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# **ooi Documentation**

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**Spanish National Research Council - CSIC**

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ooi is an implementation the Open Grid Forum's [Open Cloud Computing Interface \(OCCI\)](#) for [OpenStack](#).



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## User documentation

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### 1.1 User documentation

Please, read the following documentation if you intend to deploy ooi in your infrastructure.

#### 1.1.1 Installation

##### Installation via packages

TBD

##### Installation from pip

ooi can be installed via pip from OpenStack Kilo onwards. If you are running Juno, the code will still work, but there are some dependencies that may be in conflict with the existing Python modules in your system, as long as missing dependencies (`oslo.log` is not available in Juno):

```
$ pip install ooi
```

#### 1.1.2 Configuration

##### ooi configuration

ooi needs to be enabled in the OpenStack Compute configuration file. Append `ooi` to your `enabled_apis` option:

```
enabled_apis=ec2,osapi_compute,metadata,ooi
```

Moreover, the following options are available:

- `ooi_listen`: IP address where ooi will listen. Defaults to `0.0.0.0`
- `ooi_listen_port`: Port ooi will bind to. Defaults to `8787`.
- `ooi_workers`: Number of workers to spawn, by default it is set to the number of CPUs in the node.

## Paste Configuration

### TL;DR.

Add the corresponding Paste configuration according to your OpenStack version from *Pipeline examples* into your Paste configuration file (usually `/etc/nova/api-paste.ini`).

Detailed instructions

First it is needed to add the OCCI filter like this:

```
[filter:occi]
paste.filter_factory = ooi.wsgi:OCCIMiddleware.factory
openstack_version = /v2
neutron_ooi_endpoint = http://127.0.0.1:9696/v2.0
```

`openstack_version` can be configured to any of the supported OpenStack API versions, as indicated in Table *Supported OpenStack API versions*. If it is not configured, by default it will take the `/v2.1` value.

Table 1.1: Supported OpenStack API versions

OpenStack API version	openstack_version	reference OpenStack composite section
v2	/v2	[composite:openstack_compute_api_v2]
v2.1	/v2.1	[composite:openstack_compute_api_v21]

OpenStack has two components to support network management. On one side, nova-network provides a simple network management which creates, lists, shows information for, and deletes networks. Admin permissions are required to create and delete networks. On the other side, the neutron component allows to manage and configure advanced network features. OOI implements the OCCI interface to simple network management by using either nova-network or neutron. `neutron_ooi_endpoint` configures the neutron endpoint. It is an optional parameter that configures the network management by using neutron. If this is not set, the system will use nova-network.

The next step is to create a `composite` section for the OCCI interface. It is needed to duplicate the *corresponding OpenStack API ‘composite’* section, renaming it to `occi_api_v11`. Once duplicated, the `occi` middleware needs to be added just before the last component of the pipeline. So, in the example above where `/v2` has been configured, we need to duplicate the `[composite:openstack_compute_api_v2]` as follows:

```
[composite:occi_api_11]
use = call:nova.api.auth:pipeline_factory
noauth = compute_req_id faultwrap sizelimit noauth ratelimit occi osapi_compute_app_v2
keystone = compute_req_id faultwrap sizelimit occi authtoken keystonecontext ratelimit occi osapi_compute_app_v2
keystone_nolimit = compute_req_id faultwrap sizelimit authtoken keystonecontext occi osapi_compute_app_v2
```

The last step regarding the API configuration is to add it to create the `[composite:occi]` section:

```
[composite:occi]
use = call:nova.api.openstack.urlmap:urlmap_factory
/occi1.1: occi_api_11
```

Finally, you need to enable it in the OpenStack nova configuration, so that it is loaded properly. Add `occi` to the `enabled_apis` option in the configuration file and adapt the port if needed, via the `occi_listen_port` (by default it listens in the 8787 port):

```
enabled_apis=ec2,osapi_compute,metadata,occi
occi_listen_port=8787
```

If everything is OK, after rebooting the `nova-api` service you should be able to access your OCCI endpoint at:



```
$ nova credentials
# Grab the token
$ export KID=<token>
$ curl -H "x-auth-token: $KID" http://localhost:8787/occi1.1/-/
```

### 1.1.3 Pipeline examples

For your convenience, find below some example pipelines to be used with the corresponding OpenStack Compute version. These are to be **added** into your `/etc/nova/api-paste.ini` configuration file.

#### Juno (2014.2)

```
[composite:ooi]
use = call:nova.api.openstack.urlmap:urlmap_factory
/occi1.1: occi_api_11

[filter:occi]
paste.filter_factory = ooi.wsgi:OCCIMiddleware.factory
openstack_version = /v2.0

[composite:occi_api_11]
[composite:openstack_compute_api_v2]
use = call:nova.api.auth:pipeline_factory
noauth = compute_req_id faultwrap sizelimit noauth ratelimit occi osapi_compute_app_v2
keystone = compute_req_id faultwrap sizelimit authtoken keystonecontext ratelimit occi osapi_compute_app_v2
keystone_nolimit = compute_req_id faultwrap sizelimit authtoken keystonecontext occi osapi_compute_app_v2
```

#### Kilo (2015.1)

```
[composite:ooi]
use = call:nova.api.openstack.urlmap:urlmap_factory
/occi1.1: occi_api_11

[filter:occi]
paste.filter_factory = ooi.wsgi:OCCIMiddleware.factory
openstack_version = /v2.1

[composite:occi_api_11]
use = call:nova.api.auth:pipeline_factory_v21
noauth = compute_req_id faultwrap sizelimit noauth occi osapi_compute_app_v21
noauth2 = compute_req_id faultwrap sizelimit noauth2 occi osapi_compute_app_v21
keystone = compute_req_id faultwrap sizelimit authtoken keystonecontext occi osapi_compute_app_v21
```

#### Juno (2014.2)

```
[composite:ooi]
use = call:nova.api.openstack.urlmap:urlmap_factory
/occi1.1: occi_api_11

[filter:occi]
paste.filter_factory = ooi.wsgi:OCCIMiddleware.factory
openstack_version = /v2.0
```

```
[composite:occi_api_11]
[composite:openstack_compute_api_v2]
use = call:nova.api.auth:pipeline_factory
noauth = compute_req_id faultwrap sizelimit noauth ratelimit occi osapi_compute_app_v2
keystone = compute_req_id faultwrap sizelimit authtoken keystonecontext ratelimit occi osapi_compute_app_v2
keystone_nolimit = compute_req_id faultwrap sizelimit authtoken keystonecontext occi osapi_compute_app_v2
```

### Kilo (2015.1)

```
[composite:ooi]
use = call:nova.api.openstack.urlmap:urlmap_factory
/occi1.1: occi_api_11

[filter:occi]
paste.filter_factory = ooi.wsgi:OCCIMiddleware.factory
openstack_version = /v2.1

[composite:occi_api_11]
use = call:nova.api.auth:pipeline_factory_v21
noauth = compute_req_id faultwrap sizelimit noauth occi osapi_compute_app_v21
noauth2 = compute_req_id faultwrap sizelimit noauth2 occi osapi_compute_app_v21
keystone = compute_req_id faultwrap sizelimit authtoken keystonecontext occi osapi_compute_app_v21
```

### Liberty (2015.2)

```
[composite:ooi]
use = call:nova.api.openstack.urlmap:urlmap_factory
/occi1.1: occi_api_11

[filter:occi]
paste.filter_factory = ooi.wsgi:OCCIMiddleware.factory
openstack_version = /v2.1

[composite:occi_api_11]
use = call:nova.api.auth:pipeline_factory_v21
noauth2 = compute_req_id faultwrap sizelimit noauth2 occi osapi_compute_app_v21
keystone = compute_req_id faultwrap sizelimit authtoken keystonecontext occi osapi_compute_app_v21
```

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## Developer documentation

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### 2.1 Developer documentation

#### 2.1.1 ooi's modules



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## Indices and tables

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