthernetSwitch** (parent: [MonitoringDataProducerInternal](#))

Parameter	Type	Description
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#### 5.2.276 MonitoringDataProducerFuture (parent: MonitoringDataProducerInternal)

Parameter	Type	Description
implements	enum	Implements functionality

#### 5.2.277 MonitoringDataProducerGalera (parent: MonitoringDataProducer)

Parameter	Type	Description
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#### 5.2.278 MonitoringDataProducerGenerator (parent: MonitoringDataProducerInternal)

Parameter	Type	Description
generators	list of strings	Generators to define

#### 5.2.279 MonitoringDataProducerGPU (parent: MonitoringDataProducer)

Parameter	Type	Description
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#### 5.2.280 MonitoringDataProducerInternal (parent: MonitoringDataProducer)

Parameter	Type	Description
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#### 5.2.281 MonitoringDataProducerJobMetadata (parent: MonitoringDataProducer)

Parameter	Type	Description
allowPreAllocate	boolean	Allow pre-allocate of monitoring structures, speeds up for large number of jobs. Disable if measurables per node differ a lot
excludeMetrics	list of strings	Exclude metrics by name from collection
includeMetrics	list of strings	Only these metrics will be samples if the set is not empty

#### 5.2.282 MonitoringDataProducerJobQueue (parent: MonitoringDataProducer)

Parameter	Type	Description
includeSlurm	boolean	Include the Slurm queues

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...continues

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Parameter	Type	Description
includeSGE	boolean	Include the SGE queues
includeUGE	boolean	Include the UGE queues
includeTorque	boolean	Include the Torque queues
includePbsPro	boolean	Include the PbsPro queues
includeLSF	boolean	Include the LSF queues
includeOpenLava	boolean	Include the OpenLava queues

### 5.2.283 MonitoringDataProducerJob (parent: [MonitoringDataProducer](#))

Parameter	Type	Description
internal	boolean	Internal
allowPreAllocate	boolean	Allow pre-allocate of monitoring structures, speeds up for large number of jobs. Disable if measurables per node differ a lot
script	string	Script
timeout	unsigned integer	Script timeout
arguments	list of strings	Additional arguments to pass to the script
metricSettings	MonitoringJob\ MetricSettings	Submode containing job metric settings

### 5.2.284 MonitoringDataProducerLua (parent: [MonitoringDataProducer](#))

Parameter	Type	Description
code	string	Lua code

*...continues*



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Parameter	Type	Description
timeout	unsigned integer	Lua timeout

#### 5.2.285 **MonitoringDataProducerMonitoringSystem** (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
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#### 5.2.286 **MonitoringDataProducerOpenStackHealth** (parent: `MonitoringDataProducer`)

Parameter	Type	Description
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#### 5.2.287 **MonitoringDataProducerOpenStack** (parent: `MonitoringDataProducer`)

Parameter	Type	Description
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#### 5.2.288 **MonitoringDataProducerPerpetual** (parent: `MonitoringDataProducer`)

Parameter	Type	Description
script	string	Script
runInBash	boolean	Run the script in a bash session
arguments	list of strings	Additional arguments to pass to the script
format	enum	Expected output format
watch	boolean	Watch script for for changes, and restart

#### 5.2.289 **MonitoringDataProducerPowerDistributionUnit** (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
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#### 5.2.290 **MonitoringDataProducerProcMemInfo** (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
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#### 5.2.291 **MonitoringDataProducerProcMount** (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
includeMedia	boolean	Include media mount points

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Parameter	Type	Description
includeRemote	boolean	Include remote mount points
includeDocker	boolean	Include docker mount points
excludeMountPoints	list of strings	Exclude mount points

#### 5.2.292 **MonitoringDataProducerProcNetDev** (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
excludeIf	list of strings	Exclude interfaces

#### 5.2.293 **MonitoringDataProducerProcNetSnmP** (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
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#### 5.2.294 **MonitoringDataProducerProcPidStat** (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
pid	unsigned integer	PID to sample
process	string	Process

#### 5.2.295 **MonitoringDataProducerProcStat** (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
individualCPU	boolean	Measure individual CPUs

#### 5.2.296 **MonitoringDataProducerProcVMStat** (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
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#### 5.2.297 **MonitoringDataProducerPrometheus** (parent: `MonitoringDataProducer`)

Parameter	Type	Description
urls	list of strings	One or more URLs to try connect to

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Parameter	Type	Description
timeout	unsigned integer	Http get timeout
username	string	Username used in http call
password	string	Password used in http call
https	boolean	https
caPath	string	CA certificate path
privateKeyPath	string	Certificate path
certificatePath	string	Private key path
staleTracking	boolean	Enable automatic tracking of stale metrics
rules	list PrometheusRecordingRule	of Recording rules

#### 5.2.298 MonitoringDataProducerRackSensor (parent: [MonitoringDataProducerInternal](#))

Parameter	Type	Description
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#### 5.2.299 MonitoringDataProducerRecorder (parent: [MonitoringDataProducer](#))

Parameter	Type	Description
query	reference PrometheusQuery or None	to Query to execute
freeQuery	string	Free string query to execute
evaluationTime	string	Evaluation time
stalenessDelay	float	Staleness delay

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Parameter	Type	Description
excludeBright	boolean	Exclude Bright data
excludePrometheus	boolean	Exclude Prometheus data
inputRules	list of PrometheusRecordingRule	Input recording rules
rules	list of PrometheusRecordingRule	Recording rules

### 5.2.300 MonitoringDataProducerScript (parent: [MonitoringDataProducer](#))

Parameter	Type	Description
script	string	Script
timeout	unsigned integer	Script timeout
arguments	list of strings	Additional arguments to pass to the script
format	enum	Expected output format

### 5.2.301 MonitoringDataProducerSingleLineHealthCheckScript (parent: [MonitoringDataProducerSingleLineScript](#))

Parameter	Type	Description
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### 5.2.302 MonitoringDataProducerSingleLineMetricScript (parent: [MonitoringDataProducerSingleLineScript](#))

Parameter	Type	Description
minimum	float	Minimum
maximum	float	Maximum
cumulative	boolean	Cumulative

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Parameter	Type	Description
unit	string	Unit

### 5.2.303 MonitoringDataProducerSingleLineScript (parent: `MonitoringDataProducer`)

Parameter	Type	Description
script	string	Script
typeClass	string	Type class, slash(/) separated for levels
timeout	unsigned integer	Script timeout
arguments	list of strings	Additional arguments to pass to the script
runInBash	boolean	Run the script in a bash session

### 5.2.304 MonitoringDataProducerSmart (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
includeDisks	list of strings	Include disks (regex)

### 5.2.305 MonitoringDataProducerSysBlockStat (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
excludeVirtualDisks	boolean	Exclude virtual disks
excludeDisks	list of strings	Exclude disks

### 5.2.306 MonitoringDataProducerSysInfo (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
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### 5.2.307 MonitoringDataProducerTest (parent: `MonitoringDataProducerInternal`)

Parameter	Type	Description
instances	unsigned integer	Number of instances per test

### 5.2.308 MonitoringDataProducer (parent: `Entity`)

Parameter	Type	Description
name	string	Name
description	string	Description
notes	string	Administrator notes
when	enum	When the producer should run
maxAge	float	Maximal age of historic data, 0 for infinite
maxSamples	unsigned integer	Maximal samples of historic data, 0 for infinite
interval	float	Sampling interval
offset	float	Time offset for sampling interval
gap	unsigned integer	Number of missed samples before we add a NaN
fuzzyOffset	float	Automatic fuzzy offset factor [0-1]. Multiplied by interval
introduceNaN	boolean	Introduce NaN if device goes up/down/up

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Parameter	Type	Description
automaticReinitialize	boolean	Automatic run –initialize when a new metric has been detected
disabled	boolean	Disabled
disableOnHighLoad	boolean	Disable when nodes are very busy
nodeExecutionFilters	list of MonitoringExecutionFilter	Filter nodes which should run this data producer. If none are specified: execute on each node.
executionMultiplexers	list of MonitoringExecutionMultiplexer	Execute the producer once for each entity which matches one of the criteria. If none are specified: only execute it for the node itself.
consolidator	reference to MonitoringConsolidator or None	Consolidator configuration
suppressedByGoingDown	boolean	Suppress running action if device is going down
associatedUser	string	User associated with this measurable

### 5.2.309 MonitoringDataProducerTrustedTool (parent: MonitoringDataProducer)

Parameter	Type	Description
port	unsigned integer	Port
localhost	boolean	Only listen on localhost
secret	string	Secret

### 5.2.310 MonitoringDataProducerUserCount (parent: MonitoringDataProducerInternal)

Parameter	Type	Description
customScript	string	Custom script

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Parameter	Type	Description
customScriptTimeout	unsigned integer	Custom script timeout
minimalUserId	unsigned integer	Minimal user ID
namesInInfoMessage	boolean	Names in info message, could lead to lots of data

#### 5.2.311 MonitoringDeviceStateSubSystemInfo (parent: [Entity](#))

Parameter	Type	Description
name	string	Name
up	unsigned integer	Number of up devices
down	unsigned integer	Number of down devices
closed	unsigned integer	Number of closed devices

#### 5.2.312 MonitoringDrainAction (parent: [MonitoringAction](#))

Parameter	Type	Description
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#### 5.2.313 MonitoringEmailAction (parent: [MonitoringAction](#))

Parameter	Type	Description
recipients	list of strings	Recipients
allAdministrators	boolean	Also send e-mail to all administrator
info	string	Extra information passed in the e-mail

#### 5.2.314 MonitoringEventAction (parent: [MonitoringAction](#))

Parameter	Type	Description
profiles	list of strings	Inform all sessions with the specified profile, none is all

*...continues*



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Parameter	Type	Description
userNames	list of strings	Inform all sessions with the specified user names, none is all

**5.2.315 MonitoringExecutionFilter (parent: Entity)**

Parameter	Type	Description
name	string	Name
filterOperation	enum	The filter operation to be performed

**5.2.316 MonitoringExecutionMultiplexer (parent: Entity)**

Parameter	Type	Description
name	string	Name
filterOperation	enum	The filter operation to be performed

**5.2.317 MonitoringExpression (parent: Entity)**

Parameter	Type	Description
name	string	Name

**5.2.318 MonitoringGroupedExpression (parent: MonitoringExpression)**

Parameter	Type	Description
op	enum	Operator
allowMissing	boolean	Allow missing sub expressions
expressions	list of Expressions MonitoringCompareExpression	

**5.2.319 MonitoringHealthOverview (parent: Entity)**

Parameter	Type	Description
refEntityUniqueKey	unsigned integer	Entity

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Parameter	Type	Description
alertLevelMaximum	unsigned integer	Maximal severity of all failed triggers
alertLevelSum	unsigned integer	Total severity of all failed triggers
alertLevelCount	unsigned integer	Total count of all failed triggers
timestamp	unsigned integer	Timestamp of data
info	string	Info

### 5.2.320 MonitoringImageUpdateAction (parent: [MonitoringAction](#))

Parameter	Type	Description
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### 5.2.321 MonitoringJobMetricSettings (parent: [Entity](#))

Parameter	Type	Description
excludeDevices	list of strings	Exclude block devices from metric collection (by default all the devices are sampled)
includeDevices	list of strings	Only these devices will be sampled if the set is not empty
enableAdvancedMetrics	boolean	Sample advanced metrics as well as basic metrics
excludeMetrics	list of strings	Exclude metrics by name from collection
includeMetrics	list of strings	Only these metrics will be samples if the set is not empty

*...continues*

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Parameter	Type	Description
samplingType	enum	Type of metrics sampling

**5.2.322 MonitoringLuaExecutionFilter** (parent: `MonitoringExecutionFilter`)

Parameter	Type	Description
code	string	Lua code
notes	string	Notes

**5.2.323 MonitoringLuaExecutionMultiplexer** (parent: `MonitoringExecutionMultiplexer`)

Parameter	Type	Description
code	string	Lua code
notes	string	Notes

**5.2.324 MonitoringMeasurableEnum** (parent: `MonitoringMeasurable`)

Parameter	Type	Description
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**5.2.325 MonitoringMeasurableHealthCheck** (parent: `MonitoringMeasurable`)

Parameter	Type	Description
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**5.2.326 MonitoringMeasurableMetric** (parent: `MonitoringMeasurable`)

Parameter	Type	Description
minimum	float	Minimum
maximum	float	Maximum
cumulative	boolean	Cumulative
unit	string	Unit

**5.2.327 MonitoringMeasurable** (parent: `Entity`)

Parameter	Type	Description
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Parameter	Type	Description
producer	reference to MonitoringDataProducer	Monitoring data producer
name	string	Name
parameter	string	Parameter
maxAge	float	Maximal age of historic data, 0 for infinite
maxSamples	unsigned integer	Maximal samples of historic data, 0 for infinite
disabled	boolean	Disable: do not process or save to disk
gap	unsigned integer	Number of missed samples before we add a NaN
introduceNaN	boolean	Introduce NaN if device goes up/down/up
description	string	Description
typeClass	string	Type class, slash(/) separated for levels
sourceType	enum	Source of the measurable
consolidator	reference to MonitoringConsolidator or None	Consolidator configuration
suppressedByGoingDown	boolean	Suppress running action if device is going down
access	enum	User access control
associatedUser	string	User associated with this measurable

### 5.2.328 MonitoringNodeListExecutionFilter (parent: [MonitoringExecutionFilter](#))

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

### 5.2.329 MonitoringNodeListExecutionMultiplexer (parent: [MonitoringExecutionMultiplexer](#))

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

#### 5.2.330 MonitoringOverlayListExecutionFilter (parent: MonitoringExecutionFilter)

Parameter	Type	Description
overlays	list of references to ConfigurationOverlay	List of overlays belonging to this group

#### 5.2.331 MonitoringOverlayListExecutionMultiplexer (parent: MonitoringExecutionMultiplexer)

Parameter	Type	Description
overlays	list of references to ConfigurationOverlay	List of overlays belonging to this group

#### 5.2.332 MonitoringPlotterSubSystemInfo (parent: Entity)

Parameter	Type	Description
name	string	Name
first	unsigned integer	First plot request
last	unsigned integer	Last plot request
count	unsigned integer	Number of plot requests
samples	unsigned integer	Number of data samples
sources	unsigned integer	Number of sources

#### 5.2.333 MonitoringPowerAction (parent: MonitoringAction)

Parameter	Type	Description
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#### 5.2.334 MonitoringPowerOffAction (parent: MonitoringPowerAction)

Parameter	Type	Description
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#### 5.2.335 MonitoringPowerOnAction (parent: MonitoringPowerAction)

Parameter	Type	Description
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#### 5.2.336 MonitoringPowerResetAction (parent: MonitoringPowerAction)

Parameter	Type	Description
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### 5.2.337 MonitoringRebootAction (parent: [MonitoringAction](#))

Parameter	Type	Description
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### 5.2.338 MonitoringReplicateConfiguration (parent: [Entity](#))

Parameter	Type	Description
node	unsigned integer	Node
sources	list of <a href="#">MonitoringReplicateSource</a>	Sources

### 5.2.339 MonitoringReplicateSource (parent: [Entity](#))

Parameter	Type	Description
source	unsigned integer	Source
target	unsigned integer	Target
last	unsigned integer	Last
lastSummary	unsigned integer	Last summary
active	boolean	Active
queue	unsigned integer	Queue
entities	list of unsigned numbers	Entities
measurables	list of unsigned numbers	Measurables

### 5.2.340 MonitoringReplicateSubSystemInfo (parent: [Entity](#))

Parameter	Type	Description
name	string	Name
first	unsigned integer	First request time
last	unsigned integer	Last request time
count	unsigned integer	Request count
samples	unsigned integer	Total number of samples send
sources	list of unsigned numbers	Data request sources

**5.2.341 MonitoringResourceExecutionFilter** (parent: `MonitoringExecutionFilter`)

Parameter	Type	Description
<code>resources</code>	list of strings	Resources
<code>op</code>	enum	Operator

**5.2.342 MonitoringResourceExecutionMultiplexer** (parent: `MonitoringExecutionMultiplexer`)

Parameter	Type	Description
<code>resources</code>	list of strings	Resources
<code>op</code>	enum	Operator

**5.2.343 MonitoringRole** (parent: `Role`)

Parameter	Type	Description
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**5.2.344 MonitoringScriptAction** (parent: `MonitoringAction`)

Parameter	Type	Description
<code>script</code>	string	Script
<code>arguments</code>	list of strings	Arguments
<code>timeout</code>	unsigned integer	Timeout
<code>nodeEnvironment</code>	boolean	Pass the node environment to the script
<code>runInShell</code>	boolean	Run in shell

**5.2.345 MonitoringServiceAction** (parent: `MonitoringAction`)

Parameter	Type	Description
<code>service</code>	string	Service
<code>arguments</code>	list of strings	Arguments

**5.2.346 MonitoringServiceRestartAction** (parent: `MonitoringServiceAction`)

Parameter	Type	Description
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**5.2.347 MonitoringServiceStartAction** (parent: `MonitoringServiceAction`)

Parameter	Type	Description
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#### 5.2.348 MonitoringServiceStopAction (parent: MonitoringServiceAction)

Parameter	Type	Description
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#### 5.2.349 MonitoringServiceSubSystemInfo (parent: Entity)

Parameter	Type	Description
name	string	Name
stopped	boolean	Stopped
suspended	boolean	Suspended
last	unsigned integer	Last sample time
queued	unsigned integer	Queued items
handled	unsigned integer	Handled items
cacheMiss	unsigned integer	Miss cached count

#### 5.2.350 MonitoringShutdownAction (parent: MonitoringAction)

Parameter	Type	Description
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#### 5.2.351 MonitoringStorageSubSystemInfo (parent: Entity)

Parameter	Type	Description
name	string	Name
elements	unsigned integer	Elements
disksize	unsigned integer	Disk size
freespace	unsigned integer	Free disk space

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*...continued*

Parameter	Type	Description
usage	float	Usage

**5.2.352 MonitoringSubSystemInfo (parent: [SubSystemInfo](#))**

Parameter	Type	Description
storage	list	of Storage MonitoringStorageSubSystemInfo
service	list	of Service MonitoringServiceSubSystemInfo
plotter	list	of Plotter MonitoringPlotterSubSystemInfo
dataCache	list	of DataCache MonitoringDataCacheSubSystemInfo
cache	list	of Cache MonitoringCacheSubSystemInfo
replicate	list	of Replicate MonitoringReplicateSubSystemInfo
deviceState	list	of DeviceState MonitoringDeviceStateSubSystemInfo

**5.2.353 MonitoringTrigger (parent: [Entity](#))**

Parameter	Type	Description
name	string	Name
disabled	boolean	Disable
severity	unsigned integer	Severity
markEntityAsFailed	boolean	Mark entity as failed
markEntityAsUnknown	boolean	Mark entity as unknown

*...continues*

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Parameter	Type	Description
stateFlappingPeriod	float	Time period to check for state flapping
stateFlappingCount	unsigned integer	Number of times states need to change in the specified period before it is considered stateflapping
expression	MonitoringExpression	Expression
enterActions	list of references to MonitoringAction	Actions to execute when the expression enters 'true' state
duringActions	list of references to MonitoringAction	Actions to execute when the expression is and has been 'true'
leaveActions	list of references to MonitoringAction	Actions to execute when the expression is was 'true' and no longer is
stateFlappingActions	list of references to MonitoringAction	Actions to execute when the expression is state flapping

#### 5.2.354 MonitoringTypeExecutionFilter (parent: [MonitoringExecutionFilter](#))

Parameter	Type	Description
headNode	boolean	Head node
physicalNode	boolean	Physical node
cloudNode	boolean	Cloud node
virtualNode	boolean	Virtual node
virtualSMPNode	boolean	Virtual SMP node

*...continues*

*...continued*

Parameter	Type	Description
liteNode	boolean	Lite node

### 5.2.355 MonitoringTypeExecutionMultiplexer (parent: MonitoringExecutionMultiplexer)

Parameter	Type	Description
types	list of strings	Types

### 5.2.356 MonitoringUndrainAction (parent: MonitoringAction)

Parameter	Type	Description
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### 5.2.357 MsgQueue (parent: Entity)

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	Node
msqid	integer	Message queue ID
ipcperm	IPCPerm	IPC permissions
size	unsigned integer	Size in bytes
qnum	unsigned integer	Number of messages in the queue

### 5.2.358 MyrinetSwitch (parent: Switch)

Parameter	Type	Description
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### 5.2.359 NetworkAliasInterface (parent: NetworkInterface)

Parameter	Type	Description
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### 5.2.360 NetworkBmcInterface (parent: NetworkInterface)

Parameter	Type	Description
gateway	IP	Gateway IP address, usually the head node's IP on the BMC network.
vlanid	unsigned integer	VLAN ID setting for the BMC card. When set to 0, VLAN capabilities are disabled.
lanchannel	unsigned integer	LAN channel for BMC interface

### 5.2.361 NetworkBondInterface (parent: NetworkInterface)

Parameter	Type	Description
mode	integer	Bonding mode, see bonding.txt in the kernel documentation.
options	string	Options to pass to the bonding driver, see kernel documentation.
interfaces	list of strings	List of interfaces which should be channel-bonded.

### 5.2.362 NetworkBridgeInterface (parent: NetworkInterface)

Parameter	Type	Description
stp	boolean	Spanning Tree Protocol enabled.
forward_delay	unsigned integer	Frame forward delay (in seconds)
interfaces	list of strings	List of interfaces which should be bridged.

### 5.2.363 NetworkConnection (parent: Entity)

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	Node
source	IP	The source IP address
sourcePort	unsigned integer	The source port
destination	IP	The destination IP address
destinationPort	unsigned integer	The destination port

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Parameter	Type	Description
type	enum	The connection type
state	enum	The connection state

**5.2.364 NetworkInterface (parent: Entity)**

Parameter	Type	Description
name	string	The network interface device name
ip	IP	The interfaces IP address
ipv6Ip	IP	The interfaces IPv6 IP address
dhcp	boolean	Get the ip via DHCP, leave ip blank
ipv6Dhcp	boolean	Get the IPv6IP via DHCP, leave IPv6IP blank
bringupduringinstall	enum	Brings up interface during install if on
network	reference to Network or None	Network the interface is connected to
additionalHostnames	list of strings	List of additional hostnames that should resolve to the interfaces IP address
startIf	enum	Only run this service in the specified state

*...continues*

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Parameter	Type	Description
onNetworkPriority	unsigned integer	Priority of DNS resolution queries for the interface on its network
connectedMode	boolean	IB connected mode

**5.2.365 NetworkNetMapInterface (parent: *NetworkInterface*)**

Parameter	Type	Description
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**5.2.366 NetworkPhysicalInterface (parent: *NetworkInterface*)**

Parameter	Type	Description
mac	MAC	The interfaces MAC address
speed	string	The interfaces network speed.
cardtype	string	The type of network interface.

**5.2.367 Network (parent: *Entity*)**

Parameter	Type	Description
name	string	Name
IPv6	boolean	IPv6 enabled
ipv6NetmaskBits	unsigned integer	Netmask or Classless Inter-Domain Routing for IPv6
netmaskBits	unsigned integer	Netmask or Classless Inter-Domain Routing
ipv6BaseAddress	IP	Base IP address for Ipv6

*...continues*

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Parameter	Type	Description
baseAddress	IP	Base IP address
broadcastAddress	IP	Broadcast IP address
domainName	string	Domain name
type	enum	Type of network, internal: local cluster network, external: connection to outside world, global: unique network accros the cloud, tunnel: cloud network, netmap: virtual network user by cloud nodes to connect to nodes inside the cluster
mtu	unsigned integer	The maximum transmission unit.
bootable	boolean	If set compute nodes can boot using this network
dynamicRangeStart	IP	First IP address in the networks dynamic range
dynamicRangeEnd	IP	Last IP address in the networks dynamic range
lockDownDhcpd	boolean	Don't respond to dhcp request of new nodes via this network
management	boolean	If set, the network can be used as a management network

*...continues*

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Parameter	Type	Description
gateway	IP	Gateway
ipv6Gateway	IP	IPv6 Gateway
notes	string	Administrator notes
openStackType	enum	
openStackDNSFormat	string	DNS entry format for instances with floating ip assigned
openStackIsShared	boolean	
openStackAllocation\ PoolStart	IP	
openStackAllocation\ PoolEnd	IP	
openStackVlanRange	string	
openStackVlanID	integer	
openStackHostNetwork	reference to Network or None	
openStackPhysical\ Network	string	
openStackExtraField	list of strings	extra field2

*...continues*



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Parameter	Type	Description
cloudSubnetID	string	The Cloud ID of the subnet
EC2AvailabilityZone	string	The AWS availability zone inside which the subnet exists
EC2String	string	
allowAutosign	enum	Specify if certificate request from node installers can be signed automatically
generatedDNSZone	enum	Specify which DNS zones should be written
excludeFromSearch\ Domain	boolean	Exclude from search domain in /etc/resolv.conf file
searchDomainIndex	unsigned integer	Search domain index in /etc/resolv.conf file, set to 0 for automatic

### 5.2.368 NetworkTunnelInterface (parent: NetworkInterface)

Parameter	Type	Description
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### 5.2.369 NetworkVLANInterface (parent: NetworkInterface)

Parameter	Type	Description
reorder_hdr	boolean	When set to true the VLAN device will move the ethernet header around to make it look exactly like a real ethernet device.

### 5.2.370 NewNode (parent: Entity)

Parameter	Type	Description
switchPort	SwitchPort or None	Switch port the new node is connected to.
mac	MAC	MAC address of the new node.
firstSeen	integer	Uptime when the new node was first seen.
lastSeen	integer	Uptime when the new node was last seen.
appeared	string	Timestamp when the new node first appeared.

### 5.2.371 NginxRole (parent: Role)

Parameter	Type	Description
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### 5.2.372 NodeCgroupsInfo (parent: Entity)

Parameter	Type	Description
cgroups	list of Cgroup	

### 5.2.373 NodeGroup (parent: Entity)

Parameter	Type	Description
name	string	Name
nodes	list of references to Node	List of nodes belonging to this group
type	enum	Node group type
firstSeenTime	timestamp	Time at which this nodegroup was found and added automatically (reserved for future use)
lastSeenTime	timestamp	Time at which this nodegroup was last found and added automatically (reserved for future use)

### 5.2.374 Node (parent: Device)

Parameter	Type	Description
cmdaemonUrl	string	
interfaces	list of NetworkInterface	Ip on the management network
provisioningInterface	element of interfaces	Network interface on which the node will receive software image updates
fsmounts	list of FSMount	Configure the entries placed in /etc/fstab
fsexports	list of FSExport	Configure the entries placed in /etc/exports

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Parameter	Type	Description
staticRoutes	list of StaticRoute	Configure static routes for the interfaces
roles	list of Role	Assign the roles the node should play
services	list of OSServiceConfig	Manage operating system services
pxelabel	string	PXE Label to be displayed when this node boots
customRemoteConsole\ Script	string	Script that will be used to remote console a device
customRemoteConsole\ ScriptArgument	string	Argument for the custom remote console script
provisioningTransport	enum	Defines what transport protocol should be used for provisioning. Options are RSYNCSSH or RSYNCAEMON. The latter is the default, is a bit less secure but faster.
cpuspeedGovernor	string	Current governor for frequency scaling
gpuSettings	list of GPUSettings	Configure the GPUs
ucsInfoConfigured	UCSInfo or None	Configure UCS Settings
dellSettings	DellSettings or None	Dell Settings

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Parameter	Type	Description
excludeListManipulateScript	string	A user defined script that can be used to do custom last minute changes to the exclude lists used by cmdaemon to rsync
ioScheduler	string	The I/O scheduler for the disks
useExclusivelyFor	string	Use node exclusively for desired function: stop all other services
bmcSettings	BMCSettings or None	Configure the baseboard management controller settings
proxySettings	ProxySettings or None	Configure the proxy server settings
versionConfigFiles	boolean	Keep old versions of all config files for this node

#### 5.2.375 NvidiaGPUSettings (parent: GPUSettings)

Parameter	Type	Description
powerLimit	string	An upper limit on how much power a GPU can use
eccMode	string	Set the ECC mode in which the GPU runs
computeMode	string	Set the compute mode in which the GPU runs
clockSyncBoostMode	string	Set the clock sync boost among the GPUs in group
clockSpeeds	string	Set the streaming multiprocessor/memory clock speed of the GPU

#### 5.2.376 OpenLavaCgroupsSettings (parent: WlmCgroupsSettings)

Parameter	Type	Description
bindCpu	boolean	Enable this parameter to bind processes to CPU cores (SBD_BIND_CPU)
jobCgroupTemplate	string	Template for job cgroup path (\$CLUSTER will be replaced to LSF cluster name, \$JOBID will be replaced to job id)

#### 5.2.377 OpenLavaClientRole (parent: Role)

Parameter	Type	Description
slots	string	Number of slots available on this node/category
queues	list of strings	Queues this node/nodes (in this category) belongs to
allQueues	boolean	When set, the role will provide all available queues (the queues property will then be ignored)
gpus	unsigned integer	Number of gpus
gpuDevices	list of strings	/dev/* available to workload management
nodeCustomizations	list of WlmNodeCustomizationEntry	Openlava node custom properties

### 5.2.378 OpenLavaJobQueueStat (parent: LSFBaseJobQueueStat)

Parameter	Type	Description
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### 5.2.379 OpenLavaJobQueue (parent: LSFBaseJobQueue)

Parameter	Type	Description
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### 5.2.380 OpenLavaJob (parent: LSFBaseJob)

Parameter	Type	Description
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### 5.2.381 OpenLavaServerRole (parent: Role)

Parameter	Type	Description
externalServer	boolean	openlava server daemons are running on some external machine
prefix	string	Directory where openlava is installed
var	string	Var directory location
placeholders	list of JobQueuePlaceholder	Job queue node placeholders mode

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Parameter	Type	Description
cgroups	OpenLavaCgroups\ Settings	Submode containing openlava related cgroups settings

### 5.2.382 OpenStackApiAgent (parent: [OpenStackApiEntity](#))

Parameter	Type	Description
serviceType	string	The type of the service, e.g. compute, networking.
binary	string	The name of the binary/process representing the agent.
host	string	The host running the service.
currentState	string	The current state of the agent.
lastSeen	string	The last time this agent reported itself to be alive.
availabilityZone	string	In which AZ this agent is located (not applicable to all agents).
status	string	The status of the service.
extra	string	Additional information about the service.

### 5.2.383 OpenStackApiDomain (parent: [OpenStackApiEntity](#))

Parameter	Type	Description
enabled	boolean	Whether the domain is enabled in OpenStack.
description	string	Human-readable description of the domain.

**5.2.384 OpenStackApiEndpoint (parent: OpenStackApiEntity)**

Parameter	Type	Description
serviceUUID	string	Service
interface	enum	Type of endpoint
url	string	URL of the endpoint
region	string	Region of the endpoint
enabled	boolean	Can be used by the user to disable endpoint
brightManaged	boolean	
brightManagedInfo	string	

**5.2.385 OpenStackApiEntity (parent: Entity)**

Parameter	Type	Description
name	string	The name of this OpenStack object.
UUID	string	The unique identifier of the object.
ownerUniqueKey	unsigned integer	
addedFromBright	boolean	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).
addedTimestamp	timestamp	The time when the object was first created within CMDaemon. The creation might have happened either directly via Bright's API (e.g. via cms), or by the object being discovered by CMDaemon in OpenStack).

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Parameter	Type	Description
lastUpdateFromOpenStackTimestamp	timestamp	The last time some changes in the object were pulled from OpenStack to be stored in CMDaemon.
lastUpdateFromBrightTimestamp	timestamp	The last time this object was modified via Bright APIs (as opposed to being modified directly in OpenStack).

### 5.2.386 OpenStackApiFlavor (parent: OpenStackApiEntity)

Parameter	Type	Description
disk	unsigned integer	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.
ephemeral	unsigned integer	Size of the ephemeral disk of a VM. Optional. This block device is managed by Nova.
swap	unsigned integer	Size of the swap disk of a VM. This block device is managed by Nova.
vcpus	unsigned integer	Number of virtual CPUs a VM will have
ram	unsigned integer	The amount of system memory (RAM) the VM will have
rxTxFactor	float	Receive/transmit factor

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Parameter	Type	Description
isPublic	boolean	Whether the flavor will be visible to everyone
enabled	boolean	Whether the flavor is enabled
extraSpecs	string	A dictionary containing custom extra specifications for the flavor
deleted	boolean	Whether this flavor has been marked as deleted in Nova
projectUUIDs	list of strings	The list of projects which have access to this Flavor

### 5.2.387 OpenStackApiFloatingIP (parent: OpenStackApiEntity)

Parameter	Type	Description
portUUID	string	The OpenStack port associated with this floating IP.
routerUUID	string	The OpenStack router associated with this floating IP.
projectUUID	string	The OpenStack project which owns this floating IP.
floatingNetworkUUID	string	The OpenStack network which provided this IP.
floatingIPAddress	string	The floating IP address.
fixedIPAddress	string	The fixed IP address.

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Parameter	Type	Description
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### 5.2.388 OpenStackApiGroup (parent: OpenStackApiEntity)

Parameter	Type	Description
description	string	String describing the API group
domainUUID	string	The OpenStack domain which owns this OpenStack group

### 5.2.389 OpenStackApiHostAggregate (parent: OpenStackApiEntity)

Parameter	Type	Description
originalID	unsigned integer	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.
hosts	list of strings	Names of hosts in this aggregate
availabilityZone	string	If this host aggregate is to define a nova availability nova, define the name of that zone here.
deleted	boolean	
metadata	string	A JSON containing the metadata associated with the host aggregate.
updateFromRoles	boolean	
nodes	list of references to ComputeNode	Nodes in this aggregate

### 5.2.390 OpenStackApiHypervisor (parent: OpenStackApiEntity)

Parameter	Type	Description
type	string	The type of the hypervisor.

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Parameter	Type	Description
freeDisk	unsigned integer	Free disk space available.
freeRam	unsigned integer	Free RAM available.
localStorage	unsigned integer	Total size of local storage.
localStorageUsed	unsigned integer	Amount of local storage being used.
memory	unsigned integer	Amount of RAM
memoryUsed	unsigned integer	Amount of RAM being used.
runningVMs	unsigned integer	Number of VMs running on the host.
vcpus	unsigned integer	Number of VCPUs available in this host (this number does not include overallocation).
vcpusUsed	unsigned integer	Number of VCPUs being used.
currentWorkload	unsigned integer	Current workload, as reported by OpenStack.
status	string	Current status of the hypervisor.
state	string	Current state (UP/DOWN) of the hypervisor.
ip	IP	IP address of the hypervisor.
cpuInfo	string	CPU information.

### 5.2.391 OpenStackApilImage (parent: OpenStackApiEntity)

Parameter	Type	Description
projectUUID	string	The OpenStack project which owns the image.

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Parameter	Type	Description
containerFormat	string	Container format of the image file.
diskFormat	string	Disk format of the image.
createdAt	string	When the image was added to OpenStack.
updatedAt	string	When the image was last updated in OpenStack.
visibility	string	Visibility status of the image.
isProtected	boolean	Whether the image is protected from accidental removal. Protected images cannot be removed.
minDisk	unsigned integer	Minimum amount of root disk space a flavor has to provide in order to be able to run this image.
minRam	unsigned integer	Minimum amount of RAM a flavor has to provide in order to be able to run this image.
file	string	Name of the image file.
size	unsigned integer	Size of the image file.
tags	list of strings	Image tags applied to the image. OpenStack allows to e.g. list images based on certain tags.

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
propertyArchitecture	string	Optional property.
propertyHypervisor\ Type	string	Optional property.
propertyInstanceUUID	string	Optional property.
propertyImgConfig\ Drive	string	Optional property.
propertyKernelID	string	Optional property.
propertyOSDistro	string	Optional property.
propertyOSVersion	string	Optional property.
propertyRamdiskID	string	Optional property.
propertyVMMMode	string	Optional property.
propertyHWDiskBus	string	Optional libvirt-specific property.
propertyHWRngModel	string	Optional libvirt-specific property.
propertyHWMachineType	string	Optional libvirt-specific property.

*...continues*

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Parameter	Type	Description
propertyHWSCSIModel	string	Optional libvirt-specific property.
propertyHWSerialPort\ Count	unsigned integer	Optional libvirt-specific property.
propertyHWVideoModel	string	Optional libvirt-specific property.
propertyHWVideoRam	unsigned integer	Optional libvirt-specific property.
propertyOSCommandLine	string	Optional libvirt-specific property.
propertyHWVifModel	string	Optional libvirt-specific property.
propertyOSType	string	Optional property.
propertyAutoDisk\ Config	string	Optional property.

### 5.2.392 OpenStackApiNetwork (parent: OpenStackApiEntity)

Parameter	Type	Description
projectUUID	string	OpenStack project owning this network.
subnetUUIDs	list of strings	OpenStack subnets contained in this Network.
status	string	Operational status of the network.
providerNetworkType	string	Provider network type.
providerPhysical\ Network	string	Name of the underlying provider network.
providerSegmentation\ ID	integer	Segmentation ID (e.g. VLAN or VXLAN ID).

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Parameter	Type	Description
routerExternal	boolean	Whether or not the network is to be considered as an external network.
shared	boolean	Whether everyone can see this network and create ports on it.
adminStateUp	boolean	Administrative state of the network.
MTU	unsigned integer	Maximum transfer unit on layer-2.

### 5.2.393 OpenStackApiPort (parent: [OpenStackApiEntity](#))

Parameter	Type	Description
macAddress	string	The (layer-2) MAC address of the port.
status	string	Current status of the port.
adminStateUp	boolean	Administrative state of the port.
deviceOwner	string	Device which owns the port.
projectUUID	string	The OpenStack project which owns the port.
deviceUUID	string	The OpenStack Device which owns the port.
networkUUID	string	The OpenStack network on which the port is located.

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Parameter	Type	Description
securityGroupUUIDs	list of strings	Security groups applied to the port.
bindingHostUUID	string	Binding host.
bindingVifType	string	Binding vif type.
bindingVnicType	string	Binding vnic type.
ips	list of OsapiPortIP	IP addresses active on the port

### 5.2.394 OpenStackApiProject (parent: OpenStackApiEntity)

Parameter	Type	Description
description	string	The custom description of the project.
enabled	boolean	Whether or not the project is enabled and can be used by users.
domainUUID	string	The OpenStack domain which owns this project. Domains are top-level projects.
parentProjectUUID	string	The parent OpenStack project.
brightManaged	boolean	Whether the project was created from within Bright APIs.
internal	boolean	Whether the project is designated for internal use by OpenStack.

*...continues*



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Parameter	Type	Description
removed	boolean	Whether the project has been marked as removed from OpenStack.
removeTime	timestamp	The time at which the project has been removed.
motd	string	Message of the day.
quotaInstances	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaVCPUs	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaRam	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaInjectedFiles	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaInjectedFile\ Content	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaVolumes	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaVolumeSnapshots	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.

*...continues*

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Parameter	Type	Description
quotaTotalSizeOf\ VolumesAndSnapshots	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaSecurityGroups	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaSecurityGroup\ Rules	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaFloatingIPs	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaNetworks	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaPorts	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaSubnets	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.
quotaRouters	unsigned integer	The maximum number of object of this type which can be owned simultaneously by the project.

### 5.2.395 OpenStackApiRoleAssignment (parent: [OpenStackApiEntity](#))

Parameter	Type	Description
projectUUID	string	The role needs to be assigned within either a Project or to a Domain (which, in keystone, internally are top-level projects).
domainUUID	string	The role needs to be assigned within either a Project or to a Domain (which, in keystone, internally are top-level projects).

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Parameter	Type	Description
userUUID	string	The role (within a Project or Domain) needs to be assigned to either a OpenStack User or a OpenStack user group.
groupUUID	string	The role (within a Project or Domain) needs to be assigned to either a OpenStack User or a OpenStack user group.
roleUUID	string	This UUID does not really exists in OpenStack. Role assignment are one of the few OpenStack objects which does not have a real UUID.

**5.2.396 OpenStackApiRole (parent: OpenStackApiEntity)**

Parameter	Type	Description
domainUUID	string	

**5.2.397 OpenStackApiRouter (parent: OpenStackApiEntity)**

Parameter	Type	Description
status	string	Current status of the router
adminStateUp	boolean	Administrative state of the router (can be used to bring the router down temporarily)
projectUUID	string	Project owning the router
externalGateway\ NetworkUUID	string	OpenStack network object which is this router's external network
externalGateway\ EnableSNAT	boolean	Whether or not this router should have SNAT enabled

*...continues*

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Parameter	Type	Description
host	string	Network node hosting the router
ha	tri-boolean	Whether that's a Highly Available router

### 5.2.398 OpenStackApiSecurityGroup (parent: [OpenStackApiEntity](#))

Parameter	Type	Description
description	string	The description.
projectUUID	string	The OpenStack project which owns this security group.
rules	list of <a href="#">OsapiSecurityGroup\Rule</a>	The set of OpenStack security group rules which compose this security group.

### 5.2.399 OpenStackApiServer (parent: [OpenStackApiEntity](#))

Parameter	Type	Description
projectUUID	string	OpenStack project which owns this server.
userUUID	string	OpenStack user which owns this server.
hostUUID	string	OpenStack host which hosts this server.
flavorUUID	string	OpenStack flavor used for this server.
imageUUID	string	OpenStack image used for this server.
status	string	Current status of the server.

*...continues*

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Parameter	Type	Description
vmState	string	Current status of the VM.
createdAt	string	The date when the server was first created.
updatedAt	string	Last update date.
launchedAt	string	The last time this server was started.
host	string	Name of the host, which hosts the server.
hypervisorHostname	string	Hypervisor name.
instanceName	string	The name of the VM instance which represents this server.
availabilityZone	string	The name of availability zone in which the server is located.
faultCreatedAt	string	The time the fault status was created.
faultDetails	string	Details of the fault.
faultMessage	string	The error message.
defaultHost	reference ComputeNode	to Default host for this instance

*...continues*

*...continued*

Parameter	Type	Description
securityGroupUUIDs	list of strings	OpenStack security groups associated with this server.

#### 5.2.400 OpenStackApiService (parent: OpenStackApiEntity)

Parameter	Type	Description
description	string	The description of the service
enabled	boolean	Whether or not the service is enabled
type	string	The type of the service

#### 5.2.401 OpenStackApiStack (parent: OpenStackApiEntity)

Parameter	Type	Description
projectUUID	string	Reserved for future use.
createdAt	string	Reserved for future use.
updatedAt	string	Reserved for future use.
status	string	Reserved for future use.
statusReason	string	Reserved for future use.
theParent	string	Reserved for future use.
owner	string	Reserved for future use.

*...continues*

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Parameter	Type	Description
description	string	Reserved for future use.
templateDescription	string	Reserved for future use.
resources	list of OsapiStackResource	Reserved for future use.

#### 5.2.402 OpenStackApiSubnet (parent: [OpenStackApiEntity](#))

Parameter	Type	Description
enableDHCP	boolean	Determines whether OpenStack should run DHCP server on this subnet.
networkUUID	string	The OpenStack network which contains the subnet.
projectUUID	string	The OpenStack project which owns the subnet.
DNSNameservers	list of strings	DNS name servers advertised by the DHCP server on this subnet.
IPVersion	enum	IP Protocol version.
CIDR	string	The CIDR defining the subnet, for example: 10.42.0.0/16.
allocationPools	list of OsapiSubnet\ AllocationPool	List if IP ranges used for dynamically assigned IPs on this subnet (via DHCP). For external networks, this defines the floating IP range.

*...continues*

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Parameter	Type	Description
gatewayIP	IP	IP of the gateway for this network.

#### 5.2.403 OpenStackApiUser (parent: [OpenStackApiEntity](#))

Parameter	Type	Description
description	string	The description.
email	string	Email address of the user.
domainUUID	string	The domain which owns this user.
defaultProjectUUID	string	The default project of this user. User should have a role within this project.
password	string	The password of this user.
enabled	boolean	Whether the user is active and can log in.
groupUUIDs	list of strings	OpenStack groups this user is part of.

#### 5.2.404 OpenStackApiVolumeSnapshot (parent: [OpenStackApiEntity](#))

Parameter	Type	Description
description	string	The description of the volume snapshot.
status	string	Current status of the snapshot.
createdAt	string	When has the volume snapshot been created.
size	unsigned integer	The total size of the snapshot.

*...continues*



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Parameter	Type	Description
volumeUUID	string	A OpenStack volume related to this volume snapshot.
projectUUID	string	The OpenStack project which owns this volume snapshot.

#### 5.2.405 OpenStackApiVolume (parent: OpenStackApiEntity)

Parameter	Type	Description
description	string	The description
availabilityZone	string	The availability zone where the volume is stored.
status	string	The current status of the volume
createdAt	string	When the volume was created by Cinder.
size	unsigned integer	Size of the volume.
volumeTypeUUID	string	OpenStack volume type of this volume.
projectUUID	string	The OpenStack project which owns this volume.
encrypted	boolean	Whether the volume is encrypted.
userUUID	string	OpenStack user which created this volume.

*...continues*

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Parameter	Type	Description
bootable	string	Whether the volume can be used to boot a new VM.
snapshotUUID	string	OpenStack volume snapshot associated with this volume.
sourceVolumeUUID	string	If set, this is the volume which was the source for this volume.
attachmentDevice	string	Attachment device.
attachmentHostname	string	Attachment hostname.
attachmentUUID	string	Attachment UUID.
attachmentServerUUID	string	Attachment server.
attachmentVolumeUUID	string	Attachment volume UUID.
metadataAttachedMode	string	Metadata attached mode.
metadataReadOnly	string	Metadata readonly.

#### 5.2.406 **OpenStackApiVolumeType** (parent: [OpenStackApiEntity](#))

Parameter	Type	Description
extraSpecs	string	A JSON string containing any extra, custom, fields for this volume type.
isPublic	boolean	Whether this type is visible to all Projects
projectUUIDs	list of strings	Projects with access

#### 5.2.407 **OpenStackAuthBackendHybrid** (parent: [OpenStackAuthBackend](#))

Parameter	Type	Description
defaultRoles	list of strings	Roles for users signed via LDAP

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Parameter	Type	Description
defaultProject	string	Project for users signed via LDAP
defaultDomain	string	Domain for users signed via LDAP

#### 5.2.408 OpenStackAuthBackendLDAPGroupSettings (parent: [Entity](#))

Parameter	Type	Description
treeDn	string	Search base for groups
filter	string	LDAP search filter for groups
objectClass	string	LDAP objectclass for groups
idAttribute	string	LDAP attribute mapped to group id
nameAttribute	string	LDAP attribute mapped to group name
memberAttribute	string	LDAP attribute mapped to show group membership
descAttribute	string	LDAP attribute mapped to group description
ignoredAttributes	list of strings	List of attributes stripped off the group on update
allowCreate	boolean	Allow group creation in LDAP backend

*...continues*

*...continued*

Parameter	Type	Description
allowUpdate	boolean	Allow group updates in LDAP backend
allowDelete	boolean	Allow group deletion in LDAP backend
additionalAttribute\ Mappings	list of strings	List of additional LDAP attributes used for mapping additional attribute mappings for groups. Attribute mapping format is [LDAP Attr]>:[Group Attr]

#### 5.2.409 OpenStackAuthBackendLDAPProjectSettings (parent: *Entity*)

Parameter	Type	Description
treeDn	string	Search base for projects
filter	string	LDAP search filter for projects
objectClass	string	LDAP objectclass for projects
idAttribute	string	LDAP attribute mapped to project id
memberAttribute	string	LDAP attribute mapped to show project membership
nameAttribute	string	LDAP attribute mapped to project name
descAttribute	string	LDAP attribute mapped to project description
enabledAttribute	string	LDAP attribute mapped to project enabled flag

*...continues*

*...continued*

Parameter	Type	Description
domainIdAttribute	string	LDAP attribute mapped to project domain id
ignoredAttributes	list of strings	List of attributes stripped off the project on update
allowCreate	boolean	Allow project creation in LDAP backend
allowUpdate	boolean	Allow project updates in LDAP backend
allowDelete	boolean	Allow project deletion in LDAP backend
enabledEmulation	boolean	Alternative method to determine if a project is enabled or not by checking if they are a member of the 'enabled emulation dn' group
enabledEmulationDn	string	DN of the group entry to hold enabled projects when using enabled emulation
additionalAttribute\ Mappings	list of strings	List of additional LDAP attributes used for mapping additional attribute mappings for projects. Attribute mapping format is [LDAP Attr]>:[Project Attr]

#### 5.2.410 OpenStackAuthBackendLDAPRoleSettings (parent: `Entity`)

Parameter	Type	Description
treeDn	string	Search base for roles
filter	string	LDAP search filter for roles
objectClass	string	LDAP objectclass for roles
idAttribute	string	LDAP attribute mapped to role id

*...continues*

*...continued*

Parameter	Type	Description
nameAttribute	string	LDAP attribute mapped to role name
memberAttribute	string	LDAP attribute mapped to show role membership
ignoredAttributes	list of strings	List of attributes stripped off the role on update
allowCreate	boolean	Allow role creation in LDAP backend
allowUpdate	boolean	Allow role updates in LDAP backend
allowDelete	boolean	Allow role deletion in LDAP backend
additionalAttribute\ Mappings	list of strings	List of additional LDAP attributes used for mapping additional attribute mappings for roles. Attribute mapping format is [LDAP Attr]>:[Role Attr]

#### 5.2.411 OpenStackAuthBackendLDAP (parent: [OpenStackAuthBackend](#))

Parameter	Type	Description
useSqlBackendFor\ Assignmentss	boolean	Use SQL backend for project and role management
url	string	URL for connecting to the LDAP server
username	string	User BindDN to query the LDAP server
password	string	Password for BindDN to query the LDAP server
suffix	string	LDAP server suffix

*...continues*

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Parameter	Type	Description
<code>useDumbMember</code>	boolean	If true, will add a dummy member to groups. This is required if the objectclass for groups requires the 'member' attribute.
<code>dumbMember</code>	string	DN of the 'dummy member' to use
<code>allowSubtreeDelete</code>	boolean	Delete subtrees using the subtree delete control
<code>queryScope</code>	enum	The LDAP scope for queries
<code>aliasDereferencing</code>	enum	The LDAP dereferencing option for queries
<code>chaseReferrals</code>	boolean	Referral chasing behavior for queries
<code>tls</code>	boolean	Enable TLS for communicating with LDAP servers
<code>ca</code>	string	CA certificate file path for communicating with LDAP servers
<code>caDir</code>	string	CA certificate directory path for communicating with LDAP servers
<code>userSettings</code>	<code>OpenStackAuthBack\endLDAPUserSettings</code>	User-related LDAP backend settings
<code>groupSettings</code>	<code>OpenStackAuthBack\endLDAPGroupSettings</code>	Group-related LDAP backend settings

*...continues*

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Parameter	Type	Description
projectSettings	OpenStackAuthBack\ endLDAPProjectSettings	Project-related LDAP backend settings
roleSettings	OpenStackAuthBack\ endLDAPRoleSettings	Role-related LDAP backend settings
sqlBackend	OpenStackAuthBack\ endSQL	SQL Backend settings
useConnectionPool	boolean	Enable LDAP connection pooling
connectionPoolSize	unsigned integer	Connection pool size
connectionPool\ Lifetime	unsigned integer	Connection lifetime in seconds
useAuthPool	boolean	Enable LDAP connection pooling for end user authentication
authPoolSize	unsigned integer	End user auth connection pool size
authPoolLifetime	unsigned integer	End user auth connection lifetime in seconds

#### 5.2.412 OpenStackAuthBackendLDAPUserSettings (parent: [Entity](#))

Parameter	Type	Description
treeDn	string	Search base for users
filter	string	LDAP search filter for users
objectClass	string	LDAP objectclass for users
idAttribute	string	LDAP attribute mapped to user id
nameAttribute	string	LDAP attribute mapped to user name

*...continues*



*...continued*

Parameter	Type	Description
mailAttribute	string	LDAP attribute mapped to user email
passwordAttribute	string	LDAP attribute mapped to user password
enabledAttribute	string	LDAP attribute mapped to user enabled flag
enabledAttribute\ Inverted	boolean	Invert the meaning of the boolean enabled values
groupMemberMapped\ Attribute	string	LDAP attribute mapped to group member value
enabledMask	unsigned integer	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.
enabledDefault	string	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.
ignoredAttributes	list of strings	List of attributes stripped off the user on update
defaultProjectId\ Attribute	string	LDAP attribute mapped to default_project_id for users
allowCreate	boolean	Allow user creation in LDAP backend

*...continues*

*...continued*

Parameter	Type	Description
allowUpdate	boolean	Allow user updates in LDAP backend
allowDelete	boolean	Allow user deletion in LDAP backend
enabledEmulation	boolean	Alternative method to determine if a user is enabled or not by checking if they are a member of the 'enabled emulation dn' group
enabledEmulationDn	string	DN of the group entry to hold enabled users when using enabled emulation
additionalAttribute\ Mappings	list of strings	List of additional LDAP attributes used for mapping additional attribute mappings for users. Attribute mapping format is [LDAP Attr]:[User Attr]

#### 5.2.413 OpenStackAuthBackendSQL (parent: [OpenStackAuthBackend](#))

Parameter	Type	Description
database	string	
username	string	
password	string	
hostname	string	

#### 5.2.414 OpenStackAuthBackend (parent: [Entity](#))

Parameter	Type	Description
name	string	Backend Name
identityDriver	string	Driver to use for authentication
assignmentDriver	string	Driver to use for authentication

*...continues*

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Parameter	Type	Description
domain	string	Domain to be served by this backend

#### 5.2.415 OpenStackBareMetalApiRole (parent: [Role](#))

Parameter	Type	Description
includeInHAProxy	boolean	Automatically include the nodes with this role in HAProxy configuration.
frontendHAProxyNames	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
isBackupEndpoint	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).
network	reference to <a href="#">Network</a>	Network on which API endpoints listens.
apiPort	unsigned integer	This field can be used to override the default port this service will listen on.
extraStringList	list of strings	Number of worker threads.

#### 5.2.416 OpenStackBareMetalConductorRole (parent: [Role](#))

Parameter	Type	Description
extraStringList	list of strings	Reserved for future use

#### 5.2.417 OpenStackBareMetalDiscoverdDNsmasqRole (parent: [Role](#))

Parameter	Type	Description
extraStringList	list of strings	Reserved for future use.

#### 5.2.418 OpenStackBareMetalDiscoverdRole (parent: [Role](#))

Parameter	Type	Description
extraStringList	list of strings	Reserved for future use.

#### 5.2.419 OpenStackBlockStorage (parent: [OpenStackStorage](#))

Parameter	Type	Description
volumeUUID	string	Volume UUID assigned by OpenStack
size	unsigned integer	Size
persistent	boolean	Persistent storage will not be removed when instance is removed
creationTime	timestamp	Time of creation in EC2
status	string	Status of volume in OpenStack
extraBool	boolean	
extraStringList	list of strings	
extraKey	unsigned integer	

#### 5.2.420 OpenStackComputeApiEC2Role (parent: `Role`)

Parameter	Type	Description
includeInHAProxy	boolean	Automatically include the nodes with this role in HAProxy configuration.
frontendHAProxyNames	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
isBackupEndpoint	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

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Parameter	Type	Description
network	reference to Network	Network on which API endpoints listens.
apiPort	unsigned integer	This field can be used to override the default port this service will listen on.
workers	unsigned integer	Number of worker threads.

#### 5.2.421 OpenStackComputeApiMetadataRole (parent: Role)

Parameter	Type	Description
includeInHAProxy	boolean	Automatically include the nodes with this role in HAProxy configuration.
frontendHAProxyNames	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
isBackupEndpoint	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).
network	reference to Network	Network on which api listens
apiPort	unsigned integer	This field can be used to override the default port this service will listen on.
workers	unsigned integer	Number of worker threads.

#### 5.2.422 OpenStackComputeApiPlacementRole (parent: Role)

Parameter	Type	Description
includeInHAProxy	boolean	Automatically include the nodes with this role in HAProxy configuration.

*...continues*

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Parameter	Type	Description
frontendHAProxyNames	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
isBackupEndpoint	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).
network	reference to Network	Network on which API endpoints listens.
apiPort	unsigned integer	This field can be used to override the default port this service will listen on.
workers	unsigned integer	Number of worker threads.

#### 5.2.423 OpenStackComputeApiRole (parent: Role)

Parameter	Type	Description
includeInHAProxy	boolean	Automatically include the nodes with this role in HAProxy configuration.
frontendHAProxyNames	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
isBackupEndpoint	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).
network	reference to Network	Network on which API endpoints listens.
apiPort	unsigned integer	This field can be used to override the default port this service will listen on.

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Parameter	Type	Description
workers	unsigned integer	Number of worker threads.
memcachedServers	list of strings	Coma separated list of endpoints
autoResolveLocal\ Memcached	boolean	If 'Memcached servers' is not specified, but there is a local memcached, then use it
notifyApiFaults	boolean	
maxLimit	unsigned integer	Max number of objects nova-api returns in one page of results.

#### 5.2.424 OpenStackComputeConductorRole (parent: Role)

Parameter	Type	Description
workersCount	unsigned integer	Number of workers for the OpenStack Conductor service. Zero value - use all available cpus

#### 5.2.425 OpenStackComputeRole (parent: Role)

Parameter	Type	Description
computeDriver	enum	Compute Driver to use for nova-compute. Anything other than the default of libvirt will require additional manual configuration.
libvirtDomain	enum	The libvirt Domain.
libvirtCPUMode	enum	Libvirt CPU Mode
libvirtCPUModel	string	Libvirt CPU Model

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Parameter	Type	Description
libvirtInjectPassword	tri-boolean	Inject the admin password at boot time, without an agent
libvirtInjectKey	tri-boolean	Inject the ssh public key at boot time
libvirtInject\Partition	string	The partition to inject to : -2 => disable, -1 => inspect (libguestfs only), 0 => not partitioned, >0 => partition number
imageBackends	list of OpenStackNovaImage\Backend	Using image backends
statePath	string	The directory where nova-compute will keep the information about its state.
instancesPath	string	The directory where nova-compute will keep information about instances (and, with some storage backends, their disks).
libvirtdCustom	list of strings	Custom lines to be added to the libvirtd.conf
vcpuPinSet	string	Defines which physical cpus instance can use
resumeGuestsOnHost\Boot	boolean	Determines whether nova-compute should automatically resume (start) VMs after a hypervisor restart

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Parameter	Type	Description
vifPluggingTimeOut	unsigned integer	Number of seconds to wait for neutron vif plugging events
vifPluggingIsFatal	boolean	Fail instance boot if vif plugging fails
fsmounts	list of FSMount	Configure the entries placed in /etc/fstab
diskCachemodes	string	Specific cachemodes to use for different disk types e.g: file=directsync,block=none
delayForAutomatic\ ServerEvacuation	integer	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

**5.2.426 OpenStackComputeSchedulerRole (parent: Role)**

Parameter	Type	Description
hostDiscoveryInterval	unsigned integer	Number of seconds in intervals for nova scheduler to discover new hypervisor hosts

**5.2.427 OpenStackComputeVNCProxyRole (parent: Role)**

Parameter	Type	Description
includeInHAProxy	boolean	Automatically include the nodes with this role in HAProxy configuration.
frontendHAProxyNames	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
isBackupEndpoint	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

*...continues*

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Parameter	Type	Description
network	reference to Network	Network on which API endpoints listens.
apiPort	unsigned integer	This field can be used to override the default port this service will listen on.
novncProxyBaseURL	string	Novnc proxy base URL.
workers	unsigned integer	Number of worker threads.

#### 5.2.428 OpenStackDashboardRole (parent: Role)

Parameter	Type	Description
memcachedServer	string	Hostname or IP of the memcached server to be used to speed up Horizon.
autoResolveLocal\ Memcached	boolean	If 'Memcached server' is not specified, but there is a local memcached, then use it
allowedHosts	list of strings	List of DNS-names or IP addresses of the host running the dashboard
allowAllHosts	boolean	Shortcut for the '*' in the allowed hosts
apiResultPageSize	unsigned integer	Controls the number of items to be shown per page if API pagination is possible
sessionTimeout	unsigned integer	Seconds of inactivity until user is considered as logged out

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Parameter	Type	Description
apiResultLimit	unsigned integer	Number of object to display before providing a paging element
debug	boolean	Controls whether exceptions generate HTTP 500 response and a display of sensitive information
timeZone	string	Time zone identifier
openstackKeystoneUrl	string	URL of the Keystone
enableSSL	boolean	HTTPS support for OpenStack Dashboard

#### 5.2.429 OpenStackDataProcessingApiRole (parent: Role)

Parameter	Type	Description
includeInHAProxy	boolean	Reserved for future use
frontendHAProxyNames	list of strings	Reserved for future use
isBackupEndpoint	boolean	Reserved for future use
network	reference to Network	Network on which api listens
apiPort	unsigned integer	

#### 5.2.430 OpenStackDBaaSRole (parent: Role)

Parameter	Type	Description
runTroveAPI	boolean	Reserved for future use
runTaskManager	boolean	Reserved for future use
runTroveGuestAgent	boolean	Reserved for future use

*...continues*

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Parameter	Type	Description
<code>runTroveScheduler</code>	boolean	Reserved for future use
<code>runTroveConductor</code>	boolean	Reserved for future use
<code>extraBool1</code>	boolean	Reserved for future use
<code>extraBool2</code>	boolean	Reserved for future use
<code>extraBool3</code>	boolean	Reserved for future use
<code>extraLong1</code>	integer	Reserved for future use
<code>extraStringList1</code>	list of strings	Reserved for future use
<code>extraStringList2</code>	list of strings	Reserved for future use

#### 5.2.431 OpenStackDefaultUserRole (parent: [Entity](#))

Parameter	Type	Description
<code>name</code>	string	OpenStack user role name
<code>tenants</code>	list of strings	Associated OpenStack project names. These project will be created if do not exist yet. The project names may contain <code>\${username}</code> that will be replaced to a particular user name

#### 5.2.432 OpenStackIdentityApiRole (parent: [Role](#))

Parameter	Type	Description
<code>includeInHAProxy</code>	boolean	Automatically include the nodes with this role in HAProxy configuration.
<code>frontendHAProxyNames</code>	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.

*...continues*

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Parameter	Type	Description
<code>isBackupEndpoint</code>	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).
<code>network</code>	reference to <code>Network</code>	Network on which API endpoints listens.
<code>networkForAdmin</code>	reference to <code>Network</code>	Network on which the Admin api endpoint listens on.
<code>apiPort</code>	unsigned integer	This field can be used to override the default port this service will listen on.
<code>apiPortForAdmin</code>	unsigned integer	This field can be used to override the default port this service will listen on.
<code>workers</code>	unsigned integer	Number of worker threads.
<code>workersForAdmin</code>	unsigned integer	Number of worker threads for the admin endpoint.
<code>tokenPersistence\</code> <code>Backend</code>	enum	Only applicable to non-fernet tokens
<code> caching</code>	boolean	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.

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Parameter	Type	Description
tokenCacheBackend	enum	Where to cache various resources, to speed up their retrieval. Caching speeds up retrieval, at the risk of data being slightly out of date.
cacheResources	boolean	Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.
cacheResourcesTime	unsigned integer	Determines the amount of time after which the cached values are considered too old, and instead should be retrieved from the actual backend.
cacheRoles	boolean	Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.
cacheRolesTime	unsigned integer	Determines the amount of time after which the cached values are considered too old, and instead should be retrieved from the actual backend.
cacheIdentity	boolean	Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.
cacheIdentityTime	unsigned integer	Determines the amount of time after which the cached values are considered too old, and instead should be retrieved from the actual backend.

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Parameter	Type	Description
<code>cacheDomainConfig</code>	boolean	Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.
<code>cacheDomainConfigTime</code>	unsigned integer	Determines the amount of time after which the cached values are considered too old, and instead should be retrieved from the actual backend.
<code>cacheServiceCatalog</code>	boolean	Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.
<code>cacheServiceCatalog\Time</code>	unsigned integer	Determines the amount of time after which the cached values are considered too old, and instead should be retrieved from the actual backend.
<code>cacheTokens</code>	boolean	Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.
<code>cacheTokensTime</code>	unsigned integer	Determines the amount of time after which the cached values are considered too old, and instead should be retrieved from the actual backend.
<code>memcachedServer</code>	string	Whether or not to cache this type of the resources. Caching speeds up retrieval, at the risk of data being slightly out of date.

*...continues*

*...continued*

Parameter	Type	Description
autoResolveLocal\ Memcached	boolean	If 'Memcached server' is not specified, but there is a local memcached on this node, then use it
enableAdminEndpoint	boolean	Whether the admin endpoint should be enable. In most cases there's no reason to disable it.

### 5.2.433 OpenStackImageApiRole (parent: Role)

Parameter	Type	Description
includeInHAProxy	boolean	Automatically include the nodes with this role in HAProxy configuration.
frontendHAProxyNames	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
isBackupEndpoint	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).
network	reference to Network or None	Network on which API endpoints listens.
apiPort	unsigned integer	This field can be used to override the default port this service will listen on.
workers	unsigned integer	Number of worker threads.
imageBackends	list of OpenStackImageBackend	Using image storage backends

*...continues*



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Parameter	Type	Description
enableHTTPStore	boolean	Enables glance HTTP store.

#### 5.2.434 OpenStackImageBackendCeph (parent: `OpenStackImageBackend`)

Parameter	Type	Description
rbdStoreUser	string	RADOS user to authenticate as
rbdStorePool	string	RADOS pool in which images are stored
rbdStoreChunkSize	unsigned integer	Images will be chunked into objects of this size (in megabytes)
rbdStoreCephConf	string	Path to the ceph configuration file to use

#### 5.2.435 OpenStackImageBackendFS (parent: `OpenStackImageBackend`)

Parameter	Type	Description
filesystemBackend\ StoragePath	string	Directory path for filesystem backend storage of images
isOnSharedStorage	boolean	
fsmounts	list of <code>FSMount</code>	Configure the entries placed in <code>/etc/fstab</code>

#### 5.2.436 OpenStackImageBackend (parent: `Entity`)

Parameter	Type	Description
name	string	Backend name
defaultStore	string	Which backend scheme should be used by Glance
showImageDirectUrl	boolean	Return the URL that references where the data is stored on the backend storage system.

#### 5.2.437 OpenStackIntermediateStorage (parent: `CMSubIntermediateStorage`)

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

#### 5.2.438 OpenStackMessageQueueServerRole (parent: Role)

Parameter	Type	Description
messageQueueBackend	enum	Message queue backend.
cookie	string	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.
HAMode	boolean	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.
messageTTL	integer	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).
statisticsCollectionInterval	integer	Number of seconds specifying how often internal statistics should be collected. Low values might have detrimental impact on the performance
nagelsAlgorithm	boolean	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.

#### 5.2.439 OpenStackNetworkApiRole (parent: Role)

Parameter	Type	Description
includeInHAProxy	boolean	Automatically include the nodes with this role in HAProxy configuration.

*...continues*

*...continued*

Parameter	Type	Description
<code>frontendHAProxyNames</code>	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
<code>isBackupEndpoint</code>	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).
<code>network</code>	reference to <code>Network</code>	Network on which API endpoints listens.
<code>apiPort</code>	unsigned integer	This field can be used to override the default port this service will listen on.
<code>workers</code>	unsigned integer	Number of worker threads.
<code>rpcWorkers</code>	unsigned integer	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.

#### 5.2.440 OpenStackNetworkDHCPAgentRole (parent: `Role`)

Parameter	Type	Description
<code>dnsmasqCustom</code>	list of strings	Custom lines to be added to the <code>dnsmasq.bright.conf</code>
<code>DHCPDomain</code>	string	DHCP domain.
<code>option1</code>	boolean	
<code>option2</code>	boolean	
<code>option3</code>	string	

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Parameter	Type	Description
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**5.2.441 OpenStackNetworkL3AgentRole (parent: Role)**

Parameter	Type	Description
agentmode	string	Agent mode, when using Distributed Virtual Routers (DVR), set to dvr on compute nodes and dvr_snat on network nodes. Otherwise set to legacy.
option1	boolean	
option2	boolean	
option3	string	

**5.2.442 OpenStackNetworkMetadataAgentRole (parent: Role)**

Parameter	Type	Description
option1	boolean	
option2	boolean	
option3	string	

**5.2.443 OpenStackNetworkOVSAgentRole (parent: Role)**

Parameter	Type	Description
enableDistributed\ Routers	boolean	Enable distributed virtual routers (DVR).
option1	boolean	
option2	boolean	
option3	string	

*...continues*

*...continued*

Parameter	Type	Description
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**5.2.444 OpenStackNovalImageBackendCeph (parent: OpenStackNovaImageBackend)**

Parameter	Type	Description
<code>rbdUser</code>	string	The RADOS client name for accessing rbd volumes
<code>rbdSecretUuid</code>	string	The libvirt uuid of the secret for the rbd_uservolume
<code>libvirtImagesRbdPool</code>	string	The RADOS pool in which rbd volumes are stored
<code>libvirtImagesRbdCeph\Conf</code>	string	Path to the ceph configuration file to use

**5.2.445 OpenStackNovalImageBackendCow (parent: OpenStackNovaImageBackend)**

Parameter	Type	Description
<code>useCowImages</code>	boolean	Whether to use cow images.

**5.2.446 OpenStackNovalImageBackend (parent: Entity)**

Parameter	Type	Description
<code>name</code>	string	Backend Name
<code>libvirtImagesType</code>	string	Libvirt images type

**5.2.447 OpenStackObjectAccountRole (parent: Role)**

Parameter	Type	Description
<code>network</code>	reference to Network	Network on which api listens
<code>apiPort</code>	unsigned integer	This field can be used to override the default port this service will listen on.
<code>workers</code>	unsigned integer	Number of worker threads.

**5.2.448 OpenStackObjectApiRole (parent: Role)**

Parameter	Type	Description
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Parameter	Type	Description
network	reference to Network	Network on which api listens
apiPort	unsigned integer	This field can be used to override the default port this service will listen on.
workers	unsigned integer	Number of worker threads.
allowPublicContainer\ Access	boolean	Whether or not to allow public access to the container

#### 5.2.449 OpenStackObjectContainerRole (parent: Role)

Parameter	Type	Description
network	reference to Network	Network on which api listens
apiPort	unsigned integer	This field can be used to override the default port this service will listen on.
workers	unsigned integer	Number of worker threads.

#### 5.2.450 OpenStackObjectStoreRole (parent: Role)

Parameter	Type	Description
network	reference to Network	Network on which api listens
apiPort	unsigned integer	This field can be used to override the default port this service will listen on.
workers	unsigned integer	Number of worker threads.

#### 5.2.451 OpenStackOrchestrationApiRole (parent: Role)

Parameter	Type	Description
includeInHAProxy	boolean	Automatically include the nodes with this role in HAProxy configuration.

*...continues*

*...continued*

Parameter	Type	Description
frontendHAProxyNames	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
isBackupEndpoint	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).
network	reference to <code>Network</code>	Network on which API endpoints listens.
apiPort	unsigned integer	This field can be used to override the default port this service will listen on.
apiPortCnf	unsigned integer	This field can be used to override the default port this service will listen on.
workers	unsigned integer	Number of worker threads.
maxHeaderLine	unsigned integer	Maximum size of the header line.

**5.2.452 OpenStackOrchestrationRole (parent: `Role`)**

Parameter	Type	Description
workers	unsigned integer	Number of worked threads of the heat-engine process
maxResourcesPerStack	unsigned integer	Maximum number of resources per stack.
rpcResponseTimeout	unsigned integer	Amount of seconds to wait for a reply for AMQP messages.

**5.2.453 OpenStackSettingsAdvanced (parent: `Entity`)**

Parameter	Type	Description
customAMQPHost	string	Custom AMQP host used by OpenStack Service. This can be used to redirect OpenStack service to a custom HA AMQP cluster.

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Parameter	Type	Description
customBackendHAProxy\ Host	string	Custom backend HAProxy host
lastResortBackendHA\ ProxyHost	string	When determining HAProxy host dynamically for a given node, if no UP Haproxy hosts were found, this one will be used as a fallback.
allowCrossAZBackend\ HAProxyConnections	boolean	Used when dynamically determining the host of HA proxy node
backendHAProxiesFor\ Nodes	list of strings	
determineBackendHA\ ProxiesDynamically	boolean	Reserved for future use.
encryptApiEndpoints	boolean	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.
rbdsSecretUuid	string	Default secret UUID for new Ceph storage roles
enableExtraValidation	boolean	Enable extra validation for OpenStack entities
extraBool1	boolean	
extraBool2	boolean	
extraBool3	boolean	

*...continues*



*...continued*

Parameter	Type	Description
extraBool4	boolean	
agentDownTime	unsigned integer	After how long agent is considered down. Should be twice as long as report interval
agentReportInterval	unsigned integer	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).
enableTelemetry\ Service	boolean	
enableDataProcessing\ Service	boolean	
enableBareMetal\ Service	boolean	
maintainServicesIn\ OpenStack	boolean	Whether CMDaemon should automatically maintain service entries in keystone
maintainEndpointsIn\ OpenStack	boolean	Whether CMDaemon should automatically maintain endpoint entries in keystone
customPublicHostname\ ForMaintainedEndpoints	string	
customInternalHost\ nameForMaintained\ Endpoints	string	

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Parameter	Type	Description
servicesExcludedFromMaintenance	list of strings	
enableCallbacksFromOpenStack	boolean	
maintainHostAggregates	boolean	Whether CMDaemon should automatically update Host Aggregates
enableRabbitMqSsl	boolean	
revocationCacheTime	unsigned integer	Configures the value of 'revocation_cache_time' in various OpenStack config files.
regionName	string	The name of the cloud region represented by this cluster.
regionExternalKeystoneURL	string	Set this to keystone auth RUL if your Keystone is running only in a external region of this cloud.
cinderExchange	string	Cinder RabbitMQ notification exchange name
keystoneExchange	string	Keystone RabbitMQ notification exchange name
neutronExchange	string	Neutron RabbitMQ notification exchange name
glanceExchange	string	Glance RabbitMQ notification exchange name

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Parameter	Type	Description
novaExchange	string	Nova RabbitMQ notification exchange name
heatExchange	string	Heat RabbitMQ notification exchange name
saharaExchange	string	Sahara RabbitMQ notification exchange name
ironicExchange	string	Ironic RabbitMQ notification exchange name
troveExchange	string	Trove RabbitMQ notification exchange name
periodicCleanup\ Interval	unsigned integer	
glanceAllowedCross\ OriginURLs	list of strings	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.
scriptToRunForNew\ Projects	string	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.

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Parameter	Type	Description
deployedComponents	list of strings	
extraString1	string	Name of configuration group to use as a rabbit mq cluster for OpenStack.
extraString2	string	
extraString3	string	
extraString4	string	
extraInt1	integer	
extraStringList1	list of strings	
extraStringList2	list of strings	
extraStringList3	list of strings	
extraStringList4	list of strings	
dontStartServices	list of strings	Don't autostart these OpenStack services

#### 5.2.454 OpenStackSettingsAuthentication (parent: *Entity*)

Parameter	Type	Description
defaultDomainId	string	Domain to use for all Identity API v2 requests
domainConfigDir	string	Path for domain specific identity configuration files
keystoneTokenFormat	enum	Format of the Keystone token

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Parameter	Type	Description
authBackends	list of OpenStackAuthBackend	Auth backends
customPublicAuthHost	string	Custom public keystone auth host.
customInternalAuth\  Host	string	Custom internal keystone auth host.
tokenValidityMinutes	unsigned integer	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).

#### 5.2.455 OpenStackSettingsCMDaemonInteractions (parent: Entity)

Parameter	Type	Description
cmdaemonIdentityURL	string	The OpenStack Keystone identity URL which CMDaemon should use when connecting to OpenStack.
cmdaemonOpenStack\  InterfaceDriver	enum	Method which should be used by CMDaemon to talk to OpenStack. libcurl is typically faster.
disableObject\  Retrieval	boolean	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 expense of not being able to view/edit OpenStack object modified directly via OpenStack APIs.

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Parameter	Type	Description
<code>storeOpenStack\</code> <code>ObjectsInCMDaemonDatabase</code>	boolean	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.
<code>objectRetrieval\</code> <code>Interval</code>	unsigned integer	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.
<code>objectTypesToExclude\</code> <code>FromRetrieval</code>	list of strings	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.
<code>objectTypesToExclude\</code> <code>FromDBStorage</code>	list of strings	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 on CMDaemon's database. The names of classes should be Pythoncm class names, e.g. 'OpenStackApiServer', 'OpenStackApiProject'.

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Parameter	Type	Description
<code>maxConcurrentActions</code>	unsigned integer	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.
<code>preferAdminToken</code>	boolean	Prefer to use admin token for API calls whenever possible. This should only be enabled during the OpenStack deployment phase.
<code>apiCallAttempts</code>	unsigned integer	How many times a API call to OpenStack is attempted before giving up.
<code>apiCallsToCustomize</code>	list of strings	Names of API calls to proxy via a custom proxy script (default: <code>/cm/local/examples/cmd/customcurl</code> ). This script can be used to modify the content of request/responses of certain API calls made to OpenStack APIs from CMDaemon. If empty, don't customize any API calls. To get the list of possible value, enable global debug mode in CMDaemon and search for lines starting with 'Call to:' in <code>'/var/log/cmdaemon'</code> .
<code>enableMqListener</code>	boolean	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).

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Parameter	Type	Description
imageUUIDFor\ Healthchecks	string	
monitoringData\ Validity	unsigned integer	How long old monitoring info (removed tenants, etc) should be kept in the database.
monitoringData\ ValidityVMs	unsigned integer	How long old monitoring info (for VMs) should be kept in the database.
extraOptions	list of strings	Various, advanced, flags.

#### 5.2.456 OpenStackSettingsCollection (parent: *Entity*)

Parameter	Type	Description
credentials	OpenStackSettings\ Credentials	Submode containing credential configuration
database	OpenStackSettings\ Database	Submode containing OpenStack DB settings
advanced	OpenStackSettings\ Advanced	Various advanced OpenStack settings
authentication	OpenStackSettings\ Authentication	Authentication-related OpenStack settings
userPortal	OpenStackSettings\ UserPortal	Settings for OpenStack page in User Portal
cmdaemonInteractions	OpenStackSettings\ CMDaemonInteractions	Advanced setting on how CMDaemon interacts with OpenStack
users	OpenStackSettings\ Users	User related settings

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Parameter	Type	Description
logging	OpenStackSettings\ Logging	Submode containing logging settings
ports	OpenStackSettings\ Ports	Global settings of ports of individual OpenStack services
networking	OpenStackSettings\ Networking	Global networking (neutron) settings
compute	OpenStackSettings\ Compute	Global compute (nova) settings
quota	OpenStackSettings\ Quota	Resource quota (limits) settings

#### 5.2.457 OpenStackSettingsCompute (parent: Entity)

Parameter	Type	Description
VNCProxyHostname	string	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.
cpuAllocationRatio	float	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.
ramAllocationRatio	float	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).

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Parameter	Type	Description
<code>ramWeightMultiplier</code>	float	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.
<code>diskAllocationRatio</code>	float	Disk allocation ratio.
<code>schedulerFilters</code>	list of strings	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 <code>/usr/lib/python2.7/site-packages/nova/scheduler/filters</code> on one of the OpenStack controller nodes.
<code>reservedHostMemory</code>	unsigned integer	The amount of operating memory reserver for the hypervisor's operating system (and therefore not used for hosting VMs).
<code>maxInstancesPerHost</code>	unsigned integer	Maximum number of instances per host. Must go in hand with having the 'NumInstancesFilter' scheduler filter set.

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Parameter	Type	Description
<code>schedulerMaxAttempts</code>	unsigned integer	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.
<code>liveMigrationEnabled</code>	boolean	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.
<code>liveMigrationRetries</code>	unsigned integer	The amount of times a live migration attempt will be attempted.
<code>defaultAvailabilityZone</code>	string	AZ for hosts not inside any az-defining host aggregates

#### 5.2.458 OpenStackSettingsCredentials (parent: [Entity](#))

Parameter	Type	Description
<code>serviceProjectName</code>	string	The name of the project(tenant) used for OpenStack's internal services
<code>adminToken</code>	string	A special token which can be used to give access to Keystone's APIs. This field should be set only when deploying OpenStack.
<code>adminUserPassword</code>	string	The password for the cloud 'admin' user
<code>adminUserName</code>	string	

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
CMDaemonOpenStack\ Username	string	Part of credentials used by CMDaemon to auth with OpenStack
CMDaemonOpenStack\ Password	string	Part of credentials used by CMDaemon to auth with OpenStack
CMDaemonOpenStack\ ProjectUUID	string	Part of credentials used by CMDaemon to auth with OpenStack
CMDaemonOpenStack\ ProjectName	string	Part of credentials used by CMDaemon to auth with OpenStack
CMDaemonOpenStack\ DomainUUID	string	Part of credentials used by CMDaemon to auth with OpenStack
novaUsername	string	Credentials of an internal OpenStack service user
novaPassword	string	Credentials of an internal OpenStack service user
userEC2Username	string	Credentials of an internal OpenStack service user
userEC2Password	string	Credentials of an internal OpenStack service user
keystoneUsername	string	Credentials of an internal OpenStack service user
keystonePassword	string	Credentials of an internal OpenStack service user

*...continues*

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
glanceUsername	string	Credentials of an internal OpenStack service user
glancePassword	string	Credentials of an internal OpenStack service user
cinderUsername	string	Credentials of an internal OpenStack service user
cinderPassword	string	Credentials of an internal OpenStack service user
heatUsername	string	Credentials of an internal OpenStack service user
heatPassword	string	Credentials of an internal OpenStack service user
neutronUsername	string	Credentials of an internal OpenStack service user
neutronPassword	string	Credentials of an internal OpenStack service user
radosGatewayUsername	string	Credentials of an internal OpenStack service user
radosGatewayPassword	string	Credentials of an internal OpenStack service user
metadataProxyShared\ Secret	string	Credentials of an internal OpenStack service user
troveUsername	string	Credentials of an internal OpenStack service user

*...continues*

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Parameter	Type	Description
trovePassword	string	Credentials of an internal OpenStack service user
messageQueueUsername	string	Credentials of an internal OpenStack service user
messageQueuePassword	string	Credentials of an internal OpenStack service user
ceilometerUsername	string	Credentials of an internal OpenStack service user
ceilometerPassword	string	Credentials of an internal OpenStack service user
saharaUsername	string	Credentials of an internal OpenStack service user
saharaPassword	string	Credentials of an internal OpenStack service user
ironicUsername	string	Credentials of an internal OpenStack service user
ironicPassword	string	Credentials of an internal OpenStack service user
swiftUsername	string	Credentials of an internal OpenStack service user
swiftPassword	string	Credentials of an internal OpenStack service user
novaUserUUID	string	OpenStack user UUID of the internal 'nova' service user

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Parameter	Type	Description
neutronUserUUID	string	OpenStack user UUID of the internal 'neutron' service user
heatDAUsername	string	Credentials of an internal OpenStack service user
heatDAPassword	string	Credentials of an internal OpenStack service user
extraString1	string	
extraString2	string	
extraString3	string	
extraString4	string	
extraString5	string	
extraString6	string	
extraString7	string	
extraString8	string	
extraString9	string	
extraString10	string	

#### 5.2.459 OpenStackSettingsDatabase (parent: *Entity*)

Parameter	Type	Description
novaDBName	string	Internal OpenStack SQL database access credentials

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Parameter	Type	Description
novaDBUsername	string	Internal OpenStack SQL database access credentials
novaDBPassword	string	Internal OpenStack SQL database access credentials
novaDBHost	string	Internal OpenStack SQL database access credentials
novaApiDBName	string	Internal OpenStack SQL database access credentials
novaApiDBUsername	string	Internal OpenStack SQL database access credentials
novaApiDBPassword	string	Internal OpenStack SQL database access credentials
novaApiDBHost	string	Internal OpenStack SQL database access credentials
cinderDBName	string	Internal OpenStack SQL database access credentials
cinderDBUsername	string	Internal OpenStack SQL database access credentials

*...continues*



*...continued*

Parameter	Type	Description
cinderDBPassword	string	Internal OpenStack SQL database access credentials
cinderDBHost	string	Internal OpenStack SQL database access credentials
glanceDBName	string	Internal OpenStack SQL database access credentials
glanceDBUsername	string	Internal OpenStack SQL database access credentials
glanceDBPassword	string	Internal OpenStack SQL database access credentials
glanceDBHost	string	Internal OpenStack SQL database access credentials
keystoneDBName	string	Internal OpenStack SQL database access credentials
keystoneDBUsername	string	Internal OpenStack SQL database access credentials
keystoneDBPassword	string	Internal OpenStack SQL database access credentials

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Parameter	Type	Description
keystoneDBHost	string	Internal OpenStack SQL database access credentials
swiftDBName	string	Internal OpenStack SQL database access credentials
swiftDBUsername	string	Internal OpenStack SQL database access credentials
swiftDBPassword	string	Internal OpenStack SQL database access credentials
swiftDBHost	string	Internal OpenStack SQL database access credentials
heatDBName	string	Internal OpenStack SQL database access credentials
heatDBUsername	string	Internal OpenStack SQL database access credentials
heatDBPassword	string	Internal OpenStack SQL database access credentials
heatDBHost	string	Internal OpenStack SQL database access credentials

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Parameter	Type	Description
neutronDBName	string	Internal OpenStack SQL database access credentials
neutronDBUsername	string	Internal OpenStack SQL database access credentials
neutronDBPassword	string	Internal OpenStack SQL database access credentials
neutronDBHost	string	Internal OpenStack SQL database access credentials
troveDBName	string	Internal OpenStack SQL database access credentials
troveDBUsername	string	Internal OpenStack SQL database access credentials
troveDBPassword	string	Internal OpenStack SQL database access credentials
troveDBHost	string	Internal OpenStack SQL database access credentials
ceilometerDBName	string	Internal OpenStack SQL database access credentials

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Parameter	Type	Description
ceilometerDBUsername	string	Internal OpenStack SQL database access credentials
ceilometerDBPassword	string	Internal OpenStack SQL database access credentials
ceilometerDBHost	string	Internal OpenStack SQL database access credentials
ceilometerDBHost2	string	
ceilometerDBHost3	string	
saharaDBName	string	Internal OpenStack SQL database access credentials
saharaDBUsername	string	Internal OpenStack SQL database access credentials
saharaDBPassword	string	Internal OpenStack SQL database access credentials
saharaDBHost	string	Internal OpenStack SQL database access credentials
ironicDBName	string	Internal OpenStack SQL database access credentials

*...continues*

*...continued*

Parameter	Type	Description
ironicDBUsername	string	Internal OpenStack SQL database access credentials
ironicDBPassword	string	Internal OpenStack SQL database access credentials
ironicDBHost	string	Internal OpenStack SQL database access credentials
extraString1	string	
extraString2	string	
extraString3	string	
extraString4	string	
extraString5	string	
extraString6	string	
extraString7	string	
extraString8	string	
extraString9	string	
extraString10	string	

#### 5.2.460 OpenStackSettingsLogging (parent: Entity)

Parameter	Type	Description
defaultApiCallLog\ LevelRequest	enum	Log verbosity of HTTP requests from CMDaemon to OpenStack as logged in /var/spool/cmd/openstack.log.

*...continues*

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Parameter	Type	Description
defaultApiCallLog\ LevelReply	enum	Log verbosity of HTTP replies from OpenStack to CMDaemon as logged in /var/spool/cmd/openstack.log.
logTokens	enum	Under which conditions tokens should be logged in /var/spool/cmd/openstack.log
maxContentToLog	unsigned integer	When logging HTTP traffic content to /var/spool/cmd/openstack.log, how many characters of content to include.
maxTokenToLog	unsigned integer	When logging tokens to /var/spool/cmd/openstack.log, how many characters of token to include.
debugApiCalls	boolean	Debug API calls from CMDaemon to OpenStack
apiCallsToDebug	list of strings	Debug specific API calls made from CMDaemon to OpenStack
centralizedLogging	boolean	
globalDebug	boolean	Whether to enable 'debug' mode for all OpenStack services. Warning, this will generate a huge volumes of logs.
globalComputeDebug	boolean	Whether to enable 'debug' mode for all OpenStack Nova services. Warning, this will generate a huge volumes of logs.

*...continues*

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Parameter	Type	Description
globalNetworkDebug	boolean	Whether to enable 'debug' mode for all OpenStack Neutron services. Warning, this will generate a huge volumes of logs.
globalImageStorage\ Debug	boolean	Whether to enable 'debug' mode for all OpenStack Glance services. Warning, this will generate a huge volumes of logs.
globalBlockStorage\ Debug	boolean	Whether to enable 'debug' mode for all OpenStack Cinder services. Warning, this will generate a huge volumes of logs.
globalOrchestration\ Debug	boolean	Whether to enable 'debug' mode for all OpenStack Heat services. Warning, this will generate a huge volumes of logs.
globalAuthentication\ Debug	boolean	Whether to enable 'debug' mode for all OpenStack Keystone services. Warning, this will generate a huge volumes of logs.
globalDashboardDebug	boolean	Whether to enable 'debug' mode for all OpenStack Horizon services. Warning, this will generate a huge volumes of logs.
globalDataProcessing\ Debug	boolean	
globalMeteringDebug	boolean	
globalBareMetalDebug	boolean	

*...continues*

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Parameter	Type	Description
extraBool1	boolean	
extraBool2	boolean	
extraBool3	boolean	
extraBool4	boolean	

### 5.2.461 OpenStackSettingsNetworking (parent: *Entity*)

Parameter	Type	Description
rescheduleNetwork\ Resources	boolean	
l3HAEnabled	tri-boolean	Enable HA routers in the L3 agent.
l3HAMinAgentsPer\ Router	unsigned integer	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.)
l3HAMaxAgentsPer\ Router	unsigned integer	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.)
DHCPAgentsPerNetwork	unsigned integer	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.

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Parameter	Type	Description
automaticL3Agent\ Failover	tri-boolean	Automatically reschedule routers from offline L3 agents to online L3 agents.
routerAutoSchedule	tri-boolean	Allow auto scheduling of routers to L3 agent.
networkAutoSchedule	tri-boolean	Allow auto scheduling networks to DHCP agent.
VXLANGroupIP	IP	When configured, send broadcast traffic to this multicast group. When unconfigured (0.0.0.0), disables multicast VXLAN mode
routerInternal\ NetworkIP	IP	IP address for the router on the internal network.
L2Population	boolean	Enables population of the VXLAN forwarding table.
enableFloatingIPs	boolean	Enable Floating IPs
enableRouters	boolean	Enable routers. (Currently only affects Horizon.)
enableDistributed\ Routers	boolean	Enable distributed virtual routers (DVR). When enabled only admin can create centralized routers.
enableFirewalls	boolean	Enable firewall-as-a-service.
enableLoadBalancers	boolean	Enable loadbalancer-as-a-service.

*...continues*

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Parameter	Type	Description
enableVPNs	boolean	Enable VPN-as-a-service.
enableTrunkPortPlugin	boolean	Allows for creating (nested) VLANs in OpenStack, i.e. connecting multiple OpenStack networks to a VM using a single virtual NIC.
ML2TypeDrivers	list of strings	List of type drivers to enable in the ML2 plugin.
ML2MechanismDrivers	list of strings	List of mechanism drivers to enable in the ML2 plugin.
ML2EnablePort\ SecurityPlugin	boolean	Enable ML2 port security extension driver in the ML2 plugin.
ML2TypeDrivers\ Behaviour	enum	Determines if 'ML2 type drivers' settings should be appended to built-in type drivers, or should override them.
ML2MechanismDrivers\ Behaviour	enum	Determines if 'ML2 mechanism drivers' settings should be appended to built-in mechanism drivers, or should override them.
extraBool1	boolean	Enable IPv6.
extraBool2	boolean	
extraBool3	boolean	

*...continues*

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Parameter	Type	Description
extraBool4	boolean	

#### 5.2.462 OpenStackSettingsPorts (parent: Entity)

Parameter	Type	Description
keystoneAuthAdminPort	unsigned integer	The default port
keystoneAuthPublicPort	unsigned integer	The default port
swiftEndpointPort	unsigned integer	The default port
swiftObjectPort	unsigned integer	The default port
swiftContainerPort	unsigned integer	The default port
swiftAccountPort	unsigned integer	The default port
glanceEndpointPort	unsigned integer	The default port
cinderEndpointPort	unsigned integer	The default port
heatEndpointPort	unsigned integer	The default port
neutronEndpointPort	unsigned integer	The default port

*...continues*

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Parameter	Type	Description
novaOSAPIEndpointPort	unsigned integer	The default port
novaEC2APIEndpoint\Port	unsigned integer	The default port
novaMetaAPI\EndpointPort	unsigned integer	The default port
novaNoVNCProxyPort	unsigned integer	The default port
novaPlacementAPIEndpointPort	unsigned integer	The default port
troveEndpointPort	unsigned integer	The default port
AMQPPort	unsigned integer	The default port
saharaEndpointPort	unsigned integer	The default port
ceilometerEndpoint\Port	unsigned integer	The default port
ironicEndpointPort	unsigned integer	The default port
galeraEndpointPort	unsigned integer	The default port
backendEndpointPort\Offset	unsigned integer	

*...continues*

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Parameter	Type	Description
offsetEndpointPorts\ OnlyOnConflict	boolean	
extraInt1	unsigned integer	
extraInt2	unsigned integer	
extraInt3	unsigned integer	
extraInt4	unsigned integer	
extraInt5	unsigned integer	
extraInt6	unsigned integer	
extraInt7	unsigned integer	
extraInt8	unsigned integer	
extraInt9	unsigned integer	

**5.2.463 OpenStackSettingsQuota (parent: *Entity*)**

Parameter	Type	Description
makeStickyForNew\ Tenants	boolean	Make the quotas sticky for new new tenants
quotaInstances	unsigned integer	Default maximum number of VMs a project may have
quotaVCPUs	unsigned integer	Default maximum number of vCPUs which can be allocated by a project

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Parameter	Type	Description
quotaRam	unsigned integer	Default maximum amount of memory which can be allocated by a project
quotaInjectedFiles	unsigned integer	Default maximum number of injected files
quotaInjectedFiles\ ContentSize	unsigned integer	Default maximum size of the content of files injected to VMs
quotaKeyPairs	unsigned integer	Default maximum number of key pair per project
quotaMetadataItems	unsigned integer	Default maximum number of custom metadata items
quotaServerGroups	unsigned integer	Default maximum number of server groups
quotaServerGroup\ Members	unsigned integer	Default maximum number of server group members
quotaVolumes	unsigned integer	Default maximum number of volumes per project
quotaVolumeSnapshots	unsigned integer	Default maximum number of volume snapshots per project
quotaVolumesAnd\ SnapshotsSize	unsigned integer	Default maximum size of all volumes and snapshots per project

*...continues*

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Parameter	Type	Description
quotaBackups	unsigned integer	Default maximum number of volume backups per project
quotaBackupsSize	unsigned integer	Default maximum size of all volume backups per project
quotaConsistency\ Groups	unsigned integer	Default maximum number of consistency groups
quotaSecurityGroups	unsigned integer	Default maximum number of security groups per project
quotaSecurityGroup\ Rules	unsigned integer	Default maximum number of security rules per project
quotaNetworks	unsigned integer	Default maximum number of networks per project
quotaPorts	unsigned integer	Default maximum number of network ports per project
quotaSubnets	unsigned integer	Default maximum number of subnets per project
quotaFloatingIPs	unsigned integer	Default maximum number of floating IPs per project
quotaRouters	unsigned integer	Default maximum number of routers per project

*...continues*

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Parameter	Type	Description
quotaFirewalls	unsigned integer	Default maximum number of firewalls per project
quotaFirewallPolicies	unsigned integer	Default maximum number of firewall policies per project
quotaFirewallRules	unsigned integer	Default maximum number of firewall rules per project
quotaPools	unsigned integer	Default maximum number of LB pools per project
quotaVIPs	unsigned integer	Default maximum number of LB virtual IPs per project
quotaImagesSize	unsigned integer	Default maximum size of images which can be uploaded per projects
quotaMaxSingleImage\Size	unsigned integer	Default maximum size of a individual image which can be uploaded
quotaImageProperties	unsigned integer	Default maximum number of custom properties per image
quotaImageTags	unsigned integer	Default maximum number of tags per image
quotaImageMembers	unsigned integer	Default maximum number of projects a image can be shared with

*...continues*



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Parameter	Type	Description
extraInt1	unsigned integer	
extraInt2	unsigned integer	
extraInt3	unsigned integer	
extraInt4	unsigned integer	
extraInt5	unsigned integer	
extraInt6	unsigned integer	

#### 5.2.464 OpenStackSettings (parent: *VirtualNodeSettings*)

Parameter	Type	Description
instanceID	string	Instance-ID assigned by OpenStack
name	string	Instance-name
storage	list of <i>OpenStackStorage</i>	Assign storage
availabilityZone	string	AZ
region	string	AZ
tenant	string	Tenant name
openStackFlavor	reference to <i>OpenStackApiFlavor</i> or None	OpenStack Flavor

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Parameter	Type	Description
options	string	User defined options passed to OpenStack on instance creation
openStackImage	string	OpenStack image ID used for Bright instances, it should be an iPXE image
defaultHost	reference ComputeNode None	to Default host for this instance or
extraBool	boolean	
extraStringList	list of strings	
extraKey	unsigned integer	

#### 5.2.465 OpenStackSettingsUserPortal (parent: [Entity](#))

Parameter	Type	Description
enabled	boolean	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.
displayOverviewOnly\ OpenStackUsers	boolean	Display overview only of open stack users
displayEntityOverview	boolean	Display entity overview
displayNodeOverview	boolean	Display node overview
displayNumOfUsersIn\ Project	boolean	Display number of users in project

*...continues*

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Parameter	Type	Description
displayNamesOfOther\UsersInProject	boolean	Display names of users in project
determineCloudStatus\Automatically	boolean	Determine whether the cloud is operational
cloudStatus	enum	Determines the current status of the cloud reported to the users in the user portal
cloudStatusText	list of strings	Custom string visible in the user portal which outlines the current of the cloud as reported by the user portal, e.g. a MOTD
determineDashboard\URLsAutomatically	boolean	Determine the URL to the horizon dashboard (shown in user portal) automatically
dashboardURLs	list of strings	Custom list of URLs users can use to access the Horizon Dashboard via the user portal
determineKeystone\URLsAutomatically	boolean	Determine keystone URLs automatically
keystonePublicURL	string	Set a custom public URL here if determining the keystone URLs automatically is set to false.
keystoneInternalURL	string	Set a custom internal URL here if determining the keystone URLs automatically is set to false.

#### 5.2.466 OpenStackSettingsUsers (parent: *Entity*)

Parameter	Type	Description
rcWriteOutMode	enum	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.

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Parameter	Type	Description
<code>writeOutPassword</code>	boolean	Whether to also write out <code>.openstacrc_passwr</code> containing the password. This applies only to new users created via Bright's APIs (as OpenStack does not store the password string).
<code>defaultUserRoleName</code>	string	Name of the default user role, needed by several OpenStack services
<code>migrationScriptPath</code>	string	Path to a script that will be executed should user be added to ldap. Default one is <code>/cm/local/apps/cluster-tools/bin/cm-user-migration</code>
<code>initScriptPath</code>	string	Path to a script that will be executed should user be added to OpenStack. Default one is <code>/cm/local/apps/cluster-tools/bin/cm-user-init</code>
<code>extraBool1</code>	boolean	
<code>extraBool2</code>	boolean	
<code>extraBool3</code>	boolean	
<code>extraBool4</code>	boolean	
<code>extraString1</code>	string	
<code>extraString2</code>	string	
<code>extraString3</code>	string	

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Parameter	Type	Description
extraString4	string	
extraInt1	integer	
extraStringList1	list of strings	
extraStringList2	list of strings	
extraStringList3	list of strings	
extraStringList4	list of strings	

**5.2.467 OpenStackStorage (parent: Entity)**

Parameter	Type	Description
name	string	Name
drive	string	Mount device as /dev/?

**5.2.468 OpenStackTelemetryAgentCentralRole (parent: Role)**

Parameter	Type	Description
extraStringList	list of strings	Reserved for future use

**5.2.469 OpenStackTelemetryAgentComputeRole (parent: Role)**

Parameter	Type	Description
workloadPartitioning	boolean	Reserved for future use.
extraStringList	list of strings	Reserved for future use.

**5.2.470 OpenStackTelemetryAgentIpmiRole (parent: Role)**

Parameter	Type	Description
extraStringList	list of strings	Reserved for future use

**5.2.471 OpenStackTelemetryAgentNotificationRole (parent: Role)**

Parameter	Type	Description
<code>extraStringList</code>	list of strings	Reserved for future use.

#### 5.2.472 OpenStackTelemetryAlarmEvaluatorRole (parent: Role)

Parameter	Type	Description
<code>extraStringList</code>	list of strings	Reserved for future use.

#### 5.2.473 OpenStackTelemetryAlarmNotifierRole (parent: Role)

Parameter	Type	Description
<code>extraStringList</code>	list of strings	Reserved for future use.

#### 5.2.474 OpenStackTelemetryApiRole (parent: Role)

Parameter	Type	Description
<code>includeInHAProxy</code>	boolean	Automatically include the nodes with this role in HAProxy configuration.
<code>frontendHAProxyNames</code>	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
<code>isBackupEndpoint</code>	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).
<code>network</code>	reference to Network	Network on which api listens
<code>apiPort</code>	unsigned integer	This field can be used to override the default port this service will listen on.

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Parameter	Type	Description
extraStringList	list of strings	Reserved for future use

**5.2.475 OpenStackTelemetryCollectorRole (parent: Role)**

Parameter	Type	Description
network	reference to Network	Network on which api listens
udpPort	unsigned integer	Non default UDP port
extraStringList	list of strings	Reserved for future use

**5.2.476 OpenStack (parent: Entity)**

Parameter	Type	Description
name	string	Name of the OpenStack instance.
enabled	boolean	If disabled, it disables any CMDaemon interaction with the OpenStack deployment
preventRemoval	boolean	If set, OpenStack deployment cannot be removed. Prevents accidental removals
version	string	Version of OpenStack the instance is using.
distribution	string	OpenStack distribution the instance is using.
deployment\ Configuration	string	Configuration used for deploying this OpenStack instance

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Parameter	Type	Description
imageForBright\ Instances	string	OpenStack image UUID used for Bright managed instances
defaultFlavor	string	Default flavor for Bright managed instances
extraStringList	list of strings	
deploymentStage	string	
settings	OpenStackSettings\ Collection	Submode containing OpenStack settings

#### 5.2.477 OpenStackUserRole (parent: Entity)

Parameter	Type	Description
name	string	OpenStack user role name
roleUUID	string	OpenStack role UUID
projectUUIDs	list of strings	OpenStack Project UUIDs with that role

#### 5.2.478 OpenStackVolumeApiRole (parent: Role)

Parameter	Type	Description
includeInHAProxy	boolean	Automatically include the nodes with this role in HAProxy configuration.
frontendHAProxyNames	list of strings	If set to a name of HAProxy, automatically configure the nodes having this role only behind that particular HAProxy.
isBackupEndpoint	boolean	Configure this API endpoint as a 'backup' backend in HAProxy (only used if primary backends are down).

*...continues*



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Parameter	Type	Description
network	reference to Network	Network on which API endpoints listens.
apiPort	unsigned integer	This field can be used to override the default port this service will listen on.
workers	unsigned integer	Number of worker threads.
defaultVolumeTypeName	string	The name of the default volume type. If not set, new volumes will not have a volume type set, unless explicitly requested.

#### 5.2.479 OpenStackVolumeBackend3PAR (parent: OpenStackVolumeBackend)

Parameter	Type	Description
driverType	enum	Driver type (iSCSI or FibreChannel)
apiUrl	string	3PAR WSAPI Server Url
username	string	3PAR Super user username
password	string	3PAR Super user password
sanIP	string	IP address of SAN controller for SSH access to the array
sanLogin	string	Username for SAN controller for SSH access to the array

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Parameter	Type	Description
sanPassword	string	Password for SAN controller for SSH access to the array
cpg	list of strings	List of the CPG(s) to use for volume creation
cpgSnap	string	The CPG to use for Snapshots for volumes
snapshotRetention	unsigned integer	The time in hours to retain a snapshot
snapshotExpiration	unsigned integer	The time in hours when a snapshot expires and is deleted
iscsiIps	list of strings	List of target iSCSI addresses to use
iscsiChapEnabled	boolean	Enable CHAP authentication for iSCSI connections
debug	boolean	Enable HTTP debugging to 3PAR

#### 5.2.480 **OpenStackVolumeBackendCeph** (parent: [OpenStackVolumeBackend](#))

Parameter	Type	Description
rbdPool	string	RADOS pool in which volumes are stored
rbdFlattenVolumeFrom\ Snapshot	boolean	Flatten volumes created from snapshots to remove dependency
rbdMaxCloneDepth	unsigned integer	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

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Parameter	Type	Description
<code>rbidUser</code>	string	The RADOS client name for accessing rbd volumes
<code>rbdSecretUuid</code>	string	The libvirt uuid of the secret for the rbd_uservolumes
<code>rbdBcephConf</code>	string	Path to the ceph configuration file to use

#### 5.2.481 **OpenStackVolumeBackendDellStorageCenter** (parent: `OpenStackVolumeBackend`)

Parameter	Type	Description
<code>driverType</code>	enum	Driver type (iSCSI or FibreChannel)
<code>sanIP</code>	string	IP address of Enterprise Manager
<code>sanLogin</code>	string	Enterprise Manager user name
<code>sanPassword</code>	string	Enterprise Manager password
<code>ssn</code>	unsigned integer	Storage Center serial number to use
<code>apiPort</code>	unsigned integer	Enterprise Manager API port
<code>serverFolder</code>	string	Name of the server folder to use on the Storage Center

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Parameter	Type	Description
volumeFolder	string	Name of the volume folder to use on the Storage Center
iscsiIp	string	The Storage Center iSCSI IP address
iscsiPort	unsigned integer	The Storage Center iSCSI port

#### 5.2.482 OpenStackVolumeBackendGPFS (parent: [OpenStackVolumeBackend](#))

Parameter	Type	Description
imagesDir	string	Path of the Image service repository in GPFS
imagesShareMode	enum	Type of image copy to be used
maxCloneDepth	unsigned integer	Upper limit on the number of indirections required to reach a specific block due to snapshots or clones
mountPointBase	string	Path of the GPFS directory where Block Storage volume and snapshot files are stored
sparseVolumes	boolean	Specifies that volumes are created as sparse files which initially consume no space
storagePool	string	Storage pool that volumes are assigned to

**5.2.483 OpenStackVolumeBackendNetApp (parent: OpenStackVolumeBackend)**

Parameter	Type	Description
storageFamily	enum	Storage family.
storageProtocol	enum	Storage protocol.
hostname	string	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
port	unsigned integer	Port of the NetApp server
transportType	string	Transport protocol for communicating with the storage system or proxy server
login	string	Administrative user account name used to access the storage system or proxy server
password	string	Password for the administrative user account
vserver	string	The storage virtual machine (previously called a Vserver) name on the storage cluster on which provisioning of block storage volumes should occur
allowMultiAttach	boolean	Allow operations that require multiple attachments to a volume

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Parameter	Type	Description
hostType	string	Defines the type of operating system for all initiators that can access a LUN
osType	string	Defines the type of operating system that will access a LUN exported from Data ONTAP
spaceReservation	boolean	If enabled, LUNs are thick provisioned. If space reservation is disabled, storage space is allocated on demand
poolNameSearchPattern	string	Regex used to restrict provisioning to the specified pools
partnerBackend	string	The name of the config.conf stanza for a Data ONTAP (7-mode) HA partner
webServicePath	string	The path to the E-Series proxy application on a proxy server
controllerIps	list of strings	List of hostnames/ips of controllers to which the provisioning should be restricted
saPassword	string	Password for the NetApp E-Series storage array
sizeMultiplier	float	When creating volumes, the quantity to be multiplied to the requested OpenStack volume size to ensure enough space is available on the SVM

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Parameter	Type	Description
nfsSharesConfig	string	Path to a file with NFS exports
copyOffloadToolPath	string	The path of the NetApp copy offload tool binary
cacheClean	unsigned integer	Percentage of available space for an NFS share below which a cache will be cleaned
cacheCleanStop	unsigned integer	Percentage of available space for an NFS share, above which files not recently accessed will not be cleaned
expiryMinutes	unsigned integer	Files that have not been accessed after this interval will be cleaned
vfiler	string	vFiler unit on which provisioning of block storage volumes will be done

#### 5.2.484 OpenStackVolumeBackendNFS (parent: OpenStackVolumeBackend)

Parameter	Type	Description
nfsDiskUtil	string	Using disk utility.
nfsMountPointBase	string	Base dir containing mount points for nfs shares.
nfsSparsedVolumes	boolean	Create volumes as sparsed files which take no space. If set to False volume is created as regular file.
nfsSharesConfig	string	File with the list of available nfs shares.
nfsShares	list of strings	List of available nfs shares.

#### 5.2.485 OpenStackVolumeBackendSolidFire (parent: OpenStackVolumeBackend)

Parameter	Type	Description
sanIP	string	IP address of MVIP

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Parameter	Type	Description
sanLogin	string	Username for MVIP
sanPassword	string	Password for MVIP
accountPrefix	string	Create SolidFire accounts with this prefix (string 'hostname' is special and will create a prefix using the cinder node hostname)
templateAccountName	string	Account name on the SolidFire Cluster to use as owner of template/cache volumes
allowTenantQoS	boolean	Allow tenants to specify QoS on create
allowTemplateCaching	boolean	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
apiPort	unsigned integer	SolidFire API port
emulate512	boolean	Set 512 byte emulation on volume creation

#### 5.2.486 OpenStackVolumeBackend (parent: *Entity*)

Parameter	Type	Description
name	string	Backend Name
volumeDriver	string	Driver to use for volume creation

#### 5.2.487 OpenStackVolumeBackupBackendCeph (parent: *OpenStackVolumeBackupBackend*)

Parameter	Type	Description
backupCephUser	string	The Ceph user to connect with
backupCephChunkSize	unsigned integer	The chunk size in bytes that a backup will be broken into before transfer to backup store

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Parameter	Type	Description
backupCephPool	string	RADOS pool in which backups are stored
backupCephStripeUnit	unsigned integer	RBD stripe unit to use when creating a backup image
backupCephStripeCount	unsigned integer	RBD stripe count to use when creating a backup image
restoreDiscardExcessBytes	boolean	If True, always discard excess bytes when restoring volumes
backupDriver	string	Driver to use for backups
backupCephConf	string	Path to the ceph configuration file to use

**5.2.488 OpenStackVolumeBackupBackend (parent: Entity)**

Parameter	Type	Description
name	string	Backend name

**5.2.489 OpenStackVolumeBackupRole (parent: Role)**

Parameter	Type	Description
backupBackends	list of OpenStackVolumeBackupBackend	Using volume backup backends

**5.2.490 OpenStackVolumeRole (parent: Role)**

Parameter	Type	Description
glanceApiVersion	string	Version of Glance API to use
volumeBackends	list of OpenStackVolumeBackend	Using volume storage backends

**5.2.491 OpenStackVolumeSchedulerRole (parent: Role)**

Parameter	Type	Description
volumeScheduleAttempts	unsigned integer	How many times Cinder scheduler should attempt to schedule a creation of a volume.

**5.2.492 OpenvSwitchRole (parent: Role)**

Parameter	Type	Description
extraString1	string	
extraString2	string	
extraString3	string	
extraString4	string	
extraInt1	integer	
extraStringList1	list of strings	
extraStringList2	list of strings	
extraStringList3	list of strings	
extraStringList4	list of strings	

#### 5.2.493 OsapiPortIP (parent: *Entity*)

Parameter	Type	Description
IP	string	The IP address
subnetUUID	string	The OpenStack subnet containig the port

#### 5.2.494 OsapiSecurityGroupRule (parent: *OpenStackApiEntity*)

Parameter	Type	Description
direction	enum	Traffic direction impacted by the rule, ingress: towards the VM, egress: out of the VM
etherType	enum	IP protocol version
portRangeMin	unsigned integer	Port range start

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Parameter	Type	Description
portRangeMax	unsigned integer	Port range end
protocol	string	Custom string
remoteGroupUUID	string	Optional remote security group impacted by this rule
remoteIPPrefix	string	Remote CIDR impacted by this rule, e.g. 10.12.0.0/16
projectUUID	string	Project owning this rule

**5.2.495 OsapiStackResource (parent: *Entity*)**

Parameter	Type	Description
UUID	string	The UUID of the stack
name	string	The name of the stack
updatedAt	string	When was the last time the stack was updated
status	string	Current state of the stack
statusReason	string	Additional status text of the stack
type	string	Type of the stack

**5.2.496 OsapiSubnetAllocationPool (parent: *Entity*)**

Parameter	Type	Description
start	IP	The start of the IP range.
end	IP	The end of the IP range.

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Parameter	Type	Description
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**5.2.497 OSCloudDisk (parent: *Entity*)**

Parameter	Type	Description
<code>name</code>	string	Name of the disk
<code>bootIndex</code>	integer	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
<code>size</code>	unsigned integer	Size of the disk
<code>diskBus</code>	string	Hypervisor-specific details about disk bus type
<code>deviceType</code>	string	Hypervisor-specific details about disk device type
<code>removeOnTermination</code>	boolean	If true, the drive will be removed when the instance it is attached to gets terminated

**5.2.498 OSCloudEphemeralDisk (parent: *OSCloudDisk*)**

Parameter	Type	Description
<code>format</code>	string	Filesystem to format the disk

**5.2.499 OSCloudExtension (parent: *Entity*)**

Parameter	Type	Description
<code>name</code>	string	User-defined name of the private cloud
<code>region</code>	reference to <i>OSCloudRegion</i>	Region of the cluster extension
<code>network</code>	reference to <i>Network</i>	Network associated with the extension

*...continues*

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Parameter	Type	Description
floatingIpNetworkId	string	Floating IP Network UUID or name
stackId	string	Heat stack ID
defaultDirectorSec\ GroupId	string	Default security group ID/name for the cloud director
defaultCnodeSecGroup\ Id	string	Default security group ID/name for the cloud nodes
extraField	list of strings	A list of various advanced options

**5.2.500 OSCloudFlavor (parent: CloudType)**

Parameter	Type	Description
id	string	The ID of the flavor

**5.2.501 OSCloudProvider (parent: CloudProvider)**

Parameter	Type	Description
cloudApiType	string	Cloud provider type
authUrl	string	Keystone URL
username	string	Username
password	string	Password
projectId	string	Project ID

*...continues*

*...continued*

Parameter	Type	Description
projectName	string	Project Name
projectDomainId	string	Project Domain Id
userDomainId	string	User Domain Id
keyPairName	string	SSH Key Pair Name
openStackVersion	string	OpenStack release version (e.g. 2015.1.3)
openStackVersionName	string	OpenStack release codename (e.g. Kilo)
extensions	list of OSCloudExtension	List of extensions
defaultRegion	reference to OSCloudRegion or None	Default region to start instances
defaultFlavor	reference to OSCloudFlavor or None	Default cloud node flavor
defaultDirectorFlavor	reference to OSCloudFlavor or None	Default cloud director Flavor
defaultImage	string	Default node-installer image, can be overridden in the OS disk

#### 5.2.502 OSCloudRegion (parent: CloudRegion)

Parameter	Type	Description
id	string	The ID of the region

#### 5.2.503 OSCloudSettings (parent: CloudSettings)

Parameter	Type	Description
instanceId	string	Unique ID of the instance in OpenStack (the UUID).

*...continues*

*...continued*

Parameter	Type	Description
secGroupId	string	Security group name/ID
region	reference OSCloudRegion	to The region of the cloud the VM is located in.
flavor	reference OSCloudFlavor	to Instance Flavor (the type of the VM).
image	string	The name of the cloud image used for creating the VM.
disks	list of OSCloudDisk	Definitions of storage devices of the VM.
availabilityZone	string	Availability zone the VM is supposed to be created in. If left empty, the availability zone will be automatically assigned by the cloud.

**5.2.504 OSCloudSwapDisk (parent: OSCloudDisk)**

Parameter	Type	Description
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**5.2.505 OSCloudVolumeDisk (parent: OSCloudDisk)**

Parameter	Type	Description
imageId	string	Image ID to use as source for this disk
snapshotId	string	Snapshot ID to use as source for this disk
volumeId	string	Volume ID to use as source for this disk

**5.2.506 OSServiceConfig (parent: Entity)**

Parameter	Type	Description
name	string	Name
monitored	boolean	CMDaemon will periodically check if the service is running

*...continues*

*...continued*

Parameter	Type	Description
autostart	boolean	CMDaemon will restart a failed service
runIf	enum	Only run this service in the specified state
belongsToRole	boolean	Service is initialized as part of an assigned role
addFromRole	boolean	
fromGenericRole	boolean	
roleKey	unsigned integer	
extraKey	unsigned integer	
internal	boolean	
serviceType	unsigned integer	
sicknessCheckScript	string	Script for sickness checking (no script means no sickness checks)
sicknessCheckScript\ Timeout	unsigned integer	Timeout after which the script is killed
sicknessCheckInterval	unsigned integer	Sickness checks interval (rounded up to 30s monitoring interval)
scriptTimeout	integer	Service operation timeout

### 5.2.507 OService (parent: Entity)

Parameter	Type	Description
refOServiceConfig\ UniqueKey	unsigned integer	OServiceConfig
name	string	

*...continues*



*...continued*

Parameter	Type	Description
status	enum	
refNodeUniqueKey	unsigned integer	Node
isRealService	boolean	
sicknessMessage	string	

**5.2.508 ParentJob (parent: Entity)**

Parameter	Type	Description
wlm	string	Workload manager
parentID	string	Parent job identifier
username	string	Job owner name
state	string	Jobs state
totalJobs	unsigned integer	Number of all jobs
runningJobs	unsigned integer	Running jobs number
pendingJobs	unsigned integer	Pending jobs number
finishedJobs	unsigned integer	Finished jobs number

*...continues*

*...continued*

Parameter	Type	Description
failedJobs	unsigned integer	Failed jobs number
suspendedJobs	unsigned integer	Suspended jobs number

**5.2.509 Partition (parent: [Entity](#))**

Parameter	Type	Description
name	string	Name
clusterName	string	Cluster name
primaryHeadNode	reference to <a href="#">HeadNode</a>	Primary head node
failover	<a href="#">CMDaemonFailover</a>	Manage failover setup for this cluster
timezone	string	Time zone
adminEmail	list of strings	Administrator's email
slaveName	string	Default prefix to identify nodes. eg node003 (basename = node)
slaveDigits	unsigned integer	Number of digits used to identify nodes. eg node003 (digits = 3)
nameServers	list of strings	Name servers

*...continues*

*...continued*

Parameter	Type	Description
nameServersFromDhcp	list of strings	Name servers provided by dhcp, edit the name servers property instead
timeServers	list of strings	Time servers
searchDomains	list of strings	Search domains
externallyVisibleIp	list of strings	IP that external sites see when headnode connects
externalNetwork	reference to Network	External network
defaultCategory	reference to Category	Default category
softwareImageProxy	SoftwareImageProxy	Default software image
burnConfigs	list of BurnConfig	Burn configurations
failoverGroups	list of CMDaemonFailoverGroup	Failover group configurations
resourcePools	list of ResourcePool	Resource pools
defaultBurnConfig	element of burnConfigs	Default burn configuration
bmcSettings	BMCSettings or None	Configure the baseboard management controller settings

*...continues*

*...continued*

Parameter	Type	Description
managementNetwork	reference to Network	Determines what network should be used for management traffic.
notes	string	Administrator notes
provisioningNodeAuto\UpdateTimeout	unsigned integer	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)
relayHost	string	Display the configured relay host
ucsProfiles	list of UCSInfo	Pre-defined UCS Profiles
noZeroConf	boolean	Add nozeroconf to network configuration
proxySettings	ProxySettings or None	Configure the proxy server settings
autosign	enum	Sign certificates for node installer request according to network settings.

#### 5.2.510 PBSJobQueueStat (parent: JobQueueStat)

Parameter	Type	Description
running	unsigned integer	Running jobs
queued	unsigned integer	Queued jobs
held	unsigned integer	Held jobs
waiting	unsigned integer	Waiting jobs

#### 5.2.511 PBSJobQueue (parent: JobQueue)

Parameter	Type	Description
type	string	Type of queue

*...continues*

*...continued*

Parameter	Type	Description
routes	list of strings	Route of queue path
minWalltime	string	Minimum runtime of jobs running in a queue
maxWalltime	string	Maximum runtime of jobs running in a queue
defaultWalltime	string	Maximum runtime of jobs running in a queue
maxQueueable	unsigned integer	Maximum number allowed to reside in a queue at any given time (0 is the same as infinite)
priority	integer	Priority of a queue against other queues of the same type [-1024; 1024]
enabled	boolean	When true, a queue will accept new jobs; when false, a queue is disabled and will not accept jobs
started	boolean	Jobs may be scheduled for execution from this queue; when false, a queue is considered stopped
aclHostEnable	boolean	When true directs the server to use the acl_hosts access list for the named queue

**5.2.512 PBSJob (parent: Job)**

Parameter	Type	Description
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**5.2.513 PbsProCgroupsSettings (parent: WlmCgroupsSettings)**

Parameter	Type	Description
jobCgroupTemplate	string	Template for job cgroup path (\$JOBID will be replaced to job id)

**5.2.514 PbsProClientRole (parent: Role)**

Parameter	Type	Description
slots	unsigned integer	Number of slots available on this node/category

*...continues*

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Parameter	Type	Description
queues	list of strings	Queues this node belongs to
allQueues	boolean	When set, the role will provide all available queues. (The queues property will then be ignored.)
gpus	unsigned integer	Number of gpus
gpuDevices	list of strings	/dev/* available to workload management
properties	list of strings	Node properties (a 'pnames' node attribute)
spool	string	PBS Pro mom spool directory
prefix	string	Directory where PBS Pro is installed
momSettings	PbsProMomSettings	Submode containing pbs_mom daemon settings
commSettings	PbsProCommSettings	Submode containing pbs_comm settings
nodeCustomizations	list of WlmNodeCustomizationEntry	PBS Pro node custom properties

#### 5.2.515 PbsProCommSettings (parent: Entity)

Parameter	Type	Description
commRouters	list of strings	Tells a pbs_comm where to find its fellow communication daemons (PBS_COMM_ROUTERS parameter in pbs.conf)
commThreads	unsigned integer	Tells pbs_comm how many threads to start (PBS_COMM_THREADS parameter in pbs.conf)
startComm	boolean	Configure pbs_com daemon start (PBS_START_COMM parameter in pbs.conf)

#### 5.2.516 PbsProJobQueueStat (parent: PBSJobQueueStat)

Parameter	Type	Description
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#### 5.2.517 PbsProJobQueue (parent: PBSJobQueue)

Parameter	Type	Description
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### 5.2.518 PbsProJob (parent: PBSJob)

Parameter	Type	Description
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### 5.2.519 PbsProMomSettings (parent: Entity)

Parameter	Type	Description
outputHostname	string	Host to which all job standard output and standard error are delivered (PBS_OUTPUT_HOST_NAME parameter in pbs.conf)
leafRouters	list of strings	Location of endpoint's pbs_comm daemon (PBS_LEAF_ROUTERS parameter in pbs.conf)
leafName	string	Leaf name (PBS_LEAF_NAME parameter in pbs.conf)
startMom	boolean	Configure pbs_mom daemon start (PBS_START_MOM parameter in pbs.conf)

### 5.2.520 PbsProServerRole (parent: Role)

Parameter	Type	Description
externalServer	boolean	PBS Pro server daemons are running on some external machine
prefix	string	Directory where PBS Pro is installed
spool	string	Server spool directory path
enableJobHistory	boolean	Keep all job attribute information in PBS Pro
jobHistoryDuration	string	Specifies the length of time that PBS will keep each job's history

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Parameter	Type	Description
placeholders	list of JobQueuePlaceholder	Job queue node placeholders mode
cgroups	PbsProCgroups\Settings	Submode containing PBS Pro related cgroups settings
commSettings	PbsProCommSettings	Submode containing pbs_comm settings

#### 5.2.521 PDUPort (parent: Entity)

Parameter	Type	Description
pdu	reference to PowerDistributionUnit	Pointer to a power distribution unit
prt	unsigned integer	Port number on the power distribution unit

#### 5.2.522 PhysicalNode (parent: ComputeNode)

Parameter	Type	Description
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#### 5.2.523 PingResult (parent: Entity)

Parameter	Type	Description
source	unsigned integer	Source
destination	unsigned integer	Destination
result	enum	Result of the ping operation
latency	float	Round trip latency
sequenceId	unsigned integer	Sequence ID

#### 5.2.524 PingStatisticsGlobalInformation (parent: Entity)

Parameter	Type	Description
count	unsigned integer	
average	float	

...continues



*...continued*

Parameter	Type	Description
minimum	float	
maximum	float	
uniformity	float	

**5.2.525 PingStatisticsPairInformation (parent: Entity)**

Parameter	Type	Description
source	unsigned integer	
destination	unsigned integer	
count	unsigned integer	
average	float	
minimum	float	
maximum	float	
uniformity	float	

**5.2.526 PingStatisticsSourceInformation (parent: Entity)**

Parameter	Type	Description
source	unsigned integer	
count	unsigned integer	
average	float	
minimum	float	

*...continues*

*...continued*

Parameter	Type	Description
maximum	float	
uniformity	float	

**5.2.527 PingStatistics (parent: [Entity](#))**

Parameter	Type	Description
totalOk	unsigned integer	Total number of pings that returned OK
totalError	unsigned integer	Total number of pings that returned error
totalFailed	unsigned integer	Total number of pings that returned failed
totalTimeout	unsigned integer	Total number of pings that returned timeout
totalNoAddress	unsigned integer	Total number of pings had no address
totalUnreachable	unsigned integer	Total number of pings that returned unreachable
total	unsigned integer	Total number of pings done
pairInformation	list of PingStatisticsPairInformation	Ping pair information statistics
sourceInformation	list of PingStatisticsSourceInformation	Ping source information statistics

*...continues*

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Parameter	Type	Description
globalInformation	PingStatistics\ GlobalInformation	Ping global information statistics
results	list of PingResult	Raw ping results

**5.2.528 PowerDistributionUnit (parent: Device)**

Parameter	Type	Description
ip	IP	IP address
network	reference to Network or None	Network to which this unit is connected
model	string	PowerDistributionUnit model name
ports	integer	Number of outlets
banks	integer	Number of banks
phases	integer	Number of phases
readString	string	SNMP read-only community string
writeString	string	SNMP read-write community string
firmware	string	Firmware revision

*...continues*

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Parameter	Type	Description
controlScript	string	
controlScriptTimeout	unsigned integer	

**5.2.529 PowerOperationStatus (parent: [Entity](#))**

Parameter	Type	Description
state	enum	State of the operation
operation	enum	Operation to be performed
executionTime	timestamp	Execution time
info	string	Extra information about the power operation
retries	unsigned integer	Number of retries
devices	list of unsigned numbers	Devices
index	list of unsigned numbers	Indexes of power operation
gpus	list of unsigned numbers	GPUs

**5.2.530 PowerOperation (parent: [Entity](#))**

Parameter	Type	Description
devices	list of unsigned numbers	Devices
pduPorts	list of unsigned numbers	A list of (PDU, port) pairs
sessionId	unsigned integer	Session id

*...continues*

*...continued*

Parameter	Type	Description
force	boolean	Set to true to also do power operation on closed devices
delay	unsigned integer	Delay between sequential operations in milliseconds
deviceDelay	list of unsigned numbers	Individual device delay in milliseconds
headIndex	unsigned integer	Should be 0
operation	enum	Operation to be performed
gpu	list of unsigned numbers	GPUs
retryCount	unsigned integer	Number of times to retry on failure
retryDelay	unsigned integer	Delay between consecutive tries in milliseconds

**5.2.531 PowerStatus (parent: Entity)**

Parameter	Type	Description
device	unsigned integer	Device
host	unsigned integer	
powerDistributionUnit	unsigned integer	
gpu	integer	
prt	unsigned integer	
name	string	

*...continues*

*...continued*

Parameter	Type	Description
state	enum	
msg	string	
extendedMsg	string	
indexes	list of unsigned numbers	
tracker	unsigned integer	
retries	unsigned integer	

**5.2.532 PreJobOutput (parent: Entity)**

Parameter	Type	Description
measurable	unsigned integer	
value	float	
output	string	
failed	boolean	
reschedule	boolean	

**5.2.533 PreJobResult (parent: Entity)**

Parameter	Type	Description
hostname	string	
nodeKey	unsigned integer	
output	list of PreJobOutput	

**5.2.534 Processor (parent: Entity)**

Parameter	Type	Description
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*...continues*

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
vendor	string	Vendor
family	string	Family
model	string	Model
modelName	string	Model name
cores	integer	Cores
ID	unsigned integer	ID
coreID	unsigned integer	Core ID
IDLevel	string	ID level
stepping	unsigned integer	Stepping
speed	string	Speed
cacheSize	string	Cache size
cacheAlignment	string	Cache alignment

*...continues*

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Parameter	Type	Description
flags	string	Flags
bogomips	string	Bogomips
TLBSize	string	TLB size
addressSizes	string	Address sizes
powerManagment	string	Power managment
FPU	boolean	FPU
FPUException	boolean	FPU exception
wp	boolean	WP
availableGovernors	list of strings	Available governors
currentGovernor	string	Current governor

### 5.2.535 Process (parent: *Entity*)

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	Node
pid	integer	Process ID
ppid	integer	Parent PID
uid	integer	Owner UID

*...continues*



*...continued*

Parameter	Type	Description
gid	integer	Process' group ID
state	string	Process' state
cmd	string	The command name
size	unsigned integer	Virtual memory size(KB)
rss	unsigned integer	Resident memory size
nbthreads	integer	Number of threads spawned
nbfiledescs	integer	Number of held file descriptors
cputime	unsigned integer	CPU time
cpuuse	float	CPU percentage use
username	string	Owner name
groupname	string	Group name

**5.2.536 Profile (parent: [Entity](#))**

Parameter	Type	Description
name	string	Name
tokens	list of strings	Tokens
accessServices	list of strings	Services
nonuser	boolean	True if profile not assignable to users.

**5.2.537 ProgramRunnerInput (parent: [Entity](#))**

Parameter	Type	Description
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Parameter	Type	Description
user	string	
startInShell	boolean	
cmd	string	
info	string	
args	list of strings	
env	list of strings	
datacin	string	
mergeCoutCerr	boolean	
maxruntime	unsigned integer	
updateinterval	unsigned integer	
priority	integer	
tracker	unsigned integer	
logger	enum	

**5.2.538 ProgramRunnerKill (parent: Entity)**

Parameter	Type	Description
node	unsigned integer	Node key
running	integer	Running

*...continues*

*...continued*

Parameter	Type	Description
trackers	list of unsigned numbers	Tackers
results	list of signed numbers	results

**5.2.539 ProgramRunnerOutput (parent: [Entity](#))**

Parameter	Type	Description
node	unsigned integer	
datacout	string	
datacerr	string	
exitcode	integer	
signal	integer	
pid	integer	
runtime	unsigned integer	
state	unsigned integer	

**5.2.540 ProgramRunnerStatus (parent: [Entity](#))**

Parameter	Type	Description
startTime	timestamp	
runtime	unsigned integer	
sid	unsigned integer	
running	integer	

*...continues*

*...continued*

Parameter	Type	Description
unknown	integer	
internal	boolean	
nodes	list of unsigned numbers	
state	list of unsigned numbers	
input	ProgramRunnerInput	

#### 5.2.541 PrometheusQuery (parent: *Entity*)

Parameter	Type	Description
name	string	Name
query	string	PromQL Query
typeClass	string	Type class, slash(/) separated for levels
description	string	Description
notes	string	Notes
startTime	string	Default query start time
endTime	string	Default end start time
interval	float	Interval

*...continues*

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Parameter	Type	Description
stalenessDelay	float	Staleness delay
access	enum	User access control
unit	string	Unit of measure for the query results

#### 5.2.542 PrometheusRecordingRule (parent: [Entity](#))

Parameter	Type	Description
name	string	Name
sourceLabels	list of strings	Source labels to be translated into target
targetLabel	string	Target label
valueRegex	string	Regex the value must match for this rule to be applied
valueReplace	string	Replace value with regex replace (use \$1 for matchers)
disabled	boolean	Disable this rule
keepOriginalLabels	boolean	Keep original labels

#### 5.2.543 ProvisioningNodeStatus (parent: [Entity](#))

Parameter	Type	Description
slotsCapacity	unsigned integer	Number of provisioning requests this node can handle in parallel.
slotsUsed	unsigned integer	Number of provisioning requests currently being handled by this node.

*...continues*

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Parameter	Type	Description
nodeKey	unsigned integer	The provisioning node.
drained	boolean	Drained and not available for future request
imageKeys	list of unsigned numbers	
upToDate	list of booleans	
nodeGroupKeys	list of unsigned numbers	Node groups this provisioning node will provide images for.
categoryKeys	list of unsigned numbers	Categories this provisioning node will provide images for.
rackKeys	list of unsigned numbers	Racks this provisioning node will provide images for.

#### 5.2.544 ProvisioningProcessorJob (parent: *Entity*)

Parameter	Type	Description
jobID	unsigned integer	Internal provisioning system job ID.
requestID	unsigned integer	Provisioning request ID.
source	reference to Node	Source node.
sourcePath	string	Path on the source node.
destination	reference to Node	Destination node.

*...continues*

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Parameter	Type	Description
destinationPath	string	Path on the destination node.
isFromNodeInstaller	boolean	Set if the request came from the node-installer.
userName	string	Rsync username.
password	string	Rsync password.
rsyncdPort	unsigned integer	Rsync port.
includelist	string	Rsync include list.
excludelist	string	Rsync exclude list.
dryrun	boolean	If set, a dry run will be performed, no data is written.
syncMode	unsigned integer	Sync mode.
state	unsigned integer	Job state.
errorMessage	string	Error message.
errorDetails	string	Error details.

#### 5.2.545 ProvisioningRequestStatus (parent: [Entity](#))

Parameter	Type	Description
requestIDs	list of unsigned numbers	Provisioning request IDs.
sourceNodeKey	unsigned integer	Source node handling the provisioning request.
sourcePath	string	Path on the source node.

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Parameter	Type	Description
destinationNodeKey	unsigned integer	Destination node for the provisioning request.
destinationPath	string	Path on the destination node.
dryRun	boolean	In dry-run mode no data is actually written. See provisioning log for results.
syncMode	unsigned integer	Sync mode used for the provisioning request.
state	unsigned integer	State of the provisioning request.
errorMessage	string	Error message.
errorDetails	string	Detailed error message.
jobFailureCounter	unsigned integer	Number of times the provisioning job has failed.
isFromNodeInstaller	boolean	Set if the request came from the node-installer.
requesterSessions	list of unsigned numbers	
schedulerInfo	list of strings	Details on how the provisioning request was scheduled.

#### 5.2.546 ProvisioningRole (parent: Role)

Parameter	Type	Description
maxProvisioningNodes	unsigned integer	Maximum number of nodes that can be provisioned in parallel
localImages	list of references to SoftwareImage	List of software images provided from local disk
includeRevisionsOf\LocalImages	boolean	Include revisions of local images

*...continues*



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Parameter	Type	Description
sharedImages	list of references to SoftwareImage	List of software images provided from shared storage
allImages	enum	When set, the role will provide all available images. (The images property will then be ignored.)
nodegroups	list of references to NodeGroup	List of node groups for which to provide images
categories	list of references to Category	List of categories for which to provide images
racks	list of references to Rack	List of racks for which to provide images
localProvisioning	boolean	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.

**5.2.547 ProvisioningStatus (parent: Entity)**

Parameter	Type	Description
provisioningRequest\ StatusList	list of ProvisioningRequestStatus	
provisioningNode\ StatusList	list of ProvisioningNodeStatus	

**5.2.548 ProxySettings (parent: Entity)**

Parameter	Type	Description
proxyHttp	string	HTTP proxy address which will be used for the node connections to HTTP resources
proxyHttpUser	string	HTTP proxy username for authentication

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Parameter	Type	Description
proxyHttpPass	string	HTTP proxy password for authentication
proxyHttps	string	HTTPS proxy address which will be used for the node connections to HTTPS resources
proxyHttpsUser	string	HTTPS proxy username for authentication
proxyHttpsPass	string	HTTPS proxy password for authentication
proxyFtp	string	FTP proxy address which will be used for the node connections to FTP resources
proxyFtpUser	string	FTP proxy username for authentication
proxyFtpPass	string	FTP proxy password for authentication
noProxy	list of strings	Hosts to be accessed without proxy

**5.2.549 RackPosition (parent: *Entity*)**

Parameter	Type	Description
rack	reference to Rack	Name of the rack in which the device resides
position	unsigned integer	Position of the node in the rack, top is 1
height	unsigned integer	Height of the node

**5.2.550 RackSensor (parent: *Device*)**

Parameter	Type	Description
ip	IP	Ip address
network	reference to Network or None	Network to which this switch is connected

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Parameter	Type	Description
model	string	RackSensor model name
sensors	list of Sensor	Sensors in the rackmon kit
readString	string	SNMP read-only community string
writeString	string	SNMP read-write community string

**5.2.551 Rack (parent: Entity)**

Parameter	Type	Description
name	string	Name
room	string	Name of the room
xCoordinate	unsigned integer	Position in the room
yCoordinate	unsigned integer	Position in the room
height	unsigned integer	Height (U)
width	unsigned integer	Width (inches)
inverted	boolean	Inverted racks have position 1 at the bottom
notes	string	Administrator notes

**5.2.552 RadosGatewayRole (parent: Role)**

Parameter	Type	Description
serverRoot	string	Fast CGI server root path
serverSocket	string	Fast CGI server socket

*...continues*

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Parameter	Type	Description
serverPort	unsigned integer	Gateway port
serverScript	string	Fast CGI server script content
module	string	Apache fastcgi module file name
enableKeystone\ Authentication	boolean	Indicates if RadosGW will be able to authenticate via Keystone tokens
keystoneAcceptedRoles	list of strings	Accepted by RadosGW OpenStack user roles
keystoneTokens\ CacheSize	unsigned integer	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.
keystoneRevocation\ Interval	unsigned integer	Keystone tokens revocation interval
nssDbPath	string	Path to NSS database directory

### 5.2.553 RemoteNodeInstallerInteraction (parent: *Entity*)

Parameter	Type	Description
node	reference ComputeNode	to The node requesting interaction.
description	string	The description of the interaction.
firstSeen	integer	The first time this interaction was requested.
lastSeen	integer	The last time this interaction was requested.

*...continues*

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Parameter	Type	Description
appeared	string	The first time this interaction was requested.
wasConfirmed	boolean	Whether the interaction has been confirmed.
wasDenied	boolean	Whether the interaction has been denied (rejected).
invalid	boolean	Whether the interaction was found to be invalid.

**5.2.554 RemoteSetupExecution (parent: Entity)**

Parameter	Type	Description
id	integer	A unique identified of the remote cm-*-setup execution.
inputConfig	string	cm-*-setup yaml input configuration file (used with '-c' flag).
exitCode	integer	The return exit code from cm-setup (once the execution has been completed).
signal	integer	Number identifying the signal which interrupted the execution.
datacout	list of strings	Data which was emitted on stdout from cm-*-setup.

**5.2.555 ResourcePoolStatus (parent: Entity)**

Parameter	Type	Description
nodes	list of unsigned numbers	Nodes
nodeStatus	list of unsigned numbers	Node status

*...continues*

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Parameter	Type	Description
resourceKeys	list of unsigned numbers	Resource key
resourceStatus	list of unsigned numbers	Resource status
resourceMessages	list of strings	Resource message

### 5.2.556 ResourcePool (parent: [Entity](#))

Parameter	Type	Description
name	string	Name
nodes	list of references to Node	List of nodes who share the resources
configurationOverlay	reference to Configuration\Overlay	Configuration overlay which defines the nodes that share the resources
priority	list of floating point numbers	Distribution priorities for the nodes
hostname	string	Hostname all IP resources will point to
resources	list of BasicResource	Resources to be divided among the given nodes
waitTime	unsigned integer	How long to wait after a node goes down before migrating it's resources
disabled	boolean	Disabled the entire resource pool
generateDNSZone	enum	Specify which DNS zones should be written

### 5.2.557 Role (parent: [Entity](#))

Parameter	Type	Description
name	string	Name
addServices	boolean	Add services to nodes which belong to this node. Be carefull setting this to false.
fspartAssociations	list of FSPartAssociation	Provisioning associations linked to this role

### 5.2.558 Route (parent: [Entity](#))

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	Node
destination	IP	The destination network or destination host.
gateway	IP	Gateway
netmask	IP	The netmask for the destination
flags	string	Flags
metric	unsigned integer	The 'distance' to the target (usually counted in hops)
ref	unsigned integer	Number of references to this route
use	unsigned integer	Number of lookups for the route
interface	string	

#### 5.2.559 S3BucketIntermediateStorage (parent: [CMSubIntermediateStorage](#))

Parameter	Type	Description
bucket	string	S3 Bucket name
region	string	Region for S3 bucket
maxObjectLifetime	float	Max time to store data in bucket (0 for infinite)

#### 5.2.560 ScaleAdvancedSettings (parent: [Entity](#))

Parameter	Type	Description
debug2	boolean	Print very low level debug messages to the log
maxThreads	unsigned integer	Maximum number of threads for sequential operations

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Parameter	Type	Description
powerOperation\ Timeout	unsigned integer	Power Operation Timeout (in seconds)
connectionRetry\ Interval	unsigned integer	Connection to CMDaemon retry interval (in seconds)
logFile	string	Path to cm-scale logs file
pinQueues	boolean	Pin workload to its queue nodes
mixLocations	boolean	Allow to map workload to different locations (for example, cloud and local)
failedNodeIsHealthy	boolean	Do not start a new node instead of a failed one
azureDiskAccountNodes	unsigned integer	Number of nodes that can share the same Azure disk account
azureDiskImageName	string	Image name for Azure disks
azureDiskContainer\ Name	string	Container name for Azure disks
azureDiskAccount\ Prefix	string	Prefix for randomly generated Azure disk account names
options	list of strings	Additional parameters that will be passed to cm-scale daemon

### 5.2.561 ScaleDynamicNodesProvider (parent: [ScaleResourceProvider](#))

Parameter	Type	Description
templateNode	reference to Node	Template node
nodeRange	string	Node range

*...continues*



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Parameter	Type	Description
networkInterface	string	Which node network interface will be changed on cloning (incremented)
startTemplateNode	boolean	Should template node be started automatically
stopTemplateNode	boolean	Should template node be stopped automatically
removeNodes	boolean	Should nodes be removed from Bright Cluster Manager configuration upon the node termination
leaveFailedNodes	boolean	Failed nodes will not be touched in order to allow administrator to investigate why they were failed
neverTerminate	unsigned integer	Number of nodes that cm-scale powers off and allows to remain, instead of terminating

**5.2.562 ScaleEngine (parent: Entity)**

Parameter	Type	Description
name	string	HPC workload engine name
trackers	list of ScaleTracker	Workload trackers
workloadsPerNode	unsigned integer	Number of workloads that can be scheduled to the same node at the same time
priority	unsigned integer	Workload engine priority
ageFactor	float	Fairsharing coefficient for workload age significance
engineFactor	float	Fairsharing coefficient for engine priority significance
maxNodes	unsigned integer	Allowed running nodes limit
notes	string	Engine related notes
options	list of strings	Additional engine related parameters that will be passed to cm-scale daemon

**5.2.563 ScaleGenericEngine (parent: ScaleEngine)**

Parameter	Type	Description
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#### 5.2.564 ScaleGenericTracker (parent: ScaleTracker)

Parameter	Type	Description
handler	string	Full path to python module that produces workload entities for cm-scale

#### 5.2.565 ScaleHpcEngine (parent: ScaleEngine)

Parameter	Type	Description
workloadManager	string	Workload manager name

#### 5.2.566 ScaleHpcQueueTracker (parent: ScaleTracker)

Parameter	Type	Description
queue	string	Tracking job queue

#### 5.2.567 ScaleKubeEngine (parent: ScaleEngine)

Parameter	Type	Description
cluster	reference KubeCluster	to Kubernetes cluster which pods will be tracked
cpuBusyThreshold	float	CPU load % that defines if node is too busy for new pods
memoryBusyThreshold	float	Memory load % that defines if node is too busy for new pods

#### 5.2.568 ScaleKubeNamespaceTracker (parent: ScaleTracker)

Parameter	Type	Description
controllerNamespace	string	Tracking Kubernetes namespace name
object	enum	Type of Kubernetes objects to track

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Parameter	Type	Description
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**5.2.569 ScalePendingWorkload (parent: Entity)**

Parameter	Type	Description
workloadId	string	Workload that waits for nodes
nodes	list of references to Node	List of managed nodes

**5.2.570 ScaleResourceProvider (parent: Entity)**

Parameter	Type	Description
name	string	Resource provider name
enabled	boolean	Resource provider is currently enabled
priority	unsigned integer	Node provider priority
wholeTime	unsigned integer	A compute node running time (in minutes) before it is stopped if no workload requires it
stoppingAllowance\ Period	unsigned integer	A time (in minutes) just before the end of the wholeTime period prior to which all power off (or terminate) operations must be started
keepRunning	string	Nodes that should not be stopped or terminated even if they are unused (range format)
extraNodes	list of strings	Nodes that should be started before regular nodes

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Parameter	Type	Description
extraNodeIdleTime	unsigned integer	Time, in seconds, that extra nodes can remain unused (after this time they are stopped)
extraNodeStart	boolean	Automatically start extra node before the first compute node is started
extraNodeStop	boolean	Automatically stop extra node after the last compute node stops
defaultResources	list of strings	List of default resources in format [name=value]
options	list of strings	Additional resource provider related parameters that will be passed to cm-scale daemon

### 5.2.571 ScaleServerRole (parent: Role)

Parameter	Type	Description
engines	list of ScaleEngine	Submode containing workload engines settings
resourceProviders	list of ScaleResourceProvider	List of resource providers
dryRun	boolean	Run in dry run mode
debug	boolean	Print debug messages to the log
runInterval	unsigned integer	Frequency of cm-scale decision making (in seconds)
advancedSettings	ScaleAdvancedSettings	Submode containing advanced settings

### 5.2.572 ScaleStaticNodesProvider (parent: ScaleResourceProvider)

Parameter	Type	Description
nodes	list of references to Node	List of managed nodes
nodegroups	list of references to NodeGroup	List of managed nodegroups

### 5.2.573 ScaleTracker (parent: Entity)

Parameter	Type	Description
name	string	Tracker name
enabled	boolean	Tracker is currently enabled or disabled
pendingWorkloads	list of ScalePendingWorkload	List of pending workloads
assignCategory	reference to Category	Category that should be assigned to managed nodes
primaryOverlays	list of references to Configuration\Overlay	Configuration overlays that managed nodes are added to when they are required by workload
secondaryOverlays	list of references to Configuration\Overlay	Configuration overlays that the managed nodes are added to when no longer on load
queueLengthThreshold	unsigned integer	Number of pending workloads/jobs that triggers the nodes bursting
ageThreshold	unsigned integer	Workload/job pending time threshold that triggers the nodes bursting for this workload (in seconds)
options	list of strings	Additional tracker related parameters

#### 5.2.574 Semaphore (parent: Entity)

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	Node
semid	integer	Semaphore Set ID
ipcperm	IPCPerm	IPC permissions
nsems	unsigned integer	Number of semaphores in the set

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Parameter	Type	Description
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**5.2.575 Sensor (parent: Entity)**

Parameter	Type	Description
type	enum	Sensor type
name	string	Sensor name
prt	unsigned integer	Sensor port

**5.2.576 Session (parent: Entity)**

Parameter	Type	Description
eventCounter	unsigned integer	
queuedEventSize	unsigned integer	
clientType	unsigned integer	
acknowledgedKeepAlive	integer	
nodeKey	unsigned integer	
remoteAddress	IP	
username	string	
group	string	

**5.2.577 SGEClientRole (parent: Role)**

Parameter	Type	Description
execHost	boolean	Specifies if host is allowed to run Grid Engine jobs
adminHost	boolean	Specifies if host is administrative one

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Parameter	Type	Description
submitHost	boolean	Specifies if host is allowed to submit Grid Engine jobs
slots	string	Number of slots available on this node/category
queues	list of strings	Queues this node/nodes in this category belongs to
allQueues	boolean	When set, the role will provide all available queues. (The queues property will then be ignored.)
gpus	unsigned integer	Number of gpus
gpuDevices	list of strings	/dev/* available to workload management
nodeCustomizations	list of WlmNodeCustomizationEntry	Grid Engine node custom properties

**5.2.578 SGEJobQueueStat (parent: GridEngineJobQueueStat)**

Parameter	Type	Description
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**5.2.579 SGEJobQueue (parent: GridEngineJobQueue)**

Parameter	Type	Description
peList	list of strings	Parallel environments associated with queue

**5.2.580 SGEJob (parent: GridEngineJob)**

Parameter	Type	Description
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**5.2.581 SGEParallelEnvironment (parent: GridEngineParallelEnvironment)**

Parameter	Type	Description
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**5.2.582 SGEServerRole (parent: Role)**

Parameter	Type	Description
externalServer	boolean	Grid Engine server daemon is running on some external machine

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Parameter	Type	Description
prefix	string	Directory where Grid Engine is installed
cell	string	Grid Engine cell directory location
parallelEnvironments	list of SGEParallelEnvironment	Grid Engine Parallel Environments
placeholders	list of JobQueuePlaceholder	Job queue node placeholders mode

**5.2.583 SharedMemory (parent: Entity)**

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	Node
shmid	integer	Shared memory ID
ipcperm	IPCPerm	IPC permissions
size	unsigned integer	Size in bytes
cpid	integer	Creator PID
nattch	integer	Number of attaches

**5.2.584 SlurmCgroupsSettings (parent: WlmCgroupsSettings)**

Parameter	Type	Description
allowedDevicesFile	string	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
taskAffinity	boolean	If true then set a default task affinity to bind each step task to a subset of the allocated cores using sched_setaffinity

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Parameter	Type	Description
<code>constrainCores</code>	boolean	If true then constrain allowed cores to the subset of allocated resources
<code>constrainRAMSpace</code>	boolean	If true then constrain the job's RAM usage
<code>constrainSwapSpace</code>	boolean	If true then constrain the job's swap space usage
<code>constrainDevices</code>	boolean	If true constrain the job's allowed devices based on GRES allocated resources
<code>allowedRamSpace</code>	float	If true then set a default task affinity to bind each step task to a subset of the allocated cores using <code>sched_setaffinity</code>
<code>allowedSwapSpace</code>	float	Constrain the job cgroup swap space to this percentage of the allocated memory
<code>maxRAMPercent</code>	float	Set an upper bound in percent of total RAM on the RAM constraint for a job
<code>maxSwapPercent</code>	float	Set an upper bound (in percent of total RAM) on the amount of RAM+Swap that may be used for a job
<code>minRAMSpace</code>	unsigned integer	Set a lower bound (in MB) on the memory limits defined by <code>AllowedRAMSpace</code> and <code>AllowedSwapSpace</code>

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Parameter	Type	Description
jobCgroupTemplate	string	Template for job cgroup path (\$UID will be replaced to user ID, \$JOBID will be replaced to job id)
allowedKmemSpace	unsigned integer	Constrain the job cgroup kernel memory to this amount of the allocated memory (in bytes)
constrainKmemSpace	boolean	Specifies if Slurm will constrain the job's Kmem RAM usage
minKmemSpace	unsigned integer	Set a lower bound (in MB) on the memory limits defined by AllowedKmemSpace
maxKmemPercent	float	Set an upper bound in percent of total Kmem for a job
memorySwappiness	float	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)

**5.2.585 SlurmClientRole (parent: Role)**

Parameter	Type	Description
slots	unsigned integer	Number of slots available on this node/category (set 0 for default)
queues	list of strings	Queues this node/nodes in this category belongs to
allQueues	boolean	When set, the role will provide all available queues (the queues property will then be ignored)

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Parameter	Type	Description
gpus	unsigned integer	Number of gpus
nodeAddr	string	Name that a node should be referred to in establishing a communications path
coresPerSocket	unsigned integer	Number of cores in a single physical processor socket
features	list of strings	A list of arbitrary strings indicative of some characteristic associated with the node
tcpPort	unsigned integer	The port number that the Slurm compute node daemon, slurmd, listens to for work on this particular node
realMemory	unsigned integer	Size of real memory on the node in MegaBytes
sockets	unsigned integer	Number of physical processor sockets/chips on the node
threadsPerCore	unsigned integer	Number of logical threads in a single physical core
tmpDisk	unsigned integer	Total size of temporary disk storage in TmpFS in MegaBytes
weight	integer	The priority of the node for scheduling purposes

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Parameter	Type	Description
boards	unsigned integer	Number of baseboards in nodes with a baseboard controller
socketsPerBoard	unsigned integer	Number of physical processor sockets/chips on a baseboard
powerSavingAllowed	boolean	Enable power saving for a particular node
reason	string	Identifies the reason for a node being in a particular state
cpuSpecList	list of strings	A comma delimited list of Slurm abstract CPU IDs on which Slurm compute node daemons (slurmd, slurmstepd) will be confined
coreSpecCount	unsigned integer	Number of cores in a single physical processor socket
memSpecLimit	unsigned integer	Limit on combined real memory allocation for compute node daemons (slurmd, slurmstepd), in megabytes
nodeCustomizations	list of <code>WlmNodeCustomizationEntry</code>	Slurm node custom properties
genericResources	list of <code>SlurmGenericResource</code>	Slurm generic resources settings

**5.2.586 SlurmGenericResource (parent: Entity)**

Parameter	Type	Description
alias	string	Unique alias name of the generic resource
name	string	Name of the generic resource in Slurm
count	string	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)
cores	string	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')
type	string	An arbitrary string identifying the type of device
file	string	Fully qualified pathname of the device files associated with a resource (simple regular expressions are supported)
consumable	boolean	Multiple jobs can use the same generic resource

**5.2.587 SlurmJobQueueStat (parent: JobQueueStat)**

Parameter	Type	Description
memory	string	Memory
cpus	unsigned integer	CPUs
total	unsigned integer	Total nodes
usable	unsigned integer	Usable nodes

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Parameter	Type	Description
<code>free</code>	unsigned integer	Free nodes
<code>limit</code>	unsigned integer	Node limit
<code>timeLimit</code>	string	Time limit
<code>other</code>	string	Other traits

**5.2.588 SlurmJobQueue (parent: `JobQueue`)**

Parameter	Type	Description
<code>allocNodes</code>	string	Allocate nodes
<code>defaultQueue</code>	boolean	Set this as the default queue
<code>minNodes</code>	string	Minimal nodes one job has to use
<code>maxNodes</code>	string	Maximal nodes one job can use
<code>defaultTime</code>	string	Default job runtime
<code>maxTime</code>	string	Maximal job runtime
<code>priorityJobFactor</code>	integer	Partition factor used by priority/multifactor plugin in calculating job priority
<code>priorityTier</code>	integer	Jobs submitted to a partition with a higher priority tier value will be dispatched before pending jobs in partition with lower priority tier value

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Parameter	Type	Description
hidden	boolean	Hide from all
disableRoot	boolean	Do not allow root to run jobs
rootOnly	boolean	Only allow root to run jobs
allowGroups	string	Specify user groups which are allowed to run jobs
overSubscribe	string	Controls the ability of the partition to execute more than one job at a time on each resource
status	string	Queue status
totalNodes	unsigned integer	Total number of nodes part of this queue
totalCPUs	unsigned integer	Total number of CPUs available to this queue
options	string	Additional Slurm partition options
alternate	string	Partition name of alternate partition to be used if the state of this partition is DRAIN or INACTIVE
graceTime	unsigned integer	Specifies, in units of seconds, the preemption grace time to be extended to a job which has been selected for preemption

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
defMemPerCPU	string	Default real memory size available per allocated CPU in MegaBytes
maxMemPerCPU	string	Maximum real memory size available per allocated CPU in MegaBytes
defMemPerNode	string	Default real memory size available per allocated node in MegaBytes
maxMemPerNode	string	Maximum real memory size available per allocated node in MegaBytes
preemptMode	string	Mechanism used to preempt jobs from this partition
reqResv	string	Specifies users of this partition are required to designate a reservation when submitting a job
SelectTypeParameters	string	Partition-specific resource allocation type
allowAccounts	string	Specify accounts which are allowed to run jobs
allowQos	string	Specify qos which are allowed to run jobs
denyGroups	string	Specify groups which are denied to run jobs
denyAccounts	string	Specify accounts which are denied to run jobs

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Parameter	Type	Description
denyQos	string	Specify qos which are denied to run jobs
lln	boolean	Schedule resources to jobs on the least loaded nodes
maxCPUsPerNode	string	Maximum number of CPUs on any node available to all jobs from this partition
tresBillingWeights	list of strings	Billing weights of each TRES type that will be used in calculating the usage of a job

**5.2.589 SlurmJob (parent: Job)**

Parameter	Type	Description
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**5.2.590 SlurmServerRole (parent: Role)**

Parameter	Type	Description
gresTypes	list of strings	A list of generic resources to be managed
scheduler	string	Scheduler to use in combination with slurm
powerSavingEnabled	boolean	Enable power saving options into slurm.conf
suspendTime	integer	Nodes which remain idle for this number of seconds will be placed into power save mode by SuspendProgram
suspendTimeout	unsigned integer	Maximum time permitted (in second) between when a node suspend request is issued and when the node shutdown

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Parameter	Type	Description
resumeTimeout	unsigned integer	Maximum time permitted (in second) between when a node is resume request is issued and when the node is actually available for use
suspendProgram	string	Program that will be executed when a node remains idle for an extended period of time
resumeProgram	string	Program that will be executed when a suspended node is needed by a submitted jobs
externalServer	boolean	Slurm server daemons are running on some external machine
prefix	string	Directory where Slurm is installed
etc	string	Configuration directory
prologSlurmctld	string	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)
prolog	string	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)

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Parameter	Type	Description
epilog	string	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)
fastSchedule	unsigned integer	Controls how a node's configuration specifications in slurm.conf are used.
placeholders	list of JobQueuePlaceholder	Job queue node placeholders mode
cgroups	SlurmCgroups\Settings	Submode containing Slurm related cgroups settings

**5.2.591 SoftwareImageFileSelection (parent: Entity)**

Parameter	Type	Description
name	string	Name
patterns	list of strings	Patterns to be included
watch	boolean	Watch files with inotify

**5.2.592 SoftwareImageProxy (parent: Entity)**

Parameter	Type	Description
parentSoftwareImage	reference to SoftwareImage	Parent software image
revisionID	integer	Revision ID

**5.2.593 SoftwareImageRevisionInfo (parent: Entity)**

Parameter	Type	Description
image	reference to SoftwareImage or None	

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Parameter	Type	Description
revisionID	integer	Revision ID
creationTime	timestamp	Revision creation time
removalTime	timestamp	Revision removal time
description	string	Revision Description

**5.2.594 SoftwareImage (parent: Entity)**

Parameter	Type	Description
name	string	Name
path	string	Base directory of the image
originalImage	unsigned integer	Image from which this one will be cloned
kernelVersion	string	Kernel version used
kernelParameters	string	Kernel parameters passed to the kernel at boot time
creationTime	timestamp	Creation time
modules	list of KernelModule	Manage kernel modules loaded in this image
enableSOL	boolean	Enable Serial console Over LAN

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Parameter	Type	Description
SOLPort	string	Serial port to use for SOL, usually ttyS0 or ttyS1
SOLSpeed	string	Baud rate to use for SOL
SOLFlowControl	boolean	Enable to use hardware flow control for SOL
notes	string	Administrator notes
fspart	reference to FSPart or None	Internal pointer to the FSPart associated with this image
bootfspart	reference to FSPart or None	Internal pointer to the FSPart associated with the boot directory of this image
locked	boolean	A locked image shall never be provisioned to a node. An administrator should lock an image, update yum / install a new driver and unlock the image again
revisionDescription	string	
revisionID	integer	
parentSoftwareImage	reference to SoftwareImage or None	
revisionHistory	list of SoftwareImageRevisionInfo	

### 5.2.595 StandaloneMonitoredEntity (parent: Entity)

Parameter	Type	Description
name	string	Name
type	string	Optional type in case name matches an other entity

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Parameter	Type	Description
data	string	Data that will be passed to the script environment
notes	string	Notes

**5.2.596 StaticRoute (parent: *Entity*)**

Parameter	Type	Description
name	string	Generally a unique combination of gateway ip and netmaskbits
ip	IP	IP of the node
gateway	IP	Gateway IP address
netmaskBits	unsigned integer	Netmask bits
network	reference to <i>Network</i>	Network the interface is connected to
networkDeviceName	string	Name of network device

**5.2.597 StorageNodePolicy (parent: *Entity*)**

Parameter	Type	Description
name	string	Name
exportedDirectories	list of strings	Exported directories
minStorageVolumeSize	unsigned integer	Minimal size of storage volume
defaultJobOutputSize	unsigned integer	Default size of job output data

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Parameter	Type	Description
storageVolume\ Filesystem	string	Filesystem type of storage volume
shareStorageVolume\ BetweenJobs	boolean	Share storage volumes between jobs
scalingUpFactor	float	Scaling up factor
storageNodeNamePrefix	string	Storage node name prefix
storagePrototype	reference CloudNode	to Template node used for instantiating cloud storage nodes
maxStorageNodeCount	unsigned integer	Maximum number of storage nodes
maxJobsPerNode	unsigned integer	Maximum number of jobs that can be run on a single storage node simultaneously
storageNodeIdleTime\ Limit	unsigned integer	After that timeout storage node will be shut down
terminateStorageNodes	boolean	Terminate storage nodes instead of powering them off
cloudOperationTimeout	unsigned integer	Timeout for various cloud job operations
maxDownloadTime	unsigned integer	Maximum time job results data transfer can take

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Parameter	Type	Description
maxUploadTime	unsigned integer	Maximum time job input data transfer can take
intermediateStorage	CMSubIntermediate\ Storage	Place to store data to be accessible from storage node
extraOptions	list of strings	Extra options for jobs

**5.2.598 StorageRole (parent: Role)**

Parameter	Type	Description
nfsThreads	unsigned integer	Number of nfs threads (0 for don't touch the current config file value)
disableNFS1	boolean	Disable NFS1, NFS threads needs to bet set
disableNFS2	boolean	Disable NFS2, NFS threads needs to bet set
disableNFS3	boolean	Disable NFS3, NFS threads needs to bet set
disableNFS4	boolean	Disable NFS4, NFS threads needs to bet set
nfs4grace	unsigned integer	NFS4 grace period (0 for don't touch the current config file value)
statdPort	unsigned integer	Stat daemon port (0 for don't touch the current config file value)

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Parameter	Type	Description
statdOutgoingPort	unsigned integer	Stat daemon outgoing port (0 for don't touch the current config file value)
mountdPort	unsigned integer	Mount daemon port (0 for don't touch the current config file value)
rquotadPort	unsigned integer	Rquota daemon port (0 for don't touch the current config file value)
lockdTcpPort	unsigned integer	Lock daemon TCP port (0 for don't touch the current config file value)
lockdUdpPort	unsigned integer	Lock daemon UDP port (0 for don't touch the current config file value)
rdmaPort	unsigned integer	RDMA port (0 for don't touch the current config file value)

**5.2.599 StringListObject (parent: *Entity*)**

Parameter	Type	Description
list	list of strings	List

**5.2.600 SubnetManagerRole (parent: *Role*)**

Parameter	Type	Description
interconnect	enum	Type of interconnect
ibL2mtu	enum	IB L2 MTU Value

**5.2.601 SubSystemInfo (parent: *Entity*)**

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	Node
name	string	Name
timestamp	timestamp	Time

**5.2.602 SwitchPort (parent: *Entity*)**

Parameter	Type	Description
ethernetSwitch	reference to EthernetSwitch	Pointer to an ethernet switch
prt	integer	Port number on the switch

### 5.2.603 Switch (parent: Device)

Parameter	Type	Description
ip	IP	IP address
network	reference to Network or None	Network to which this switch is connected
ports	integer	Number of ports
model	string	The switch model
readString	string	SNMP read-only community string
writeString	string	SNMP read-write community string
members	list of references to Switch	List of switches belonging to this stack
controlScript	string	Custom control script that provides switch functionality
controlScriptTimeout	unsigned integer	Control script timeout

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Parameter	Type	Description
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**5.2.604 SysInfoCollector (parent: *Entity*)**

Parameter	Type	Description
refNodeUniqueKey	unsigned integer	Device
processors	list of Processor	
disks	list of DiskInfo	
gpus	list of GPUInfo	
memory	list of MemoryInfo	
biosVersion	string	
biosVendor	string	
biosDate	string	
motherboard\ Manufacturer	string	
motherboardName	string	
memoryTotal	unsigned integer	
memorySwap	unsigned integer	
diskCount	unsigned integer	

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Parameter	Type	Description
diskTotalSpace	unsigned integer	
osName	string	
osVersion	string	
osFlavor	string	
vendorTag	string	
systemName	string	
systemManufacturer	string	
mountPoints	list of FSMount	
nics	list of strings	
bootIf	string	
partitions	list of strings	
interconnects	list of strings	
raidControllers	list of strings	
virtualCluster	boolean	
clusterRandomNumber	unsigned integer	

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Parameter	Type	Description
updateCount	unsigned integer	

### 5.2.605 TorqueCgroupsSettings (parent: `WlmCgroupsSettings`)

Parameter	Type	Description
jobCgroupTemplate	string	Template for job cgroup path (\$JOBID will be replaced to job id)

### 5.2.606 TorqueClientRole (parent: `Role`)

Parameter	Type	Description
slots	unsigned integer	Number of slots available on this node/category
queues	list of strings	Queues this node belongs to
allQueues	boolean	When set, the role will provide all available queues (the queues property will then be ignored)
gpus	unsigned integer	Number of gpus
gpuDevices	list of strings	/dev/* available to workload management
properties	list of strings	Node properties
spool	string	TORQUE mom spool directory
nodeCustomizations	list of <code>WlmNodeCustomizationEntry</code>	Torque node custom properties

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Parameter	Type	Description
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**5.2.607 TorqueJobQueueStat (parent: PBSJobQueueStat)**

Parameter	Type	Description
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**5.2.608 TorqueJobQueue (parent: PBSJobQueue)**

Parameter	Type	Description
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**5.2.609 TorqueJob (parent: PBSJob)**

Parameter	Type	Description
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**5.2.610 TorqueServerRole (parent: Role)**

Parameter	Type	Description
scheduler	string	Scheduler to use in combination with torque
externalServer	boolean	Torque server daemons are running on some external machine
prefix	string	Directory where TORQUE is installed
spool	string	Server spool directory path
placeholders	list of Job queue node placeholders mode JobQueuePlaceholder	
cgroups	TorqueCgroups\ Settings	Submode containing Torque related cgroups settings

**5.2.611 UCSAdaptorEthCompQueueProfile (parent: UCSBase)**

Parameter	Type	Description
count	unsigned integer	Count

**5.2.612 UCSAdaptorEthGenProfile (parent: UCSBase)**

Parameter	Type	Description
order	string	Order
rateLimit	string	Rate limit
trustedClassOfService	boolean	Trusted class of service
uplinkFailbackTimeout	string	Uplink failback timeout
uplinkFailover	boolean	Uplink failover
vlan	string	Vlan
vlanMode	string	Vlan mode

**5.2.613 UCSAdaptorEthInterruptProfile (parent: UCSBase)**

Parameter	Type	Description
coalescingTime	unsigned integer	Coalescing time
coalescingType	string	Coalescing type
count	unsigned integer	Count
mode	string	Mode

**5.2.614 UCSAdaptorEthOffloadProfile (parent: UCSBase)**

Parameter	Type	Description
largeReceive	boolean	Large receive
tcpRxChecksum	boolean	Tcp rx checksum
tcpSegment	boolean	Tcp segment

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Parameter	Type	Description
tcpTxChecksum	boolean	Tcp tx checksum

**5.2.615 UCSAdaptorEthRecvQueueProfile (parent: UCSBase)**

Parameter	Type	Description
count	unsigned integer	Count
ringSize	unsigned integer	Ring size

**5.2.616 UCSAdaptorEthUSNICProfile (parent: UCSBase)**

Parameter	Type	Description
classOfService	unsigned integer	Class of service
coalescingTime	unsigned integer	Coalescing time
coalescingType	string	Coalescing type
completionQueueCount	unsigned integer	Completion queue count
interruptCount	unsigned integer	Interrupt count
largeReceive	boolean	Large receive
receiveQueueCount	unsigned integer	Receive queue count
receiveQueueRingSize	unsigned integer	Receive queue ring size

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Parameter	Type	Description
tcpRxChecksum	boolean	Tcp rx checksum
tcpSegment	boolean	Tcp segment
tcpTxChecksum	boolean	Tcp tx checksum
transmitQueueCount	unsigned integer	Transmit queue count
transmitQueueRingSize	unsigned integer	Transmit queue ring size
usnicCount	unsigned integer	Usnic count

#### 5.2.617 UCSAdaptorEthWorkQueueProfile (parent: UCSBase)

Parameter	Type	Description
count	unsigned integer	Count
ringSize	unsigned integer	Ring size

#### 5.2.618 UCSAdaptorExtEthIfl (parent: UCSBase)

Parameter	Type	Description
portId	unsigned integer	Port ID
ifType	string	Interface type
mac	string	MAC
linkState	string	Link State
transport	string	Transport

*...continues*

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Parameter	Type	Description
adminSpeed	string	Admin Speed
operSpeed	string	Operation Speed
adaptorPortProfiles	UCSAdaptorPortProfiles or None	

**5.2.619 UCSAdaptorExtIplV6RssHashProfile (parent: UCSBase)**

Parameter	Type	Description
ipHash	boolean	Ip hash
tcpHash	boolean	Tcp hash

**5.2.620 UCSAdaptorFcCdbWorkQueueProfile (parent: UCSBase)**

Parameter	Type	Description
count	unsigned integer	Count
ringSize	unsigned integer	Ring size

**5.2.621 UCSAdaptorFcErrorRecoveryProfile (parent: UCSBase)**

Parameter	Type	Description
errorDetectTimeout	unsigned integer	Error detect timeout
fcErrorRecovery	boolean	Fcp error recovery
linkDownTimeout	unsigned integer	Link down timeout
portDownIoRetryCount	unsigned integer	Port down IO retry count

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Parameter	Type	Description
portDownTimeout	unsigned integer	Port down timeout
resourceAllocation\ Timeout	unsigned integer	Resource allocation timeout

**5.2.622 UCSAdaptorFcGenProfile (parent: UCSBase)**

Parameter	Type	Description
classOfService	unsigned integer	Class of service
mac	string	MAC
maxDataFieldSize	unsigned integer	Max data field size
order	string	Order
persistentLunBind	boolean	Persistent lun bind
rateLimit	string	Rate limit
vlan	string	Vlan

**5.2.623 UCSAdaptorFcInterruptProfile (parent: UCSBase)**

Parameter	Type	Description
mode	string	Mode

**5.2.624 UCSAdaptorFcPortFLogiProfile (parent: UCSBase)**

Parameter	Type	Description
retries	string	Retries
timeout	unsigned integer	Timeout

**5.2.625 UCSAdaptorFcPortPLogiProfile (parent: UCSBase)**

Parameter	Type	Description
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Parameter	Type	Description
retries	unsigned integer	Retries
timeout	unsigned integer	Timeout

**5.2.626 UCSAdaptorFcPortProfile (parent: UCSBase)**

Parameter	Type	Description
ioThrottleCount	unsigned integer	Io throttle count
lunsPerTarget	unsigned integer	Luns per target

**5.2.627 UCSAdaptorFcRecvQueueProfile (parent: UCSBase)**

Parameter	Type	Description
ringSize	unsigned integer	Ring size

**5.2.628 UCSAdaptorFcWorkQueueProfile (parent: UCSBase)**

Parameter	Type	Description
ringSize	unsigned integer	Ring size

**5.2.629 UCSAdaptorHostEthIf (parent: UCSBase)**

Parameter	Type	Description
channelNumber	unsigned integer	Channel number
classOfService	unsigned integer	Class of service
ifType	string	If type
iscsiBoot	boolean	Iscsi boot

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Parameter	Type	Description
mac	string	MAC
mtu	unsigned integer	MTU
name	string	Name
portProfile	string	Port profile
pxeBoot	boolean	PXE boot
uplinkPort	unsigned integer	Uplink port
usnicCount	unsigned integer	Usnic count
adaptorEthGenProfile	UCSAdaptorEthGenProfile or None	
adaptorEthCompQueue\ Profile	UCSAdaptorEthCompQueueProfile or None	
adaptorEthInterrupt\ Profile	UCSAdaptorEthInterruptProfile or None	
adaptorEthOffload\ Profile	UCSAdaptorEthOffloadProfile or None	
adaptorEthRecvQueue\ Profile	UCSAdaptorEthRecvQueueProfile or None	
adaptorEthUSNIC\ Profile	UCSAdaptorEthUSNICProfile or None	

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Parameter	Type	Description
adaptorEthWorkQueue\ Profile	UCSAdaptorEthWorkQueueProfile or None	
adaptorExtIpV6Rss\ HashProfile	UCSAdaptorExtIpV6RssHashProfile or None	
adaptorIpV6RssHash\ Profile	UCSAdaptorIpV6RssHashProfile or None	
adaptorIpV4RssHash\ Profile	UCSAdaptorIpV4RssHashProfile or None	
adaptorRssProfile	UCSAdaptorRssProfile or None	

**5.2.630 UCSAdaptorHostFclf (parent: UCSBase)**

Parameter	Type	Description
adminPersistent\ Bindings	string	Admin persistent bindings
channelNumber	unsigned integer	Channel number
ifType	string	If type
name	string	Name
portProfile	string	Port profile
sanBoot	boolean	San boot
uplinkPort	unsigned integer	Uplink port
wwnn	string	Wwnn

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Parameter	Type	Description
wwpn	string	Wwpn
adaptorFcCdbWork\           QueueProfile	UCSAdaptorFcCdbWorkQueueProfile           or None	
adaptorFcError\           RecoveryProfile	UCSAdaptorFcErrorRecoveryProfile           or None	
adaptorFcGenProfile	UCSAdaptorFcGenProfile           or None	
adaptorFcInterrupt\           Profile	UCSAdaptorFcInterruptProfile           or None	
adaptorFcPortFLogi\           Profile	UCSAdaptorFcPortFLogiProfile           or None	
adaptorFcPortPLogi\           Profile	UCSAdaptorFcPortPLogiProfile           or None	
adaptorFcPortProfile	UCSAdaptorFcPortProfile           or None	
adaptorFcRecvQueue\           Profile	UCSAdaptorFcRecvQueueProfile           or None	
adaptorFcWorkQueue\           Profile	UCSAdaptorFcWorkQueueProfile           or None	

### 5.2.631 UCSAdaptorIpV4RssHashProfile (parent: UCSBase)

Parameter	Type	Description
ipHash	boolean	Ip hash
tcpHash	boolean	Tcp hash

### 5.2.632 UCSAdaptorIpV6RssHashProfile (parent: UCSBase)

Parameter	Type	Description
ipHash	boolean	Ip hash
tcpHash	boolean	Tcp hash

### 5.2.633 UCSAdaptorPortProfiles (parent: UCSBase)

Parameter	Type	Description
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Parameter	Type	Description
portProfilesCount	unsigned integer	Port Profiles Count
portProfilesName	string	Port Profiles Name

**5.2.634 UCSAdaptorRssProfile (parent: UCSBase)**

Parameter	Type	Description
receiveSideScaling	string	Receive Side Scaling

**5.2.635 UCSBase (parent: Entity)**

Parameter	Type	Description
dn	string	
additionalattributes	string	Additional attributes that may need to be set

**5.2.636 UCSBiosBootDevGrp (parent: UCSBase)**

Parameter	Type	Description
order	unsigned integer	Boot order
descr	string	Device name
type	string	Device type
biosBootDev	list of UCSBiosBootDev	

**5.2.637 UCSBiosBootDev (parent: UCSBase)**

Parameter	Type	Description
order	unsigned integer	Boot order
descr	string	Device name

**5.2.638 UCSBiosSettings (parent: UCSBase)**

Parameter	Type	Description
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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
biosVfIntelHyper\ ThreadingTech	UCSBiosVfIntel\ HyperThreadingTech or None	Intel hyper threading tech
biosVfAdjacentCache\ LinePrefetch	UCSBiosVfAdjacent\ CacheLinePrefetch or None	
biosVfAltitude	UCSBiosVfAltitude or None	
biosVfASPMSupport	UCSBiosVfASPMSupport or None	
biosVfConsole\ Redirection	UCSBiosVfConsoleRedirection or None	
biosVfCoreMulti\ Processing	UCSBiosVfCoreMultiProcessing or None	
biosVfCPUEnergy\ Performance	UCSBiosVfCPUEnergyPerformance or None	
biosVfCPUFrequency\ Floor	UCSBiosVfCPUFrequencyFloor or None	
biosVfCPUPerformance	UCSBiosVfCPUPerformance or None	
biosVfCPUPower\ Management	UCSBiosVfCPUPowerManagement or None	
biosVfDCUPrefetch	UCSBiosVfDCUPrefetch or None	
biosVfDemandScrub	UCSBiosVfDemandScrub or None	

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Parameter	Type	Description
biosVfDirectCache\ Access	UCSBiosVfDirectCacheAccess or None	
biosVfDRAMClock\ Throttling	UCSBiosVfDRAMClockThrottling or None	
biosVfDramRefreshRate	UCSBiosVfDramRefreshRate or None	
biosVfEnhancedIntel\ SpeedStepTech	UCSBiosVfEnhancedIntelSpeedStepTech or None	
biosVfExecuteDisable\ Bit	UCSBiosVfExecuteDisableBit or None	
biosVfFRB2Enable	UCSBiosVfFRB2Enable or None	
biosVfHardware\ Prefetch	UCSBiosVfHardwarePrefetch or None	
biosVfIntelTurbo\ BoostTech	UCSBiosVfIntelTurboBoostTech or None	
biosVfIntel\ VirtualizationTechnology	UCSBiosVfIntelVirtualizationTechnology or None	
biosVfIntelVTFFor\ DirectedIO	UCSBiosVfIntelVTFForDirectedIO or None	
biosVfLegacyUSB\ Support	UCSBiosVfLegacyUSBSupport or None	
biosVfLOMPortOption\ ROM	UCSBiosVfLOMPortOptionROM or None	
biosVfLvDIMMSupport	UCSBiosVfLvDIMMSupport or None	

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<b>Parameter</b>	<b>Type</b>	<b>Description</b>
biosVfMemory\ Interleave	UCSBiosVfMemoryInterleave <b>or None</b>	
biosVfMemoryMappedIO\ Above4GB	UCSBiosVfMemoryMappedIOAbove4GB <b>or None</b>	
biosVfNUMAOptimized	UCSBiosVfNUMAOptimized <b>or None</b>	
biosVfOnboardStorage	UCSBiosVfOnboardStorage <b>or None</b>	
biosVfOnboardStorage\ SWStack	UCSBiosVfOnboardStorageSWStack <b>or None</b>	
biosVfOSBootWatchdog\ Timer	UCSBiosVfOSBootWatchdogTimer <b>or None</b>	
biosVfOSBootWatchdog\ TimerPolicy	UCSBiosVfOSBootWatchdogTimerPolicy <b>or None</b>	
biosVfOSBootWatchdog\ TimerTimeout	UCSBiosVfOSBootWatchdogTimerTimeout <b>or None</b>	
biosVfPatrolScrub	UCSBiosVfPatrolScrub <b>or None</b>	
biosVfPCIOptionROMs	UCSBiosVfPCIOptionROMs <b>or None</b>	
biosVfPCISlotOption\ ROMEnable	UCSBiosVfPCISlotOptionROMEnable <b>or None</b>	
biosVfProcessorC1E	UCSBiosVfProcessorC1E <b>or None</b>	
biosVfProcessorC6\ Report	UCSBiosVfProcessorC6Report <b>or None</b>	

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Parameter	Type	Description
biosVfPStateCoordType	UCSBiosVfPStateCoordType or None	
biosVfQPIConfig	UCSBiosVfQPIConfig or None	
biosVfSelectMemory\ RASConfiguration	UCSBiosVfSelectMemoryRASConfiguration or None	
biosVfTPMSupport	UCSBiosVfTPMSupport or None	
biosVfUCSMBootOrder\ RuleControl	UCSBiosVfUCSMBootOrderRuleControl or None	
biosVfUSBEmulation	UCSBiosVfUSBEmulation or None	
biosVfUSBPortsConfig	UCSBiosVfUSBPortsConfig or None	
biosVfVgaPriority	UCSBiosVfVgaPriority or None	

**5.2.639 UCSBiosVfAdjacentCacheLinePrefetch (parent: UCSBase)**

Parameter	Type	Description
vpAdjacentCacheLinePrefetch	string	Adjacent cache line prefetch

**5.2.640 UCSBiosVfAltitude (parent: UCSBase)**

Parameter	Type	Description
vpAltitude	string	Altitude

**5.2.641 UCSBiosVfASPMsupport (parent: UCSBase)**

Parameter	Type	Description
vpASPMsupport	string	ASPM support

**5.2.642 UCSBiosVfConsoleRedirection (parent: UCSBase)**

Parameter	Type	Description
vpBaudRate	string	Baud rate

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Parameter	Type	Description
vpConsoleRedirection	string	Console redirection
vpFlowControl	string	Flow control
vpPuttyKeyPad	string	Putty key pad
vpRedirectionAfter\ POST	string	Redirection after POST
vpTerminalType	string	Terminal type

**5.2.643 UCSBiosVfCoreMultiProcessing (parent: UCSBase)**

Parameter	Type	Description
vpCoreMultiProcessing	string	Core multi processing

**5.2.644 UCSBiosVfCPUEnergyPerformance (parent: UCSBase)**

Parameter	Type	Description
vpCPUEnergy\ Performance	string	CPU energy performance

**5.2.645 UCSBiosVfCPUFrequencyFloor (parent: UCSBase)**

Parameter	Type	Description
vpCPUFrequencyFloor	string	CPU frequency floor

**5.2.646 UCSBiosVfCPUPerformance (parent: UCSBase)**

Parameter	Type	Description
vpCPUPerformance	string	CPU performance

**5.2.647 UCSBiosVfCPUPowerManagement (parent: UCSBase)**

Parameter	Type	Description
vpCPUPowerManagement	string	CPU power management

**5.2.648 UCSBiosVfDCUPrefetch (parent: UCSBase)**

Parameter	Type	Description
vpIPPrefetch	string	IP prefetch
vpStreamerPrefetch	string	Streamer prefetch

#### 5.2.649 UCSBiosVfDemandScrub (parent: UCSBase)

Parameter	Type	Description
vpDemandScrub	string	Demand scrub

#### 5.2.650 UCSBiosVfDirectCacheAccess (parent: UCSBase)

Parameter	Type	Description
vpDirectCacheAccess	string	Direct cache access

#### 5.2.651 UCSBiosVfDRAMClockThrottling (parent: UCSBase)

Parameter	Type	Description
vpDRAMClockThrottling	string	DRAM clock throttling

#### 5.2.652 UCSBiosVfDramRefreshRate (parent: UCSBase)

Parameter	Type	Description
vpDramRefreshRate	string	Dram refresh rate

#### 5.2.653 UCSBiosVfEnhancedIntelSpeedStepTech (parent: UCSBase)

Parameter	Type	Description
vpEnhancedIntelSpeedStepTech	string	Enhanced intel speed step tech

#### 5.2.654 UCSBiosVfExecuteDisableBit (parent: UCSBase)

Parameter	Type	Description
vpExecuteDisableBit	string	Execute disable bit

#### 5.2.655 UCSBiosVfFRB2Enable (parent: UCSBase)

Parameter	Type	Description
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Parameter	Type	Description
vpFRB2Enable	string	FR b2 enable

**5.2.656 UCSBiosVfHardwarePrefetch (parent: UCSBase)**

Parameter	Type	Description
vpHardwarePrefetch	string	Hardware prefetch

**5.2.657 UCSBiosVfIntelHyperThreadingTech (parent: UCSBase)**

Parameter	Type	Description
vpIntelHyper\ThreadingTech	string	Intel hyper threading tech

**5.2.658 UCSBiosVfIntelTurboBoostTech (parent: UCSBase)**

Parameter	Type	Description
vpIntelTurboBoostTech	string	Intel turbo boost tech

**5.2.659 UCSBiosVfIntelVirtualizationTechnology (parent: UCSBase)**

Parameter	Type	Description
vpIntelVirtualiza\ tionTechnology	string	Intel virtualization technology

**5.2.660 UCSBiosVfIntelVTFForDirectedIO (parent: UCSBase)**

Parameter	Type	Description
vpIntelVTDATSSupport	string	Intel VTDATS support
vpIntelVTDCoherency\ Support	string	Intel VTD coherency support
vpIntelVTFForDirected\ IO	string	Intel VT for directed IO

**5.2.661 UCSBiosVfLegacyUSBSupport (parent: UCSBase)**

Parameter	Type	Description
vpLegacyUSBSupport	string	Legacy USB support

**5.2.662 UCSBiosVfLOMPortOptionROM (parent: UCSBase)**



Parameter	Type	Description
vpLOMPort0State	string	LOM port0 state
vpLOMPort1State	string	LOM port1 state
vpLOMPortsAllState	string	LOM ports all state

#### 5.2.663 UCSBiosVfLvDIMMSupport (parent: UCSBase)

Parameter	Type	Description
vpLvDDRMode	string	Lv DDR mode

#### 5.2.664 UCSBiosVfMemoryInterleave (parent: UCSBase)

Parameter	Type	Description
vpChannelInterLeave	string	Channel inter leave
vpRankInterLeave	string	Rank inter leave

#### 5.2.665 UCSBiosVfMemoryMappedIOAbove4GB (parent: UCSBase)

Parameter	Type	Description
vpMemoryMappedIOAbove4GB	string	Memory mapped IO above 4GB

#### 5.2.666 UCSBiosVfNUMAOptimized (parent: UCSBase)

Parameter	Type	Description
vpNUMAOptimized	string	NUMA optimized

#### 5.2.667 UCSBiosVfOnboardStorageSWStack (parent: UCSBase)

Parameter	Type	Description
vpOnboardSCUStorage\SWStack	string	Onboard SCU storage SW stack

#### 5.2.668 UCSBiosVfOnboardStorage (parent: UCSBase)

Parameter	Type	Description
vpOnboardSCUStorage\Support	string	Onboard SCU storage support

#### 5.2.669 UCSBiosVfOSBootWatchdogTimerPolicy (parent: UCSBase)

Parameter	Type	Description
vpOSBootWatchdog\TimerPolicy	string	OS boot watchdog timer policy

#### 5.2.670 UCSBiosVfOSBootWatchdogTimer (parent: UCSBase)

Parameter	Type	Description
vpOSBootWatchdogTimer	string	OS boot watchdog timer

#### 5.2.671 UCSBiosVfOSBootWatchdogTimerTimeout (parent: UCSBase)

Parameter	Type	Description
vpOSBootWatchdog\TimerTimeout	string	OS boot watchdog timer timeout

#### 5.2.672 UCSBiosVfPatrolScrub (parent: UCSBase)

Parameter	Type	Description
vpPatrolScrub	string	Patrol scrub

#### 5.2.673 UCSBiosVfPCIOptionROMs (parent: UCSBase)

Parameter	Type	Description
vpPCIOptionROMs	string	PCI option ROMs

#### 5.2.674 UCSBiosVfPCISlotOptionROMEnable (parent: UCSBase)

Parameter	Type	Description
vpSlot1LinkSpeed	string	Slot1 link speed
vpSlot1State	string	Slot1 state
vpSlot2LinkSpeed	string	Slot2 link speed
vpSlot2State	string	Slot2 state
vpSlotMezzState	string	Slot mezz state

#### 5.2.675 UCSBiosVfProcessorC1E (parent: UCSBase)

Parameter	Type	Description
vpProcessorC1E	string	Processor c1 e

#### 5.2.676 UCSBiosVfProcessorC6Report (parent: UCSBase)

Parameter	Type	Description
vpProcessorC6Report	string	Processor c6 report

#### 5.2.677 UCSBiosVfPStateCoordType (parent: UCSBase)

Parameter	Type	Description
vpPStateCoordType	string	P state coord type

#### 5.2.678 UCSBiosVfQPIConfig (parent: UCSBase)

Parameter	Type	Description
vpQPILinkFrequency	string	QPI link frequency

#### 5.2.679 UCSBiosVfSelectMemoryRASConfiguration (parent: UCSBase)

Parameter	Type	Description
vpSelectMemoryRAS\ Configuration	string	Select memory RAS configuration

#### 5.2.680 UCSBiosVfTPMSupport (parent: UCSBase)

Parameter	Type	Description
vpTPMSupport	string	TPM support

#### 5.2.681 UCSBiosVfUCSMBootOrderRuleControl (parent: UCSBase)

Parameter	Type	Description
vpUCSMBootOrderRule	string	UCSM boot order rule

#### 5.2.682 UCSBiosVfUSBEmulation (parent: UCSBase)

Parameter	Type	Description
vpUSBEmul6064	string	USB Emulation Support

#### 5.2.683 UCSBiosVfUSBPortsConfig (parent: UCSBase)

Parameter	Type	Description
vpAllUsbDevices	string	All usb devices

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Parameter	Type	Description
vpUsbPortFront	string	Usb port front
vpUsbPortInternal	string	Usb port internal
vpUsbPortKVM	string	Usb port KVM
vpUsbPortRear	string	Usb port rear
vpUsbPortSDCard	string	Usb port SD card
vpUsbPortVMedia	string	Usb port V media

**5.2.684 UCSBiosVfVgaPriority (parent: UCSBase)**

Parameter	Type	Description
vpVgaPriority	string	Vga priority

**5.2.685 UCSCommNtpProvider (parent: UCSBase)**

Parameter	Type	Description
description	string	Description
ntpEnable	string	NTP enable
ntpServer	list of strings	NTP server

**5.2.686 UCSCommSyslogClient (parent: UCSBase)**

Parameter	Type	Description
adminState	boolean	Admin state
hostname	string	Hostname
name	string	Name

**5.2.687 UCSCommSyslog (parent: UCSBase)**

Parameter	Type	Description
adminState	boolean	Admin state
descr	string	Descr
localSeverity	string	Local severity
name	string	Name
port	unsigned integer	Port
proto	string	Proto
remoteSeverity	string	Remote severity
commSyslogClient\ Primary	UCSCommSyslogClient or None	
commSyslogClient\ Secondary	UCSCommSyslogClient or None	

#### 5.2.688 UCSEquipmentIndicatorLed (parent: UCSBase)

Parameter	Type	Description
color	string	Color
id	unsigned integer	Id
name	string	Name
operState	string	Oper state

#### 5.2.689 UCSEquipmentLocatorLed (parent: UCSBase)

Parameter	Type	Description
adminState	string	Admin state
color	string	Color
id	unsigned integer	Id
name	string	Name
operState	string	Oper state

**5.2.690 UCSFaultInst (parent: UCSBase)**

Parameter	Type	Description
ack	string	Ack
cause	string	Cause
code	string	Code
created	string	Created
descr	string	Descr
affectedDN	string	Affected DN
highestSeverity	string	Highest severity
id	unsigned integer	Id
lastTransition	string	Last transition
lc	string	Lc
occur	unsigned integer	Occur
origSeverity	string	Orig severity

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Parameter	Type	Description
prevSeverity	string	Prev severity
rule	string	Rule
severity	string	Severity
tags	string	Tags
type	string	Type

### 5.2.691 UCSFirmwareRunning (parent: UCSBase)

Parameter	Type	Description
type	string	Type
deployment	string	Deployment
version	string	Version



**5.2.692 UCSInfo (parent: UCSBase)**

Parameter	Type	Description
ucsDeviceType	integer	
profileName	string	
ntpSettings	UCSCommNtpProvider or None	
syslogSettings	UCSCommSyslog or None	
biosSettings	UCSBiosSettings or None	
lsbootDef	UCSLsbootDef or None	
biosBootOrder	list of UCSBiosBootDevGrp	
vicAdapterSettings	list of UCSAdaptorHostEthIf	
fcAdapterSettings	list of UCSAdaptorHostFcIf	
ucsStatus	UCSStatus or None	
firmwareRunning	list of UCSFirmwareRunning	
vicPhysicalInterfaces	list of UCSAdaptorExtEthIf	

**5.2.693 UCSLogs (parent: UCSBase)**

Parameter	Type	Description
faultInst	list of UCSFaultInst	

**5.2.694 UCSLsbootDef (parent: UCSBase)**

Parameter	Type	Description
name	string	Boot policy
purpose	string	Purpose
rebootOnUpdate	string	Reboot on update
lsbootVirtualMedia	list of UCSLsbootVirtualMedia	
lsbootLan	list of UCSLsbootLan	
lsbootStorage	list of UCSLsbootStorage	
lsbootEfi	list of UCSLsbootEfi	

**5.2.695 UCSLsbootEfi (parent: UCSBase)**

Parameter	Type	Description
order	unsigned integer	Boot order
access	string	Access type
type	string	Device type

**5.2.696 UCSLsbootLan (parent: UCSBase)**

Parameter	Type	Description
order	unsigned integer	Boot order
access	string	Access type
type	string	Device type

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Parameter	Type	Description
prot	string	Protocol

**5.2.697 UCSLsbootStorage (parent: UCSBase)**

Parameter	Type	Description
order	unsigned integer	Boot order
access	string	Access type
type	string	Device type

**5.2.698 UCSLsbootVirtualMedia (parent: UCSBase)**

Parameter	Type	Description
order	unsigned integer	Boot order
access	string	Access type
type	string	Device type

**5.2.699 UCSStatus (parent: UCSBase)**

Parameter	Type	Description
model	string	
serial	string	
uuid	string	
vendor	string	
equipmentLocatorLed	UCSEquipmentLocatorLed or None	
equipmentIndicatorLed	list of UCSEquipmentIndicatorLed	

**5.2.700 UGECgroupsSettings (parent: WlmCgroupsSettings)**

Parameter	Type	Description
enabled	boolean	If true then settings are configured
cpuset	boolean	If true then UGE puts the job into a cpuset cgroup with the specific CPU ids assigned
freezer	boolean	If true than the whole job is frozen by the kernel
freezePeTasks	boolean	If false then slave tasks are not put in the freezer, otherwise all slave tasks are frozen (also slaves on remote hosts)
killing	boolean	If true then UGE signals all processes forked/started by the job until all of them are killed
forcedNuma	boolean	If true then on NUMA machines only local memory is allowed to be used when the job requested memory allocation with -mbind cores:strict
vmemLimit	boolean	Specifies if virtual memory can be limited with cgroups (h_vmem_limit)
memFreeHard	boolean	If true then kernel ensures that the job does not use more main memory than required (h_mem_free_hard)

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Parameter	Type	Description
memFreeSoft	boolean	If true (and hard memory limit is turned off) then the requested memory with m_mem_free is a soft limit (h_mem_free_soft)
minMemoryLimit	string	A host based minimum memory limit, in bytes or values like 10M, 1G (min_memory_limit)
jobCgroupTemplate	string	Template for job cgroup path (\$JOBID will be replaced to job id)

**5.2.701 UGEClientRole (parent: Role)**

Parameter	Type	Description
execHost	boolean	Specifies if host is allowed to run Grid Engine jobs
adminHost	boolean	Specifies if host is administrative one
submitHost	boolean	Specifies if host is allowed to submit Grid Engine jobs
slots	string	Number of slots available on this node/category
queues	list of strings	Queues this node/nodes in this category belongs to
allQueues	boolean	When set, the role will provide all available queues. (The queues property will then be ignored.)

*...continues*

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Parameter	Type	Description
gpus	unsigned integer	Number of gpus
gpuDevices	list of strings	Custom gpu RSMAP
micDevices	list of strings	Custom phi RSMAP
cgroups	UGECgroupsSettings	Submode containing UGE related cgroups settings
nodeCustomizations	list of WlmNodeCustomizationEntry	Grid Engine node custom properties

#### 5.2.702 UGEJobQueueStat (parent: GridEngineJobQueueStat)

Parameter	Type	Description
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#### 5.2.703 UGEJobQueue (parent: GridEngineJobQueue)

Parameter	Type	Description
peList	list of strings	Parallel environments associated with queue

#### 5.2.704 UGEJob (parent: GridEngineJob)

Parameter	Type	Description
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#### 5.2.705 UGEParallelEnvironment (parent: GridEngineParallelEnvironment)

Parameter	Type	Description
daemonForksSlaves	boolean	Defines if every task of a tightly integrated parallel job gets started individually
masterForksSlaves	boolean	Indicates if limits set for the master task are multiplied by the number of slots granted on the host

#### 5.2.706 UGEServerRole (parent: Role)

Parameter	Type	Description
externalServer	boolean	Grid Engine server daemon is running on some external machine

*...continues*

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Parameter	Type	Description
prefix	string	Directory where Grid Engine is installed
cell	string	Grid Engine cell directory location
parallelEnvironments	list of UGEParallelEnvironment	Grid Engine Parallel Environments
cgroups	UGECgroupsSettings	Submode containing UGE related cgroups settings
placeholders	list of JobQueuePlaceholder	Job queue node placeholders mode

**5.2.707 User (parent: Entity)**

Parameter	Type	Description
userID	string	User name
userIDNumber	string	User id number
commonName	string	Full user name
surname	string	Surname
groupIDNumber	string	Base group of this user
loginShell	string	Login shell
homeDirectory	string	Home directory

*...continues*

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Parameter	Type	Description
password	string	Password
homeDirOperation	boolean	Set to true: to create or move home directory if needed
shadowMin	unsigned integer	Indicates the minimum number of days required between password changes
shadowMax	unsigned integer	Indicates the maximum number of days for which the user password remains valid.
shadowWarning	unsigned integer	The number of days of advance warning given to the user before the user password expires
shadowInactive	unsigned integer	Indicates the number of days of inactivity allowed for the user
shadowLastChange	unsigned integer	Indicates the number of days between January 1, 1970 and the day when the user password was last changed
shadowExpire	unsigned integer	Indicates the date on which the user login will be disabled
email	string	email
profile	string	Profile for Authorization

*...continues*



*...continued*

Parameter	Type	Description
certSerialNumber	integer	Serial number of certificate assigned to user
kubeRoleBindings	list of KubeRoleBinding	of
notes	string	Administrator notes
information	string	Information added by CMDaemon
extraFields	list of strings	
extraValues	list of strings	
extraReadable	list of strings	
extraDescriptions	list of strings	
extraDefaults	list of strings	

**5.2.708 Validation (parent: Entity)**

Parameter	Type	Description
code	unsigned integer	Code
field	string	Field
msg	string	Message
warning	integer	Warning

**5.2.709 VersionInfo (parent: Entity)**

Parameter	Type	Description
refPartitionUniqueKey	unsigned integer	Partition

*...continues*

...continued

Parameter	Type	Description
cmVersion	string	
cmdaemonVersion	string	
cmdaemonBuild	string	
databaseVersion	integer	

#### 5.2.710 VirtualNodeSettings (parent: Entity)

Parameter	Type	Description
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#### 5.2.711 VirtualNode (parent: ComputeNode)

Parameter	Type	Description
virtualNodeSettings	OpenStackSettings	Submode containing all virtual node settings

#### 5.2.712 VirtualSMPNode (parent: ComputeNode)

Parameter	Type	Description
disableVSMPNode	boolean	Disabled
primaryNode	reference PhysicalNode	to Primary node of the virtual SMP group
members	list of references PhysicalNode	to Nodes belonging to the virtual SMP group
vsmSettings	VsmSettings None	or Submode containing all VSMP specific settings

#### 5.2.713 VsmSettings (parent: Entity)

Parameter	Type	Description
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#### 5.2.714 WillChange (parent: Entity)

Parameter	Type	Description
changeBaseType	string	Base type

...continues

*...continued*

Parameter	Type	Description
key	unsigned integer	Key
parameter	string	Parameter
autoChange	integer	Auto change

### 5.2.715 WlmCgroupsSettings (parent: Entity)

Parameter	Type	Description
mountPoint	string	Where cgroups is mounted
autoMount	boolean	If true then workload manager tries to mount a subsystem if it is not mounted yet

### 5.2.716 WlmNodeCustomizationEntry (parent: Entity)

Parameter	Type	Description
key	string	Name of the key
value	string	Value for the key
enabled	boolean	Add the key/value to workload menegment node configuration or not
notes	string	Administrator notes

## 5.3 JSON Examples

### complete.sh

```
#!/bin/bash

URL=https://localhost:8081/json/
user=root
pass=...

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":"cm\
device", "call":"getNode", "arg":"master"}' $URL; echo
echo "==== logout ====="
curl --cookie curl.cookiest.txt -i -k -X POST -d '{"service":"lo\
gout"}' $URL; echo
```

```

echo "===== denied ====="
curl --cookie curl.cookiest.txt -i -k -X POST -d '{"service":"cm\
device","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

```

#!/bin/bash

source url
if [ -z "$1" ]; then
    pass=...
else
    pass=$1
fi
read -p "pass: " -s -a $pass

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":"\
cmsession","call":"getLastEvents","args":[0,256]}' $URL

curl --cookie curl.cookiest.txt -i -k -X POST -d '{"service":"cm\
main","call":"getProfile"}' $URL
curl --cookie curl.cookiest.txt -i -k -X POST -d '{"service":"cm\
main","call":"getSubjectName"}' $URL

```

### devices.sh

```

#!/bin/bash
source url

if [ "$1" == "gzip" ]; then
    wget --load-cookies cookie.txt --header='Accept-Encoding: gzip\
' --no-check-certificate --server-response -qO- $URL --post-dat\
a='{"service":"cmdevice","call":"getDevices"}'
else
    wget --load-cookies cookie.txt --no-check-certificate --server\
-response -qO- $URL --post-data='{"service":"cmdevice","call":"g\
etDevices"}'
fi

```

### login.sh

```

#!/bin/bash
source url
user=$USER
pass=$user

```

```
wget --keep-session-cookies --save-cookies cookie.txt --no-check\
-certificate --server-response -qO- $URL \
  --post-data='{"service":"login","username":"' $user' ", "passwor\
d":"' $pass'"}'
echo
```

### logout.sh

```
#!/bin/bash
source url
wget --load-cookies cookie.txt --no-check-certificate --server-r\
esponse -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

wget --load-cookies cookie.txt --no-check-certificate --server-r\
esponse -qO- $URL --post-data='{"service":"cmdevice","call":"get\
Device","arg1":"' $node'"}'
```

### basic\_information.sh

```
#!/bin/bash
source url

wget --load-cookies cookie.txt --no-check-certificate --server-r\
esponse -qO- $URL --post-data='{"service":"cmpart","call":"getBa\
sicEntityInformation"}'
```