RIMA Cluster Manager 9.2

Developer Manual

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Preface

Welcome to the *Developer Manual* for RIMA Cluster Manager 9.2.

0.1 About This Manual

This manual is aimed at helping developers who would like to program the NVIDIA 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 Bright View 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 RIMA Cluster Manager 9.2 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 the cluster manager.
- The *Edge Manual* describes how to deploy Bright Edge with the cluster manager.
- The *Machine Learning Manual* describes how to install and configure machine learning capabilities with the cluster manager.
- The *Containerization Manual* describes how to manage containers with the 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 cluster manager environment and the addition of new hardware and/or applications. The manuals also regularly incorporate customer feedback. Administrator and user input is greatly valued at Bright Computing. So any comments, suggestions or corrections will be very gratefully accepted at `manuals@brightcomputing.com`.

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

☰→`Help`→`Feedback`

0.3 Getting Administrator-Level Support

If the reseller from whom the 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 9.2 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

NVIDIA Bright Cluster Manager Python API

This chapter introduces the Python API of NVIDIA Bright Cluster Manager.

The Python API package was completely overhauled in NVIDIA Bright Cluster Manager 8.2.

The `cmdaemon-pythoncm` package now provides a pure Python connection to the cluster manager, making it possible for cluster administrators to automate cluster operations via Python.

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

The cluster manager Python API uses the following extra modules:

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

1.1 Getting Started

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

Example

```
[root@rima92 ~]# module load python3
```

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

- Python 3 (3.5, 3.6, 3.7, 3.8 will work) should be installed
- The 7 extra modules listed previously should be installed using Pip
- The `/cm/local/apps/cmd/pythoncm/lib/python3.9/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@rima92 ~]# 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@rima92 ~]# 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 many need to contact the cluster administrator to get a certificate.

1.2 Connecting To A Cluster

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

```
#!/usr/bin/env python

from pythoncm.cluster import Cluster
from pythoncm.settings import Settings

cluster = Cluster()
```

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

```
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 the cluster manager are stored inside an entity.

Each entity has a type and a unique name among the entities of the same type.

To inspect an entity it should first be found inside the cluster:

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

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

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

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

```
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.get_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.get_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.get_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 add 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.get_by_name('ib', 'Network')
node001.interfaces.append(eth1)
```

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

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

The return value of the commit operation should always be checked.

Committing a badly-configured node will be blocked by the head node:

```
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@rima92 ~]# cd /cm/local/examples/cmd/pythoncm/
[root@rima92 pythoncm]# module load python3
[root@rima92 pythoncm]# ./print-all.py
```

The example directory also contains a script that prints all metadata for all available entities in the cluster manager:

Example

```
[root@rima92 pythoncm]# ./entity_info.py
```

1.6 Performing Operations On Entities

All Python API functionality is contained in `/cm/local/apps/cmd/pythoncm/lib/python3.9/site-packages/pythoncm`.

Methods are documented inside the python code itself.

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

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

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

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

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

1.7 Monitoring

All monitoring data can be accessed using the Python API.

Monitoring is a set of operations performed on entities.

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

```
print(node001.get_latest_monitoring_data())
```

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

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

1.8 Examples

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

Example

```
[root@rima92 pythoncm]# ls
add-collection.py        entity_info.py                    power-parallel-status.py
add-healthcheck.py       events.py                         power-status.py
add-metric.py            execute.py                        print-all.py
add-node-group.py        free_port.py                      range-expander-test.py
add-role.py              get-status.py                     remove-node-group.py
add-user.py              health-overview.py                sample-now-checks.py
all-nodes.py             instance_by_name.py               sample-now-parallel.py
certificate-info.py      latest-counter-data.py            select-devices.py
clone-node-group.py      latest-health-data.py             service.py
clone-node.py            new-nodes.py                      service-status.py
cm-job-analytics.py      open-close.py                     set-node-image.py
create-certificate.py    parallel-execute-async.py         wait-for-provisioning.py
create-ramdisk-task.py   parallel-execute-check-status.py  wait-for-up.py
dump-monitoring-data.py  parallel-execute.py
```

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

Example

```
[root@rima92 ~]# cd /cm/local/examples/cmd/pythoncm/
[root@rima92 pythoncm]# module load python3
[root@rima92 pythoncm]# ./power-status.py
INFO     (25-May-2020 18:29:25) [cluster.py          :207] Follow redirection to active head IP:
10.141.255.254
INFO     (25-May-2020 18:29:25) [cluster.py          :298] Start event thread for session
42949672967
success: True
[
    "uniqueKey": 1125899906842642,
    "oldLocalUniqueKey": 0,
    "baseType": "PowerStatus",
    "childType": "",
    "revision": "",
    "modified": false,
    "toBeRemoved": false,
    "readonly": false,
    "not_set_fields": [],
    "device": 38654705666,
    "host": 38654705665,
    "powerDistributionUnit": 0,
    "gpu": -1,
    "prt": 0,
    "name": "custom",
    "state": "ON",
    "msg": "",
    "extendedMsg": "",
    "indexes": [
        2
    ],
```

```
    "tracker": 0,
    "retries": 0
]
INFO     (25-May-2020 18:29:28) [entity_change.py    : 38] Stop event change watcher
[root@rima92 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 cluster manager `cmd` process. The script produces zero or more metrics, health checks, or a combination of both on its own timing mechanism.
- `prometheus` one or more URLs to Prometheus metric exporters.

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

2.1 Measurables

There are three types of measurable:

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

2.2 Measurables Classes

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

2.3 Metric Monitoring Data Producers

A metric data producer script generates one data point.

For example, as in the following script:

Example

```
[root@rima92 ~]# cat /path/to/my/metric
#!/bin/bash
info_fd=${CMD_INFO_FD:=3}    #set CMD_INFO_FD to 3 by default only if nothing set
# CMD_INFO_FD:=3    <--- same as: if [ -z "$CMD_INFO_FD" ]; then CMD_INFO_FD=3; fi
echo $((RANDOM))
# Optionally provide extra information
echo "Extra information" >&$info_fd
```

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

Example

```
[rima92]% monitoring setup
[rima92->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@rima92 ~]# cat /path/to/my/health-check
#!/bin/bash
info_fd=${CMD_INFO_FD:=3}    #set CMD_INFO_FD to 3 by default if nothing set
if [ $((RANDOM)) -gt 8000 ]; then
  echo "PASS"
else
  echo "FAIL"
  # Optionally provide extra information
echo "Extra information" >&$info_fd
fi
```

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

Example

```
[rima92]% monitoring setup
[rima92->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@rima92 ~]# 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

```
[rima92]% monitoring setup
[rima92->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@rima92 ~]# 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@rima92 ~]# 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

```
[rima92]% monitoring setup
[rima92->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

```
[rima92]% monitoring setup
[rima92->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

```
[rima92]% 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

```
[rima92]% 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

```
[rima92]% 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

```
[rima92]% 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 the 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

```
[rima92]% device use node001
[rima92]% monitoringresources
CentOS7u5
Ethernet
category:default
```

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

Example

```
[rima92]% device use node001
[rima92]% add userdefinedresources MyResource
[rima92]% append userdefinedresources MyOtherResource
[rima92]% # wait ~10 seconds for the settings to propagate
[rima92]% 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@rima92~]# 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

```
[rima92]% monitoring setup
[rima92->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 cluster manager entity.

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

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

The 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

```
[rima92]% monitoring standalone
[rima92->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@rima92 ~]# 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

```
[rima92]% monitoring setup
[rima92->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 cluster manager nodes.

Example

```
[rima92]% monitoring standalone
[rima92->monitoring->standalone]% use MSD.0
[...standalone*[MSD.0*]]% latestmetricdata
...
lustre.free.space        12345         3m 47s
```

2.13 Debugging Standalone Scripts

Page 374 of the *Administrator Manual* describes how debugging information can be obtained when running `samplenow` with the `--debug` option with the `ntp` healthcheck script.

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

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

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

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

Example

```
import os
debug = os.environ.get('CMD_DEBUG', '0') == '1'
info_fd = int(os.environ.get('CMD_INFO_FD', '3'))
if debug:
    os.write(info_fd, 'debug message')
```

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

By default, several actions (section 8.4.4 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

```
[rima92]% monitoring action
[rima92->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

```
[rima92]% monitoring action
[rima92->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-friday{9:00-17:00}
monday-friday{00:00-09:00;17:00-00:00};saturday-sunday
november-march{monday-saturday{13:00-17:00}}
may-september{monday-friday{09:00-18:00};saturday-sunday{13:00-17:00}}
```

Further examples can be seen in section 8.4.4 of the *Administrator Manual*, page 346.

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
```

3.3 CMDaemon Environment Variables

3.3.1 Standard 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 standard environment variables set.

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

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

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

3.3.2 Extended Environment Variables Available To Action Scripts

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

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

Table 3.3.2: Environment Variables For Nodes In The Extended Environment

Variable	Example Value
CMD_ACTIVE_MASTER_IP	10.141.255.254
CMD_ADDED_NODES	

...continues

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

Variable	Example Value
CMD_BASE_TYPE	
CMD_BMCIP	
CMD_BMCPASSWORD	doQNeV1qksXr59O
CMD_BMCUSERID	4
CMD_BMCUSERNAME	
CMD_BMC_TYPE	2
CMD_CATEGORY	default
CMD_CEPH_MDS_SOCKET	
CMD_CEPH_MGR_SOCKET	
CMD_CEPH_MON_SOCKET	
CMD_CEPH_NAME	
CMD_CEPH_OSD_ID	
CMD_CEPH_OSD_SOCKET	
CMD_CHASSIS	chassis01
CMD_CHASSIS_IP	10.141.1.1
CMD_CHASSIS_MEMBERS	
CMD_CHASSIS_PASSWORD	secr3t
CMD_CHASSIS_SLOT	1
CMD_CHASSIS_USERNAME	ADMIN

...continues

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

Variable	Example Value
CMD_CHILD_TYPE	
CMD_CLUSTERNAME	Bright 9.2 Cluster
CMD_CONFIGURATION_CREATE_DIRECTORY	
CMD_CONFIGURATION_FILENAME	
CMD_CONFIGURATION_GROUP_NAME	
CMD_CONFIGURATION_MASK	
CMD_CONFIGURATION_NAME	
CMD_CONFIGURATION_USER_NAME	
CMD_CREATE_RAMDISK_TOKEN_CATS	
CMD_CREATE_RAMDISK_TOKEN_NODES	
CMD_CURRENT_NODES	
CMD_DATA	
CMD_DELLFW_FTP_PASSWORD	
CMD_DELLFW_FTP_USERNAME	
CMD_DELLFW_PATH	
CMD_DESTINATION_REVISION	
CMD_DESTINATION_VERSION	
CMD_DEVICE_HEIGHT	1
CMD_DEVICE_POSITION	10

...continues

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

Variable	Example Value
CMD_DEVICE_TYPE	ComputeNode
CMD_DIRECTOR	
CMD_DIRECTOR_IP	
CMD_DOCKER_ENDPOINTS	
CMD_EDGE_SITE	
CMD_ETCD_CA	
CMD_ETCD_CAKEY	
CMD_ETCD_CLIENT_CA	
CMD_ETCD_CLIENT_CERT	
CMD_ETCD_CLIENT_KEY	
CMD_ETCD_MEMBER_CERT	
CMD_ETCD_MEMBER_KEY	
CMD_ETHERNETSWITCH	switch01:1
CMD_EXISTING_REVISION	
CMD_EXISTING_VERSION	
CMD_EXPORTS	
CMD_FAILONMISSINGBMC	
CMD_FAIL_ON_FAILED_BMCCOMMAND	YES
CMD_FSEXPORTS	

...continues

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

Variable	Example Value
CMD_FSEXPORT_<*name*>_ALLOWWRITE	
CMD_FSEXPORT_<*name*>_HOSTS	
CMD_FSEXPORT_<*name*>_PATH	
CMD_FSMOUNTS	
CMD_FSMOUNT_<*name*>_DEVICE	

where <*name*> takes these SLASH substitutions:

<*name*>	example value
_SLASH_cm_SLASH_shared	$localnfsserver:/cm/shared
_SLASH_dev_SLASH_pts	*none*
_SLASH_dev_SLASH_shm	*none*
_SLASH_home	$localnfsserver:/home
_SLASH_proc	*none*
_SLASH_sys	*none*

CMD_FSMOUNT_<*name*>_FILESYSTEM

where <*name*> takes these SLASH substitutions:

<*name*>	example value
_SLASH_cm_SLASH_shared	nfs
_SLASH_dev_SLASH_pts	devpts
_SLASH_dev_SLASH_shm	tmpfs
_SLASH_home	nfs
_SLASH_proc	proc
_SLASH_sys	sysfs

CMD_FSMOUNT_<*name*>_MOUNTPOINT

where <*name*> takes these SLASH substitutions:

<*name*>	example value
_SLASH_cm_SLASH_shared	/cm/shared
_SLASH_dev_SLASH_pts	/dev/pts
_SLASH_dev_SLASH_shm	/dev/shm
_SLASH_home	/home
_SLASH_proc	/proc
_SLASH_sys	/sys

CMD_FSMOUNT_<*name*>_OPTIONS

...continues

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

Variable	Example Value
where <*name*> takes these SLASH substitutions:	
<*name*>	**example value**
_SLASH_cm_SLASH_shared	rsize=32768,wsize=32768,hard,intr,async
_SLASH_dev_SLASH_pts	gid=5,mode-620
_SLASH_dev_SLASH_shm	defaults
_SLASH_home	rsize=32768,wsize=32768,hard,intr,async
_SLASH_proc	defaults,nosuid
_SLASH_sys	/defaults
CMD_GATEWAY	10.141.255.254
CMD_GUID	
CMD_HAPROXY_HOST	
CMD_HOSTNAME	node004
CMD_INITRD	
CMD_INITRD_KERNEL_PARAMS	
CMD_INITRD_KERNEL_VERSION	
CMD_INITRD_TMPFS_SIZE	
CMD_INSTALLMODE	AUTO
CMD_INSTANCE_ID	
CMD_INTERFACES	BOOTIF
CMD_INTERFACE_<*interface*>_BOND	
CMD_INTERFACE_<*interface*>_BRIDGE	
CMD_INTERFACE_<*interface*>_DHCP	
CMD_INTERFACE_<*interface*>_GATEWAY	
CMD_INTERFACE_<*interface*>_IP	10.141.0.5

...continues

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

Variable	Example Value
CMD_INTERFACE_<*interface*>_LANCHANNEL	
CMD_INTERFACE_<*interface*>_MAC	00:00:00:00:00:00
CMD_INTERFACE_<*interface*>_MODE	
CMD_INTERFACE_<*interface*>_MTU	1500
CMD_INTERFACE_<*interface*>_NETMASK	
CMD_INTERFACE_<*interface*>_REVISION	
CMD_INTERFACE_<*interface*>_SLAVES	
CMD_INTERFACE_<*interface*>_SPEED	
CMD_INTERFACE_<*interface*>_STARTIF	ALWAYS
CMD_INTERFACE_<*interface*>_TYPE	NetworkPhysicalInterface
CMD_INTERFACE_<*interface*>_VLANID	

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

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

CMD_IP	10.141.0.1
CMD_JOBNODELIST	
CMD_KUBERNETES_ADMIN_CERT	
CMD_KUBERNETES_ADMIN_CERT_KEY	

...continues

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

Variable	Example Value
CMD_KUBERNETES_ADMIN_KUBECONFIG	
CMD_KUBERNETES_APISERVER_ENDPOINT	
CMD_KUBERNETES_CACERT	
CMD_KUBERNETES_CLIENT_CERTIFICATE	
CMD_KUBERNETES_CLIENT_KEY	
CMD_KUBERNETES_ETCD_ACTIVE	
CMD_KUBERNETES_ETCD_CLIENT_ENDPOINTS	
CMD_KUBERNETES_KUBELET_CERTIFICATE	
CMD_KUBERNETES_KUBELET_ENDPOINT	
CMD_KUBERNETES_KUBELET_KEY	
CMD_KUBE_DNS_IP	
CMD_KUBE_DOMAIN	
CMD_KUBE_INTERNAL_NETWORK_CIDR	
CMD_KUBE_POD_NETWORK_CIDR	
CMD_KUBE_SERVICE_NETWORK_CIDR	
CMD_LOGGING_CONFIG	
CMD_MAC	FA:16:3E:64:8E:1E
CMD_MODEL	
CMD_MODULES	

...continues

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

Variable	Example Value
CMD_MODULE_<*name*>	
CMD_MOUNTS	
CMD_NAME	
CMD_NODEGROUPS	
CMD_NODEGROUP_NAME	
CMD_NODEGROUP_UID	
CMD_OWNED_INDEX	
CMD_PARTITION	base
CMD_PASSIVE_MASTER_IP	10.141.255.253
CMD_PDUS	
CMD_PORT	8081
CMD_PORTS	
CMD_POWER_CONTROL	custom
CMD_PROTOCOL	https
CMD_RACADM_PATH	
CMD_RACK	rack01
CMD_RACK_HEIGHT	42
CMD_RACK_ROOM	serverroom
CMD_READ_STRING	

...continues

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

Variable	Example Value
CMD_REMOVED_NODES	
CMD_RESOLVE_NAME	
CMD_ROLES	
CMD_SCRIPTTIMEOUT	5
CMD_SCRIPT_TIMEOUT	5
CMD_SHARED_MASTER_IP	10.141.255.252
CMD_SKIPBMC	
CMD_SOFTWAREIMAGE	default-image
CMD_SOFTWAREIMAGE_PATH	/cm/images/default-image
CMD_STATE	
CMD_STATUS	
CMD_STATUS_CLOSED	NO
CMD_STATUS_HEALTHCHECK_FAILED	NO
CMD_STATUS_HEALTHCHECK_UNKNOWN	NO
CMD_STATUS_MESSAGE	
CMD_STATUS_RESTART_REQUIRED	NO
CMD_STATUS_STATEFLAPPING	NO
CMD_STATUS_USERMESSAGE	
CMD_STRICTUSERID	

...continues

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

Variable	Example Value
CMD_SUBNET_MANAGER	
CMD_SWITCH_CONTROL_SCRIPT	
CMD_SWITCH_CONTROL_SCRIPT_TIMEOUT	
CMD_SYSINFO_SYSTEM_MANUFACTURER	RDO
CMD_SYSINFO_SYSTEM_NAME	OpenStack Compute
CMD_TAG	00000000a000
CMD_TARGET_NAME	
CMD_TARGET_NODES	
CMD_TYPE	
CMD_TYPES	
CMD_UCS_DN	sys/rack-unit-1
CMD_USERDEFINED1	var1
CMD_USERDEFINED2	var2
CMD_VMLINUZ	
CMD_WRITE_STRING	

4

CMDaemon REST API

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

The REST API allows data only to be retrieved for most calls. Currently (June 2024) the only exception is the `Event` call, which can be used to generate events (section 4.2.9).

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`). Certificate-based authentication is covered in section 6.4.2 of the *Administrator Manual*.

The following two commands give identical results:

```
[alice@rima92 ~]$ curl -k --basic --user "alice:password" "https://master:8081/rest"
[alice@rima92 ~]$ 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@rima92 ~]$ <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:

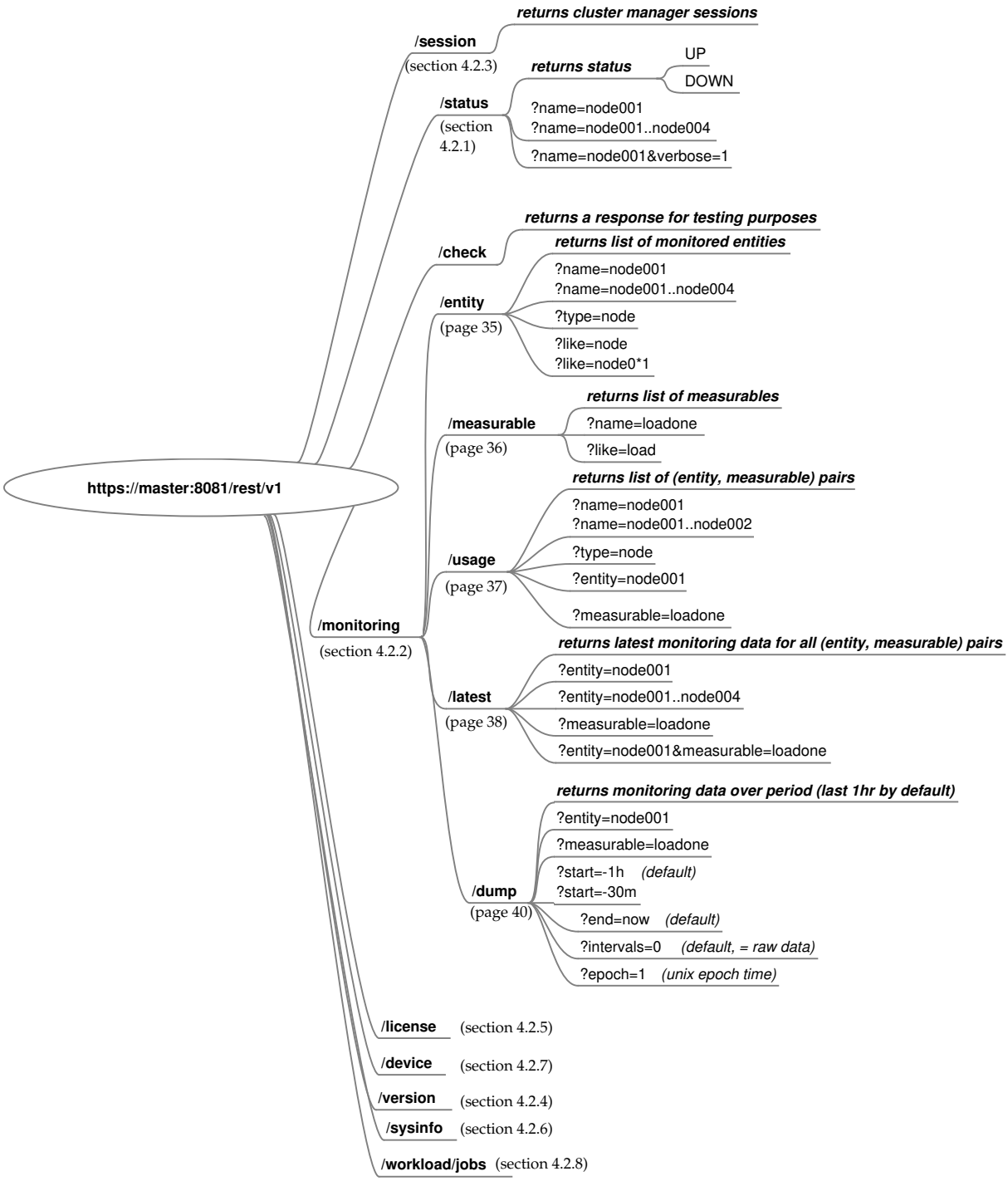

Figure 4.1: REST API summary tree

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@rima92 ~]$ <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@rima92 ~]$ <curlauth>/rest?indent=1"
[
 "v1"
]
```

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

Example

```
[alice@rima92 ~]$ <curlauth>/rest/v1?indent=1"
[
 "monitoring",
 "status",
 "session",
 "check",
 "version",
 "license",
 "sysinfo",
 "device",
 "workload",
 "event"
]
```

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

Example

```
[alice@rima92 ~]$ <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@rima92 ~]$ <curlauth>/rest/v1/status?indent=2"
[
  {
    "hostname": "rima92",
    "status": "UP"
  },
  {
    "hostname": "node001",
    "status": "UP"
  },
```

```
  {
    "hostname": "node002",
    "status": "DOWN"
  }
]
```

The status can also be requested for a single device:

Example

```
[alice@rima92 ~]$ <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@rima92 ~]$ <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@rima92 ~]$ <curlauth>/rest/v1/status?verbose=1&indent=2"
[
  {
    "health_check_failed": true,
    "health_check_unknown": false,
    "hostname": "rima92",
    "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@rima92 ~]$ <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@rima92 ~]$ <curlauth>/rest/v1/monitoring/entity?name=node001&indent=1"
{
 "entities": [
  {
   "key": 38654705666,
   "name": "node001",
   "type": "PhysicalNode"
  }
 ]
}
[alice@rima92 ~]$ <curlauth>/rest/v1/monitoring/entity?type=node&indent=1"
{
 "entities": [
  {
   "key": 38654705665,
   "name": "rima92",
   "type": "HeadNode"
  },
  {
   "key": 38654705666,
   "name": "node001",
   "type": "PhysicalNode"
  },
  {
   "key": 38654705667,
   "name": "node002",
   "type": "PhysicalNode"
  }
 ]
}
```

```
[alice@rima92 ~]$ <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@rima92 ~]$ <curlauth>/rest/v1/monitoring/entity?like=lobal&indent=1"
{
 "entities": [
  {
   "key": 17179869185,
   "name": "globalnet",
   "type": "Network"
  }
 ]
}
[alice@rima92 ~]$ <curlauth>/rest/v1/monitoring/entity?like=nod.0*1&indent=1"
{
 "entities": [
  {
   "key": 38654705666,
   "name": "node001",
   "type": "PhysicalNode"
  }
 ]
}
```

Regexes are based on the ECMAScript specification (`https://en.cppreference.com/w/cpp/regex/ecmascript`).

Measurables Via `/v1/monitoring/measurable`
This entry returns information about the defined measurables.

Example

```
[alice@rima92 ~]$ <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@rima92 ~]$ <curlauth>/rest/v1/monitoring/measurable?name=loadone&indent=1"
{
 "measurables": [
  {
   "key": 261993005138,
   "name": "LoadOne",
   "type": "metric"
  }
 ]
}
[alice@rima92 ~]$ <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@rima92 ~]$ <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@rima92 ~]$ <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@rima92 ~]$ <curlauth>/rest/v1/monitoring/usage?measurable=loadone&indent=1"
{
 "data": [
   {
    "entity": "rima92",
    "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@rima92 ~]$ <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@rima92 ~]$ <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@rima92 ~]$ <curlauth>/rest/v1/monitoring/latest?entity=node001..node004&indent=1"
```

...*as for previous output but for the range of* `nodes001..node004`...

```
[alice@rima92 ~]$ <curlauth>/rest/v1/monitoring/latest?measurable=LoadOne&indent=1"
{
 "data": [
  {
   "age": 114.099,
   "entity": "rima92",
   "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@rima92 ~]$ <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@rima92 ~]$ <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 8.6.4 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@rima92 ~]$ <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 . . .
```

4.2.3 Session Using /v1/session

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

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

Example

```
[alice@rima92 ~]$ <curlauth>/rest/v1/session?indent=1"
[
 {
  "address": "127.0.0.1",
  "group": "admin",
  "node": "rima92",
  "type": "node",
  "username": ""
 },
 {
  "address": "10.141.255.254",
  "group": "admin",
  "type": "node",
  "username": ""
 },
 {
  "address": "10.141.0.1",
  "group": "node",
  "node": "node001",
  "type": "node",
  "username": ""
 },
 {
  "address": "10.141.0.2",
  "group": "node",
  "node": "node002",
  "type": "node",
  "username": ""
 }
```

4.2.4 Version Using /v1/version

The version method returns version parameters.

```
[alice@rima92 ~]$ <curlauth>/rest/v1/version?indent=1"
{
  "build_hash": "daf30669f1",
  "build_index": 152175,
  "cm_version": "9.2",
  "cmd_version": "2.2",
  "database_version": 36280
}
```

4.2.5 License Using /v1/license

The license method returns license parameters.

Example

```
[alice@rima92 ~]$ <curlauth>/rest/v1/license?indent=1"
{
```

```
  "acceleratorNodeCount": 0,
  "accountingAndReporting": true,
  "baseType": "LicenseInfo",
  "burstNodeCount": 0,
  "childType": "",
  "edgeSites": true,
  "edition": "Advanced",
  "endTime": 2177449140,
  "licenseType": "Commercial",
  "licensedAcceleratorNodes": 80,
  "licensedBurstNodes": 1000,
  "licensedNodes": 100,
  "licensee": "/C=US/ST=None/L=None/O=None/OU=None/CN=rima92",
  "macAddress": "FA:16:3E:3B:94:98",
  "message": "",
  "modified": false,
  "nodeCount": 3,
  "oldLocalUniqueKey": 0,
  "refPartitionUniqueKey": 21474836481,
  "revision": "",
  "serial": 1017214,
  "startTime": 1508108400,
  "toBeRemoved": false,
  "uniqueKey": 281474976710653,
  "version": "7.0 and above"
}
```


4.2.6 Sysinfo Using /v1/sysinfo

The sysinfo method is similar to the sysinfo command in the device mode of cmsh. It returns information about some basic system hardware parameters.

Example

```
[alice@rima92 ~]$ <curlauth>/rest/v1/sysinfo?indent=1"
```


```
{
  "node001": {
    "baseType": "SysInfoCollector",
    "biosDate": "04/01/2014",
    "biosVendor": "SeaBIOS",
    "biosVersion": "1.13.0-1ubuntu1.1",
    "bootIf": "ens3",
    "childType": "",
    "clusterRandomNumber": 6332472641088672013,
    "diskCount": 2,
    "diskTotalSpace": 10745806848,
    "disks": [
      {
        "baseType": "DiskInfo",
        "childType": "",
        "ioScheduler": "[mq-deadline] kyber bfq none",
        "model": "virtio",
        "modified": false,
        "name": "vda",
        "oldLocalUniqueKey": 0,
        "rev": "",
        "revision": "",
```

```
      "size": 8388608,
      "toBeRemoved": false,
      "uniqueKey": 281474976710948,
      "vendor": ""
    },
    {
      "baseType": "DiskInfo",
      "childType": "",
      "ioScheduler": "[mq-deadline] kyber bfq none",
      "model": "virtio",
      "modified": false,
      "name": "vdb",
      "oldLocalUniqueKey": 0,
      "rev": "",
      "revision": "",
      "size": 10737418240,
      "toBeRemoved": false,
      "uniqueKey": 281474976710949,
      "vendor": ""
    }
  ],
  "extra": null,
  "fabric": false,
  "fips": false,
  "fpgas": [],
  "gpus": [],
  "ibGUIDs": [],
  "interconnects": [],
  "memory": [
    {
      "IDs": [
        "0/0"
      ],
      "baseType": "MemoryInfo",
      "childType": "",
      "description": "DIMM RAM",
      "locations": [
        "DIMM 0"
      ],
      "modified": false,
      "oldLocalUniqueKey": 0,
      "revision": "",
      "size": 1073741824,
      "speed": 0,
      "toBeRemoved": false,
      "uniqueKey": 281474976710950
    }
  ],
  "memorySwap": 0,
  "memoryTotal": 1016152064,
  "modified": false,
  "motherboardManufacturer": "",
  "motherboardName": "",
  "nics": [
    "ens3"
```

```
    ],
    "oldLocalUniqueKey": 0,
    "osFlavor": "Rocky8u5",
    "osName": "Linux",
    "osVersion": "4.18.0-348.el8.0.2.x86_64",
    "parentUniqueKey": 85899345921,
    "processors": [
      {
        "IDs": [
          0
        ],
        "baseType": "Processor",
        "bogomips": 4190.15,
        "cacheSize": 16777216,
        "childType": "",
        "coreIDs": [
          0
        ],
        "cores": 1,
        "model": "Intel(R) Xeon(R) Silver 4116 CPU @ 2.10GHz",
        "modified": false,
        "oldLocalUniqueKey": 0,
        "physicalIDs": [
          0
        ],
        "revision": "",
        "speed": 2095078000.0,
        "toBeRemoved": false,
        "uniqueKey": 281474976710947,
        "vendor": "GenuineIntel"
      }
    ],
    "raidControllers": [],
    "refDeviceUniqueKey": 38654705666,
    "revision": "",
    "seLinux": false,
    "systemManufacturer": "OpenStack Foundation",
    "systemName": "OpenStack Nova",
    "timestamp": 1651158566,
    "toBeRemoved": false,
    "uniqueKey": 85899345921,
    "updateCount": 5,
    "vendorTag": "5bf2a543-542d-4391-946c-abb648a09158",
    "virtualCluster": true
  },
  "node002": {
    "baseType": "SysInfoCollector",
    "biosDate": "04/01/2014",
...
}
```


4.2.7 Device Information Using /v1/device

Example

```
[alice@rima92 ~]$ <curlauth>/rest/v1/device?indent=1"
[
```

```
  {
    "cluster": "rima92",
    "hostname": "rima92",
    "ip": "10.141.255.254",
    "mac": "FA:16:3E:EF:71:05",
    "network": "internalnet",
    "roles": [
      "backup",
      "storage",
      "firewall",
      "headnode",
      "monitoring",
      "provisioning",
      "boot"
    ],
    "type": "HeadNode"
  },
  {
    "category": "default",
    "cluster": "rima92",
    "hostname": "node001",
    "ip": "10.141.0.1",
    "mac": "FA:16:3E:2B:A4:31",
    "network": "internalnet",
    "type": "PhysicalNode"
  },
  {
    "category": "default",
    "cluster": "rima92",
    "hostname": "node002",
    "ip": "10.141.0.2",
    "mac": "FA:16:3E:D4:C8:5A",
    "network": "internalnet",
    "type": "PhysicalNode"
  }
]
```


4.2.8 WLM Information Using `/v1/workload`

Currently the workload path takes the `jobs` resource.

Example

```
[alice@rima92 ~]$ <curlauth>/rest/v1/workload/jobs?indent=1"
[
 {
  "account": "projecty",
  "group": "alice",
  "job_id": "2301",
  "job_name": "iozone",
  "nodes": [
   "node001"
  ],
  "queue": "defq",
  "run_time": "4m 39s",
  "start_time": "2023/06/08 14:24:53",
  "state": "RUNNING",
```

```
  "sumbit_time": "2023/06/08 14:24:53",
  "user": "alice"
 },
 {
  "account": "projectx",
  "group": "charlie",
  "job_id": "2306",
  "job_name": "sleep",
  "nodes": [
   "node001"
  ],
  "queue": "defq",
  "run_time": "3m 34s",
  "start_time": "2023/06/08 14:25:58",
  "state": "RUNNING",
  "sumbit_time": "2023/06/08 14:25:57",
  "user": "charlie"
 },
 {
  "account": "projecty",
  "group": "alice",
  "job_id": "2307",
  "job_name": "iozone",
...
```

4.2.9 Event Generation Using `/v1/event`

The `event` endpoint can be used to generate an event in CMDaemon from a JSON format input.

The input can be:

Example

```
[alice@rima92 ~]$ cat /tmp/rest.in
{
  "message": "hello world",
  "details": "send via rest",
  "severity": "notice"
}
```

The `curl` authentication string, <*curlauth*> (section 4.1) is slightly modified from its value of:

```
curl --cert ~/.cm/cert.pem --key ~/.cm/cert.key -k "https://master:8081
```

to

```
curl --cert ~/.cm/cert.pem --key ~/.cm/cert.key -k --data "@/tmp/rest.in" "https://master:8081
```

This modified version allows POST data to be entered. The modified version can be called <*curlauthpost*>, and can be used as follows, returning `true`:

Example

```
[alice@rima92 ~]$ <curlauthpost>/rest/v1/event"
true
```

With the default settings of `cmsh`, a window running `cmsh` shows:

```
[root@rima92 ~]# cmsh
[rima92]%
Tue Jun  4 11:09:21 2024 [notice] rima92: hello world
For details type: events details 1
```

and, if as suggested, the `event details 1` is typed, the details from the input are seen:

```
[rima92]% events details 1
send via rest
```

5

NVIDIA Bright Cluster Manager JSON API

This chapter gives an alphabetical list of the JSON API services and entities available for NVIDIA Bright Cluster Manager. The API reference documentation for all available services and entities is available on the head node at:

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

It can also be accessed via the user portal of the cluster by clicking on the `JSON API documentation` link in the documentation section of the home page (Section 8.8.4 of the *Administrator Manual*).

Some examples of JSON usage are given in section 5.3

5.1 Services

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

5.2 Entities

5.2.1 AMDGPUSettings: GPUSettings

parent: GPUSettings

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

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

Parameter: powerPlay
Type: enum
Description: Set powerplay level

Parameter: gpuOverDrive
Type: float
Description: This sets the percentage above maximum for the max performance Level

Parameter: memoryOverDrive
Type: float
Description: This sets the percentage above maximum for the max performance Level

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

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

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

Parameter: activityThreshold
Type: float
Description: Workload required before clock levels change

Parameter: hysteresisUp
Type: float
Description: Delay before clock level is increased

Parameter: hysteresisDown
Type: float
Description: Delay before clock level is decreased

5.2.2 `ANFVolume: Entity`

parent: `Entity`

Parameter: `id`
Type: string
Description: Unique identifier

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

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

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

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

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

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

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

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

Parameter: `management`
Type: enum
Description: Volume management type

Parameter: `creationTime`
Type: string
Description: Creation time

Parameter: `sharedWith`
Type: list of strings
Description: Other cmjob users that can use this volume for jobs.

5.2.3 `ArchOSInfo: Entity`

parent: `Entity`

Parameter: `arch`
Type: enum
Description: Architecture

Parameter: `os`
Type: enum
Description: Operating system

5.2.4 `ArchOS: ArchOSInfo`

parent: `ArchOSInfo`

Parameter: `primaryImage`
Type: reference to `SoftwareImage` or None
Description: Image used to boot new nodes and keep /cm/shared up to date, empty if head node is to be used

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

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

Parameter: `priority`
Type: unsigned integer
Description: Priority

5.2.5 `AWSIntermediateStorage: CMJobIntermediateStorage`

parent: `CMJobIntermediateStorage`

Parameter: `bucket`
Type: string
Description: S3 Bucket name

Parameter: `folder`
Type: string
Description: Folder name to place data into

Parameter: `region`
Type: string

Description: Region for S3 bucket

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

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

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

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

5.2.6 `AzureDataDisk`: `AzureDisk`

parent: `AzureDisk`

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

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

5.2.7 `AzureDisk`: `Entity`

parent: `Entity`

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

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

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

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

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

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

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

5.2.8 `AzureExtension: Entity`

parent: `Entity`

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

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

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

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

Parameter: `extraField`
Type: list of strings
Description: Reserved

5.2.9 `AzureIntermediateStorage: CMJobIntermediateStorage`

parent: `CMJobIntermediateStorage`

Parameter: `storageAccountId`
Type: string
Description: Azure storage account ID

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

Parameter: `container`
Type: string

Description: Container name to place data into

Parameter: `netAppSubnetId`
Type: string
Description: Azure ID for the delegated subnet where ANF volumes will be created

Parameter: `netAppResourceGroupName`
Type: string
Description: Resource group where the NetApp account is located

Parameter: `netAppAccountName`
Type: string
Description: Name of the NetApp account to create ANF volumes

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

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

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

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

5.2.10 `AzureLocation: CloudRegion`

parent: `CloudRegion`

5.2.11 `AzureManagedDiskParameters: Entity`

parent: `Entity`

Parameter: `id`
Type: string
Description: Managed disks resource ID

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

5.2.12 `AzureOSDisk: AzureDisk`

parent: `AzureDisk`

Parameter: `cachingType`

Type: enum
Description: Disk caching type

5.2.13 `AzureProvider: CloudProvider`

parent: `CloudProvider`

Parameter: `subscriptionId`
Type: string
Description: Azure Subscription ID.

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

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

Parameter: `tenantId`
Type: string
Description: Tenant ID.

Parameter: `cloudName`
Type: string
Description: Azure Cloud Name. Used to access non-public regions.

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

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

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

Parameter: `defaultHyperVGeneration`
Type: enum
Description: Hyper-V generation to use by default (V1 or V2), see https://docs.microsoft.com/en-us/azure/virtual-machines/generation-2

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

Parameter: `regions`

Type: list of references to `AzureLocation`
Description: *none*

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

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

Parameter: `freeImageType`
Type: enum
Description: What kind of image to use for cloud nodes within the license

5.2.14 `AzureSettings: CloudSettings`

parent: `CloudSettings`

Parameter: `instanceId`
Type: string
Description: Instance-ID provided by Azure

Parameter: `availabilitySetName`
Type: string
Description: Availability set name

Parameter: `nicId`
Type: string
Description: Network interface identifier

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

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

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

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

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

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

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

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

Parameter: `hyperVGeneration`
Type: enum
Description: Hyper-V generation to use (V1 or V2), see https://docs.microsoft.com/en-us/azure/virtual-machines/generation-2

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

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

Parameter: `freeImageType`
Type: enum
Description: What kind of image to use for cloud nodes within the license

5.2.15 `AzureVMSize: CloudType`

parent: `CloudType`

Parameter: `hyperVGenerations`
Type: list of strings
Description: Supported Hyper-V generations.

5.2.16 `BackupInfo: Entity`

parent: `Entity`

Parameter: `refSourceNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `refBackupNodeUniqueKey`

Type: unsigned integer
Description: Node

Parameter: `refFSPartUniqueKey`
Type: unsigned integer
Description: FSPart

Parameter: `timestamp`
Type: unsigned integer
Description: Timestamp of the completion of the backup

Parameter: `index`
Type: unsigned integer
Description: Index of the backup

5.2.17 `BackupRole: Role`

parent: `Role`

Parameter: `directory`
Type: string
Description: Directory where backups for other nodes are saved

Parameter: `disabled`
Type: boolean
Description: Disabled nodes will no longer be used

Parameter: `backupRing`
Type: unsigned integer
Description: Only backup to nodes within the same ring

Parameter: `maximumNumberOfBackups`
Type: unsigned integer
Description: Maximum number of backups this node should be used for, set 0 for unlimited

5.2.18 `BadEntityManagers: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `managers`
Type: list of strings
Description: Managers

5.2.19 `BaseNginxRole: Role`

parent: `Role`

Parameter: `workerConnections`

Type: unsigned integer
Description: Number of worker connections

Parameter: `sendFile`
Type: boolean
Description: Allow files to be sent

Parameter: `tcpNoPush`
Type: boolean
Description: *none*

Parameter: `tcpNoDelay`
Type: boolean
Description: TCP no delay

Parameter: `keepAliveTimeout`
Type: unsigned integer
Description: Keep alive timeout

Parameter: `typesHashMaxSize`
Type: unsigned integer
Description: Types hash max size

5.2.20 `BasicResource: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

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

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

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

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

5.2.21 BeeGFSClientConfig: Entity

parent: Entity

Parameter: refBeeGFSClusterUniqueKey
Type: unsigned integer
Description: BeeGFS cluster

Parameter: enableQuota
Type: boolean
Description: Enable quota

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

Parameter: mountSanityCheck
Type: float
Description: Time in ms server has to respond after mount sanity check

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

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

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

Parameter: updateTargetStatesTime
Type: float
Description: Interval for storage targets states check

Parameter: enableXAttrs
Type: boolean
Description: Enable xattrs

Parameter: enableACLs
Type: boolean
Description: Enable ACLs

Parameter: fileCacheType
Type: string

Description: File read/write cache type

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

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

Parameter: `preferredMetadataServers`
Type: list of strings
Description: Preferred metadata server IDs

Parameter: `preferredStorageServers`
Type: list of strings
Description: Preferred metadata server IDs

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

Parameter: `useGlobalAppendLocks`
Type: boolean
Description: Should files, opened in append mode, be protected by locks on local machine (YES) or on servers (NO)

Parameter: `useGlobalFileLocks`
Type: boolean
Description: Should advisory locks be checked on local machine (YES) or on servers (NO)

Parameter: `connectionSettings`
Type: `BeeGFSClientConnectionSettings`
Description: Submode containing BeeGFS client connection settings

Parameter: `logType`
Type: enum
Description: Send log messages to the helper daemon or syslog to send them to the system logger

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

Parameter: `addClientId`
Type: boolean
Description: Defines whether the ClientID should appear in each log line

Parameter: `helperIp`
Type: IP
Description: Defines the IP address of the node on which the beegfs-helperd runs for remote logging

5.2.22 `BeeGFSClientConnectionSettings: Entity`

parent: `Entity`

Parameter: `portUDP`
Type: unsigned integer
Description: UDP port for the client daemon

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

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

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

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

Parameter: `interfacesList`
Type: list of strings
Description: List of interfaces for communication

Parameter: `maxConcurrentAttempts`
Type: unsigned integer
Description: This may help in case establishing new connections keeps failing and produces fallbacks

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

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

Parameter: `useRDMA`
Type: boolean
Description: Use RDMA

Parameter: `rdmaBuffersNumber`

Type: unsigned integer
Description: Number of RDMA buffers

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

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

Parameter: `unmountRetries`
Type: boolean
Description: If communication error occurs during unmount, the unsuccessful communications will be retried normally.

5.2.23 `BeeGFSClientRole: Role`

parent: `Role`

Parameter: `configurations`
Type: list of `BeeGFSClientConfig`
Description: List of BeeGFS client configurations

5.2.24 `BeeGFSCluster: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name of the BeeGFS cluster

Parameter: `multiMode`
Type: boolean
Description: BeeGFS multi mode enabled

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

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

5.2.25 `BeeGFSHelperConfig: Entity`

parent: `Entity`

Parameter: `refBeeGFSClusterUniqueKey`
Type: unsigned integer
Description: BeeGFS cluster

Parameter: `portTCP`
Type: unsigned integer
Description: TCP port for helper service

Parameter: `runDaemonized`
Type: boolean
Description: Run the helper as a daemon

Parameter: `workersNumber`
Type: unsigned integer
Description: Number of worker threads for helper service

Parameter: `connectionSettings`
Type: `BeeGFSHelperConnectionSettings`
Description: Submode containing BeeGFS helper connection settings

Parameter: `logSettings`
Type: `BeeGFSLogSettings`
Description: Submode containing BeeGFS logging settings

5.2.26 `BeeGFSHelperConnectionSettings: Entity`

parent: `Entity`

Parameter: `portTCP`
Type: unsigned integer
Description: TCP port for the service

5.2.27 `BeeGFSHelperRole: Role`

parent: `Role`

Parameter: `configurations`
Type: list of `BeeGFSHelperConfig`
Description: List of BeeGFS helper configurations

5.2.28 `BeeGFSLogSettings: Entity`

parent: `Entity`

Parameter: `logType`
Type: enum
Description: Defines the logger type. This can either be 'syslog' to send log messages to the general system logger or 'logfile'

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

Parameter: `noDate`
Type: boolean

Description: Do not show date along with time in log

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

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

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

5.2.29 `BeeGFSManagementConfig: Entity`

parent: `Entity`

Parameter: `refBeeGFSClusterUniqueKey`
Type: unsigned integer
Description: BeeGFS cluster

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

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

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

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

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

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

Parameter: `metaDynamicPools`
Type: boolean

Description: Raise lower limits if difference in capacity becomes too large between targets

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

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

Parameter: `metaSpaceLowLimit`
Type: unsigned integer
Description: Meta space low limit

Parameter: `metaSpaceEmergencyLimit`
Type: unsigned integer
Description: Meta space emergency limit

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

Parameter: `storageInodesLowLimit`
Type: unsigned integer
Description: Storage inode free space pool threshold

Parameter: `storageInodesEmergencyLimit`
Type: unsigned integer
Description: Storage inode free space pool threshold

Parameter: `storageSpaceLowLimit`
Type: unsigned integer
Description: Storage space free space pool threshold

Parameter: `storageSpaceEmergencyLimit`
Type: unsigned integer
Description: Storage space free space pool threshold

Parameter: `enableQuota`
Type: boolean
Description: Enable quota

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

Parameter: `quotaGIDs`

Type: list of strings
Description: GIDs to be checked by quota

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

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

Parameter: `quotaUIDs`
Type: list of strings
Description: UIDs to be checked by quota

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

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

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

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

Parameter: `connectionSettings`
Type: `BeeGFSManagementConnectionSettings`
Description: Submode containing BeeGFS management connection settings

Parameter: `logSettings`
Type: `BeeGFSLogSettings`
Description: Submode containing BeeGFS logging settings

5.2.30 `BeeGFSManagementConnectionSettings: Entity`

parent: `Entity`

Parameter: `portTCP`
Type: unsigned integer
Description: TCP port for the service

Parameter: `portUDP`
Type: unsigned integer

Description: UDP port for the service

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

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

Parameter: `interfacesList`
Type: list of strings
Description: List of interfaces for communication

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

Parameter: `useRDMA`
Type: boolean
Description: Use RDMA

5.2.31 `BeeGFSManagementRole`: `Role`

parent: `Role`

Parameter: `configurations`
Type: list of `BeeGFSManagementConfig`
Description: List of BeeGFS management configurations

5.2.32 `BeeGFSMetadataConfig`: `Entity`

parent: `Entity`

Parameter: `refBeeGFSClusterUniqueKey`
Type: unsigned integer
Description: BeeGFS cluster

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

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

Parameter: `runDaemonized`
Type: boolean

Description: Run the storage service as a daemon

Parameter: `clientXAttrs`
Type: boolean
Description: Enable client-side extended attributes

Parameter: `clientACLs`
Type: boolean
Description: Enable handling and storage of client-side ACLs

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

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

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

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

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

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

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

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

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

Parameter: `startByCMDaemon`
Type: boolean
Description: Start service by CMDaemon or manually

Parameter: `connectionSettings`
Type: `BeeGFSMetadataConnectionSettings`
Description: Submode containing BeeGFS metadata connection settings

Parameter: `logSettings`
Type: `BeeGFSLogSettings`
Description: Submode containing BeeGFS logging settings

5.2.33 `BeeGFSMetadataConnectionSettings: Entity`

parent: `Entity`

Parameter: `portTCP`
Type: unsigned integer
Description: TCP port for the service

Parameter: `portUDP`
Type: unsigned integer
Description: UDP port for the service

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

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

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

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

Parameter: `interfacesList`
Type: list of strings
Description: List of interfaces for communication

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

Parameter: `tcpOnlyFilterFile`

Type: string
Description: Path to a file with a list of no-RDMA IP ranges

Parameter: `useRDMA`
Type: boolean
Description: Use RDMA

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

5.2.34 `BeeGFSMetadataRole: Role`

parent: `Role`

Parameter: `configurations`
Type: list of `BeeGFSMetadataConfig`
Description: List of BeeGFS metadata configurations

5.2.35 `BeeGFSStorageConfig: Entity`

parent: `Entity`

Parameter: `refBeeGFSClusterUniqueKey`
Type: unsigned integer
Description: BeeGFS cluster

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

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

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

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

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

Parameter: `runDaemonized`
Type: boolean

Description: Run the storage service as a daemon

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

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

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

Parameter: `fileReadAheadTriggerSize`
Type: unsigned integer
Description: Number of bytes after reading which the read-ahead is triggered

Parameter: `fileReadSize`
Type: unsigned integer
Description: Maximum amount of data server should read in a single operation

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

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

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

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

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

Parameter: `numberOfStreamListeners`
Type: unsigned integer

Description: Number of threads waiting for incoming data events

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

Parameter: `startByCMDaemon`
Type: boolean
Description: Start service by CMDaemon or manually

Parameter: `connectionSettings`
Type: `BeeGFSStorageConnectionSettings`
Description: Submode containing BeeGFS storage connection settings

Parameter: `logSettings`
Type: `BeeGFSLogSettings`
Description: Submode containing BeeGFS logging settings

5.2.36 `BeeGFSStorageConnectionSettings`: `Entity`

parent: `Entity`

Parameter: `portTCP`
Type: unsigned integer
Description: TCP port for the service

Parameter: `portUDP`
Type: unsigned integer
Description: UDP port for the service

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

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

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

Parameter: `interfacesList`
Type: list of strings
Description: List of interfaces for communication

Parameter: `netFilterFile`
Type: string

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

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

Parameter: `useRDMA`
Type: boolean
Description: Use RDMA

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

5.2.37 `BeeGFSStorageRole`: `Role`

parent: `Role`

Parameter: `configurations`
Type: list of `BeeGFSStorageConfig`
Description: List of BeeGFS storage configurations

5.2.38 `BlockingOperation`: `Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `message`
Type: string
Description: Message

5.2.39 `BlockingProvisioningOperation`: `BlockingOperation`

parent: `BlockingOperation`

Parameter: `requestIDs`
Type: list of unsigned numbers
Description: Request IDs

5.2.40 `BlockingWarningOperation`: `BlockingOperation`

parent: `BlockingOperation`

5.2.41 `BMCSettings`: `Entity`

parent: `Entity`

Parameter: `userName`
Type: string
Description: Username used to send BMC commands

Parameter: `userID`

Type: integer
Description: User ID to send BMC commands

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

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

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

Parameter: `privilege`
Type: enum
Description: *none*

5.2.42 `BootRole: Role`

parent: `Role`

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

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

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

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

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

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

Parameter: `unmanagedNodes`

Type: boolean
Description: Allow unmanged nodes to boot

Parameter: `syncFSParts`
Type: enum
Description: Sync FSParts mode

Parameter: `fsparts`
Type: list of references to `FSPart`
Description: FSParts

5.2.43 `BurnConfig: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: A short name to identify this burn configuration.

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

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

5.2.44 `BurnStatus: Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

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

Parameter: `burning`
Type: boolean
Description: Currently burning

Parameter: `information`
Type: string
Description: Information

Parameter: `configuration`
Type: string

Description: Configuration

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

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

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

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

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

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

Parameter: `testStatusList`
Type: list of `BurnTestStatus`
Description: *none*

Parameter: `tag`
Type: string
Description: Hardware tag.

5.2.45 `BurnTestStatus: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Test name.

Parameter: `status`
Type: string
Description: Test status.

Parameter: `started`
Type: boolean

Description: Indicates if test was started.

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

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

Parameter: `warning`
Type: boolean
Description: Indicates if test produced a warning.

5.2.46 Category: Entity

parent: `Entity`

Parameter: `name`
Type: string
Description: Name of category

Parameter: `fsmounts`
Type: list of `FSMount`
Description: Configure the entries placed in /etc/fstab

Parameter: `staticRoutes`
Type: list of `StaticRoute`
Description: Configure static routes for the interfaces

Parameter: `roles`
Type: list of `Role`
Description: Assign the roles the node should play

Parameter: `notes`
Type: string
Description: Administrator notes

Parameter: `gpuSettings`
Type: list of `GPUSettings`
Description: Configure the GPUs

Parameter: `softwareImageProxy`
Type: `SoftwareImageProxy`
Description: Software image the category will use

Parameter: `defaultGateway`
Type: IP

Description: Default gateway for the category

Parameter: `nameServers`
Type: list of strings
Description: List of name servers the category will use

Parameter: `timeServers`
Type: list of strings
Description: List of time servers the category will use

Parameter: `searchDomains`
Type: list of strings
Description: Search domains for the category

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

Parameter: `biosSetup`
Type: string
Description: BIOS setup

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

Parameter: `newNodeInstallMode`
Type: string
Description: Installmode to be used by default, for new nodes

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

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

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

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

Parameter: `excludeListGrabnew`

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

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

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

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

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

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

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

Parameter: `seLinuxSettings`
Type: `SELinuxSettings` or None
Description: Configure the SELinux settings

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

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

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

Parameter: `managementNetwork`
Type: reference to `Network` or None

Description: Determines what network should be used for management traffic. If not set, partition setting is used.

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

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

Parameter: `dataNode`
Type: boolean
Description: If enabled the node will never do a FULL install without explicit user confirmation

Parameter: `allowNetworkingRestart`
Type: boolean
Description: Allow nodes to update ifcfg files and restart networking

Parameter: `excludeListManipulateScript`
Type: string
Description: A user defined script that can be used to do custom last minute changes to the exclude lists used by cmdaemon to rsync

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

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

Parameter: `kernelVersion`
Type: string
Description: Kernel version used

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

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

Parameter: `modules`
Type: list of `KernelModule`

Description: Manage kernel modules loaded in this image

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

Parameter: `bootLoader`
Type: enum
Description: Boot loader

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

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

Parameter: `fips`
Type: enum
Description: Federal Information Processing Standard Security Requirements

Parameter: `timeZoneSettings`
Type: `TimeZoneSettings` or None
Description: Time zone

5.2.47 `CephMDSRole: Role`

parent: `Role`

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

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

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

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

5.2.48 CephMGRRole: Role

parent: Role

Parameter: modulePath
Type: string
Description: Path to load modules from

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

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

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

5.2.49 CephMonitorRole: Role

parent: Role

Parameter: dataPath
Type: string
Description: Path to the Monitor data

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

5.2.50 CephOSDBlueStoreConfig: CephOSDConfig

parent: CephOSDConfig

Parameter: osdDevice
Type: string
Description: Device to store OSD data

Parameter: osdWalDevice
Type: string
Description: Optional device to store write-ahead-log

Parameter: osdDbDevice
Type: string
Description: Optional device to store internal metadata

Parameter: extra1
Type: string

Description: Just in case

5.2.51 `CephOSDConfig: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

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

5.2.52 `CephOSDFileStoreConfig: CephOSDConfig`

parent: `CephOSDConfig`

Parameter: `dataPath`
Type: string
Description: Path to the OSD data

Parameter: `osdDevice`
Type: string
Description: Device for storing OSD data

Parameter: `journalDevice`
Type: string
Description: Device for storing journal data

Parameter: `journalOnOSDPartition`
Type: boolean
Description: Store the journal on a partition of the OSD device

Parameter: `journalSize`
Type: unsigned integer
Description: Journal size in MiB

5.2.53 `CephOSDPool: Entity`

parent: `Entity`

Parameter: `id`
Type: unsigned integer
Description: Id

Parameter: `name`
Type: string
Description: Name

Parameter: `size`
Type: unsigned integer

Description: Number of replicas

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

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

Parameter: `pg_autoscale_mode`
Type: enum
Description: Placement groups auto management mode

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

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

Parameter: `auid`
Type: unsigned integer
Description: *none*

Parameter: `min_size`
Type: unsigned integer
Description: *none*

Parameter: `crash_replay_interval`
Type: unsigned integer
Description: *none*

Parameter: `hit_set_type`
Type: string
Description: *none*

Parameter: `hashpspool`
Type: unsigned integer
Description: *none*

Parameter: `hit_set_count`
Type: unsigned integer
Description: *none*

Parameter: `hit_set_period`

Type: unsigned integer
Description: *none*

Parameter: `hit_set_fpp`
Type: float
Description: *none*

Parameter: `cache_target_dirty_ratio`
Type: float
Description: *none*

Parameter: `cache_target_full_ratio`
Type: float
Description: *none*

Parameter: `target_max_bytes`
Type: unsigned integer
Description: *none*

Parameter: `target_max_objects`
Type: unsigned integer
Description: *none*

Parameter: `cache_min_flush_age`
Type: unsigned integer
Description: *none*

Parameter: `cache_min_evict_age`
Type: unsigned integer
Description: *none*

Parameter: `extraField1`
Type: string
Description: *none*

Parameter: `extraField2`
Type: integer
Description: *none*

Parameter: `extraField3`
Type: unsigned integer
Description: *none*

Parameter: `extraField4`
Type: float
Description: *none*

Parameter: `extraField5`
Type: list of strings
Description: *none*

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

5.2.54 `CephOSDRole: Role`

parent: `Role`

Parameter: `osdconfigs`
Type: list of `CephOSDConfig`
Description: OSD configurations

Parameter: `extraConfig`
Type: list of strings
Description: *none*

5.2.55 `CephState: Entity`

parent: `Entity`

Parameter: `version`
Type: unsigned integer
Description: *none*

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

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

Parameter: `OSDMapIds`
Type: list of unsigned numbers
Description: *none*

Parameter: `OSDMapNodes`
Type: list of unsigned numbers
Description: *none*

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

Parameter: `OSDMapConfigNames`
Type: list of strings

Description: *none*

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

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

Parameter: `extraField1`
Type: string
Description: *none*

Parameter: `extraField2`
Type: string
Description: *none*

Parameter: `extraField3`
Type: string
Description: *none*

Parameter: `extraField4`
Type: string
Description: *none*

Parameter: `extraField5`
Type: string
Description: *none*

Parameter: `extraList1`
Type: list of strings
Description: *none*

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

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

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

Parameter: `extraList5`

Type: list of unsigned numbers
Description: *none*

5.2.56 Ceph: Entity

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `fsid`
Type: string
Description: Ceph ID

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

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

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

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

Parameter: `monitorKey`
Type: string
Description: Ceph monitor key

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

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

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

Parameter: `setupState`
Type: enum

Description: Flag to keep track of the installation state

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

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

Parameter: `bootstrapped`
Type: boolean
Description: Bootstrapped

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

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

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

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

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

Parameter: `monOsdNearfullRatio`
Type: float
Description: mon osd nearfull ratio

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

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

Parameter: `osdPoolDefaultMinSize`

Type: unsigned integer
Description: osd pool default min size

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

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

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

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

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

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

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

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

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

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

Parameter: `rbdCacheTargetDirty`
Type: unsigned integer

Description: 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.

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

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

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

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

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

5.2.57 `CertificateInfo: Entity`

parent: `Entity`

Parameter: `certificate`
Type: `Certificate`
Description: Certificate

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

5.2.58 `CertificateRequest: Entity`

parent: `Entity`

Parameter: `CSR`
Type: string
Description: *none*

Parameter: `sessionId`
Type: unsigned integer
Description: Session id

Parameter: `clientType`

Type: unsigned integer
Description: Client type

Parameter: `requestId`
Type: unsigned integer
Description: Request id

Parameter: `country`
Type: string
Description: Country

Parameter: `state`
Type: string
Description: State

Parameter: `locality`
Type: string
Description: Locality

Parameter: `organization`
Type: string
Description: Organization

Parameter: `organizationalUnit`
Type: string
Description: Organizational unit

Parameter: `commonName`
Type: string
Description: Common name

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

Parameter: `allowAutosign`
Type: boolean
Description: Allow autosign

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

5.2.59 `CertificateSubjectName: Entity`

parent: `Entity`

Parameter: `country`
Type: string

Description: Country

Parameter: `state`
Type: string
Description: State

Parameter: `locality`
Type: string
Description: Locality

Parameter: `organization`
Type: string
Description: Organization

Parameter: `organizationalUnit`
Type: string
Description: Organizational unit

Parameter: `commonName`
Type: string
Description: CommonName

Parameter: `profile`
Type: string
Description: Profile

Parameter: `syslogin`
Type: string
Description: Syslogin

Parameter: `component`
Type: string
Description: Component

Parameter: `days`
Type: integer
Description: Days

Parameter: `ca`
Type: boolean
Description: CA

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

5.2.60 `Certificate: Entity`

parent: `Entity`

Parameter: `PEM`
Type: string
Description: *none*

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

Parameter: `serialNumber`
Type: integer
Description: Serial number

Parameter: `remaining`
Type: integer
Description: Remaining time until certifcate expires

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

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

Parameter: `CA`
Type: boolean
Description: A CA certifcate can be used sign other certifcates

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

Parameter: `profile`
Type: string
Description: Profile

Parameter: `sysLogin`
Type: string
Description: System log in

Parameter: `component`
Type: string
Description: Component

Parameter: `subjectName`
Type: string
Description: Subject

Parameter: `issuerName`
Type: string
Description: Issuer

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

Parameter: `country`
Type: string
Description: Country

Parameter: `state`
Type: string
Description: State

Parameter: `locality`
Type: string
Description: Locality

Parameter: `organization`
Type: string
Description: Organization

Parameter: `organizationalUnit`
Type: string
Description: Organizational unit

Parameter: `commonName`
Type: string
Description: Name

5.2.61 `ChargeBackRequest: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `groupByUser`
Type: boolean
Description: Group by user

Parameter: `groupByGroup`

Type: boolean
Description: Group by group

Parameter: `groupByAccount`
Type: boolean
Description: Group by account

Parameter: `groupByJobName`
Type: boolean
Description: Group by job name

Parameter: `groupByJobId`
Type: boolean
Description: Group by job ID

Parameter: `groupByParentId`
Type: boolean
Description: Group by parent ID

Parameter: `users`
Type: list of strings
Description: Users

Parameter: `groups`
Type: list of strings
Description: Users

Parameter: `accounts`
Type: list of strings
Description: Accounts

Parameter: `jobNames`
Type: list of strings
Description: Job names

Parameter: `jobIds`
Type: list of strings
Description: Job IDs

Parameter: `parentIds`
Type: list of strings
Description: Parent IDs

Parameter: `wlmClusters`
Type: list of references to `WlmCluster`
Description: List of wlm clusters which to include, empty for all

Parameter: `pricePerCPUSecond`
Type: float
Description: Price per CPU second

Parameter: `pricePerCPUCoreSecond`
Type: float
Description: Price per CPU core second

Parameter: `pricePerGPUSecond`
Type: float
Description: Price per GPU second

Parameter: `pricePerMemoryByteSecond`
Type: float
Description: Price per memory byte-second

Parameter: `pricePerSlotSecond`
Type: float
Description: Price per slot second

Parameter: `currency`
Type: string
Description: Currency

Parameter: `startTime`
Type: string
Description: Start time

Parameter: `endTime`
Type: string
Description: End time

Parameter: `utc`
Type: boolean
Description: Time in UTC

Parameter: `includeRunning`
Type: boolean
Description: Include running

Parameter: `calculatePrediction`
Type: boolean
Description: Calculate prediction

Parameter: `preference`
Type: unsigned integer

Description: The request with the highest preference be shown by default

Parameter: `notes`
Type: string
Description: Administrator notes

5.2.62 `Chassis: Device`

parent: `Device`

Parameter: `ip`
Type: IP
Description: Ip address

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

Parameter: `model`
Type: string
Description: Device model name

Parameter: `username`
Type: string
Description: Chassis username

Parameter: `password`
Type: string
Description: Chassis password

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

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

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

5.2.63 CloudDirectorRole: DirectorRole

parent: DirectorRole

5.2.64 CloudGatewayRole: Role

parent: Role

5.2.65 CloudJobDescription: Entity

parent: Entity

Parameter: name
Type: string
Description: Job name

Parameter: script
Type: string
Description: Script path

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

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

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

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

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

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

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

Parameter: outputFiles
Type: list of strings

Description: Output files list

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

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

Parameter: `workloadManager`
Type: string
Description: Workload manager type

Parameter: `workingDirectory`
Type: string
Description: Job's working directory

Parameter: `region`
Type: string
Description: Cloud region

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

Parameter: `storageStrategy`
Type: enum
Description: *none*

Parameter: `storageVolumeId`
Type: string
Description: Storage Volume ID

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

Parameter: `storageVolumeDevicePath`
Type: string
Description: OS device path

Parameter: `fsxInstanceId`
Type: string
Description: *none*

Parameter: `fsxInstanceUrl`

Type: string
Description: *none*

Parameter: `fsxInstancePathOnDirector`
Type: string
Description: *none*

Parameter: `anfVolumeId`
Type: string
Description: *none*

Parameter: `anfVolumeUrl`
Type: string
Description: *none*

Parameter: `anfVolumePathOnDirector`
Type: string
Description: *none*

Parameter: `jobType`
Type: enum
Description: Defines the set of operations that will run on job.

Parameter: `storageNode`
Type: reference to `CloudNode`
Description: Storage Node

Parameter: `excludedStorageNodes`
Type: list of references to `CloudNode`
Description: Job will not run on those nodes

Parameter: `stdOutFileNames`
Type: list of strings
Description: Standard output stream filenames list

Parameter: `stdErrFileNames`
Type: list of strings
Description: Standard error stream filenames list

Parameter: `uploadTime`
Type: float
Description: Time spent on input data transfer and job pre-run preparations

Parameter: `downloadTime`
Type: float
Description: Time spent on jobs job results transfer and post-run activities

Parameter: `maxUploadTime`
Type: float
Description: *none*

Parameter: `maxDownloadTime`
Type: float
Description: *none*

Parameter: `jobState`
Type: enum
Description: Current state of the job

Parameter: `jobStatusMsg`
Type: string
Description: Job status

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

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

Parameter: `numThreads`
Type: unsigned integer
Description: *none*

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

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

Parameter: `extraOptions`
Type: list of strings
Description: *none*

5.2.66 `CloudJobSubmissionStatus: Entity`

parent: `Entity`

Parameter: `availableExpectedTransferTimes`
Type: boolean
Description: *none*

Parameter: `expectedInputDataTransferTimeInSeconds`

Type: unsigned integer
Description: *none*

Parameter: `jobName`
Type: string
Description: *none*

Parameter: `errMsg`
Type: string
Description: *none*

Parameter: `extraOptions`
Type: list of strings
Description: *none*

5.2.67 `CloudNode: ComputeNode`

parent: `ComputeNode`

Parameter: `cloudSettings`
Type: `CloudSettings`
Description: Submode containing all cloud node settings

5.2.68 `CloudProvider: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

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

5.2.69 `CloudRegion: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: The name of the cloud region.

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

Parameter: `timeZoneSettings`
Type: `TimeZoneSettings` or None
Description: Time zone

5.2.70 CloudSettings: Entity

parent: Entity

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

Parameter: isStorageTemplate
Type: boolean
Description: *none*

Parameter: isStorageNode
Type: boolean
Description: *none*

Parameter: tags
Type: list of strings
Description: List of tags that will be assigned to cloud instance (for supported providers)

5.2.71 CloudStorageActionData: Entity

parent: Entity

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

Parameter: typeString
Type: string
Description: *none*

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

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

Parameter: status
Type: enum
Description: *none*

Parameter: errorMessage
Type: string
Description: *none*

Parameter: isReverse
Type: boolean

Description: *none*

Parameter: `timeoutSecs`
Type: unsigned integer
Description: *none*

Parameter: `startTime`
Type: timestamp
Description: *none*

Parameter: `retries`
Type: unsigned integer
Description: *none*

Parameter: `workloadManager`
Type: string
Description: *none*

Parameter: `workloadManagerJobId`
Type: string
Description: *none*

Parameter: `jobName`
Type: string
Description: *none*

Parameter: `executionNode`
Type: reference to `Node`
Description: *none*

Parameter: `extraOptions`
Type: list of strings
Description: *none*

5.2.72 `CloudType: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: The name of the VM type.

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

Parameter: `cpu`
Type: string

Description: The amount of CPU cores.

Parameter: `gpu`
Type: string
Description: The amount of GPUs.

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

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

Parameter: `description`
Type: string
Description: The description.

5.2.73 `ClusterSetup: Entity`

parent: `Entity`

Parameter: `refPartitionUniqueKey`
Type: unsigned integer
Description: Partition

Parameter: `CMID`
Type: unsigned integer
Description: CMID

Parameter: `databaseVersion`
Type: unsigned integer
Description: Database version

Parameter: `organization`
Type: string
Description: Organization

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

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

5.2.74 `CMDaemonBackgroundTask: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

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

Parameter: `updates`
Type: list of strings
Description: Updates

Parameter: `exitCode`
Type: integer
Description: Exit code

Parameter: `runningStatus`
Type: enum
Description: Running status

Parameter: `startTime`
Type: timestamp
Description: Start time

Parameter: `endTime`
Type: timestamp
Description: End time

Parameter: `isCancelable`
Type: boolean
Description: Cancelable

Parameter: `parentTask`
Type: unsigned integer
Description: Parent task

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

Parameter: `nodeKey`
Type: unsigned integer
Description: Node key

5.2.75 CMDaemonFailoverGroupStatus: Entity

parent: Entity

Parameter: failoverStage
Type: integer
Description: Failover stage

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

Parameter: activeUpTime
Type: timestamp
Description: Active up time

Parameter: activeDownTime
Type: timestamp
Description: Active down time

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

Parameter: failoverThreadRunning
Type: boolean
Description: Failover thread running

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

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

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

5.2.76 CMDaemonFailoverGroup: Entity

parent: Entity

Parameter: name
Type: string
Description: Name

Parameter: nodes
Type: list of references to ComputeNode

Description: List of nodes belonging to this group

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

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

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

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

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

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

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

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

Parameter: `ipTakeOverMethod`
Type: enum
Description: The manner in which shared IP gets transferred

Parameter: `ipTakeOverScript`
Type: string
Description: IP take over script

5.2.77 `CMDaemonFailoverPeer: Entity`

parent: `Entity`

Parameter: `key`

Type: unsigned integer
Description: Node key

Parameter: `status`
Type: list of strings
Description: Status

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

5.2.78 `CMDaemonFailoverStatus: Entity`

parent: `Entity`

Parameter: `myKey`
Type: unsigned integer
Description: Unique key of head node to which handeled request

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

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

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

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

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

5.2.79 `CMDaemonFailover: Entity`

parent: `Entity`

Parameter: `secondaryHeadNode`
Type: reference to `HeadNode` or None
Description: Secondary/failover head node

Parameter: `keepalive`
Type: unsigned integer

Description: Interval between pings

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

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

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

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

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

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

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

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

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

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

Parameter: `ipTakeOverMethod`
Type: enum

Description: The manner in which shared IP gets transferred

Parameter: `ipTakeOverScript`
Type: string
Description: IP take over script

5.2.80 `CMDaemonStatus: Entity`

parent: `Entity`

Parameter: `version`
Type: string
Description: CMDaemon version

Parameter: `state`
Type: string
Description: CMDaemon state

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

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

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

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

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

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

Parameter: `sessionCount`
Type: unsigned integer
Description: Total Number of cmsh/Bright View/python/node sessions

Parameter: `activeSessionCount`
Type: unsigned integer

Description: Number of currently active sessions

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

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

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

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

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

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

5.2.81 `CMJobConfig: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: CMJob config name

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

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

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

Parameter: `extraOptions`
Type: list of strings

Description: Extra options

5.2.82 `CMJobIntermediateStorage: Entity`

parent: `Entity`

5.2.83 `CMService: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

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

5.2.84 `ComputeNode: Node`

parent: `Node`

Parameter: `installMode`
Type: string
Description: Installmode to be used by default, if empty use category installMode

Parameter: `nextBootInstallMode`
Type: string
Description: Installmode to be used during the next boot, will be cleared during boot

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

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

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

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

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

Parameter: `disksetup`

Type: string
Description: Node specific disk setup

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

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

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

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

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

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

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

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

Parameter: `dataNode`
Type: boolean
Description: If enabled the node will never do a FULL install without explicit user confirmation

Parameter: `allowNetworkingRestart`
Type: boolean
Description: Allow node to update ifcfg files and restart networking

Parameter: `softwareImageProxy`
Type: `SoftwareImageProxy` or None

Description: Software image used by node

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

Parameter: `kernelVersion`
Type: string
Description: Kernel version used

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

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

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

Parameter: `bootLoader`
Type: enum
Description: Boot loader

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

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

Parameter: `fips`
Type: enum
Description: Federal Information Processing Standard Security Requirements

Parameter: `templateNode`
Type: boolean
Description: Indicate this is a template node and should not be powered on and booted

Parameter: `fromTemplateNode`
Type: unsigned integer
Description: Indicate from which template node this node was copied

5.2.85 `ConfigFileVersion: Entity`

parent: `Entity`

Parameter: `nodeKey`
Type: unsigned integer
Description: Node key

Parameter: `filename`
Type: string
Description: File name

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

Parameter: `creationTime`
Type: timestamp
Description: Creation time

5.2.86 `ConfigurationOverlay: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

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

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

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

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

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

Parameter: `priority`
Type: integer

Description: Priority of the roles, node roles have a 750 priority, and category roles 250, set to -1 disable the overlay

5.2.87 `ConnectivityCheckerSubSystemInfo: SubSystemInfo`

parent: `SubSystemInfo`

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

Parameter: `updateCallback`
Type: unsigned integer
Description: Update callback defined

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

Parameter: `ttl`
Type: unsigned integer
Description: ttl

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

Parameter: `interval`
Type: unsigned integer
Description: Interval

Parameter: `timeout`
Type: unsigned integer
Description: Timeout

Parameter: `sequence`
Type: unsigned integer
Description: Sequence ID

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

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

Parameter: `nodes`
Type: unsigned integer

Description: Nodes being pinged

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

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

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

5.2.88 `Consolidator: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

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

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

Parameter: `interval`
Type: float
Description: Sampling interval

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

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

5.2.89 `ContainerInfo: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: The name of the container

Parameter: `containerId`
Type: string
Description: The id

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

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

Parameter: `state`
Type: string
Description: The state of the container

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

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

Parameter: `reason`
Type: string
Description: The reason for the termination

Parameter: `lastExitCode`
Type: integer
Description: The exit code of the container

Parameter: `previousStartTime`
Type: timestamp
Description: The previous start time

Parameter: `previousFinishTime`
Type: timestamp
Description: The previous finish time

Parameter: `ready`
Type: boolean
Description: Whether the container is ready or not

Parameter: `restartCount`
Type: integer

Description: The number of restarts of the container

Parameter: `environmentVariables`
Type: list of strings
Description: The environment variables passed to the container

5.2.90 `CustomizationEntry`: `Entity`

parent: `Entity`

Parameter: `key`
Type: string
Description: Name of the key

Parameter: `value`
Type: string
Description: Value for the key

Parameter: `enabled`
Type: boolean
Description: *none*

Parameter: `action`
Type: enum
Description: Determines how entres are added

Parameter: `formatting`
Type: string
Description: *none*

Parameter: `extraField`
Type: boolean
Description: Reserved for future use

Parameter: `separator`
Type: string
Description: *none*

5.2.91 `CustomizationFile`: `Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: *none*

Parameter: `entries`
Type: list of `CustomizationEntry`
Description: Config file customization entries

Parameter: `label`
Type: string
Description: *none*

Parameter: `type`
Type: enum
Description: Determines file type

Parameter: `managedsection`
Type: enum
Description: Determines how cmdaemon should customize the file

Parameter: `formatting`
Type: string
Description: *none*

Parameter: `enabled`
Type: boolean
Description: *none*

5.2.92 `DeviceStatus: Entity`

parent: `Entity`

Parameter: `refDeviceUniqueKey`
Type: unsigned integer
Description: Device

Parameter: `status`
Type: enum
Description: Status determined by ping and report

Parameter: `reportedStatus`
Type: enum
Description: Reported status

Parameter: `reportedStatusTimestamp`
Type: unsigned integer
Description: Reported status timestamp in steady clock epoch milliseconds

Parameter: `terminated`
Type: boolean
Description: *none*

Parameter: `closed`
Type: boolean
Description: *none*

Parameter: `muted`

Type: boolean
Description: *none*

Parameter: `burning`
Type: boolean
Description: *none*

Parameter: `unassigned`
Type: boolean
Description: *none*

Parameter: `noPingMethod`
Type: boolean
Description: *none*

Parameter: `nullIdentifier`
Type: boolean
Description: *none*

Parameter: `additionalCost`
Type: boolean
Description: *none*

Parameter: `restartRequired`
Type: boolean
Description: *none*

Parameter: `healthCheckFailed`
Type: boolean
Description: *none*

Parameter: `healthCheckUnknown`
Type: boolean
Description: *none*

Parameter: `provisioningFailed`
Type: boolean
Description: *none*

Parameter: `stateFlapping`
Type: boolean
Description: *none*

Parameter: `stateFlappingCheckTime`
Type: unsigned integer
Description: *none*

Parameter: `pingable`
Type: boolean
Description: *none*

Parameter: `sshable`
Type: boolean
Description: *none*

Parameter: `infoMessage`
Type: string
Description: *none*

Parameter: `userMessage`
Type: string
Description: *none*

Parameter: `toolMessage`
Type: string
Description: *none*

Parameter: `restartRequiredReasons`
Type: list of strings
Description: *none*

Parameter: `gracePeriod`
Type: unsigned integer
Description: *none*

Parameter: `powerResetOnUnreachableCount`
Type: unsigned integer
Description: *none*

Parameter: `failBeforeDown`
Type: unsigned integer
Description: *none*

Parameter: `updateIndex`
Type: unsigned integer
Description: *none*

Parameter: `updateDisplay`
Type: boolean
Description: *none*

Parameter: `hasClientDaemon`
Type: boolean

Description: *none*

Parameter: `allowDataNodeFullInstall`
Type: boolean
Description: *none*

5.2.93 `Device: Entity`

parent: `Entity`

Parameter: `tag`
Type: string
Description: Hardware tag

Parameter: `hostname`
Type: string
Description: Hostname

Parameter: `mac`
Type: MAC
Description: MAC address

Parameter: `defaultGateway`
Type: IP
Description: Default gateway for the device

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

Parameter: `partition`
Type: reference to `Partition`
Description: Partition to which this device belongs

Parameter: `networkSwitches`
Type: list of `SwitchPort`
Description: Switch ports

Parameter: `powerDistributionUnits`
Type: list of `PDUPort`
Description: List of outlets on powerdistributionunits

Parameter: `rack`
Type: `RackPosition` or None
Description: Name of the rack in which the device resides

Parameter: `indexInsideContainer`
Type: unsigned integer

Description: Index inside container object (used for drawing twins/chassis inside rackview)

Parameter: `powerControl`
Type: string
Description: Specifies which type of power control feature is being used (values: none, apc, custom, cloud, ipmi0, ilo0, drac0, rf0 or cimc0)

Parameter: `customPowerScript`
Type: string
Description: Script that will be used to perform power on/off/reset/status operations

Parameter: `customPowerScriptArgument`
Type: string
Description: Argument for the custom power script

Parameter: `customPingScript`
Type: string
Description: Script that will be used to ping a device

Parameter: `customPingScriptArgument`
Type: string
Description: Argument for the custom ping script

Parameter: `notes`
Type: string
Description: Administrator notes

Parameter: `userdefined1`
Type: string
Description: A free text field passed to custom scripts

Parameter: `userdefined2`
Type: string
Description: A free text field passed to custom scripts

Parameter: `userDefinedResources`
Type: list of strings
Description: User defined resources used to filter monitoring data producers

Parameter: `supportsGNSS`
Type: boolean
Description: Supports GNSS location

5.2.94 `DIGITSRole: Role`

parent: `Role`

Parameter: `version`
Type: string

Description: DIGITS version

Parameter: `port`
Type: unsigned integer
Description: DIGITS port

Parameter: `jobsDir`
Type: string
Description: Location where job files are stored. Defined in DIGITS_JOBS_DIR

Parameter: `logfileFilename`
Type: string
Description: File for saving log messages. Defined in DIGITS_LOGFILE_FILENAME

Parameter: `logfileLevel`
Type: enum
Description: Minimum log message level to be saved (DEBUG/INFO/WARNING/ERROR/CRITICAL). Defined in DIGITS_LOGFILE_LEVEL

Parameter: `serverName`
Type: string
Description: The name of the server (accessible in the UI under 'Info'). Default is the system hostname. Defined in DIGITS_SERVER_NAME

Parameter: `modelStoreUrl`
Type: string
Description: A list of URL's, separated by comma. Default is the official NVIDIA store. Defined in DIGITS_MODEL_STORE_URL

Parameter: `urlPrefix`
Type: string
Description: A path to prepend before every URL. Sets the home-page to be at 'http://localhost/custom-prefix' instead of 'http://localhost/'. Defined in DIGITS_URL_PREFIX

Parameter: `caffeRoot`
Type: string
Description: Path to your local Caffe build. Should contain build/tools/caffe and python/caffe/. Defined in CAFFE_ROOT

Parameter: `torchRoot`
Type: string
Description: Path to your local Torch build. Should contain install/bin/th. Defined in TORCH_ROOT

Parameter: `tensorflowRoot`
Type: string
Description: Path to your local TensorFlow build. Defined in TENSORFLOW_ROOT

5.2.95 DirectorRole: Role

parent: Role

Parameter: syncFSParts
Type: enum
Description: Sync FSParts mode

Parameter: fsparts
Type: list of references to FSPart
Description: FSParts

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

Parameter: createHomeDirectories
Type: enum
Description: Create home directories for ldap users

Parameter: whitelistUsers
Type: list of strings
Description: Whitelist users

Parameter: whitelistGroups
Type: list of strings
Description: Whitelist groups

5.2.96 DiskAssertion: Entity

parent: Entity

Parameter: name
Type: string
Description: Name.

Parameter: script
Type: string
Description: Assertion script.

Parameter: args
Type: string
Description: Script arguments.

5.2.97 DiskDevice: Entity

parent: Entity

Parameter: requiredSize
Type: string

Description: Required Size

Parameter: `vendor`
Type: string
Description: Required Vendor

Parameter: `blockDevs`
Type: list of strings
Description: Block Devices

Parameter: `partitions`
Type: list of `DiskPartition`
Description: Partitions

Parameter: `assertions`
Type: list of `DiskAssertion`
Description: Assertions

5.2.98 `DiskInfo`: `Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: *none*

Parameter: `model`
Type: string
Description: *none*

Parameter: `vendor`
Type: string
Description: *none*

Parameter: `size`
Type: unsigned integer
Description: *none*

Parameter: `rev`
Type: string
Description: *none*

Parameter: `ioScheduler`
Type: string
Description: *none*

5.2.99 DiskPartitionInfo: Entity

parent: Entity

Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: name
Type: string
Description: The partition name

Parameter: majorID
Type: unsigned integer
Description: Major

Parameter: minorID
Type: unsigned integer
Description: Minor

Parameter: blocks
Type: unsigned integer
Description: Blocks

Parameter: cipher
Type: string
Description: Encryption cipher

Parameter: slaves
Type: list of strings
Description: Slaves

Parameter: deviceMapper
Type: string
Description: Device mapper

5.2.100 DiskPartition: Entity

parent: Entity

Parameter: name
Type: string
Description: Name

Parameter: size
Type: string
Description: Size

Parameter: type
Type: string

Description: Type

Parameter: `mountpoint`
Type: string
Description: Mount point

Parameter: `mountoptions`
Type: string
Description: Mount options

Parameter: `filesystem`
Type: string
Description: Filesystem

5.2.101 `DiskRaid: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `size`
Type: string
Description: Size

Parameter: `level`
Type: integer
Description: Level

Parameter: `partitions`
Type: list of strings
Description: Partitions

Parameter: `mountpoint`
Type: string
Description: Mount point

Parameter: `mountoptions`
Type: string
Description: Mount options

Parameter: `filesystem`
Type: string
Description: Filesystem

Parameter: `swap`
Type: boolean

Description: Use for swap

5.2.102 `DiskSetup: Entity`

parent: `Entity`

Parameter: `devices`
Type: list of `DiskDevice`
Description: List of block devices.

Parameter: `raids`
Type: list of `DiskRaid`
Description: List of raid devices.

Parameter: `volumeGroups`
Type: list of `DiskVolumeGroup`
Description: List of volume groups.

Parameter: `diskless`
Type: boolean
Description: If set the node will have its root file-system in RAM.

Parameter: `maxMemSize`
Type: string
Description: Maximum amount (in bytes) of RAM the root file-system can use.

5.2.103 `DiskVolumeGroup: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `extentSize`
Type: string
Description: Size

Parameter: `physicalVolumes`
Type: list of strings
Description: Physical volumes

Parameter: `logicalVolumes`
Type: list of `DiskVolume`
Description: Logical volumes

5.2.104 `DiskVolume: Entity`

parent: `Entity`

Parameter: `name`
Type: string

Description: Name

Parameter: `size`
Type: string
Description: Size

Parameter: `mountpoint`
Type: string
Description: Mount point

Parameter: `mountoptions`
Type: string
Description: Mount options

Parameter: `filesystem`
Type: string
Description: Filesystem

5.2.105 `DnsRole`: `Role`

parent: `Role`

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

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

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

Parameter: `allowQuery`
Type: list of strings
Description: List of additional free hosts to allow queries from

Parameter: `options`
Type: list of strings
Description: List of additional key=value pairs to add to the options

Parameter: `maxCacheSize`
Type: unsigned integer
Description: Maximum cache size

Parameter: `cleaningInterval`
Type: unsigned integer

Description: Cleaning cache interval

Parameter: `maxCacheTTL`
Type: unsigned integer
Description: Maximal cache TTL

Parameter: `maxNegativeCacheTTL`
Type: unsigned integer
Description: Maximal cache negative response TTL

5.2.106 `DockerHostRole: Role`

parent: `Role`

Parameter: `spool`
Type: string
Description: Root of the Docker runtime

Parameter: `tmpDir`
Type: string
Description: Location used for temporary files (token $spool is replaced to path to docker runtime root directory)

Parameter: `enableSelinux`
Type: boolean
Description: Enable selinux support in docker daemon

Parameter: `defaultUlimits`
Type: list of strings
Description: Set the default ulimit options to use for all containers

Parameter: `debug`
Type: boolean
Description: Enable debug mode

Parameter: `logLevel`
Type: string
Description: Set the logging level

Parameter: `bridgeIp`
Type: string
Description: Network bridge IP

Parameter: `bridge`
Type: string
Description: Attach containers to a network bridge

Parameter: `mtu`
Type: unsigned integer

Description: Set the containers network MTU (in bytes)

Parameter: `apiSockets`
Type: list of strings
Description: Daemon socket(s) to connect to (-H docker daemon option)

Parameter: `iptables`
Type: boolean
Description: Enable addition of iptables rules

Parameter: `userNamespaceRemap`
Type: string
Description: User/Group setting for user namespaces

Parameter: `insecureRegistries`
Type: list of strings
Description: If you have a registry secured with https but do not have proper certs distributed, you can tell docker to not look for full authorization by adding the registry to this list. Accepted Format : CIDR or hostname:port

Parameter: `enableTls`
Type: boolean
Description: Use TLS

Parameter: `verifyTls`
Type: boolean
Description: Use TLS and verify the remote

Parameter: `tlsCa`
Type: string
Description: Trust certs signed only by this CA

Parameter: `tlsCertificate`
Type: string
Description: Path to TLS certificate file

Parameter: `tlsKey`
Type: string
Description: Path to TLS key file

Parameter: `certificatesPath`
Type: string
Description: Path to docker certificates

Parameter: `storageBackends`
Type: list of `DockerStorageBackend`

Description: Docker storage backends

Parameter: `containerdSocket`
Type: string
Description: Path to containerd socket

Parameter: `runtime`
Type: string
Description: Docker runtime

Parameter: `options`
Type: list of strings
Description: Additional parameters for docker daemon

5.2.107 `DockerStorageAufsBackend`: `DockerStorageBackend`

parent: `DockerStorageBackend`

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

5.2.108 `DockerStorageBackend`: `Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Docker storage backend name

5.2.109 `DockerStorageDeviceMapperBackend`: `DockerStorageBackend`

parent: `DockerStorageBackend`

Parameter: `loopDataSize`
Type: string
Description: Size to use when creating the loopback file for the 'data' device which is used for the thin pool (driver option: dm.loopdatasize)

Parameter: `loopMetadataSize`
Type: string
Description: Size to use when creating the loopback file for the 'metadadata' device which is used for the thin pool (driver option: dm.loopmetadatasize)

Parameter: `baseSize`
Type: string
Description: Size to use when creating the base device, which limits the size of images and container (driver option: dm.basesize)

Parameter: `poolDevice`
Type: string

Description: Custom block storage device to use for the thin pool (driver option: dm.thinpooldev)

Parameter: `filesystem`
Type: string
Description: Filesystem type to use for the base device (driver option: dm.fs)

Parameter: `blockSize`
Type: string
Description: Custom blocksize to use for the thin pool (driver option: dm.blocksize)

Parameter: `blkDiscard`
Type: boolean
Description: Enables or disables the use of blkdiscard when removing devicemapper devices (driver option: dm.blkdiscard)

Parameter: `mkfsArguments`
Type: list of strings
Description: Extra mkfs arguments to be used when creating the base device (drive option: dm.mkfsarg)

Parameter: `mountOptions`
Type: list of strings
Description: Extra mount options used when mounting the thin devices (drive option: dm.mountopt)

5.2.110 `DockerStorageOverlay2Backend: DockerStorageBackend`

parent: `DockerStorageBackend`

Parameter: `overrideKernelCheck`
Type: boolean
Description: Override the kernel check to allow overlay2

Parameter: `size`
Type: string
Description: Default max size of the container (empty = unlimited)

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

5.2.111 `DrainAction: Entity`

parent: `Entity`

Parameter: `node`
Type: reference to `Node`
Description: Node

Parameter: `actions`
Type: list of references to `MonitoringAction`

Description: Actions to execute after the node has been drained

5.2.112 DrainResult: Entity

parent: Entity

Parameter: refEntityUniqueKey
Type: unsigned integer
Description: Entity

Parameter: success
Type: boolean
Description: Success

Parameter: node
Type: list of unsigned numbers
Description: Node

Parameter: queue
Type: list of unsigned numbers
Description: Queue

Parameter: reason
Type: list of strings
Description: Reason

Parameter: result
Type: enum
Description: Result

5.2.113 EC2AvailabilityZone: Entity

parent: Entity

Parameter: name
Type: string
Description: Name

5.2.114 EC2EBSStorage: EC2Storage

parent: EC2Storage

Parameter: volumeId
Type: string
Description: Volume ID assigned by EC2 EC2

Parameter: size
Type: unsigned integer
Description: Size

Parameter: persistent
Type: boolean

Description: Persistent storage will not be removed when instance is removed

Parameter: `availabilityZone`
Type: string
Description: Availability zone set by EC2

Parameter: `creationTime`
Type: timestamp
Description: Time of creation in EC2

Parameter: `status`
Type: string
Description: Status of EBS volume in EC2

Parameter: `volumeType`
Type: enum
Description: Specifies what type of EBS volume to use

Parameter: `iops`
Type: unsigned integer
Description: Specifies the IOPS rate for the provisioned IOPS volume type

Parameter: `encrypted`
Type: boolean
Description: *none*

Parameter: `snapshotId`
Type: string
Description: ID of the snapshot which should be used to instantiate the new disk. This field can be used to speed up node provisioning by first provisioning a cloud compute node, creating a snapshot of its volumes, and then setting that snapshot ID in this field for remaining cloud compute nodes.

5.2.115 `EC2EphemeralStorage`: `EC2Storage`

parent: `EC2Storage`

Parameter: `volumeId`
Type: string
Description: Ephemral ID

Parameter: `size`
Type: unsigned integer
Description: Size

5.2.116 `EC2Image`: `Entity`

parent: `Entity`

Parameter: `name`
Type: string

Description: The name of the image.

Parameter: `id`
Type: string
Description: The AMI ID

Parameter: `apiHash`
Type: string
Description: The API hash used to select compatible images.

Parameter: `regionName`
Type: string
Description: The name of the image region.

5.2.117 `EC2OnDemandPrice: Entity`

parent: `Entity`

Parameter: `regionName`
Type: string
Description: Region name.

Parameter: `instanceType`
Type: string
Description: Instance type.

Parameter: `price`
Type: string
Description: On-demand price.

Parameter: `currency`
Type: string
Description: Currency.

5.2.118 `EC2Provider: CloudProvider`

parent: `CloudProvider`

Parameter: `APIRegionName`
Type: string
Description: AWS region to be used for listing available regions

Parameter: `accessKeyId`
Type: string
Description: AWS access key ID

Parameter: `accessKeySecret`
Type: string
Description: AWS secret access key

Parameter: `iamRoleName`
Type: string
Description: IAM role to get AWS credentials from. The role must be assigned to the COD-AWS head node.

Parameter: `VPCs`
Type: list of `EC2VPC`
Description: List of VPCs

Parameter: `regions`
Type: list of references to `EC2Region`
Description: *none*

Parameter: `defaultRegion`
Type: reference to `EC2Region` or None
Description: Default region to start instances in

Parameter: `defaultType`
Type: reference to `EC2Type` or None
Description: Default type for instances

Parameter: `defaultDirectorType`
Type: reference to `EC2Type` or None
Description: Default type for cloud director instances

Parameter: `imageOwners`
Type: list of strings
Description: AWS Account IDs to be used to search for images

Parameter: `addJobBasedTag`
Type: boolean
Description: Enable automatic tagging of cloud resources with information of running cloud jobs to allow cost monitoring

Parameter: `JobIdTagName`
Type: string
Description: The name of the tag that contains the job ID when using job based tagging

Parameter: `JobAccountTagName`
Type: string
Description: The name of the tag that contains the job account when using job based tagging

Parameter: `JobUserTagName`
Type: string
Description: The name of the tag that contains the user name when using job based tagging

Parameter: `JobNameTagName`

Type: string
Description: The name of the tag that contains the job name when using job based tagging

Parameter: `billingAccessKeyId`
Type: string
Description: AWS billing access key ID

Parameter: `billingAccessKeySecret`
Type: string
Description: AWS billing secret access key

Parameter: `marketplaceUsePolicy`
Type: enum
Description: Preference towards using marketplace AMIs

5.2.119 `EC2RegionAMI: Entity`

parent: `Entity`

Parameter: `region`
Type: reference to `EC2Region`
Description: The cloud region containing this AMI

Parameter: `amiID`
Type: string
Description: The AMI ID

5.2.120 `EC2Region: CloudRegion`

parent: `CloudRegion`

Parameter: `url`
Type: string
Description: url

Parameter: `availabilityZones`
Type: list of `EC2AvailabilityZone`
Description: Availability zones

5.2.121 `EC2Settings: CloudSettings`

parent: `CloudSettings`

Parameter: `instanceId`
Type: string
Description: Instance-ID provided by EC2

Parameter: `spotId`
Type: string
Description: Spot-request-ID provided by EC2

Parameter: `sshConnectString`

Type: string
Description: SSH connection string provided by EC2

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

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

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

Parameter: `type`
Type: reference to `EC2Type` or None
Description: Type for instance

Parameter: `region`
Type: reference to `EC2Region`
Description: Region for instance

Parameter: `imageId`
Type: string
Description: ID of the AMI used to create instance ('latest': use latest AMI, '': inherit AMI from cloud provider)

Parameter: `usesMarketplaceImage`
Type: boolean
Description: Whether a paid AWS Marketplace is used for this node

Parameter: `allocatePublicIP`
Type: boolean
Description: Whether to allocate a public IP for this instance. Always true for cloud directors.

Parameter: `sourceDestinationCheck`
Type: boolean
Description: Whether to perform source/destination checks on the instance traffic.

Parameter: `kernel`
Type: string
Description: Kernel used to create instance

Parameter: `initrd`

Type: string
Description: Initial ramdisk used to create instance

Parameter: `options`
Type: string
Description: User defined options passed to EC2 on instance creation

Parameter: `storage`
Type: list of `EC2Storage`
Description: Assign EC2 storage

Parameter: `cpuOptions`
Type: string
Description: CPU Options in AWS shorthand syntax (e.g: CoreCount=8,ThreadsPerCore=1)

Parameter: `spotPrice`
Type: float
Description: Maximum price to start instance with

Parameter: `spotPersistent`
Type: boolean
Description: Persistent spot instances are requested again after they are automatically stopped, because price became to high

Parameter: `useNonDefaultVirtualizationType`
Type: boolean
Description: *none*

Parameter: `placementGroup`
Type: string
Description: Start instance in the specified placement group

Parameter: `iamInstanceProfile`
Type: string
Description: Name or ARN of instance profile to associate with

5.2.122 `EC2SpotPrice: Entity`

parent: `Entity`

Parameter: `az`
Type: string
Description: Availabiliy zone.

Parameter: `instanceType`
Type: string
Description: Instance type.

Parameter: `price`

Type: string
Description: Spot price.

Parameter: `timestamp`
Type: unsigned integer
Description: Price timestamp.

5.2.123 `EC2Storage: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `drive`
Type: string
Description: Mount device as /dev/?

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

5.2.124 `EC2Type: CloudType`

parent: `CloudType`

Parameter: `virtualizationType`
Type: string
Description: Virtualization type.

5.2.125 `EC2VPC: Entity`

parent: `Entity`

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

Parameter: `vpcID`
Type: string
Description: AWS VPC identifier

Parameter: `defaultImageId`
Type: string
Description: ID of the default AMI to start instances with ('latest' means using the latest AMI)

Parameter: `mainRouteTable`
Type: string
Description: Main route table AWS ID

Parameter: `defaultACL`

Type: string
Description: Default network access controll list ID

Parameter: `internetGatewayID`
Type: string
Description: The AWS ID of the internet gateway assigned to this VPC

Parameter: `region`
Type: reference to `EC2Region`
Description: AWS region of the VPC

Parameter: `subnets`
Type: list of references to `Network`
Description: Subnets (networks) associated with the VPC

Parameter: `baseAddress`
Type: IP
Description: Base IP address of the VPC

Parameter: `netmaskBits`
Type: integer
Description: Number of netmask Bits

Parameter: `securityGroupNode`
Type: string
Description: Security group ID of the cloud nodes

Parameter: `securityGroupDirector`
Type: string
Description: Security group ID of the cloud director

Parameter: `routeTableIdPublic`
Type: string
Description: Routing table ID for the public subnet

Parameter: `routeTableIdPrivate`
Type: string
Description: Routing table ID for private subnets

Parameter: `setDirectorAsDefaultGateway`
Type: boolean
Description: If specified, a default route via the director will be created in the private subnet. This is not necessary if the private subnet was already configured and the nodes have access to the head node (e.g Direct Connect)

Parameter: `useInternalIPForDirectorIP`
Type: boolean

Description: If specified, CMDaemon will use cloud director's internal IP, instead of a public/external IP. Useful when you have existing IP connectivity to your VPC.

Parameter: `enforceDirectorIP`
Type: IP
Description: If specified, CMDaemon will assume this is the cloud director's IP address.

5.2.126 `EdgeDirectorRole: DirectorRole`

parent: `DirectorRole`

Parameter: `nodePowerOperations`
Type: boolean
Description: Execute all power operations of nodes in the edge site on the director

Parameter: `directorPowerOperations`
Type: boolean
Description: Execute all power operation of the director on the director, note that this means it cannot be powered on

Parameter: `nodeSelectionBootRole`
Type: boolean
Description: Use the edge site as a node selection mechanism for the boot role

Parameter: `nodeSelectionDnsRole`
Type: boolean
Description: Use the edge site as a node selection mechanism for the DNS role

Parameter: `nodeSelectionProvisioningRole`
Type: boolean
Description: Use the edge site as a node selection mechanism for the provisioning role

Parameter: `addNamedService`
Type: boolean
Description: Add named service to the node

Parameter: `addSlapdService`
Type: boolean
Description: Add slapd service to the node

Parameter: `addNtpdService`
Type: boolean
Description: Add ntpd service to the node

Parameter: `openTCPPortsOnHeadNode`
Type: list of unsigned numbers
Description: The list of TCP ports that will be opened in shorewall on the head node

Parameter: `openUDPPortsOnHeadNode`

Type: list of unsigned numbers
Description: The list of UDP ports that will be opened in shorewall on the head node

Parameter: `externallyVisibleIp`
Type: IP
Description: IP that will be seen by other nodes when the director connects

Parameter: `externallyVisibleHeadNodeIp`
Type: IP
Description: Head node IP that will be use by this director

Parameter: `syncCmShared`
Type: boolean
Description: Sync /cm/shared if required

5.2.127 `EdgeSite: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `contact`
Type: list of strings
Description: Names of contacts

Parameter: `adminEmail`
Type: list of strings
Description: Administrator's email

Parameter: `address`
Type: string
Description: Address

Parameter: `city`
Type: string
Description: City

Parameter: `country`
Type: string
Description: Country

Parameter: `timeZoneSettings`
Type: `TimeZoneSettings` or None
Description: Time zone

Parameter: `notes`
Type: string

Description: Notes

Parameter: `nodes`
Type: list of references to `ComputeNode`
Description: List of nodes in this site

Parameter: `switches`
Type: list of references to `Switch`
Description: List of switches in this site

Parameter: `genericDevices`
Type: list of references to `GenericDevice`
Description: List of generic devices in this site

Parameter: `unmanagedNodes`
Type: list of references to `UnmanagedNode`
Description: List of unmanaged nodes in this site

Parameter: `powerDistributionUnits`
Type: list of references to `PowerDistributionUnit`
Description: List of power distribution units in this site

Parameter: `fabricDevices`
Type: list of references to `FabricDevice`
Description: List of power distribution units in this site

Parameter: `racks`
Type: list of references to `Rack`
Description: List of racks in this site

Parameter: `secret`
Type: string
Description: Edge site secret

Parameter: `metaDataDeviceLabel`
Type: string
Description: Meta data device label which to mount in order get the meta data

Parameter: `metaDataUrl`
Type: string
Description: Meta data URL that contains information for edge directors

Parameter: `createISO`
Type: enum
Description: Edge site site ISO/script for USB

Parameter: `createIMG`

Type: enum
Description: Edge site site IMG/script for MMC

Parameter: `includeCMSharedOnMedia`
Type: boolean
Description: Include /cm/shared on media to reduce the amount of rsync during edge director installation

Parameter: `includeImagesOnMedia`
Type: boolean
Description: Include images on media to reduce the amount of rsync during edge director installation

Parameter: `preStageRequestID`
Type: UUID
Description: Pre-staging request ID

Parameter: `preStageRequestIDCreationTime`
Type: timestamp
Description: Pre-staging request ID creation time

5.2.128 `EntityManagersMD5: Entity`

parent: `Entity`

Parameter: `name`
Type: list of strings
Description: Name

Parameter: `md5`
Type: list of strings
Description: MD5

5.2.129 `Entity`

Parameter: `uniqueKey`
Type: 64 bit unsigned
Description: Unique identifier

Parameter: `baseType`
Type: string
Description: Basis instance type

Parameter: `childType`
Type: string
Description: Specialized instance type

Parameter: `revision`
Type: string
Description: A free text revision field

5.2.130 `EtcdCluster: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name of the Etcd cluster

Parameter: `heartBeatInterval`
Type: unsigned integer
Description: Time (in milliseconds) of a heartbeat interval

Parameter: `electionTimeout`
Type: unsigned integer
Description: Time (in milliseconds) for an election to timeout

Parameter: `notes`
Type: string
Description: Notes

Parameter: `ca`
Type: string
Description: The Certificate Authority (CA) Certificate path for Etcd, used to generate certificates for Etcd.

Parameter: `cakey`
Type: string
Description: The Certificate Authority (CA) Key path for Etcd, used to generate certificates for Etcd.

Parameter: `memberCertificate`
Type: string
Description: The Certificate path to use for Etcd cluster members, signed with the Etcd CA.

Parameter: `memberCertificateKey`
Type: string
Description: The Key path to use for Etcd cluster members, signed with the Etcd CA.

Parameter: `clientCertificate`
Type: string
Description: The Client Certificate used for Etcdctl for example.

Parameter: `clientCertificateKey`
Type: string
Description: The Client Certificate Key used for Etcdctl for example.

Parameter: `clientCA`
Type: string

Description: The Certificate Authority (CA) used for client certificates. When set it is assumed client certificate and key will be generated and signed with this CA by another party. Etcd still expects the path to be correct for the Client Certificate and Key.

Parameter: `clientTypeEtcd`
Type: unsigned integer
Description: client type in the CLIENT_TYPE_ETCD range

Parameter: `moduleFileTemplate`
Type: string
Description: Template for system module file

5.2.131 `EtcdHostRole: Role`

parent: `Role`

Parameter: `memberName`
Type: string
Description: Human-readable name for this member ($hostname will be replaced to the node hostname)

Parameter: `spool`
Type: string
Description: Path to the data directory

Parameter: `listenClientUrls`
Type: list of strings
Description: List of URLs to listen on for client traffic

Parameter: `listenPeerUrls`
Type: list of strings
Description: List of URLs to listen on for peer traffic

Parameter: `advertiseClientUrls`
Type: list of strings
Description: List of this member's client URLs to advertise to the public

Parameter: `advertisePeerUrls`
Type: list of strings
Description: List of this member's peer URLs to advertise to the rest of the cluster

Parameter: `snapshotCount`
Type: unsigned integer
Description: Number of committed transactions to trigger a snapshot to disk

Parameter: `maxSnapshots`
Type: unsigned integer
Description: Maximum number of snapshot files to retain (0 is unlimited)

Parameter: `loglevel`
Type: enum
Description: Log level, only supports debug, info, warn, error, panic, or fatal.

Parameter: `options`
Type: list of strings
Description: Additional parameters for etcd daemon

Parameter: `etcdCluster`
Type: reference to `EtcdCluster`
Description: The Etcd cluster instance

Parameter: `memberCertificate`
Type: string
Description: Etcd member certificate, signed with CA specified in the Etcd Cluster. When set it will overrule the value from the EtcdCluster object.

Parameter: `memberCertificateKey`
Type: string
Description: Etcd member certificate key, signed with CA specified in the Etcd Cluster. When set it will overrule the value from the EtcdCluster object.

5.2.132 `EthernetSwitch: Switch`

parent: `Switch`

5.2.133 `ExcludeListSnippet: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `excludeList`
Type: list of strings
Description: Excluded paths in the node image update

Parameter: `disabled`
Type: boolean
Description: Disabled

Parameter: `noNewFiles`
Type: boolean
Description: No new files

Parameter: `modeSync`
Type: boolean
Description: Include this snippet when mode is sync

Parameter: `modeFull`
Type: boolean
Description: Include this snippet when mode is full

Parameter: `modeUpdate`
Type: boolean
Description: Include this snippet when mode is update

Parameter: `modeGrab`
Type: boolean
Description: Include this snippet when mode is grab

Parameter: `modeGrabNew`
Type: boolean
Description: Include this snippet when mode is grab new

5.2.134 `ExternalOperationFirmwareInfoResult: ExternalOperationResult`

parent: `ExternalOperationResult`

Parameter: `firmwareInfo`
Type: list of `FirmwareInfo`
Description: Firmware info

5.2.135 `ExternalOperationJSONResult: ExternalOperationResult`

parent: `ExternalOperationResult`

Parameter: `output`
Type: free JSON object
Description: Output

Parameter: `error`
Type: string
Description: Error

5.2.136 `ExternalOperationRawResult: ExternalOperationResult`

parent: `ExternalOperationResult`

Parameter: `output`
Type: string
Description: Output

Parameter: `error`
Type: string
Description: Error

5.2.137 `ExternalOperationResult: Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`

Type: unsigned integer
Description: Node

Parameter: `result`
Type: enum
Description: Result

5.2.138 `FabricConfigurationBindingStatus: Entity`

parent: `Entity`

Parameter: `refFabricSwitchUniqueKey`
Type: unsigned integer
Description: FabricSwitch

Parameter: `bindings`
Type: list of `FabricConfigurationBinding`
Description: Bindings

5.2.139 `FabricConfigurationBinding: Entity`

parent: `Entity`

Parameter: `refTopologyZoneUniqueKey`
Type: unsigned integer
Description: Topology zone

Parameter: `refTopologyDSPUniqueKeys`
Type: list of unsigned numbers
Description: Topology DSPs bound to this zone, host

Parameter: `refTopologyLinkUniqueKeys`
Type: list of unsigned numbers
Description: Topology links bound to this zone, host

5.2.140 `FabricConfigurationFreeBinding: FabricConfigurationBinding`

parent: `FabricConfigurationBinding`

5.2.141 `FabricConfigurationHostBinding: FabricConfigurationBinding`

parent: `FabricConfigurationBinding`

Parameter: `refTopologyHostUniqueKey`
Type: unsigned integer
Description: Topology host

5.2.142 `FabricConfigurationLinkBinding: FabricConfigurationBinding`

parent: `FabricConfigurationBinding`

Parameter: `refTopologyLinkUniqueKey`
Type: unsigned integer
Description: Topology link

5.2.143 FabricConfiguration: Entity

parent: Entity

Parameter: name
Type: string
Description: A short name to identify this fabric configuration

Parameter: bindMethod
Type: enum
Description: Redfish REST method to use for sending binding changes

Parameter: unbindAllAfterTopologyApply
Type: boolean
Description: Unbind all after topology apply

Parameter: checkNodesDownForApplyTopology
Type: boolean
Description: Check nodes down for apply topology

Parameter: checkResourceBoxesDownForApplyTopology
Type: boolean
Description: Check resources boxes down for apply topology

Parameter: checkNodesDownForApplyBinding
Type: boolean
Description: Check nodes down for apply binding

Parameter: checkResourceBoxesDownForApplyBinding
Type: boolean
Description: Check resources boxes down for apply binding

Parameter: topology
Type: FabricConfigurationTopology
Description: Configured topology

5.2.144 FabricConfigurationTopologyDevice: FabricConfigurationTopologyItem

parent: FabricConfigurationTopologyItem

Parameter: switchIndex
Type: unsigned integer
Description: The index of the switch the device is on

Parameter: portIndex
Type: unsigned integer
Description: The port of the switch the device is on

5.2.145 FabricConfigurationTopologyDSP: FabricConfigurationTopologyDevice

parent: FabricConfigurationTopologyDevice

Parameter: fabricResourceBox
Type: reference to FabricResourceBox or None
Description: Host

Parameter: side
Type: enum
Description: Side of the fabricResourceBox

5.2.146 FabricConfigurationTopologyHost: FabricConfigurationTopologyDevice

parent: FabricConfigurationTopologyDevice

Parameter: host
Type: reference to Node or None
Description: Host

Parameter: dynamic
Type: boolean
Description: Add the node as a dynamic host so it can be swapped out without applying the topology

5.2.147 FabricConfigurationTopologyItem: Entity

parent: Entity

Parameter: portsUsed
Type: unsigned integer
Description: The number of port used on the switch

Parameter: lanes
Type: unsigned integer
Description: The number of PCI lanes

5.2.148 FabricConfigurationTopologyLink: FabricConfigurationTopologyItem

parent: FabricConfigurationTopologyItem

Parameter: index
Type: unsigned integer
Description: Index

Parameter: name
Type: string
Description: Alternative name

Parameter: downstreamSwitchIndex
Type: unsigned integer
Description: The index of the switch of the downstream bridge connection

Parameter: downstreamPortIndex

Type: unsigned integer
Description: The port of the switch of the downstream bridge connection

Parameter: `upstreamSwitchIndex`
Type: unsigned integer
Description: The index of the switch of the upstream bridge connection

Parameter: `upstreamPortIndex`
Type: unsigned integer
Description: The port of the switch the of the upstream bridge connection

Parameter: `type`
Type: enum
Description: Type of link this ports connect

5.2.149 `FabricConfigurationTopologySwitch: Entity`

parent: `Entity`

Parameter: `index`
Type: unsigned integer
Description: The index of the zone

Parameter: `fabricSwitch`
Type: reference to `FabricSwitch` or None
Description: Switch

5.2.150 `FabricConfigurationTopology: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name of the topology

Parameter: `rawTemplate`
Type: free JSON object
Description: Template returned by the switch

Parameter: `refFabricSwitchUniqueKeys`
Type: list of unsigned numbers
Description: The fabric switches that provide this topology

Parameter: `topologyZones`
Type: list of `FabricConfigurationTopologyZone`
Description: Zones

Parameter: `topologyDevices`
Type: list of `FabricConfigurationTopologyDevice`

Description: Devices

Parameter: `topologyLinks`
Type: list of `FabricConfigurationTopologyLink`
Description: Links

Parameter: `topologySwitches`
Type: list of `FabricConfigurationTopologySwitch`
Description: Switches

Parameter: `topologyManagementSwitch`
Type: element of `topologySwitches`
Description: The switch in the topology that will be used for all management operations

Parameter: `topologyBindings`
Type: list of `FabricConfigurationBinding`
Description: Fixed topology bindings

5.2.151 `FabricConfigurationTopologyZone: Entity`

parent: `Entity`

Parameter: `index`
Type: unsigned integer
Description: The index of the zone

Parameter: `name`
Type: string
Description: Name of the zone

5.2.152 `FabricDevice: Device`

parent: `Device`

Parameter: `ip`
Type: IP
Description: Ip address

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

Parameter: `userName`
Type: string
Description: Username used to send Redfish commands

Parameter: `password`
Type: string
Description: Password used to send Redfish commands

5.2.153 FabricNodeStatus: Entity

parent: Entity

Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: uuid
Type: UUID
Description: UUID

Parameter: good
Type: boolean
Description: Good

Parameter: info
Type: string
Description: Information

5.2.154 FabricResourceBoxDeviceFunctionInformation: Entity

parent: Entity

Parameter: id
Type: string
Description: ID

Parameter: name
Type: string
Description: Name

Parameter: description
Type: string
Description: Description

Parameter: deviceClass
Type: string
Description: Device class

Parameter: deviceId
Type: string
Description: Device ID

Parameter: revisionId
Type: string
Description: Revision ID

Parameter: subSystemId
Type: string

Description: Sub system ID

Parameter: `subSystemVendorId`
Type: string
Description: Sub system vendor ID

Parameter: `vendorId`
Type: string
Description: Vendor ID

5.2.155 `FabricResourceBoxDeviceInformation: Entity`

parent: `Entity`

Parameter: `id`
Type: string
Description: ID

Parameter: `name`
Type: string
Description: Name

Parameter: `description`
Type: string
Description: Description

Parameter: `manufacturer`
Type: string
Description: Manufacturer

Parameter: `serialNumber`
Type: string
Description: Serial number

Parameter: `firmwareVersion`
Type: string
Description: Firmware version

Parameter: `slot`
Type: string
Description: Slot

Parameter: `functions`
Type: list of `FabricResourceBoxDeviceFunctionInformation`
Description: Functions

5.2.156 FabricResourceBoxInformation: Entity

parent: Entity

Parameter: refTopologyDSPUniqueKey
Type: unsigned integer
Description: Topology DSP matching this resource/side

Parameter: chassisType
Type: string
Description: Chassis type

Parameter: description
Type: string
Description: Description

Parameter: manufacturer
Type: string
Description: Manufacturer

Parameter: redfishVersion
Type: string
Description: Red fish version

Parameter: devices
Type: list of FabricResourceBoxDeviceInformation
Description: Devices

5.2.157 FabricResourceBox: FabricDevice

parent: FabricDevice

5.2.158 FabricSwitch: FabricDevice

parent: FabricDevice

Parameter: vendor
Type: string
Description: Fabric switch vendor

Parameter: ports
Type: unsigned integer
Description: Number of ports

Parameter: lanesPerPort
Type: unsigned integer
Description: PCI Lanes per port

5.2.159 FailoverRole: Role

parent: Role

Parameter: syncCmShared

Type: boolean
Description: Passive head node has a local copy of /cm/shared

5.2.160 `FileContent: Entity`

parent: `Entity`

Parameter: `filename`
Type: string
Description: Filename

Parameter: `content`
Type: string
Description: Content

Parameter: `username`
Type: string
Description: Username

Parameter: `permissions`
Type: integer
Description: Permissions

5.2.161 `FileWriteInfo: Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `path`
Type: string
Description: Path

Parameter: `timestamp`
Type: timestamp
Description: Timestamp on which file was last changed

Parameter: `actor`
Type: enum
Description: Actor that wrote the file

Parameter: `frozen`
Type: boolean
Description: Frozen

5.2.162 `FirewallInterface: Entity`

parent: `Entity`

Parameter: `zone`

Type: string
Description: Zone

Parameter: `interface`
Type: string
Description: Interface

Parameter: `broadcast`
Type: string
Description: Broadcast

Parameter: `options`
Type: string
Description: Options

5.2.163 `FirewallOpenPort: Entity`

parent: `Entity`

Parameter: `action`
Type: enum
Description: Specifies the action to be taken if the connection request matches the rule

Parameter: `network`
Type: string
Description: Network

Parameter: `port`
Type: unsigned integer
Description: Port

Parameter: `protocol`
Type: enum
Description: Protocol

Parameter: `address`
Type: CIDR
Description: Network Address

Parameter: `destination`
Type: string
Description: Destination hosts to which the rule applies

Parameter: `description`
Type: string
Description: Description

5.2.164 `FirewallPolicy: Entity`

parent: `Entity`

Parameter: `source`
Type: string
Description: Source

Parameter: `dest`
Type: string
Description: Dest

Parameter: `policy`
Type: enum
Description: Policy

Parameter: `log`
Type: string
Description: Log

Parameter: `options`
Type: string
Description: Options

5.2.165 `FirewallRole: Role`

parent: `Role`

Parameter: `shorewall`
Type: boolean
Description: Manage shorewall

Parameter: `openPorts`
Type: list of `FirewallOpenPort`
Description: The list of ports that will be opened on the node's firewall

Parameter: `zones`
Type: list of `FirewallZone`
Description: The list of extra zones that will be defined in the node's firewall

Parameter: `interfaces`
Type: list of `FirewallInterface`
Description: The list of extra interfaces that will be defined in the node's firewall

Parameter: `policies`
Type: list of `FirewallPolicy`
Description: The list of extra policies that will be defined in the node's firewall

5.2.166 `FirewallZone: Entity`

parent: `Entity`

Parameter: `zone`
Type: string
Description: Zone

Parameter: `zone_type`
Type: enum
Description: Type

Parameter: `options`
Type: string
Description: Options

5.2.167 `FirmwareInfo: Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `filename`
Type: string
Description: Filename

Parameter: `component`
Type: string
Description: Component

Parameter: `version`
Type: string
Description: Version

Parameter: `state`
Type: enum
Description: Result

Parameter: `progress`
Type: float
Description: Progress

Parameter: `result`
Type: string
Description: Result

Parameter: `size`
Type: unsigned integer

Description: Size

Parameter: `date`
Type: string
Description: Date

Parameter: `timestamp`
Type: timestamp
Description: Epoch timestamp, parsed version of date

5.2.168 `FPGAInfo: Entity`

parent: `Entity`

Parameter: `vendor`
Type: string
Description: *none*

Parameter: `bdf`
Type: string
Description: *none*

Parameter: `cardType`
Type: string
Description: *none*

Parameter: `flashType`
Type: string
Description: *none*

Parameter: `dsaRunningFPGA`
Type: string
Description: *none*

Parameter: `dsaPackageInstalled`
Type: string
Description: *none*

Parameter: `name`
Type: string
Description: *none*

Parameter: `rev`
Type: string
Description: *none*

Parameter: `serial`
Type: string

Description: *none*

Parameter: `configMode`
Type: string
Description: *none*

Parameter: `fanPresence`
Type: string
Description: *none*

Parameter: `maxPowerLevel`
Type: string
Description: *none*

Parameter: `mac0`
Type: MAC
Description: *none*

Parameter: `mac1`
Type: MAC
Description: *none*

Parameter: `mac2`
Type: MAC
Description: *none*

Parameter: `mac3`
Type: MAC
Description: *none*

5.2.169 `FSExport: Entity`

parent: `Entity`

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

Parameter: `path`
Type: string
Description: Path to export

Parameter: `network`
Type: reference to `Network` or None
Description: Network the interface is connected to

Parameter: `hosts`
Type: string

Description: Specify extra hosts-range allowed access to this export (space separated)

Parameter: `automatic`
Type: boolean
Description: The export was created automatically

Parameter: `allowWrite`
Type: boolean
Description: Allow writing

Parameter: `async`
Type: boolean
Description: Allow the NFS server to violate the NFS protocol and reply to requests before any changes made by that request have been committed to stable storage

Parameter: `rootSquash`
Type: boolean
Description: Map requests from uid/gid 0 to the anonymous uid/gid

Parameter: `allSquash`
Type: boolean
Description: Map all uids and gids to the anonymous user

Parameter: `anonUid`
Type: unsigned integer
Description: Anonymous account user id number

Parameter: `anonGid`
Type: unsigned integer
Description: Anonymous account group id number

Parameter: `extraOptions`
Type: string
Description: Extra options to be added to this export

Parameter: `fsid`
Type: unsigned integer
Description: Identification for exports used in failover setup. Make sure these are identical

Parameter: `rdma`
Type: boolean
Description: Enable NFS over RDMA

Parameter: `disabled`
Type: boolean
Description: Disable the export

Parameter: `checkTree`
Type: boolean
Description: Check tree

5.2.170 `FSMount: Entity`
parent: `Entity`

Parameter: `device`
Type: string
Description: What to mount.

Parameter: `mountpoint`
Type: string
Description: Where to mount.

Parameter: `filesystem`
Type: string
Description: The file system type.

Parameter: `mountoptions`
Type: string
Description: What options to use for mounting.

Parameter: `dump`
Type: boolean
Description: Dump field in fstab, see man fstab.

Parameter: `fsck`
Type: enum
Description: Filesystem check field in fstab, see man fstab.

Parameter: `rdma`
Type: boolean
Description: Enable NFS over RDMA.

5.2.171 `FSPartAssociation: Entity`
parent: `Entity`

Parameter: `syncPoint`
Type: string
Description: Directory the FSPart should be synchronized to on the target.

Parameter: `prefix`
Type: string
Description: Optional prefix to the sync point.

Parameter: `fspart`
Type: reference to `FSPart`

Description: FSPart this association is associated with.

Parameter: `onSharedStorage`
Type: boolean
Description: FSPart associations on shared storage can be used as provisioning source, but don't need to be kept up-to-date.

Parameter: `disabled`
Type: boolean
Description: Do not rsync this association

Parameter: `backupDirectory`
Type: string
Description: Backup directory

5.2.172 `FSPartBasicAssociation`: `FSPartAssociation`

parent: `FSPartAssociation`

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

5.2.173 `FSPartInfo`: `Entity`

parent: `Entity`

Parameter: `refFSPartUniqueKey`
Type: unsigned integer
Description: FSPart

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `archOSInfo`
Type: `ArchOSInfo` or None
Description: Detected arch/OS

Parameter: `size`
Type: unsigned integer
Description: Total size

Parameter: `inotifyWatcherSize`
Type: unsigned integer
Description: Inotify watcher size

5.2.174 FSPartProviderAssociation: FSPartAssociation

parent: FSPartAssociation

Parameter: onlyWhenActive
Type: boolean
Description: Only use provider association if the node is the active head node

5.2.175 FSPartRole: Role

parent: Role

Parameter: fsparts
Type: list of references to FSPart
Description: FSParts

Parameter: fspartSource
Type: boolean
Description: Server as source for all these FSParts

5.2.176 FSPart: Entity

parent: Entity

Parameter: path
Type: string
Description: Full source path of the filesystem part

Parameter: type
Type: enum
Description: The type of filesystem part

Parameter: watchDirectories
Type: list of strings
Description: Watch directories for changes on the active head node, filesystem part will be marked dirty when changed

Parameter: dirtyAutoSyncDelay
Type: unsigned integer
Description: Time to wait before automatically syncing after the filesystem part became dirty, set 0 to disable

Parameter: autoDirtyDelay
Type: unsigned integer
Description: Time to wait before automatically marking an filesystem part as dirty, set 0 to disable

Parameter: preSyncScript
Type: string
Description: Script to be executed before rsync runs

Parameter: postSyncScript
Type: string

Description: Script to be executed after rsync runs

Parameter: `abortOnPreSyncScriptFailure`
Type: boolean
Description: Do not rsync if the pre sync script exited with a non zero exit code

Parameter: `runPostOnFailure`
Type: boolean
Description: Run the post rsync script even if the pre sync or sync ended with a non zero exit code

Parameter: `syncScriptTimeout`
Type: unsigned integer
Description: Script timeout

Parameter: `rsyncAcls`
Type: boolean
Description: Rsync with –acls

Parameter: `rsyncXattrs`
Type: boolean
Description: Rsync with –xattrs

Parameter: `rsyncHardlinks`
Type: boolean
Description: Rsync with –hard-links

Parameter: `rsyncSparse`
Type: boolean
Description: Rsync with –sparse

Parameter: `rsyncNumericIds`
Type: boolean
Description: Rsync with –numeric-ids

Parameter: `rsyncForce`
Type: boolean
Description: Rsync with –force

Parameter: `rsyncPrune`
Type: boolean
Description: Rsync with –prune-empty-dirs

Parameter: `rsyncDelta`
Type: boolean
Description: Rsync with –inplace –no-whole-file

Parameter: `rsyncBlockSize`

Type: unsigned integer
Description: Rsync with –block-size=<value> Max 128KB, 0 implies rsync default

Parameter: `rsyncBandWidthLimit`
Type: unsigned integer
Description: Rsync with –bwlimit=<value>

Parameter: `rsyncCompress`
Type: enum
Description: Rsync with –compress

Parameter: `rsyncCompressLevel`
Type: enum
Description: Rsync compression at a specific level

Parameter: `extraRsyncArguments`
Type: list of strings
Description: Extra rsync arguments. These can be made condition based on type=no-new-files | normal and mode=sync | update | full | sync. For example: –max-delete=0?type=normal&mode=update | sync

Parameter: `excludeListSnippets`
Type: list of `ExcludeListSnippet`
Description: *none*

5.2.177 `FSxInstance: Entity`

parent: `Entity`

Parameter: `fsxId`
Type: string
Description: AWS assigned unique identifier

Parameter: `name`
Type: string
Description: Non-unique identifier

Parameter: `owner`
Type: string
Description: Owner of the FSx instance

Parameter: `sharedWith`
Type: list of strings
Description: Other cmjob users that can use this instance for jobs.

Parameter: `vpcId`
Type: string
Description: The VPC in which it exists

Parameter: `region`

Type: string
Description: The AWS region where the instance was created

Parameter: `capacity`
Type: unsigned integer
Description: Size in GB. Should be at least 3600

Parameter: `status`
Type: string
Description: AWS reported status of the instance

Parameter: `hostname`
Type: string
Description: Hostname of the FSx, is internal to the VPC

Parameter: `management`
Type: enum
Description: Instance management type

Parameter: `creationTime`
Type: string
Description: Creation time

5.2.178 `GenericDevice: Device`

parent: `Device`

Parameter: `ip`
Type: IP
Description: Ip address

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

Parameter: `model`
Type: string
Description: Device model name

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

5.2.179 `GenericResource: BasicResource`

parent: `BasicResource`

Parameter: `activateScript`
Type: string

Description: Script to be executed when the resource is given to a node

Parameter: `deactivateScript`
Type: string
Description: Script to be executed when the resource is taken a way from a node

Parameter: `checkScript`
Type: string
Description: Script to be executed periodically to verify the resource is still running

Parameter: `arguments`
Type: list of strings
Description: Arguments to pass to the script

Parameter: `scriptTimeout`
Type: unsigned integer
Description: Script timeout

5.2.180 `GenericRoleConfiguration: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `createDirectory`
Type: boolean
Description: Create directory if it doesn't exist

Parameter: `filename`
Type: string
Description: Filename

Parameter: `mask`
Type: unsigned integer
Description: Filemask directory

Parameter: `userName`
Type: string
Description: User ownership applied to the file

Parameter: `groupName`
Type: string
Description: Group ownership applied to the file

Parameter: `disabled`
Type: boolean

Description: Disabled

Parameter: `serviceActionOnWrite`
Type: enum
Description: Action performed on service if the file changed

Parameter: `serviceStopOnFailure`
Type: boolean
Description: Stop services if the file write failed

5.2.181 `GenericRoleEnvironment: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `value`
Type: string
Description: Value

Parameter: `nodeEnvironment`
Type: boolean
Description: Update the node environment variables

5.2.182 `GenericRoleGeneratedConfiguration: GenericRoleConfiguration`

parent: `GenericRoleConfiguration`

Parameter: `script`
Type: string
Description: Script

Parameter: `arguments`
Type: list of strings
Description: Arguments

Parameter: `timeout`
Type: unsigned integer
Description: Timeout

Parameter: `watch`
Type: boolean
Description: Watch script for for changes, and rerun

5.2.183 `GenericRoleStaticConfiguration: GenericRoleConfiguration`

parent: `GenericRoleConfiguration`

Parameter: `content`
Type: string

Description: Content to write into file

Parameter: `filemask`
Type: unsigned integer
Description: Filemask

5.2.184 `GenericRoleSymlinkConfiguration`: `GenericRoleConfiguration`

parent: `GenericRoleConfiguration`

Parameter: `sourceFilename`
Type: string
Description: Source filename

Parameter: `watch`
Type: boolean
Description: Watch source file for for changes, and treat as file change

5.2.185 `GenericRoleTemplatedConfiguration`: `GenericRoleConfiguration`

parent: `GenericRoleConfiguration`

Parameter: `templateContent`
Type: string
Description: Template to use for writing file

Parameter: `environmentFromKeyValueStore`
Type: boolean
Description: Use key value store for extra replacement rules

5.2.186 `GenericRole`: `Role`

parent: `Role`

Parameter: `services`
Type: list of strings
Description: *none*

Parameter: `configuration`
Type: list of `GenericRoleConfiguration`
Description: *none*

Parameter: `extraEnvironment`
Type: list of `GenericRoleEnvironment`
Description: *none*

Parameter: `excludeListSnippets`
Type: list of `ExcludeListSnippet`
Description: *none*

Parameter: `dataNode`
Type: boolean

Description: If enabled the node will never do a FULL install without explicit user confirmation

5.2.187 `GNSSLocation: Entity`

parent: `Entity`

Parameter: `refEntityUniqueKey`
Type: unsigned integer
Description: Entity

Parameter: `timestamp`
Type: float
Description: *none*

Parameter: `latitude`
Type: float
Description: *none*

Parameter: `longitude`
Type: float
Description: *none*

Parameter: `height`
Type: float
Description: *none*

Parameter: `message`
Type: string
Description: *none*

5.2.188 `GPUInfo: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: *none*

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

Parameter: `pciBusId`
Type: string
Description: *none*

Parameter: `pciDevId`
Type: string
Description: *none*

Parameter: `pciSubSysId`
Type: string
Description: *none*

Parameter: `pciMaxLinkGen`
Type: string
Description: *none*

Parameter: `pciLinkGen`
Type: string
Description: *none*

Parameter: `pciMaxLinkWidth`
Type: string
Description: *none*

Parameter: `pciLinkWidth`
Type: string
Description: *none*

Parameter: `serial`
Type: string
Description: *none*

Parameter: `uuid`
Type: string
Description: *none*

Parameter: `vBios`
Type: string
Description: *none*

Parameter: `driverModel`
Type: string
Description: *none*

Parameter: `infoRom`
Type: string
Description: *none*

Parameter: `powerMode`
Type: string
Description: *none*

Parameter: `powerLimit`
Type: string

Description: *none*

Parameter: `displayMode`
Type: string
Description: *none*

Parameter: `eccMode`
Type: string
Description: *none*

Parameter: `computeMode`
Type: string
Description: *none*

Parameter: `operationMode`
Type: string
Description: *none*

Parameter: `persistenceMode`
Type: string
Description: *none*

Parameter: `clocksSettings`
Type: list of strings
Description: *none*

5.2.189 `GPUProfilingMetricInfo`: `Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `gpu`
Type: unsigned integer
Description: GPU index

Parameter: `majorId`
Type: unsigned integer
Description: Major ID

Parameter: `minorId`
Type: unsigned integer
Description: Minor ID

Parameter: `fieldId`
Type: unsigned integer

Description: Field ID

Parameter: `metric`
Type: string
Description: Metric

Parameter: `enabled`
Type: boolean
Description: Enabled

5.2.190 `GPUSettings: Entity`
parent: `Entity`

Parameter: `name`
Type: string
Description: Range of GPUs for which these settings apply

5.2.191 `GpuStatusEntry: Entity`
parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `index`
Type: unsigned integer
Description: GPU index for this status entry

Parameter: `gpu`
Type: string
Description: Name of the GPU

Parameter: `property`
Type: string
Description: Property name

Parameter: `value`
Type: string
Description: Value of the property

Parameter: `supported`
Type: list of strings
Description: List of supported values for this property

5.2.192 `GridEngineJobQueueStat: JobQueueStat`
parent: `JobQueueStat`

Parameter: `load`
Type: float

Description: Queue queue load

Parameter: `used`
Type: unsigned integer
Description: Used queue slots

Parameter: `available`
Type: unsigned integer
Description: Available queue slots

Parameter: `total`
Type: unsigned integer
Description: Total queue slots

Parameter: `resv`
Type: unsigned integer
Description: Reserved queue slots

5.2.193 `GridEngineJobQueue: JobQueue`

parent: `JobQueue`

Parameter: `slots`
Type: string
Description: Number of slots

Parameter: `tmpdir`
Type: string
Description: Temporary directory for queue

Parameter: `prolog`
Type: string
Description: Path to prolog script (e.g. root@/cm/local/apps/cmd/scripts/prolog)

Parameter: `epilog`
Type: string
Description: Path to epilog script

Parameter: `starterMethod`
Type: string
Description: Script to be executed instead of shell to run the job

Parameter: `suspendMethod`
Type: string
Description: Grid Engine Suspend method

Parameter: `resumeMethod`
Type: string

Description: Grid Engine Resume method

Parameter: `terminateMethod`
Type: string
Description: Grid Engine Terminate method

Parameter: `minWalltime`
Type: string
Description: Minimum runtime for jobs in queue

Parameter: `maxWalltime`
Type: string
Description: Maximum runtime for jobs in queue

5.2.194 `GridEngineJob: Job`

parent: `Job`

5.2.195 `GridEngineParallelEnvironment: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: The name of the parallel environment (to be used in the qsub -pe switch)

Parameter: `slots`
Type: unsigned integer
Description: The number of parallel processes being allowed to run in total under the PE concurrently

Parameter: `userLists`
Type: list of strings
Description: A list of user access list names

Parameter: `xUserLists`
Type: list of strings
Description: An exclude list of user access list names

Parameter: `startProcedureArguments`
Type: string
Description: The invocation command line of a start-up procedure

Parameter: `stopProcedureArguments`
Type: string
Description: The invocation command line of a shutdown procedure

Parameter: `allocationRule`
Type: string
Description: The allocation rule helps the scheduler to decide how to distribute parallel processes

Parameter: `controlSlaves`
Type: boolean
Description: Indicates if GE is the creator of the slave tasks via sge_execd and sge_shepherd

Parameter: `jobIsFirstTask`
Type: boolean
Description: A value of true indicates that the GE job script already contains one of the tasks

Parameter: `urgencySlots`
Type: string
Description: Specifies the method to be used by GE to assess the number of slots such jobs might finally get

Parameter: `accountingSummary`
Type: boolean
Description: Indicates if only a single accounting record (job summary) is written to the accounting file

Parameter: `extraParameters`
Type: list of strings
Description: Additional parameters that will be added to PE configuration

Parameter: `perPeTaskProlog`
Type: string
Description: Prolog script that is started for each slave task

Parameter: `perPeTaskEpilog`
Type: string
Description: Epilog script that is started for each slave task

5.2.196 `Group: Entity`

parent: `Entity`

Parameter: `ID`
Type: string
Description: Group ID

Parameter: `name`
Type: string
Description: Group name

Parameter: `members`
Type: list of strings
Description: Users belonging to this group

5.2.197 `GuiCephOsdPoolInfo: Entity`

parent: `Entity`

Parameter: `refCephOSDPoolUniqueKey`

Type: unsigned integer
Description: CephOSDPool

Parameter: `name`
Type: string
Description: Name

Parameter: `sizeBytes`
Type: unsigned integer
Description: size_bytes

Parameter: `numObjects`
Type: unsigned integer
Description: num_objects

Parameter: `numObjectClones`
Type: unsigned integer
Description: num_object_clones

Parameter: `numObjectCopies`
Type: unsigned integer
Description: num_object_copies

Parameter: `numObjectsMissingOnPrimary`
Type: unsigned integer
Description: num_objects_missing_on_primary

Parameter: `numObjectsDegraded`
Type: unsigned integer
Description: num_objects_degraded

Parameter: `numObjectsUnfound`
Type: unsigned integer
Description: num_objects_unfound

Parameter: `readOps`
Type: unsigned integer
Description: Number of reads

Parameter: `readBytes`
Type: unsigned integer
Description: Total read

Parameter: `writeOps`
Type: unsigned integer
Description: Number of writes

Parameter: `writeBytes`
Type: unsigned integer
Description: Total write

5.2.198 `GuiCephOverview: Entity`

parent: `Entity`

Parameter: `refCephUniqueKey`
Type: unsigned integer
Description: Ceph

Parameter: `status`
Type: string
Description: Status

Parameter: `numPgs`
Type: unsigned integer
Description: Number of placement groups

Parameter: `numMons`
Type: unsigned integer
Description: Number of monitors

Parameter: `numOsds`
Type: unsigned integer
Description: Total

Parameter: `numUpOsds`
Type: unsigned integer
Description: Up

Parameter: `numInOsds`
Type: unsigned integer
Description: In

Parameter: `pgsBytesTotal`
Type: unsigned integer
Description: PGS Bytes Total

Parameter: `pgsBytesUsed`
Type: unsigned integer
Description: PGS Bytes Used

Parameter: `pgsBytesAvail`
Type: unsigned integer
Description: PGS Bytes Avail

Parameter: `pgsDataBytes`

Type: unsigned integer
Description: Amount of actual data in placement groups

Parameter: `pgsReadBytesSec`
Type: unsigned integer
Description: Bytes read per second for placement groups

Parameter: `pgsWriteBytesSec`
Type: unsigned integer
Description: Bytes written per second for placement groups

Parameter: `pgs`
Type: list of `GuiCephPgsInfo`
Description: PGS

Parameter: `osdpools`
Type: list of `GuiCephOsdPoolInfo`
Description: Ceph OSD Pool Information

5.2.199 `GuiCephPgsInfo: Entity`

parent: `Entity`

Parameter: `stateName`
Type: string
Description: State name

Parameter: `version`
Type: string
Description: Version

Parameter: `numPgs`
Type: unsigned integer
Description: Num Pgs

Parameter: `dataBytes`
Type: unsigned integer
Description: Data Bytes

Parameter: `usedBytes`
Type: unsigned integer
Description: Used Bytes

Parameter: `availBytes`
Type: unsigned integer
Description: Avail Bytes

Parameter: `totalBytes`
Type: unsigned integer

Description: Total Bytes

5.2.200 `GuiClusterOverview: Entity`

parent: `Entity`

Parameter: `refPartitionUniqueKey`
Type: unsigned integer
Description: Partition

Parameter: `uptime`
Type: unsigned integer
Description: Uptime of the active head node

Parameter: `nodesUp`
Type: unsigned integer
Description: Number of nodes that are listed as up

Parameter: `nodesDown`
Type: unsigned integer
Description: Number of nodes that are listed as down

Parameter: `nodesClosed`
Type: unsigned integer
Description: Number of nodes that are listed as closed

Parameter: `nodesTotal`
Type: unsigned integer
Description: Number of nodes

Parameter: `liteNodesUp`
Type: unsigned integer
Description: Number of lite nodes that are listed as up

Parameter: `liteNodesDown`
Type: unsigned integer
Description: Number of lite nodes that are listed as down

Parameter: `liteNodesClosed`
Type: unsigned integer
Description: Number of lite nodes that are listed as closed

Parameter: `liteNodesTotal`
Type: unsigned integer
Description: Number of lite nodes

Parameter: `unmanagedNodesUp`
Type: unsigned integer

Description: Number of unmanaged nodes that are listed as up

Parameter: `unmanagedNodesDown`
Type: unsigned integer
Description: Number of unmanaged nodes that are listed as down

Parameter: `unmanagedNodesClosed`
Type: unsigned integer
Description: Number of unmanaged nodes that are listed as closed

Parameter: `unmanagedNodesTotal`
Type: unsigned integer
Description: Number of unmanaged nodes

Parameter: `devicesUp`
Type: unsigned integer
Description: Number of non-node devices that are listed as up

Parameter: `devicesDown`
Type: unsigned integer
Description: Number of non-node devices that are listed as down

Parameter: `devicesClosed`
Type: unsigned integer
Description: Number of non-node devices that are listed as closed

Parameter: `devicesTotal`
Type: unsigned integer
Description: Number of non-node devices

Parameter: `coresUp`
Type: unsigned integer
Description: Sum of all cores for nodes which are up

Parameter: `coresTotal`
Type: unsigned integer
Description: Sum of all cores for nodes which are up at one time

Parameter: `gpusUp`
Type: unsigned integer
Description: Sum of all GPUs for nodes which are up

Parameter: `gpusTotal`
Type: unsigned integer
Description: Sum of all GPUs for nodes which are up at one time

Parameter: `fpgasUp`

Type: unsigned integer
Description: Sum of all FPGAs for nodes which are up

Parameter: `fpgasTotal`
Type: unsigned integer
Description: Sum of all FPGAs for nodes which are up at one time

Parameter: `disks`
Type: list of `GuiDiskUsage`
Description: Number of disks

Parameter: `workload`
Type: list of `GuiWorkload`
Description: Workload information

Parameter: `usersLoggedIn`
Type: unsigned integer
Description: Number of logged in users on the active head node

Parameter: `usersLoggedOut`
Type: unsigned integer
Description: Number of logged out users on the active head node

Parameter: `usersTotal`
Type: unsigned integer
Description: Number of users known to the active head node

Parameter: `memoryUsed`
Type: unsigned integer
Description: Sum of used memory over all nodes

Parameter: `memoryUnused`
Type: unsigned integer
Description: Sum of unused memory over all nodes

Parameter: `memoryTotal`
Type: unsigned integer
Description: Sum of total memory over all nodes

Parameter: `swapUsed`
Type: unsigned integer
Description: Sum of used swap memory over all nodes

Parameter: `swapUnused`
Type: unsigned integer
Description: Sum of unused swap memory over all nodes

Parameter: `swapTotal`
Type: unsigned integer
Description: Sum of total swap over all nodes

Parameter: `usageUser`
Type: float
Description: Average user cpu usage over all nodes

Parameter: `usageSystem`
Type: float
Description: Average system cpu usage over all nodes

Parameter: `usageIdle`
Type: float
Description: Average idle cpu usage over all nodes

Parameter: `usageOther`
Type: float
Description: Percentage of cpu time spend on other operations

Parameter: `phaseLoad`
Type: float
Description: Phase load accross all APCs

Parameter: `occupationRate`
Type: float
Description: Formula: Average{allnodes} (min(load, cores) / cores)

Parameter: `freeRate`
Type: float
Description: Formula: 1 - Average{allnodes} (min(load, cores) / cores)

5.2.201 `GuiDiskUsage: Entity`

parent: `Entity`

Parameter: `refDeviceUniqueKey`
Type: unsigned integer
Description: Device

Parameter: `mountpoint`
Type: string
Description: Mountpoint

Parameter: `used`
Type: unsigned integer
Description: Bytes in use on this device

Parameter: `free`

Type: unsigned integer
Description: Bytes free on this device

5.2.202 `GuiFabricConfigurationPortmap`: `Entity`

parent: `Entity`

Parameter: `refFabricConfigurationUniqueKey`
Type: unsigned integer
Description: FabricConfiguration

Parameter: `state`
Type: enum
Description: State

Parameter: `name`
Type: string
Description: Name

Parameter: `switches`
Type: list of `GuiFabricSwitchOverview`
Description: Switches

5.2.203 `GuiFabricSwitchLed`: `Entity`

parent: `Entity`

Parameter: `port`
Type: unsigned integer
Description: Port

Parameter: `partition`
Type: unsigned integer
Description: Partition

Parameter: `neighbor`
Type: unsigned integer
Description: Neighbor

Parameter: `cableId`
Type: string
Description: Cable ID

Parameter: `linkUp`
Type: boolean
Description: Link up

Parameter: `present`
Type: boolean

Description: Present

Parameter: `leftColor`
Type: enum
Description: Left side color

Parameter: `leftBlink`
Type: boolean
Description: Left side blinking led

Parameter: `rightColor`
Type: enum
Description: Left side color

Parameter: `rightBlink`
Type: boolean
Description: Left side blinking led

Parameter: `direction`
Type: enum
Description: Direction

Parameter: `maxWidth`
Type: unsigned integer
Description: Maximal width

Parameter: `negotiatedWidth`
Type: unsigned integer
Description: Negotiated width

Parameter: `rate`
Type: string
Description: Rate

5.2.204 `GuiFabricSwitchOverview`: `Entity`

parent: `Entity`

Parameter: `refFabricSwitchUniqueKey`
Type: unsigned integer
Description: FabricSwitch

Parameter: `state`
Type: enum
Description: State

Parameter: `guid`
Type: string

Description: GUID

Parameter: `leds`
Type: list of `GuiFabricSwitchLed`
Description: Leds

Parameter: `ports`
Type: list of `GuiFabricSwitchPort`
Description: Ports

5.2.205 `GuiFabricSwitchPort: Entity`

parent: `Entity`

Parameter: `ports`
Type: list of unsigned numbers
Description: Ports

Parameter: `maxSpeed`
Type: unsigned integer
Description: Maximal speed

Parameter: `negotiatedSpeed`
Type: unsigned integer
Description: Negotiated speed

Parameter: `partition`
Type: unsigned integer
Description: Partition

Parameter: `status`
Type: enum
Description: Status

Parameter: `direction`
Type: enum
Description: Direction

Parameter: `ltssm`
Type: enum
Description: Link Training and Status State Machine

Parameter: `rate`
Type: unsigned integer
Description: Rate

Parameter: `configuredRate`
Type: unsigned integer

Description: Configured rate

5.2.206 GuiGPU: Entity

parent: `Entity`

Parameter: `refDeviceUniqueKey`
Type: unsigned integer
Description: Device

Parameter: `name`
Type: string
Description: Name

Parameter: `memoryUsed`
Type: unsigned integer
Description: Memory used

Parameter: `memoryFree`
Type: unsigned integer
Description: Memory free

Parameter: `utilization`
Type: float
Description: GPU Utilization

Parameter: `powerUsage`
Type: float
Description: Power usage

Parameter: `temperature`
Type: float
Description: Temperature

Parameter: `smClock`
Type: float
Description: Streaming multiprocessor clock speed

Parameter: `memoryClock`
Type: float
Description: Memory clock speed

5.2.207 GuiJob: Entity

parent: `Entity`

Parameter: `refWlmClusterUniqueKey`
Type: unsigned integer
Description: WlmCluster

Parameter: `refJobQueueUniqueKey`
Type: unsigned integer
Description: Queue

Parameter: `jobID`
Type: string
Description: Job ID

Parameter: `name`
Type: string
Description: Name

Parameter: `user`
Type: string
Description: User

Parameter: `runtime`
Type: unsigned integer
Description: Runtime

5.2.208 `GuiKubeClusterOverview`: `Entity`

parent: `Entity`

Parameter: `refKubeClusterUniqueKey`
Type: unsigned integer
Description: KubeCluster

Parameter: `name`
Type: string
Description: Cluster Name

Parameter: `version`
Type: string
Description: Kubernetes Version

Parameter: `notes`
Type: string
Description: Notes

Parameter: `numNodes`
Type: unsigned integer
Description: Number of nodes

Parameter: `numNamespaces`
Type: unsigned integer
Description: Number of namespaces

Parameter: `numServices`

Type: unsigned integer
Description: Number of services

Parameter: `numRcs`
Type: unsigned integer
Description: Number of replication controllers

Parameter: `numPvs`
Type: unsigned integer
Description: Number of persistent volumes

Parameter: `numPvcs`
Type: unsigned integer
Description: Number of persistent volumes claims

Parameter: `jobs`
Type: list of `JobInfo`
Description: Jobs

Parameter: `pods`
Type: list of `KubePodInfo`
Description: Pods

5.2.209 `GuiNetworkInterface: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Interface name

Parameter: `rx`
Type: unsigned integer
Description: Number of bytes received since startup

Parameter: `tx`
Type: unsigned integer
Description: Number of bytes transmitted since startup

5.2.210 `GuiNodeOverview: Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `interfaces`
Type: list of `GuiNetworkInterface`

Description: Detailed interface information

Parameter: `disks`
Type: list of `GuiDiskUsage`
Description: Detailed disk information

Parameter: `jobs`
Type: list of `GuiJob`
Description: Detailed job information

Parameter: `gpus`
Type: list of `GuiGPU`
Description: Detailed GPU information

Parameter: `load1`
Type: float
Description: Average system load over the last minute

Parameter: `load5`
Type: float
Description: Average system load over the last five minutes

Parameter: `load15`
Type: float
Description: Average system load over the last fifteen minutes

Parameter: `uptime`
Type: unsigned integer
Description: Uptime

Parameter: `memoryUsed`
Type: unsigned integer
Description: Memory used

Parameter: `memoryUnused`
Type: unsigned integer
Description: Memory unused

Parameter: `memoryTotal`
Type: unsigned integer
Description: Total memory

Parameter: `swapUsed`
Type: unsigned integer
Description: Swap memory used

Parameter: `swapUnused`

Type: unsigned integer
Description: Swap memory unused

Parameter: `swapTotal`
Type: unsigned integer
Description: Total swap memory

Parameter: `wlmSlotsUsed`
Type: unsigned integer
Description: WLM slots used

Parameter: `wlmSlotsUnused`
Type: unsigned integer
Description: WLM slots unused

Parameter: `wlmSlotsTotal`
Type: unsigned integer
Description: Total WLM slots

Parameter: `usageUser`
Type: float
Description: Percentage of cpu time spend on user processes

Parameter: `usageSystem`
Type: float
Description: Percentage of cpu time spend on system processes

Parameter: `usageIdle`
Type: float
Description: Percentage of cpu time spend in idle

Parameter: `usageOther`
Type: float
Description: Percentage of cpu time spend in non user/system/idle

Parameter: `usageSoftIrq`
Type: float
Description: Percentage of cpu time spend in soft irq

Parameter: `usageIrq`
Type: float
Description: Percentage of cpu time spend in irq

Parameter: `usageNice`
Type: float
Description: Percentage of cpu time spend in nice

Parameter: `usageSteal`
Type: float
Description: Percentage of cpu time spend in steal

Parameter: `usageGuest`
Type: float
Description: Percentage of cpu time spend in guest

Parameter: `usageWait`
Type: float
Description: Percentage of cpu time spend in wait

5.2.211 `GuiNodeStatus: Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `status`
Type: `DeviceStatus`
Description: Device status

Parameter: `load1`
Type: float
Description: Average system load over the last minute

Parameter: `load5`
Type: float
Description: Average system load over the last five minutes

Parameter: `load15`
Type: float
Description: Average system load over the last fifteen minutes

Parameter: `uptime`
Type: unsigned integer
Description: Uptime

Parameter: `memoryUsed`
Type: unsigned integer
Description: Memory used

Parameter: `swapUsed`
Type: unsigned integer
Description: Swap memory used

Parameter: `wlmSlotsUsed`

Type: unsigned integer
Description: WLM slots used

Parameter: `usageUser`
Type: float
Description: Percentage of cpu time spend on user processes

Parameter: `usageSystem`
Type: float
Description: Percentage of cpu time spend on system processes

Parameter: `usageIdle`
Type: float
Description: Percentage of cpu time spend in idle

5.2.212 `GuiPDUBank: Entity`

parent: `Entity`

Parameter: `bank`
Type: unsigned integer
Description: Bank

Parameter: `load`
Type: float
Description: Load

5.2.213 `GuiPDUOutlet: Entity`

parent: `Entity`

Parameter: `outlet`
Type: unsigned integer
Description: Outlet

Parameter: `status`
Type: enum
Description: Status

Parameter: `assigned`
Type: list of unsigned numbers
Description: Assigned

5.2.214 `GuiPDUOverview: Entity`

parent: `Entity`

Parameter: `refPowerDistributionUnitUniqueKey`
Type: unsigned integer
Description: *none*

Parameter: `model`

Type: string
Description: *none*

Parameter: `outlets`
Type: list of `GuiPDUOutlet`
Description: *none*

Parameter: `banks`
Type: list of `GuiPDUBank`
Description: *none*

5.2.215 `GuiSwitchOverview: Entity`

parent: `Entity`

Parameter: `refSwitchUniqueKey`
Type: unsigned integer
Description: Switch

Parameter: `model`
Type: string
Description: Model

Parameter: `ports`
Type: list of `GuiSwitchPort`
Description: Ports

5.2.216 `GuiSwitchPort: Entity`

parent: `Entity`

Parameter: `prt`
Type: integer
Description: Port

Parameter: `name`
Type: string
Description: Name

Parameter: `status`
Type: string
Description: Status

Parameter: `uplink`
Type: boolean
Description: Uplink

Parameter: `assigned`
Type: unsigned integer

Description: Unique key of the device assigned to this port

Parameter: `detected`
Type: string
Description: List of MAC address detected on this port

Parameter: `speed`
Type: unsigned integer
Description: Speed

5.2.217 `GuiWorkload: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Queue name

Parameter: `scheduler`
Type: string
Description: Scheduler

Parameter: `slots`
Type: string
Description: Slots

Parameter: `nodeKeys`
Type: list of unsigned numbers
Description: Node keys

Parameter: `nodes`
Type: string
Description: Nodes

Parameter: `running`
Type: unsigned integer
Description: Number of running jobs in this queue

Parameter: `queued`
Type: unsigned integer
Description: Number of pending jobs in this queue

Parameter: `error`
Type: unsigned integer
Description: Number of jobs ended in an error state

Parameter: `completed`
Type: unsigned integer

Description: Number of completed jobs

Parameter: `averageDuration`
Type: unsigned integer
Description: Average duration of jobs

Parameter: `estimatedDelay`
Type: unsigned integer
Description: Estimated delay for a new job to start

5.2.218 `HeadNodeRole: Role`

parent: `Role`

Parameter: `failoverId`
Type: unsigned integer
Description: *none*

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

5.2.219 `HeadNode: Node`

parent: `Node`

5.2.220 `IBSwitch: Switch`

parent: `Switch`

Parameter: `guid`
Type: string
Description: The switch GUID

Parameter: `subnetManager`
Type: boolean
Description: Indicate the subnet manager is running

Parameter: `disableSNMP`
Type: boolean
Description: Disable SNMP calls

5.2.221 `IPCPerm: Entity`

parent: `Entity`

Parameter: `key`
Type: integer
Description: Message queue ID

Parameter: `mode`
Type: unsigned integer

Description: Access permissions

Parameter: `uid`
Type: integer
Description: Owner ID

Parameter: `gid`
Type: integer
Description: Owner group ID

Parameter: `owner`
Type: string
Description: Owner

Parameter: `group`
Type: string
Description: Group name

5.2.222 `IPResource: BasicResource`

parent: `BasicResource`

Parameter: `ip`
Type: IP
Description: IP

Parameter: `networkDeviceName`
Type: string
Description: The network device name to start this IP on. Leave blank to automatically determine based on IP.

Parameter: `alias`
Type: string
Description: The network device name alias

Parameter: `timeout`
Type: unsigned integer
Description: Timeout

5.2.223 `JobInfoStatistics: Entity`

parent: `Entity`

Parameter: `refWlmClusterUniqueKey`
Type: unsigned integer
Description: WlmCluster

Parameter: `refJobQueueUniqueKey`
Type: unsigned integer

Description: Queue

Parameter: `user`
Type: string
Description: *none*

Parameter: `group`
Type: string
Description: *none*

Parameter: `account`
Type: string
Description: *none*

Parameter: `parentId`
Type: string
Description: *none*

Parameter: `intervalStart`
Type: timestamp
Description: *none*

Parameter: `intervalEnd`
Type: timestamp
Description: *none*

Parameter: `pending`
Type: unsigned integer
Description: *none*

Parameter: `running`
Type: unsigned integer
Description: *none*

Parameter: `finished`
Type: unsigned integer
Description: *none*

Parameter: `error`
Type: unsigned integer
Description: *none*

Parameter: `total`
Type: unsigned integer
Description: *none*

Parameter: `pendingTime`

Type: unsigned integer
Description: *none*

Parameter: `runningTime`
Type: unsigned integer
Description: *none*

Parameter: `finishedTime`
Type: unsigned integer
Description: *none*

Parameter: `errorTime`
Type: unsigned integer
Description: *none*

Parameter: `nodes`
Type: unsigned integer
Description: *none*

Parameter: `maxRunning`
Type: unsigned integer
Description: *none*

5.2.224 `JobInfo: Entity`

parent: `Entity`

Parameter: `refWlmClusterUniqueKey`
Type: unsigned integer
Description: WlmCluster

Parameter: `refJobQueueUniqueKey`
Type: unsigned integer
Description: Queue

Parameter: `jobId`
Type: string
Description: Job ID

Parameter: `jobName`
Type: string
Description: Job name

Parameter: `user`
Type: string
Description: User name

Parameter: `group`
Type: string

Description: User group name

Parameter: `account`
Type: string
Description: Job account

Parameter: `parentId`
Type: string
Description: Parent ID

Parameter: `nodes`
Type: list of unsigned numbers
Description: List of job's nodes

Parameter: `cgroup`
Type: string
Description: Relative cgroup path

Parameter: `submitTime`
Type: timestamp
Description: Job submit time

Parameter: `startTime`
Type: timestamp
Description: Job start time

Parameter: `endTime`
Type: timestamp
Description: Job end time

Parameter: `persistent`
Type: boolean
Description: Whether job is persistent in DB or not

Parameter: `exitCode`
Type: integer
Description: Jobscript exit code

Parameter: `state`
Type: string
Description: Job status

Parameter: `requestedCPUs`
Type: unsigned integer
Description: Requested CPUs

Parameter: `requestedCPUCores`

Type: unsigned integer
Description: Requested CPU cores

Parameter: `requestedGPUs`
Type: unsigned integer
Description: Requested GPU

Parameter: `requestedMemory`
Type: unsigned integer
Description: Requested memory

Parameter: `requestedSlots`
Type: unsigned integer
Description: Requested slots

Parameter: `monitoring`
Type: boolean
Description: Whether job still has monitoring data

Parameter: `comment`
Type: string
Description: Comment

5.2.225 `JobQueuePlaceholder: Entity`

parent: `Entity`

Parameter: `queue`
Type: string
Description: Name of queue

Parameter: `baseNodeName`
Type: string
Description: Placeholder node base name

Parameter: `maxNodes`
Type: unsigned integer
Description: Maximum number of nodes in queue

Parameter: `templateNode`
Type: reference to `Node`
Description: Node that will be used as a placeholder

5.2.226 `JobQueueStat: Entity`

parent: `Entity`

Parameter: `name`
Type: string

Description: Queue name

Parameter: `running`
Type: unsigned integer
Description: Running jobs

Parameter: `queued`
Type: unsigned integer
Description: Queued jobs

Parameter: `maxRunning`
Type: unsigned integer
Description: Maximum number of jobs that can run simultaneously

5.2.227 `JobQueue: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name of queue

Parameter: `wlmCluster`
Type: reference to `WlmCluster`
Description: WlmCluster to which this node belongs

Parameter: `options`
Type: list of strings
Description: Additional parameters that will be passed to the WLM queue configuration

5.2.228 `Job: Entity`

parent: `Entity`

Parameter: `refWlmClusterUniqueKey`
Type: unsigned integer
Description: WlmCluster

Parameter: `refJobQueueUniqueKey`
Type: unsigned integer
Description: Queue name

Parameter: `jobID`
Type: string
Description: Job identifier

Parameter: `arrayID`
Type: string
Description: Job array identifier

Parameter: `taskID`
Type: string
Description: Job array task identifier(s)

Parameter: `parentID`
Type: string
Description: Job parent identifier

Parameter: `jobname`
Type: string
Description: Name of job

Parameter: `username`
Type: string
Description: Job owner name

Parameter: `status`
Type: string
Description: Current job status

Parameter: `project`
Type: string
Description: Project name

Parameter: `priority`
Type: string
Description: Job priority

Parameter: `inqueue`
Type: string
Description: Shows whether job has already been queued or not

Parameter: `nodes`
Type: list of strings
Description: Requested nodes

Parameter: `cgroup`
Type: string
Description: CGroup allocated for this job on all nodes

Parameter: `rundirectory`
Type: string
Description: Job work directory

Parameter: `executable`
Type: string

Description: File which is executed inside job script

Parameter: `arguments`
Type: string
Description: Arguments of executable file

Parameter: `stdinfile`
Type: string
Description: Standard input file

Parameter: `stdoutfile`
Type: string
Description: Standard output file

Parameter: `stderrfile`
Type: string
Description: Standard error file

Parameter: `submittime`
Type: string
Description: Job submission time

Parameter: `starttime`
Type: string
Description: Job start time (available when job is started)

Parameter: `endtime`
Type: string
Description: Job end time (available when job is finished or cancelled)

Parameter: `mailOptions`
Type: string
Description: Mail oprions

Parameter: `mailList`
Type: string
Description: Mail addresses

Parameter: `mailNotify`
Type: boolean
Description: Shows whether mail notification is requested or not

Parameter: `maxWallClock`
Type: string
Description: Maximum available running time

Parameter: `runWallClock`

Type: unsigned integer
Description: Running time

Parameter: `numberOfProcesses`
Type: unsigned integer
Description: Number of processes

Parameter: `memoryUse`
Type: unsigned integer
Description: Memory usage

Parameter: `scriptFile`
Type: string
Description: Job script file

Parameter: `numberOfNodes`
Type: unsigned integer
Description: Number of nodes

Parameter: `usergroup`
Type: string
Description: Job user group

Parameter: `commandLineInterpreter`
Type: string
Description: Command line interpreter

Parameter: `dependencies`
Type: list of strings
Description: Job dependencies

Parameter: `parallelEnvironment`
Type: string
Description: Parallel environment

Parameter: `account`
Type: string
Description: Account name

Parameter: `resourceList`
Type: list of strings
Description: List of requested resources

Parameter: `modules`
Type: list of strings
Description: Environment modules loaded for the script

Parameter: `environmentVariables`
Type: list of strings
Description: Additional environment variables

Parameter: `debug`
Type: boolean
Description: Debug mode (used when new job is submitted via CMDaemon API)

Parameter: `userdefined`
Type: list of strings
Description: User defined parameters

Parameter: `exitCode`
Type: integer
Description: Exit code of job

Parameter: `minMemPerNode`
Type: unsigned integer
Description: Minimum memory per node requested

Parameter: `comment`
Type: string
Description: Comment set by workload manager

Parameter: `placement`
Type: string
Description: Jobs are placed on nodes according to their place statements (useful for PBS, see 'man pbs_resources')

Parameter: `pendingReasons`
Type: list of strings
Description: List of pending reasons

Parameter: `requestedCPUs`
Type: unsigned integer
Description: Requested CPUs

Parameter: `requestedCPUCores`
Type: unsigned integer
Description: Requested CPU cores

Parameter: `requestedGPUs`
Type: unsigned integer
Description: Requested GPUs

Parameter: `requestedMemory`
Type: unsigned integer

Description: Requested memory

Parameter: `requestedSlots`
Type: unsigned integer
Description: Requested slots

5.2.229 `JupyterHubConfig: Entity`
parent: `Entity`

Parameter: `key`
Type: string
Description: Configuration key

Parameter: `value`
Type: string
Description: The value for the given configuration key, needs to be literal (include quotes for strings)

5.2.230 `JupyterHubRole: Role`
parent: `Role`

Parameter: `version`
Type: string
Description: JupyterHub version

Parameter: `port`
Type: unsigned integer
Description: Port for proxy (JupyterHub.port)

Parameter: `hubPort`
Type: unsigned integer
Description: Port for hub (JupyterHub.hub_port)

Parameter: `hubIp`
Type: string
Description: The ip address or hostname for the Hub process to bind to (JupyterHub.hub_ip)

Parameter: `proxyApiUrl`
Type: string
Description: The URL which the hub uses to connect to the proxy's API (c.ConfigurableHTTPProxy.api_url)

Parameter: `dataFilesPath`
Type: string
Description: The location of jupyterhub data files (JupyterHub.data_files_path)

Parameter: `pamOpenSessions`
Type: boolean
Description: Enable SSL communication with HTTPS (PAMAuthenticator.open_sessions)

Parameter: `ca`
Type: string
Description: Filename containing the PEM-encoded certificate used for the Certification authority (CA)

Parameter: `cakey`
Type: string
Description: Filename containing the corresponding PEM-encoded private key used for the Certification authority (CA)

Parameter: `cert`
Type: string
Description: Path to the ssl certificate file (JupyterHub.ssl_cert)

Parameter: `key`
Type: string
Description: Path to the ssl key file (JupyterHub.ssl_key)

Parameter: `adminUsers`
Type: list of strings
Description: User with administrator privileges (Authenticator.admin_users)

Parameter: `userForService`
Type: string
Description: User for running cm-jupyterhub service (defined as User in /usr/lib/systemd/system/cm-jupyterhub.service)

Parameter: `trustedDomains`
Type: list of strings
Description: Trusted domains to be included in JupyterHub certificates as Alt Subjects.

Parameter: `configs`
Type: list of `JupyterHubConfig`
Description: Configuration options JupyterHub

5.2.231 `KernelModule: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: The name of the kernel module.

Parameter: `parameters`
Type: string
Description: Options to be passed to the module.

5.2.232 KeyValuePair: Entity

parent: Entity

Parameter: key
Type: string
Description: *none*

Parameter: value
Type: string
Description: *none*

Parameter: onlydaemon
Type: boolean
Description: *none*

Parameter: ispattern
Type: boolean
Description: *none*

Parameter: priority
Type: integer
Description: *none*

5.2.233 KeyValueSettings: Entity

parent: Entity

Parameter: keyValues
Type: list of strings
Description: List of key=value pairs

5.2.234 KubeAppEnvironment: Entity

parent: Entity

Parameter: name
Type: string
Description: Name

Parameter: value
Type: string
Description: Value

Parameter: nodesEnvironment
Type: boolean
Description: Add variable to the nodes environment

5.2.235 KubeAppGroup: Entity

parent: Entity

Parameter: name

Type: string
Description: Object name

Parameter: `applications`
Type: list of `KubeApp`
Description: Kubernetes applications managed by cmdaemon

Parameter: `enabled`
Type: boolean
Description: Enable this application group

5.2.236 `KubeApp: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Object name

Parameter: `format`
Type: string
Description: Configuration format

Parameter: `enabled`
Type: boolean
Description: Enable this application

Parameter: `config`
Type: string
Description: Yaml or json configuration for the object

Parameter: `extraEnvironment`
Type: list of `KubeAppEnvironment`
Description: *none*

Parameter: `excludeListSnippets`
Type: list of `ExcludeListSnippet`
Description: *none*

Parameter: `state`
Type: integer
Description: *none*

5.2.237 `KubeCluster: Entity`

parent: `Entity`

Parameter: `name`
Type: string

Description: Name of the Kubernetes cluster

Parameter: `authorizationMode`
Type: list of strings
Description: Selects how to do authorization on the secure port

Parameter: `kubeConfig`
Type: string
Description: Path to a kubeconfig file, specifying how to authenticate to API server

Parameter: `kubeClientConfig`
Type: string
Description: Path to a kubeconfig file, specifying how to authenticate to API server

Parameter: `kubeConfigTemplate`
Type: string
Description: Template for system kubeconfig file

Parameter: `ca`
Type: string
Description: Filename containing the PEM-encoded certificate used for the Certification authority (CA)

Parameter: `cakey`
Type: string
Description: Filename containing the corresponding PEM-encoded private key used for the Certification authority (CA)

Parameter: `kubernetesCertificate`
Type: string
Description: File containing x509 Certificate used by the Kubelets

Parameter: `kubernetesKey`
Type: string
Description: File containing x509 private key used by the Kubelets

Parameter: `kubernetesClientCertificate`
Type: string
Description: File containing x509 Certificate used for the Kubelets

Parameter: `kubernetesClientKey`
Type: string
Description: File containing x509 private key used for the Kubelets

Parameter: `serviceAccountCertificate`
Type: string

Description: File containing x509 Certificate used Service Accounts

Parameter: `serviceAccountKey`
Type: string
Description: File containing x509 private key used for Service Accounts

Parameter: `apiAggregatorCertificate`
Type: string
Description: File containing x509 Certificate used Kube API Aggregator

Parameter: `apiAggregatorKey`
Type: string
Description: File containing x509 private key used for Kube API Aggregator

Parameter: `domain`
Type: string
Description: Domain name used by the DNS

Parameter: `etcdCluster`
Type: reference to `EtcdCluster`
Description: The Etcd cluster instance

Parameter: `etcdServers`
Type: list of strings
Description: List of etcd servers to watch (format: [http://host:port])

Parameter: `etcdPrefix`
Type: string
Description: The prefix for all resource paths in etcd

Parameter: `serviceNetwork`
Type: reference to `Network`
Description: Network where service cluster IPs will be assigned from (must not overlap with any IP ranges assigned to nodes for pods)

Parameter: `podNetwork`
Type: reference to `Network`
Description: Network where POD IPs will be assigned from

Parameter: `podNetworkNodeMask`
Type: string
Description: Pod Network mask size for node cidr in cluster.

Parameter: `internalNetwork`
Type: reference to `Network`
Description: Network to use to back the internal communications

Parameter: `kubeDnsIp`
Type: IP
Description: KubeDNS IP address

Parameter: `kubernetesApiServer`
Type: string
Description: Kubernetes API server address (format: [https://host:port])

Parameter: `kubernetesApiServerProxyPort`
Type: unsigned integer
Description: Kubernetes API server proxy port

Parameter: `appGroups`
Type: list of `KubeAppGroup`
Description: Kubernetes applications managed by cmdaemon

Parameter: `labelSets`
Type: list of `KubeLabelSet`
Description: Labels managed by cmdaemon

Parameter: `notes`
Type: string
Description: Notes

Parameter: `trustedDomains`
Type: list of strings
Description: Trusted domains to be included in Kubernetes related certificates as Alt Subjects.

Parameter: `clientTypeKube`
Type: unsigned integer
Description: client type in the CLIENT_TYPE_KUBERNETES range

Parameter: `clientTypeKubeUsers`
Type: unsigned integer
Description: client type in the CLIENT_TYPE_KUBERNETES_USERS range

Parameter: `clientTypeKubeServiceAccounts`
Type: unsigned integer
Description: client type in the CLIENT_TYPE_KUBE_SERVICEACCOUNTS range

Parameter: `moduleFileTemplate`
Type: string
Description: Template for system module file

Parameter: `InitializationState`
Type: enum

Description: Kube Cluster Initialization State

Parameter: `users`
Type: list of `KubeUser`
Description: Kubernetes users

5.2.238 `KubeLabelSet: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Object name

Parameter: `labels`
Type: list of strings
Description: Node labels

Parameter: `nodes`
Type: list of references to `Node`
Description: List of nodes belonging to this label set

Parameter: `categories`
Type: list of references to `Category`
Description: List of categories belonging to this label set

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

5.2.239 `KubeNodeLoad: Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `cpu`
Type: float
Description: CPU %

Parameter: `mem`
Type: float
Description: Memory % of total capacity

Parameter: `pods`
Type: float
Description: Pods % of maximum

5.2.240 KubePodController: Entity

parent: Entity

Parameter: name
Type: string
Description: Kubernetes pod controller name

Parameter: type
Type: string
Description: Kubernetes pod controller type

Parameter: kubeNamespace
Type: string
Description: Namespace name

Parameter: uid
Type: string
Description: Pod controller unique ID in Kubernetes

Parameter: startTime
Type: timestamp
Description: Pod controller start time

Parameter: creationTime
Type: timestamp
Description: Pod controller creation time

Parameter: resources
Type: list of strings
Description: List of requested (if pending) or allocated (if started) resources

Parameter: labels
Type: list of strings
Description: List of lables assigned to the controller object

Parameter: status
Type: string
Description: Current pod controller status

Parameter: reason
Type: string
Description: Pod controller status reason

Parameter: priority
Type: unsigned integer
Description: Workload priority

5.2.241 `KubePodInfo: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: *none*

Parameter: `podNamespace`
Type: string
Description: *none*

Parameter: `image`
Type: string
Description: *none*

Parameter: `nodes`
Type: list of unsigned numbers
Description: *none*

Parameter: `startTime`
Type: timestamp
Description: *none*

Parameter: `labels`
Type: list of strings
Description: *none*

Parameter: `status`
Type: string
Description: *none*

Parameter: `reason`
Type: string
Description: *none*

Parameter: `message`
Type: string
Description: *none*

Parameter: `ip`
Type: IP
Description: *none*

Parameter: `replicaSets`
Type: list of strings
Description: *none*

Parameter: `ready`
Type: boolean
Description: *none*

Parameter: `volumes`
Type: list of strings
Description: *none*

Parameter: `containers`
Type: list of `ContainerInfo`
Description: *none*

Parameter: `creationTime`
Type: timestamp
Description: *none*

Parameter: `controllerId`
Type: string
Description: *none*

Parameter: `resources`
Type: list of strings
Description: List of requested (if pending) or allocated (if started) resources

5.2.242 `KubernetesApiServerProxyRole`: `BaseNginxRole`

parent: `BaseNginxRole`

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

5.2.243 `KubernetesApiServerRole`: `Role`

parent: `Role`

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

Parameter: `insecurePort`
Type: unsigned integer
Description: The port on which to serve unsecured, unauthenticated access.

Parameter: `securePort`
Type: unsigned integer
Description: The port on which to serve HTTPS with authentication and authorization (if 0, don't serve HTTPS at all)

Parameter: `advertiseAddress`

Type: IP
Description: The IP address on which to advertise the apiserver to members of the cluster. When set to 0.0.0.0 the IP from the Headnode's Management Network will be used.

Parameter: `insecureBindAddress`
Type: IP
Description: IP address to serve on (set to 0.0.0.0 for all interfaces)

Parameter: `secureBindAddress`
Type: IP
Description: The IP address on which to serve the read only and secure ports

Parameter: `allowedPrivileged`
Type: boolean
Description: If true, allow privileged containers

Parameter: `admissionControl`
Type: list of strings
Description: Ordered list of plug-ins to do admission control of resources into cluster

Parameter: `eventTtl`
Type: string
Description: Amount of time to retain events

Parameter: `kubeletTimeout`
Type: string
Description: Kubelet connections timeout

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

Parameter: `logToStdErr`
Type: boolean
Description: Logging to stderr means we get it in the systemd journal

Parameter: `options`
Type: list of strings
Description: Additional parameters for kube-apiserver daemon

5.2.244 `KubernetesControllerRole: Role`

parent: `Role`

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

Parameter: `address`

Type: IP
Description: IP address to serve on (set to 0.0.0.0 for all interfaces)

Parameter: `port`
Type: unsigned integer
Description: Port that the controller-manager runs on

Parameter: `concurrentEndpointSyncs`
Type: unsigned integer
Description: Number of endpoint syncing operations that will be done concurrently

Parameter: `namespaceSyncPeriod`
Type: string
Description: Period for syncing namespace life-cycle updates

Parameter: `nodeMonitorGracePeriod`
Type: string
Description: Amount of time which we allow running Node to be unresponsive before marking it unhealty

Parameter: `nodeMonitorPeriod`
Type: string
Description: Period for syncing NodeStatus in NodeController

Parameter: `nodeStartupGracePeriod`
Type: string
Description: Amount of time which we allow starting Node to be unresponsive before marking it unhealty

Parameter: `nodeSyncPeriod`
Type: string
Description: Period for syncing nodes from cloudprovider

Parameter: `podEvicationTimeout`
Type: string
Description: Grace peroid for deleting pods on failed nodes

Parameter: `pvClaimBinderSyncPeriod`
Type: string
Description: Period for syncing persistent volumes and persistent volume claims

Parameter: `registerRetryCount`
Type: string
Description: Number of retries for initial node registration

Parameter: `resourceQuotaSyncPeriod`
Type: string

Description: Period for syncing quota usage status in the system

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

Parameter: `logToStdErr`
Type: boolean
Description: Logging to stderr means we get it in the systemd journal

Parameter: `options`
Type: list of strings
Description: Additional parameters for kube-controller-manager daemon

Parameter: `clusterSigningCertFile`
Type: string
Description: Filename containing a PEM-encoded X509 CA certificate used to issue cluster-scoped certificates. (leave empty to use the value of CA)

Parameter: `clusterSigningKeyFile`
Type: string
Description: 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)

Parameter: `useServiceAccountCredentials`
Type: boolean
Description: Flag to enable or disable use of Service Account Credentials

Parameter: `allocateNodeCidrs`
Type: boolean
Description: Allocate node cidr in cluster using Pod Network and Node Mask size defined in Kubernetes Cluster Object

Parameter: `kubeConfig`
Type: string
Description: Path to a kubeconfig file, specifying how to authenticate to API server.

Parameter: `kubernetesCertificate`
Type: string
Description: File containing x509 Certificate used by Kubernetes Controller Manager

Parameter: `kubernetesKey`
Type: string
Description: File containing x509 private key used by Kubernetes Controller Manager

5.2.245 KubernetesNodeRole: Role

parent: Role

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

Parameter: address
Type: IP
Description: IP address to serve on (set to 0.0.0.0 for all interfaces)

Parameter: kubeletPort
Type: unsigned integer
Description: Port that the Node's http service runs on

Parameter: spool
Type: string
Description: Directory path for managing kubelet files

Parameter: manifestsPath
Type: string
Description: Path to the config file or directory of files

Parameter: enableServer
Type: boolean
Description: Enable Kubelet's server

Parameter: networkPlugin
Type: string
Description: The name of the network plugin to be invoked for various events in kubelet/pod lifecycle

Parameter: cniPluginBinariesPath
Type: string
Description: The full path of the directory in which to search for CNI plugin binaries.

Parameter: hostnameOverride
Type: string
Description: If non-empty, will use this string as identification instead of the actual hostname

Parameter: cgroupRoot
Type: string
Description: Optional root cgroup to use for pods

Parameter: containerRuntime
Type: string
Description: The container runtime to use

Parameter: `containerRuntimeEndpoint`
Type: string
Description: The endpoint of remote runtime service

Parameter: `containerRuntimeService`
Type: string
Description: The container runtime systemd service

Parameter: `resourceContainer`
Type: string
Description: Absolute name of the resource-only container to create and run the Kubelet in

Parameter: `allowedPrivileged`
Type: boolean
Description: If true, allow privileged containers

Parameter: `registerOnStart`
Type: boolean
Description: Register the node with the apiserver

Parameter: `maxPods`
Type: unsigned integer
Description: Number of Pods that can run on this node

Parameter: `evictionSoft`
Type: list of strings
Description: Soft eviction constraints

Parameter: `evictionSoftGrace`
Type: list of strings
Description: Soft eviction grace period

Parameter: `evictionMaxPodGrace`
Type: unsigned integer
Description: Maximum allowed grace period (in sec) allowed to terminated pods

Parameter: `evictionHard`
Type: list of strings
Description: Hard eviction constraints

Parameter: `evictionMinReclaim`
Type: list of strings
Description: Minimum amount of resources reclaimed in an eviction

Parameter: `runOnce`
Type: boolean

Description: If true, exit after spawning pods from local manifests or remote urls

Parameter: `fileCheckFrequency`
Type: string
Description: Duration between checking config files for new data

Parameter: `httpCheckFrequency`
Type: string
Description: Duration between checking http for new data

Parameter: `nodeStatusUpdateFrequency`
Type: string
Description: Duration between kubelet posts of node status to master

Parameter: `syncFrequency`
Type: string
Description: Max period between synchronizing running containers and config

Parameter: `streamingConnectionIdleTimeout`
Type: string
Description: Maximum time a streaming connection can be idle before the connection is automatically closed

Parameter: `imageGcHighThreshold`
Type: unsigned integer
Description: The percent of disk usage after which image garbage collection is always run

Parameter: `imageGcLowThreshold`
Type: unsigned integer
Description: The percent of disk usage before which image garbage collection is never run

Parameter: `oomScoreAdjust`
Type: integer
Description: The oom_score_adj value for kubelet process

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

Parameter: `logToStdErr`
Type: boolean
Description: Logging to stderr means we get it in the systemd journal

Parameter: `options`
Type: list of strings
Description: Additional parameters for kubelet daemon

Parameter: `kubeConfig`
Type: string
Description: Path to a kubeconfig file, specifying how to authenticate to API server

5.2.246 `KubernetesProxyRole: Role`

parent: `Role`

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

Parameter: `address`
Type: IP
Description: IP address to serve on (set to 0.0.0.0 for all interfaces)

Parameter: `proxyPortRangeStart`
Type: unsigned integer
Description: Range of host ports (format: 'beginPort-endPort', inclusive) that may be consumed in order to proxy service traffic

Parameter: `proxyPortRangeEnd`
Type: unsigned integer
Description: Range of host ports (format: 'beginPort-endPort', inclusive) that may be consumed in order to proxy service traffic

Parameter: `masqueradeAll`
Type: boolean
Description: If using the pure iptables proxy, SNAT everything

Parameter: `healthCheckAddress`
Type: IP
Description: The IP address for the health check server to serve on

Parameter: `healthCheckPort`
Type: unsigned integer
Description: The port to bind the health check server (use 0 to disable)

Parameter: `oomScoreAdjust`
Type: integer
Description: The oom_score_adj value for kube-proxy process

Parameter: `kubeConfig`
Type: string
Description: Path to a kubeconfig file, specifying how to authenticate to API server.

Parameter: `kubernetesCertificate`
Type: string

Description: File containing x509 Certificate used by kube-proxy

Parameter: `kubernetesKey`
Type: string
Description: File containing x509 private key used by Kubernetes API server

5.2.247 `KubernetesSchedulerRole: Role`

parent: `Role`

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

Parameter: `address`
Type: IP
Description: IP address to serve on (set to 0.0.0.0 for all interfaces)

Parameter: `port`
Type: unsigned integer
Description: Port that the scheduler's http service runs on

Parameter: `algorithmProvider`
Type: string
Description: The scheduling algorithm provider to use

Parameter: `policyConfig`
Type: string
Description: File with scheduler policy configuration

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

Parameter: `logToStdErr`
Type: boolean
Description: Logging to stderr means we get it in the systemd journal

Parameter: `options`
Type: list of strings
Description: Additional parameters for kube-scheduler daemon

Parameter: `kubeConfig`
Type: string
Description: Path to a kubeconfig file, specifying how to authenticate to API server.

Parameter: `kubernetesCertificate`
Type: string

Description: File containing x509 Certificate used by Kubernetes Scheduler

Parameter: `kubernetesKey`
Type: string
Description: File containing x509 private key used by Kubernetes Scheduler

5.2.248 `KubeUser: Entity`
parent: `Entity`

Parameter: `userName`
Type: string
Description: User name (not user ID)

Parameter: `manageKubeConfig`
Type: boolean
Description: Write a kubeconfig file for this user

5.2.249 `LabeledEntity: Entity`
parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `introductionTime`
Type: timestamp
Description: Introduction time

Parameter: `lastUsedTime`
Type: timestamp
Description: Time entity was last used

Parameter: `permanent`
Type: boolean
Description: Do not allow automatic deletion

5.2.250 `LdapServerRole: Role`
parent: `Role`

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

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

Parameter: `racks`
Type: list of references to `Rack`

Description: List of racks which can boot from this node

5.2.251 `LicenseInfo: Entity`

parent: `Entity`

Parameter: `refPartitionUniqueKey`
Type: unsigned integer
Description: Partition

Parameter: `macAddress`
Type: string
Description: MAC address linked to the license

Parameter: `licensedNodes`
Type: unsigned integer
Description: Number of pre-paid nodes

Parameter: `licensedAcceleratorNodes`
Type: integer
Description: Number of licensed nodes with accelerators

Parameter: `licensedBurstNodes`
Type: integer
Description: Number of ondemand nodes

Parameter: `version`
Type: string
Description: Version

Parameter: `edition`
Type: string
Description: Edition

Parameter: `startTime`
Type: timestamp
Description: Time from which the license is active

Parameter: `endTime`
Type: timestamp
Description: Time at which the license stops being valid

Parameter: `serial`
Type: integer
Description: Serial

Parameter: `licensee`
Type: string

Description: Licensee

Parameter: `nodeCount`
Type: unsigned integer
Description: Nodes count with a MAC / cloud-identifier set

Parameter: `burstNodeCount`
Type: unsigned integer
Description: Bursted nodes count

Parameter: `acceleratorNodeCount`
Type: unsigned integer
Description: Nodes with one or more accelerators

Parameter: `accountingAndReporting`
Type: boolean
Description: Accounting and reporting enabled/disabled

Parameter: `edgeSites`
Type: boolean
Description: Edge sites enabled/disabled

Parameter: `message`
Type: string
Description: License count message

Parameter: `licenseType`
Type: string
Description: License type

5.2.252 `LiteMonitoredEntity: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: *none*

Parameter: `types`
Type: list of strings
Description: *none*

Parameter: `resources`
Type: list of strings
Description: *none*

Parameter: `disabled`
Type: boolean

Description: *none*

5.2.253 `LiteMonitoringMeasurable: Entity`

parent: `Entity`

Parameter: `producer`
Type: unsigned integer
Description: *none*

Parameter: `name`
Type: string
Description: *none*

Parameter: `parameter`
Type: string
Description: *none*

Parameter: `kind`
Type: string
Description: *none*

Parameter: `disabled`
Type: boolean
Description: *none*

Parameter: `cumulative`
Type: boolean
Description: *none*

5.2.254 `LiteNode: Device`

parent: `Device`

Parameter: `ip`
Type: IP
Description: Ip address

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

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

5.2.255 `LSFBaseJobQueueStat: JobQueueStat`

parent: `JobQueueStat`

Parameter: `status`
Type: string

Description: Queue status

Parameter: `priority`
Type: unsigned integer
Description: Queue priority

Parameter: `njobs`
Type: unsigned integer
Description: Number of all jobs in queue

Parameter: `suspended`
Type: unsigned integer
Description: Number of suspended jobs in queue

5.2.256 `LSFBaseJobQueue: JobQueue`

parent: `JobQueue`

Parameter: `administrators`
Type: string
Description: List of queue administrators.

Parameter: `corelimit`
Type: unsigned integer
Description: The per-process core file size limit (in KB) for all of the processes belonging to a job from this queue.

Parameter: `cpulimit`
Type: string
Description: Maximum normalized CPU time and optionally, the default normalized CPU time allowed for all processes of a job running in this queue; value format: [default_limit] maximum_limit.

Parameter: `chkPnt`
Type: string
Description: Enables automatic checkpointing; value format: dir [period], where dir is the directory where the checkpoint files are created (do not use environment variables); period is the checkpoint period in minutes.

Parameter: `datalimit`
Type: unsigned integer
Description: The per-process data segment size limit (in KB) for all of the processes belonging to a job from this queue.

Parameter: `description`
Type: string
Description: Description of the queue that will be displayed by 'bqueues -l'

Parameter: `default_host_spec`
Type: string

Description: The default CPU time normalization host for the queue.

Parameter: `dispatch_window`
Type: string
Description: The time windows in which jobs from this queue are dispatched.

Parameter: `exclusive`
Type: string
Description: If Y, specifies an exclusive queue. Jobs submitted to an exclusive queue with 'bsub -x' will only be despatched to a host that has no other LSF jobs running.

Parameter: `filelimit`
Type: unsigned integer
Description: The per-process file size limit (in KB) for all of the processes belonging to a job from this queue.

Parameter: `hjob_limit`
Type: unsigned integer
Description: Maximum number of job slots that this queue can use on any host.

Parameter: `hosts`
Type: string
Description: A space-separated list of hosts, host groups, and host partitions on which jobs from this queue can be run.

Parameter: `ignore_deadline`
Type: string
Description: If Y, disables deadline constraint scheduling (starts all jobs regardless of deadline constraints).

Parameter: `interactive`
Type: string
Description: Causes the queue to reject interactive batch jobs (NO) or accept nothing but interactive batch jobs (ONLY). Interactive batch jobs are submitted via 'bsub -I'.

Parameter: `job_accept_interval`
Type: unsigned integer
Description: The number of dispatch turns to wait after dispatching a job to a host, before dispatching a second job to the same host.

Parameter: `job_controls`
Type: string
Description: Changes the behaviour of the SUSPEND, RESUME, and TERMINATE actions.

Parameter: `pre_post_exec_user`
Type: string
Description: Username for prolog and epilog execution.

Parameter: `prolog`
Type: string
Description: Path to prolog script (pre_exec).

Parameter: `epilog`
Type: string
Description: Path to epilog script (post_exec).

Parameter: `hostProlog`
Type: string
Description: Path to per host prolog script (host_pre_exec).

Parameter: `hostEpilog`
Type: string
Description: Path to per host epilog script (host_post_exec).

Parameter: `job_starter`
Type: string
Description: Creates a specific environment for submitted jobs prior to execution.

Parameter: `load_index`
Type: string
Description: Scheduling and suspending thresholds for the specifed dynamic load index.

Parameter: `memlimit`
Type: string
Description: The per-process memory resident set size limit (in KB) for all of the processes belonging to a job from this queue. Format is '[default_limit] maximum_limit'.

Parameter: `mig`
Type: unsigned integer
Description: Enables automatic job migration and specifies the migration threshold, in minutes.

Parameter: `new_job_sched_delay`
Type: unsigned integer
Description: The maximum or minimum length of time that a new job waits before being dispatched; the behavior depends on whether the delay period specified is longer or shorter than a regular dispatch interval (MBD_SLEEP_TIME in lsb.params, 60 seconds by default).

Parameter: `nice`
Type: unsigned integer
Description: Adjusts the Unix scheduling priority at which jobs from this queue execute.

Parameter: `pjob_limit`
Type: unsigned integer
Description: The per-processor job slot limit for the queue.

Parameter: `processlimit`
Type: string
Description: Limits the number of concurrent processes that can be part of a job.

Parameter: `proclimit`
Type: string
Description: Limits the number of processors that can be allocated to the job.

Parameter: `priority`
Type: unsigned integer
Description: Queue priority.

Parameter: `qjob_limit`
Type: unsigned integer
Description: Job slot limit for the queue. Total number of job slots this queue can use.

Parameter: `rerunnable`
Type: string
Description: If yes, enables automatic job rerun (restart).

Parameter: `require_exit_values`
Type: string
Description: The exit codes that will cause the job to be requeued.

Parameter: `res_req`
Type: string
Description: Resource requirements used to determine eligible hosts.

Parameter: `resume_cond`
Type: string
Description: Use the select section of the resource requirement string to specify load thresholds. All other sections are ignored.

Parameter: `run_window`
Type: string
Description: Time period during which jobs in the queue are allowed to run.

Parameter: `runlimit`
Type: string
Description: The maximum run limit and optionally the default run limit. Value format: [default_limit] maximum_limit.

Parameter: `slot_reserve`
Type: unsigned integer
Description: Enables processor reservation and specifies the number of dispatch turns over which a parallel job can reserve job slots.

Parameter: `stacklimit`
Type: unsigned integer
Description: The per-process stack segment size limit (in KB) for all of the processes belonging to a job from this queue.

Parameter: `stop_cond`
Type: string
Description: Use the select section of the resource requirement string to specify load thresholds. All other sections are ignored.

Parameter: `swaplimit`
Type: unsigned integer
Description: The amount of total virtual memory limit (in KB) for a job from this queue.

Parameter: `terminate_when`
Type: string
Description: Configures the queue to invoke the TERMINATE action instead of the SUSPEND action in the specified circumstance.

Parameter: `ujob_limit`
Type: unsigned integer
Description: The per-user job slot limit for the queue. Maximum number of slots that each user can use in this queue.

Parameter: `users`
Type: string
Description: A list of users or user groups that can submit jobs to this queue. Use the reserved word all to specify all users.

Parameter: `r15s`
Type: string
Description: Built-in load index: run queue length (15 sec average).

Parameter: `r1m`
Type: string
Description: Built-in load index: run queue length (1 min average).

Parameter: `r15m`
Type: string
Description: Built-in load index: run queue length (15 min average).

Parameter: `it`
Type: string
Description: Built-in load index: idle time.

Parameter: `io`
Type: string

Description: Built-in load index: disk I/O.

Parameter: `ut`
Type: string
Description: Built-in load index: CPU utilization.

Parameter: `mem`
Type: string
Description: Built-in load index: available memory (in MB).

Parameter: `pg`
Type: string
Description: Built-in load index: pages in + pages out.

Parameter: `tmp`
Type: string
Description: Built-in load index: available space in temporary file system (MB).

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

Parameter: `ls`
Type: string
Description: Built-in load index.

5.2.257 `LSFBaseJob: Job`

parent: `Job`

5.2.258 `LSFCgroupsSettings: WlmCgroupsSettings`

parent: `WlmCgroupsSettings`

Parameter: `resourceEnforce`
Type: list of strings
Description: Controls resource enforcement through the Linux cgroup memory and cpuset subsytem on Linux systems with cgroup support (LSB_RESOURCE_ENFORCE)

Parameter: `processTracking`
Type: boolean
Description: Enable this parameter to track processes based on job control functions such as termination, suspension, resume and other signaling, on Linux systems which support cgroups freezer subsystem (LSF_PROCESS_TRACKING)

Parameter: `linuxCgroupAccounting`
Type: boolean
Description: Enable this parameter to track processes based on CPU and memory accounting for Linux systems that support cgroup's memory and cpuacct subsystems (LSF_LINUX_CGROUP_ACCT)

Parameter: `jobCgroupTemplate`
Type: string
Description: Template for job cgroup path ($CLUSTER will be replaced to LSF cluster name, $JOBID will be replaced to job id)

5.2.259 `LSFClientRole: LSFRole`

parent: `LSFRole`

Parameter: `slots`
Type: string
Description: Number of slots available on this node/category

Parameter: `queues`
Type: list of references to `LSFJobQueue`
Description: Queues this node/nodes in this category belongs to

Parameter: `allQueues`
Type: boolean
Description: When set, the role will provide all available queues (the queues property will then be ignored)

Parameter: `gpus`
Type: unsigned integer
Description: Number of gpus

Parameter: `gpuDevices`
Type: list of strings
Description: /dev/* available to workload management

Parameter: `server`
Type: boolean
Description: Is LSF server (can run jobs)

Parameter: `hostModel`
Type: string
Description: Host model (possible values are defined in lsf.shared)

Parameter: `hostType`
Type: string
Description: Host type (possible values are defined in lsf.shared)

Parameter: `nodeCustomizations`
Type: list of `WlmNodeCustomizationEntry`
Description: LSF node custom properties

5.2.260 LSFJobQueueStat: LSFBaseJobQueueStat

parent: LSFBaseJobQueueStat

5.2.261 LSFJobQueue: LSFBaseJobQueue

parent: LSFBaseJobQueue

Parameter: fairshare
Type: string
Description: Fairshare scheduling

Parameter: backfill
Type: string
Description: Backfill scheduling

Parameter: preemption
Type: string
Description: Preemption scheduling

Parameter: defaultQueue
Type: boolean
Description: Specifies the queue which is to accept jobs when no queue is requested

5.2.262 LSFJob: LSFBaseJob

parent: LSFBaseJob

5.2.263 LSFRole: Role

parent: Role

Parameter: wlmCluster
Type: reference to LSFWlmCluster
Description: WLM cluster link to this WLM role

5.2.264 LSFServerRole: LSFRole

parent: LSFRole

Parameter: externalServer
Type: boolean
Description: LSF server daemons are running on some external machine

5.2.265 LSFSubmitRole: WlmSubmitRole

parent: WlmSubmitRole

Parameter: lsfWlmClusters
Type: list of references to LSFWlmCluster
Description: List of LSF clusters which the role belongs to

Parameter: hostType
Type: string
Description: Host type (possible values are defined in lsf.shared)

5.2.266 LSFWlmCluster: WlmCluster

parent: `WlmCluster`

Parameter: `version`
Type: string
Description: Major LSF version

Parameter: `prefix`
Type: string
Description: LSF installation directory

Parameter: `var`
Type: string
Description: Var directory location

Parameter: `localVar`
Type: string
Description: Local var directory location

Parameter: `logDir`
Type: string
Description: Logging directory location (LSF_LOGDIR in lsf.conf)

Parameter: `dynamicCloudNodes`
Type: boolean
Description: Cloud nodes are added dynamically to LSF

Parameter: `placeholders`
Type: list of `JobQueuePlaceholder`
Description: Job queue node placeholders mode

Parameter: `cgroups`
Type: `LSFCgroupsSettings`
Description: Submode containing LSF related cgroups settings

Parameter: `doBackups`
Type: boolean
Description: Backup configuration file before update

Parameter: `gpuAutoconfig`
Type: boolean
Description: Enable GPU autodetection (LSF_GPU_AUTOCONFIG in lsf.conf)

Parameter: `gpuNewSyntax`
Type: boolean
Description: Enable new GPU request syntax (LSB_GPU_NEW_SYNTAX in lsf.conf)

Parameter: `dcgmPort`
Type: unsigned integer
Description: Enable DCGM features and specifies the port number that LSF uses to communicate with the DCGM daemon (0 for disabled)

Parameter: `unitForLimits`
Type: string
Description: Enables scaling of large units in the resource usage limits (LSF_UNIT_FOR_LIMITS in lsf.conf)

Parameter: `noQueueHostsString`
Type: string
Description: String that is used to replace empty nodes list for a queue

Parameter: `enableEgo`
Type: boolean
Description: Enable EGO functionality (LSF_ENABLE_EGO in lsf.conf)

Parameter: `dynamicHostWaitTime`
Type: unsigned integer
Description: Defines the length of time in seconds that a dynamic host awaits communicating with the master host LIM to either add the host to the cluster or to shut down any running daemons if the host is not added successfully. Note that the time will be truncated to the minute (LSF_DYNAMIC_HOST_WAIT_TIME in lsf.conf)

Parameter: `hostAddressRange`
Type: string
Description: Identifies the range of IP addresses that are allowed to be LSF hosts that can be dynamically added to or removed from the cluster (LSF_HOST_ADDR_RANGE in lsf.conf)

Parameter: `manageMIG`
Type: boolean
Description: enable dynamic MIG scheduling (LSF_MANAGE_MIG in lsf.conf)

5.2.267 `MemoryInfo: Entity`

parent: `Entity`

Parameter: `IDs`
Type: list of strings
Description: IDs

Parameter: `locations`
Type: list of strings
Description: Location

Parameter: `speed`
Type: unsigned integer

Description: Speed

Parameter: `size`
Type: unsigned integer
Description: Size

Parameter: `description`
Type: string
Description: Description

5.2.268 `MIGInformation: Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `gpuId`
Type: unsigned integer
Description: The hardware GPU identifier

Parameter: `name`
Type: string
Description: *none*

Parameter: `profileId`
Type: unsigned integer
Description: *none*

Parameter: `instanceId`
Type: unsigned integer
Description: *none*

Parameter: `placementStart`
Type: unsigned integer
Description: *none*

Parameter: `placementSize`
Type: unsigned integer
Description: *none*

Parameter: `memory`
Type: unsigned integer
Description: *none*

Parameter: `P2P`
Type: boolean

Description: *none*

Parameter: `SM`
Type: unsigned integer
Description: *none*

Parameter: `CE`
Type: unsigned integer
Description: *none*

Parameter: `DEC`
Type: unsigned integer
Description: *none*

Parameter: `JPEG`
Type: unsigned integer
Description: *none*

Parameter: `ENC`
Type: unsigned integer
Description: *none*

Parameter: `OFA`
Type: unsigned integer
Description: *none*

5.2.269 `MonitoringActionRunData: Entity`

parent: `Entity`

Parameter: `target`
Type: unsigned integer
Description: Target node

Parameter: `info`
Type: string
Description: Extra information

Parameter: `env`
Type: list of strings
Description: Environment

5.2.270 `MonitoringAction: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `runOn`
Type: enum
Description: Run the action on

Parameter: `allowedTime`
Type: string
Description: Sets time interval during which action is allowed to be executed

Parameter: `disable`
Type: boolean
Description: Disable

Parameter: `suppressedByGoingDown`
Type: boolean
Description: Suppress running action if device is going down

5.2.271 `MonitoringCacheSubSystemInfo: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `queued`
Type: unsigned integer
Description: Number of samples ready for delivery

Parameter: `pickup`
Type: unsigned integer
Description: Number of times data has been picked up

Parameter: `delivered`
Type: unsigned integer
Description: Number of samples delivered the last pick up

Parameter: `handled`
Type: unsigned integer
Description: Total number of samples handled

5.2.272 `MonitoringCategoryListExecutionFilter: MonitoringExecutionFilter`

parent: `MonitoringExecutionFilter`

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

5.2.273 MonitoringCategoryListExecutionMultiplexer: MonitoringExecutionMultiplexer

parent: MonitoringExecutionMultiplexer

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

5.2.274 MonitoringCompareExpression: MonitoringExpression

parent: MonitoringExpression

Parameter: entities
Type: string
Description: Entities matching the regex, leave empty for all

Parameter: measurables
Type: string
Description: Measurables matching the regex, leave empty for all

Parameter: parameters
Type: string
Description: Parameters matching the regex, leave empty for all

Parameter: op
Type: enum
Description: Operator

Parameter: grouping
Type: enum
Description: Method to group all matching entity measurable parameter

Parameter: value
Type: string
Description: Value

Parameter: useRaw
Type: boolean
Description: Use raw data instead of rate for cumulative metrics

Parameter: code
Type: string
Description: Lua code

5.2.275 MonitoringConsolidator: Entity

parent: Entity

Parameter: name
Type: string

Description: Name

Parameter: `disabled`
Type: boolean
Description: Disable, consolidator for all entities. Do not throw away existing data.

Parameter: `consolidators`
Type: list of `Consolidator`
Description: Consolidators

5.2.276 `MonitoringDataCacheSubSystemInfo: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `size`
Type: unsigned integer
Description: First plot request

Parameter: `updates`
Type: unsigned integer
Description: Last plot request

Parameter: `requests`
Type: unsigned integer
Description: Number of plot requests

5.2.277 `MonitoringDataProducerAggregateNode: MonitoringDataProducerInternal`

parent: `MonitoringDataProducerInternal`

Parameter: `maxSampleAge`
Type: float
Description: Maximal age of node sample to contribute

Parameter: `excludeNodes`
Type: list of references to `Node`
Description: List of nodes to exclude from the total

Parameter: `excludeCategories`
Type: list of references to `Category`
Description: List of node groups to exclude from the total

Parameter: `excludeNodeGroups`
Type: list of references to `NodeGroup`
Description: List of node groups to exclude from the total

5.2.278 MonitoringDataProducerAggregatePDU: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

Parameter: maxSampleAge
Type: float
Description: Maximal age of node sample to contribute

Parameter: excludePDUs
Type: list of references to PowerDistributionUnit
Description: List of PDUs to exclude from the total

5.2.279 MonitoringDataProducerAlertLevel: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

5.2.280 MonitoringDataProducerClusterTotal: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

5.2.281 MonitoringDataProducerCMDaemonState: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

Parameter: subsystems
Type: list of strings
Description: Subsystems

5.2.282 MonitoringDataProducerDeviceState: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

5.2.283 MonitoringDataProducerEC2SpotPrices: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

Parameter: regions
Type: enum
Description: Regions to collect data for

Parameter: customRegions
Type: list of references to EC2Region
Description: Custom list of regions to collect data from

Parameter: types
Type: enum
Description: Types to collect data for

Parameter: customTypes
Type: list of references to EC2Type
Description: Custom list of types to collect data from

5.2.284 MonitoringDataProducerEthernetSwitch: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

5.2.285 MonitoringDataProducerFabricTotal: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

5.2.286 MonitoringDataProducerGPU: MonitoringDataProducer

parent: MonitoringDataProducer

Parameter: updateFreq
Type: float
Description: Update frequency of the internal cuda metric sampler

5.2.287 MonitoringDataProducerInternal: MonitoringDataProducer

parent: MonitoringDataProducer

5.2.288 MonitoringDataProducerJobMetadata: MonitoringDataProducer

parent: MonitoringDataProducer

Parameter: allowPreAllocate
Type: boolean
Description: Allow pre-allocate of monitoring structures, speeds up for large number of jobs. Disable if measurables per node differ a lot

Parameter: excludeMetrics
Type: list of strings
Description: Exclude metrics by name from collection

Parameter: includeMetrics
Type: list of strings
Description: Only these metrics will be samples if the set is not empty

Parameter: excludeUsers
Type: list of strings
Description: Exclude usage data for the specified users

Parameter: includeUsers
Type: list of strings
Description: Only include usage data for the specified users

Parameter: excludeShell
Type: list of strings
Description: Exclude usage data for the specified shells

Parameter: minimalUserId
Type: unsigned integer
Description: Minumal user ID

Parameter: userCode

Type: string
Description: Lua code for calculation of extra metric per user

Parameter: `storeLastChangeTimestamp`
Type: boolean
Description: Add extra metric to store last change timestamp

5.2.289 `MonitoringDataProducerJobQueue: MonitoringDataProducer`
parent: `MonitoringDataProducer`

Parameter: `wlmClusters`
Type: list of references to `WlmCluster`
Description: List of wlm clusters for which to sample, empty for all

5.2.290 `MonitoringDataProducerJob: MonitoringDataProducer`
parent: `MonitoringDataProducer`

Parameter: `allowPreAllocate`
Type: boolean
Description: Allow pre-allocate of monitoring structures, speeds up for large number of jobs. Disable if measurables per node differ a lot

Parameter: `metricSettings`
Type: `MonitoringJobMetricSettings`
Description: Submode containing job metric settings

5.2.291 `MonitoringDataProducerLua: MonitoringDataProducer`
parent: `MonitoringDataProducer`

Parameter: `code`
Type: string
Description: Lua code

Parameter: `timeout`
Type: unsigned integer
Description: Lua timeout

5.2.292 `MonitoringDataProducerMonitoringSystem: MonitoringDataProducerInternal`
parent: `MonitoringDataProducerInternal`

5.2.293 `MonitoringDataProducerPerpetual: MonitoringDataProducer`
parent: `MonitoringDataProducer`

Parameter: `script`
Type: string
Description: Script

Parameter: `runInBash`
Type: boolean

Description: Run the script in a bash session

Parameter: `arguments`
Type: list of strings
Description: Additional arguments to pass to the script

Parameter: `format`
Type: enum
Description: Expected output format

Parameter: `watch`
Type: boolean
Description: Watch script for for changes, and restart

5.2.294 `MonitoringDataProducerPowerDistributionUnit: MonitoringDataProducerInternal`

parent: `MonitoringDataProducerInternal`

5.2.295 `MonitoringDataProducerProcMemInfo: MonitoringDataProducerInternal`

parent: `MonitoringDataProducerInternal`

5.2.296 `MonitoringDataProducerProcMount: MonitoringDataProducerInternal`

parent: `MonitoringDataProducerInternal`

Parameter: `includeMedia`
Type: boolean
Description: Include media mount points

Parameter: `includeRemote`
Type: boolean
Description: Include remote mount points

Parameter: `includeDocker`
Type: boolean
Description: Include docker mount points

Parameter: `excludeMountPoints`
Type: list of strings
Description: Exclude mount points

5.2.297 `MonitoringDataProducerProcNetDev: MonitoringDataProducerInternal`

parent: `MonitoringDataProducerInternal`

Parameter: `excludeIf`
Type: list of strings
Description: Exclude interfaces

5.2.298 MonitoringDataProducerProcNetSnmp: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

5.2.299 MonitoringDataProducerProcPidStat: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

Parameter: pid
Type: unsigned integer
Description: PID to sample

Parameter: process
Type: string
Description: Process

5.2.300 MonitoringDataProducerProcStat: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

Parameter: individualCPU
Type: boolean
Description: Measure individual CPUs

5.2.301 MonitoringDataProducerProcVMStat: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

5.2.302 MonitoringDataProducerPrometheus: MonitoringDataProducer

parent: MonitoringDataProducer

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

Parameter: timeout
Type: unsigned integer
Description: Http get timeout

Parameter: passEnvironment
Type: boolean
Description: Pass the entity environment to the script

Parameter: username
Type: string
Description: Username used in http call

Parameter: password
Type: string
Description: Password used in http call

Parameter: https
Type: boolean

Description: https

Parameter: `caPath`
Type: string
Description: CA certificate path

Parameter: `pricateKeyPath`
Type: string
Description: Certificate path

Parameter: `certificatePath`
Type: string
Description: Private key path

Parameter: `staleTracking`
Type: boolean
Description: Enable automatic tracking of stale metrics

Parameter: `withCertificate`
Type: boolean
Description: Pass the cmdaemon certificate to make the call

Parameter: `includeProducerJobName`
Type: boolean
Description: Automatically include producer job name in Prometheus label

Parameter: `includeEntityName`
Type: boolean
Description: Automatically include entity name in Prometheus label

Parameter: `rules`
Type: list of `PrometheusRecordingRule`
Description: Recording rules

5.2.303 `MonitoringDataProducerRackSensor`: `MonitoringDataProducerInternal`

parent: `MonitoringDataProducerInternal`

5.2.304 `MonitoringDataProducerRecorder`: `MonitoringDataProducer`

parent: `MonitoringDataProducer`

Parameter: `query`
Type: reference to `PrometheusQuery` or None
Description: Query to execute

Parameter: `freeQuery`
Type: string
Description: Free string query to execute

Parameter: `parameters`
Type: list of strings
Description: Parameters

Parameter: `evaluationTime`
Type: string
Description: Evaluation time

Parameter: `stalenessDelay`
Type: float
Description: Staleness delay

Parameter: `excludeBright`
Type: boolean
Description: Exclude Bright data

Parameter: `excludePrometheus`
Type: boolean
Description: Exclude Prometheus data

Parameter: `inputRules`
Type: list of `PrometheusRecordingRule`
Description: Input recording rules

Parameter: `rules`
Type: list of `PrometheusRecordingRule`
Description: Recording rules

5.2.305 `MonitoringDataProducerRedfishSubscription`: `MonitoringDataProducerInternal`

parent: `MonitoringDataProducerInternal`

5.2.306 `MonitoringDataProducerScript`: `MonitoringDataProducer`

parent: `MonitoringDataProducer`

Parameter: `script`
Type: string
Description: Script

Parameter: `timeout`
Type: unsigned integer
Description: Script timeout

Parameter: `arguments`
Type: list of strings
Description: Additional arguments to pass to the script

Parameter: `format`
Type: enum

Description: Expected output format

5.2.307 `MonitoringDataProducerSingleLineHealthCheckScript: MonitoringDataProducerSingleLineScript`

parent: `MonitoringDataProducerSingleLineScript`

5.2.308 `MonitoringDataProducerSingleLineMetricScript: MonitoringDataProducerSingleLineScript`

parent: `MonitoringDataProducerSingleLineScript`

Parameter: `minimum`
Type: float
Description: Minimum

Parameter: `maximum`
Type: float
Description: Maximum

Parameter: `cumulative`
Type: boolean
Description: Cumulative

Parameter: `unit`
Type: string
Description: Unit

5.2.309 `MonitoringDataProducerSingleLineScript: MonitoringDataProducer`

parent: `MonitoringDataProducer`

Parameter: `script`
Type: string
Description: Script

Parameter: `typeClass`
Type: string
Description: Type class, slash(/) separated for levels

Parameter: `timeout`
Type: unsigned integer
Description: Script timeout

Parameter: `arguments`
Type: list of strings
Description: Additional arguments to pass to the script

Parameter: `runInBash`
Type: boolean
Description: Run the script in a bash session

5.2.310 MonitoringDataProducerSysBlockStat: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

Parameter: excludeVirtualDisks
Type: boolean
Description: Exclude virtual disks

Parameter: excludeDisks
Type: list of strings
Description: Exclude disks

5.2.311 MonitoringDataProducerSysInfo: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

5.2.312 MonitoringDataProducerTest: MonitoringDataProducerInternal

parent: MonitoringDataProducerInternal

Parameter: instances
Type: unsigned integer
Description: Number of instances per test

5.2.313 MonitoringDataProducer: Entity

parent: Entity

Parameter: name
Type: string
Description: Name

Parameter: description
Type: string
Description: Description

Parameter: notes
Type: string
Description: Administrator notes

Parameter: when
Type: enum
Description: When the producer should run

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

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

Parameter: interval

Type: float
Description: Sampling interval

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

Parameter: `startupDelay`
Type: float
Description: Delay the first sampling the specified time after cmd starts

Parameter: `intervals`
Type: list of floating point numbers
Description: Out of band sampling interval

Parameter: `gap`
Type: unsigned integer
Description: Number of missed samples before we add a NaN

Parameter: `fuzzyOffset`
Type: float
Description: Automatic fuzzy offset factor [0-1]. Multiplied by interval

Parameter: `introduceNaN`
Type: boolean
Description: Introduce NaN if device goes up/down/up

Parameter: `automaticReinitialize`
Type: boolean
Description: Automatic run –initialize when a new metric has been detected

Parameter: `disabled`
Type: boolean
Description: Disabled

Parameter: `disableTriggers`
Type: boolean
Description: Disable triggers from being evaluated

Parameter: `disableOnHighLoad`
Type: boolean
Description: Disable when nodes are very busy

Parameter: `nodeExecutionFilters`
Type: list of `MonitoringExecutionFilter`

Description: Filter nodes which should run this data producer. If none are specified: execute on each node.

Parameter: `executionMultiplexers`
Type: list of `MonitoringExecutionMultiplexer`
Description: Execute the producer once for each entity which matches one of the criteria. If none are specified: only execute it for the node itself.

Parameter: `consolidator`
Type: reference to `MonitoringConsolidator` or None
Description: Consolidator configuration

Parameter: `suppressedByGoingDown`
Type: boolean
Description: Suppress running action if device is going down

Parameter: `associatedUser`
Type: string
Description: User associated with this measurable

5.2.314 `MonitoringDataProducerTrustedTool`: `MonitoringDataProducer`

parent: `MonitoringDataProducer`

Parameter: `port`
Type: unsigned integer
Description: Port

Parameter: `localhost`
Type: boolean
Description: Only listen on localhost

Parameter: `secret`
Type: string
Description: Secret

5.2.315 `MonitoringDataProducerUserCount`: `MonitoringDataProducerInternal`

parent: `MonitoringDataProducerInternal`

Parameter: `customScript`
Type: string
Description: Custom script

Parameter: `customScriptTimeout`
Type: unsigned integer
Description: Custom script timeout

Parameter: `minimalUserId`
Type: unsigned integer

Description: Minumal user ID

Parameter: `namesInInfoMessage`
Type: boolean
Description: Names in info message, could lead to lots of data

5.2.316 `MonitoringDataProducerWlmSlot`: `MonitoringDataProducer`
parent: `MonitoringDataProducer`

5.2.317 `MonitoringDeviceStateSubSystemInfo`: `Entity`
parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `up`
Type: unsigned integer
Description: Number of up devices

Parameter: `down`
Type: unsigned integer
Description: Number of down devices

Parameter: `closed`
Type: unsigned integer
Description: Number of closed devices

Parameter: `muted`
Type: unsigned integer
Description: Number of muted devices

5.2.318 `MonitoringDrainAction`: `MonitoringAction`
parent: `MonitoringAction`

5.2.319 `MonitoringDynamicExecutionMultiplexer`: `MonitoringExecutionMultiplexer`
parent: `MonitoringExecutionMultiplexer`

Parameter: `local`
Type: boolean
Description: Run on the local node

Parameter: `offload`
Type: boolean
Description: Run on the nodes offloaded onto this node

5.2.320 `MonitoringEmailAction`: `MonitoringAction`
parent: `MonitoringAction`

Parameter: `recipients`

Type: list of strings
Description: Recipients

Parameter: `allAdministrators`
Type: boolean
Description: Also send e-mail to all administrator

Parameter: `server`
Type: string
Description: The SNMP server

Parameter: `sender`
Type: string
Description: The sender of the e-mail

Parameter: `info`
Type: string
Description: Extra information passed in the e-mail

Parameter: `timeout`
Type: unsigned integer
Description: Timeout

Parameter: `mergeDelay`
Type: float
Description: Maximal action delay in order to merge with others

Parameter: `mergeTrigger`
Type: boolean
Description: Merge action from multiple triggers into one

Parameter: `mergeMeasurable`
Type: boolean
Description: Merge action from multiple measurables into one

5.2.321 `MonitoringEventAction`: `MonitoringAction`

parent: `MonitoringAction`

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

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

Parameter: `mergeDelay`
Type: float

Description: Maximal action delay in order to merge with others

5.2.322 `MonitoringExecutionFilter: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `filterOperation`
Type: enum
Description: The filter operation to be performed

5.2.323 `MonitoringExecutionMultiplexer: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `filterOperation`
Type: enum
Description: The filter operation to be performed

5.2.324 `MonitoringExpression: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

5.2.325 `MonitoringGroupedExpression: MonitoringExpression`

parent: `MonitoringExpression`

Parameter: `op`
Type: enum
Description: Operator

Parameter: `allowMissing`
Type: boolean
Description: Allow missing sub expressions

Parameter: `expressions`
Type: list of `MonitoringCompareExpression`
Description: Expressions

5.2.326 `MonitoringHealthOverview: Entity`

parent: `Entity`

Parameter: `refEntityUniqueKey`

Type: unsigned integer
Description: Entity

Parameter: `alertLevelMaximum`
Type: unsigned integer
Description: Maximal severity of all failed triggers

Parameter: `alertLevelSum`
Type: unsigned integer
Description: Total severity of all failed triggers

Parameter: `alertLevelCount`
Type: unsigned integer
Description: Total count of all failed triggers

Parameter: `timestamp`
Type: unsigned integer
Description: Timestamp of data

Parameter: `info`
Type: string
Description: Info

5.2.327 `MonitoringImageUpdateAction: MonitoringAction`

parent: `MonitoringAction`

5.2.328 `MonitoringJobMetricSettings: Entity`

parent: `Entity`

Parameter: `excludeDevices`
Type: list of strings
Description: Exclude block devices from metric collection (by default all the devices are sampled)

Parameter: `includeDevices`
Type: list of strings
Description: Only these devices will be sampled if the set is not empty

Parameter: `enableAdvancedMetrics`
Type: boolean
Description: Sample advanced metrics as well as basic metrics

Parameter: `mapJobsToGpus`
Type: boolean
Description: Associate job with GPUs where the job processes run when possible

Parameter: `excludeMetrics`
Type: list of strings

Description: Exclude metrics by name from collection

Parameter: `includeMetrics`
Type: list of strings
Description: Only these metrics will be samples if the set is not empty

Parameter: `cgroupBaseDirectory`
Type: string
Description: CGroup base directory

Parameter: `cgroupSearch`
Type: string
Description: Search field for finding the WLM CGroup

Parameter: `keepAliveSleep`
Type: float
Description: Time the cgroup keepalive process sleeps

Parameter: `samplingType`
Type: enum
Description: Type of metrics sampling

Parameter: `pickupInterval`
Type: float
Description: High initial pickup interval

Parameter: `pickupTimes`
Type: unsigned integer
Description: Number of times to apply the high initial pickup interval

Parameter: `pickupPriority`
Type: unsigned integer
Description: Priority of the pickup interval change

5.2.329 `MonitoringLuaExecutionFilter`: `MonitoringExecutionFilter`

parent: `MonitoringExecutionFilter`

Parameter: `code`
Type: string
Description: Lua code

Parameter: `notes`
Type: string
Description: Notes

5.2.330 MonitoringLuaExecutionMultiplexer: MonitoringExecutionMultiplexer

parent: MonitoringExecutionMultiplexer

Parameter: code
Type: string
Description: Lua code

Parameter: notes
Type: string
Description: Notes

5.2.331 MonitoringMeasurableEnum: MonitoringMeasurable

parent: MonitoringMeasurable

5.2.332 MonitoringMeasurableHealthCheck: MonitoringMeasurable

parent: MonitoringMeasurable

5.2.333 MonitoringMeasurableMetric: MonitoringMeasurable

parent: MonitoringMeasurable

Parameter: minimum
Type: float
Description: Minimum

Parameter: maximum
Type: float
Description: Maximum

Parameter: cumulative
Type: boolean
Description: Cumulative

Parameter: unit
Type: string
Description: Unit

5.2.334 MonitoringMeasurable: Entity

parent: Entity

Parameter: producer
Type: reference to MonitoringDataProducer
Description: Monitoring data producer

Parameter: name
Type: string
Description: Name

Parameter: parameter
Type: string

Description: Parameter

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

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

Parameter: `disabled`
Type: boolean
Description: Disable: do not process or save to disk

Parameter: `disableTriggers`
Type: boolean
Description: Disable triggers from being evaluated

Parameter: `gap`
Type: unsigned integer
Description: Number of missed samples before we add a NaN

Parameter: `introduceNaN`
Type: boolean
Description: Introduce NaN if device goes up/down/up

Parameter: `description`
Type: string
Description: Description

Parameter: `typeClass`
Type: string
Description: Type class, slash(/) separated for levels

Parameter: `sourceType`
Type: enum
Description: Source of the measurable

Parameter: `consolidator`
Type: reference to `MonitoringConsolidator` or None
Description: Consolidator configuration

Parameter: `suppressedByGoingDown`
Type: boolean
Description: Suppress running action if device is going down

Parameter: `access`

Type: enum
Description: User access control

Parameter: `associatedUser`
Type: string
Description: User associated with this measurable

5.2.335 `MonitoringNodeListExecutionFilter`: `MonitoringExecutionFilter`
parent: `MonitoringExecutionFilter`

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

5.2.336 `MonitoringNodeListExecutionMultiplexer`: `MonitoringExecutionMultiplexer`
parent: `MonitoringExecutionMultiplexer`

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

5.2.337 `MonitoringOffloadBackupInformation`: `Entity`
parent: `Entity`

Parameter: `refMonitoringNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `refBackupNodeUniqueKeys`
Type: list of unsigned numbers
Description: Node

5.2.338 `MonitoringOffloadInformation`: `Entity`
parent: `Entity`

Parameter: `refMonitoringNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `refBestMonitoringNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `refViableMonitoringNodeUniqueKeys`
Type: list of unsigned numbers

Description: Node

5.2.339 `MonitoringOverlayListExecutionFilter`: `MonitoringExecutionFilter`

parent: `MonitoringExecutionFilter`

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

5.2.340 `MonitoringOverlayListExecutionMultiplexer`: `MonitoringExecutionMultiplexer`

parent: `MonitoringExecutionMultiplexer`

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

5.2.341 `MonitoringPickupInterval`: `Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `interval`
Type: float
Description: Interval on which the RPC will be done

Parameter: `times`
Type: unsigned integer
Description: Number of times the RPC will be done with the interval

Parameter: `priority`
Type: unsigned integer
Description: Priority of the current pickup interval

5.2.342 `MonitoringPlotterSubSystemInfo`: `Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `first`
Type: unsigned integer
Description: First plot request

Parameter: `last`
Type: unsigned integer

Description: Last plot request

Parameter: `count`
Type: unsigned integer
Description: Number of plot requests

Parameter: `samples`
Type: unsigned integer
Description: Number of data samples

Parameter: `sources`
Type: unsigned integer
Description: Number of sources

5.2.343 `MonitoringPowerAction`: `MonitoringAction`
parent: `MonitoringAction`

5.2.344 `MonitoringPowerOffAction`: `MonitoringPowerAction`
parent: `MonitoringPowerAction`

5.2.345 `MonitoringPowerOnAction`: `MonitoringPowerAction`
parent: `MonitoringPowerAction`

5.2.346 `MonitoringPowerResetAction`: `MonitoringPowerAction`
parent: `MonitoringPowerAction`

5.2.347 `MonitoringRebootAction`: `MonitoringAction`
parent: `MonitoringAction`

Parameter: `runPreHaltOperations`
Type: boolean
Description: Run pre-halt operations

Parameter: `preHaltOperationTimeout`
Type: unsigned integer
Description: Run pre-halt operation timeout

5.2.348 `MonitoringResourceExecutionFilter`: `MonitoringExecutionFilter`
parent: `MonitoringExecutionFilter`

Parameter: `resources`
Type: list of strings
Description: Resources

Parameter: `op`
Type: enum
Description: Operator

5.2.349 `MonitoringResourceExecutionMultiplexer`: `MonitoringExecutionMultiplexer`

parent: `MonitoringExecutionMultiplexer`

Parameter: `resources`
Type: list of strings
Description: Resources

Parameter: `op`
Type: enum
Description: Operator

5.2.350 `MonitoringRole`: `Role`

parent: `Role`

Parameter: `numberOfBackups`
Type: unsigned integer
Description: Minimum number of backups of the monitoring data

Parameter: `backupRing`
Type: unsigned integer
Description: Only backup to nodes within the same ring

Parameter: `maximumNumberOfNodes`
Type: unsigned integer
Description: Maximum number of nodes the monitoring can handle, set to 0 for no limit

Parameter: `delayAfterUp`
Type: unsigned integer
Description: Delay after node becomes up before it can take over from other nodes

Parameter: `delayAfterDown`
Type: unsigned integer
Description: Delay after node goes down before the workload will be offloaded to other nodes

Parameter: `backupOnShutdown`
Type: boolean
Description: Take a backup when the node is shutdown via RPC

Parameter: `backupOnReboot`
Type: boolean
Description: Take a backup when the node is reboot via RPC

Parameter: `backupOnPowerOff`
Type: boolean
Description: Take a backup when the node is power reset via RPC

Parameter: `backupOnPowerReset`
Type: boolean

Description: Take a backup when the node is powered off via RPC

Parameter: `backupOnTerminate`
Type: boolean
Description: Take a backup when the node is terminated via RPC

Parameter: `nodeFilters`
Type: list of `MonitoringExecutionFilter`
Description: Filter nodes that can be monitored by this node, clear this list for automatic

5.2.351 `MonitoringScriptAction`: `MonitoringAction`

parent: `MonitoringAction`

Parameter: `script`
Type: string
Description: Script

Parameter: `arguments`
Type: list of strings
Description: Arguments

Parameter: `timeout`
Type: unsigned integer
Description: Timeout

Parameter: `nodeEnvironment`
Type: boolean
Description: Pass the node environment to the script

Parameter: `runInShell`
Type: boolean
Description: Run in shell

Parameter: `mergeDelay`
Type: float
Description: Maximal action delay in order to merge with others

Parameter: `mergeTrigger`
Type: boolean
Description: Merge action from multiple triggers into one

Parameter: `mergeMeasurable`
Type: boolean
Description: Merge action from multiple measurables into one

5.2.352 MonitoringServiceAction: MonitoringAction

parent: MonitoringAction

Parameter: service
Type: string
Description: Service

Parameter: arguments
Type: list of strings
Description: Arguments

5.2.353 MonitoringServiceRestartAction: MonitoringServiceAction

parent: MonitoringServiceAction

5.2.354 MonitoringServiceStartAction: MonitoringServiceAction

parent: MonitoringServiceAction

5.2.355 MonitoringServiceStopAction: MonitoringServiceAction

parent: MonitoringServiceAction

5.2.356 MonitoringServiceSubSystemInfo: Entity

parent: Entity

Parameter: name
Type: string
Description: Name

Parameter: stopped
Type: boolean
Description: Stopped

Parameter: suspended
Type: boolean
Description: Suspended

Parameter: last
Type: unsigned integer
Description: Last sample time

Parameter: queued
Type: unsigned integer
Description: Queued items

Parameter: handled
Type: unsigned integer
Description: Handled items

Parameter: cacheMiss
Type: unsigned integer

Description: Miss cached count

5.2.357 MonitoringShutdownAction: MonitoringAction

parent: MonitoringAction

Parameter: runPreHaltOperations
Type: boolean
Description: Run pre-halt operations

Parameter: preHaltOperationTimeout
Type: unsigned integer
Description: Run pre-halt operation timeout

5.2.358 MonitoringStorageSubSystemInfo: Entity

parent: Entity

Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: name
Type: string
Description: Name

Parameter: elements
Type: unsigned integer
Description: Elements

Parameter: disksize
Type: unsigned integer
Description: Disk size

Parameter: freespace
Type: unsigned integer
Description: Free disk space

Parameter: usage
Type: float
Description: Usage

5.2.359 MonitoringSubSystemInfo: SubSystemInfo

parent: SubSystemInfo

Parameter: storage
Type: list of MonitoringStorageSubSystemInfo
Description: Storage

Parameter: service
Type: list of MonitoringServiceSubSystemInfo

Description: Service

Parameter: `plotter`
Type: list of `MonitoringPlotterSubSystemInfo`
Description: Plotter

Parameter: `dataCache`
Type: list of `MonitoringDataCacheSubSystemInfo`
Description: DataCache

Parameter: `cache`
Type: list of `MonitoringCacheSubSystemInfo`
Description: Cache

Parameter: `deviceState`
Type: list of `MonitoringDeviceStateSubSystemInfo`
Description: DeviceState

5.2.360 `MonitoringTrigger: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `disabled`
Type: boolean
Description: Disable

Parameter: `severity`
Type: unsigned integer
Description: Severity

Parameter: `markEntityAsFailed`
Type: boolean
Description: Mark entity as failed

Parameter: `markEntityAsUnknown`
Type: boolean
Description: Mark entity as unknown

Parameter: `stateFlappingPeriod`
Type: float
Description: Time period to check for state flapping

Parameter: `stateFlappingCount`
Type: unsigned integer

Description: Number of times states need to change in the specified period before it is considered stateflapping

Parameter: `expression`
Type: `MonitoringExpression`
Description: Expression

Parameter: `enterActions`
Type: list of references to `MonitoringAction`
Description: Actions to execute when the expression enters 'true' state

Parameter: `duringActions`
Type: list of references to `MonitoringAction`
Description: Actions to execute when the expression is and has been 'true'

Parameter: `leaveActions`
Type: list of references to `MonitoringAction`
Description: Actions to execute when the expression is was 'true' and no longer is

Parameter: `stateFlappingActions`
Type: list of references to `MonitoringAction`
Description: Actions to execute when the expression is state flapping

5.2.361 `MonitoringTypeExecutionFilter`: `MonitoringExecutionFilter`

parent: `MonitoringExecutionFilter`

Parameter: `headNode`
Type: boolean
Description: Head node

Parameter: `physicalNode`
Type: boolean
Description: Physical node

Parameter: `cloudNode`
Type: boolean
Description: Cloud node

Parameter: `liteNode`
Type: boolean
Description: Lite node

5.2.362 `MonitoringTypeExecutionMultiplexer`: `MonitoringExecutionMultiplexer`

parent: `MonitoringExecutionMultiplexer`

Parameter: `types`
Type: list of strings

Description: Types

5.2.363 MonitoringUndrainAction: MonitoringAction

parent: MonitoringAction

5.2.364 MsgQueue: Entity

parent: Entity

Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: msqid
Type: integer
Description: Message queue ID

Parameter: ipcperm
Type: IPCPerm
Description: IPC permissions

Parameter: size
Type: unsigned integer
Description: Size in bytes

Parameter: qnum
Type: unsigned integer
Description: Number of messages in the queue

5.2.365 MyrinetSwitch: Switch

parent: Switch

5.2.366 NetworkAliasInterface: NetworkInterface

parent: NetworkInterface

5.2.367 NetworkBmcInterface: NetworkInterface

parent: NetworkInterface

Parameter: gateway
Type: IP
Description: Gateway IP address, usually the head node's IP on the BMC network.

Parameter: vlanid
Type: unsigned integer
Description: VLAN ID setting for the BMC card. When set to 0, VLAN capabilities are disabled.

Parameter: lanchannel
Type: unsigned integer
Description: LAN channel for BMC interface

5.2.368 NetworkBondInterface: NetworkInterface

parent: NetworkInterface

Parameter: mode
Type: integer
Description: Bonding mode, see bonding.txt in the kernel documentation.

Parameter: options
Type: string
Description: Options to pass to the bonding driver, see kernel documentation.

Parameter: interfaces
Type: list of strings
Description: List of interfaces which should be channel-bonded.

5.2.369 NetworkBridgeInterface: NetworkInterface

parent: NetworkInterface

Parameter: stp
Type: boolean
Description: Spanning Tree Protocol enabled.

Parameter: forward_delay
Type: unsigned integer
Description: Frame forward delay (in seconds)

Parameter: interfaces
Type: list of strings
Description: List of interfaces which should be bridged.

5.2.370 NetworkConnection: Entity

parent: Entity

Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: source
Type: IP
Description: The source IP address

Parameter: sourcePort
Type: unsigned integer
Description: The source port

Parameter: destination
Type: IP

Description: The destination IP address

Parameter: `destinationPort`
Type: unsigned integer
Description: The destination port

Parameter: `type`
Type: enum
Description: The connection type

Parameter: `state`
Type: enum
Description: The connection state

5.2.371 `NetworkInterface: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: The network interface device name

Parameter: `ip`
Type: IP
Description: The interfaces IP address

Parameter: `ipv6Ip`
Type: IP
Description: The interfaces IPv6 IP address

Parameter: `dhcp`
Type: boolean
Description: Get the ip via DHCP, leave ip blank

Parameter: `ipv6Dhcp`
Type: boolean
Description: Get the IPv6IP via DHCP, leave IPv6IP blank

Parameter: `bringupduringinstall`
Type: enum
Description: Brings up interface during install if on

Parameter: `network`
Type: reference to `Network` or None
Description: Network the interface is connected to

Parameter: `alternativeHostname`
Type: string

Description: An alternative hostname to use if this is second (startif != always) IP address on the same network

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

Parameter: `startIf`
Type: enum
Description: Only run this service in the specified state

Parameter: `onNetworkPriority`
Type: unsigned integer
Description: Priority of DNS resolution queries for the interface on its network

Parameter: `connectedMode`
Type: boolean
Description: IB connected mode

5.2.372 `NetworkNetMapInterface: NetworkInterface`
parent: `NetworkInterface`

5.2.373 `NetworkPhysicalInterface: NetworkInterface`
parent: `NetworkInterface`

Parameter: `mac`
Type: MAC
Description: The interfaces MAC address

Parameter: `speed`
Type: string
Description: The interfaces network speed.

Parameter: `cardtype`
Type: string
Description: The type of network interface.

5.2.374 `Network: Entity`
parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `IPv6`
Type: boolean
Description: IPv6 enabled

Parameter: `ipv6NetmaskBits`

Type: unsigned integer
Description: Netmask or Classless Inter-Domain Routing for IPv6

Parameter: `netmaskBits`
Type: unsigned integer
Description: Netmask or Classless Inter-Domain Routing

Parameter: `ipv6BaseAddress`
Type: IP
Description: Base IP address for Ipv6

Parameter: `baseAddress`
Type: IP
Description: Base IP address

Parameter: `broadcastAddress`
Type: IP
Description: Broadcast IP address

Parameter: `domainName`
Type: string
Description: Domain name

Parameter: `type`
Type: enum
Description: Type of network, internal: local cluster network, external: connection to outside world, global: unique network accros the cloud, tunnel: cloud network, netmap: virtual network user by cloud nodes to connect to nodes inside the cluster

Parameter: `mtu`
Type: unsigned integer
Description: The maximum transmission unit.

Parameter: `bootable`
Type: boolean
Description: If set compute nodes can boot using this network

Parameter: `dynamicRangeStart`
Type: IP
Description: First IP address in the networks dynamic range

Parameter: `dynamicRangeEnd`
Type: IP
Description: Last IP address in the networks dynamic range

Parameter: `lockDownDhcpd`
Type: boolean

Description: Don't respond to dhcp request of new nodes via this network

Parameter: `management`
Type: boolean
Description: If set, the network can be used as a management network

Parameter: `gateway`
Type: IP
Description: Gateway

Parameter: `ipv6Gateway`
Type: IP
Description: IPv6 Gateway

Parameter: `notes`
Type: string
Description: Administrator notes

Parameter: `cloudSubnetID`
Type: string
Description: The Cloud ID of the subnet

Parameter: `EC2AvailabilityZone`
Type: string
Description: The AWS availability zone inside which the subnet exists

Parameter: `EC2String`
Type: string
Description: *none*

Parameter: `allowAutosign`
Type: enum
Description: Specify if certificate request from node installers can be signed automatically

Parameter: `generateDNSZone`
Type: enum
Description: Specify which DNS zones should be written

Parameter: `excludeFromSearchDomain`
Type: boolean
Description: Exlude from search domain in /etc/resolv.conf file

Parameter: `searchDomainIndex`
Type: unsigned integer
Description: Search domain index in /etc/resolv.conf file, set to 0 for automatic

Parameter: `disableAutomaticExports`

Type: boolean
Description: Disable creation of automatic filesystem exports

5.2.375 `NetworkTunnelInterface`: `NetworkInterface`

parent: `NetworkInterface`

5.2.376 `NetworkVLANInterface`: `NetworkInterface`

parent: `NetworkInterface`

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

5.2.377 `NewNode`: `Entity`

parent: `Entity`

Parameter: `switchPort`
Type: `SwitchPort` or None
Description: Switch port the new node is connected to.

Parameter: `mac`
Type: MAC
Description: MAC address of the new node.

Parameter: `firstSeen`
Type: integer
Description: Uptime when the new node was first seen.

Parameter: `lastSeen`
Type: integer
Description: Uptime when the new node was last seen.

Parameter: `appeared`
Type: string
Description: Timestamp when the new node first appeared.

5.2.378 `NginxReverseProxy`: `Entity`

parent: `Entity`

Parameter: `port`
Type: unsigned integer
Description: Port

Parameter: `address`
Type: IP
Description: Destination Network Address

Parameter: `node`

Type: reference to `Node`
Description: Destination hostname(only for nodes)

Parameter: `destport`
Type: unsigned integer
Description: Port

Parameter: `description`
Type: string
Description: Description

5.2.379 `NginxRole: BaseNginxRole`
parent: `BaseNginxRole`

Parameter: `nginxReverseProxy`
Type: list of `NginxReverseProxy`
Description: Nginx Reverse Proxy Configuration

5.2.380 `NodeGroup: Entity`
parent: `Entity`

Parameter: `name`
Type: string
Description: Name

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

5.2.381 `NodeHierarchyResult: Entity`
parent: `Entity`

Parameter: `responsibility`
Type: enum
Description: Responsibility

Parameter: `nodes`
Type: list of unsigned numbers
Description: Node

Parameter: `rules`
Type: list of unsigned numbers
Description: Rules from which nodes were derived

Parameter: `responsible`
Type: list of unsigned numbers
Description: List of nodes that are responsible for the node

5.2.382 NodeHierarchyRuleCategorySelection: NodeHierarchyRuleSelection

parent: NodeHierarchyRuleSelection

Parameter: categories
Type: list of references to Category
Description: List of categories

5.2.383 NodeHierarchyRuleCloudRegionSelection: NodeHierarchyRuleSelection

parent: NodeHierarchyRuleSelection

Parameter: regions
Type: list of references to CloudRegion
Description: List of regions

5.2.384 NodeHierarchyRuleDeviceSelection: NodeHierarchyRuleSelection

parent: NodeHierarchyRuleSelection

Parameter: devices
Type: list of references to Device
Description: List of devices

5.2.385 NodeHierarchyRuleEdgeSiteSelection: NodeHierarchyRuleSelection

parent: NodeHierarchyRuleSelection

Parameter: edgesites
Type: list of references to EdgeSite
Description: List of edgesites

5.2.386 NodeHierarchyRuleNodeGroupSelection: NodeHierarchyRuleSelection

parent: NodeHierarchyRuleSelection

Parameter: nodegroups
Type: list of references to NodeGroup
Description: List of nodegroups

5.2.387 NodeHierarchyRuleNodeSelection: NodeHierarchyRuleSelection

parent: NodeHierarchyRuleSelection

Parameter: nodes
Type: list of references to Node
Description: List of nodes

5.2.388 NodeHierarchyRuleRackSelection: NodeHierarchyRuleSelection

parent: NodeHierarchyRuleSelection

Parameter: racks
Type: list of references to Rack
Description: List of racks

5.2.389 NodeHierarchyRuleRoleSelection: NodeHierarchyRuleSelection

parent: NodeHierarchyRuleSelection

Parameter: director
Type: boolean
Description: Director

Parameter: boot
Type: boolean
Description: Boot

Parameter: provisioning
Type: boolean
Description: Provisioning

Parameter: dns
Type: boolean
Description: DNS

Parameter: ldap
Type: boolean
Description: LDAP

Parameter: monitoring
Type: boolean
Description: Monitoring

5.2.390 NodeHierarchyRuleSelection: Entity

parent: Entity

Parameter: name
Type: string
Description: Name

Parameter: operation
Type: enum
Description: Operation

5.2.391 NodeHierarchyRule: Entity

parent: Entity

Parameter: name
Type: string
Description: Name

Parameter: description
Type: string

Description: description

Parameter: `disabled`
Type: boolean
Description: Disabled

Parameter: `priority`
Type: unsigned integer
Description: Priority

Parameter: `allowSelf`
Type: boolean
Description: Allow node to serve itself

Parameter: `locationMatch`
Type: boolean
Description: Source and target node locations need to match

Parameter: `sources`
Type: list of `NodeHierarchyRuleSelection`
Description: Source selection

Parameter: `targets`
Type: list of `NodeHierarchyRuleSelection`
Description: Target selection

Parameter: `director`
Type: boolean
Description: Director

Parameter: `dhcp`
Type: boolean
Description: DHCP

Parameter: `dns`
Type: boolean
Description: DNS

Parameter: `ntp`
Type: boolean
Description: NTP

Parameter: `vpn`
Type: boolean
Description: VPN

Parameter: `rsyslog`

Type: boolean
Description: rsyslog

Parameter: `ldap`
Type: boolean
Description: LDAP

Parameter: `bios`
Type: boolean
Description: BIOS

Parameter: `provisioning`
Type: boolean
Description: Provisioning

Parameter: `mount`
Type: boolean
Description: Mount

Parameter: `sshProxy`
Type: boolean
Description: SSH proxy

Parameter: `cmdaemonConfiguration`
Type: boolean
Description: Configuration

Parameter: `cmdaemonRpcForward`
Type: boolean
Description: RPC forward

Parameter: `cmdaemonEvents`
Type: boolean
Description: Events

Parameter: `cmdaemonStatus`
Type: boolean
Description: Status

Parameter: `cmdaemonWebSocket`
Type: boolean
Description: Web socket for lite nodes

Parameter: `monitoringOffload`
Type: boolean
Description: Monitoring offload

Parameter: `distribution`
Type: enum
Description: Distribution

5.2.392 `NodeHierarchyRuleTypeSelection`: `NodeHierarchyRuleSelection`

parent: `NodeHierarchyRuleSelection`

Parameter: `headNode`
Type: boolean
Description: Head node

Parameter: `physicalNode`
Type: boolean
Description: Physical node

Parameter: `cloudNode`
Type: boolean
Description: Cloud node

Parameter: `liteNode`
Type: boolean
Description: Lite node

Parameter: `ethernetSwitch`
Type: boolean
Description: Ethernet switch

Parameter: `ibSwitch`
Type: boolean
Description: IB switch

Parameter: `myrinetSwitch`
Type: boolean
Description: IB switch

Parameter: `fabricSwitch`
Type: boolean
Description: Fabric switch

Parameter: `fabricResourceBox`
Type: boolean
Description: Fabric switch

Parameter: `rackSensor`
Type: boolean
Description: Rack sensor

Parameter: `powerDistributionUnit`

Type: boolean
Description: Power distribution unit

Parameter: `genericDevice`
Type: boolean
Description: Generic device

Parameter: `unmanagedNode`
Type: boolean
Description: Unmanaged node

Parameter: `chassis`
Type: boolean
Description: Chassis

5.2.393 `Node: Device`

parent: `Device`

Parameter: `cmdaemonUrl`
Type: string
Description: *none*

Parameter: `interfaces`
Type: list of `NetworkInterface`
Description: Ip on the management network

Parameter: `provisioningInterface`
Type: element of `interfaces`
Description: Network interface on which the node will receive software image updates

Parameter: `fsmounts`
Type: list of `FSMount`
Description: Configure the entries placed in /etc/fstab

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

Parameter: `staticRoutes`
Type: list of `StaticRoute`
Description: Configure static routes for the interfaces

Parameter: `roles`
Type: list of `Role`
Description: Assign the roles the node should play

Parameter: `services`
Type: list of `OSServiceConfig`

Description: Manage operating system services

Parameter: `pxelabel`
Type: string
Description: PXE Label to be displayed when this node boots

Parameter: `customRemoteConsoleScript`
Type: string
Description: Script that will be used to remote console a device

Parameter: `customRemoteConsoleScriptArgument`
Type: string
Description: Argument for the custom remote console script

Parameter: `provisioningTransport`
Type: enum
Description: Defines what transport protocol should be used for provisioning. Options are RSYNC-SSH or RSYNCDAEMON. The latter is the default, is a bit less secure but faster.

Parameter: `gpuSettings`
Type: list of `GPUSettings`
Description: Configure the GPUs

Parameter: `excludeListManipulateScript`
Type: string
Description: A user defined script that can be used to do custom last minute changes to the exclude lists used by cmdaemon to rsync

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

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

Parameter: `disableFabricNVME`
Type: boolean
Description: Disable fabric NVME

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

Parameter: `seLinuxSettings`
Type: `SELinuxSettings` or None

Description: Configure the SELinux settings

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

Parameter: `versionConfigFiles`
Type: boolean
Description: Keep old versions of all config files for this node

Parameter: `forceFullEnvironment`
Type: boolean
Description: Force this node to create the environment for all nodes

Parameter: `biosSetup`
Type: string
Description: BIOS setup

Parameter: `timeZoneSettings`
Type: `TimeZoneSettings` or None
Description: Time zone

5.2.394 `NvidiaGPUSettings`: `GPUSettings`

parent: `GPUSettings`

Parameter: `powerLimit`
Type: unsigned integer
Description: An upper limit on how much power a GPU can use

Parameter: `eccMode`
Type: enum
Description: Set the ECC mode in which the GPU runs

Parameter: `computeMode`
Type: enum
Description: Set the compute mode in which the GPU runs

Parameter: `clockSyncBoostMode`
Type: enum
Description: Set the clock sync boost among the GPUs in group

Parameter: `multiProcessorClockSpeed`
Type: unsigned integer
Description: Set the streaming multiprocessor clock speed of the GPU

Parameter: `memoryClockSpeed`
Type: unsigned integer

Description: Set the streaming memory clock speed of the GPU

Parameter: `migProfiles`
Type: list of strings
Description: MIG profiles that will be applied to the GPU

5.2.395 `OpenShiftClientRole`: `OpenShiftRole`
parent: `OpenShiftRole`

5.2.396 `OpenShiftProxyRole`: `BaseNginxRole`
parent: `BaseNginxRole`

Parameter: `unmanagedNodeConfiguration`
Type: reference to `UnmanagedNodeConfiguration`
Description: The unmanaged nodeconfiguration this role is linked with

Parameter: `httpPort`
Type: unsigned integer
Description: HTTP port to forward as nginx stream

Parameter: `httpsPort`
Type: unsigned integer
Description: HTTPs port to forward as nginx stream

5.2.397 `OpenShiftRole`: `Role`
parent: `Role`

Parameter: `unmanagedNodeConfiguration`
Type: reference to `UnmanagedNodeConfiguration`
Description: The unmanaged nodeconfiguration this role is linked with

5.2.398 `OpenShiftWorkerRole`: `OpenShiftRole`
parent: `OpenShiftRole`

Parameter: `containerStoragePath`
Type: string
Description: Container storage path

5.2.399 `OpenStackIntermediateStorage`: `CMJobIntermediateStorage`
parent: `CMJobIntermediateStorage`

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

5.2.400 `OSCloudDisk`: `Entity`
parent: `Entity`

Parameter: `name`
Type: string

Description: Name of the disk

Parameter: `bootIndex`
Type: integer
Description: Defines the order in which a hypervisor will try devices when attempting to boot the guest from storage. Setting a negative value indicates that the device should not be used for booting

Parameter: `size`
Type: unsigned integer
Description: Size of the disk

Parameter: `diskBus`
Type: string
Description: Hypervisor-specific details about disk bus type

Parameter: `deviceType`
Type: string
Description: Hypervisor-specific details about disk device type

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

5.2.401 `OSCloudEphemeralDisk: OSCloudDisk`

parent: `OSCloudDisk`

Parameter: `format`
Type: string
Description: Filesystem to format the disk

5.2.402 `OSCloudExtension: Entity`

parent: `Entity`

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

Parameter: `region`
Type: reference to `OSCloudRegion`
Description: Region of the cluster extension

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

Parameter: `floatingIpNetworkId`
Type: string

Description: Floating IP Network UUID or name

Parameter: `stackId`
Type: string
Description: Heat stack ID

Parameter: `defaultDirectorSecGroupId`
Type: string
Description: Default security group ID/name for the cloud director

Parameter: `defaultCnodeSecGroupId`
Type: string
Description: Default security group ID/name for the cloud nodes

Parameter: `extraField`
Type: list of strings
Description: A list of various advanced options

5.2.403 `OSCloudFlavor: CloudType`

parent: `CloudType`

Parameter: `id`
Type: string
Description: The ID of the flavor

5.2.404 `OSCloudProvider: CloudProvider`

parent: `CloudProvider`

Parameter: `cloudApiType`
Type: string
Description: Cloud provider type

Parameter: `authUrl`
Type: string
Description: Keystone URL

Parameter: `username`
Type: string
Description: Username

Parameter: `password`
Type: string
Description: Password

Parameter: `projectId`
Type: string
Description: Project ID

Parameter: `projectName`
Type: string
Description: Project Name

Parameter: `projectDomainId`
Type: string
Description: Project Domain Id

Parameter: `userDomainId`
Type: string
Description: User Domain Id

Parameter: `keyPairName`
Type: string
Description: SSH Key Pair Name

Parameter: `openStackVersion`
Type: string
Description: OpenStack release version (e.g. 2015.1.3)

Parameter: `openStackVersionName`
Type: string
Description: OpenStack release codename (e.g. Kilo)

Parameter: `extensions`
Type: list of `OSCloudExtension`
Description: List of extensions

Parameter: `defaultRegion`
Type: reference to `OSCloudRegion` or None
Description: Default region to start instances

Parameter: `defaultFlavor`
Type: reference to `OSCloudFlavor` or None
Description: Default cloud node flavor

Parameter: `defaultDirectorFlavor`
Type: reference to `OSCloudFlavor` or None
Description: Default cloud director Flavor

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

5.2.405 `OSCloudRegion: CloudRegion`

parent: `CloudRegion`

Parameter: `id`

Type: string
Description: The ID of the region

5.2.406 `OSCloudSettings: CloudSettings`

parent: `CloudSettings`

Parameter: `instanceId`
Type: string
Description: Unique ID of the instance in OpenStack (the UUID).

Parameter: `secGroupId`
Type: string
Description: Security group name/ID

Parameter: `region`
Type: reference to `OSCloudRegion`
Description: The region of the cloud the VM is located in.

Parameter: `flavor`
Type: reference to `OSCloudFlavor`
Description: Instance Flavor (the type of the VM).

Parameter: `image`
Type: string
Description: The name of the cloud image used for creating the VM.

Parameter: `disks`
Type: list of `OSCloudDisk`
Description: Definitions of storage devices of the VM.

Parameter: `availabilityZone`
Type: string
Description: Availability zone the VM is supposed to be created in. If left empty, the availability zone will be automatically assigned by the cloud.

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

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

5.2.407 OSCloudSwapDisk: OSCloudDisk

parent: OSCloudDisk

5.2.408 OSCloudVolumeDisk: OSCloudDisk

parent: OSCloudDisk

Parameter: imageId
Type: string
Description: Image ID to use as source for this disk

Parameter: snapshotId
Type: string
Description: Snapshot ID to use as source for this disk

Parameter: volumeId
Type: string
Description: Volume ID to use as source for this disk

5.2.409 OSServiceConfig: Entity

parent: Entity

Parameter: name
Type: string
Description: Name

Parameter: monitored
Type: boolean
Description: CMDaemon will periodically check if the service is running

Parameter: autostart
Type: boolean
Description: CMDaemon will restart a failed service

Parameter: runIf
Type: enum
Description: Only run this service in the specified state

Parameter: belongsToRole
Type: boolean
Description: Service is initialized as part of an assigned role

Parameter: addFromRole
Type: boolean
Description: *none*

Parameter: fromGenericRole
Type: boolean

Description: *none*

Parameter: `roleKey`
Type: unsigned integer
Description: *none*

Parameter: `extraKey`
Type: unsigned integer
Description: *none*

Parameter: `internal`
Type: boolean
Description: *none*

Parameter: `serviceType`
Type: unsigned integer
Description: *none*

Parameter: `sicknessCheckScript`
Type: string
Description: Script for sickness checking (no script means no sickness checks)

Parameter: `sicknessCheckScriptTimeout`
Type: unsigned integer
Description: Timeout after which the script is killed

Parameter: `sicknessCheckInterval`
Type: unsigned integer
Description: Sickness checks interval (rounded up to 30s monitoring interval)

Parameter: `scriptTimeout`
Type: integer
Description: Service operation timeout

5.2.410 `OSService: Entity`

parent: `Entity`

Parameter: `refOSServiceConfigUniqueKey`
Type: unsigned integer
Description: OSServiceConfig

Parameter: `name`
Type: string
Description: *none*

Parameter: `status`
Type: enum

Description: *none*

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `isRealService`
Type: boolean
Description: *none*

Parameter: `sicknessMessage`
Type: string
Description: *none*

5.2.411 Package: Entity

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `type`
Type: enum
Description: Type of package manager

Parameter: `name`
Type: string
Description: Name

Parameter: `version`
Type: string
Description: Version

Parameter: `release`
Type: string
Description: Release

Parameter: `arch`
Type: string
Description: Version

Parameter: `buildDate`
Type: timestamp
Description: Build date

Parameter: `installDate`
Type: timestamp

Description: Install date

Parameter: `size`
Type: unsigned integer
Description: Size

Parameter: `installed`
Type: boolean
Description: Installed

5.2.412 `Partition: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `clusterName`
Type: string
Description: Cluster name

Parameter: `primaryHeadNode`
Type: reference to `HeadNode`
Description: Primary head node

Parameter: `failover`
Type: `CMDaemonFailover`
Description: Manage failover setup for this cluster

Parameter: `timeZoneSettings`
Type: `TimeZoneSettings` or None
Description: Time zone

Parameter: `adminEmail`
Type: list of strings
Description: Administrator's email

Parameter: `slaveName`
Type: string
Description: Default prefix to identify nodes. eg node003 (basename = node)

Parameter: `slaveDigits`
Type: unsigned integer
Description: Number of digits used to identify nodes. eg node003 (digits = 3)

Parameter: `nameServers`
Type: list of strings

Description: Name servers

Parameter: `nameServersFromDhcp`
Type: list of strings
Description: Name servers provided by DHCP, edit the name servers property instead

Parameter: `timeServers`
Type: list of strings
Description: NTP time servers

Parameter: `searchDomains`
Type: list of strings
Description: DNS search domains

Parameter: `externallyVisibleIp`
Type: IP
Description: IP that external sites see when headnode connects

Parameter: `externalNetwork`
Type: reference to `Network`
Description: External network

Parameter: `defaultCategory`
Type: reference to `Category`
Description: Default category for new nodes

Parameter: `archOS`
Type: list of `ArchOS`
Description: Architecture operating system

Parameter: `burnConfigs`
Type: list of `BurnConfig`
Description: Burn configurations

Parameter: `failoverGroups`
Type: list of `CMDaemonFailoverGroup`
Description: Failover group configurations

Parameter: `resourcePools`
Type: list of `ResourcePool`
Description: Resource pools

Parameter: `defaultBurnConfig`
Type: element of `burnConfigs`
Description: Default burn configuration

Parameter: `bmcSettings`

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

Parameter: `snmpSettings`
Type: `SNMPSettings` or None
Description: Configure the cluster wide SNMP settings

Parameter: `seLinuxSettings`
Type: `SELinuxSettings` or None
Description: Configure the SELinux settings

Parameter: `managementNetwork`
Type: reference to `Network`
Description: Determines what network should be used for management traffic.

Parameter: `notes`
Type: string
Description: Administrator notes

Parameter: `provisioningSettings`
Type: `ProvisioningSettings`
Description: Configure the provisioning settings

Parameter: `relayHost`
Type: string
Description: SMTP mail relay host

Parameter: `noZeroConf`
Type: boolean
Description: Add nozeroconf to network configuration

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

Parameter: `fabricConfigurations`
Type: list of `FabricConfiguration`
Description: Cluster wide fabric configuration

Parameter: `autosign`
Type: enum
Description: Sign certificates for node installer request according to network settings.

5.2.413 `PBSJobQueueStat: JobQueueStat`

parent: `JobQueueStat`

Parameter: `held`
Type: unsigned integer

Description: Held jobs

Parameter: `waiting`
Type: unsigned integer
Description: Waiting jobs

5.2.414 PBSJobQueue: JobQueue

parent: `JobQueue`

Parameter: `queueType`
Type: enum
Description: Pbs Pro queue type

Parameter: `fromRouteOnly`
Type: boolean
Description: Receive jobs from route queues only

Parameter: `routeHeldJobs`
Type: boolean
Description: Specifies whether jobs in the held state can be routed from this queue

Parameter: `routeWaitingJobs`
Type: boolean
Description: Specifies whether jobs whose execution_time attribute value is in the future can be routed from this queue

Parameter: `routeLifetime`
Type: unsigned integer
Description: The maximum time a job is allowed to reside in a routing queue

Parameter: `routeRetryTime`
Type: unsigned integer
Description: Route retry time in routing queue

Parameter: `routes`
Type: list of strings
Description: Route of queue path (route_destination parameter in qmgr)

Parameter: `defaultQueue`
Type: boolean
Description: Specifies the queue which is to accept jobs when no queue is requested

Parameter: `minWalltime`
Type: string
Description: Minimum runtime of jobs running in a queue

Parameter: `maxWalltime`
Type: string

Description: Maximum runtime of jobs running in a queue

Parameter: `defaultWalltime`
Type: string
Description: Maximum runtime of jobs running in a queue

Parameter: `maxQueued`
Type: unsigned integer
Description: Maximum number allowed to reside in a queue at any given time (0 is the same as infinite)

Parameter: `maxRunning`
Type: unsigned integer
Description: Maximum number of jobs allowed to run at any given time (0 is the same as infinite)

Parameter: `priority`
Type: integer
Description: Priority of a queue against other queues of the same type [-1024; 1024]

Parameter: `enabled`
Type: boolean
Description: When true, a queue will accept new jobs; when false, a queue is disabled and will not accept jobs

Parameter: `started`
Type: boolean
Description: Jobs may be scheduled for execution from this queue; when false, a queue is considered stopped

Parameter: `aclHostEnable`
Type: boolean
Description: When true directs the server to use the acl_hosts access list for the named queue

5.2.415 `PBSJob: Job`

parent: `Job`

5.2.416 `PbsPelog: Entity`

parent: `Entity`

Parameter: `enabled`
Type: boolean
Description: Enable hook

Parameter: `name`
Type: string
Description: Hook name in PBS

Parameter: `events`

Type: list of strings
Description: List of hook events

Parameter: `path`
Type: string
Description: Fully qualified pathname of a hook script

Parameter: `defaultAction`
Type: enum
Description: PBS prolog/epilog default action

Parameter: `enableParallel`
Type: boolean
Description: Enable parallel prologues/epilogues that run on sister moms

Parameter: `verboseUserOutput`
Type: boolean
Description: Provide verbose hook output to the user's .o/.e file

Parameter: `torqueCompatible`
Type: boolean
Description: Make torque compatible

Parameter: `order`
Type: unsigned integer
Description: Hook order

Parameter: `alarm`
Type: unsigned integer
Description: Hook alarm time (timeout)

Parameter: `debug`
Type: boolean
Description: Enable hook debug (in PBS)

5.2.417 `PbsProCgroupsSettings`: `WlmCgroupsSettings`

parent: `WlmCgroupsSettings`

Parameter: `jobCgroupTemplate`
Type: string
Description: Template for job cgroup path ($ESCAPE_JOBID will be replaced by systemd-escape of job id)

Parameter: `cgroupPrefix`
Type: string
Description: Cgroup prefix that used by PBS when the cgroup is created

Parameter: `enabled`

Type: boolean
Description: When set the cgroups hook is enabled (in the hook config: enabled)

Parameter: `nvidiaSmi`
Type: string
Description: The location of the nvidia-smi command (in the hook config: nvidia-smi)

Parameter: `killTimeout`
Type: unsigned integer
Description: Maximum number of seconds the hook spends attempting to kill job processes before destroying cgroups (in the hook config: kill_timeout)

Parameter: `serverTimeout`
Type: unsigned integer
Description: Maximum number of seconds the hook spends attempting to fetch node info from the server (in the hook config: server_timeout)

Parameter: `useHyperthreads`
Type: boolean
Description: All CPU threads are made available to jobs (in the hook config: use_hyperthreads)

Parameter: `ncpusAreCores`
Type: boolean
Description: ncpus of a vnode is the number of cores, and the hook assigns all threads of each core to a job (in the hook config: ncpus_are_cores)

Parameter: `cpuacctEnabled`
Type: boolean
Description: Enable cpuacct cgroup controller for jobs

Parameter: `cpusetEnabled`
Type: boolean
Description: Enable cpuset cgroup controller for jobs

Parameter: `devicesEnabled`
Type: boolean
Description: Enable devices cgroup controller for jobs

Parameter: `devicesAllow`
Type: list of strings
Description: Parameter specifies how access to devices will be controlled

Parameter: `hugetlbEnabled`
Type: boolean
Description: Enable hugetlb cgroup controller for jobs

Parameter: `hugetlbDefault`

Type: unsigned integer

Description: The amount of huge page memory assigned to the cgroup when the job does not request hpmem

Parameter: `hugetlbReservePercent`

Type: unsigned integer

Description: The percentage of available huge page memory (hpmem) that is not to be assigned to jobs

Parameter: `hugetlbReserveAmount`

Type: unsigned integer

Description: An amount of available huge page memory (hpmem) that is not to be assigned to jobs

Parameter: `memoryEnabled`

Type: boolean

Description: Enable memory cgroup controller for jobs

Parameter: `memorySoftLimit`

Type: boolean

Description: If false PBS uses hard memory limits which prevent the processes from ever exceeding their requested memory usage

Parameter: `memoryDefault`

Type: unsigned integer

Description: Amount of memory assigned to the job if it doesn't request any memory

Parameter: `memoryReservePercent`

Type: unsigned integer

Description: The percentage of available physical memory that is not to be assigned to jobs

Parameter: `memoryReserveAmount`

Type: unsigned integer

Description: A specific amount of available physical memory that is not to be assigned to jobs

Parameter: `memswEnabled`

Type: boolean

Description: Enable memsw cgroup controller for jobs

Parameter: `memswDefault`

Type: unsigned integer

Description: Specifies the amount of memory + swap assigned to the job if it doesn't request any memory

Parameter: `memswReservePercent`

Type: unsigned integer

Description: Percentage of available swap that is not to be assigned to jobs

Parameter: `memswReserveAmount`

Type: unsigned integer
Description: An amount of available swap that is not to be assigned to jobs

5.2.418 `PbsProClientRole`: `PbsProRole`

parent: `PbsProRole`

Parameter: `slots`
Type: string
Description: Number of slots available on this node/category

Parameter: `queues`
Type: list of references to `PbsProJobQueue`
Description: Queues this node/nodes in this category belongs to

Parameter: `allQueues`
Type: boolean
Description: When set, the role will provide all available queues. (The queues property will then be ignored.)

Parameter: `gpus`
Type: unsigned integer
Description: Number of gpus

Parameter: `gpuDevices`
Type: list of strings
Description: /dev/* available to workload management

Parameter: `properties`
Type: list of strings
Description: Node properties (a 'pnames' node attribute)

Parameter: `momSettings`
Type: `PbsProMomSettings`
Description: Submode containing pbs_mom daemon settings

Parameter: `commSettings`
Type: `PbsProCommSettings`
Description: Submode containing pbs_comm settings

Parameter: `nodeCustomizations`
Type: list of `WlmNodeCustomizationEntry`
Description: PBS Pro node custom properties

5.2.419 `PbsProCommSettings`: `Entity`

parent: `Entity`

Parameter: `commRouters`
Type: list of strings

Description: Tells a pbs_comm where to find its fellow communication daemons (PBS_COMM_ROUTERS parameter in pbs.conf)

Parameter: `commThreads`
Type: unsigned integer
Description: Tells pbs_comm how many threads to start (PBS_COMM_THREADS parameter in pbs.conf)

Parameter: `startComm`
Type: boolean
Description: Configure pbs_com daemon start (PBS_START_COMM parameter in pbs.conf)

5.2.420 `PbsProJobQueueStat: PBSJobQueueStat`
parent: `PBSJobQueueStat`

5.2.421 `PbsProJobQueue: PBSJobQueue`
parent: `PBSJobQueue`

5.2.422 `PbsProJob: PBSJob`
parent: `PBSJob`

5.2.423 `PbsProMomSettings: Entity`
parent: `Entity`

Parameter: `outputHostname`
Type: string
Description: Host to which all job standard output and standard error are delivered (PBS_OUTPUT_HOST_NAME parameter in pbs.conf)

Parameter: `leafRouters`
Type: list of strings
Description: Location of endpoint's pbs_comm daemon (PBS_LEAF_ROUTERS parameter in pbs.conf)

Parameter: `leafName`
Type: string
Description: Leaf name (PBS_LEAF_NAME parameter in pbs.conf)

Parameter: `leafManagementFqdn`
Type: boolean
Description: Leaf name in pbs.conf is appended with FQDN from management network

Parameter: `startMom`
Type: boolean
Description: Configure pbs_mom daemon start (PBS_START_MOM parameter in pbs.conf)

Parameter: `spool`
Type: string
Description: PBS Pro mom spool directory

5.2.424 PbsProRole: Role

parent: Role

Parameter: wlmCluster
Type: reference to PbsProWlmCluster
Description: WLM cluster link to this WLM role

5.2.425 PbsProServerRole: PbsProRole

parent: PbsProRole

Parameter: externalServer
Type: boolean
Description: PBS Pro server daemons are running on some external machine

Parameter: commSettings
Type: PbsProCommSettings
Description: Submode containing pbs_comm settings

5.2.426 PbsProSubmitRole: WlmSubmitRole

parent: WlmSubmitRole

Parameter: pbsProWlmClusters
Type: list of references to PbsProWlmCluster
Description: List of PbsPro clusters which the role belongs to

5.2.427 PbsProWlmCluster: WlmCluster

parent: WlmCluster

Parameter: version
Type: string
Description: Major PBS Pro version

Parameter: placeholders
Type: list of JobQueuePlaceholder
Description: Job queue node placeholders mode

Parameter: cgroups
Type: PbsProCgroupsSettings
Description: Submode containing PBS Pro related cgroups settings

Parameter: pelogs
Type: list of PbsPelog
Description: Submode containing a list of PBS Pro related prolog and epilog (pelog) hook settings

Parameter: enableJobHistory
Type: boolean
Description: Keep all job attribute information in PBS Pro

Parameter: jobHistoryDuration

Type: string
Description: Specifies the length of time that PBS will keep each job's history

Parameter: `prefix`
Type: string
Description: PBS Pro installation directory

Parameter: `spool`
Type: string
Description: PBS Pro server spool directory

Parameter: `subType`
Type: enum
Description: PBS Pro subtype

Parameter: `flatUid`
Type: boolean
Description: Specifies whether a username at the submission host must be the same as the one at the server host

Parameter: `maxRunning`
Type: unsigned integer
Description: Maximum number of jobs allowed to run at any given time (0 is the same as infinite)

5.2.428 `PDUPort: Entity`
parent: `Entity`

Parameter: `pdu`
Type: reference to `PowerDistributionUnit`
Description: Pointer to a power distribution unit

Parameter: `prt`
Type: unsigned integer
Description: Port number on the power distribution unit

5.2.429 `PhysicalNode: ComputeNode`
parent: `ComputeNode`

5.2.430 `PingResult: Entity`
parent: `Entity`

Parameter: `source`
Type: unsigned integer
Description: Source

Parameter: `destination`
Type: unsigned integer
Description: Destination

Parameter: `result`
Type: enum
Description: Result of the ping operation

Parameter: `latency`
Type: float
Description: Round trip latency

Parameter: `sequenceId`
Type: unsigned integer
Description: Sequence ID

5.2.431 `PingStatisticsGlobalInformation: Entity`

parent: `Entity`

Parameter: `count`
Type: unsigned integer
Description: *none*

Parameter: `average`
Type: float
Description: *none*

Parameter: `minimum`
Type: float
Description: *none*

Parameter: `maximum`
Type: float
Description: *none*

Parameter: `uniformity`
Type: float
Description: *none*

5.2.432 `PingStatisticsPairInformation: Entity`

parent: `Entity`

Parameter: `source`
Type: unsigned integer
Description: *none*

Parameter: `destination`
Type: unsigned integer
Description: *none*

Parameter: `count`
Type: unsigned integer

Description: *none*

Parameter: `average`
Type: float
Description: *none*

Parameter: `minimum`
Type: float
Description: *none*

Parameter: `maximum`
Type: float
Description: *none*

Parameter: `uniformity`
Type: float
Description: *none*

5.2.433 `PingStatisticsSourceInformation: Entity`

parent: `Entity`

Parameter: `source`
Type: unsigned integer
Description: *none*

Parameter: `count`
Type: unsigned integer
Description: *none*

Parameter: `average`
Type: float
Description: *none*

Parameter: `minimum`
Type: float
Description: *none*

Parameter: `maximum`
Type: float
Description: *none*

Parameter: `uniformity`
Type: float
Description: *none*

5.2.434 `PingStatistics: Entity`

parent: `Entity`

Parameter: `totalOk`
Type: unsigned integer
Description: Total number of pings that returned OK

Parameter: `totalError`
Type: unsigned integer
Description: Total number of pings that returned error

Parameter: `totalFailed`
Type: unsigned integer
Description: Total number of pings that returned failed

Parameter: `totalTimeout`
Type: unsigned integer
Description: Total number of pings that returned timeout

Parameter: `totalNoAddress`
Type: unsigned integer
Description: Total number of pings had no address

Parameter: `totalUnreachable`
Type: unsigned integer
Description: Total number of pings that returned unreachable

Parameter: `total`
Type: unsigned integer
Description: Total number of pings done

Parameter: `pairInformation`
Type: list of `PingStatisticsPairInformation`
Description: Ping pair information statistics

Parameter: `sourceInformation`
Type: list of `PingStatisticsSourceInformation`
Description: Ping source information statistics

Parameter: `globalInformation`
Type: `PingStatisticsGlobalInformation`
Description: Ping global information statistics

Parameter: `results`
Type: list of `PingResult`
Description: Raw ping results

5.2.435 PowerDistributionUnit: Device

parent: Device

Parameter: ip
Type: IP
Description: IP address

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

Parameter: model
Type: string
Description: PowerDistributionUnit model name

Parameter: ports
Type: integer
Description: Number of outlets

Parameter: banks
Type: integer
Description: Number of banks

Parameter: phases
Type: integer
Description: Number of phases

Parameter: snmpSettings
Type: SNMPSettings or None
Description: Configure the cluster wide SNMP settings

Parameter: firmware
Type: string
Description: Firmware revision

Parameter: controlScript
Type: string
Description: *none*

Parameter: controlScriptTimeout
Type: unsigned integer
Description: *none*

5.2.436 PowerOperationHistory: Entity

parent: Entity

Parameter: refDeviceUniqueKey
Type: unsigned integer

Description: Device

Parameter: `executionTime`
Type: unsigned integer
Description: Execution time in milliseconds after epoch

Parameter: `operation`
Type: enum
Description: Operation

Parameter: `success`
Type: boolean
Description: Success

5.2.437 `PowerOperationStatus: Entity`

parent: `Entity`

Parameter: `state`
Type: enum
Description: State of the operation

Parameter: `operation`
Type: enum
Description: Operation to be performed

Parameter: `executionTime`
Type: timestamp
Description: Execution time

Parameter: `info`
Type: string
Description: Extra information about the power operation

Parameter: `retries`
Type: unsigned integer
Description: Number of retries

Parameter: `devices`
Type: list of unsigned numbers
Description: Devices

Parameter: `index`
Type: list of unsigned numbers
Description: Indexes of power operation

Parameter: `gpus`
Type: list of unsigned numbers

Description: GPUs

5.2.438 PowerOperation: Entity

parent: `Entity`

Parameter: `devices`
Type: list of unsigned numbers
Description: Devices

Parameter: `pduPorts`
Type: list of unsigned numbers
Description: A list of (PDU, port) pairs

Parameter: `sessionId`
Type: unsigned integer
Description: Session id

Parameter: `force`
Type: boolean
Description: Set to true to also do power operation on closed devices

Parameter: `delay`
Type: unsigned integer
Description: Delay between sequencial operations in milliseconds

Parameter: `deviceDelay`
Type: list of unsigned numbers
Description: Individual device delay in milliseconds

Parameter: `headIndex`
Type: unsigned integer
Description: Should be 0

Parameter: `operation`
Type: enum
Description: Operation to be performed

Parameter: `gpus`
Type: list of unsigned numbers
Description: GPUs

Parameter: `retryCount`
Type: unsigned integer
Description: Number of times to retry on failure

Parameter: `retryDelay`
Type: unsigned integer

Description: Delay between consecutive tries in milliseconds

5.2.439 `PowerStatus: Entity`

parent: `Entity`

Parameter: `device`
Type: unsigned integer
Description: Device

Parameter: `host`
Type: unsigned integer
Description: *none*

Parameter: `powerDistributionUnit`
Type: unsigned integer
Description: *none*

Parameter: `gpu`
Type: integer
Description: *none*

Parameter: `prt`
Type: unsigned integer
Description: *none*

Parameter: `name`
Type: string
Description: *none*

Parameter: `state`
Type: enum
Description: *none*

Parameter: `msg`
Type: string
Description: *none*

Parameter: `extendedMsg`
Type: string
Description: *none*

Parameter: `indexes`
Type: list of unsigned numbers
Description: *none*

Parameter: `tracker`
Type: unsigned integer

Description: *none*

Parameter: `retries`
Type: unsigned integer
Description: *none*

5.2.440 `PreJobOutput: Entity`
parent: `Entity`

Parameter: `measurable`
Type: unsigned integer
Description: *none*

Parameter: `value`
Type: float
Description: *none*

Parameter: `output`
Type: string
Description: *none*

Parameter: `failed`
Type: boolean
Description: *none*

Parameter: `reschedule`
Type: boolean
Description: *none*

5.2.441 `PreJobResult: Entity`
parent: `Entity`

Parameter: `hostname`
Type: string
Description: *none*

Parameter: `nodeKey`
Type: unsigned integer
Description: *none*

Parameter: `output`
Type: list of `PreJobOutput`
Description: *none*

5.2.442 `Processor: Entity`
parent: `Entity`

Parameter: `IDs`
Type: list of unsigned numbers

Description: ID

Parameter: `physicalIDs`
Type: list of unsigned numbers
Description: Physical ID

Parameter: `coreIDs`
Type: list of unsigned numbers
Description: Core ID

Parameter: `vendor`
Type: string
Description: Vendor

Parameter: `model`
Type: string
Description: Model

Parameter: `cores`
Type: unsigned integer
Description: Cores

Parameter: `speed`
Type: float
Description: Speed

Parameter: `cacheSize`
Type: unsigned integer
Description: Cache size

Parameter: `bogomips`
Type: float
Description: Bogomips

5.2.443 `Process: Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `pid`
Type: integer
Description: Process ID

Parameter: `ppid`
Type: integer

Description: Parent PID

Parameter: `uid`
Type: integer
Description: Owner UID

Parameter: `gid`
Type: integer
Description: Process' group ID

Parameter: `state`
Type: string
Description: Process' state

Parameter: `cmd`
Type: string
Description: The command name

Parameter: `size`
Type: unsigned integer
Description: Virtual memory size

Parameter: `rss`
Type: unsigned integer
Description: Resident memory size

Parameter: `nbthreads`
Type: unsigned integer
Description: Number of threads spawned

Parameter: `nbfiledescs`
Type: unsigned integer
Description: Number of held file descriptors

Parameter: `cputime`
Type: unsigned integer
Description: CPU time

Parameter: `cpuuse`
Type: float
Description: CPU usage

Parameter: `username`
Type: string
Description: Owner name

Parameter: `groupname`

Type: string
Description: Group name

5.2.444 `Profile: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `tokens`
Type: list of strings
Description: Tokens

Parameter: `accessServices`
Type: list of strings
Description: Services

Parameter: `nonuser`
Type: boolean
Description: True if profile not assignable to users.

5.2.445 `ProgramRunnerInput: Entity`

parent: `Entity`

Parameter: `user`
Type: string
Description: *none*

Parameter: `startInShell`
Type: boolean
Description: *none*

Parameter: `cmd`
Type: string
Description: *none*

Parameter: `info`
Type: string
Description: *none*

Parameter: `args`
Type: list of strings
Description: *none*

Parameter: `env`
Type: list of strings

Description: *none*

Parameter: `datacin`
Type: string
Description: *none*

Parameter: `mergeCoutCerr`
Type: boolean
Description: *none*

Parameter: `maxruntime`
Type: unsigned integer
Description: *none*

Parameter: `updateinterval`
Type: unsigned integer
Description: *none*

Parameter: `priority`
Type: integer
Description: *none*

Parameter: `tracker`
Type: unsigned integer
Description: *none*

Parameter: `logger`
Type: enum
Description: *none*

5.2.446 `ProgramRunnerKill: Entity`

parent: `Entity`

Parameter: `node`
Type: unsigned integer
Description: Node key

Parameter: `running`
Type: integer
Description: Running

Parameter: `trackers`
Type: list of unsigned numbers
Description: Tackers

Parameter: `results`
Type: list of signed numbers

Description: results

5.2.447 `ProgramRunnerOutput: Entity`

parent: `Entity`

Parameter: `node`
Type: unsigned integer
Description: *none*

Parameter: `datacout`
Type: string
Description: *none*

Parameter: `datacerr`
Type: string
Description: *none*

Parameter: `exitcode`
Type: integer
Description: *none*

Parameter: `signal`
Type: integer
Description: *none*

Parameter: `pid`
Type: integer
Description: *none*

Parameter: `runtime`
Type: unsigned integer
Description: *none*

Parameter: `state`
Type: unsigned integer
Description: *none*

5.2.448 `ProgramRunnerStatus: Entity`

parent: `Entity`

Parameter: `startTime`
Type: timestamp
Description: *none*

Parameter: `runtime`
Type: unsigned integer
Description: *none*

Parameter: `sid`
Type: unsigned integer
Description: *none*

Parameter: `running`
Type: integer
Description: *none*

Parameter: `unknown`
Type: integer
Description: *none*

Parameter: `internal`
Type: boolean
Description: *none*

Parameter: `nodes`
Type: list of unsigned numbers
Description: *none*

Parameter: `state`
Type: list of unsigned numbers
Description: *none*

Parameter: `input`
Type: `ProgramRunnerInput`
Description: *none*

5.2.449 `ProjectManager: Entity`

parent: `Entity`

Parameter: `users`
Type: list of strings
Description: List of users managed

Parameter: `accounts`
Type: list of strings
Description: List of accounts managed

Parameter: `op`
Type: enum
Description: Job needs to belong to one of the users and/or accounts

5.2.450 `PrometheusQueryDrilldown: Entity`

parent: `Entity`

Parameter: `name`
Type: string

Description: The name of the drill down

Parameter: `parameters`
Type: list of strings
Description: Parameters to be passed to the drill down query

Parameter: `query`
Type: reference to `PrometheusQuery` or None
Description: Query to execute

5.2.451 `PrometheusQuery: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `alias`
Type: string
Description: Alternative name

Parameter: `query`
Type: string
Description: PromQL Query

Parameter: `typeClass`
Type: string
Description: Type class, slash(/) separated for levels

Parameter: `description`
Type: string
Description: Description

Parameter: `notes`
Type: string
Description: Notes

Parameter: `startTime`
Type: string
Description: Default query start time

Parameter: `endTime`
Type: string
Description: Default end start time

Parameter: `interval`
Type: float

Description: Interval

Parameter: `stalenessDelay`
Type: float
Description: Staleness delay

Parameter: `access`
Type: enum
Description: User access control

Parameter: `unit`
Type: string
Description: Unit of measure for the query results

Parameter: `price`
Type: float
Description: Optional price associtated with the query results per unit

Parameter: `currency`
Type: string
Description: Currency

Parameter: `preference`
Type: unsigned integer
Description: The query with the highest preference be shown by default

Parameter: `drilldown`
Type: list of `PrometheusQueryDrilldown`
Description: Manage the drilldown queries

5.2.452 `PrometheusRecordingRule: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `sourceLabels`
Type: list of strings
Description: Source labels to be translated into target

Parameter: `targetLabel`
Type: string
Description: Target label

Parameter: `valueRegex`
Type: string

Description: Regex the value must match for this rule to be applied

Parameter: `valueReplace`
Type: string
Description: Replace value with regex replace (use $1 for matchers)

Parameter: `disabled`
Type: boolean
Description: Disable this rule

Parameter: `keepOriginalLabels`
Type: boolean
Description: Keep original labels

5.2.453 `ProvisioningNodeStatus: Entity`

parent: `Entity`

Parameter: `slotsCapacity`
Type: unsigned integer
Description: Number of provisioning requests this node can handle in parallel.

Parameter: `slotsUsed`
Type: unsigned integer
Description: Number of provisioning requests currently being handled by this node.

Parameter: `nodeKey`
Type: unsigned integer
Description: The provisioning node.

Parameter: `drained`
Type: boolean
Description: Drained and not available for future request

Parameter: `imageKeys`
Type: list of unsigned numbers
Description: *none*

Parameter: `upToDate`
Type: list of booleans
Description: *none*

Parameter: `nodeGroupKeys`
Type: list of unsigned numbers
Description: Node groups this provisioning node will provide images for.

Parameter: `categoryKeys`
Type: list of unsigned numbers

Description: Categories this provisioning node will provide images for.

Parameter: `rackKeys`
Type: list of unsigned numbers
Description: Racks this provisioning node will provide images for.

5.2.454 `ProvisioningProcessorJob: Entity`

parent: `Entity`

Parameter: `jobID`
Type: unsigned integer
Description: Internal provisioning system job ID.

Parameter: `requestID`
Type: unsigned integer
Description: Provisioning request ID.

Parameter: `source`
Type: reference to `Node`
Description: Source node.

Parameter: `sourcePath`
Type: string
Description: Path on the source node.

Parameter: `destination`
Type: reference to `Node`
Description: Destination node.

Parameter: `destinationPath`
Type: string
Description: Path on the destination node.

Parameter: `isFromNodeInstaller`
Type: boolean
Description: Set if the request came from the node-installer.

Parameter: `isBackupFromBackup`
Type: boolean
Description: Set if the request came a backup of a backup.

Parameter: `userName`
Type: string
Description: Rsync username.

Parameter: `password`
Type: string

Description: Rsync password.

Parameter: `rsyncdPort`
Type: unsigned integer
Description: Rsync port.

Parameter: `includelist`
Type: string
Description: Rsync include list.

Parameter: `excludelist`
Type: string
Description: Rsync exclude list.

Parameter: `dryrun`
Type: boolean
Description: If set, a dry run will be performed, no data is written.

Parameter: `syncMode`
Type: unsigned integer
Description: Sync mode.

Parameter: `state`
Type: unsigned integer
Description: Job state.

Parameter: `errorMessage`
Type: string
Description: Error message.

Parameter: `errorDetails`
Type: string
Description: Error details.

Parameter: `fspart`
Type: reference to `FSPart`
Description: FSPart

Parameter: `index`
Type: unsigned integer
Description: Index

5.2.455 `ProvisioningRequestStatus: Entity`

parent: `Entity`

Parameter: `requestIDs`
Type: list of unsigned numbers

Description: Provisioning request IDs.

Parameter: `sourceNodeKey`
Type: unsigned integer
Description: Source node handling the provisioning request.

Parameter: `sourcePath`
Type: string
Description: Path on the source node.

Parameter: `destinationNodeKey`
Type: unsigned integer
Description: Destination node for the provisioning request.

Parameter: `destinationPath`
Type: string
Description: Path on the destination node.

Parameter: `dryRun`
Type: boolean
Description: In dry-run mode no data is actually written. See provisioning log for results.

Parameter: `syncMode`
Type: unsigned integer
Description: Sync mode used for the provisioning request.

Parameter: `state`
Type: unsigned integer
Description: State of the provisioning request.

Parameter: `errorMessage`
Type: string
Description: Error message.

Parameter: `errorDetails`
Type: string
Description: Detailed error message.

Parameter: `jobFailureCounter`
Type: unsigned integer
Description: Number of times the provisioning job has failed.

Parameter: `isFromNodeInstaller`
Type: boolean
Description: Set if the request came from the node-installer.

Parameter: `requesterSessions`

Type: list of unsigned numbers
Description: *none*

Parameter: `schedulerInfo`
Type: list of strings
Description: Details on how the provisioning request was scheduled.

5.2.456 `ProvisioningRole: Role`

parent: `Role`

Parameter: `maxProvisioningNodes`
Type: unsigned integer
Description: Maximum number of nodes that can be provisioned in parallel

Parameter: `loadWeight`
Type: float
Description: Load weight factor, higher factor will reduce the virtual load on the node and make it be used less. Value will be set to 1 if defined lower as lower than 1.

Parameter: `localImages`
Type: list of references to `SoftwareImage`
Description: List of software images provided from local disk

Parameter: `includeRevisionsOfLocalImages`
Type: boolean
Description: Include revisions of local images

Parameter: `sharedImages`
Type: list of references to `SoftwareImage`
Description: List of software images provided from shared storage

Parameter: `allImages`
Type: enum
Description: When set, the role will provide all available images. (The images property will then be ignored.)

Parameter: `nodegroups`
Type: list of references to `NodeGroup`
Description: List of node groups for which to provide images

Parameter: `categories`
Type: list of references to `Category`
Description: List of categories for which to provide images

Parameter: `racks`
Type: list of references to `Rack`
Description: List of racks for which to provide images

Parameter: `localProvisioning`

Type: boolean

Description: Speeds up initial provisioning of cloud directors and cloud provisioning nodes. When enabled, if a software image is used as the rootfs of the provisioning node and is also to be used by that node to provision other cloud nodes, during the initial FULL install that image will be transferred only once to the provisioning node, instead of twice.

5.2.457 `ProvisioningSettings`: `Entity`

parent: `Entity`

Parameter: `dirtyAutoUpdateTimeout`

Type: unsigned integer

Description: Delay after which a provisioning node is considered out of date and automatically updated when needed (0 to disable automatic updates)

Parameter: `autoUpdatePeriod`

Type: unsigned integer

Description: Period after which all provisioning nodes are automatically updated (0 to disable automatic updates)

Parameter: `noRestartRequiredPeriod`

Type: unsigned integer

Description: Period in which a second request doesn't require a restart of a recently started rsync

Parameter: `minimalLoadForOffload`

Type: float

Description: Minimal provisioning load on the active head node before which dirty provisioning nodes are updated

Parameter: `headNodeLoadMultiplier`

Type: float

Description: Load multiplier to reduce the work for the head node and offload more to the provisioning nodes

Parameter: `useGNSSLocationData`

Type: boolean

Description: Use GNSS location data where available to find and prefer the closest provisioning node

5.2.458 `ProvisioningStatus`: `Entity`

parent: `Entity`

Parameter: `provisioningRequestStatusList`

Type: list of `ProvisioningRequestStatus`

Description: *none*

Parameter: `provisioningNodeStatusList`

Type: list of `ProvisioningNodeStatus`

Description: *none*

5.2.459 ProxySettings: Entity

parent: Entity

Parameter: proxyHttp
Type: string
Description: HTTP proxy address which will be used for the node connections to HTTP resources

Parameter: proxyHttpUser
Type: string
Description: HTTP proxy username for authentication

Parameter: proxyHttpPass
Type: string
Description: HTTP proxy password for authentication

Parameter: proxyHttps
Type: string
Description: HTTPS proxy address which will be used for the node connections to HTTPS resources

Parameter: proxyHttpsUser
Type: string
Description: HTTPS proxy username for authentication

Parameter: proxyHttpsPass
Type: string
Description: HTTPS proxy password for authentication

Parameter: proxyFtp
Type: string
Description: FTP proxy address which will be used for the node connections to FTP resources

Parameter: proxyFtpUser
Type: string
Description: FTP proxy username for authentication

Parameter: proxyFtpPass
Type: string
Description: FTP proxy password for authentication

Parameter: noProxy
Type: list of strings
Description: Hosts to be accessed without proxy

5.2.460 RackPosition: Entity

parent: Entity

Parameter: rack
Type: reference to Rack

Description: Name of the rack in which the device resides

Parameter: `position`
Type: unsigned integer
Description: Position of the node in the rack, top is 1

Parameter: `height`
Type: unsigned integer
Description: Height of the node

5.2.461 `RackSensor: Device`

parent: `Device`

Parameter: `ip`
Type: IP
Description: Ip address

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

Parameter: `model`
Type: string
Description: RackSensor model name

Parameter: `sensors`
Type: list of `Sensor`
Description: Sensors in the rackmon kit

Parameter: `snmpSettings`
Type: `SNMPSettings` or None
Description: Configure the cluster wide SNMP settings

5.2.462 `Rack: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `room`
Type: string
Description: Name of the room

Parameter: `xCoordinate`
Type: unsigned integer
Description: Position in the room

Parameter: `yCoordinate`
Type: unsigned integer
Description: Position in the room

Parameter: `height`
Type: unsigned integer
Description: Height

Parameter: `width`
Type: unsigned integer
Description: Width

Parameter: `depth`
Type: unsigned integer
Description: Depth

Parameter: `angle`
Type: unsigned integer
Description: Angle of the rack, 90 face right, 180 face backwards, 270 face left

Parameter: `inverted`
Type: boolean
Description: Inverted racks have position 1 at the bottom

Parameter: `notes`
Type: string
Description: Administrator notes

5.2.463 `RadosGatewayRole: Role`

parent: `Role`

Parameter: `serverRoot`
Type: string
Description: Fast CGI server root path

Parameter: `serverSocket`
Type: string
Description: Fast CGI server socket

Parameter: `serverPort`
Type: unsigned integer
Description: Gateway port

Parameter: `serverScript`
Type: string
Description: Fast CGI server script content

Parameter: `module`

Type: string
Description: Apache fastcgi module file name

Parameter: `nssDbPath`
Type: string
Description: Path to NSS database directory

5.2.464 `RemoteNodeInstallerInteraction: Entity`

parent: `Entity`

Parameter: `type`
Type: enum
Description: Type

Parameter: `node`
Type: reference to `ComputeNode`
Description: The node requesting interaction

Parameter: `description`
Type: string
Description: The description of the interaction

Parameter: `message`
Type: string
Description: The message send back via the manager

Parameter: `payload`
Type: string
Description: The resulting payload for the interaction

Parameter: `firstSeen`
Type: unsigned integer
Description: The first time this interaction was requested

Parameter: `lastSeen`
Type: unsigned integer
Description: The last time this interaction was requested

Parameter: `wasConfirmed`
Type: boolean
Description: Whether the interaction has been confirmed

Parameter: `wasDenied`
Type: boolean
Description: Whether the interaction has been denied (rejected)

Parameter: `invalid`
Type: boolean

Description: Whether the interaction was found to be invalid

Parameter: `force`
Type: boolean
Description: Flag to indicate a forced passphrase change

Parameter: `reset`
Type: boolean
Description: Flag to indicate a custom passphrase should be reset to blank

5.2.465 `RemoteSetupExecution: Entity`

parent: `Entity`

Parameter: `id`
Type: integer
Description: A unique identified of the remote cm-*-setup execution.

Parameter: `inputConfig`
Type: string
Description: cm-*-setup yaml input configuration file (used with '-c' flag).

Parameter: `exitCode`
Type: integer
Description: The return exit code from cm-setup (once the execution has been completed.

Parameter: `signal`
Type: integer
Description: Number identifying the signal which interrupted the execution.

Parameter: `datacout`
Type: list of strings
Description: Data which was emitted on stdout from cm-*-setup.

5.2.466 `ReportQuery: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `query`
Type: string
Description: Report query

Parameter: `description`
Type: string
Description: Description

Parameter: `notes`
Type: string
Description: Notes

Parameter: `interval`
Type: float
Description: Interval

5.2.467 `ResourcePoolStatus: Entity`
parent: `Entity`

Parameter: `nodes`
Type: list of unsigned numbers
Description: Nodes

Parameter: `nodeStatus`
Type: list of unsigned numbers
Description: Node status

Parameter: `resourceKeys`
Type: list of unsigned numbers
Description: Resource key

Parameter: `resourceStatus`
Type: list of unsigned numbers
Description: Resource status

Parameter: `resourceMessages`
Type: list of strings
Description: Resource message

5.2.468 `ResourcePool: Entity`
parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `nodes`
Type: list of references to `Node`
Description: List of nodes who share the resources

Parameter: `configurationOverlay`
Type: reference to `ConfigurationOverlay`
Description: Configuration overlay which defines the nodes that share the resources

Parameter: `priority`
Type: list of floating point numbers

Description: Distribution priorities for the nodes

Parameter: `hostname`
Type: string
Description: Hostname all IP resources will point to

Parameter: `resources`
Type: list of `BasicResource`
Description: Resources to be divided among the given nodes

Parameter: `waitTime`
Type: unsigned integer
Description: How long to wait after a node goes down before migrating it's resources

Parameter: `disabled`
Type: boolean
Description: Disabled the entire resource pool

Parameter: `generateDNSZone`
Type: enum
Description: Specify which DNS zones should be written

5.2.469 `Role: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `addServices`
Type: boolean
Description: Add services to nodes which belong to this node. Be careful setting this to false.

Parameter: `fspartAssociations`
Type: list of `FSPartAssociation`
Description: Provisioning associations linked to this role

5.2.470 `Route: Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `destination`
Type: IP
Description: The destination network or destination host.

Parameter: `gateway`
Type: IP
Description: Gateway

Parameter: `netmask`
Type: IP
Description: The netmask for the destination

Parameter: `flags`
Type: string
Description: Flags

Parameter: `metric`
Type: unsigned integer
Description: The 'distance' to the target (usually counted in hops)

Parameter: `ref`
Type: unsigned integer
Description: Number of references to this route

Parameter: `use`
Type: unsigned integer
Description: Number of lookups for the route

Parameter: `interface`
Type: string
Description: *none*

5.2.471 `ScaleAdvancedSettings: Entity`

parent: `Entity`

Parameter: `debug2`
Type: boolean
Description: Print very low level debug messages to the log

Parameter: `maxThreads`
Type: unsigned integer
Description: Maximum number of threads for sequential operations

Parameter: `powerOperationTimeout`
Type: unsigned integer
Description: Power Operation Timeout (in seconds)

Parameter: `connectionRetryInterval`
Type: unsigned integer
Description: Connection to CMDaemon retry interval (in seconds)

Parameter: `logFile`

Type: string
Description: Path to cm-scale logs file

Parameter: `pinQueues`
Type: boolean
Description: Pin workload to its queue nodes

Parameter: `mixLocations`
Type: boolean
Description: Allow to map workload to different locations (for example, cloud and local)

Parameter: `failedNodeIsHealthy`
Type: boolean
Description: Do not start a new node instead of a failed one

Parameter: `azureDiskAccountNodes`
Type: unsigned integer
Description: Number of nodes that can share the same Azure disk account

Parameter: `azureDiskImageName`
Type: string
Description: Image name for Azure disks

Parameter: `azureDiskContainerName`
Type: string
Description: Container name for Azure disks

Parameter: `azureDiskAccountPrefix`
Type: string
Description: Prefix for randomly generated Azure disk account names

Parameter: `nodeSelection`
Type: enum
Description: Type of node selection used by Auto Scaler

Parameter: `nodeSelectionUptimePeriod`
Type: unsigned integer
Description: Period of time in which Auto Scaler calculates total uptime for the nodes during selection

Parameter: `options`
Type: list of strings
Description: Additional parameters that will be passed to cm-scale daemon

5.2.472 `ScaleDynamicNodesProvider`: `ScaleResourceProvider`

parent: `ScaleResourceProvider`

Parameter: `templateNode`
Type: reference to `Node`

Description: Template node

Parameter: `nodeRange`
Type: string
Description: Node range

Parameter: `networkInterface`
Type: string
Description: Which node network interface will be changed on cloning (incremented)

Parameter: `startTemplateNode`
Type: boolean
Description: Should template node be started automatically

Parameter: `stopTemplateNode`
Type: boolean
Description: Should template node be stopped automatically

Parameter: `removeNodes`
Type: boolean
Description: Should nodes be removed from Bright Cluster Manager configuration upon the node termination

Parameter: `leaveFailedNodes`
Type: boolean
Description: Failed nodes will not be touched in order to allow administrator to investigate why they were failed

Parameter: `neverTerminate`
Type: unsigned integer
Description: Number of nodes that cm-scale powers off and allows to remain, instead of terminating

Parameter: `neverTerminateNodes`
Type: list of references to `Node`
Description: List of particular nodes that cm-scale powers off and allows to remain, instead of terminating

5.2.473 `ScaleEngine: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: HPC workload engine name

Parameter: `trackers`
Type: list of `ScaleTracker`
Description: Workload trackers

Parameter: `workloadsPerNode`
Type: unsigned integer
Description: Number of workloads that can be scheduled to the same node at the same time

Parameter: `priority`
Type: unsigned integer
Description: Workload engine priority

Parameter: `ageFactor`
Type: float
Description: Fairsharing coefficient for workload age significance

Parameter: `engineFactor`
Type: float
Description: Fairsharing coefficient for engine priority significance

Parameter: `externalPriorityFactor`
Type: float
Description: Fairsharing coefficient for external priority significance

Parameter: `maxNodes`
Type: unsigned integer
Description: Allowed running nodes limit

Parameter: `notes`
Type: string
Description: Engine related notes

Parameter: `options`
Type: list of strings
Description: Additional engine related parameters that will be passed to cm-scale daemon

5.2.474 `ScaleGenericEngine: ScaleEngine`

parent: `ScaleEngine`

5.2.475 `ScaleGenericTracker: ScaleTracker`

parent: `ScaleTracker`

Parameter: `handler`
Type: string
Description: Full path to python module that produces workload entities for cm-scale

5.2.476 `ScaleHpcEngine: ScaleEngine`

parent: `ScaleEngine`

Parameter: `wlmCluster`
Type: reference to `WlmCluster`

Description: WLM cluster that will be used by cm-scale

5.2.477 ScaleHpcQueueTracker: ScaleTracker

parent: ScaleTracker

Parameter: queue
Type: string
Description: Tracking job queue

5.2.478 ScaleKubeEngine: ScaleEngine

parent: ScaleEngine

Parameter: cluster
Type: reference to KubeCluster
Description: Kubernetes cluster which pods will be tracked

Parameter: cpuBusyThreshold
Type: float
Description: CPU load % that defines if node is too busy for new pods

Parameter: memoryBusyThreshold
Type: float
Description: Memory load % that defines if node is too busy for new pods

5.2.479 ScaleKubeNamespaceTracker: ScaleTracker

parent: ScaleTracker

Parameter: controllerNamespace
Type: string
Description: Tracking Kubernetes namespace name

Parameter: object
Type: enum
Description: Type of Kubernetes objects to track

5.2.480 ScalePendingWorkload: Entity

parent: Entity

Parameter: workloadId
Type: string
Description: Workload that waits for nodes

Parameter: nodes
Type: list of references to Node
Description: List of managed nodes

5.2.481 ScaleResourceProvider: Entity

parent: Entity

Parameter: name

Type: string
Description: Resource provider name

Parameter: `enabled`
Type: boolean
Description: Resource provider is currently enabled

Parameter: `priority`
Type: unsigned integer
Description: Node provider priority

Parameter: `wholeTime`
Type: unsigned integer
Description: A compute node running time (in minutes) before it is stopped if no workload requires it

Parameter: `stoppingAllowancePeriod`
Type: unsigned integer
Description: A time (in minutes) just before the end of the wholeTime period prior to which all power off (or terminate) operations must be started

Parameter: `keepRunning`
Type: string
Description: Nodes that should not be stopped or terminated even if they are unused (range format)

Parameter: `extraNodes`
Type: list of strings
Description: Nodes that should be started before regular nodes

Parameter: `extraNodeIdleTime`
Type: unsigned integer
Description: Time, in seconds, that extra nodes can remain unused (after this time they are stopped)

Parameter: `extraNodeStart`
Type: boolean
Description: Automatically start extra node before the first compute node is started

Parameter: `extraNodeStop`
Type: boolean
Description: Automatically stop extra node after the last compute node stops

Parameter: `allocationProlog`
Type: string
Description: Script that is executed when a node is allocated to a workload

Parameter: `allocationEpilog`
Type: string

Description: Script that is executed when a node is deallocated

Parameter: `allocationScriptsTimeout`
Type: unsigned integer
Description: Allocation scripts timeout in seconds

Parameter: `defaultResources`
Type: list of strings
Description: List of default resources in format [name=value]

Parameter: `shutdownEnabled`
Type: boolean
Description: Shutdown nodes instead of just power off, and wait until a set timeout before doing a hard power off

Parameter: `shutdownTimeout`
Type: unsigned integer
Description: Shutdown timeout before powering off

Parameter: `longStartingNodeAction`
Type: enum
Description: Action applied to nodes that start for too long

Parameter: `longStartingNodeTimeout`
Type: unsigned integer
Description: How long Auto Scaler should wait before the action is applied for long starting nodes

Parameter: `options`
Type: list of strings
Description: Additional resource provider related parameters that will be passed to cm-scale daemon

5.2.482 `ScaleServerRole: Role`

parent: `Role`

Parameter: `engines`
Type: list of `ScaleEngine`
Description: Submode containing workload engines settings

Parameter: `resourceProviders`
Type: list of `ScaleResourceProvider`
Description: List of resource providers

Parameter: `dryRun`
Type: boolean
Description: Run in dry run mode

Parameter: `debug`
Type: boolean

Description: Print debug messages to the log

Parameter: `runInterval`
Type: unsigned integer
Description: Frequency of cm-scale decision making (in seconds)

Parameter: `advancedSettings`
Type: `ScaleAdvancedSettings`
Description: Submode containing advanced settings

5.2.483 `ScaleStaticNodesProvider`: `ScaleResourceProvider`

parent: `ScaleResourceProvider`

Parameter: `nodes`
Type: list of references to `Node`
Description: List of managed nodes

Parameter: `nodegroups`
Type: list of references to `NodeGroup`
Description: List of managed nodegroups

5.2.484 `ScaleTracker`: `Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Tracker name

Parameter: `enabled`
Type: boolean
Description: Tracker is currently enabled or disabled

Parameter: `assignCategory`
Type: reference to `Category`
Description: Category that should be assigned to managed nodes

Parameter: `primaryOverlays`
Type: list of references to `ConfigurationOverlay`
Description: Configuration overlays that managed nodes are added to when they are required by workload

Parameter: `allowedResourceProviders`
Type: list of strings
Description: Only the specified resource providers will be used for a workload of this tracker (if empty than all allowed)

Parameter: `queueLengthThreshold`
Type: unsigned integer

Description: Number of pending workloads/jobs that triggers the nodes bursting

Parameter: `ageThreshold`
Type: unsigned integer
Description: Workload/job pending time threshold that triggers the nodes bursting for this workload (in seconds)

Parameter: `workloadsPerNode`
Type: unsigned integer
Description: Number of workloads that can be scheduled to the same node at the same time (0 means no limit)

Parameter: `options`
Type: list of strings
Description: Additional tracker related parameters

5.2.485 `SELinuxSettings: Entity`

parent: `Entity`

Parameter: `initialize`
Type: boolean
Description: Determines whether SELinux is to be initialized by the node installer

Parameter: `rebootAfterContextRestore`
Type: boolean
Description: This directive determines whether the compute node is to reboot after performing a full filesystem security context restore

Parameter: `allowNFSHomeDirectories`
Type: boolean
Description: This directive determines whether to allow using a remote NFS server for the home directories on the node

Parameter: `contextActionAutoInstall`
Type: enum
Description: This directive specifies the action which is to be performed by the Node Installer when the node is being installed in the AUTO mode

Parameter: `contextActionFullInstall`
Type: enum
Description: This directive specifies the action which is to be performed by the Node Installer when the node is being installed in the FULL mode

Parameter: `contextActionNoSyncInstall`
Type: enum
Description: This directive specifies the action which is to be performed by the Node Installer when the node is being installed in the NOSYNC mode

Parameter: `mode`
Type: enum
Description: Process policy mode

Parameter: `policy`
Type: enum
Description: Process protection policy

Parameter: `keyValueSettings`
Type: `KeyValueSettings` or None
Description: Key value settings which can be used to override SELinux options

5.2.486 `Semaphore: Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `semid`
Type: integer
Description: Semaphore Set ID

Parameter: `ipcperm`
Type: `IPCPerm`
Description: IPC permissions

Parameter: `nsems`
Type: unsigned integer
Description: Number of semaphores in the set

5.2.487 `Sensor: Entity`

parent: `Entity`

Parameter: `type`
Type: enum
Description: Sensor type

Parameter: `name`
Type: string
Description: Sensor name

Parameter: `prt`
Type: unsigned integer
Description: Sensor port

5.2.488 Session: Entity

parent: Entity

Parameter: eventCounter
Type: unsigned integer
Description: *none*

Parameter: queuedEventSize
Type: unsigned integer
Description: *none*

Parameter: clientType
Type: unsigned integer
Description: *none*

Parameter: acknowledgedKeepAlive
Type: integer
Description: *none*

Parameter: nodeKey
Type: unsigned integer
Description: *none*

Parameter: remoteAddress
Type: IP
Description: *none*

Parameter: username
Type: string
Description: *none*

Parameter: group
Type: string
Description: *none*

5.2.489 SharedMemory: Entity

parent: Entity

Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: shmid
Type: integer
Description: Shared memory ID

Parameter: ipcperm
Type: IPCPerm

Description: IPC permissions

Parameter: `size`
Type: unsigned integer
Description: Size in bytes

Parameter: `cpid`
Type: integer
Description: Creator PID

Parameter: `nattch`
Type: integer
Description: Number of attaches

5.2.490 `SlurmAccountingRole`: `Role`

parent: `Role`

Parameter: `dbdPort`
Type: unsigned integer
Description: The port number that the Slurm Database Daemon (slurmdbd) listens to for work

Parameter: `storageHost`
Type: string
Description: Defines the name of the host the MySQL database is running where slurmdbd is going to store the data

Parameter: `storagePort`
Type: unsigned integer
Description: The port number that the Slurm Database Daemon (slurmdbd) communicates with the database

Parameter: `storageLoc`
Type: string
Description: The name of the database as the location where slurmdbd accounting records are written

Parameter: `storageUser`
Type: string
Description: Defines the name of the user to connect to the MySQL database with to store the job accounting data

Parameter: `slurmWlmClusters`
Type: list of references to `SlurmWlmCluster`
Description: List of Slurm clusters which can make use of this SlurmAccountingRole (slurmdbd)

5.2.491 `SlurmCgroupsSettings`: `WlmCgroupsSettings`

parent: `WlmCgroupsSettings`

Parameter: `allowedDevicesFile`

Type: string

Description: If ConstrainDevices is true then this file has to be used to declare the devices that need to be allowed by default for all the jobs

Parameter: `taskAffinity`

Type: boolean

Description: If true then set a default task affinity to bind each step task to a subset of the allocated cores using sched_setaffinity

Parameter: `constrainCores`

Type: boolean

Description: If true then constrain allowed cores to the subset of allocated resources

Parameter: `constrainRAMSpace`

Type: boolean

Description: If true then constrain the job's RAM usage

Parameter: `constrainSwapSpace`

Type: boolean

Description: If true then constrain the job's swap space usage

Parameter: `constrainDevices`

Type: boolean

Description: If true constrain the job's allowed devices based on GRES allocated resources

Parameter: `allowedRamSpace`

Type: float

Description: Constrain the job cgroup RAM to this percentage of the allocated memory. The percentage supplied may be expressed as floating point number, e.g. 98.5. If the AllowedRAMSpace limit is exceeded, the job steps will be killed and a warning message will be written to standard error. Also see ConstrainRAMSpace. The default value is 100.

Parameter: `allowedSwapSpace`

Type: float

Description: Constrain the job cgroup swap space to this percentage of the allocated memory

Parameter: `maxRAMPercent`

Type: float

Description: Set an upper bound in percent of total RAM on the RAM constraint for a job

Parameter: `maxSwapPercent`

Type: float

Description: Set an upper bound (in percent of total RAM) on the amount of RAM+Swap that may be used for a job

Parameter: `minRAMSpace`

Type: unsigned integer

Description: Set a lower bound (in MB) on the memory limits defined by AllowedRAMSpace and AllowedSwapSpace

Parameter: `jobCgroupTemplate`

Type: string

Description: Template for job cgroup path ($UID will be replaced to user ID, $JOBID will be replaced to job id)

Parameter: `allowedKmemSpace`

Type: unsigned integer

Description: Constrain the job cgroup kernel memory to this amount of the allocated memory (in bytes)

Parameter: `constrainKmemSpace`

Type: boolean

Description: Specifies if Slurm will constrain the job's Kmem RAM usage

Parameter: `minKmemSpace`

Type: unsigned integer

Description: Set a lower bound (in MB) on the memory limits defined by AllowedKmemSpace

Parameter: `maxKmemPercent`

Type: float

Description: Set an upper bound in percent of total Kmem for a job

Parameter: `memorySwappiness`

Type: float

Description: Configure the kernel's priority for swapping out anonymous pages (such as program data) verses file cache pages for the job cgroup (either ConstrainRAMSpace or ConstrainSwapSpace must be enabled in order for this parameter to be applied)

5.2.492 `SlurmClientRole: SlurmRole`

parent: `SlurmRole`

Parameter: `slots`

Type: string

Description: Number of slots available on this node/category (set 0 for default)

Parameter: `queues`

Type: list of references to `SlurmJobQueue`

Description: Queues this node/nodes in this category belongs to

Parameter: `allQueues`

Type: boolean

Description: When set, the role will provide all available queues (the queues property will then be ignored)

Parameter: `nodeAddr`

Type: string
Description: Name that a node should be referred to in establishing a communications path

Parameter: `coresPerSocket`
Type: unsigned integer
Description: Number of cores in a single physical processor socket

Parameter: `features`
Type: list of strings
Description: A list of arbitrary strings indicative of some characteristic associated with the node

Parameter: `tcpPort`
Type: unsigned integer
Description: The port number that the Slurm compute node daemon, slurmd, listens to for work on this particular node

Parameter: `realMemory`
Type: unsigned integer
Description: Size of real memory on the node

Parameter: `sockets`
Type: unsigned integer
Description: Number of physical processor sockets/chips on the node

Parameter: `threadsPerCore`
Type: unsigned integer
Description: Number of logical threads in a single physical core

Parameter: `tmpDisk`
Type: unsigned integer
Description: Total size of temporary disk storage in TmpFS in MegaBytes

Parameter: `weight`
Type: integer
Description: The priority of the node for scheduling purposes

Parameter: `boards`
Type: unsigned integer
Description: Number of baseboards in nodes with a baseboard controller

Parameter: `socketsPerBoard`
Type: unsigned integer
Description: Number of physical processor sockets/chips on a baseboard

Parameter: `reason`
Type: string

Description: Identifies the reason for a node being in a particular state

Parameter: `cpuSpecList`
Type: list of strings
Description: A comma delimited list of Slurm abstract CPU IDs on which Slurm compute node daemons (slurmd, slurmstepd) will be confined

Parameter: `coreSpecCount`
Type: unsigned integer
Description: Number of cores in a single physical processor socket

Parameter: `memSpecLimit`
Type: unsigned integer
Description: Limit on combined real memory allocation for compute node daemons (slurmd, slurmstepd)

Parameter: `autoDetect`
Type: enum
Description: Detect NVIDIA (nvml) or AMD (rsmi) GPUs automatically (per node)

Parameter: `nodeCustomizations`
Type: list of `WlmNodeCustomizationEntry`
Description: Slurm node custom properties

Parameter: `genericResources`
Type: list of `SlurmGenericResource`
Description: Slurm generic resources settings

Parameter: `cpuBind`
Type: enum
Description: Bindings from task to resources

5.2.493 `SlurmGenericResource: Entity`

parent: `Entity`

Parameter: `alias`
Type: string
Description: Unique alias name of the generic resource

Parameter: `name`
Type: string
Description: Name of the generic resource in Slurm

Parameter: `count`
Type: string
Description: Number of resources of this type available on this node (a suffix K, M, G, T or P may be used to multiply the number by 1024, 1048576, etc. respectively)

Parameter: `cores`
Type: string
Description: Specify the first thread CPU index numbers for the specific cores which can use this resource (e.g. '0,1,2,3' or '0-3')

Parameter: `type`
Type: string
Description: An arbitrary string identifying the type of device

Parameter: `file`
Type: string
Description: Fully qualified pathname of the device files associated with a resource (simple regular expressions are supported)

Parameter: `consumable`
Type: boolean
Description: Multiple jobs can use the same generic resource

Parameter: `addToGresConfig`
Type: boolean
Description: Add the generic resource entity to gres.conf

5.2.494 `SlurmJobQueueAccessList: Entity`

parent: `Entity`

Parameter: `wlmCluster`
Type: reference to `WlmCluster`
Description: WLM cluster link to this job queue access list

Parameter: `slurmJobQueue`
Type: list of references to `SlurmJobQueue`
Description: List of queues that can be submitted to. If none is specified, this access list will submit to all job queues in the specified WlmCluster.

5.2.495 `SlurmJobQueueStat: JobQueueStat`

parent: `JobQueueStat`

Parameter: `memory`
Type: string
Description: Memory

Parameter: `cpus`
Type: unsigned integer
Description: CPUs

Parameter: `total`
Type: unsigned integer

Description: Total nodes

Parameter: `usable`
Type: unsigned integer
Description: Usable nodes

Parameter: `free`
Type: unsigned integer
Description: Free nodes

Parameter: `nodeLimit`
Type: unsigned integer
Description: Node limit

Parameter: `timeLimit`
Type: string
Description: Time limit

Parameter: `other`
Type: string
Description: Other traits

5.2.496 `SlurmJobQueue: JobQueue`

parent: `JobQueue`

Parameter: `allocNodes`
Type: string
Description: Comma separated list of nodes from which users can submit jobs in the partition

Parameter: `defaultQueue`
Type: boolean
Description: Set this as the default queue

Parameter: `minNodes`
Type: string
Description: Minimal nodes one job has to use

Parameter: `maxNodes`
Type: string
Description: Maximal nodes one job can use

Parameter: `defaultTime`
Type: string
Description: Default job runtime

Parameter: `maxTime`
Type: string

Description: Maximal job runtime

Parameter: `priorityJobFactor`
Type: integer
Description: Partition factor used by priority/multifactor plugin in calculating job priority

Parameter: `priorityTier`
Type: integer
Description: Jobs submitted to a partition with a higher priority tier value will be dispatched before pending jobs in partition with lower priority tier value

Parameter: `hidden`
Type: boolean
Description: Hide from all

Parameter: `disableRoot`
Type: boolean
Description: Do not allow root to run jobs

Parameter: `rootOnly`
Type: boolean
Description: Only allow root to run jobs

Parameter: `allowGroups`
Type: string
Description: Specify user groups which are allowed to run jobs

Parameter: `overSubscribe`
Type: string
Description: Controls the ability of the partition to execute more than one job at a time on each resource

Parameter: `alternate`
Type: string
Description: Partition name of alternate partition to be used if the state of this partition is DRAIN or INACTIVE

Parameter: `graceTime`
Type: unsigned integer
Description: Specifies, in units of seconds, the preemption grace time to be extended to a job which has been selected for preemption

Parameter: `defMemPerCPU`
Type: string
Description: Default real memory size available per allocated CPU in MegaBytes

Parameter: `maxMemPerCPU`

Type: string
Description: Maximum real memory size available per allocated CPU in MegaBytes

Parameter: `defMemPerNode`
Type: string
Description: Default real memory size available per allocated node in MegaBytes

Parameter: `maxMemPerNode`
Type: string
Description: Maximum real memory size available per allocated node in MegaBytes

Parameter: `preemptMode`
Type: string
Description: Mechanism used to preempt jobs from this partition

Parameter: `reqResv`
Type: string
Description: Specifies users of this partition are required to designate a reservation when submitting a job

Parameter: `SelectTypeParameters`
Type: string
Description: Partition-specific resource allocation type

Parameter: `allowAccounts`
Type: string
Description: Specify accounts which are allowed to run jobs

Parameter: `allowQos`
Type: string
Description: Specify qos which are allowed to run jobs

Parameter: `denyGroups`
Type: string
Description: Specify groups which are denied to run jobs

Parameter: `denyAccounts`
Type: string
Description: Specify accounts which are denied to run jobs

Parameter: `denyQos`
Type: string
Description: Specify qos which are denied to run jobs

Parameter: `lln`
Type: boolean

Description: Schedule resources to jobs on the least loaded nodes

Parameter: `maxCPUsPerNode`
Type: string
Description: Maximum number of CPUs on any node available to all jobs from this partition

Parameter: `tresBillingWeights`
Type: list of strings
Description: Billing weights of each TRES type that will be used in calculating the usage of a job

Parameter: `defMemPerGPU`
Type: string
Description: Default real memory size available per allocated GPU in megabytes

Parameter: `defCpuPerGPU`
Type: string
Description: Default count of CPUs allocated per allocated GPU

Parameter: `cpuBind`
Type: enum
Description: How tasks are bound to allocated CPUs

Parameter: `qos`
Type: string
Description: Used to extend the limits available to a QOS on a partition

Parameter: `exclusiveUser`
Type: boolean
Description: If set to YES then nodes will be exclusively allocated to users

Parameter: `ordering`
Type: integer
Description: Positioning of the jobqueue. Smaller values go first in the configuration file.

5.2.497 `SlurmJob: Job`

parent: `Job`

5.2.498 `SlurmOCISettings: Entity`

parent: `Entity`

Parameter: `containerPath`
Type: string
Description: Override path pattern for placement of the generated OCI Container bundle directory.

Parameter: `createEnvFile`
Type: boolean
Description: Create environment file for container.

Parameter: `runTimeCreate`
Type: string
Description: Pattern for OCI runtime create operation.

Parameter: `runTimeDelete`
Type: string
Description: Pattern for OCI runtime delete operation.

Parameter: `runTimeKill`
Type: string
Description: Pattern for OCI runtime kill operation.

Parameter: `runTimeQuery`
Type: string
Description: Pattern for OCI runtime query operation.

Parameter: `runTimeRun`
Type: string
Description: Pattern for OCI runtime run operation.

Parameter: `runTimeStart`
Type: string
Description: Pattern for OCI runtime start operation.

5.2.499 `SlurmRole: Role`

parent: `Role`

Parameter: `wlmCluster`
Type: reference to `SlurmWlmCluster`
Description: WLM cluster link to this WLM role

5.2.500 `SlurmServerRole: SlurmRole`

parent: `SlurmRole`

Parameter: `scheduler`
Type: string
Description: Scheduler to use in combination with slurm

Parameter: `externalServer`
Type: boolean
Description: Slurm server daemons are running on some external machine

5.2.501 `SlurmSubmitRole: WlmSubmitRole`

parent: `WlmSubmitRole`

Parameter: `slurmJobQueueAcccessList`
Type: list of `SlurmJobQueueAccessList`
Description: List of slurm clusters and their associated queues that can be submitted to

5.2.502 SlurmWlmCluster: WlmCluster

parent: WlmCluster

Parameter: placeholders
Type: list of JobQueuePlaceholder
Description: Job queue node placeholders mode

Parameter: cgroups
Type: SlurmCgroupsSettings
Description: Submode containing Slurm related cgroups settings

Parameter: powerSavingEnabled
Type: boolean
Description: Enable power saving options into slurm.conf

Parameter: suspendTime
Type: integer
Description: Nodes which remain idle for this number of seconds will be placed into power save mode by SuspendProgram

Parameter: suspendTimeout
Type: unsigned integer
Description: Maximum time permitted (in second) between when a node suspend request is issued and when the node shutdown

Parameter: resumeTimeout
Type: unsigned integer
Description: Maximum time permitted (in second) between when a node is resume request is issued and when the node is actually available for use

Parameter: suspendProgram
Type: string
Description: Program that will be executed when a node remains idle for an extended period of time

Parameter: resumeProgram
Type: string
Description: Program that will be executed when a suspended node is needed by a submitted jobs

Parameter: prologSlurmctld
Type: string
Description: Fully qualified pathname of a program for the slurmctld daemon to execute before granting a new job allocation

Parameter: epilogSlurmctld
Type: string
Description: Fully qualified pathname of a program for the slurmctld to execute upon termination of a job allocation

Parameter: `prolog`
Type: string
Description: Fully qualified pathname of a program for the slurmd to execute whenever it is asked to run a job step from a new job allocation

Parameter: `epilog`
Type: string
Description: Fully qualified pathname of a script to execute as user root on every node when a user's job completes

Parameter: `fastSchedule`
Type: unsigned integer
Description: Controls how a node's configuration specifications in slurm.conf are used

Parameter: `gresTypes`
Type: list of strings
Description: A list of generic resources to be managed

Parameter: `prefix`
Type: string
Description: Slurm root installation directory

Parameter: `etc`
Type: string
Description: Slurm configuration files directory

Parameter: `stateSave`
Type: string
Description: Directory into which the Slurm controller saves its state

Parameter: `version`
Type: string
Description: Major Slurm version

Parameter: `slurmConfFileTemplate`
Type: string
Description: Template for slurm.conf file

Parameter: `gresConfFileTemplate`
Type: string
Description: Template for gres.conf file

Parameter: `autoDetect`
Type: enum
Description: Detect NVIDIA (nvml) or AMD (rsmi) GPUs automatically (global option)

Parameter: `slurmdParameters`

Type: list of strings
Description: Parameters specific to the Slurmd

Parameter: `schedulerParameters`
Type: list of strings
Description: Parameters specific to the scheduler. The interpretation of them varies by SchedulerType

Parameter: `slurmctldParameters`
Type: list of strings
Description: Parameters specific to the Slurmctld

Parameter: `prologFlags`
Type: list of strings
Description: Flags to control the prolog behavior

Parameter: `selectType`
Type: string
Description: The type of resource selection algorithm to be used (slurm: SelectType)

Parameter: `selectTypeParameters`
Type: list of strings
Description: Parameters specific to Select Type (slurm: SelectTypeParameters)

Parameter: `accountingStorageTRES`
Type: list of strings
Description: List of resources you wish to track on the cluster (slurm: AccountingStorageTRES)

Parameter: `ociSettings`
Type: `SlurmOCISettings` or None
Description: OCI container settings for Slurm

5.2.503 `SNMPSettings: Entity`

parent: `Entity`

Parameter: `version`
Type: enum
Description: Version of SNMP that should be use to read information from the device

Parameter: `timeout`
Type: float
Description: SNMP timeout, set to 0 for default

Parameter: `vlanTimeout`
Type: float
Description: SNMP timeout for VLAN calls, set to 0 for default

Parameter: `retries`
Type: integer

Description: SNMP retries, set to -1 for default

Parameter: `readString`
Type: string
Description: SNMP read-only community string

Parameter: `writeString`
Type: string
Description: SNMP read-write community string

Parameter: `securityName`
Type: string
Description: Security name

Parameter: `context`
Type: string
Description: *none*

Parameter: `authProtocol`
Type: enum
Description: Authentication protocol

Parameter: `privProtocol`
Type: enum
Description: Privacy protocol

Parameter: `authKey`
Type: string
Description: Authentication key

Parameter: `privKey`
Type: string
Description: Privacy key

Parameter: `securityLevel`
Type: enum
Description: Security level

Parameter: `filename`
Type: string
Description: Filename for SNMP testing

5.2.504 `SnmpTrapRole: Role`

parent: `Role`

Parameter: `event`
Type: boolean

Description: Enable events

Parameter: `mail`
Type: boolean
Description: Enable mail

Parameter: `recipients`
Type: list of strings
Description: Recipients

Parameter: `allAdministrators`
Type: boolean
Description: Also send e-mail to all administrators as defined in partition

Parameter: `access`
Type: string
Description: Access string

Parameter: `server`
Type: string
Description: The SNMP server

Parameter: `sender`
Type: string
Description: The sender of the e-mail

Parameter: `arguments`
Type: list of strings
Description: Additional script arguments

Parameter: `alternativeScript`
Type: string
Description: Alternative script

5.2.505 `SoftwareImageFileSelection: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `patterns`
Type: list of strings
Description: Patterns to be included

Parameter: `watch`
Type: boolean

Description: Watch files with inotify

5.2.506 `SoftwareImageProxy: Entity`

parent: `Entity`

Parameter: `parentSoftwareImage`
Type: reference to `SoftwareImage`
Description: Parent software image

Parameter: `revisionID`
Type: integer
Description: Revision ID

5.2.507 `SoftwareImageRevisionInfo: Entity`

parent: `Entity`

Parameter: `image`
Type: reference to `SoftwareImage` or None
Description: *none*

Parameter: `revisionID`
Type: integer
Description: Revision ID

Parameter: `creationTime`
Type: timestamp
Description: Revision creation time

Parameter: `removalTime`
Type: timestamp
Description: Revision removal time

Parameter: `description`
Type: string
Description: Revision Description

5.2.508 `SoftwareImage: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `path`
Type: string
Description: Base directory of the image

Parameter: `originalImage`
Type: unsigned integer

Description: Image from which this one will be cloned

Parameter: `fileOperationInProgress`
Type: boolean
Description: *none*

Parameter: `kernelVersion`
Type: string
Description: Kernel version used

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

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

Parameter: `creationTime`
Type: timestamp
Description: Creation time

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

Parameter: `enableSOL`
Type: boolean
Description: Enable Serial console Over LAN

Parameter: `SOLPort`
Type: string
Description: Serial port to use for SOL, usually ttyS0 or ttyS1

Parameter: `SOLSpeed`
Type: string
Description: Baud rate to use for SOL

Parameter: `SOLFlowControl`
Type: boolean
Description: Enable to use hardware flow control for SOL

Parameter: `notes`
Type: string
Description: Administrator notes

Parameter: `fspart`

Type: reference to `FSPart` or None
Description: Internal pointer to the FSPart associated with this image

Parameter: `bootfspart`
Type: reference to `FSPart` or None
Description: Internal pointer to the FSPart associated with the boot directory of this image

Parameter: `revisionDescription`
Type: string
Description: *none*

Parameter: `revisionID`
Type: integer
Description: *none*

Parameter: `parentSoftwareImage`
Type: reference to `SoftwareImage` or None
Description: *none*

Parameter: `revisionHistory`
Type: list of `SoftwareImageRevisionInfo`
Description: *none*

5.2.509 `StandaloneMonitoredEntity: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `type`
Type: string
Description: Optional type in case name matches an other entity

Parameter: `data`
Type: string
Description: Data that will be passed to the script enivironment

Parameter: `notes`
Type: string
Description: Notes

5.2.510 `StaticRoute: Entity`

parent: `Entity`

Parameter: `name`
Type: string

Description: Generally a unique combination of gateway ip and netmaskbits

Parameter: `ip`
Type: IP
Description: Destination IP

Parameter: `gateway`
Type: IP
Description: Gateway IP address

Parameter: `netmaskBits`
Type: unsigned integer
Description: Destination netmask bits

Parameter: `network`
Type: reference to `Network`
Description: Destination network the interface is connected to

Parameter: `networkDeviceName`
Type: string
Description: Name of network device

Parameter: `notes`
Type: string
Description: Administrator notes

5.2.511 `StatusCollectorSubSystemInfo`: `StatusSubSystemInfo`

parent: `StatusSubSystemInfo`

Parameter: `nodes`
Type: unsigned integer
Description: *none*

Parameter: `updates`
Type: unsigned integer
Description: *none*

Parameter: `merges`
Type: unsigned integer
Description: *none*

5.2.512 `StatusControllerSubSystemInfo`: `StatusSubSystemInfo`

parent: `StatusSubSystemInfo`

Parameter: `updates`
Type: unsigned integer
Description: *none*

Parameter: `reports`
Type: unsigned integer
Description: *none*

Parameter: `nodes`
Type: unsigned integer
Description: *none*

Parameter: `icmpPingCount`
Type: unsigned integer
Description: *none*

Parameter: `checkUrlCount`
Type: unsigned integer
Description: *none*

Parameter: `customScriptCount`
Type: unsigned integer
Description: *none*

Parameter: `customFunctionCount`
Type: unsigned integer
Description: *none*

5.2.513 `StatusManagerSubSystemInfo`: `StatusSubSystemInfo`

parent: `StatusSubSystemInfo`

Parameter: `nodes`
Type: unsigned integer
Description: *none*

Parameter: `events`
Type: unsigned integer
Description: *none*

5.2.514 `StatusRuleSubSystemInfo`: `StatusSubSystemInfo`

parent: `StatusSubSystemInfo`

Parameter: `rules`
Type: unsigned integer
Description: *none*

Parameter: `updates`
Type: unsigned integer
Description: *none*

Parameter: `checks`
Type: unsigned integer

Description: *none*

5.2.515 StatusSubSystemInfo: SubSystemInfo

parent: SubSystemInfo

Parameter: stopped
Type: boolean
Description: Stopped

Parameter: suspended
Type: boolean
Description: Suspended

5.2.516 StatusTimeoutSubSystemInfo: StatusSubSystemInfo

parent: StatusSubSystemInfo

Parameter: active
Type: unsigned integer
Description: *none*

Parameter: registered
Type: unsigned integer
Description: *none*

Parameter: handled
Type: unsigned integer
Description: *none*

5.2.517 StatusTransitionSubSystemInfo: StatusSubSystemInfo

parent: StatusSubSystemInfo

Parameter: handled
Type: unsigned integer
Description: *none*

Parameter: transitions
Type: list of unsigned numbers
Description: Transition matrics: from -> to

5.2.518 StorageNodePolicy: Entity

parent: Entity

Parameter: name
Type: string
Description: Name

Parameter: exportedDirectories
Type: list of strings

Description: Exported directories

Parameter: `minStorageVolumeSize`
Type: unsigned integer
Description: Minimal size of storage volume

Parameter: `defaultJobOutputSize`
Type: unsigned integer
Description: Default size of job output data

Parameter: `storageVolumeFilesystem`
Type: string
Description: Filesystem type of storage volume

Parameter: `shareStorageVolumeBetweenJobs`
Type: boolean
Description: Share storage volumes between jobs

Parameter: `scalingUpFactor`
Type: float
Description: Scaling up factor

Parameter: `storageNodeNamePrefix`
Type: string
Description: Storage node name prefix

Parameter: `storagePrototype`
Type: reference to `CloudNode`
Description: Template node used for instantiating cloud storage nodes

Parameter: `maxStorageNodeCount`
Type: unsigned integer
Description: Maximum number of storage nodes

Parameter: `maxJobsPerNode`
Type: unsigned integer
Description: Maximum number of jobs that can be run on a single storage node simultaneously

Parameter: `storageNodeIdleTimeLimit`
Type: unsigned integer
Description: After that timeout storage node will be shut down

Parameter: `terminateStorageNodes`
Type: boolean
Description: Terminate storage nodes instead of powering them off

Parameter: `cloudOperationTimeout`

Type: unsigned integer
Description: Timeout for various cloud job operations

Parameter: `maxDownloadTime`
Type: unsigned integer
Description: Maximum time job results data transfer can take

Parameter: `maxUploadTime`
Type: unsigned integer
Description: Maximum time job input data transfer can take

Parameter: `intermediateStorage`
Type: `CMJobIntermediateStorage`
Description: Place to store data to be accessible from storage node

Parameter: `restartNFSServer`
Type: boolean
Description: Restarts the NFS server on the storage node before umounting.

Parameter: `extraOptions`
Type: list of strings
Description: Extra options for jobs

5.2.519 `StorageRole: Role`

parent: `Role`

Parameter: `nfsThreads`
Type: unsigned integer
Description: Number of nfs threads (0 for don't touch the current config file value)

Parameter: `disableNFS1`
Type: boolean
Description: Disable NFS1, NFS threads needs to bet set

Parameter: `disableNFS2`
Type: boolean
Description: Disable NFS2, NFS threads needs to bet set

Parameter: `disableNFS3`
Type: boolean
Description: Disable NFS3, NFS threads needs to bet set

Parameter: `disableNFS4`
Type: boolean
Description: Disable NFS4, NFS threads needs to bet set

Parameter: `nfs4grace`
Type: unsigned integer

Description: NFS4 grace period (0 for don't touch the current config file value)

Parameter: `statdPort`
Type: unsigned integer
Description: Stat daemon port (0 for don't touch the current config file value)

Parameter: `statdOutgoingPort`
Type: unsigned integer
Description: Stat daemon outgoing port (0 for don't touch the current config file value)

Parameter: `mountdPort`
Type: unsigned integer
Description: Mount daemon port (0 for don't touch the current config file value)

Parameter: `rquotadPort`
Type: unsigned integer
Description: Rquota daemon port (0 for don't touch the current config file value)

Parameter: `lockdTcpPort`
Type: unsigned integer
Description: Lock daemon TCP port (0 for don't touch the current config file value)

Parameter: `lockdUdpPort`
Type: unsigned integer
Description: Lock daemon UDP port (0 for don't touch the current config file value)

Parameter: `rdmaPort`
Type: unsigned integer
Description: RDMA port (0 for don't touch the current config file value)

5.2.520 `StringListObject: Entity`

parent: `Entity`

Parameter: `list`
Type: list of strings
Description: List

5.2.521 `SubnetManagerRole: Role`

parent: `Role`

Parameter: `interconnect`
Type: enum
Description: Type of interconnect

Parameter: `ibl2mtu`
Type: enum
Description: IB L2 MTU Value

5.2.522 SubSystemInfo: Entity

parent: Entity

Parameter: refNodeUniqueKey
Type: unsigned integer
Description: Node

Parameter: name
Type: string
Description: Name

Parameter: timestamp
Type: timestamp
Description: Time

5.2.523 SwitchPort: Entity

parent: Entity

Parameter: networkSwitch
Type: reference to Switch
Description: Switch

Parameter: prt
Type: unsigned integer
Description: Port number on the switch

5.2.524 Switch: Device

parent: Device

Parameter: ip
Type: IP
Description: IP address

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

Parameter: ports
Type: integer
Description: Number of ports

Parameter: model
Type: string
Description: The switch model

Parameter: snmpSettings
Type: SNMPSettings or None

Description: Configure the cluster wide SNMP settings

Parameter: `members`
Type: list of references to `Switch`
Description: List of switches belonging to this stack

Parameter: `controlScript`
Type: string
Description: Custom control script that provides switch functionality

Parameter: `controlScriptTimeout`
Type: unsigned integer
Description: Control script timeout

Parameter: `priority`
Type: unsigned integer
Description: Devices on multiple switches will be listed under the switch with the largest priority

Parameter: `lowestPort`
Type: integer
Description: Lowest port

Parameter: `uplinks`
Type: list of unsigned numbers
Description: List of ports connected to other switches.

Parameter: `disablePortDetection`
Type: boolean
Description: Disable port detection for this switch

Parameter: `disablePortMapping`
Type: boolean
Description: Disable port index mapping

Parameter: `vlanCacheTime`
Type: unsigned integer
Description: Time to cache VLAN information

5.2.525 `SyncInfo: Entity`

parent: `Entity`

Parameter: `node`
Type: reference to `Node`
Description: *none*

Parameter: `provisioningNode`
Type: reference to `Node`

Description: *none*

Parameter: `fspart`
Type: reference to `FSPart`
Description: *none*

Parameter: `mode`
Type: enum
Description: *none*

Parameter: `type`
Type: enum
Description: *none*

Parameter: `dryRun`
Type: boolean
Description: *none*

Parameter: `startTime`
Type: timestamp
Description: *none*

Parameter: `endTime`
Type: timestamp
Description: *none*

Parameter: `exitCode`
Type: integer
Description: *none*

Parameter: `signal`
Type: integer
Description: *none*

Parameter: `numberOfFiles`
Type: unsigned integer
Description: The count of all 'files' (in the generic sense), which includes directories, symlinks, etc.

Parameter: `numberOfTransferredFiles`
Type: unsigned integer
Description: The count of normal files that were updated via rsync's delta-transfer algorithm, which does not include created dirs, symlinks, etc.

Parameter: `numberOfCreatedFiles`
Type: unsigned integer
Description: The count of normal files that were created.

Parameter: `numberOfDeletedFiles`
Type: unsigned integer
Description: The count of normal files that were deleted.

Parameter: `totalFileSize`
Type: unsigned integer
Description: The total sum of all file sizes in the transfer. This does not count any size for directories or special files, but does include the size of symlinks.

Parameter: `totalTransferredFileSize`
Type: unsigned integer
Description: The total sum of all files sizes for just the transferred files.

Parameter: `literalData`
Type: unsigned integer
Description: How much unmatched file-update data we had to send to the receiver for it to recreate the updated files.

Parameter: `matchedData`
Type: unsigned integer
Description: How much data the receiver got locally when recreating the updated files.

Parameter: `fileListSize`
Type: unsigned integer
Description: How big the file-list data was when the sender sent it to the receiver. This is smaller than the in-memory size for the file list due to some compressing of duplicated data when rsync sends the list.

Parameter: `fileListGenerationTime`
Type: float
Description: The number of seconds that the sender spent creating the file list. This requires a modern rsync on the sending side for this to be present.

Parameter: `fileListTransferTime`
Type: float
Description: The number of seconds that the sender spent sending the file list to the receiver.

Parameter: `totalSent`
Type: unsigned integer
Description: The count of all the bytes that rsync sent from the client side to the server side.

Parameter: `totalReceived`
Type: unsigned integer
Description: The count of all non-message bytes that rsync received by the client side from the server side. 'Non-message' bytes means that we don't count the bytes for a verbose message that the server sent to us, which makes the stats more consistent.

Parameter: `transferSpeed`

Type: float
Description: Transfer speed

Parameter: `speedup`
Type: float
Description: Speedup

5.2.526 `SyncSource: Entity`
parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `fspart`
Type: reference to `FSPart`
Description: *none*

Parameter: `priority`
Type: unsigned integer
Description: *none*

5.2.527 `SyncTarget: Entity`
parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `fspart`
Type: reference to `FSPart`
Description: *none*

Parameter: `target`
Type: string
Description: *none*

Parameter: `prefix`
Type: string
Description: *none*

Parameter: `excludeList`
Type: string
Description: *none*

Parameter: `root`
Type: boolean

Description: *none*

Parameter: `priority`
Type: unsigned integer
Description: *none*

5.2.528 `SysInfoCollector`: `Entity`

parent: `Entity`

Parameter: `refDeviceUniqueKey`
Type: unsigned integer
Description: Device

Parameter: `processors`
Type: list of `Processor`
Description: *none*

Parameter: `disks`
Type: list of `DiskInfo`
Description: *none*

Parameter: `gpus`
Type: list of `GPUInfo`
Description: *none*

Parameter: `fpgas`
Type: list of `FPGAInfo`
Description: *none*

Parameter: `memory`
Type: list of `MemoryInfo`
Description: *none*

Parameter: `biosVersion`
Type: string
Description: *none*

Parameter: `biosVendor`
Type: string
Description: *none*

Parameter: `biosDate`
Type: string
Description: *none*

Parameter: `motherboardManufacturer`
Type: string

Description: *none*

Parameter: `motherboardName`
Type: string
Description: *none*

Parameter: `memoryTotal`
Type: unsigned integer
Description: *none*

Parameter: `memorySwap`
Type: unsigned integer
Description: *none*

Parameter: `diskCount`
Type: unsigned integer
Description: *none*

Parameter: `diskTotalSpace`
Type: unsigned integer
Description: *none*

Parameter: `osName`
Type: string
Description: *none*

Parameter: `osVersion`
Type: string
Description: *none*

Parameter: `osFlavor`
Type: string
Description: *none*

Parameter: `vendorTag`
Type: string
Description: *none*

Parameter: `systemName`
Type: string
Description: *none*

Parameter: `systemManufacturer`
Type: string
Description: *none*

Parameter: `nics`

Type: list of strings
Description: *none*

Parameter: `ibGUIDs`
Type: list of strings
Description: *none*

Parameter: `bootIf`
Type: string
Description: *none*

Parameter: `interconnects`
Type: list of strings
Description: *none*

Parameter: `raidControllers`
Type: list of strings
Description: *none*

Parameter: `extra`
Type: free JSON object
Description: *none*

Parameter: `virtualCluster`
Type: boolean
Description: *none*

Parameter: `seLinux`
Type: boolean
Description: *none*

Parameter: `fips`
Type: boolean
Description: *none*

Parameter: `fabric`
Type: boolean
Description: *none*

Parameter: `clusterRandomNumber`
Type: unsigned integer
Description: *none*

Parameter: `updateCount`
Type: unsigned integer
Description: *none*

Parameter: `timestamp`
Type: timestamp
Description: *none*

5.2.529 `SystemctlUnit: Entity`
parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `unit`
Type: string
Description: Unit

Parameter: `load`
Type: string
Description: Load

Parameter: `active`
Type: string
Description: Active

Parameter: `sub`
Type: string
Description: The low-level unit activation state, values depend on unit type

Parameter: `description`
Type: string
Description: Description

5.2.530 `TimeZoneSettings: Entity`
parent: `Entity`

Parameter: `timeZone`
Type: string
Description: Time zone

Parameter: `biosUTC`
Type: boolean
Description: Store BIOS time in UTC

5.2.531 `UGECgroupsSettings: WlmCgroupsSettings`
parent: `WlmCgroupsSettings`

Parameter: `enabled`
Type: boolean
Description: If true then settings are configured

Parameter: `cpuset`
Type: boolean
Description: If true then UGE puts the job into a cpuset cgroup with the specific CPU ids assigned

Parameter: `freezer`
Type: boolean
Description: If true than the whole job is frozen by the kernel

Parameter: `freezePeTasks`
Type: boolean
Description: If false then slave tasks are not put in the freezer, otherwise all slave tasks are frozen (also slaves on remote hosts)

Parameter: `killing`
Type: boolean
Description: If true then UGE signals all processes forked/started by the job until all of them are killed

Parameter: `forcedNuma`
Type: boolean
Description: If true then on NUMA machines only local memory is allowed to be used when the job requested memory allocation with -mbind cores:strict

Parameter: `vmemLimit`
Type: boolean
Description: Specifies if virtual memory can be limited with cgroups (h_vmem_limit)

Parameter: `memFreeHard`
Type: boolean
Description: If true then kernel ensures that the job does not use more main memory than required (m_mem_free_hard)

Parameter: `memFreeSoft`
Type: boolean
Description: If true (and hard memory limit is turned off) then the requested memory with m_mem_free is a soft limit (m_mem_free_soft)

Parameter: `minMemoryLimit`
Type: string
Description: A host based minimum memory limit, in bytes or values like 10M, 1G (min_memory_limit)

Parameter: `jobCgroupTemplate`
Type: string
Description: Template for job cgroup path ($JOBID will be replaced to job id, $TASKID to array task id)

Parameter: `options`
Type: list of strings

Description: Additional UGE cgroup options

Parameter: `devices`
Type: list of strings
Description: Configurations for cgroup devices

5.2.532 `UGEClientRole: UGERole`

parent: `UGERole`

Parameter: `execHost`
Type: boolean
Description: Specifies if host is allowed to run Grid Engine jobs

Parameter: `adminHost`
Type: boolean
Description: Specifies if host is administrative one

Parameter: `slots`
Type: string
Description: Number of slots available on this node/category

Parameter: `queues`
Type: list of references to `UGEJobQueue`
Description: Queues this node/nodes in this category belongs to

Parameter: `allQueues`
Type: boolean
Description: When set, the role will provide all available queues. (The queues property will then be ignored.)

Parameter: `gpus`
Type: unsigned integer
Description: Number of gpus

Parameter: `gpuDevices`
Type: list of strings
Description: Custom gpu RSMAP

Parameter: `micDevices`
Type: list of strings
Description: Custom phi RSMAP

Parameter: `cgroups`
Type: `UGECgroupsSettings`
Description: Submode containing UGE related cgroups settings

Parameter: `nodeCustomizations`
Type: list of `WlmNodeCustomizationEntry`

Description: Grid Engine node custom properties

Parameter: `prolog`
Type: string
Description: Path to prolog script that is configured at local level (e.g. root@/cm/local/apps/cmd/scripts/prolog)

Parameter: `epilog`
Type: string
Description: Path to epilog script that is configured at global level

Parameter: `dcgmPort`
Type: unsigned integer
Description: NVIDIA's Data Center GPU Manager Port

5.2.533 `UGEJobQueueStat: GridEngineJobQueueStat`
parent: `GridEngineJobQueueStat`

5.2.534 `UGEJobQueue: GridEngineJobQueue`
parent: `GridEngineJobQueue`

Parameter: `pelist`
Type: list of strings
Description: Parallel environments associated with queue

5.2.535 `UGEJob: GridEngineJob`
parent: `GridEngineJob`

5.2.536 `UGEParallelEnvironment: GridEngineParallelEnvironment`
parent: `GridEngineParallelEnvironment`

Parameter: `daemonForksSlaves`
Type: boolean
Description: Defines if every task of a tightly integrated parallel job gets started individually

Parameter: `masterForksSlaves`
Type: boolean
Description: Indicates if limits set for the master task are multiplied by the number of slots granted on the host

5.2.537 `UGERole: Role`
parent: `Role`

Parameter: `wlmCluster`
Type: reference to `UGEWlmCluster`
Description: WLM cluster link to this WLM role

5.2.538 `UGEServerRole: UGERole`
parent: `UGERole`

Parameter: `externalServer`

Type: boolean
Description: Grid Engine server daemon is running on some external machine

Parameter: `prolog`
Type: string
Description: Path to prolog script that is configured at global level

Parameter: `epilog`
Type: string
Description: Path to epilog script that is configured at global level

5.2.539 `UGESubmitRole: WlmSubmitRole`

parent: `WlmSubmitRole`

Parameter: `ugeWlmClusters`
Type: list of references to `UGEWlmCluster`
Description: List of UGE clusters which the role belongs to

5.2.540 `UGEWlmCluster: WlmCluster`

parent: `WlmCluster`

Parameter: `parallelEnvironments`
Type: list of `UGEParallelEnvironment`
Description: UGE Parallel Environments

Parameter: `cgroups`
Type: `UGECgroupsSettings`
Description: Submode containing UGE related cgroups settings

Parameter: `placeholders`
Type: list of `JobQueuePlaceholder`
Description: Job queue node placeholders mode

Parameter: `prefix`
Type: string
Description: UGE installation directory

Parameter: `cell`
Type: string
Description: UGE cell directory location

Parameter: `version`
Type: string
Description: Major UGE version

Parameter: `accountingSynchronization`
Type: boolean

Description: Update UGE job final state in BCM by calling qstat periodically

5.2.541 `UnmanagedNodeConfiguration: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `description`
Type: string
Description: description

Parameter: `pxeConfigurationTemplate`
Type: string
Description: PXE configuration template used to write out pxelinux.cfg

Parameter: `grubConfigurationTemplate`
Type: string
Description: Grub configuration template used to write out grub.cfg

Parameter: `image`
Type: reference to `FSPart` or None
Description: Image filesystem part used to boot nodes from

Parameter: `pxelabel`
Type: string
Description: PXE menu label to be used when this node boots

Parameter: `keyValueSettings`
Type: `KeyValueSettings` or None
Description: Key value settings used for all unmanaged nodes in this configuration unless otherwise specified

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

Parameter: `bootLoader`
Type: enum
Description: Boot loader

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

Parameter: `bootLoaderFile`
Type: string

Description: Alternative boot loader file

5.2.542 UnmanagedNode: Device

parent: Device

Parameter: unmanagedNodeConfiguration
Type: reference to UnmanagedNodeConfiguration
Description: The unmanaged node configuration used for this node

Parameter: ip
Type: IP
Description: Ip address

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

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

Parameter: pxelabel
Type: string
Description: PXE menu label to be used when this node boots

Parameter: bmcIp
Type: IP
Description: BMC ip address

Parameter: bmcType
Type: enum
Description: The type of BMC interface available

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

Parameter: biosSetup
Type: string
Description: BIOS setup

Parameter: bootLoader
Type: enum
Description: Boot loader

Parameter: bootLoaderProtocol
Type: enum

Description: Boot loader protocol for retrieving initrd and vmlinuz

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

Parameter: `keyValueSettings`
Type: `KeyValueSettings` or None
Description: Key value settings unique to this node

5.2.543 `User: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: User login (e.g. donald)

Parameter: `ID`
Type: string
Description: User ID number

Parameter: `commonName`
Type: string
Description: Full name (e.g. Donald Duck)

Parameter: `surname`
Type: string
Description: Surname (e.g. Duck)

Parameter: `groupID`
Type: string
Description: Base group of this user

Parameter: `loginShell`
Type: string
Description: Login shell

Parameter: `homeDirectory`
Type: string
Description: Home directory

Parameter: `password`
Type: string
Description: Password

Parameter: `homeDirOperation`
Type: boolean

Description: Set to false to not create or move home directory

Parameter: `shadowMin`
Type: unsigned integer
Description: Minimum number of days required between password changes

Parameter: `shadowMax`
Type: unsigned integer
Description: Maximum number of days for which the user password remains valid.

Parameter: `shadowWarning`
Type: unsigned integer
Description: Number of days of advance warning given to the user before the user password expires

Parameter: `shadowInactive`
Type: unsigned integer
Description: Number of days of inactivity allowed for the user

Parameter: `shadowLastChange`
Type: unsigned integer
Description: Number of days between January 1, 1970 and the day when the user password was last changed

Parameter: `shadowExpire`
Type: unsigned integer
Description: Date on which the user login will be disabled

Parameter: `email`
Type: string
Description: email

Parameter: `profile`
Type: string
Description: Profile for Authorization

Parameter: `certSerialNumber`
Type: integer
Description: Serial number of the certificate assigned to user

Parameter: `certCloudJobSerialNumber`
Type: integer
Description: Serial number of the cloudjob certificate assigned to user

Parameter: `projectManager`
Type: `ProjectManager` or None
Description: Project manager

Parameter: `notes`
Type: string
Description: Administrator notes

Parameter: `homePage`
Type: string
Description: Home page

Parameter: `information`
Type: string
Description: Information added by CMDaemon

Parameter: `cloudJob`
Type: boolean
Description: Create a certificate with the cloudjob profile for cmjob

Parameter: `writeSshProxyConfig`
Type: boolean
Description: Write ssh proxy config

Parameter: `extraFields`
Type: list of strings
Description: *none*

Parameter: `extraValues`
Type: list of strings
Description: *none*

Parameter: `extraReadable`
Type: list of strings
Description: *none*

Parameter: `extraDescriptions`
Type: list of strings
Description: *none*

Parameter: `extraDefaults`
Type: list of strings
Description: *none*

5.2.544 `Validation: Entity`

parent: `Entity`

Parameter: `code`
Type: unsigned integer
Description: Code

Parameter: `field`

Type: string
Description: Field

Parameter: `msg`
Type: string
Description: Message

Parameter: `warning`
Type: integer
Description: Warning

5.2.545 `VersionInfo: Entity`

parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `cmVersion`
Type: string
Description: *none*

Parameter: `cmdaemonVersion`
Type: string
Description: *none*

Parameter: `cmdaemonBuildIndex`
Type: unsigned integer
Description: *none*

Parameter: `cmdaemonBuildHash`
Type: string
Description: *none*

Parameter: `databaseVersion`
Type: unsigned integer
Description: *none*

5.2.546 `WillChange: Entity`

parent: `Entity`

Parameter: `changeBaseType`
Type: string
Description: Base type

Parameter: `key`
Type: unsigned integer

Description: Key

Parameter: `parameter`
Type: string
Description: Parameter

Parameter: `autoChange`
Type: integer
Description: Auto change

5.2.547 `WireguardInfo: Entity`
parent: `Entity`

Parameter: `refNodeUniqueKey`
Type: unsigned integer
Description: Node

Parameter: `interface`
Type: string
Description: Interface name

Parameter: `publicKey`
Type: string
Description: Public key

5.2.548 `WlmCgroupsSettings: Entity`
parent: `Entity`

Parameter: `mountPoint`
Type: string
Description: Where cgroups is mounted

Parameter: `autoMount`
Type: boolean
Description: If true then workload manager tries to mount a subsystem if it is not mounted yet

5.2.549 `WlmCluster: Entity`
parent: `Entity`

Parameter: `name`
Type: string
Description: Name

Parameter: `moduleFileTemplate`
Type: string
Description: Template content for system module file

Parameter: `primaryServer`
Type: reference to `Node` or None

Description: The WLM primary server (where the active WLM daemon will be running). This parameter has no effect in HA setup controlled by Bright.

Parameter: `topologySwitches`
Type: list of references to `Switch`
Description: List of switches that should be used to write the topology file

Parameter: `network`
Type: reference to `Network` or None
Description: Network that will be used to form FQDN node names

Parameter: `tracingJobs`
Type: list of strings
Description: A list of job ids to trace in CMDaemon

Parameter: `enablePrejob`
Type: boolean
Description: Enable Bright Cluster Manager powered prejob healthchecking in the workload manager

5.2.550 `WlmNodeCustomizationEntry: Entity`

parent: `Entity`

Parameter: `key`
Type: string
Description: Name of the key

Parameter: `value`
Type: string
Description: Value for the key

Parameter: `enabled`
Type: boolean
Description: Add the key/value to workload menegment node configuration or not

Parameter: `notes`
Type: string
Description: Administrator notes

5.2.551 `WlmNodeResource: Entity`

parent: `Entity`

Parameter: `name`
Type: string
Description: Resource name (Example: gpu)

Parameter: `extraName`
Type: string

Description: Additional name (example: tesla)

Parameter: `amount`
Type: unsigned integer
Description: Resource amount

Parameter: `unit`
Type: boolean
Description: The unit the amount is expressed in

Parameter: `nodeKeys`
Type: list of unsigned numbers
Description: Node keys

Parameter: `refWlmClusterUniqueKey`
Type: unsigned integer
Description: WlmCluster

5.2.552 `WlmSubmitRole: Role`

parent: `Role`

5.3 JSON Examples

complete.sh

```
#!/bin/bash

URL=https://localhost:8081/json/
user=root
pass=secretrootpassword

echo "========== login ==========="
curl -c curl.cookiest.txt -i -k -X POST -d \
'{"service":"login", "username":"root", "password":"'$pass'"}' $URL; echo

echo "========= master ==========="
curl --cookie curl.cookiest.txt -i -k -X POST -d \
'{"service":"cmdevice","call":"getNode", "arg":"master"}' $URL; echo

echo "========== logout ==========="
curl --cookie curl.cookiest.txt -i -k -X POST -d \
'{"service":"logout"}' $URL; echo

echo "========== denied ==========="
curl --cookie curl.cookiest.txt -i -k -X POST -d \
'{"service":"cmdevice","call":"getNode", "arg":"master"}' $URL; echo
rm -f curl.cookiest.txt

echo "========== cert ==========="
curl --cert $HOME/.cm/admin.pem --key $HOME/.cm/admin.key -i -k -X POST -d \
'{"service":"cmdevice","call":"getNode","arg":"master"}' $URL; echo
```

curl.sh

```
#!/bin/bash

URL=https://localhost:8081/json/

if [ -z "$1" ]; then
  read -p "pass: " -s pass
else
  pass=$1
fi

curl -c curl.cookiest.txt -i -k -X POST -d \
'{"service":"login", "username":"root", "password":"'$pass'"}' $URL

# curl --cookie curl.cookiest.txt -i -k -X POST -d \
'{"service":"cmsession","call":"getLastEvents","args":[0,256]}' $URL

curl --cookie curl.cookiest.txt -i -k -X POST -d \
'{"service":"cmmain","call":"getProfile"}' $URL

curl --cookie curl.cookiest.txt -i -k -X POST -d \
'{"service":"cmmain","call":"getSubjectName"}' $URL
```

devices.sh

```
#!/bin/bash
URL=https://localhost:8081/json/

if [ "$1" == "gzip" ]; then
   wget --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key \
   --header='Accept-Encoding: gzip' \
   --no-check-certificate --server-response -qO- $URL \
   --post-data='{"service":"cmdevice","call":"getDevices"}'
else
   wget --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key --no-check-certificate \
   --server-response -qO- $URL --post-data='{"service":"cmdevice","call":"getDevices"}'
fi
```

Tip: run as `./devices.sh | python -mjson.tool`.

loadone.sh

```
#!/bin/bash
URL=https://localhost:8081/json/

# not perfect but gets the job done
function jsonval {
temp=`echo $json | sed 's/\\\\\//\//g' | sed 's/[{}]//g' | awk -v k="text" '{n=split($0,a,",");
for (i=1; i<=n; i++) print a[i]}'| sed 's/\"\:\"/\|/g'| sed 's/[\,]/ /g'| sed 's/\"//g'| grep -w
$prop`
  r=$(echo ${temp##*|} | tr ']' ' ' | tr ' ' '\n' | cut -d: -f2 | sort -n)
  echo $(echo $r | cut -d' ' -f 1)
}

prop='uniqueKey'
```

```
node=master
json=`wget --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key --no-check-certificate \
--server-response -qO- $URL --post-data='{"service":"cmdevice","call":"getDevice","arg":"'$node'"}'`
nkey=$(jsonval)
if [ -z $nkey ]; then
  echo $json
  exit 1
fi
echo "$node.uniqueKey = $nkey"

json=`wget --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key \
--no-check-certificate --server-response -qO- $URL \
--post-data='{"service":"cmmon","call":"getMonitoringMeasurable","name":"LoadOne"}'`
mkey=$(jsonval)
echo "loadone.uniqueKey = $mkey"

now=$(date +%s)
day=$((now-86400))
echo "now is $now"
echo "day is $day"

cat <<EOF > /tmp/plot.json
{ "service" : "cmmon",
  "call" : "plot",
  "request" : { "entities" : [$nkey],
                "measurables" : [$mkey],
                "intervals" : 25,
                "rangeStart" : $((day*1000)),
                "rangeEnd" : $((now*1000))
              }
}
EOF
wget --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key \
--no-check-certificate -qO- https://master:8081/json --post-file=/tmp/plot.json | \
python -mjson.tool
```

login.sh

```
#!/bin/bash
URL=https://localhost:8081/json/
user=$USER
pass=secretpassword
wget --keep-session-cookies --save-cookies cookie.txt --no-check-certificate \
--server-response -qO- $URL --post-data='{"service":"login","username":"'$user'","password":"'$pass'"}'
echo
```

logout.sh

```
#!/bin/bash
URL=https://localhost:8081/json/
wget --load-cookies cookie.txt --no-check-certificate --server-response -qO- $URL \
--post-data='{"service":"logout"}'
rm cookie.txt
echo
```

node001.sh

```
#!/bin/bash
URL=https://localhost:8081/json/

if [ -z "$1" ]; then
  node=node001
else
  node=$1
fi

wget --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key \
--no-check-certificate --server-response -qO- $URL \
--post-data='{"service":"cmdevice","call":"getDevice","arg":"'$node'"}' | python -mjson.tool
```

basic_information.sh

```
#!/bin/bash
URL=https://localhost:8081/json/
wget --certificate=$HOME/.cm/admin.pem --private-key=$HOME/.cm/admin.key \
--no-check-certificate --server-response -qO- $URL \
--post-data='{"service":"cmpart","call":"getBasicEntityInformation"}'
```

push_to_CMDaemon.sh

In the following example, the health check `ManagedServicesOK`, is pushed to CMDaemon with a `FAIL` value.

Example

```
[root@bright90 ~]# cat push_to_CMDaemon.sh
#!/bin/bash
URL='https://master:8081/monitoring/push/ManagedServicesOk?info=brol&class=Push/Single&healthcheck=yes'
value='FAIL'
curl --cert $HOME/.cm/admin.pem --key $HOME/.cm/admin.key -i -k -X POST -d "$value" $URL; echo
```

Its behavior can be verified by checking the latest value for `ManagedServicesOK` before and after the `push_to_CMDaemon.sh` script is run:

Example

```
[root@bright90 ~]# curl --cert ~/.cm/admin.pem --key ~/.cm/admin.key -k
"https://master:8081/rest/v1/monitoring/latest?measurable=ManagedServicesOK&entity=bright90&indent=1"
{
 "data": [
  {
   "age": 89.735,
   "entity": "bright90",
   "measurable": "ManagedServicesOk",
   "raw": 0.0,
   "time": 1586450030968,
   "value": "PASS"
  }
 ]
}
```

```
[root@bright90 ~]#./push_to_CMDaemon.sh
HTTP/1.1 200 OK
Content-Length: 55
Content-Type: application/json

{
  "values": {
    "added": 1,
    "provided": 1
  }
}
[root@bright90 ~]# curl --cert ~/.cm/admin.pem --key ~/.cm/admin.key -k
"https://master:8081/rest/v1/monitoring/latest?measurable=ManagedServicesOK&entity=bright90&indent=1"
{
 "data": [
  {
   "age": 3.357,
   "entity": "bright90",
   "info": "brol",
   "measurable": "ManagedServicesOk",
   "raw": 2.0,
   "time": 1586450124437,
   "value": "FAIL"
  }
 ]
```

A metric version of the push, using the measurable `push-test-02` might look like:

```
#!/bin/bash
URL='https://localhost:8081/monitoring/push/push-test-02?info=brol&class=Push/Single&unit=s'
value=$(date +%s)
curl --cert $HOME/.cm/admin.pem --key $HOME/.cm/admin.key -i -k -X POST -d "$value" $URL; echo
```

A collection can be pushed as follows: To initialize (once):

```
#!/bin/bash
URL='https://localhost:8081/monitoring/initialize'
curl --cert $HOME/.cm/admin.pem --key $HOME/.cm/admin.key -i -k -X POST -d \
'[
   {"metric":"push-collection-01","class":"Push/Collection"},
   {"metric":"push-collection-02","class":"Push/Collection"}
 ]' $URL; echo
```

After initializing, sampling can be done with:

```
#!/bin/bash
URL='https://localhost:8081/monitoring/push'
curl --cert $HOME/.cm/admin.pem --key $HOME/.cm/admin.key -i -k -X POST -d \
'[
   {"metric":"push-collection-01","value":31},
   {"metric":"push-collection-02","value":32,"info":"Some message"}
 ]' $URL; echo
```