

OpenStack Telemetry API in CEE

Cloud Execution Environment

INTERWORK DESCRIPTION

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1 Introduction

This document serves as an introduction to the use of the Application Programming Interface (API) of the OpenStack component “Telemetry” in the Cloud Execution Environment (CEE).

The aim of the document is to present the Telemetry API in CEE, and it also contains information about the features of CEE Telemetry.

1.1 API Version

This CEE API is based on OpenStack Telemetry API v2.

1.2 Document References

This section lists the official OpenStack API references.

1.2.1 API Design Base Reference

For the detailed description of the API operations and extensions of Telemetry, refer to the section “Telemetry API v2” in the [OpenStack API Complete Reference](#). This is a stored copy of the OpenStack API Reference document version that was the base for the development of this version of CEE.

All references to this OpenStack API made in this document are based on this specific document version. The document may include API extensions that are not supported in this version of CEE. See Section 2.2 on page 6 for details.

Note:

- The date on the front page shows the date on which the PDF document was generated.
- The date of the latest change of the actual content may be different.



2 Supported Operations

The following sections contain the API operations and API extensions that are supported in CEE.

2.1 Basic OpenStack Operations

Most of the meters supported by the OpenStack Mitaka release (with Nova using libvirt) are supported in CEE.

The following meters are supported and enabled by default:

— OpenStack Compute

- `instance`
- `cpu`
- `cpu_util`
- `disk.read.requests`
- `disk.write.requests`
- `disk.read.bytes`
- `disk.write.bytes`
- `disk.device.read.requests`
- `disk.device.write.requests`
- `disk.device.read.bytes`
- `disk.device.write.bytes`
- `memory.resident`
- `disk.capacity`
- `disk.allocation`
- `disk.usage`
- `disk.device.capacity`
- `disk.device.allocation`
- `disk.device.usage`
- `compute.node.cpu.kernel.percent`



- `compute.node.cpu.idle.percent`
- `compute.node.cpu.user.percent`
- `compute.node.cpu.iowait.percent`
- `compute.node.cpu.percent`
- `compute.instance.booting.time`
- OpenStack Image Service
 - `image`
 - `image.size`
- OpenStack Block Storage
 - `volume.size`
 - `snapshot.size`
- OpenStack Identity
 - `identity.authenticate.success`
 - `identity.authenticate.pending`
 - `identity.authenticate.failure`
 - `identity.user.created`
 - `identity.user.deleted`
 - `identity.user.updated`
 - `identity.role.created`
 - `identity.role.deleted`
 - `identity.project.created`
 - `identity.project.deleted`
 - `identity.project.updated`
 - `identity.role_assignment.created`
 - `identity.role_assignment.deleted`
- OpenStack Networking
 - `network`
 - `subnet`



- port
- router

— SDN controller

- switch
- switch.port.receive.drops
- switch.port.receive.errors
- switch.port
- switch.table.active.entries
- switch.port.transmit.packets
- switch.port.receive.packets
- switch.port.transmit.bytes
- switch.port.receive.bytes

Note: Ceilometer Software Defined Networking (SDN) controller statistics are only supported in deployments with tightly integrated SDN. For detailed description of the meters, refer to the OpenStack Ceilometer documentation, Reference [1].

The switch port statistics and Neutron ports are correlated in the Ceilometer samples as follows:

Property	Value
id	c82736c6-8ca2-11e7-97e5-5254000f725d
metadata	{"neutron_port": "5b101fa7-0d77-4120-8000-000000000000", "EricssonOpenDaylight", "port": "45"}
meter	switch.port.transmit.packets
project_id	None
recorded_at	2017-08-29T10:14:03.042000
resource_id	244439028332879
source	openstack
timestamp	2017-08-29T10:14:02.767000
type	cumulative
unit	packet
user_id	None
volume	1115.0

```
bd81-f1645cb7f73a", "controller":
```

To compile a query, refer to the section “Telemetry API v2 (CURRENT)” in the [OpenStack API Complete Reference](#).

Neutron ports connected to Neutron routers are abstract ports, not directly related to any switch ports. Thus such Neutron ports are not represented by any SDN controller statistics.



The file `/etc/ceilometer/pipeline.yaml` on all virtual Cloud Infrastructure Controllers (vCICs) contains enabled meters.

SDN meters are disabled by default. The SDN controller meters can be enabled in the `ericsson_openstack_config` plugin in `config.yaml`. Refer to the [Fuel Plugin Configuration Guide](#).

2.1.1 Limitations

Not applicable.

CEE specific limitations and recommendations are listed in Section 4 on page 8.

2.2 OpenStack Extensions

Not applicable.



3 Ericsson Extensions

Not applicable.



4 Limitations and Recommendations

This section describes CEE specific limitations and recommendations.

4.1 Limitations

The below functionalities and extensions are supported with limitations:

- `memory.usage` is not supported in all cases. Telemetry is not able to fetch the `memory.usage` samples without the image balloon driver. This is an OpenStack limitation.
- VM migration causes port statistics inconsistencies. For more information, refer to section “Disconnected DPN Scenario” in the SDN document Counters User Guide, Reference [2].

In a deployment with more than 50 blades, Ceilometer statistics return a Gateway Timeout (HTTP 504).

To avoid this issue, do the following:

1. Change the parameters `timeout_client` and `timeout_server` in `/etc/haproxy/haproxy.cfg` on all the vCICs. For each 100 VM, increase the timeout parameters by 1 minute.

For example, in a deployment with 80 blades and 600 VMs, set the parameters `timeout_client` and `timeout_server` to 6 min.

2. Restart HAProxy with the following command on any of the vCICs:

```
crm resource restart p_haproxy
```

4.2 Recommendations

Not applicable.



Reference List

- [1] OpenStack Ceilometer Documentation, <https://docs.openstack.org/ceilometer/latest/admin/telemetry-measurements.html>
- [2] Counters User Guide, 4/1543-AXD 101 08/6-V1