
python-novaclient Documentation

Release 18.6.1.dev2

OpenStack Foundation

Mar 12, 2024

CONTENTS

1	User Guide	2
1.1	The nova Shell Utility	2
1.2	The novaclient Python API	3
1.2.1	Usage	3
1.2.2	Reference	5
2	CLI Reference	6
2.1	nova	6
2.1.1	nova usage	6
2.1.2	nova optional arguments	14
	nova add-secgroup	15
	nova agent-create	15
	nova agent-delete	16
	nova agent-list	16
	nova agent-modify	16
	nova aggregate-add-host	16
	nova aggregate-cache-images	17
	nova aggregate-create	17
	nova aggregate-delete	17
	nova aggregate-list	18
	nova aggregate-remove-host	18
	nova aggregate-set-metadata	18
	nova aggregate-show	18
	nova aggregate-update	19
	nova availability-zone-list	19
	nova backup	19
	nova boot	20
	nova clear-password	22
	nova console-log	23
	nova delete	23
	nova diagnostics	24
	nova evacuate	24
	nova flavor-access-add	24
	nova flavor-access-list	25
	nova flavor-access-remove	25
	nova flavor-create	25
	nova flavor-delete	26
	nova flavor-key	26
	nova flavor-list	26

nova flavor-show	27
nova flavor-update	27
nova force-delete	28
nova get-mks-console	28
nova get-password	28
nova get-rdp-console	28
nova get-serial-console	29
nova get-spice-console	29
nova get-vnc-console	29
nova host-evacuate	29
nova host-evacuate-live	30
nova host-meta	31
nova host-servers-migrate	31
nova hypervisor-list	32
nova hypervisor-servers	32
nova hypervisor-show	32
nova hypervisor-stats	33
nova hypervisor-uptime	33
nova image-create	33
nova instance-action	34
nova instance-action-list	34
nova instance-usage-audit-log	35
nova interface-attach	35
nova interface-detach	35
nova interface-list	36
nova keypair-add	36
nova keypair-delete	36
nova keypair-list	37
nova keypair-show	37
nova limits	37
nova list	38
nova list-secgroup	40
nova live-migration	40
nova live-migration-abort	41
nova live-migration-force-complete	41
nova lock	42
nova meta	42
nova migrate	42
nova migration-list	43
nova pause	44
nova quota-class-show	44
nova quota-class-update	44
nova quota-defaults	45
nova quota-delete	45
nova quota-show	46
nova quota-update	46
nova reboot	47
nova rebuild	47
nova refresh-network	49
nova remove-secgroup	49
nova rescue	49

nova reset-network	50
nova reset-state	50
nova resize	50
nova resize-confirm	51
nova resize-revert	51
nova restore	51
nova resume	51
nova server-group-create	52
nova server-group-delete	52
nova server-group-get	52
nova server-group-list	53
nova server-migration-list	53
nova server-migration-show	53
nova server-tag-add	54
nova server-tag-delete	54
nova server-tag-delete-all	54
nova server-tag-list	55
nova server-tag-set	55
nova server-topology	55
nova service-delete	56
nova service-disable	56
nova service-enable	56
nova service-force-down	57
nova service-list	57
nova set-password	57
nova shelve	58
nova shelve-offload	58
nova show	58
nova ssh	58
nova start	59
nova stop	59
nova suspend	60
nova trigger-crash-dump	60
nova unlock	60
nova unpause	60
nova unrescue	61
nova unshelve	61
nova update	61
nova usage	62
nova usage-list	62
nova version-list	62
nova volume-attach	62
nova volume-attachments	63
nova volume-detach	63
nova volume-update	63
nova bash-completion	64
3 Reference	65
3.1 novaclient	65
3.1.1 novaclient package	65
Subpackages	65

novaclient.v2 package	65
Submodules	119
novaclient.api_versions module	119
novaclient.base module	120
novaclient.client module	123
novaclient.crypto module	124
novaclient.exceptions module	124
novaclient.extension module	127
novaclient.i18n module	127
novaclient.shell module	128
novaclient.utils module	129
Module contents	131
4 Contributor Guide	132
4.1 Basic Information	132
4.1.1 So You Want to Contribute	132
Communication	132
Contacting the Core Team	132
New Feature Planning	132
Task Tracking	132
Reporting a Bug	133
Getting Your Patch Merged	133
4.2 Developer Guide	133
4.2.1 Adding support for a new microversion	133
4.2.2 Testing	134
4.2.3 Deprecating commands	135
Python Module Index	136

This is a client for OpenStack Nova API. There's a *Python API* (the *novaclient* module), and a deprecated *command-line script* (installed as **nova**). Each implements the entire OpenStack Nova API.

You'll need credentials for an OpenStack cloud that implements the Compute API in order to use the nova client.

See also:

You may want to read the [OpenStack Compute API Guide](#) to get an idea of the concepts. By understanding the concepts this library should make more sense.

1.1 The nova Shell Utility

The **nova** shell utility interacts with OpenStack Nova API from the command line. It supports the entirety of the OpenStack Nova API.

You'll need to provide **nova** with your OpenStack Keystone user information. You can do this with the *os-username*, *os-password*, *os-project-name* (*os-project-id*), *os-project-domain-name* (*os-project-domain-id*) and *os-user-domain-name* (*os-user-domain-id*) options, but its easier to just set them as environment variables by setting some environment variables:

Deprecated since version 17.8.0: The nova CLI has been deprecated in favour of the unified `openstack` CLI. For information on using the `openstack` CLI, see [OpenStackClient](#).

OS_USERNAME

Your OpenStack Keystone user name.

OS_PASSWORD

Your password.

OS_PROJECT_NAME

The name of project for work.

OS_PROJECT_ID

The ID of project for work.

OS_PROJECT_DOMAIN_NAME

The name of domain containing the project.

OS_PROJECT_DOMAIN_ID

The ID of domain containing the project.

OS_USER_DOMAIN_NAME

The users domain name.

OS_USER_DOMAIN_ID

The users domain ID.

OS_AUTH_URL

The OpenStack Keystone endpoint URL.

OS_COMPUTE_API_VERSION

The OpenStack Nova API version (microversion).

OS_REGION_NAME

The Keystone region name. Defaults to the first region if multiple regions are available.

OS_TRUSTED_IMAGE_CERTIFICATE_IDS

A comma-delimited list of trusted image certificate IDs. Only used with the `nova boot` and `nova rebuild` commands starting with the 2.63 microversion.

For example:

```
export OS_TRUSTED_IMAGE_CERTIFICATE_IDS=trusted-cert-id1,trusted-cert-id2
```

For example, in Bash youd use:

```
export OS_USERNAME=yourname
export OS_PASSWORD=yadayadayada
export OS_PROJECT_NAME=myproject
export OS_PROJECT_DOMAIN_NAME=default
export OS_USER_DOMAIN_NAME=default
export OS_AUTH_URL=http://<url-to-openstack-keystone>/identity
export OS_COMPUTE_API_VERSION=2.1
```

From there, all shell commands take the form:

```
nova <command> [arguments...]
```

Run **nova help** to get a full list of all possible commands, and run **nova help <command>** to get detailed help for that command.

For more information, see *the command reference*.

1.2 The novaclient Python API

1.2.1 Usage

First create a client instance with your credentials:

```
>>> from novaclient import client
>>> nova = client.Client(VERSION, USERNAME, PASSWORD, PROJECT_ID, AUTH_URL)
```

Here `VERSION` can be a string or `novaclient.api_versions.APIVersion` obj. If you prefer string value, you can use 1.1 (deprecated now), 2 or 2.X (where X is a microversion).

Alternatively, you can create a client instance using the keystoneauth session API:

```
>>> from keystoneauth1 import loading
>>> from keystoneauth1 import session
>>> from novaclient import client
>>> loader = loading.get_plugin_loader('password')
>>> auth = loader.load_from_options(auth_url=AUTH_URL,
...                               username=USERNAME,
...                               password=PASSWORD,
...                               project_id=PROJECT_ID)
```

(continues on next page)

(continued from previous page)

```
>>> sess = session.Session(auth=auth)
>>> nova = client.Client(VERSION, session=sess)
```

If you have `PROJECT_NAME` instead of a `PROJECT_ID`, use the `project_name` parameter. Similarly, if your cloud uses keystone v3 and you have a `DOMAIN_NAME` or `DOMAIN_ID`, provide it as `user_domain_(name|id)` and if you are using a `PROJECT_NAME` also provide the domain information as `project_domain_(name|id)`.

novaclient adds python-novaclient and its version to the user-agent string that keystoneauth produces. If you are creating an application using novaclient and want to register a name and version in the user-agent string, pass those to the Session:

```
>>> sess = session.Session(
...     auth=auth, app_name='nodepool', app_version='1.2.3')
```

If you are making a library that consumes novaclient but is not an end-user application, you can append a (name, version) tuple to the sessions `additional_user_agent` property:

```
>>> sess = session.Session(auth=auth)
>>> sess.additional_user_agent.append(('shade', '1.2.3'))
```

For more information on this keystoneauth API, see [Using Sessions](#).

It is also possible to use an instance as a context manager in which case there will be a session kept alive for the duration of the with statement:

```
>>> from novaclient import client
>>> with client.Client(VERSION, USERNAME, PASSWORD,
...                  PROJECT_ID, AUTH_URL) as nova:
...     nova.servers.list()
...     nova.flavors.list()
... 
```

It is also possible to have a permanent (process-long) connection pool, by passing a `connection_pool=True`:

```
>>> from novaclient import client
>>> nova = client.Client(VERSION, USERNAME, PASSWORD, PROJECT_ID,
...                     AUTH_URL, connection_pool=True)
```

Then call methods on its managers:

```
>>> nova.servers.list()
[<Server: buildslave-ubuntu-9.10>]

>>> nova.flavors.list()
[<Flavor: 256 server>,
 <Flavor: 512 server>,
 <Flavor: 1GiB server>,
 <Flavor: 2GiB server>,
 <Flavor: 4GiB server>,
 <Flavor: 8GiB server>]
```

(continues on next page)

(continued from previous page)

```
<Flavor: 15.5GiB server>]
>>> fl = nova.flavors.find(ram=512)
>>> nova.servers.create("my-server", flavor=fl)
<Server: my-server>
```

Warning: Direct initialization of `novaclient.v2.client.Client` object can cause you to shoot yourself in the foot. See [launchpad bug-report 1493576](#) for more details.

1.2.2 Reference

See *the module reference*.

CLI REFERENCE

2.1 nova

The nova client is the command-line interface (CLI) for the Compute service (nova) API and its extensions.

For help on a specific **nova** command, enter:

```
$ nova help COMMAND
```

Deprecated since version 17.8.0: The nova CLI has been deprecated in favour of the unified openstack CLI. For information on using the openstack CLI, see [OpenStackClient](#).

2.1.1 nova usage

```
usage: nova [--version] [--debug] [--os-cache] [--timings]
           [--os-region-name <region-name>] [--service-type <service-type>]
           [--service-name <service-name>]
           [--os-endpoint-type <endpoint-type>]
           [--os-compute-api-version <compute-api-ver>]
           [--os-endpoint-override <bypass-url>] [--profile HMAC_KEY]
           [--insecure] [--os-cacert <ca-certificate>]
           [--os-cert <certificate>] [--os-key <key>] [--timeout <seconds>]
           [--collect-timing] [--os-auth-type <name>]
           [--os-auth-url OS_AUTH_URL] [--os-system-scope OS_SYSTEM_SCOPE]
           [--os-domain-id OS_DOMAIN_ID] [--os-domain-name OS_DOMAIN_NAME]
           [--os-project-id OS_PROJECT_ID]
           [--os-project-name OS_PROJECT_NAME]
           [--os-project-domain-id OS_PROJECT_DOMAIN_ID]
           [--os-project-domain-name OS_PROJECT_DOMAIN_NAME]
           [--os-trust-id OS_TRUST_ID]
           [--os-default-domain-id OS_DEFAULT_DOMAIN_ID]
           [--os-default-domain-name OS_DEFAULT_DOMAIN_NAME]
           [--os-user-id OS_USER_ID] [--os-username OS_USERNAME]
           [--os-user-domain-id OS_USER_DOMAIN_ID]
           [--os-user-domain-name OS_USER_DOMAIN_NAME]
           [--os-password OS_PASSWORD]
           <subcommand> ...
```

Subcommands:

add-fixed-ip

DEPRECATED Add new IP address on a network to server.

add-secgroup

Add a Security Group to a server.

agent-create

Create new agent build.

agent-delete

Delete existing agent build.

agent-list

List all builds.

agent-modify

Modify existing agent build.

aggregate-add-host

Add the host to the specified aggregate.

aggregate-cache-images

Request images be pre-cached on hosts within an aggregate. (Supported by API versions 2.81 - 2.latest)

aggregate-create

Create a new aggregate with the specified details.

aggregate-delete

Delete the aggregate.

aggregate-list

Print a list of all aggregates.

aggregate-remove-host

Remove the specified host from the specified aggregate.

aggregate-set-metadata

Update the metadata associated with the aggregate.

aggregate-show

Show details of the specified aggregate.

aggregate-update

Update the aggregates name and optionally availability zone.

availability-zone-list

List all the availability zones.

backup

Backup a server by creating a backup type snapshot.

boot

Boot a new server.

clear-password

Clear the admin password for a server from the metadata server. This action does not actually change the instance server password.

cloudpipe-configure

DEPRECATED Update the VPN IP/port of a cloudpipe instance.

cloudpipe-create

DEPRECATED Create a cloudpipe instance for the given project.

cloudpipe-list

DEPRECATED Print a list of all cloudpipe instances.

console-log

Get console log output of a server.

delete

Immediately shut down and delete specified server(s).

diagnostics

Retrieve server diagnostics.

evacuate

Evacuate server from failed host.

flavor-access-add

Add flavor access for the given tenant.

flavor-access-list

Print access information about the given flavor.

flavor-access-remove

Remove flavor access for the given tenant.

flavor-create

Create a new flavor.

flavor-delete

Delete a specific flavor

flavor-key

Set or unset extra_spec for a flavor.

flavor-list

Print a list of available flavors (sizes of servers).

flavor-show

Show details about the given flavor.

flavor-update

Update the description of an existing flavor. (Supported by API versions 2.55 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

floating-ip-associate

DEPRECATED Associate a floating IP address to a server.

floating-ip-disassociate

DEPRECATED Disassociate a floating IP address from a server.

force-delete

Force delete a server.

get-mks-console

Get an MKS console to a server. (Supported by API versions 2.8 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

get-password

Get the admin password for a server. This operation calls the metadata service to query metadata information and does not read password information from the server itself.

get-rdp-console

Get a rdp console to a server.

get-serial-console

Get a serial console to a server.

get-spice-console

Get a spice console to a server.

get-vnc-console

Get a vnc console to a server.

host-action

DEPRECATED Perform a power action on a host.

host-describe

DEPRECATED Describe a specific host.

host-evacuate

Evacuate all instances from failed host.

host-evacuate-live

Live migrate all instances off the specified host to other available hosts.

host-list

DEPRECATED List all hosts by service.

host-meta

Set or Delete metadata on all instances of a host.

host-servers-migrate

Cold migrate all instances off the specified host to other available hosts.

host-update

DEPRECATED Update host settings.

hypervisor-list

List hypervisors. (Supported by API versions 2.0 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

hypervisor-servers

List servers belonging to specific hypervisors.

hypervisor-show

Display the details of the specified hypervisor.

hypervisor-stats

Get hypervisor statistics over all compute nodes.

hypervisor-uptime

Display the uptime of the specified hypervisor.

image-create

Create a new image by taking a snapshot of a running server.

instance-action

Show an action.

instance-action-list

List actions on a server.

instance-usage-audit-log

List/Get server usage audits.

interface-attach

Attach a network interface to a server.

interface-detach

Detach a network interface from a server.

interface-list

List interfaces attached to a server.

keypair-add

Create a new key pair for use with servers.

keypair-delete

Delete keypair given by its name. (Supported by API versions 2.0 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

keypair-list

Print a list of keypairs for a user (Supported by API versions 2.0 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

keypair-show

Show details about the given keypair. (Supported by API versions 2.0 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

limits

Print rate and absolute limits.

list

List servers.

list-secgroup

List Security Group(s) of a server.

live-migration

Migrate running server to a new machine.

live-migration-abort

Abort an on-going live migration. (Supported by API versions 2.24 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

live-migration-force-complete

Force on-going live migration to complete. (Supported by API versions 2.22 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

lock

Lock a server. A normal (non-admin) user will not be able to execute actions on a locked server.

meta

Set or delete metadata on a server.

migrate

Migrate a server. The new host will be selected by the scheduler.

migration-list

Print a list of migrations.

pause

Pause a server.

quota-class-show

List the quotas for a quota class.

quota-class-update

Update the quotas for a quota class. (Supported by API versions 2.0 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

quota-defaults

List the default quotas for a tenant.

quota-delete

Delete quota for a tenant/user so their quota will Revert back to default.

quota-show

List the quotas for a tenant/user.

quota-update

Update the quotas for a tenant/user. (Supported by API versions 2.0 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

reboot

Reboot a server.

rebuild

Shutdown, re-image, and re-boot a server.

refresh-network

Refresh server network information.

remove-fixed-ip

DEPRECATED Remove an IP address from a server.

remove-secgroup

Remove a Security Group from a server.

rescue

Reboots a server into rescue mode, which starts the machine from either the initial image or a specified image, attaching the current boot disk as secondary.

reset-network

Reset network of a server.

reset-state

Reset the state of a server.

resize

Resize a server.

resize-confirm

Confirm a previous resize.

resize-revert

Revert a previous resize (and return to the previous VM).

restore

Restore a soft-deleted server.

resume

Resume a server.

server-group-create

Create a new server group with the specified details.

server-group-delete

Delete specific server group(s).

server-group-get

Get a specific server group.

server-group-list

Print a list of all server groups.

server-migration-list

Get the migrations list of specified server. (Supported by API versions 2.23 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

server-migration-show

Get the migration of specified server. (Supported by API versions 2.23 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

server-tag-add

Add one or more tags to a server. (Supported by API versions 2.26 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

server-tag-delete

Delete one or more tags from a server. (Supported by API versions 2.26 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

server-tag-delete-all

Delete all tags from a server. (Supported by API versions 2.26 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

server-tag-list

Get list of tags from a server. (Supported by API versions 2.26 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

server-tag-set

Set list of tags to a server. (Supported by API versions 2.26 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

server-topology

Retrieve NUMA topology of the given server. (Supported by API versions 2.78 - 2.latest)

service-delete

Delete the service.

service-disable

Disable the service.

service-enable

Enable the service.

service-force-down

Force service to down. (Supported by API versions 2.11 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

service-list

Show a list of all running services. Filter by host & binary.

set-password

Change the admin password for a server.

shelve

Shelve a server.

shelve-offload

Remove a shelved server from the compute node.

show

Show details about the given server.

ssh

SSH into a server.

start

Start the server(s).

stop

Stop the server(s).

suspend

Suspend a server.

trigger-crash-dump

Trigger crash dump in an instance. (Supported by API versions 2.17 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

unlock

Unlock a server.

unpause

Unpause a server.

unrescue

Restart the server from normal boot disk again.

unshelve

Unshelve a server.

update

Update the name or the description for a server.

usage

Show usage data for a single tenant.

usage-list

List usage data for all tenants.

version-list

List all API versions.

virtual-interface-list

DEPRECATED Show virtual interface info about the given server.

volume-attach

Attach a volume to a server.

volume-attachments

List all the volumes attached to a server.

volume-detach

Detach a volume from a server.

volume-update

Update the attachment on the server. Migrates the data from an attached volume to the specified available volume and swaps out the active attachment to the new volume. Since microversion 2.85, support for updating the `delete_on_termination` delete flag, which allows changing the behavior of volume deletion on instance deletion.

x509-create-cert

DEPRECATED Create x509 cert for a user in tenant.

x509-get-root-cert

DEPRECATED Fetch the x509 root cert.

bash-completion

Prints all of the commands and options to stdout so that the `nova.bash_completion` script doesn't have to hard code them.

help

Display help about this program or one of its subcommands.

2.1.2 nova optional arguments

--version

show programs version number and exit

--debug

Print debugging output.

--os-cache

Use the auth token cache. Defaults to False if `env[OS_CACHE]` is not set.

--timings

Print call timing info.

--os-region-name <region-name>

Defaults to `env[OS_REGION_NAME]`.

--service-type <service-type>

Defaults to compute for most actions.

--service-name <service-name>

Defaults to `env[NOVA_SERVICE_NAME]`.

--os-endpoint-type <endpoint-type>

Defaults to `env[NOVA_ENDPOINT_TYPE]`, `env[OS_ENDPOINT_TYPE]` or `publicURL`.

--os-compute-api-version <compute-api-ver>

Accepts X, X.Y (where X is major and Y is minor part) or X.latest, defaults to `env[OS_COMPUTE_API_VERSION]`.

--os-endpoint-override <bypass-url>

Use this API endpoint instead of the Service Catalog. Defaults to env[OS_ENDPOINT_OVERRIDE].

--profile HMAC_KEY

HMAC key to use for encrypting context data for performance profiling of operation. This key should be the value of the HMAC key configured for the OSprofiler middleware in nova; it is specified in the Nova configuration file at /etc/nova/nova.conf. Without the key, profiling will not be triggered even if OSprofiler is enabled on the server side.

--os-auth-type <name>, --os-auth-plugin <name>

Authentication type to use

nova add-secgroup

```
usage: nova add-secgroup <server> <secgroup>
```

Add a Security Group to a server.

Positional arguments:

<server>

Name or ID of server.

<secgroup>

Name or ID of Security Group.

nova agent-create

```
usage: nova agent-create <os> <architecture> <version> <url> <md5hash>
                        <hypervisor>
```

Create new agent build.

Positional arguments:

<os>

Type of OS.

<architecture>

Type of architecture.

<version>

Version.

<url>

URL.

<md5hash>

MD5 hash.

<hypervisor>

Type of hypervisor.

nova agent-delete

```
usage: nova agent-delete <id>
```

Delete existing agent build.

Positional arguments:

<id>

ID of the agent-build.

nova agent-list

```
usage: nova agent-list [--hypervisor <hypervisor>]
```

List all builds.

Optional arguments:

--hypervisor <hypervisor>

Type of hypervisor.

nova agent-modify

```
usage: nova agent-modify <id> <version> <url> <md5hash>
```

Modify existing agent build.

Positional arguments:

<id>

ID of the agent-build.

<version>

Version.

<url>

URL

<md5hash>

MD5 hash.

nova aggregate-add-host

```
usage: nova aggregate-add-host <aggregate> <host>
```

Add the host to the specified aggregate.

Positional arguments:

<aggregate>

Name or ID of aggregate.

<host>

The host to add to the aggregate.

nova aggregate-cache-images

```
usage: nova aggregate-cache-images <aggregate> <image> [<image> ..]
```

Request image(s) be pre-cached on hosts within the aggregate. (Supported by API versions 2.81 - 2.latest)

New in version 16.0.0.

Positional arguments:

<aggregate>

Name or ID of aggregate.

<image>

Name or ID of image(s) to cache.

nova aggregate-create

```
usage: nova aggregate-create <name> [<availability-zone>]
```

Create a new aggregate with the specified details.

Positional arguments:

<name>

Name of aggregate.

<availability-zone>

The availability zone of the aggregate (optional).

nova aggregate-delete

```
usage: nova aggregate-delete <aggregate>
```

Delete the aggregate.

Positional arguments:

<aggregate>

Name or ID of aggregate to delete.

nova aggregate-list

```
usage: nova aggregate-list
```

Print a list of all aggregates.

nova aggregate-remove-host

```
usage: nova aggregate-remove-host <aggregate> <host>
```

Remove the specified host from the specified aggregate.

Positional arguments:

<aggregate>

Name or ID of aggregate.

<host>

The host to remove from the aggregate.

nova aggregate-set-metadata

```
usage: nova aggregate-set-metadata <aggregate> <key=value> [<key=value> ...]
```

Update the metadata associated with the aggregate.

Positional arguments:

<aggregate>

Name or ID of aggregate to update.

<key=value>

Metadata to add/update to aggregate. Specify only the key to delete a metadata item.

nova aggregate-show

```
usage: nova aggregate-show <aggregate>
```

Show details of the specified aggregate.

Positional arguments:

<aggregate>

Name or ID of aggregate.

nova aggregate-update

```
usage: nova aggregate-update [--name NAME]
                             [--availability-zone <availability-zone>]
                             <aggregate>
```

Update the aggregates name and optionally availability zone.

Positional arguments:

<aggregate>

Name or ID of aggregate to update.

Optional arguments:

--name NAME

New name for aggregate.

--availability-zone <availability-zone>

New availability zone for aggregate.

nova availability-zone-list

```
usage: nova availability-zone-list
```

List all the availability zones.

nova backup

```
usage: nova backup <server> <name> <backup-type> <rotation>
```

Backup a server by creating a backup type snapshot.

Positional arguments:

<server>

Name or ID of server.

<name>

Name of the backup image.

<backup-type>

The backup type, like daily or weekly.

<rotation>

Int parameter representing how many backups to keep around.

nova boot

```
usage: nova boot [--flavor <flavor>] [--image <image>]
                [--image-with <key=value>] [--boot-volume <volume_id>]
                [--snapshot <snapshot_id>] [--min-count <number>]
                [--max-count <number>] [--meta <key=value>]
                [--key-name <key-name>] [--user-data <user-data>]
                [--availability-zone <availability-zone>]
                [--security-groups <security-groups>]
                [--block-device-mapping <dev-name=mapping>]
                [--block-device key1=value1[,key2=value2...]]
                [--swap <swap_size>]
                [--ephemeral size=<size>[,format=<format>]]
                [--hint <key=value>]
                [--nic <auto,none,net-id=net-uuid,net-name=network-name,port-
↪id=port-uuid,v4-fixed-ip=ip-addr,v6-fixed-ip=ip-addr,tag=tag>]
                [--config-drive <value>] [--poll] [--admin-pass <value>]
                [--access-ip-v4 <value>] [--access-ip-v6 <value>]
                [--description <description>] [--tags <tags>]
                [--return-reservation-id]
                [--trusted-image-certificate-id <trusted-image-certificate-
↪id>]

                [--host <host>]
                [--hypervisor-hostname <hypervisor-hostname>]
                [--hostname <hostname>]
                <name>
```

Boot a new server.

In order to create a server with pre-existing ports that contain a `resource_request` value, such as for guaranteed minimum bandwidth quality of service support, microversion 2.72 is required.

Positional arguments:**<name>**

Name for the new server.

Optional arguments:**--flavor <flavor>**

Name or ID of flavor (see `nova flavor-list`).

--image <image>

Name or ID of image (see `glance image-list`).

--image-with <key=value>

Image metadata property (see `glance image-show`).

--boot-volume <volume_id>

Volume ID to boot from.

--snapshot <snapshot_id>

Snapshot ID to boot from (will create a volume).

--min-count <number>

Boot at least <number> servers (limited by quota).

- max-count <number>**
Boot up to <number> servers (limited by quota).
- meta <key=value>**
Record arbitrary key/value metadata to /meta_data.json on the metadata server. Can be specified multiple times.
- key-name <key-name>**
Key name of keypair that should be created earlier with the command keypair-add.
- user-data <user-data>**
user data file to pass to be exposed by the metadata server.
- availability-zone <availability-zone>**
The availability zone for server placement.
- security-groups <security-groups>**
Comma separated list of security group names.
- block-device-mapping <dev-name=mapping>**
Block device mapping in the format <dev-name>=<id>:<type>:<size(GiB)>:<delete-on-terminate>.
- block-device**
key1=value1[,key2=value2] Block device mapping with the keys: id=UUID (image_id, snapshot_id or volume_id only if using source image, snapshot or volume) source=source type (image, snapshot, volume or blank), dest=destination type of the block device (volume or local), bus=devices bus (e.g. uml, lxc, virtio, ; if omitted, hypervisor driver chooses a suitable default, honoured only if device type is supplied) type=device type (e.g. disk, cdrom, ; defaults to disk) device=name of the device (e.g. vda, xda, ; if omitted, hypervisor driver chooses suitable device depending on selected bus; note the libvirt driver always uses default device names), size=size of the block device in MiB(for swap) and in GiB(for other formats) (if omitted, hypervisor driver calculates size), format=device will be formatted (e.g. swap, ntfs, ; optional), bootindex=integer used for ordering the boot disks (for image backed instances it is equal to 0, for others need to be specified), shutdown=shutdown behaviour (either preserve or remove, for local destination set to remove), tag=device metadata tag (optional; supported by API versions 2.42 - 2.latest), and volume_type=type of volume to create (either ID or name) when source is *blank*, *image* or *snapshot* and dest is *volume* (optional; supported by API versions 2.67 - 2.latest).
- swap <swap_size>**
Create and attach a local swap block device of <swap_size> MiB.
- ephemeral**
size=<size>[,format=<format>] Create and attach a local ephemeral block device of <size> GiB and format it to <format>.
- hint <key=value>**
Send arbitrary key/value pairs to the scheduler for custom use.
- nic <auto,none,net-id=net-uuid,net-name=network-name,port-id=port-uuid,v4-fixed-ip=ip-addr,v6-fixed-ip=ip-addr,tag=tag>**
Create a NIC on the server. Specify option multiple times to create multiple nics unless using the special auto or none values. auto: automatically allocate network resources if none are available. This cannot be specified with any other nic value and cannot be specified multiple times. none: do not attach a NIC at all. This cannot be specified with any other nic value and cannot be specified multiple times. net-id: attach NIC to network with a specific UUID. net-name: attach NIC to network with this name (either port-id or net-id or net-name must be provided), v4-fixed-ip: IPv4

fixed address for NIC (optional), v6-fixed-ip: IPv6 fixed address for NIC (optional), port-id: attach NIC to port with this UUID tag: interface metadata tag (optional) (either port-id or net-id must be provided). (Supported by API versions 2.42 - 2.latest)

--config-drive <value>

Enable config drive. The value must be a boolean value.

--poll

Report the new server boot progress until it completes.

--admin-pass <value>

Admin password for the instance.

--access-ip-v4 <value>

Alternative access IPv4 of the instance.

--access-ip-v6 <value>

Alternative access IPv6 of the instance.

--description <description>

Description for the server. (Supported by API versions 2.19 - 2.latest)

--tags <tags>

Tags for the server. Tags must be separated by commas: tags <tag1,tag2> (Supported by API versions 2.52 - 2.latest)

--return-reservation-id

Return a reservation id bound to created servers.

--trusted-image-certificate-id <trusted-image-certificate-id>

Trusted image certificate IDs used to validate certificates during the image signature verification process. Defaults to env[OS_TRUSTED_IMAGE_CERTIFICATE_IDS]. May be specified multiple times to pass multiple trusted image certificate IDs. (Supported by API versions 2.63 - 2.latest)

--host <host>

Requested host to create servers. Admin only by default. (Supported by API versions 2.74 - 2.latest)

--hypervisor-hostname <hypervisor-hostname>

Requested hypervisor hostname to create servers. Admin only by default. (Supported by API versions 2.74 - 2.latest)

--hostname <hostname>

Hostname for the instance. This sets the hostname stored in the metadata server: a utility such as cloud-init running on the guest is required to propagate these changes to the guest. (Supported by API versions 2.90 - 2.latest)

nova clear-password

```
usage: nova clear-password <server>
```

Clear the admin password for a server from the metadata server. This action does not actually change the instance server password.

Positional arguments:

<server>

Name or ID of server.

nova console-log

```
usage: nova console-log [--length <length>] <server>
```

Get console log output of a server.

Locale encoding issues

If you encounter an error such as:

```
UnicodeEncodeError: 'ascii' codec can't encode characters in position
```

The solution to these problems is different depending on which locale your computer is running in.

For instance, if you have a German Linux machine, you can fix the problem by exporting the locale to `de_DE.utf-8`:

```
export LC_ALL=de_DE.utf-8
export LANG=de_DE.utf-8
```

If you are on a US machine, `en_US.utf-8` is the encoding of choice. On some newer Linux systems, you could also try `C.UTF-8` as the locale:

```
export LC_ALL=C.UTF-8
export LANG=C.UTF-8
```

Positional arguments:

<server>

Name or ID of server.

Optional arguments:

--length <length>

Length in lines to tail.

nova delete

```
usage: nova delete [--all-tenants] <server> [<server> ...]
```

Immediately shut down and delete specified server(s).

Positional arguments:

<server>

Name or ID of server(s).

Optional arguments:

--all-tenants

Delete server(s) in another tenant by name (Admin only).

nova diagnostics

```
usage: nova diagnostics <server>
```

Retrieve server diagnostics.

Positional arguments:

<server>

Name or ID of server.

nova evacuate

```
usage: nova evacuate [--password <password>] [--on-shared-storage] [--force]
<server> [<host>]
```

Evacuate server from failed host.

Positional arguments:

<server>

Name or ID of server.

<host>

Name or ID of the target host. If no host is specified, the scheduler will choose one.

Optional arguments:

--password <password>

Set the provided admin password on the evacuated server. Not applicable if the server is on shared storage.

--on-shared-storage

Specifies whether server files are located on shared storage. (Supported by API versions 2.0 - 2.13)

--force

Force an evacuation by not verifying the provided destination host by the scheduler. (Supported by API versions 2.29 - 2.67)

Warning: This could result in failures to actually evacuate the server to the specified host. It is recommended to either not specify a host so that the scheduler will pick one, or specify a host without `--force`.

nova flavor-access-add

```
usage: nova flavor-access-add <flavor> <tenant_id>
```

Add flavor access for the given tenant.

Positional arguments:

<flavor>

Flavor name or ID to add access for the given tenant.

<tenant_id>

Tenant ID to add flavor access for.

nova flavor-access-list

```
usage: nova flavor-access-list [--flavor <flavor>]
```

Print access information about the given flavor.

Optional arguments:

--flavor <flavor>

Filter results by flavor name or ID.

nova flavor-access-remove

```
usage: nova flavor-access-remove <flavor> <tenant_id>
```

Remove flavor access for the given tenant.

Positional arguments:

<flavor>

Flavor name or ID to remove access for the given tenant.

<tenant_id>

Tenant ID to remove flavor access for.

nova flavor-create

```
usage: nova flavor-create [--ephemeral <ephemeral>] [--swap <swap>]
                          [--rxtx-factor <factor>] [--is-public <is-public>]
                          [--description <description>]
                          <name> <id> <ram> <disk> <vcpus>
```

Create a new flavor.

Positional arguments:

<name>

Unique name of the new flavor.

<id>

Unique ID of the new flavor. Specifying auto will generated a UUID for the ID.

<ram>

Memory size in MiB.

<disk>

Disk size in GiB.

<vcpus>

Number of vcpus

Optional arguments:

--ephemeral <ephemeral>

Ephemeral space size in GiB (default 0).

--swap <swap>

Swap space size in MiB (default 0).

--rxtx-factor <factor>

RX/TX factor (default 1).

--is-public <is-public>

Make flavor accessible to the public (default true).

--description <description>

A free form description of the flavor. Limited to 65535 characters in length. Only printable characters are allowed. (Supported by API versions 2.55 - 2.latest)

nova flavor-delete

```
usage: nova flavor-delete <flavor>
```

Delete a specific flavor

Positional arguments:

<flavor>

Name or ID of the flavor to delete.

nova flavor-key

```
usage: nova flavor-key <flavor> <action> <key=value> [<key=value> ...]
```

Set or unset extra_spec for a flavor.

Positional arguments:

<flavor>

Name or ID of flavor.

<action>

Actions: set or unset.

<key=value>

Extra_specs to set/unset (only key is necessary on unset).

nova flavor-list

```
usage: nova flavor-list [--extra-specs] [--all] [--marker <marker>]
                        [--min-disk <min-disk>] [--min-ram <min-ram>]
                        [--limit <limit>] [--sort-key <sort-key>]
                        [--sort-dir <sort-dir>]
```

Print a list of available flavors (sizes of servers).

Optional arguments:

--extra-specs

Get extra-specs of each flavor.

--all

Display all flavors (Admin only).

--marker <marker>

The last flavor ID of the previous page; displays list of flavors after marker.

--min-disk <min-disk>

Filters the flavors by a minimum disk space, in GiB.

--min-ram <min-ram>

Filters the flavors by a minimum RAM, in MiB.

--limit <limit>

Maximum number of flavors to display. If limit is bigger than CONF.api.max_limit option of Nova API, limit CONF.api.max_limit will be used instead.

--sort-key <sort-key>

Flavors list sort key.

--sort-dir <sort-dir>

Flavors list sort direction.

nova flavor-show

```
usage: nova flavor-show <flavor>
```

Show details about the given flavor.

Positional arguments:**<flavor>**

Name or ID of flavor.

nova flavor-update

```
usage: nova flavor-update <flavor> <description>
```

Update the description of an existing flavor. (Supported by API versions 2.55 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

New in version 10.0.0.

Positional arguments**<flavor>**

Name or ID of the flavor to update.

<description>

A free form description of the flavor. Limited to 65535 characters in length. Only printable characters are allowed.

nova force-delete

```
usage: nova force-delete <server>
```

Force delete a server.

Positional arguments:

<server>

Name or ID of server.

nova get-mks-console

```
usage: nova get-mks-console <server>
```

Get an MKS console to a server. (Supported by API versions 2.8 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

New in version 3.0.0.

Positional arguments:

<server>

Name or ID of server.

nova get-password

```
usage: nova get-password <server> [<private-key>]
```

Get the admin password for a server. This operation calls the metadata service to query metadata information and does not read password information from the server itself.

Positional arguments:

<server>

Name or ID of server.

<private-key>

Private key (used locally to decrypt password) (Optional). When specified, the command displays the clear (decrypted) VM password. When not specified, the ciphered VM password is displayed.

nova get-rdp-console

```
usage: nova get-rdp-console <server> <console-type>
```

Get a rdp console to a server.

Positional arguments:

<server>

Name or ID of server.

<console-type>

Type of rdp console (rdp-html5).

nova get-serial-console

```
usage: nova get-serial-console [--console-type CONSOLE_TYPE] <server>
```

Get a serial console to a server.

Positional arguments:

<server>

Name or ID of server.

Optional arguments:

--console-type CONSOLE_TYPE

Type of serial console, default=serial.

nova get-spice-console

```
usage: nova get-spice-console <server> <console-type>
```

Get a spice console to a server.

Positional arguments:

<server>

Name or ID of server.

<console-type>

Type of spice console (spice-html5).

nova get-vnc-console

```
usage: nova get-vnc-console <server> <console-type>
```

Get a vnc console to a server.

Positional arguments:

<server>

Name or ID of server.

<console-type>

Type of vnc console (novnc or xvpvnc).

nova host-evacuate

```
usage: nova host-evacuate [--target_host <target_host>] [--force] [--strict]
                        <host>
```

Evacuate all instances from failed host.

Positional arguments:

<host>

The hypervisor hostname (or pattern) to search for.

Warning: Use a fully qualified domain name if you only want to evacuate from a specific host.

Optional arguments:**--target_host <target_host>**

Name of target host. If no host is specified the scheduler will select a target.

--force

Force an evacuation by not verifying the provided destination host by the scheduler. (Supported by API versions 2.29 - 2.67)

Warning: This could result in failures to actually evacuate the server to the specified host. It is recommended to either not specify a host so that the scheduler will pick one, or specify a host without `--force`.

--strict

Evacuate host with exact hypervisor hostname match

nova host-evacuate-live

```
usage: nova host-evacuate-live [--target-host <target_host>] [--block-migrate]
                               [--max-servers <max_servers>] [--force]
                               [--strict]
                               <host>
```

Live migrate all instances off the specified host to other available hosts.

Positional arguments:**<host>**

Name of host. The hypervisor hostname (or pattern) to search for.

Warning: Use a fully qualified domain name if you only want to live migrate from a specific host.

Optional arguments:**--target-host <target_host>**

Name of target host. If no host is specified, the scheduler will choose one.

--block-migrate

Enable block migration. (Default=auto) (Supported by API versions 2.25 - 2.latest)

--max-servers <max_servers>

Maximum number of servers to live migrate simultaneously

--force

Force a live-migration by not verifying the provided destination host by the scheduler. (Supported by API versions 2.30 - 2.67)

Warning: This could result in failures to actually live migrate the servers to the specified host. It is recommended to either not specify a host so that the scheduler will pick one, or specify a host without `--force`.

--strict

live Evacuate host with exact hypervisor hostname match

nova host-meta

```
usage: nova host-meta [--strict] <host> <action> <key=value> [<key=value> ...]
```

Set or Delete metadata on all instances of a host.

Positional arguments:**<host>**

The hypervisor hostname (or pattern) to search for.

Warning: Use a fully qualified domain name if you only want to update metadata for servers on a specific host.

<action>

Actions: set or delete

<key=value>

Metadata to set or delete (only key is necessary on delete)

Optional arguments:**--strict**

Set host-meta to the hypervisor with exact hostname match

nova host-servers-migrate

```
usage: nova host-servers-migrate [--strict] <host>
```

Cold migrate all instances off the specified host to other available hosts.

Positional arguments:**<host>**

Name of host. The hypervisor hostname (or pattern) to search for.

Warning: Use a fully qualified domain name if you only want to cold migrate from a specific host.

Optional arguments:**--strict**

Migrate host with exact hypervisor hostname match

nova hypervisor-list

```
usage: nova hypervisor-list [--matching <hostname>] [--marker <marker>]
                             [--limit <limit>]
```

List hypervisors. (Supported by API versions 2.0 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

Optional arguments:**--matching <hostname>**

List hypervisors matching the given <hostname>. If matching is used limit and marker options will be ignored.

--marker <marker>

The last hypervisor of the previous page; displays list of hypervisors after marker. (Supported by API versions 2.33 - 2.latest)

--limit <limit>

Maximum number of hypervisors to display. If limit is bigger than CONF.api.max_limit option of Nova API, limit CONF.api.max_limit will be used instead. (Supported by API versions 2.33 - 2.latest)

nova hypervisor-servers

```
usage: nova hypervisor-servers <hostname>
```

List servers belonging to specific hypervisors.

Positional arguments:**<hostname>**

The hypervisor hostname (or pattern) to search for.

nova hypervisor-show

```
usage: nova hypervisor-show [--wrap <integer>] <hypervisor>
```

Display the details of the specified hypervisor.

Positional arguments:**<hypervisor>**

Name or ID of the hypervisor. Starting with microversion 2.53 the ID must be a UUID.

Optional arguments:**--wrap <integer>**

Wrap the output to a specified length. Default is 40 or 0 to disable

nova hypervisor-stats

```
usage: nova hypervisor-stats
```

Get hypervisor statistics over all compute nodes.

nova hypervisor-uptime

```
usage: nova hypervisor-uptime <hypervisor>
```

Display the uptime of the specified hypervisor.

Positional arguments:

<hypervisor>

Name or ID of the hypervisor. Starting with microversion 2.53 the ID must be a UUID.

nova image-create

```
usage: nova image-create [--metadata <key=value>] [--show] [--poll]
                        <server> <name>
```

Create a new image by taking a snapshot of a running server.

Positional arguments:

<server>

Name or ID of server.

<name>

Name of snapshot.

Optional arguments:

--metadata <key=value>

Record arbitrary key/value metadata to /meta_data.json on the metadata server. Can be specified multiple times.

--show

Print image info.

--poll

Report the snapshot progress and poll until image creation is complete.

nova instance-action

```
usage: nova instance-action <server> <request_id>
```

Show an action.

Positional arguments:

<server>

Name or UUID of the server to show actions for. Only UUID can be used to show actions for a deleted server. (Supported by API versions 2.21 - 2.latest)

<request_id>

Request ID of the action to get.

nova instance-action-list

```
usage: nova instance-action-list [--marker <marker>] [--limit <limit>]
      [--changes-since <changes_since>]
      [--changes-before <changes_before>]
      <server>
```

List actions on a server.

Positional arguments:

<server>

Name or UUID of the server to list actions for. Only UUID can be used to list actions on a deleted server. (Supported by API versions 2.21 - 2.latest)

Optional arguments:

--marker <marker>

The last instance action of the previous page; displays list of actions after marker. (Supported by API versions 2.58 - 2.latest)

--limit <limit>

Maximum number of instance actions to display. Note that there is a configurable max limit on the server, and the limit that is used will be the minimum of what is requested here and what is configured in the server. (Supported by API versions 2.58 - 2.latest)

--changes-since <changes_since>

List only instance actions changed later or equal to a certain point of time. The provided time should be an ISO 8061 formatted time. e.g. 2016-03-04T06:27:59Z. (Supported by API versions 2.58 - 2.latest)

--changes-before <changes_before>

List only instance actions changed earlier or equal to a certain point of time. The provided time should be an ISO 8061 formatted time. e.g. 2016-03-04T06:27:59Z. (Supported by API versions 2.66 - 2.latest)

nova instance-usage-audit-log

```
usage: nova instance-usage-audit-log [--before <before>]
```

List/Get server usage audits.

Optional arguments:

--before <before>

Filters the response by the date and time before which to list usage audits. The date and time stamp format is as follows: CCYY-MM-DD hh:mm:ss.NNNNNN ex 2015-08-27 09:49:58 or 2015-08-27 09:49:58.123456.

nova interface-attach

```
usage: nova interface-attach [--port-id <port_id>] [--net-id <net_id>]
                             [--fixed-ip <fixed_ip>] [--tag <tag>]
                             <server>
```

Attach a network interface to a server.

Positional arguments:

<server>

Name or ID of server.

Optional arguments:

--port-id <port_id>

Port ID.

--net-id <net_id>

Network ID

--fixed-ip <fixed_ip>

Requested fixed IP.

--tag <tag>

Tag for the attached interface. (Supported by API versions 2.49 - 2.latest)

nova interface-detach

```
usage: nova interface-detach <server> <port_id>
```

Detach a network interface from a server.

Positional arguments:

<server>

Name or ID of server.

<port_id>

Port ID.

nova interface-list

```
usage: nova interface-list <server>
```

List interfaces attached to a server.

Positional arguments:

<server>

Name or ID of server.

nova keypair-add

```
usage: nova keypair-add [--pub-key <pub-key>] [--key-type <key-type>]
                        [--user <user-id>]
                        <name>
```

Create a new key pair for use with servers.

Positional arguments:

<name>

Name of key.

Optional arguments:

--pub-key <pub-key>

Path to a public ssh key.

--key-type <key-type>

Keypair type. Can be ssh or x509. (Supported by API versions 2.2 - 2.latest)

--user <user-id>

ID of user to whom to add key-pair (Admin only). (Supported by API versions 2.10 - 2.latest)

nova keypair-delete

```
usage: nova keypair-delete [--user <user-id>] <name>
```

Delete keypair given by its name. (Supported by API versions 2.0 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

Positional arguments:

<name>

Keypair name to delete.

Optional arguments:

--user <user-id>

ID of key-pair owner (Admin only).

nova keypair-list

```
usage: nova keypair-list [--user <user-id>] [--marker <marker>]
                        [--limit <limit>]
```

Print a list of keypairs for a user (Supported by API versions 2.0 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

Optional arguments:

--user <user-id>

List key-pairs of specified user ID (Admin only).

--marker <marker>

The last keypair of the previous page; displays list of keypairs after marker.

--limit <limit>

Maximum number of keypairs to display. If limit is bigger than CONF.api.max_limit option of Nova API, limit CONF.api.max_limit will be used instead.

nova keypair-show

```
usage: nova keypair-show [--user <user-id>] <keypair>
```

Show details about the given keypair. (Supported by API versions 2.0 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

Positional arguments:

<keypair>

Name of keypair.

Optional arguments:

--user <user-id>

ID of key-pair owner (Admin only).

nova limits

```
usage: nova limits [--tenant [<tenant>]] [--reserved]
```

Print rate and absolute limits.

Optional arguments:

--tenant [<tenant>]

Display information from single tenant (Admin only).

--reserved

Include reservations count.

nova list

```
usage: nova list [--reservation-id <reservation-id>] [--ip <ip-regexp>]
               [--ip6 <ip6-regexp>] [--name <name-regexp>]
               [--status <status>] [--flavor <flavor>] [--image <image>]
               [--host <hostname>] [--all-tenants [<0|1>]]
               [--tenant [<tenant>]] [--user [<user>]] [--deleted]
               [--fields <fields>] [--minimal]
               [--sort <key>[:<direction>]] [--marker <marker>]
               [--limit <limit>] [--availability-zone <availability_zone>]
               [--key-name <key_name>] [--[no-]config-drive]
               [--progress <progress>] [--vm-state <vm_state>]
               [--task-state <task_state>] [--power-state <power_state>]
               [--changes-since <changes_since>]
               [--changes-before <changes_before>]
               [--tags <tags>] [--tags-any <tags-any>]
               [--not-tags <not-tags>] [--not-tags-any <not-tags-any>]
               [--locked]
```

List servers.

Note that from microversion 2.69, during partial infrastructure failures in the deployment, the output of this command may return partial results for the servers present in the failure domain.

Optional arguments:

--reservation-id <reservation-id>

Only return servers that match reservation-id.

--ip <ip-regexp>

Search with regular expression match by IP address.

--ip6 <ip6-regexp>

Search with regular expression match by IPv6 address.

--name <name-regexp>

Search with regular expression match by name.

--status <status>

Search by server status.

--flavor <flavor>

Search by flavor name or ID.

--image <image>

Search by image name or ID.

--host <hostname>

Search servers by hostname to which they are assigned (Admin only).

--all-tenants [<0|1>]

Display information from all tenants (Admin only).

--tenant [<tenant>]

Display information from single tenant (Admin only).

--user [**<user>**]

Display information from single user (Admin only until microversion 2.82).

--deleted

Only display deleted servers (Admin only).

--fields **<fields>**

Comma-separated list of fields to display. Use the show command to see which fields are available.

--minimal

Get only UUID and name.

--sort **<key>**[:**<direction>**]

Comma-separated list of sort keys and directions in the form of **<key>**[:**<asc|desc>**]. The direction defaults to descending if not specified.

--marker **<marker>**

The last server UUID of the previous page; displays list of servers after marker.

--limit **<limit>**

Maximum number of servers to display. If **limit** == -1, all servers will be displayed. If **limit** is bigger than **CONF.api.max_limit** option of Nova API, **limit CONF.api.max_limit** will be used instead.

--availability-zone **<availability_zone>**

Display servers based on their availability zone (Admin only until microversion 2.82).

--key-name **<key_name>**

Display servers based on their keypair name (Admin only until microversion 2.82).

--config-drive

Display servers that have a config drive attached. It is mutually exclusive with **no-config-drive**. (Admin only until microversion 2.82).

--no-config-drive

Display servers that do not have a config drive attached. It is mutually exclusive with **config-drive**. (Admin only until microversion 2.82).

--progress **<progress>**

Display servers based on their progress value (Admin only until microversion 2.82).

--vm-state **<vm_state>**

Display servers based on their vm_state value (Admin only until microversion 2.82).

--task-state **<task_state>**

Display servers based on their task_state value (Admin only until microversion 2.82).

--power-state **<power_state>**

Display servers based on their power_state value (Admin only until microversion 2.82).

--changes-since **<changes_since>**

List only servers changed later or equal to a certain point of time. The provided time should be an ISO 8061 formatted time. e.g. 2016-03-04T06:27:59Z .

--changes-before **<changes_before>**

List only servers changed earlier or equal to a certain point of time. The provided time should be an ISO 8061 formatted time. e.g. 2016-03-05T06:27:59Z . (Supported by API versions 2.66 - 2.latest)

--tags <tags>

The given tags must all be present for a server to be included in the list result. Boolean expression in this case is t1 AND t2. Tags must be separated by commas: tags <tag1,tag2> (Supported by API versions 2.26 - 2.latest)

--tags-any <tags-any>

If one of the given tags is present the server will be included in the list result. Boolean expression in this case is t1 OR t2. Tags must be separated by commas: tags-any <tag1,tag2> (Supported by API versions 2.26 - 2.latest)

--not-tags <not-tags>

Only the servers that do not have any of the given tags will be included in the list results. Boolean expression in this case is NOT(t1 AND t2). Tags must be separated by commas: not-tags <tag1,tag2> (Supported by API versions 2.26 - 2.latest)

--not-tags-any <not-tags-any>

Only the servers that do not have at least one of the given tags will be included in the list result. Boolean expression in this case is NOT(t1 OR t2). Tags must be separated by commas: not-tags-any <tag1,tag2> (Supported by API versions 2.26 - 2.latest)

--locked <locked>

Display servers based on their locked value. A value must be specified; eg. true will list only locked servers and false will list only unlocked servers. (Supported by API versions 2.73 - 2.latest)

nova list-secgroup

```
usage: nova list-secgroup <server>
```

List Security Group(s) of a server.

Positional arguments:**<server>**

Name or ID of server.

nova live-migration

```
usage: nova live-migration [--block-migrate] [--force] <server> [<host>]
```

Migrate running server to a new machine.

Positional arguments:**<server>**

Name or ID of server.

<host>

Destination host name. If no host is specified, the scheduler will choose one.

Optional arguments:**--block-migrate**

True in case of block_migration. (Default=auto:live_migration) (Supported by API versions 2.25 - 2.latest)

--force

Force a live-migration by not verifying the provided destination host by the scheduler. (Supported by API versions 2.30 - 2.67)

Warning: This could result in failures to actually live migrate the server to the specified host. It is recommended to either not specify a host so that the scheduler will pick one, or specify a host without `--force`.

nova live-migration-abort

```
usage: nova live-migration-abort <server> <migration>
```

Abort an on-going live migration. (Supported by API versions 2.24 - 2.latest) [hint: use `os-compute-api-version` flag to show help message for proper version]

For microversions from 2.24 to 2.64 the migration status must be `running`; for microversion 2.65 and greater, the migration status can also be `queued` and `preparing`.

New in version 3.3.0.

Positional arguments:**<server>**

Name or ID of server.

<migration>

ID of migration.

nova live-migration-force-complete

```
usage: nova live-migration-force-complete <server> <migration>
```

Force on-going live migration to complete. (Supported by API versions 2.22 - 2.latest) [hint: use `os-compute-api-version` flag to show help message for proper version]

New in version 3.3.0.

Positional arguments:**<server>**

Name or ID of server.

<migration>

ID of migration.

nova lock

```
usage: nova lock [--reason <reason>] <server>
```

Lock a server. A normal (non-admin) user will not be able to execute actions on a locked server.

Positional arguments:

<server>

Name or ID of server.

Optional arguments:

--reason <reason>

Reason for locking the server. (Supported by API versions 2.73 - 2.latest)

nova meta

```
usage: nova meta <server> <action> <key=value> [<key=value> ...]
```

Set or delete metadata on a server.

Positional arguments:

<server>

Name or ID of server.

<action>

Actions: set or delete.

<key=value>

Metadata to set or delete (only key is necessary on delete).

nova migrate

```
usage: nova migrate [--host <host>] [--poll] <server>
```

Migrate a server. The new host will be selected by the scheduler.

Positional arguments:

<server>

Name or ID of server.

Optional arguments:

--host <host>

Destination host name. (Supported by API versions 2.56 - 2.latest)

--poll

Report the server migration progress until it completes.

nova migration-list

```
usage: nova migration-list [--instance-uuid <instance_uuid>]
                          [--host <host>]
                          [--status <status>]
                          [--migration-type <migration_type>]
                          [--source-compute <source_compute>]
                          [--marker <marker>]
                          [--limit <limit>]
                          [--changes-since <changes_since>]
                          [--changes-before <changes_before>]
                          [--project-id <project_id>]
                          [--user-id <user_id>]
```

Print a list of migrations.

Examples

To see the list of evacuation operations *from* a compute service host:

```
nova migration-list --migration-type evacuation --source-compute host.foo.bar
```

Optional arguments:

--instance-uuid <instance_uuid>

Fetch migrations for the given instance.

--host <host>

Fetch migrations for the given source or destination host.

--status <status>

Fetch migrations for the given status.

--migration-type <migration_type>

Filter migrations by type. Valid values are:

- evacuation
- live-migration
- migration

Note: This is a cold migration.

- resize

--source-compute <source_compute>

Filter migrations by source compute host name.

--marker <marker>

The last migration of the previous page; displays list of migrations after marker. Note that the marker is the migration UUID. (Supported by API versions 2.59 - 2.latest)

--limit <limit>

Maximum number of migrations to display. Note that there is a configurable max limit on the

server, and the limit that is used will be the minimum of what is requested here and what is configured in the server. (Supported by API versions 2.59 - 2.latest)

--changes-since <changes_since>

List only migrations changed later or equal to a certain point of time. The provided time should be an ISO 8061 formatted time. e.g. 2016-03-04T06:27:59Z . (Supported by API versions 2.59 - 2.latest)

--changes-before <changes_before>

List only migrations changed earlier or equal to a certain point of time. The provided time should be an ISO 8061 formatted time. e.g. 2016-03-04T06:27:59Z . (Supported by API versions 2.66 - 2.latest)

--project-id <project_id>

Filter the migrations by the given project ID. (Supported by API versions 2.80 - 2.latest)

--user-id <user_id>

Filter the migrations by the given user ID. (Supported by API versions 2.80 - 2.latest)

nova pause

```
usage: nova pause <server>
```

Pause a server.

Positional arguments:

<server>

Name or ID of server.

nova quota-class-show

```
usage: nova quota-class-show <class>
```

List the quotas for a quota class.

Positional arguments:

<class>

Name of quota class to list the quotas for.

nova quota-class-update

```
usage: nova quota-class-update [--instances <instances>] [--cores <cores>]
                               [--ram <ram>]
                               [--metadata-items <metadata-items>]
                               [--key-pairs <key-pairs>]
                               [--server-groups <server-groups>]
                               [--server-group-members <server-group-members>]
                               <class>
```

Update the quotas for a quota class. (Supported by API versions 2.0 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

Positional arguments:

<class>

Name of quota class to set the quotas for.

Optional arguments:

--instances <instances>

New value for the instances quota.

--cores <cores>

New value for the cores quota.

--ram <ram>

New value for the ram quota.

--metadata-items <metadata-items>

New value for the metadata-items quota.

--key-pairs <key-pairs>

New value for the key-pairs quota.

--server-groups <server-groups>

New value for the server-groups quota.

--server-group-members <server-group-members>

New value for the server-group-members quota.

nova quota-defaults

```
usage: nova quota-defaults [--tenant <tenant-id>]
```

List the default quotas for a tenant.

Optional arguments:

--tenant <tenant-id>

ID of tenant to list the default quotas for.

nova quota-delete

```
usage: nova quota-delete --tenant <tenant-id> [--user <user-id>]
```

Delete quota for a tenant/user so their quota will Revert back to default.

Optional arguments:

--tenant <tenant-id>

ID of tenant to delete quota for.

--user <user-id>

ID of user to delete quota for.

nova quota-show

```
usage: nova quota-show [--tenant <tenant-id>] [--user <user-id>] [--detail]
```

List the quotas for a tenant/user.

Optional arguments:

--tenant <tenant-id>

ID of tenant to list the quotas for.

--user <user-id>

ID of user to list the quotas for.

--detail

Show detailed info (limit, reserved, in-use).

nova quota-update

```
usage: nova quota-update [--user <user-id>] [--instances <instances>]
                        [--cores <cores>] [--ram <ram>]
                        [--metadata-items <metadata-items>]
                        [--key-pairs <key-pairs>]
                        [--server-groups <server-groups>]
                        [--server-group-members <server-group-members>]
                        [--force]
                        <tenant-id>
```

Update the quotas for a tenant/user. (Supported by API versions 2.0 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

Positional arguments:

<tenant-id>

ID of tenant to set the quotas for.

Optional arguments:

--user <user-id>

ID of user to set the quotas for.

--instances <instances>

New value for the instances quota.

--cores <cores>

New value for the cores quota.

--ram <ram>

New value for the ram quota.

--metadata-items <metadata-items>

New value for the metadata-items quota.

--key-pairs <key-pairs>

New value for the key-pairs quota.

--server-groups <server-groups>

New value for the server-groups quota.

--server-group-members <server-group-members>

New value for the server-group-members quota.

--force

Whether force update the quota even if the already used and reserved exceeds the new quota.

nova reboot

```
usage: nova reboot [--hard] [--poll] <server> [<server> ...]
```

Reboot a server.

Positional arguments:

<server>

Name or ID of server(s).

Optional arguments:

--hard

Perform a hard reboot (instead of a soft one). Note: Ironic does not currently support soft reboot; consequently, bare metal nodes will always do a hard reboot, regardless of the use of this option.

--poll

Poll until reboot is complete.

nova rebuild

```
usage: nova rebuild [--rebuild-password <rebuild-password>] [--poll]
                  [--minimal] [--preserve-ephemeral] [--name <name>]
                  [--description <description>] [--meta <key=value>]
                  [--key-name <key-name>] [--key-unset]
                  [--user-data <user-data>] [--user-data-unset]
                  [--trusted-image-certificate-id <trusted-image-
→certificate-id>]
                  [--trusted-image-certificates-unset]
                  [--hostname <hostname>]
                  <server> <image>
```

Shutdown, re-image, and re-boot a server.

Positional arguments:

<server>

Name or ID of server.

<image>

Name or ID of new image.

Optional arguments:

--rebuild-password <rebuild-password>

Set the provided admin password on the rebuilt server.

--poll

Report the server rebuild progress until it completes.

--minimal

Skips flavor/image lookups when showing servers.

--preserve-ephemeral

Preserve the default ephemeral storage partition on rebuild.

--name <name>

Name for the new server.

--description <description>

New description for the server. (Supported by API versions 2.19 - 2.latest)

--meta <key=value>

Record arbitrary key/value metadata to /meta_data.json on the metadata server. Can be specified multiple times.

--key-name <key-name>

Keypair name to set in the server. Cannot be specified with the key-unset option. (Supported by API versions 2.54 - 2.latest)

--key-unset

Unset keypair in the server. Cannot be specified with the key-name option. (Supported by API versions 2.54 - 2.latest)

--user-data <user-data>

User data file to pass to be exposed by the metadata server. (Supported by API versions 2.57 - 2.latest)

--user-data-unset

Unset user_data in the server. Cannot be specified with the user-data option. (Supported by API versions 2.57 - 2.latest)

--trusted-image-certificate-id <trusted-image-certificate-id>

Trusted image certificate IDs used to validate certificates during the image signature verification process. Defaults to env[OS_TRUSTED_IMAGE_CERTIFICATE_IDS]. May be specified multiple times to pass multiple trusted image certificate IDs. (Supported by API versions 2.63 - 2.latest)

--trusted-image-certificates-unset

Unset trusted_image_certificates in the server. Cannot be specified with the --trusted-image-certificate-id option. (Supported by API versions 2.63 - 2.latest)

--hostname <hostname>

New hostname for the instance. This only updates the hostname stored in the metadata server: a utility running on the guest is required to propagate these changes to the guest. (Supported by API versions 2.90 - 2.latest)

nova refresh-network

```
usage: nova refresh-network <server>
```

Refresh server network information.

Positional arguments:

<server>

Name or ID of a server for which the network cache should be refreshed from neutron (Admin only).

nova remove-secgroup

```
usage: nova remove-secgroup <server> <secgroup>
```

Remove a Security Group from a server.

Positional arguments:

<server>

Name or ID of server.

<secgroup>

Name of Security Group.

nova rescue

```
usage: nova rescue [--password <password>] [--image <image>] <server>
```

Reboots a server into rescue mode, which starts the machine from either the initial image or a specified image, attaching the current boot disk as secondary.

Positional arguments:

<server>

Name or ID of server.

Optional arguments:

--password <password>

The admin password to be set in the rescue environment.

--image <image>

The image to rescue with.

nova reset-network

```
usage: nova reset-network <server>
```

Reset network of a server.

Positional arguments:

<server>

Name or ID of server.

nova reset-state

```
usage: nova reset-state [--all-tenants] [--active] <server> [<server> ...]
```

Reset the state of a server.

Positional arguments:

<server>

Name or ID of server(s).

Optional arguments:

--all-tenants

Reset state server(s) in another tenant by name (Admin only).

--active

Request the server be reset to active state instead of error state (the default).

nova resize

```
usage: nova resize [--poll] <server> <flavor>
```

Resize a server.

Positional arguments:

<server>

Name or ID of server.

<flavor>

Name or ID of new flavor.

Optional arguments:

--poll

Report the server resize progress until it completes.

nova resize-confirm

```
usage: nova resize-confirm <server>
```

Confirm a previous resize.

Positional arguments:

<server>

Name or ID of server.

nova resize-revert

```
usage: nova resize-revert <server>
```

Revert a previous resize (and return to the previous VM).

Positional arguments:

<server>

Name or ID of server.

nova restore

```
usage: nova restore <server>
```

Restore a soft-deleted server.

Positional arguments:

<server>

Name or ID of server.

nova resume

```
usage: nova resume <server>
```

Resume a server.

Positional arguments:

<server>

Name or ID of server.

nova server-group-create

```
usage: nova server-group-create [--rules <key=value>] <name> <policy>
```

Create a new server group with the specified details.

Positional arguments:

<name>

Server group name.

<policy>

Policy for the server groups.

Optional arguments:

--rule

Policy rules for the server groups. (Supported by API versions 2.64 - 2.latest. Currently, only the `max_server_per_host` rule is supported for the `anti-affinity` policy. The `max_server_per_host` rule allows specifying how many members of the anti-affinity group can reside on the same compute host. If not specified, only one member from the same anti-affinity group can reside on a given host.

nova server-group-delete

```
usage: nova server-group-delete <id> [<id> ...]
```

Delete specific server group(s).

Positional arguments:

<id>

Unique ID(s) of the server group to delete.

nova server-group-get

```
usage: nova server-group-get <id>
```

Get a specific server group.

Positional arguments:

<id>

Unique ID of the server group to get.

nova server-group-list

```
usage: nova server-group-list [--limit <limit>] [--offset <offset>]
                               [--all-projects]
```

Print a list of all server groups.

Optional arguments:

--limit <limit>

Maximum number of server groups to display. If limit is bigger than CONF.api.max_limit option of Nova API, limit CONF.api.max_limit will be used instead.

--offset <offset>

The offset of groups list to display; use with limit to return a slice of server groups.

--all-projects

Display server groups from all projects (Admin only).

nova server-migration-list

```
usage: nova server-migration-list <server>
```

Get the migrations list of specified server. (Supported by API versions 2.23 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

New in version 3.3.0.

Positional arguments:

<server>

Name or ID of server.

nova server-migration-show

```
usage: nova server-migration-show <server> <migration>
```

Get the migration of specified server. (Supported by API versions 2.23 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

New in version 3.3.0.

Positional arguments:

<server>

Name or ID of server.

<migration>

ID of migration.

nova server-tag-add

```
usage: nova server-tag-add <server> <tag> [<tag> ...]
```

Add one or more tags to a server. (Supported by API versions 2.26 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

New in version 4.1.0.

Positional arguments:

<server>

Name or ID of server.

<tag>

Tag(s) to add.

nova server-tag-delete

```
usage: nova server-tag-delete <server> <tag> [<tag> ...]
```

Delete one or more tags from a server. (Supported by API versions 2.26 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

New in version 4.1.0.

Positional arguments:

<server>

Name or ID of server.

<tag>

Tag(s) to delete.

nova server-tag-delete-all

```
usage: nova server-tag-delete-all <server>
```

Delete all tags from a server. (Supported by API versions 2.26 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

New in version 4.1.0.

Positional arguments:

<server>

Name or ID of server.

nova server-tag-list

```
usage: nova server-tag-list <server>
```

Get list of tags from a server. (Supported by API versions 2.26 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

New in version 4.1.0.

Positional arguments:

<server>

Name or ID of server.

nova server-tag-set

```
usage: nova server-tag-set <server> <tags> [<tags> ...]
```

Set list of tags to a server. (Supported by API versions 2.26 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

New in version 4.1.0.

Positional arguments:

<server>

Name or ID of server.

<tags>

Tag(s) to set.

nova server-topology

```
usage: nova server-topology <server>
```

Retrieve server NUMA topology information. Host specific fields are only visible to users with the administrative role. (Supported by API versions 2.78 - 2.latest)

New in version 15.1.0.

Positional arguments:

<server>

Name or ID of server.

nova service-delete

```
usage: nova service-delete <id>
```

Delete the service.

Important: If deleting a nova-compute service, be sure to stop the actual nova-compute process on the physical host *before* deleting the service with this command. Failing to do so can lead to the running service re-creating orphaned **compute_nodes** table records in the database.

Positional arguments:

<id>

ID of service as a UUID. (Supported by API versions 2.53 - 2.latest)

nova service-disable

```
usage: nova service-disable [--reason <reason>] <id>
```

Disable the service.

Positional arguments:

<id>

ID of the service as a UUID. (Supported by API versions 2.53 - 2.latest)

Optional arguments:

--reason <reason>

Reason for disabling the service.

nova service-enable

```
usage: nova service-enable <id>
```

Enable the service.

Positional arguments:

<id>

ID of the service as a UUID. (Supported by API versions 2.53 - 2.latest)

nova service-force-down

```
usage: nova service-force-down [--unset] <id>
```

Force service to down. (Supported by API versions 2.11 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

New in version 2.27.0.

Positional arguments:

<id>

ID of the service as a UUID. (Supported by API versions 2.53 - 2.latest)

Optional arguments:

--unset

Unset the forced_down state of the service.

nova service-list

```
usage: nova service-list [--host <hostname>] [--binary <binary>]
```

Show a list of all running services. Filter by host & binary.

Note that from microversion 2.69, during partial infrastructure failures in the deployment, the output of this command may return partial results for the services present in the failure domain.

Optional arguments:

--host <hostname>

Name of host.

--binary <binary>

Service binary.

nova set-password

```
usage: nova set-password <server>
```

Change the admin password for a server.

Positional arguments:

<server>

Name or ID of server.

nova shelve

```
usage: nova shelve <server>
```

Shelve a server.

Positional arguments:

<server>

Name or ID of server.

nova shelve-offload

```
usage: nova shelve-offload <server>
```

Remove a shelved server from the compute node.

Positional arguments:

<server>

Name or ID of server.

nova show

```
usage: nova show [--minimal] [--wrap <integer>] <server>
```

Show details about the given server.

Note that from microversion 2.69, during partial infrastructure failures in the deployment, the output of this command may return partial results for the server if it exists in the failure domain.

Positional arguments:

<server>

Name or ID of server.

Optional arguments:

--minimal

Skips flavor/image lookups when showing servers.

--wrap <integer>

Wrap the output to a specified length, or 0 to disable.

nova ssh

```
usage: nova ssh [--port PORT] [--address-type ADDRESS_TYPE]
               [--network <network>] [--ipv6] [--login <login>] [-i IDENTITY]
               [--extra-opts EXTRA]
               <server>
```

SSH into a server.

Positional arguments:

<server>

Name or ID of server.

Optional arguments:**--port PORT**

Optional flag to indicate which port to use for ssh. (Default=22)

--address-type ADDRESS_TYPE

Optional flag to indicate which IP type to use. Possible values includes fixed and floating (the Default).

--network <network>

Network to use for the ssh.

--ipv6

Optional flag to indicate whether to use an IPv6 address attached to a server. (Defaults to IPv4 address)

--login <login>

Login to use.

-i IDENTITY, --identity IDENTITY

Private key file, same as the -i option to the ssh command.

--extra-opts EXTRA

Extra options to pass to ssh. see: man ssh.

nova start

```
usage: nova start [--all-tenants] <server> [<server> ...]
```

Start the server(s).

Positional arguments:**<server>**

Name or ID of server(s).

Optional arguments:**--all-tenants**

Start server(s) in another tenant by name (Admin only).

nova stop

```
usage: nova stop [--all-tenants] <server> [<server> ...]
```

Stop the server(s).

Positional arguments:**<server>**

Name or ID of server(s).

Optional arguments:

--all-tenants

Stop server(s) in another tenant by name (Admin only).

nova suspend

```
usage: nova suspend <server>
```

Suspend a server.

Positional arguments:

<server>

Name or ID of server.

nova trigger-crash-dump

```
usage: nova trigger-crash-dump <server>
```

Trigger crash dump in an instance. (Supported by API versions 2.17 - 2.latest) [hint: use os-compute-api-version flag to show help message for proper version]

New in version 3.3.0.

Positional arguments:

<server>

Name or ID of server.

nova unlock

```
usage: nova unlock <server>
```

Unlock a server.

Positional arguments:

<server>

Name or ID of server.

nova unpause

```
usage: nova unpause <server>
```

Unpause a server.

Positional arguments:

<server>

Name or ID of server.

nova unrescue

```
usage: nova unrescue <server>
```

Restart the server from normal boot disk again.

Positional arguments:

<server>

Name or ID of server.

nova unshelve

```
usage: nova unshelve [--availability-zone <availability_zone>] <server>
```

Unshelve a server.

Positional arguments:

<server>

Name or ID of server.

Optional arguments:

--availability-zone <availability_zone>

Name of the availability zone in which to unshelve a SHELVED_OFFLOADED server. (Supported by API versions 2.77 - 2.latest)

nova update

```
usage: nova update [--name <name>] [--description <description>]
                  [--hostname <hostname>]
                  <server>
```

Update attributes of a server.

Positional arguments:

<server>

Name (old name) or ID of server.

Optional arguments:

--name <name>

New name for the server.

--description <description>

New description for the server. If it equals to empty string (i.g.), the server description will be removed. (Supported by API versions 2.19 - 2.latest)

--hostname <hostname>

New hostname for the instance. This only updates the hostname stored in the metadata server: a utility running on the guest is required to propagate these changes to the guest. (Supported by API versions 2.90 - 2.latest)

nova usage

```
usage: nova usage [--start <start>] [--end <end>] [--tenant <tenant-id>]
```

Show usage data for a single tenant.

Optional arguments:

--start <start>

Usage range start date ex 2012-01-20. (default: 4 weeks ago)

--end <end>

Usage range end date, ex 2012-01-20. (default: tomorrow)

--tenant <tenant-id>

UUID of tenant to get usage for.

nova usage-list

```
usage: nova usage-list [--start <start>] [--end <end>]
```

List usage data for all tenants.

Optional arguments:

--start <start>

Usage range start date ex 2012-01-20. (default: 4 weeks ago)

--end <end>

Usage range end date, ex 2012-01-20. (default: tomorrow)

nova version-list

```
usage: nova version-list
```

List all API versions.

nova volume-attach

```
usage: nova volume-attach [--delete-on-termination] [--tag <tag>]
                          <server> <volume> [<device>]
```

Attach a volume to a server.

Positional arguments:

<server>

Name or ID of server.

<volume>

ID of the volume to attach.

<device>

Name of the device e.g. /dev/vdb. Use auto for autoassign (if supported). Libvirt driver will use default device name.

Optional arguments:**--tag <tag>**

Tag for the attached volume. (Supported by API versions 2.49 - 2.latest)

--delete-on-termination

Specify if the attached volume should be deleted when the server is destroyed. By default the attached volume is not deleted when the server is destroyed. (Supported by API versions 2.79 - 2.latest)

nova volume-attachments

```
usage: nova volume-attachments <server>
```

List all the volumes attached to a server.

Positional arguments:**<server>**

Name or ID of server.

nova volume-detach

```
usage: nova volume-detach <server> <volume>
```

Detach a volume from a server.

Positional arguments:**<server>**

Name or ID of server.

<volume>

ID of the volume to detach.

nova volume-update

```
usage: nova volume-update [--[no-]delete-on-termination]
                          <server> <src_volume> <dest_volume>
```

Update the attachment on the server. Migrates the data from an attached volume to the specified available volume and swaps out the active attachment to the new volume.

Positional arguments:**<server>**

Name or ID of server.

<src_volume>

ID of the source (original) volume.

<dest_volume>

ID of the destination volume.

Optional arguments:

--delete-on-termination

Specify that the volume should be deleted when the server is destroyed. It is mutually exclusive with no-delete-on-termination. (Supported by API versions 2.85 - 2.latest)

--no-delete-on-termination

Specify that the attached volume should not be deleted when the server is destroyed. It is mutually exclusive with delete-on-termination. (Supported by API versions 2.85 - 2.latest)

nova bash-completion

```
usage: nova bash-completion
```

Prints all of the commands and options to stdout so that the nova.bash_completion script doesnt have to hard code them.

3.1 novaclient

3.1.1 novaclient package

Subpackages

novaclient.v2 package

Submodules

novaclient.v2.agents module

agent interface

class novaclient.v2.agents.**Agent**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

class novaclient.v2.agents.**AgentsManager**(*api*)

Bases: *ManagerWithFind*

create(*os, architecture, version, url, md5hash, hypervisor*)

Create a new agent build.

delete(*id*)

Deletes an existing agent build.

Parameters

id The agents id to delete

Returns

An instance of novaclient.base.TupleWithMeta

list(*hypervisor=None*)

List all agent builds.

resource_class

alias of *Agent*

update(*id, version, url, md5hash*)

Update an existing agent build.

novaclient.v2.aggregates module

Aggregate interface.

class novaclient.v2.aggregates.**Aggregate**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

An aggregates is a collection of compute hosts.

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

add_host(*host*)

cache_images(*images*)

delete()

Delete the own aggregate.

Returns

An instance of novaclient.base.TupleWithMeta

remove_host(*host*)

set_metadata(*metadata*)

update(*values*)

Update the name and/or availability zone.

class novaclient.v2.aggregates.**AggregateManager**(*api*)

Bases: *ManagerWithFind*

add_host(*aggregate, host*)

Add a host into the Host Aggregate.

cache_images(*aggregate, images*)

Request images be cached on a given aggregate.

Parameters

- **aggregate** The aggregate to target

- **images** A list of image IDs to request caching

Returns

An instance of novaclient.base.TupleWithMeta

create(*name, availability_zone*)

Create a new aggregate.

delete(*aggregate*)

Delete the specified aggregate.

Parameters

aggregate The aggregate to delete

Returns

An instance of novaclient.base.TupleWithMeta

get(*aggregate*)

Get details of the specified aggregate.

get_details(*aggregate*)

Get details of the specified aggregate.

list()

Get a list of os-aggregates.

remove_host(*aggregate, host*)

Remove a host from the Host Aggregate.

resource_class

alias of *Aggregate*

set_metadata(*aggregate, metadata*)

Set aggregate metadata, replacing the existing metadata.

update(*aggregate, values*)

Update the name and/or availability zone.

novaclient.v2.assisted_volume_snapshots module

Assisted volume snapshots - to be used by Cinder and not end users.

class novaclient.v2.assisted_volume_snapshots.**AssistedSnapshotManager**(*api*)

Bases: *Manager*

create(*volume_id, create_info*)

delete(*snapshot, delete_info*)

Delete a specified assisted volume snapshot.

Parameters

- **snapshot** an assisted volume snapshot to delete
- **delete_info** Information for snapshot deletion

Returns

An instance of novaclient.base.TupleWithMeta

resource_classalias of *Snapshot*

```
class novaclient.v2.assisted_volume_snapshots.Snapshot(manager, info, loaded=False, resp=None)
```

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

delete()

Delete this snapshot.

Returns

An instance of novaclient.base.TupleWithMeta

novaclient.v2.availability_zones module

Availability Zone interface

```
class novaclient.v2.availability_zones.AvailabilityZone(manager, info, loaded=False, resp=None)
```

Bases: *Resource*

An availability zone object.

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

```
NAME_ATTR = 'display_name'
```

```
class novaclient.v2.availability_zones.AvailabilityZoneManager(api)
```

Bases: *ManagerWithFind*Manage *AvailabilityZone* resources.**list(detailed=True)**

Get a list of all availability zones.

Parameters**detailed** If True, list availability zones with details.

Returnslist of *AvailabilityZone***resource_class**alias of *AvailabilityZone***return_parameter_name** = 'availabilityZoneInfo'**novaclient.v2.client module**

```
class novaclient.v2.client.Client(api_version=None, auth=None, auth_token=None,
    auth_url=None, cacert=None, cert=None,
    direct_use=True, endpoint_override=None,
    endpoint_type='publicURL', extensions=None,
    http_log_debug=False, insecure=False, logger=None,
    os_cache=False, password=None,
    project_domain_id=None, project_domain_name=None,
    project_id=None, project_name=None,
    region_name=None, service_name=None,
    service_type='compute', session=None, timeout=None,
    timings=False, user_domain_id=None,
    user_domain_name=None, user_id=None,
    username=None, **kwargs)
```

Bases: object

Top-level object to access the OpenStack Compute API.

Warning: All scripts and projects should not initialize this class directly. It should be done via *novaclient.client.Client* interface.

Initialization of Client object.

Parameters

- **api_version** (*novaclient.api_versions.APIVersion*) Compute API version
- **auth** (*str*) Auth
- **auth_token** (*str*) Auth token
- **auth_url** (*str*) Auth URL
- **cacert** (*str*) ca-certificate
- **cert** (*str*) certificate
- **direct_use** (*bool*) Inner variable of novaclient. Do not use it outside novaclient. Its restricted.
- **endpoint_override** (*str*) Bypass URL
- **endpoint_type** (*str*) Endpoint Type
- **extensions** (*str*) Extensions

- **http_log_debug** (*bool*) Enable debugging for HTTP connections
- **insecure** (*bool*) Allow insecure
- **logger** (*logging.Logger*) Logger instance to be used for all logging stuff
- **password** (*str*) User password
- **os_cache** (*bool*) OS cache
- **project_domain_id** (*str*) ID of project domain
- **project_domain_name** (*str*) Name of project domain
- **project_id** (*str*) Project/Tenant ID
- **project_name** (*str*) Project/Tenant name
- **region_name** (*str*) Region Name
- **service_name** (*str*) Service Name
- **service_type** (*str*) Service Type
- **session** (*str*) Session
- **timeout** (*float*) API timeout, None or 0 disables
- **timings** (*bool*) Timings
- **user_domain_id** (*str*) ID of user domain
- **user_domain_name** (*str*) Name of user domain
- **user_id** (*str*) User ID
- **username** (*str*) Username

property `api_version`

get_timings()

reset_timings()

novaclient.v2.flavor_access module

Flavor access interface.

```
class novaclient.v2.flavor_access.FlavorAccess(manager, info, loaded=False,  
                                              resp=None)
```

Bases: [Resource](#)

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

class novaclient.v2.flavor_access.FlavorAccessManager(*api*)

Bases: *ManagerWithFind*

Manage *FlavorAccess* resources.

add_tenant_access(*flavor, tenant*)

Add a tenant to the given flavor access list.

list(***kwargs*)

remove_tenant_access(*flavor, tenant*)

Remove a tenant from the given flavor access list.

resource_class

alias of *FlavorAccess*

novaclient.v2.flavors module

Flavor interface.

class novaclient.v2.flavors.Flavor(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

A flavor is an available hardware configuration for a server.

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

HUMAN_ID = True

delete()

Delete this flavor.

Returns

An instance of novaclient.base.TupleWithMeta

property ephemeral

Provide a user-friendly accessor to OS-FLV-EXT-DATA:ephemeral.

get_keys()

Get extra specs from a flavor.

Returns

An instance of novaclient.base.DictWithMeta

property is_public

Provide a user-friendly accessor to os-flavor-access:is_public.

set_keys(*metadata*)

Set extra specs on a flavor.

Parameters

metadata A dict of key/value pairs to be set

unset_keys(*keys*)

Unset extra specs on a flavor.

Parameters

keys A list of keys to be unset

Returns

An instance of novaclient.base.TupleWithMeta

update(*description=None*)

Update the description for this flavor.

Parameters

description The description to set on the flavor.

Returns

Flavor

class novaclient.v2.flavors.FlavorManager(*api*)

Bases: *ManagerWithFind*

Manage *Flavor* resources.

create(*name, ram, vcpus, disk, flavorid='auto', ephemeral=0, swap=0, rxtx_factor=1.0, is_public=True, description=None*)

Create a flavor.

Parameters

- **name** Descriptive name of the flavor
- **ram** Memory in MiB for the flavor
- **vcpus** Number of VCPUs for the flavor
- **disk** Size of local disk in GiB
- **flavorid** ID for the flavor (optional). You can use the reserved value "auto" to have Nova generate a UUID for the flavor in cases where you cannot simply pass None.
- **ephemeral** Ephemeral disk space in GiB.
- **swap** Swap space in MiB
- **rxtx_factor** RX/TX factor
- **is_public** Whether or not the flavor is public.
- **description** A free form description of the flavor. Limited to 65535 characters in length. Only printable characters are allowed. (Available starting with microversion 2.55)

Returns

Flavor

delete(*flavor*)

Delete a specific flavor.

Parameters

flavor Instance of *Flavor* to delete or ID of the flavor to delete.

Returns

An instance of novaclient.base.TupleWithMeta

get(*flavor*)

Get a specific flavor.

Parameters

flavor The ID of the *Flavor* to get.

Returns

Flavor

is_alphanum_id_allowed = True

list(*detailed=True, is_public=True, marker=None, min_disk=None, min_ram=None, limit=None, sort_key=None, sort_dir=None*)

Get a list of all flavors.

Parameters

- **detailed** Whether flavor needs to be return with details (optional).
- **is_public** Filter flavors with provided access type (optional). None means give all flavors and only admin has query access to all flavor types.
- **marker** Begin returning flavors that appear later in the flavor list than that represented by this flavor id (optional).
- **min_disk** Filters the flavors by a minimum disk space, in GiB.
- **min_ram** Filters the flavors by a minimum RAM, in MiB.
- **limit** maximum number of flavors to return (optional). Note the API server has a configurable default limit. If no limit is specified here or limit is larger than default, the default limit will be used.
- **sort_key** Flavors list sort key (optional).
- **sort_dir** Flavors list sort direction (optional).

Returns

list of *Flavor*.

resource_class

alias of *Flavor*

update(*flavor, description=None*)

Update the description of the flavor.

Parameters

- **flavor** The *Flavor* (or its ID) to update.
- **description** The description to set on the flavor.

novaclient.v2.hypervisors module

Hypervisors interface

class novaclient.v2.hypervisors.**Hypervisor**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

NAME_ATTR = 'hypervisor_hostname'

class novaclient.v2.hypervisors.**HypervisorManager**(*api*)

Bases: *ManagerWithFind*

get(*hypervisor*)

Get a specific hypervisor.

Parameters

hypervisor Either a Hypervisor object or an ID. Starting with microversion 2.53 the ID must be a UUID value.

is_alphanum_id_allowed = True

list(*detailed=True, marker=None, limit=None*)

Get a list of hypervisors.

Parameters

- **detailed** Include a detailed response.
- **marker** Begin returning hypervisors that appear later in the hypervisors list than that represented by this hypervisor ID. Starting with microversion 2.53 the marker must be a UUID hypervisor ID. (optional).
- **limit** maximum number of hypervisors to return (optional). Note the API server has a configurable default limit. If no limit is specified here or limit is larger than default, the default limit will be used.

resource_class

alias of *Hypervisor*

search(*hypervisor_match, servers=False, detailed=False*)

Get a list of matching hypervisors.

Parameters

- **hypervisor_match** The hypervisor host name or a portion of it. The hypervisor hosts are selected with the host name matching this pattern.
- **servers** If True, server information is also retrieved.

- **detailed** If True, detailed hypervisor information is returned. This requires API version 2.53 or greater.

statistics()

Get hypervisor statistics over all compute nodes.

Kept for backwards compatibility, new code should call `hypervisor_stats.statistics()` instead of `hypervisors.statistics()`

uptime(*hypervisor*)

Get the uptime for a specific hypervisor.

Parameters

hypervisor Either a Hypervisor object or an ID. Starting with microversion 2.53 the ID must be a UUID value.

class `novaclient.v2.hypervisors.HypervisorStats`(*manager*, *info*, *loaded=False*, *resp=None*)

Bases: [Resource](#)

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

class `novaclient.v2.hypervisors.HypervisorStatsManager`(*api*)

Bases: [Manager](#)

resource_class

alias of [HypervisorStats](#)

statistics()

novaclient.v2.images module

class `novaclient.v2.images.GlanceManager`(*api*)

Bases: [Manager](#)

Use glance directly from service catalog.

This is used to do name to id lookups for images and listing images for the image-with option to the boot command. Do not use it for anything else besides that. You have been warned.

find_image(*name_or_id*)

Find an image by name or id (user provided input).

find_images(*names_or_ids*)

Find multiple images by name or id (user provided input).

Parameters

names_or_ids A list of strings to use to find images.

Returns

novaclient.v2.images.Image objects for each images found

Raises

- **`exceptions.NotFound`** If one or more images is not found
- **`exceptions.ClientException`** If the image service returns any unexpected images.

NOTE: This method always makes two calls to the image service, even if only one image is provided by ID and is returned in the first query.

list()

Get a detailed list of all images.

Return type

list of *Image*

resource_class

alias of *Image*

class novaclient.v2.images.**Image**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

HUMAN_ID = True

novaclient.v2.instance_action module

class novaclient.v2.instance_action.**InstanceAction**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

class novaclient.v2.instance_action.**InstanceActionManager**(*api*)

Bases: *ManagerWithFind*

get(*server, request_id*)

Get details of an action performed on an instance.

Parameters

request_id The request_id of the action to get.

list(*server, marker=None, limit=None, changes_since=None, changes_before=None*)

Get a list of actions performed on a server.

Parameters

- **server** The Server (or its ID)
- **marker** Begin returning actions that appear later in the action list than that represented by this action request id (optional).
- **limit** Maximum number of actions to return. (optional).
- **changes_since** List only instance actions changed later or equal to a certain point of time. The provided time should be an ISO 8061 formatted time. e.g. 2016-03-04T06:27:59Z . (optional).
- **changes_before** List only instance actions changed earlier or equal to a certain point of time. The provided time should be an ISO 8061 formatted time. e.g. 2016-03-05T06:27:59Z . (optional).

resource_class

alias of *InstanceAction*

novaclient.v2.instance_usage_audit_log module

class novaclient.v2.instance_usage_audit_log.**InstanceUsageAuditLog**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

class novaclient.v2.instance_usage_audit_log.**InstanceUsageAuditLogManager**(*api*)

Bases: *Manager*

get(*before=None*)

Get server usage audits.

Parameters

before Filters the response by the date and time before which to list usage audits.

resource_classalias of *InstanceUsageAuditLog***novaclient.v2.keypairs module**

Keypair interface

class novaclient.v2.keypairs.**Keypair**(*manager, info, loaded=False, resp=None*)Bases: *Resource*

A keypair is a ssh key that can be injected into a server on launch.

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

delete()

Delete this keypair.

Returns

An instance of novaclient.base.TupleWithMeta

property id**class** novaclient.v2.keypairs.**KeypairManager**(*api*)Bases: *ManagerWithFind***create**(*name, public_key, key_type='ssh', user_id=None*)

Create a keypair

Parameters

- **name** name for the keypair to create
- **public_key** existing public key to import
- **key_type** keypair type to create
- **user_id** user to add.

delete(*key, user_id=None*)

Delete a keypair

Parameters

- **key** The *Keypair* (or its ID) to delete.
- **user_id** Id of key-pair owner (Admin only).

Returns

An instance of novaclient.base.TupleWithMeta

get(*keypair*, *user_id=None*)

Get a keypair.

Parameters

- **keypair** The ID of the keypair to get.
- **user_id** Id of key-pair owner (Admin only).

Return type

Keypair

is_alphanum_id_allowed = True

keypair_prefix = 'os-keypairs'

list(*user_id=None*, *marker=None*, *limit=None*)

Get a list of keypairs.

Parameters

- **user_id** Id of key-pairs owner (Admin only).
- **marker** Begin returning keypairs that appear later in the keypair list than that represented by this keypair name (optional).
- **limit** maximum number of keypairs to return (optional). Note the API server has a configurable default limit. If no limit is specified here or limit is larger than default, the default limit will be used.

resource_class

alias of *Keypair*

novaclient.v2.limits module

class novaclient.v2.limits.**AbsoluteLimit**(*name*, *value*)

Bases: object

Data model that represents a single absolute limit.

class novaclient.v2.limits.**Limits**(*manager*, *info*, *loaded=False*, *resp=None*)

Bases: *Resource*

A collection of RateLimit and AbsoluteLimit objects.

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

property absolute

property rate**class** novaclient.v2.limits.LimitsManager(*api*)Bases: *Manager*

Manager object used to interact with limits resource.

get(*reserved=False, tenant_id=None*)

Get a specific extension.

Return type*Limits***resource_class**alias of *Limits***class** novaclient.v2.limits.RateLimit(*verb, uri, regex, value, remain, unit, next_available*)Bases: *object*

Data model that represents a flattened view of a single rate limit.

novaclient.v2.migrations module

migration interface

class novaclient.v2.migrations.Migration(*manager, info, loaded=False, resp=None*)Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

class novaclient.v2.migrations.MigrationManager(*api*)Bases: *ManagerWithFind*

list(*host=None, status=None, instance_uuid=None, marker=None, limit=None, changes_since=None, changes_before=None, migration_type=None, source_compute=None, user_id=None, project_id=None*)

Get a list of migrations. :param host: filter migrations by host name (optional). :param status: filter migrations by status (optional). :param instance_uuid: filter migrations by instance uuid (optional). :param marker: Begin returning migrations that appear later in the migrations list than that represented by this migration UUID (optional). :param limit: maximum number of migrations to return (optional). Note the API server has a configurable default limit. If no limit is specified here or limit is larger than default, the default limit will be used. :param changes_since: Only return migrations changed later or equal to a certain point of time. The provided time should be an ISO 8061 formatted time. e.g. 2016-03-04T06:27:59Z . (optional). :param changes_before: Only return migrations changed earlier or equal to a certain point of time. The provided time should be an ISO 8061 formatted time. e.g. 2016-03-05T06:27:59Z . (optional). :param migration_type: Filter migrations by type. Valid values

are: evacuation, live-migration, migration, resize ;param source_compute: Filter migrations by source compute host name. ;param user_id: filter migrations by user (optional). ;param project_id: filter migrations by project (optional).

resource_class

alias of *Migration*

novaclient.v2.networks module

Network interface.

class novaclient.v2.networks.**Network**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

A network as defined in the Networking (Neutron) API.

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

HUMAN_ID = True

NAME_ATTR = 'name'

class novaclient.v2.networks.**NeutronManager**(*api*)

Bases: *Manager*

A manager for name -> id lookups for neutron networks.

This uses neutron directly from service catalog. Do not use it for anything else besides that. You have been warned.

find_network(*name*)

Find a network by name (user provided input).

resource_class

alias of *Network*

novaclient.v2.quota_classes module

class novaclient.v2.quota_classes.**QuotaClassSet**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object

- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

update(*args, **kwargs)

class novaclient.v2.quota_classes.**QuotaClassSetManager**(api)

Bases: *Manager*

get(class_name)

resource_class

alias of *QuotaClassSet*

update(class_name, instances=None, cores=None, ram=None, metadata_items=None, key_pairs=None, server_groups=None, server_group_members=None)

novaclient.v2.quotas module

class novaclient.v2.quotas.**QuotaSet**(manager, info, loaded=False, resp=None)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

update(*args, **kwargs)

class novaclient.v2.quotas.**QuotaSetManager**(api)

Bases: *Manager*

defaults(tenant_id)

delete(tenant_id, user_id=None)

Delete quota for a tenant or for a user.

Parameters

- **tenant_id** A tenant for which quota is to be deleted
- **user_id** A user for which quota is to be deleted

Returns

An instance of novaclient.base.TupleWithMeta

get(tenant_id, user_id=None, detail=False)

resource_class

alias of *QuotaSet*

```
update(tenant_id, user_id=None, force=False, instances=None, cores=None, ram=None,
        metadata_items=None, key_pairs=None, server_groups=None,
        server_group_members=None)
```

novaclient.v2.server_external_events module

External event triggering for servers, not to be used by users.

```
class novaclient.v2.server_external_events.Event(manager, info, loaded=False,
        resp=None)
```

Bases: [Resource](#)

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

```
class novaclient.v2.server_external_events.ServerExternalEventManager(api)
```

Bases: [Manager](#)

```
create(events)
```

Create one or more server events.

Param:events

A list of dictionaries containing server_uuid, name, status, and tag (which may be absent)

resource_class

alias of [Event](#)

novaclient.v2.server_groups module

Server group interface.

```
class novaclient.v2.server_groups.ServerGroup(manager, info, loaded=False, resp=None)
```

Bases: [Resource](#)

A server group.

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

delete()

Delete this server group.

Returns

An instance of `novaclient.base.TupleWithMeta`

class `novaclient.v2.server_groups.ServerGroupsManager`(*api*)

Bases: `ManagerWithFind`

Manage `ServerGroup` resources.

create(*name, policy, rules=None*)

Create (allocate) a server group.

Parameters

- **name** The name of the server group.
- **policy** Policy name to associate with the server group.
- **rules** The rules of policy which is a dict, can be applied to the policy, now only `max_server_per_host` for anti-affinity policy would be supported (optional).

Return type

list of `ServerGroup`

delete(*id*)

Delete a specific server group.

Parameters

id The ID of the `ServerGroup` to delete.

Returns

An instance of `novaclient.base.TupleWithMeta`

get(*id*)

Get a specific server group.

Parameters

id The ID of the `ServerGroup` to get.

Return type

`ServerGroup`

list(*all_projects=False, limit=None, offset=None*)

Get a list of all server groups.

Parameters

- **all_projects** Lists server groups for all projects. (optional)
- **limit** Maximum number of server groups to return. (optional) Note the API server has a configurable default limit. If no limit is specified here or limit is larger than default, the default limit will be used.
- **offset** Use with *limit* to return a slice of server groups. *offset* is where to start in the groups list. (optional)

Returns

list of `ServerGroup`.

resource_class

alias of *ServerGroup*

novaclient.v2.server_migrations module

class novaclient.v2.server_migrations.**ServerMigration**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

class novaclient.v2.server_migrations.**ServerMigrationsManager**(*api*)

Bases: *ManagerWithFind*

get(*server, migration*)

Get a migration of a specified server

Parameters

- **server** The Server (or its ID)
- **migration** Migration id that will be gotten.

Returns

An instance of novaclient.v2.server_migrations.ServerMigration

list(*server*)

Get a migrations list of a specified server

Parameters

- **server** The Server (or its ID)

Returns

An instance of novaclient.base.ListWithMeta

live_migrate_force_complete(*server, migration*)

Force on-going live migration to complete

Parameters

- **server** The Server (or its ID)
- **migration** Migration id that will be forced to complete

Returns

An instance of novaclient.base.TupleWithMeta

live_migration_abort(*server, migration*)

Cancel an ongoing live migration

Parameters

- **server** The Server (or its ID)
- **migration** Migration id that will be cancelled

Returns

An instance of novaclient.base.TupleWithMeta

resource_class

alias of *ServerMigration*

novaclient.v2.servers module

Server interface.

class novaclient.v2.servers.**NetworkInterface**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

property id

class novaclient.v2.servers.**SecurityGroup**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

class novaclient.v2.servers.**Server**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes

- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

HUMAN_ID = True

add_security_group(*security_group*)

Add a security group to an instance.

Parameters

security_group The name of security group to add

Returns

An instance of novaclient.base.DictWithMeta

add_tag(*tag*)

Add single tag to an instance.

backup(*backup_name, backup_type, rotation*)

Backup a server instance.

Parameters

- **backup_name** Name of the backup image
- **backup_type** The backup type, like daily or weekly
- **rotation** Int parameter representing how many backups to keep around.

Returns

An instance of novaclient.base.TupleWithMeta

change_password(*password*)

Update the admin password for a server.

Parameters

password string to set as the admin password on the server

Returns

An instance of novaclient.base.TupleWithMeta

clear_password()

Get password for a Server.

confirm_resize()

Confirm that the resize worked, thus removing the original server.

Returns

An instance of novaclient.base.TupleWithMeta

create_image(*image_name, metadata=None*)

Create an image based on this server.

Parameters

- **image_name** The name to assign the newly create image.
- **metadata** Metadata to assign to the image.

delete()

Delete (i.e. shut down and delete the image) this server.

Returns

An instance of novaclient.base.TupleWithMeta

delete_all_tags()

Remove all tags from an instance.

delete_tag(tag)

Remove single tag from an instance.

diagnostics()

Diagnostics Retrieve server diagnostics.

evacuate(host=None, password=None)

Evacuate an instance from failed host to specified host.

Parameters

- **host** Name of the target host
- **password** string to set as admin password on the evacuated server.

Returns

An instance of novaclient.base.TupleWithMeta

force_delete()

Force delete Force delete a server.

Returns

An instance of novaclient.base.TupleWithMeta

get_console_output(length=None)

Get text console log output from Server.

Parameters

length The number of lines you would like to retrieve (as int)

get_console_url(console_type)

Retrieve a console of a particular protocol and console_type

Parameters

console_type Type of console

get_mks_console()

Get mks console for a Server.

get_password(private_key=None)

Get password for a Server.

Returns the clear password of an instance if private_key is provided, returns the ciphered password otherwise.

Parameters

private_key Path to private key file for decryption (optional)

get_rdp_console(*console_type*)

Get rdp console for a Server.

Parameters

console_type Type of console (rdp-html5)

get_serial_console(*console_type*)

Get serial console for a Server.

Parameters

console_type Type of console (serial)

get_spice_console(*console_type*)

Get spice console for a Server.

Parameters

console_type Type of console (spice-html5)

get_vnc_console(*console_type*)

Get vnc console for a Server.

Parameters

console_type Type of console (novnc or xvpvnc)

interface_attach(*port_id, net_id, fixed_ip, tag=None*)

Attach a network interface to an instance with an optional tag.

interface_detach(*port_id*)

Detach a network interface from an instance.

interface_list()

List interfaces attached to an instance.

list_security_group()

List security group(s) of an instance.

live_migrate(*host=None, block_migration=None*)

Migrates a running instance to a new machine.

Parameters

- **host** destination host name.
- **block_migration** if True, do block_migration, the default value is None which is mapped to auto.

Returns

An instance of novaclient.base.TupleWithMeta

lock(*reason=None*)

Lock Lock the instance from certain operations.

Parameters

reason (Optional) The lock reason.

Returns

An instance of novaclient.base.TupleWithMeta

migrate(*host=None*)

Migrate a server to a new host.

Parameters

host (Optional) The target host.

Returns

An instance of novaclient.base.TupleWithMeta

property networks

Generate a simplified list of addresses

Returns

An OrderedDict, keyed by network name, and sorted by network name in ascending order.

pause()

Pause Pause the running server.

Returns

An instance of novaclient.base.TupleWithMeta

reboot(*reboot_type='SOFT'*)

Reboot the server.

Parameters

reboot_type either REBOOT_SOFT for a software-level reboot, or *REBOOT_HARD* for a virtual power cycle hard reboot.

Returns

An instance of novaclient.base.TupleWithMeta

rebuild(*image, password=None, preserve_ephemeral=False, *, disk_config=None, name=None, meta=None, files=None, description=<object object>, key_name=<object object>, userdata=<object object>, trusted_image_certificates=<object object>, hostname=<object object>*)

Rebuild shut down and then re-image this server.

Parameters

- **image** The Image (or its ID) to re-image with.
- **password** String to set as password on the rebuilt server.
- **preserve_ephemeral** If True, request that any ephemeral device be preserved when rebuilding the instance. Defaults to False.
- **disk_config** Partitioning mode to use on the rebuilt server. Valid values are AUTO or MANUAL
- **name** Something to name the server.
- **meta** A dict of arbitrary key/value metadata to store for this server. Both keys and values must be <=255 characters.
- **files** A dict of files to overwrite on the server upon boot. Keys are file names (i.e. /etc/passwd) and values are the file contents (either as a string or as a file-like object). A maximum of five entries is allowed, and each file must be 10k or less. (deprecated starting with microversion 2.57)

- **description** Optional description of the server. If None is specified, the existing description will be unset. (starting from microversion 2.19)
- **key_name** Optional key pair name for rebuild operation. If None is specified, the existing key will be unset. (starting from microversion 2.54)
- **userdata** Optional user data to pass to be exposed by the metadata server; this can be a file type object as well or a string. If None is specified, the existing user_data is unset. (starting from microversion 2.57)
- **trusted_image_certificates** A list of trusted certificate IDs or None to unset/reset the servers trusted image certificates (starting from microversion 2.63)
- **hostname** Optional hostname to configure for the instance. If None is specified, the existing hostname will be unset. (starting from microversion 2.90)

Returns

Server

remove_security_group(*security_group*)

Remove a security group from an instance.

Returns

An instance of novaclient.base.TupleWithMeta

rescue(*password=None, image=None*)

Rescue Rescue the problematic server.

Parameters

- **password** The admin password to be set in the rescue instance.
- **image** The Image to rescue with.

Returns

An instance of novaclient.base.TupleWithMeta

reset_network()

Reset network of an instance.

Returns

An instance of novaclient.base.TupleWithMeta

reset_state(*state='error'*)

Reset the state of an instance to active or error.

Returns

An instance of novaclient.base.TupleWithMeta

resize(*flavor, *, disk_config=None*)

Resize the servers resources.

Parameters

- **flavor** The Flavor (or its ID) to resize to.
- **disk_config** Partitioning mode to use on the rebuilt server. Valid values are AUTO or MANUAL.

Returns

An instance of novaclient.base.TupleWithMeta

Until a resize event is confirmed with `confirm_resize()`, the old server will be kept around and you'll be able to roll back to the old flavor quickly with `revert_resize()`. All resizes are automatically confirmed after 24 hours by default.

restore()

Restore Restore a server in soft-deleted state.

Returns

An instance of novaclient.base.TupleWithMeta

resume()

Resume Resume the suspended server.

Returns

An instance of novaclient.base.TupleWithMeta

revert_resize()

Revert a previous resize, switching back to the old server.

Returns

An instance of novaclient.base.TupleWithMeta

set_tags(tags)

Set list of tags to an instance.

shelve()

Shelve Shelve the server.

Returns

An instance of novaclient.base.TupleWithMeta

shelve_offload()

Shelve_offload Remove a shelved server from the compute node.

Returns

An instance of novaclient.base.TupleWithMeta

start()

Start Start the paused server.

Returns

An instance of novaclient.base.TupleWithMeta

stop()

Stop Stop the running server.

Returns

An instance of novaclient.base.TupleWithMeta

suspend()

Suspend Suspend the running server.

Returns

An instance of novaclient.base.TupleWithMeta

tag_list()

Get list of tags from an instance.

topology()

Retrieve server topology.

trigger_crash_dump()

Trigger crash dump in an instance

unlock()

Unlock Remove instance lock.

Returns

An instance of novaclient.base.TupleWithMeta

unpause()

Unpause Unpause the paused server.

Returns

An instance of novaclient.base.TupleWithMeta

unrescue()

Unrescue Unrescue the rescued server.

Returns

An instance of novaclient.base.TupleWithMeta

unshelve(availability_zone=<object object>, host=None)

Unshelve Unshelve the server.

Parameters

- **availability_zone** If specified the instance will be unshelved to the availability_zone. If None is passed the instance defined availability_zone is unpin and the instance will be scheduled to any availability_zone (free scheduling). If not specified the instance will be unshelved to either its defined availability_zone or any availability_zone (free scheduling).
- **host** The specified host (Optional)

Returns

An instance of novaclient.base.TupleWithMeta

update(name=None, description=None, hostname=None)

Update attributes of this server.

Parameters

- **name** Update the servers name.
- **description** Update the servers description.
- **hostname** Update the servers hostname.

Returns

Server

class novaclient.v2.servers.**ServerManager**(api)

Bases: *BootingManagerWithFind*

add_security_group(*server*, *security_group*)

Add a Security Group to an instance

Parameters

- **server** ID of the instance.
- **security_group** The name of security group to add.

Returns

An instance of novaclient.base.DictWithMeta

add_tag(*server*, *tag*)

Add single tag to an instance.

backup(*server*, *backup_name*, *backup_type*, *rotation*)

Backup a server instance.

Parameters

- **server** The *Server* (or its ID) to share onto.
- **backup_name** Name of the backup image
- **backup_type** The backup type, like daily or weekly
- **rotation** Int parameter representing how many backups to keep around.

Returns

An instance of novaclient.base.TupleWithMeta if the request microversion is < 2.45, otherwise novaclient.base.DictWithMeta.

change_password(*server*, *password*)

Update the password for a server.

Parameters

server The *Server* (or its ID) for which the admin password is to be changed

Returns

An instance of novaclient.base.TupleWithMeta

clear_password(*server*)

Clear the admin password of an instance

Remove the admin password for an instance from the metadata server.

Parameters

server The *Server* (or its ID) for which the admin password is to be cleared

confirm_resize(*server*)

Confirm that the resize worked, thus removing the original server.

Parameters

server The *Server* (or its ID) to share onto.

Returns

An instance of novaclient.base.TupleWithMeta

```
create(name, image, flavor, meta=None, files=None, reservation_id=False, min_count=None,
max_count=None, security_groups=None, userdata=None, key_name=None,
availability_zone=None, block_device_mapping=None,
block_device_mapping_v2=None, nics=None, scheduler_hints=None,
config_drive=None, disk_config=None, admin_pass=None, access_ip_v4=None,
access_ip_v6=None, description=None, tags=None, trusted_image_certificates=None,
host=None, hypervisor_hostname=None, hostname=None)
```

Create (boot) a new server.

In order to create a server with pre-existing ports that contain a `resource_request` value, such as for guaranteed minimum bandwidth quality of service support, microversion 2.72 is required.

Parameters

- **name** Something to name the server.
- **image** The Image to boot with.
- **flavor** The Flavor to boot onto.
- **meta** A dict of arbitrary key/value metadata to store for this server. Both keys and values must be <=255 characters.
- **files** A dict of files to overwrite on the server upon boot. Keys are file names (i.e. /etc/passwd) and values are the file contents (either as a string or as a file-like object). A maximum of five entries is allowed, and each file must be 10k or less. (deprecated starting with microversion 2.57)
- **reservation_id** Return a reservation_id for the set of servers being requested, boolean.
- **min_count** The minimum number of servers to launch.
- **max_count** The maximum number of servers to launch.
- **security_groups** A list of security group names
- **userdata** User data to pass to be exposed by the metadata server this can be a file type object as well or a string.
- **key_name** Name of previously created keypair to inject into the instance.
- **availability_zone** Name of the availability zone for instance placement.
- **block_device_mapping** A dict of block device mappings for this server.
- **block_device_mapping_v2** A list of block device mappings (dicts) for this server.
- **nics** An ordered list of nics (dicts) to be added to this server, with information about connected networks, fixed IPs, port etc. Beginning in microversion 2.37 this field is required and also supports a single string value of auto or none. The auto value means the Compute service will automatically allocate a network for the project if one is not available. This is the same behavior as not passing anything for nics before microversion 2.37. The none value tells the Compute service to not allocate any networking for the server.
- **scheduler_hints** Arbitrary key-value pairs specified by the client to help boot an instance.

- **config_drive** A boolean value to enable config drive.
- **disk_config** Control how the disk is partitioned when the server is created. Possible values are AUTO or MANUAL.
- **admin_pass** Add a user supplied admin password.
- **access_ip_v4** Add alternative access IP (v4)
- **access_ip_v6** Add alternative access IP (v6)
- **description** Optional description of the server (allowed since microversion 2.19)
- **tags** A list of arbitrary strings to be added to the server as tags (allowed since microversion 2.52)
- **trusted_image_certificates** A list of trusted certificate IDs (allowed since microversion 2.63)
- **host** Requested host to create servers (allowed since microversion 2.74)
- **hypervisor_hostname** Requested hypervisor hostname to create servers (allowed since microversion 2.74)
- **hostname** Requested hostname of server (allowed since microversion 2.90)

create_image(*server*, *image_name*, *metadata=None*)

Snapshot a server.

Parameters

- **server** The [Server](#) (or its ID) to share onto.
- **image_name** Name to give the snapshot image
- **metadata** Metadata to give newly-created image entity

Returns

An instance of novaclient.base.StrWithMeta (The snapshot images UUID)

delete(*server*)

Delete (i.e. shut down and delete the image) this server.

Parameters

server The [Server](#) (or its ID) to delete

Returns

An instance of novaclient.base.TupleWithMeta

delete_all_tags(*server*)

Remove all tags from an instance.

delete_meta(*server*, *keys*)

Delete metadata from a server

Parameters

- **server** The [Server](#) to add metadata to
- **keys** A list of metadata keys to delete from the server

Returns

An instance of novaclient.base.TupleWithMeta

delete_tag(*server*, *tag*)

Remove single tag from an instance.

diagnostics(*server*)

Retrieve server diagnostics.

Parameters

server The *Server* (or its ID) for which diagnostics to be returned

Returns

An instance of novaclient.base.TupleWithMeta

evacuate(*server*, *host=None*, *password=None*)

Evacuate a server instance.

Parameters

- **server** The *Server* (or its ID) to evacuate to.
- **host** Name of the target host.
- **password** string to set as password on the evacuated server.

Returns

An instance of novaclient.base.TupleWithMeta

force_delete(*server*)

Force delete the server.

Parameters

server The *Server* (or its ID) to force delete

Returns

An instance of novaclient.base.TupleWithMeta

get(*server*)

Get a server.

Parameters

server ID of the *Server* to get.

Return type

Server

get_console_output(*server*, *length=None*)

Get text console log output from Server.

Parameters

- **server** The *Server* (or its ID) whose console output you would like to retrieve.
- **length** The number of tail loglines you would like to retrieve.

Returns

An instance of novaclient.base.StrWithMeta or nova-client.base.UnicodeWithMeta

get_console_url(*server*, *console_type*)

Retrieve a console url of a server.

Parameters

- **server** server to get console url for
- **console_type** type can be novnc/xvpng for protocol vnc; spice-html5 for protocol spice; rdp-html5 for protocol rdp; serial for protocol serial. webmks for protocol mks (since version 2.8).

get_mks_console(*server*)

Get a mks console for an instance

Parameters

server The *Server* (or its ID) to get console for.

Returns

An instance of novaclient.base.DictWithMeta

get_password(*server*, *private_key=None*)

Get admin password of an instance

Returns the admin password of an instance in the clear if *private_key* is provided, returns the ciphered password otherwise.

Requires that openssl is installed and in the path

Parameters

- **server** The *Server* (or its ID) for which the admin password is to be returned
- **private_key** The private key to decrypt password (optional)

Returns

An instance of novaclient.base.StrWithMeta or novaclient.base.BytesWithMeta or novaclient.base.UnicodeWithMeta

get_rdp_console(*server*, *console_type*)

Get a rdp console for an instance

Parameters

- **server** The *Server* (or its ID) to get console for.
- **console_type** Type of rdp console to get (rdp-html5)

Returns

An instance of novaclient.base.DictWithMeta

get_serial_console(*server*, *console_type*)

Get a serial console for an instance

Parameters

- **server** The *Server* (or its ID) to get console for.
- **console_type** Type of serial console to get (serial)

Returns

An instance of novaclient.base.DictWithMeta

get_spice_console(*server, console_type*)

Get a spice console for an instance

Parameters

- **server** The *Server* (or its ID) to get console for.
- **console_type** Type of spice console to get (spice-html5)

Returns

An instance of novaclient.base.DictWithMeta

get_vnc_console(*server, console_type*)

Get a vnc console for an instance

Parameters

- **server** The *Server* (or its ID) to get console for.
- **console_type** Type of vnc console to get (novnc or xvpvnc)

Returns

An instance of novaclient.base.DictWithMeta

interface_attach(*server, port_id, net_id, fixed_ip, tag=None*)

Attach a network_interface to an instance.

Parameters

- **server** The *Server* (or its ID) to attach to.
- **port_id** The port to attach. The port_id and net_id parameters are mutually exclusive.
- **net_id** The ID of the network to attach.
- **fixed_ip** The fixed IP addresses. If the fixed_ip is specified, the net_id has to be specified at the same time.
- **tag** The tag.

interface_detach(*server, port_id*)

Detach a network_interface from an instance.

Parameters

- **server** The *Server* (or its ID) to detach from.
- **port_id** The port to detach.

Returns

An instance of novaclient.base.TupleWithMeta

interface_list(*server*)

List attached network interfaces

Parameters

- **server** The *Server* (or its ID) to query.

ips(*server*)

Return IP Addresses associated with the server.

Often a cheaper call than getting all the details for a server.

Parameters

server The *Server* (or its ID) for which the IP addresses are to be returned

Returns

An instance of novaclient.base.DictWithMeta

list(*detailed=True, search_opts=None, marker=None, limit=None, sort_keys=None, sort_dirs=None*)

Get a list of servers.

Parameters

- **detailed** Whether to return detailed server info (optional).
- **search_opts** Search options to filter out servers which dont match the search_opts (optional). The search opts format is a dictionary of key / value pairs that will be appended to the query string. For a complete list of keys see: <https://docs.openstack.org/api-ref/compute/#list-servers>
- **marker** Begin returning servers that appear later in the server list than that represented by this server id (optional).
- **limit** Maximum number of servers to return (optional). Note the API server has a configurable default limit. If no limit is specified here or limit is larger than default, the default limit will be used. If limit == -1, all servers will be returned.
- **sort_keys** List of sort keys
- **sort_dirs** List of sort directions

Return type

list of *Server*

Examples:

client.servers.list() - returns detailed list of servers

client.servers.list(search_opts={status: ERROR}) - returns list of servers in error state.

client.servers.list(limit=10) - returns only 10 servers

list_security_group(*server*)

List Security Group(s) of an instance

Parameters

server ID of the instance.

live_migrate(*server, host, block_migration*)

Migrates a running instance to a new machine.

Parameters

- **server** instance id which comes from nova list.
- **host** destination host name.
- **block_migration** if True, do block_migration, can be set as auto

Returns

An instance of novaclient.base.TupleWithMeta

lock(*server*, *reason=None*)

Lock the server.

Parameters

- **server** The *Server* (or its ID) to lock
- **reason** (Optional) The lock reason.

Returns

An instance of novaclient.base.TupleWithMeta

migrate(*server*, *host=None*)

Migrate a server to a new host.

Parameters

- **server** The *Server* (or its ID).
- **host** (Optional) The target host.

Returns

An instance of novaclient.base.TupleWithMeta

pause(*server*)

Pause the server.

Parameters

server The *Server* (or its ID) to pause

Returns

An instance of novaclient.base.TupleWithMeta

reboot(*server*, *reboot_type='SOFT'*)

Reboot a server.

Parameters

- **server** The *Server* (or its ID) to share onto.
- **reboot_type** either REBOOT_SOFT for a software-level reboot, or *REBOOT_HARD* for a virtual power cycle hard reboot.

Returns

An instance of novaclient.base.TupleWithMeta

rebuild(*server*, *image*, *password=None*, *disk_config=None*, *preserve_ephemeral=False*, *name=None*, *meta=None*, *files=None*, *, *description=<object object>*, *key_name=<object object>*, *userdata=<object object>*, *trusted_image_certificates=<object object>*, *hostname=<object object>*)

Rebuild shut down and then re-image a server.

Parameters

- **server** The *Server* (or its ID) to share onto.
- **image** The Image (or its ID) to re-image with.
- **password** String to set as password on the rebuilt server.
- **disk_config** Partitioning mode to use on the rebuilt server. Valid values are AUTO or MANUAL

- **preserve_ephemeral** If True, request that any ephemeral device be preserved when rebuilding the instance. Defaults to False.
- **name** Something to name the server.
- **meta** A dict of arbitrary key/value metadata to store for this server. Both keys and values must be <=255 characters.
- **files** A dict of files to overwrite on the server upon boot. Keys are file names (i.e. /etc/passwd) and values are the file contents (either as a string or as a file-like object). A maximum of five entries is allowed, and each file must be 10k or less. (deprecated starting with microversion 2.57)
- **description** Optional description of the server. If None is specified, the existing description will be unset. (starting from microversion 2.19)
- **key_name** Optional key pair name for rebuild operation. If None is specified, the existing key will be unset. (starting from microversion 2.54)
- **userdata** Optional user data to pass to be exposed by the metadata server; this can be a file type object as well or a string. If None is specified, the existing user_data is unset. (starting from microversion 2.57)
- **trusted_image_certificates** A list of trusted certificate IDs or None to unset/reset the servers trusted image certificates (starting from microversion 2.63)
- **hostname** Optional hostname to configure for the instance. If None is specified, the existing hostname will be unset. (starting from microversion 2.90)

Returns

Server

remove_security_group(*server*, *security_group*)

Remove a Security Group to an instance

Parameters

- **server** ID of the instance.
- **security_group** The name of security group to remove.

Returns

An instance of novaclient.base.TupleWithMeta

rescue(*server*, *password=None*, *image=None*)

Rescue the server.

Parameters

- **server** The *Server* to rescue.
- **password** The admin password to be set in the rescue instance.
- **image** The Image to rescue with.

Returns

An instance of novaclient.base.TupleWithMeta

reset_network(*server*)

Reset network of an instance.

Parameters

server The *Server* for network is to be reset

Returns

An instance of novaclient.base.TupleWithMeta

reset_state(*server*, *state*='error')

Reset the state of an instance to active or error.

Parameters

- **server** ID of the instance to reset the state of.
- **state** Desired state; either active or error. Defaults to error.

Returns

An instance of novaclient.base.TupleWithMeta

resize(*server*, *flavor*, *disk_config*=None)

Resize a servers resources.

Parameters

- **server** The *Server* (or its ID) to share onto.
- **flavor** The Flavor (or its ID) to resize to.
- **disk_config** Partitioning mode to use on the rebuilt server. Valid values are AUTO or MANUAL.

Returns

An instance of novaclient.base.TupleWithMeta

Until a resize event is confirmed with *confirm_resize()*, the old server will be kept around and youll be able to roll back to the old flavor quickly with *revert_resize()*. All resizes are automatically confirmed after 24 hours by default.

resource_class

alias of *Server*

restore(*server*)

Restore soft-deleted server.

Parameters

server The *Server* (or its ID) to restore

Returns

An instance of novaclient.base.TupleWithMeta

resume(*server*)

Resume the server.

Parameters

server The *Server* (or its ID) to resume

Returns

An instance of novaclient.base.TupleWithMeta

revert_resize(*server*)

Revert a previous resize, switching back to the old server.

Parameters

server The *Server* (or its ID) to share onto.

Returns

An instance of novaclient.base.TupleWithMeta

set_meta(*server, metadata*)

Set a servers metadata :param server: The *Server* to add metadata to :param metadata: A dict of metadata to be added to the server

set_meta_item(*server, key, value*)

Updates an item of server metadata :param server: The *Server* to add metadata to :param key: metadata key to update :param value: string value

set_tags(*server, tags*)

Set list of tags to an instance.

shelve(*server*)

Shelve the server.

Parameters

server The *Server* (or its ID) to shelve

Returns

An instance of novaclient.base.TupleWithMeta

shelve_offload(*server*)

Remove a shelved instance from the compute node.

Parameters

server The *Server* (or its ID) to shelve offload

Returns

An instance of novaclient.base.TupleWithMeta

start(*server*)

Start the server.

Parameters

server The *Server* (or its ID) to start

Returns

An instance of novaclient.base.TupleWithMeta

stop(*server*)

Stop the server.

Parameters

server The *Server* (or its ID) to stop

Returns

An instance of novaclient.base.TupleWithMeta

suspend(*server*)

Suspend the server.

Parameters

server The *Server* (or its ID) to suspend

Returns

An instance of novaclient.base.TupleWithMeta

tag_list(*server*)

Get list of tags from an instance.

topology(*server*)

Retrieve server topology.

Parameters

server The *Server* (or its ID) for which topology to be returned

Returns

An instance of novaclient.base.DictWithMeta

static transform_userdata(*userdata*)**trigger_crash_dump**(*server*)

Trigger crash dump in an instance

unlock(*server*)

Unlock the server.

Parameters

server The *Server* (or its ID) to unlock

Returns

An instance of novaclient.base.TupleWithMeta

unpause(*server*)

Unpause the server.

Parameters

server The *Server* (or its ID) to unpause

Returns

An instance of novaclient.base.TupleWithMeta

unrescue(*server*)

Unrescue the server.

Parameters

server The *Server* (or its ID) to unrescue

Returns

An instance of novaclient.base.TupleWithMeta

unshelve(*server*, *availability_zone*=<object object>, *host*=None)

Unshelve the server.

Parameters

- **availability_zone** If specified the instance will be unshelved to the *availability_zone*. If None is passed the instance defined *availability_zone* is unpin and the instance will be scheduled to any *availability_zone* (free scheduling). If not specified the instance will be unshelved to either its defined *availability_zone* or any *availability_zone* (free scheduling).
- **host** The specified host (Optional)

Returns

An instance of `novaclient.base.TupleWithMeta`

update(*server*, *name=None*, *description=None*, *hostname=None*)

Update attributes of a server.

Parameters

- **server** The *Server* (or its ID) to update.
- **name** Update the servers name.
- **description** Update the servers description. If it equals to empty string(i.g.), the server description will be removed.
- **hostname** Update the servers hostname as recorded by the metadata service. Note that a separate utility running on the guest will be necessary to reflect these changes in the guest itself.

Returns

Server

novaclient.v2.services module

Service interface.

class `novaclient.v2.services.Service`(*manager*, *info*, *loaded=False*, *resp=None*)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

class `novaclient.v2.services.ServiceManager`(*api*)

Bases: *ManagerWithFind*

delete(*service_id*)

Delete a service.

Parameters

service_id Before microversion 2.53, this must be an integer id and may not uniquely the service in a multi-cell deployment. Starting with microversion 2.53 this must be a UUID.

disable(*service_uuid*)

Disable the service specified by the service UUID ID.

Parameters

service_uuid The UUID ID of the service to disable.

disable_log_reason(*service_uuid*, *reason*)

Disable the service with a reason.

Parameters

- **service_uuid** The UUID ID of the service to disable.
- **reason** The reason for disabling a service. The minimum length is 1 and the maximum length is 255.

enable(*service_uuid*)

Enable the service specified by the service UUID ID.

Parameters

service_uuid The UUID ID of the service to enable.

force_down(*service_uuid*, *force_down*)

Update the services `forced_down` field specified by the service UUID ID.

Parameters

- **service_uuid** The UUID ID of the service.
- **force_down** Whether or not this service was forced down manually by an administrator. This value is useful to know that some 3rd party has verified the service should be marked down.

list(*host=None*, *binary=None*)

Get a list of services.

Parameters

host destination host name.

resource_class

alias of [Service](#)

novaclient.v2.shell module

class `novaclient.v2.shell.Console`(*console_dict*)

Bases: `object`

class `novaclient.v2.shell.EvacuateHostResponse`(*manager*, *info*, *loaded=False*, *resp=None*)

Bases: [Resource](#)

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

class novaclient.v2.shell.HostServersMigrateResponse(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

novaclient.v2.shell.console_dict_accessor(*cs, data*)

novaclient.v2.shell.do_add_secgroup(*cs, args*)

Add a Security Group to a server.

novaclient.v2.shell.do_agent_create(*cs, args*)

DEPRECATED Create new agent build.

novaclient.v2.shell.do_agent_delete(*cs, args*)

DEPRECATED Delete existing agent build.

novaclient.v2.shell.do_agent_list(*cs, args*)

DEPRECATED List all builds.

novaclient.v2.shell.do_agent_modify(*cs, args*)

DEPRECATED Modify existing agent build.

novaclient.v2.shell.do_aggregate_add_host(*cs, args*)

Add the host to the specified aggregate.

novaclient.v2.shell.do_aggregate_cache_images(*cs, args*)

Request images be cached.

novaclient.v2.shell.do_aggregate_create(*cs, args*)

Create a new aggregate with the specified details.

novaclient.v2.shell.do_aggregate_delete(*cs, args*)

Delete the aggregate.

novaclient.v2.shell.do_aggregate_list(*cs, args*)

Print a list of all aggregates.

novaclient.v2.shell.do_aggregate_remove_host(*cs, args*)

Remove the specified host from the specified aggregate.

novaclient.v2.shell.do_aggregate_set_metadata(*cs, args*)

Update the metadata associated with the aggregate.

novaclient.v2.shell.do_aggregate_show(*cs, args*)

Show details of the specified aggregate.

`novaclient.v2.shell.do_aggregate_update(cs, args)`

Update the aggregates name and optionally availability zone.

`novaclient.v2.shell.do_availability_zone_list(cs, _args)`

List all the availability zones.

`novaclient.v2.shell.do_backup(cs, args)`

Backup a server by creating a backup type snapshot.

`novaclient.v2.shell.do_boot(cs, args)`

Boot a new server.

`novaclient.v2.shell.do_clear_password(cs, args)`

Clear the admin password for a server from the metadata server. This action does not actually change the instance server password.

`novaclient.v2.shell.do_console_log(cs, args)`

Get console log output of a server.

`novaclient.v2.shell.do_delete(cs, args)`

Immediately shut down and delete specified server(s).

`novaclient.v2.shell.do_diagnostics(cs, args)`

Retrieve server diagnostics.

`novaclient.v2.shell.do_evacuate(cs, args)`

Evacuate server from failed host.

`novaclient.v2.shell.do_flavor_access_add(cs, args)`

Add flavor access for the given tenant.

`novaclient.v2.shell.do_flavor_access_list(cs, args)`

Print access information about the given flavor.

`novaclient.v2.shell.do_flavor_access_remove(cs, args)`

Remove flavor access for the given tenant.

`novaclient.v2.shell.do_flavor_create(cs, args)`

Create a new flavor.

`novaclient.v2.shell.do_flavor_delete(cs, args)`

Delete a specific flavor

`novaclient.v2.shell.do_flavor_key(cs, args)`

Set or unset extra_spec for a flavor.

`novaclient.v2.shell.do_flavor_list(cs, args)`

Print a list of available flavors (sizes of servers).

`novaclient.v2.shell.do_flavor_show(cs, args)`

Show details about the given flavor.

`novaclient.v2.shell.do_flavor_update(cs, args)`

Update the description of an existing flavor.

`novaclient.v2.shell.do_force_delete(cs, args)`

Force delete a server.

`novaclient.v2.shell.do_get_mks_console(cs, args)`

Get an MKS console to a server.

`novaclient.v2.shell.do_get_password(cs, args)`

Get the admin password for a server. This operation calls the metadata service to query metadata information and does not read password information from the server itself.

`novaclient.v2.shell.do_get_rdp_console(cs, args)`

Get a rdp console to a server.

`novaclient.v2.shell.do_get_serial_console(cs, args)`

Get a serial console to a server.

`novaclient.v2.shell.do_get_spice_console(cs, args)`

Get a spice console to a server.

`novaclient.v2.shell.do_get_vnc_console(cs, args)`

Get a vnc console to a server.

`novaclient.v2.shell.do_host_evacuate(cs, args)`

Evacuate all instances from failed host.

`novaclient.v2.shell.do_host_evacuate_live(cs, args)`

Live migrate all instances off the specified host to other available hosts.

`novaclient.v2.shell.do_host_meta(cs, args)`

Set or Delete metadata on all instances of a host.

`novaclient.v2.shell.do_host_servers_migrate(cs, args)`

Cold migrate all instances off the specified host to other available hosts.

`novaclient.v2.shell.do_hypervisor_list(cs, args)`

List hypervisors.

`novaclient.v2.shell.do_hypervisor_servers(cs, args)`

List servers belonging to specific hypervisors.

`novaclient.v2.shell.do_hypervisor_show(cs, args)`

Display the details of the specified hypervisor.

`novaclient.v2.shell.do_hypervisor_stats(cs, args)`

`novaclient.v2.shell.do_hypervisor_uptime(cs, args)`

Display the uptime of the specified hypervisor.

`novaclient.v2.shell.do_image_create(cs, args)`

Create a new image by taking a snapshot of a running server.

`novaclient.v2.shell.do_instance_action(cs, args)`

Show an action.

`novaclient.v2.shell.do_instance_action_list(cs, args)`

List actions on a server.

`novaclient.v2.shell.do_instance_usage_audit_log(cs, args)`

List/Get server usage audits.

`novaclient.v2.shell.do_interface_attach(cs, args)`

Attach a network interface to a server.

`novaclient.v2.shell.do_interface_detach(cs, args)`

Detach a network interface from a server.

`novaclient.v2.shell.do_interface_list(cs, args)`

List interfaces attached to a server.

`novaclient.v2.shell.do_keypair_add(cs, args)`

Create a new key pair for use with servers.

`novaclient.v2.shell.do_keypair_delete(cs, args)`

Delete keypair given by its name.

`novaclient.v2.shell.do_keypair_list(cs, args)`

Print a list of keypairs for a user

`novaclient.v2.shell.do_keypair_show(cs, args)`

Show details about the given keypair.

`novaclient.v2.shell.do_limits(cs, args)`

Print rate and absolute limits.

`novaclient.v2.shell.do_list(cs, args)`

List servers.

`novaclient.v2.shell.do_list_secgroup(cs, args)`

List Security Group(s) of a server.

`novaclient.v2.shell.do_live_migration(cs, args)`

Migrate running server to a new machine.

`novaclient.v2.shell.do_live_migration_abort(cs, args)`

Abort an on-going live migration.

`novaclient.v2.shell.do_live_migration_force_complete(cs, args)`

Force on-going live migration to complete.

`novaclient.v2.shell.do_lock(cs, args)`

Lock a server. A normal (non-admin) user will not be able to execute actions on a locked server.

`novaclient.v2.shell.do_meta(cs, args)`

Set or delete metadata on a server.

`novaclient.v2.shell.do_migrate(cs, args)`

Migrate a server.

`novaclient.v2.shell.do_migration_list(cs, args)`

Print a list of migrations.

`novaclient.v2.shell.do_pause(cs, args)`

Pause a server.

`novaclient.v2.shell.do_quota_class_show(cs, args)`

List the quotas for a quota class.

`novaclient.v2.shell.do_quota_class_update(cs, args)`

Update the quotas for a quota class.

`novaclient.v2.shell.do_quota_defaults(cs, args)`

List the default quotas for a tenant.

`novaclient.v2.shell.do_quota_delete(cs, args)`

Delete quota for a tenant/user so their quota will Revert back to default.

`novaclient.v2.shell.do_quota_show(cs, args)`

List the quotas for a tenant/user.

`novaclient.v2.shell.do_quota_update(cs, args)`

Update the quotas for a tenant/user.

`novaclient.v2.shell.do_reboot(cs, args)`

Reboot a server.

`novaclient.v2.shell.do_rebuild(cs, args)`

Shutdown, re-image, and re-boot a server.

`novaclient.v2.shell.do_refresh_network(cs, args)`

Refresh server network information.

`novaclient.v2.shell.do_remove_secgroup(cs, args)`

Remove a Security Group from a server.

`novaclient.v2.shell.do_rescue(cs, args)`

Reboots a server into rescue mode, which starts the machine from either the initial image or a specified image, attaching the current boot disk as secondary.

`novaclient.v2.shell.do_reset_network(cs, args)`

Reset network of a server.

`novaclient.v2.shell.do_reset_state(cs, args)`

Reset the state of a server.

`novaclient.v2.shell.do_resize(cs, args)`

Resize a server.

`novaclient.v2.shell.do_resize_confirm(cs, args)`

Confirm a previous resize.

`novaclient.v2.shell.do_resize_revert(cs, args)`

Revert a previous resize (and return to the previous VM).

`novaclient.v2.shell.do_restore(cs, args)`

Restore a soft-deleted server.

`novaclient.v2.shell.do_resume(cs, args)`

Resume a server.

`novaclient.v2.shell.do_server_group_create(cs, args)`

Create a new server group with the specified details.

`novaclient.v2.shell.do_server_group_delete(cs, args)`

Delete specific server group(s).

`novaclient.v2.shell.do_server_group_get(cs, args)`

Get a specific server group.

`novaclient.v2.shell.do_server_group_list(cs, args)`

Print a list of all server groups.

`novaclient.v2.shell.do_server_migration_list(cs, args)`

Get the migrations list of specified server.

`novaclient.v2.shell.do_server_migration_show(cs, args)`

Get the migration of specified server.

`novaclient.v2.shell.do_server_tag_add(cs, args)`

Add one or more tags to a server.

`novaclient.v2.shell.do_server_tag_delete(cs, args)`

Delete one or more tags from a server.

`novaclient.v2.shell.do_server_tag_delete_all(cs, args)`

Delete all tags from a server.

`novaclient.v2.shell.do_server_tag_list(cs, args)`

Get list of tags from a server.

`novaclient.v2.shell.do_server_tag_set(cs, args)`

Set list of tags to a server.

`novaclient.v2.shell.do_server_topology(cs, args)`

Retrieve server topology.

`novaclient.v2.shell.do_service_delete(cs, args)`

Delete the service by UUID ID.

If deleting a nova-compute service, be sure to stop the actual nova-compute process on the physical host before deleting the service with this command. Failing to do so can lead to the running service re-creating orphaned compute_nodes table records in the database.

`novaclient.v2.shell.do_service_disable(cs, args)`

Disable the service.

`novaclient.v2.shell.do_service_enable(cs, args)`

Enable the service.

`novaclient.v2.shell.do_service_force_down(cs, args)`

Force service to down.

`novaclient.v2.shell.do_service_list(cs, args)`

Show a list of all running services. Filter by host & binary.

`novaclient.v2.shell.do_set_password(cs, args)`

Change the admin password for a server.

`novaclient.v2.shell.do_shelve(cs, args)`

Shelve a server.

`novaclient.v2.shell.do_shelve_offload(cs, args)`

Remove a shelved server from the compute node.

`novaclient.v2.shell.do_show(cs, args)`

Show details about the given server.

`novaclient.v2.shell.do_ssh(cs, args)`

SSH into a server.

`novaclient.v2.shell.do_start(cs, args)`

Start the server(s).

`novaclient.v2.shell.do_stop(cs, args)`

Stop the server(s).

`novaclient.v2.shell.do_suspend(cs, args)`

Suspend a server.

`novaclient.v2.shell.do_trigger_crash_dump(cs, args)`

Trigger crash dump in an instance.

`novaclient.v2.shell.do_unlock(cs, args)`

Unlock a server.

`novaclient.v2.shell.do_unpause(cs, args)`

Unpause a server.

`novaclient.v2.shell.do_unrescue(cs, args)`

Restart the server from normal boot disk again.

`novaclient.v2.shell.do_unshelve(cs, args)`

Unshelve a server.

`novaclient.v2.shell.do_update(cs, args)`

Update the name or the description for a server.

`novaclient.v2.shell.do_usage(cs, args)`

Show usage data for a single tenant.

`novaclient.v2.shell.do_usage_list(cs, args)`

List usage data for all tenants.

`novaclient.v2.shell.do_version_list(cs, args)`

List all API versions.

`novaclient.v2.shell.do_volume_attach(cs, args)`

Attach a volume to a server.

`novaclient.v2.shell.do_volume_attachments(cs, args)`

List all the volumes attached to a server.

`novaclient.v2.shell.do_volume_detach(cs, args)`

Detach a volume from a server.

`novaclient.v2.shell.do_volume_update(cs, args)`

Update the attachment on the server.

If `dest_volume` is the same as the `src_volume` then the command migrates the data from the attached volume to the specified available volume and swaps out the active attachment to the new volume. Otherwise it only updates the parameters of the existing attachment.

`novaclient.v2.shell.emit_duplicated_image_with_warning(img, image_with)`

`novaclient.v2.shell.print_console(cs, data)`

novaclient.v2.usage module

Usage interface.

class `novaclient.v2.usage.Usage(manager, info, loaded=False, resp=None)`

Bases: [Resource](#)

Usage contains information about a tenants physical resource usage

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

get()

Support for lazy loading details.

Some clients, such as novaclient have the option to lazy load the details, details which can be loaded with this function.

class `novaclient.v2.usage.UsageManager(api)`

Bases: [ManagerWithFind](#)

Manage [Usage](#) resources.

get(*tenant_id, start, end, marker=None, limit=None*)

Get usage for a specific tenant.

Parameters

- **tenant_id** Tenant ID to fetch usage for
- **start** `datetime.datetime` Start date in UTC
- **end** `datetime.datetime` End date in UTC
- **marker** Begin returning usage data for instances that appear later in the instance list than that represented by this instance UUID (optional).

- **limit** Maximum number of instances to include in the usage (optional). Note the API server has a configurable default limit. If no limit is specified here or limit is larger than default, the default limit will be used.

Return type*Usage*`list(start, end, detailed=False, marker=None, limit=None)`

Get usage for all tenants

Parameters

- **start** `datetime.datetime` Start date in UTC
- **end** `datetime.datetime` End date in UTC
- **detailed** Whether to include information about each instance whose usage is part of the report
- **marker** Begin returning usage data for instances that appear later in the instance list than that represented by this instance UUID (optional).
- **limit** Maximum number of instances to include in the usage (optional). Note the API server has a configurable default limit. If no limit is specified here or limit is larger than default, the default limit will be used.

Return typelist of *Usage*.**resource_class**alias of *Usage***usage_prefix** = 'os-simple-tenant-usage'

novaclient.v2.versions module

version interface

class `novaclient.v2.versions.Version`(*manager, info, loaded=False, resp=None*)Bases: *Resource*

Compute REST API information

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

class `novaclient.v2.versions.VersionManager`(*api*)Bases: *ManagerWithFind*`get_current()`

list()

List all versions.

resource_class

alias of *Version*

novaclient.v2.volumes module

Volume interface

class novaclient.v2.volumes.**Volume**(*manager, info, loaded=False, resp=None*)

Bases: *Resource*

A volume is an extra block level storage to the OpenStack instances.

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

NAME_ATTR = 'display_name'

class novaclient.v2.volumes.**VolumeManager**(*api*)

Bases: *Manager*

Manage *Volume* resources. This is really about volume attachments.

create_server_volume(*server_id, volume_id, device=None, tag=None, delete_on_termination=False*)

Attach a volume identified by the volume ID to the given server ID

Parameters

- **server_id** The ID of the server.
- **volume_id** The ID of the volume to attach.
- **device** The device name (optional).
- **tag** The tag (optional).
- **delete_on_termination** Marked whether to delete the attached volume when the server is deleted (optional).

Return type

Volume

delete_server_volume(*server_id, volume_id=None, attachment_id=None*)

Detach a volume identified by the volume ID from the given server

Parameters

- **server_id** The ID of the server

- **volume_id** The ID of the volume to attach

Returns

An instance of novaclient.base.TupleWithMeta

get_server_volume(*server_id*, *volume_id=None*, *attachment_id=None*)

Get the volume identified by the volume ID, that is attached to the given server ID

Parameters

- **server_id** The ID of the server
- **volume_id** The ID of the volume to attach

Return type

Volume

get_server_volumes(*server_id*)

Get a list of all the attached volumes for the given server ID

Parameters

server_id The ID of the server

Return type

list of *Volume*

resource_class

alias of *Volume*

update_server_volume(*server_id*, *src_volid*, *dest_volid*, *delete_on_termination=None*)

Swaps the existing volume attachment to point to a new volume.

Takes a server, a source (attached) volume and a destination volume and performs a hypervisor assisted data migration from src to dest volume, detaches the original (source) volume and attaches the new destination volume. Note that not all backing hypervisor drivers support this operation and it may be disabled via policy.

Parameters

- **server_id** The ID of the server
- **source_volume** The ID of the src volume
- **dest_volume** The ID of the destination volume
- **delete_on_termination** Marked whether to delete the attached volume when the server is deleted (optional).

Return type

Volume

Module contents

Submodules

novaclient.api_versions module

class novaclient.api_versions.**APIVersion**(*version_str=None*)

Bases: object

This class represents an API Version Request.

This class provides convenience methods for manipulation and comparison of version numbers that we need to do to implement microversions.

Create an API version object.

Parameters

version_str String representation of APIVersionRequest. Correct format is X.Y, where X and Y are int values. None value should be used to create Null APIVersionRequest, which is equal to 0.0

get_string()

Version string representation.

Converts object to string representation which if used to create an APIVersion object results in the same version.

is_latest()

is_null()

matches(*min_version, max_version*)

Matches the version object.

Returns whether the version object represents a version greater than or equal to the minimum version and less than or equal to the maximum version.

Parameters

- **min_version** Minimum acceptable version.
- **max_version** Maximum acceptable version.

Returns

boolean

If min_version is null then there is no minimum limit. If max_version is null then there is no maximum limit. If self is null then raise ValueError

class novaclient.api_versions.**VersionedMethod**(*name, start_version, end_version, func*)

Bases: object

Versioning information for a single method

Parameters

- **name** Name of the method
- **start_version** Minimum acceptable version

- **end_version** Maximum acceptable_version
- **func** Method to call

Minimum and maximums are inclusive

`novaclient.api_versions.check_headers(response, api_version)`

Checks that microversion header is in response.

`novaclient.api_versions.check_major_version(api_version)`

Checks major part of APIVersion obj is supported.

Raises

`novaclient.exceptions.UnsupportedVersion` if major part is not supported

`novaclient.api_versions.deprecated_after(version)`

`novaclient.api_versions.discover_version(client, requested_version)`

Discover most recent version supported by API and client.

Checks requested_version and returns the most recent version supported by both the API and the client.

Parameters

- **client** client object
- **requested_version** requested version represented by APIVersion obj

Returns

APIVersion

`novaclient.api_versions.get_api_version(version_string)`

Returns checked APIVersion object

`novaclient.api_versions.get_available_major_versions()`

`novaclient.api_versions.get_substitutions(func_name, api_version=None)`

`novaclient.api_versions.update_headers(headers, api_version)`

Set microversion headers if api_version is not null

`novaclient.api_versions.wraps(start_version, end_version=None)`

novaclient.base module

Base utilities to build API operation managers and objects on top of.

class `novaclient.base.BootingManagerWithFind(api)`

Bases: `ManagerWithFind`

Like a `ManagerWithFind`, but has the ability to boot servers.

class `novaclient.base.BytesWithMeta(value, resp)`

Bases: `bytes`, `RequestIdMixin`

class novaclient.base.**DictWithMeta**(*values, resp*)

Bases: dict, *RequestIdMixin*

class novaclient.base.**HookableMixin**

Bases: object

Mixin so classes can register and run hooks.

classmethod **add_hook**(*hook_type, hook_func*)

Add a new hook of specified type.

Parameters

- **cls** class that registers hooks
- **hook_type** hook type, e.g., `__pre_parse_args__`
- **hook_func** hook function

classmethod **run_hooks**(*hook_type, *args, **kwargs*)

Run all hooks of specified type.

Parameters

- **cls** class that registers hooks
- **hook_type** hook type, e.g., `__pre_parse_args__`
- **args** args to be passed to every hook function
- **kwargs** kwargs to be passed to every hook function

class novaclient.base.**ListWithMeta**(*values, resp*)

Bases: list, *RequestIdMixin*

class novaclient.base.**Manager**(*api*)

Bases: *HookableMixin*

Manager for API service.

Managers interact with a particular type of API (servers, flavors, images, etc.) and provide CRUD operations for them.

alternate_service_type(*default, allowed_types=()*)

property **api_version**

cache_lock = <unlocked `_thread.RLock` object owner=0 count=0>

property **client**

completion_cache(*cache_type, obj_class, mode*)

The completion cache for bash autocompletion.

The completion cache store items that can be used for bash autocompletion, like UUIDs or human-friendly IDs.

A resource listing will clear and repopulate the cache.

A resource create will append to the cache.

Delete is not handled because listings are assumed to be performed often enough to keep the cache reasonably up-to-date.

convert_into_with_meta(*item, resp*)

resource_class = None

write_to_completion_cache(*cache_type, val*)

class novaclient.base.**ManagerWithFind**(*api*)

Bases: *Manager*

Like a *Manager*, but with additional *find()/findall()* methods.

find(***kwargs*)

Find a single item with attributes matching **kwargs.

findall(***kwargs*)

Find all items with attributes matching **kwargs.

abstract list()

class novaclient.base.**RequestIdMixin**

Bases: object

Wrapper class to expose x-openstack-request-id to the caller.

append_request_ids(*resp*)

Add request_ids as an attribute to the object

Parameters

resp Response object or list of Response objects

property request_ids

request_ids_setup()

class novaclient.base.**Resource**(*manager, info, loaded=False, resp=None*)

Bases: *RequestIdMixin*

Base class for OpenStack resources (tenant, user, etc.).

This is pretty much just a bag for attributes.

Populate and bind to a manager.

Parameters

- **manager** BaseManager object
- **info** dictionary representing resource attributes
- **loaded** prevent lazy-loading if set to True
- **resp** Response or list of Response objects

HUMAN_ID = False

NAME_ATTR = 'name'

property api_version**get()**

Support for lazy loading details.

Some clients, such as novaclient have the option to lazy load the details, details which can be loaded with this function.

property human_id

Human-readable ID which can be used for bash completion.

is_loaded()**set_info(key, value)****set_loaded(val)****to_dict()**

class novaclient.base.**StrWithMeta**(value, resp)

Bases: str, *RequestIdMixin*

class novaclient.base.**TupleWithMeta**(values, resp)

Bases: tuple, *RequestIdMixin*

novaclient.base.**getid**(obj)

Get objects ID or object.

Abstracts the common pattern of allowing both an object or an objects ID as a parameter when dealing with relationships.

novaclient.client module

OpenStack Client interface. Handles the REST calls and responses.

novaclient.client.**Client**(version, username=None, password=None, project_id=None, auth_url=None, **kwargs)

Initialize client object based on given version.

HOW-TO: The simplest way to create a client instance is initialization with your credentials:

```
>>> from novaclient import client
>>> nova = client.Client(VERSION, USERNAME, PASSWORD,
...                       PROJECT_ID, AUTH_URL)
```

Here VERSION can be a string or novaclient.api_versions.APIVersion obj. If you prefer string value, you can use 1.1 (deprecated now), 2 or 2.X (where X is a microversion).

Alternatively, you can create a client instance using the keystoneauth session API. See The novaclient Python API page at python-novaclients doc.

class novaclient.client.**SessionClient**(*args, **kwargs)

Bases: LegacyJsonAdapter

client_name = 'python-novaclient'


```
client_version = '18.6.1'  
  
get_timings()  
  
request(url, method, **kwargs)  
  
reset_timings()
```

`novaclient.client.discover_extensions(*args, **kwargs)`

Returns the list of extensions, which can be discovered by python path and by entry-point `novaclient.extension`.

novaclient.crypto module

exception `novaclient.crypto.DecryptionFailure`

Bases: `Exception`

`novaclient.crypto.decrypt_password(private_key, password)`

Base64 decodes password and unencrypts it with private key.

Requires openssl binary available in the path.

novaclient.exceptions module

Exception definitions.

exception `novaclient.exceptions.BadRequest`(*code, message=None, details=None, request_id=None, url=None, method=None*)

Bases: `ClientException`

HTTP 400 - Bad request: you sent some malformed data.

http_status = 400

message = 'Bad request'

exception `novaclient.exceptions.ClientException`(*code, message=None, details=None, request_id=None, url=None, method=None*)

Bases: `Exception`

The base exception class for all exceptions this library raises.

message = 'Unknown Error'

exception `novaclient.exceptions.CommandError`

Bases: `Exception`

exception `novaclient.exceptions.Conflict`(*code, message=None, details=None, request_id=None, url=None, method=None*)

Bases: `ClientException`

HTTP 409 - Conflict

```
http_status = 409
```

```
message = 'Conflict'
```

```
exception novaclient.exceptions.Forbidden(code, message=None, details=None,  
                                           request_id=None, url=None, method=None)
```

Bases: *ClientException*

HTTP 403 - Forbidden: your credentials dont give you access to this resource.

```
http_status = 403
```

```
message = 'Forbidden'
```

```
exception novaclient.exceptions.HTTPNotImplemented(code, message=None,  
                                                  details=None, request_id=None,  
                                                  url=None, method=None)
```

Bases: *ClientException*

HTTP 501 - Not Implemented: the server does not support this operation.

```
http_status = 501
```

```
message = 'Not Implemented'
```

```
exception novaclient.exceptions.InstanceInDeletedState
```

Bases: Exception

Instance is in the deleted state.

```
exception novaclient.exceptions.InvalidUsage
```

Bases: RuntimeError

This function call is invalid in the way you are using this client.

Due to the transition to using keystoneauth some function calls are no longer available. You should make a similar call to the session object instead.

```
exception novaclient.exceptions.MethodNotAllowed(code, message=None, details=None,  
                                                request_id=None, url=None,  
                                                method=None)
```

Bases: *ClientException*

HTTP 405 - Method Not Allowed

```
http_status = 405
```

```
message = 'Method Not Allowed'
```

```
exception novaclient.exceptions.NoUniqueMatch
```

Bases: Exception

```
exception novaclient.exceptions.NotAcceptable(code, message=None, details=None,  
                                              request_id=None, url=None,  
                                              method=None)
```

Bases: *ClientException*

HTTP 406 - Not Acceptable

```
http_status = 406
```

```
message = 'Not Acceptable'
```

```
exception novaclient.exceptions.NotFound(code, message=None, details=None,  
                                         request_id=None, url=None, method=None)
```

Bases: *ClientException*

HTTP 404 - Not found

```
http_status = 404
```

```
message = 'Not found'
```

```
exception novaclient.exceptions.OverLimit(*args, **kwargs)
```

Bases: *RetryAfterException*

HTTP 413 - Over limit: youre over the API limits for this time period.

```
http_status = 413
```

```
message = 'Over limit'
```

```
exception novaclient.exceptions.RateLimit(*args, **kwargs)
```

Bases: *RetryAfterException*

HTTP 429 - Rate limit: youve sent too many requests for this time period.

```
http_status = 429
```

```
message = 'Rate limit'
```

```
exception novaclient.exceptions.ResourceInErrorState(obj)
```

Bases: *Exception*

Resource is in the error state.

```
exception novaclient.exceptions.ResourceNotFound
```

Bases: *Exception*

Error in getting the resource.

```
exception novaclient.exceptions.RetryAfterException(*args, **kwargs)
```

Bases: *ClientException*

The base exception class for ClientExceptions that use Retry-After header.

```
exception novaclient.exceptions.Unauthorized(code, message=None, details=None,  
                                             request_id=None, url=None,  
                                             method=None)
```

Bases: *ClientException*

HTTP 401 - Unauthorized: bad credentials.

```
http_status = 401
```

```
message = 'Unauthorized'
```

exception novaclient.exceptions.**UnsupportedAttribute**(*argument_name*, *start_version*, *end_version=None*)

Bases: `AttributeError`

Indicates that the user is trying to transmit the argument to a method, which is not supported by selected version.

exception novaclient.exceptions.**UnsupportedConsoleType**(*console_type*)

Bases: `Exception`

Indicates that the user is trying to use an unsupported console type when retrieving console urls of servers.

exception novaclient.exceptions.**UnsupportedVersion**

Bases: `Exception`

Indicates that the user is trying to use an unsupported version of the API.

exception novaclient.exceptions.**VersionNotFoundForAPIMethod**(*version*, *method*)

Bases: `Exception`

```
msg_fmt = "API version '%(vers)s' is not supported on '%(method)s'
method."
```

novaclient.exceptions.**from_response**(*response*, *body*, *url*, *method=None*)

Return an instance of an `ClientException` or subclass based on a requests response.

Usage:

```
resp, body = requests.request(...)
if resp.status_code != 200:
    raise exception_from_response(resp, rest.text)
```

novaclient.extension module

class novaclient.extension.**Extension**(*name*, *module*)

Bases: `HookableMixin`

Extension descriptor.

```
SUPPORTED_HOOKS = ('__pre_parse_args__', '__post_parse_args__')
```

novaclient.i18n module

`oslo_i18n` integration module for novaclient.

See <https://docs.openstack.org/oslo.i18n/latest/user/usage.html>.

novaclient.shell module

Command-line interface to the OpenStack Nova API.

```
class novaclient.shell.DeprecatedAction(option_strings, dest, help=None,  
                                         real_action=None, use=None, **kwargs)
```

Bases: `Action`

An argparse action for deprecated options.

This class is an `argparse.Action` subclass that allows command line options to be explicitly deprecated. It modifies the help text for the option to indicate that its deprecated (unless help has been suppressed using `argparse.SUPPRESS`), and provides a means to specify an alternate option to use using the `use` keyword argument to `argparse.ArgumentParser.add_argument()`. The original action may be specified with the `real_action` keyword argument, which has the same interpretation as the `action` argument to `argparse.ArgumentParser.add_argument()`, with the addition of the special nothing action which completely ignores the option (other than emitting the deprecation warning). Note that the deprecation warning is only emitted once per specific option string.

Note: If the `real_action` keyword argument specifies an unknown action, no warning will be emitted unless the action is used, due to limitations with the method used to resolve the action names.

Initialize a `DeprecatedAction` instance.

Parameters

- **option_strings** The recognized option strings.
- **dest** The attribute that will be set.
- **help** Help text. This will be updated to indicate the deprecation, and if `use` is provided, that text will be included as well.
- **real_action** The actual action to invoke. This is interpreted the same way as the `action` parameter.
- **use** Text explaining which option to use instead.

```
class novaclient.shell.NovaClientArgumentParser(*args, **kwargs)
```

Bases: `ArgumentParser`

```
error(message: string)
```

Prints a usage message incorporating the message to `stderr` and exits.

```
class novaclient.shell.OpenStackComputeShell
```

Bases: `object`

```
do_bash_completion(_args)
```

Prints all of the commands and options to `stdout` so that the `nova.bash_completion` script doesn't have to hard code them.

```
do_help(args)
```

Display help about this program or one of its subcommands.

```
get_base_parser(argv)
```

```
get_subcommand_parser(version, do_help=False, argv=None)
```

```
main(argv)
```

```
setup_debugging(debug)
```

```
times = []
```

```
class novaclient.shell.OpenStackHelpFormatter(prog, indent_increment=2,
                                              max_help_position=32, width=None)
```

Bases: HelpFormatter

```
start_section(heading)
```

```
novaclient.shell.main(argv=['-W', '-b', 'latex', 'doc/source', 'doc/build/pdf'])
```

novaclient.utils module

```
novaclient.utils.add_arg(func, *args, **kwargs)
```

Bind CLI arguments to a shell.py *do_foo* function.

```
novaclient.utils.arg(*args, **kwargs)
```

Decorator for CLI args.

Example:

```
>>> @arg("name", help="Name of the new entity")
... def entity_create(args):
...     pass
```

```
novaclient.utils.do_action_on_many(action, resources, success_msg, error_msg)
```

Helper to run an action on many resources.

```
novaclient.utils.env(*args, **kwargs)
```

Returns the first environment variable set.

If all are empty, defaults to or keyword arg *default*.

```
novaclient.utils.find_resource(manager, name_or_id, wrap_exception=True, **find_args)
```

Helper for the *_find_** methods.

```
novaclient.utils.flatten_dict(data)
```

Return a new dict whose sub-dicts have been merged into the original. Each of the parents keys are prepended to the childs to prevent collisions. Any string elements will be JSON parsed before flattening.

```
>>> flatten_dict({'service': {'host': 'cloud9@compute-068', 'id': 143}})
{'service_host': colud9@compute-068', 'service_id': 143}
```

```
novaclient.utils.format_security_groups(groups)
```

```
novaclient.utils.format_servers_list_networks(server)
```

`novaclient.utils.get_service_type(f)`

Retrieves service type from function.

`novaclient.utils.get_url_with_filter(url, filters)`

`novaclient.utils.is_integer_like(val)`

Returns validation of a value as an integer.

`novaclient.utils.isunauthenticated(func)`

Checks if the function does not require authentication.

Mark such functions with the `@unauthenticated` decorator.

Returns

bool

`novaclient.utils.make_field_formatter(attr, filters=None)`

Given an object attribute, return a formatted field name and a formatter suitable for passing to `print_list`.

Optionally pass a dict mapping attribute names to a function. The function will be passed the value of the attribute and should return the string to display.

`novaclient.utils.prepare_query_string(params)`

Convert dict params to query string

`novaclient.utils.pretty_choice_dict(values)`

Returns a formatted dict as key=value.

`novaclient.utils.pretty_choice_list(values)`

`novaclient.utils.print_dict(d, dict_property='Property', dict_value='Value', wrap=0)`

`novaclient.utils.print_list(objs, fields, formatters={}, sortby_index=None)`

`novaclient.utils.record_time(times, enabled, *args)`

Record the time of a specific action.

Parameters

- **times** A list of tuples holds time data.
- **enabled** Whether timing is enabled.
- **args** Other data to be stored besides time data, these args will be joined to a string.

`novaclient.utils.safe_issubclass(*args)`

Like `issubclass`, but will just return `False` if not a class.

`novaclient.utils.service_type(stype)`

Adds `service_type` attribute to decorated function.

Usage:

```
@service_type('volume')
def mymethod(f):
    ...
```

`novaclient.utils.unauthenticated(func)`

Adds unauthenticated attribute to decorated function.

Usage:

```
>>> @unauthenticated
... def mymethod(f):
...     pass
```

`novaclient.utils.validate_flavor_metadata_keys(keys)`

Module contents

CONTRIBUTOR GUIDE

4.1 Basic Information

4.1.1 So You Want to Contribute

For general information on contributing to OpenStack, please check out the [contributor guide](#) to get started. It covers all the basics that are common to all OpenStack projects: the accounts you need, the basics of interacting with our Gerrit review system, how we communicate as a community, etc.

Below will cover the more project specific information you need to get started with python-novaclient.

Important: The nova CLI has been deprecated in favour of the unified openstack CLI. Changes to the Python bindings are still welcome, however, no further changes should be made to the shell.

Communication

Please refer [how-to-get-involved](#).

Contacting the Core Team

The easiest way to reach the core team is via IRC, using the `openstack-nova` OFTC IRC channel.

New Feature Planning

If you want to propose a new feature please read the [blueprints](#) page.

Task Tracking

We track our tasks in [Launchpad](#).

If you're looking for some smaller, easier work item to pick up and get started on, search for the `low-hanging-fruit` tag.

Reporting a Bug

You found an issue and want to make sure we are aware of it? You can do so on [Launchpad](#). More info about Launchpad usage can be found on [OpenStack docs page](#).

Getting Your Patch Merged

All changes proposed to the python-novaclient requires two Code-Review +2 votes from python-novaclient core reviewers before one of the core reviewers can approve patch by giving Workflow +1 vote..

4.2 Developer Guide

4.2.1 Adding support for a new microversion

If a new microversion is added on the nova side, then support must be added on the *python-novaclient* side also. The following procedure describes how to add support for a new microversion in *python-novaclient*.

1. Update API_MAX_VERSION

Set API_MAX_VERSION in novaclient/___init___ .py to the version you are going to support.

Note: Microversion support should be added one by one in order. For example, microversion 2.74 should be added right after microversion 2.73. Microversion 2.74 should not be added right after microversion 2.72 or earlier.

2. Update CLI and Python API

Update CLI (novaclient/v2/shell.py) and/or Python API (novaclient/v2/*.py) to support the microversion.

3. Add tests

Add unit tests for the change. Add unit tests for the previous microversion to check raising an error or an exception when new arguments or parameters are specified. Add functional tests if necessary.

Add the microversion in the exclusions in the test_versions method of the novaclient.tests.unit.v2.test_shell.ShellTest class if there are no versioned wrapped method changes for the microversion. The versioned wrapped methods have @api_versions.wraps decorators.

For example (microversion 2.72 example):

```
exclusions = set([
    (snipped...)
    72, # There are no version-wrapped shell method changes for this.
])
```

4. Update the CLI reference

Update the CLI reference (doc/source/cli/nova.rst) if the CLI commands and/or arguments are modified.

5. Add a release note

Add a release note for the change. The release note should include a link to the description for the microversion in the [Compute API Microversion History](#).

6. Commit message

The description of the blueprint and dependency on the patch in nova side should be added in the commit message. For example:

```
Implements: blueprint remove-force-flag-from-live-migrate-and-evacuate
Depends-On: https://review.opendev.org/#/c/634600/
```

See the following examples:

- [Microversion 2.71 - show server group](#)
- [API microversion 2.69: Handles Down Cells](#)
- [Microversion 2.68: Remove forced live migrations, evacuations](#)
- [Add support changes-before for microversion 2.66](#)
- [Microversion 2.64 - Use new format policy in server group](#)

4.2.2 Testing

The preferred way to run the unit tests is using `tox`. There are multiple test targets that can be run to validate the code.

tox -e pep8

Style guidelines enforcement.

tox -e py38

Traditional unit testing (Python 3.8).

tox -e functional

Live functional testing against an existing OpenStack instance. (Python 3.8)

tox -e cover

Generate a coverage report on unit testing.

Functional testing assumes the existence of a `clouds.yaml` file as supported by `os-client-config`. It assumes the existence of a cloud named `devstack` that behaves like a normal DevStack installation with a demo and an admin user/tenant - or clouds named `functional_admin` and `functional_nonadmin`.

Refer to [Consistent Testing Interface](#) for more details.

4.2.3 Deprecating commands

There are times when commands need to be deprecated due to rename or removal. The process for command deprecation is:

1. Push up a change for review which deprecates the command(s).
 - The change should print a deprecation warning to `stderr` each time a deprecated command is used.
 - That warning message should include a rough timeline for when the command will be removed and what should be used instead, if anything.
 - The description in the help text for the deprecated command should mark that it is deprecated.
 - The change should include a release note with the `deprecations` section filled out.
 - The deprecation cycle is typically the first client release *after* the next *full* nova server release so that there is at least six months of deprecation.
2. Once the change is approved, have a member of the `nova-release` team release a new version of *python-novaclient*.
3. Example: <https://review.opendev.org/#/c/185141/>

This change was made while the nova 12.0.0 Liberty release was in development. The current version of *python-novaclient* at the time was 2.25.0. Once the change was merged, *python-novaclient* 2.26.0 was released. Since there was less than six months before 12.0.0 would be released, the deprecation cycle ran through the 13.0.0 nova server release.

PYTHON MODULE INDEX

n

- novaclient, 131
- novaclient.api_versions, 119
- novaclient.base, 120
- novaclient.client, 123
- novaclient.crypto, 124
- novaclient.exceptions, 124
- novaclient.extension, 127
- novaclient.i18n, 127
- novaclient.shell, 128
- novaclient.utils, 129
- novaclient.v2, 119
- novaclient.v2.agents, 65
- novaclient.v2.aggregates, 66
- novaclient.v2.assisted_volume_snapshots,
67
- novaclient.v2.availability_zones, 68
- novaclient.v2.client, 69
- novaclient.v2.flavor_access, 70
- novaclient.v2.flavors, 71
- novaclient.v2.hypervisors, 74
- novaclient.v2.images, 75
- novaclient.v2.instance_action, 76
- novaclient.v2.instance_usage_audit_log,
77
- novaclient.v2.keypairs, 78
- novaclient.v2.limits, 79
- novaclient.v2.migrations, 80
- novaclient.v2.networks, 81
- novaclient.v2.quota_classes, 81
- novaclient.v2.quotas, 82
- novaclient.v2.server_external_events,
83
- novaclient.v2.server_groups, 83
- novaclient.v2.server_migrations, 85
- novaclient.v2.servers, 86
- novaclient.v2.services, 106
- novaclient.v2.shell, 107
- novaclient.v2.usage, 115
- novaclient.v2.versions, 116
- novaclient.v2.volumes, 117