

# Openstack User Tutorial

*Based on Openstack Stein*

Web frontend: Dashboard

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co-funded by:



# Dashboard - Login

Login: <https://stratus.ncg.ingrid.pt>

Domain: **default**

Username: **<your\_username>**

Password: **<your\_password>**



openstack®

## Log in

Domain

default

---

User Name

tut

---

Password

..... 

**SIGN IN**

# Dashboard - Overview

The screenshot shows the OpenStack dashboard overview page. At the top, there is a green navigation bar with the OpenStack logo, a breadcrumb trail 'Project / Compute / Overview', and a user profile icon labeled 'tu001'. A red arrow points from the text 'Your project (tenant)' to the 'tutorial' link in the breadcrumb. Another red arrow points from the text 'Settings to change password' to the user profile icon. The main content area is titled 'Overview' and contains a 'Limit Summary' section for 'Compute' and 'Volume'. The 'Compute' section has three gauges: 'Instances' (Used 1 of 10), 'VCPUs' (Used 8 of 20), and 'RAM' (Used 16GB of 50GB). The 'Volume' section has three gauges: 'Volumes' (Used 1 of 10), 'Volume Snapshots' (Used 0 of 0), and 'Volume Storage' (Used 650GB of 1000GB). Below this is a 'Network' section with five gauges: 'Floating IPs' (Allocated 1 of 50), 'Security Groups' (Used 1 of 10), 'Security Group Rules' (Used 6 of 100), 'Networks' (Used 1 of 100), and 'Ports' (Used 4 of 500). At the bottom, there is a 'Usage Summary' section with the text 'Select a period of time to query its usage:'. A large red arrow points from the text '1 Instance running' at the bottom of the slide to the 'Instances' gauge in the 'Compute' section.

Your project (tenant)

Settings to change password

1 Instance running

# Dashboard – change password

To change the password

The screenshot shows the OpenStack dashboard interface. At the top, there is a green header with the OpenStack logo and the text 'Default' and 'Tutorial'. Below the header, a sidebar on the left contains navigation links: 'Project', 'Identity', 'Settings', 'User Settings', and 'Change Password'. A red arrow points from the text 'To change the password' to the 'Change Password' link. The main content area is titled 'User Settings' and contains several settings: 'Language' (English (en)), 'Timezone' (UTC), 'Items Per Page' (20), and 'Log Lines Per Instance' (35). On the right side of the settings, there is a 'Description:' section with the text 'Modify dashboard settings for your user.'

# Dashboard – View images

Images and snapshots

Project / Compute / Images

## Images

Click here for filters or full text search. + CREATE IMAGE DELETE IMAGES

Displaying 16 items

<input type="checkbox"/>	Name ^	Type	Status	Visibility	Protected	Disk Format	Size	
<input type="checkbox"/>	> centos6-x86_64	Image	Active	Public	No	QCOW2	755.88 MB	LAUNCH ▾
<input type="checkbox"/>	> centos6-x86_64-raw	Image	Active	Public	No	RAW	8.00 GB	LAUNCH ▾
<input type="checkbox"/>	> centos7-x86_64	Image	Active	Public	No	QCOW2	897.75 MB	LAUNCH ▾
<input type="checkbox"/>	> centos7-x86_64-raw	Image	Active	Public	No	RAW	8.00 GB	LAUNCH ▾

# Dashboard – Launch images

Launch (instantiate) an image

The screenshot shows the OpenStack dashboard interface. The top navigation bar includes the OpenStack logo, project details (Default, tutorial), and a user profile (tut001). The left sidebar lists various project components like API Access, Compute, Overview, Instances, Images, Key Pairs, Server Groups, Volumes, Network, Object Store, and Identity. The main content area is titled 'Images' and shows a search bar, a '+ CREATE IMAGE' button, and a '- DELETE IMAGES' button. Below this, a table lists 16 items, with the first four visible:

<input type="checkbox"/>	Name ^	Type	Status	Visibility	Protected	Disk Format	Size	
<input type="checkbox"/>	> centos6-x86_64	Image	Active	Public	No	QCOW2	755.88 MB	LAUNCH ▾
<input type="checkbox"/>	> centos6-x86_64-raw	Image	Active	Public	No	RAW	8.00 GB	LAUNCH ▾
<input type="checkbox"/>	> centos7-x86_64	Image	Active	Public	No	QCOW2	8.775 MB	LAUNCH ▾
<input type="checkbox"/>	> centos7-x86_64-raw	Image	Active	Public	No	RAW	8.00 GB	LAUNCH ▾

A red triangle is drawn over the table, with its top vertex at the top center and its bottom vertices pointing to the 'LAUNCH' button of the 'centos7-x86\_64' image and the 'LAUNCH' button of the 'centos6-x86\_64' image.

# Launch instance - Details

### Launch Instance

Please provide the initial hostname for the instance, the availability zone where it will be deployed, and the instance count. Increase the Count to create multiple instances with the same settings.

**Details \***

Source

Flavor \*

Networks \*

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

Instance Name \*

Description

Availability Zone

nova

Count \*

1

Total Instances (10 Max)

20%

1 Current Usage

1 Added

8 Remaining

← BACK    NEXT →    LAUNCH INSTANCE

× CANCEL



Insert instance name

# Launch instance - Image

## Launch Instance

Details

**Source**

Flavor \*

Networks \*

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

Instance source is the template used to create an instance. You can use an image, a snapshot of an instance (image snapshot), a volume or a volume snapshot (if enabled). You can also choose to use persistent storage by creating a new volume.

Select Boot Source

Image ▼

Volume Size (GB) \*

8

Create New Volume

YES NO

Delete Volume on Instance Delete

YES NO

**Allocated**

Name	Updated	Size	Type	Visibility
> centos7-x86_64-raw	8/9/19 7:44 AM	8.00 GB	raw	Public

▼ Available 15

Click here for filters or full text search. ×

Name	Updated	Size	Type	Visibility
> centos6-x86_64	8/9/19 7:34 AM	755.88 MB	qcow2	Public
> centos6-x86_64-raw	8/9/19 7:39 AM	8.00 GB	raw	Public
> centos7-x86_64	8/9/19 7:39 AM	897.75 MB	qcow2	Public
> debian-10-amd64	8/9/19 7:51 AM	492.00 MB	qcow2	Public

Volume size >= flavor

Choose image  
With name ending  
in “\_raw”

Set delete volume if  
you want the volume  
to be deleted after the  
instance is deleted

# Launch instance - Flavor

## Launch Instance

Details

Source

**Flavor**

Networks \*

Network Ports

Security Groups

Key Pair

Configuration

Server Groups

Scheduler Hints

Metadata

Flavors manage the sizing for the compute, memory and storage capacity of the instance.

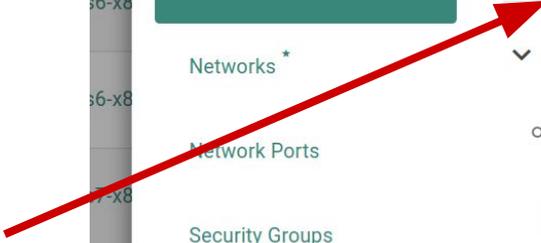
### Allocated

Name	VCPUS	RAM	Total Disk	Root Disk	Ephemeral Disk	Public
> svc2.s	2	2 GB	40 GB	40 GB	0 GB	Yes

Available 19

Click here for filters or full text search.

Name	VCPUS	RAM	Total Disk	Root Disk	Ephemeral Disk	Public
> svc1.xs	1	1 GB	10 GB	10 GB	0 GB	Yes
> svc1.s	1	2 GB	40 GB	40 GB	0 GB	Yes
> svc3.s	1	2 GB	750 GB	750 GB	0 GB	Yes
> svc3.m	2	4 GB	750 GB	750 GB	0 GB	Yes
> svc1.m	2	4 GB	40 GB	40 GB	0 GB	Yes
> svc2.m	4	4 GB	40 GB	40 GB	0 GB	Yes
> svc3.l	4	8 GB	750 GB	750 GB	0 GB	Yes



Choose flavor

# Launch instance - Network

## Launch Instance

Networks provide the communication channels for instances in the cloud.

Details
Source
Flavor
Networks
Network Ports
Security Groups
Key Pair
Configuration
Server Groups
Scheduler Hints
Metadata

Allocated 1
Select networks from those listed below.

Network	Subnets Associated	Shared	Admin State	Status
IF 1 > tutorial_net	tutorial_subnet	No	Up	Active

Available 1
Select at least one network

Click here for filters or full text search.

Network	Subnets Associated	Shared	Admin State	Status
> public_net	cnet_subnet public_subnet	Yes	Up	Active

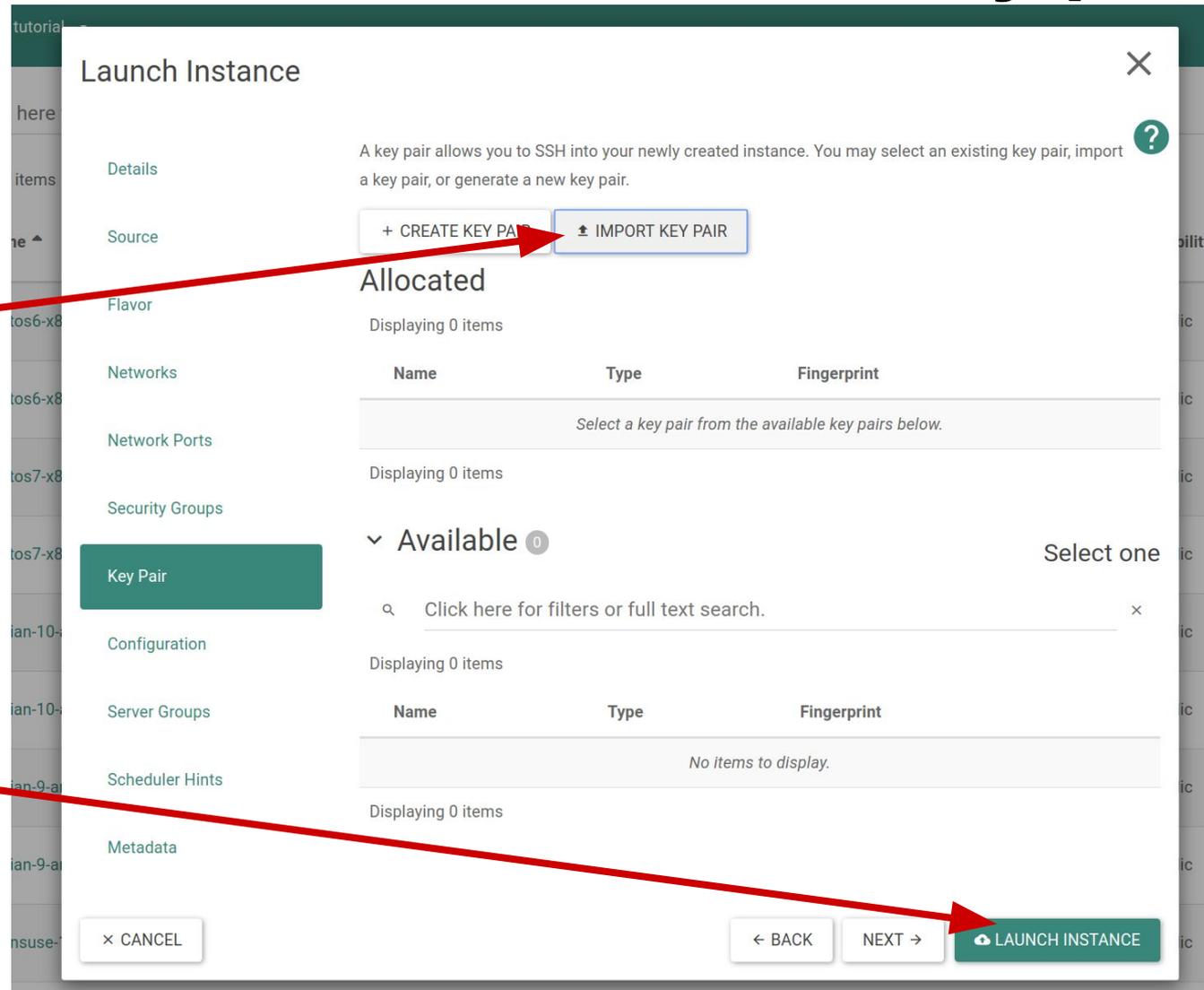
× CANCEL
← BACK
NEXT →
LAUNCH INSTANCE

Choose network

Should be the “project” private network.

**Do not chose the public\_net at this stage**

# Launch instance - Key pair



Launch Instance

A key pair allows you to SSH into your newly created instance. You may select an existing key pair, import a key pair, or generate a new key pair.

Source

+ CREATE KEY PAIR    + IMPORT KEY PAIR

Allocated

Displaying 0 items

Name	Type	Fingerprint
Select a key pair from the available key pairs below.		

Displaying 0 items

Available 0

Select one

Click here for filters or full text search.

Name	Type	Fingerprint
No items to display.		

Displaying 0 items

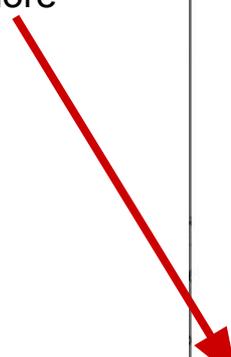
× CANCEL    ← BACK    NEXT →    LAUNCH INSTANCE

Add ssh public key  
 Cloud base images are configured to accept login through ssh key

Launch the instance

# Add more ssh public keys

It is possible to add more ssh public keys.



**Launch Instance** ✕ ?

[Details \\*](#)

[Source \\*](#)

[Flavor \\*](#)

[Networks \\*](#)

[Network Ports](#)

[Security Groups](#)

[Key Pair](#)

[Configuration](#)

[Server Groups](#)

[Scheduler Hints](#)

[Metadata](#)

You can customize your instance after it has launched using the options available here. "Customization Script" is analogous to "User Data" in other systems.

**Load Customization Script from a file**

No file selected.

**Customization Script (Modified)** Content size: 6.64 KB of 16.00 KB

```

users:
- name: ubuntu
  sudo: ALL=(ALL) NOPASSWD:ALL
groups: users, admin
lock_passwd: true
ssh_authorized_keys:
- ssh-rsa
AAAAB3NzaC1yc2EAAAABIwAAAQEAzbAbU1vd+Ibz0oxX+4xD+uxswl+Z3wxeIOZ3TA2spUk53CPquau8Dhgz
vaFhRVnY+QaNrXWh9K Y7NK F?x C1 I9?HG W7Mm iSxvh4F/nH7eA9D0kIiDdIOMi+1dImRn55tkndH1MYaikha

```

**Disk Partition**

Configuration Drive

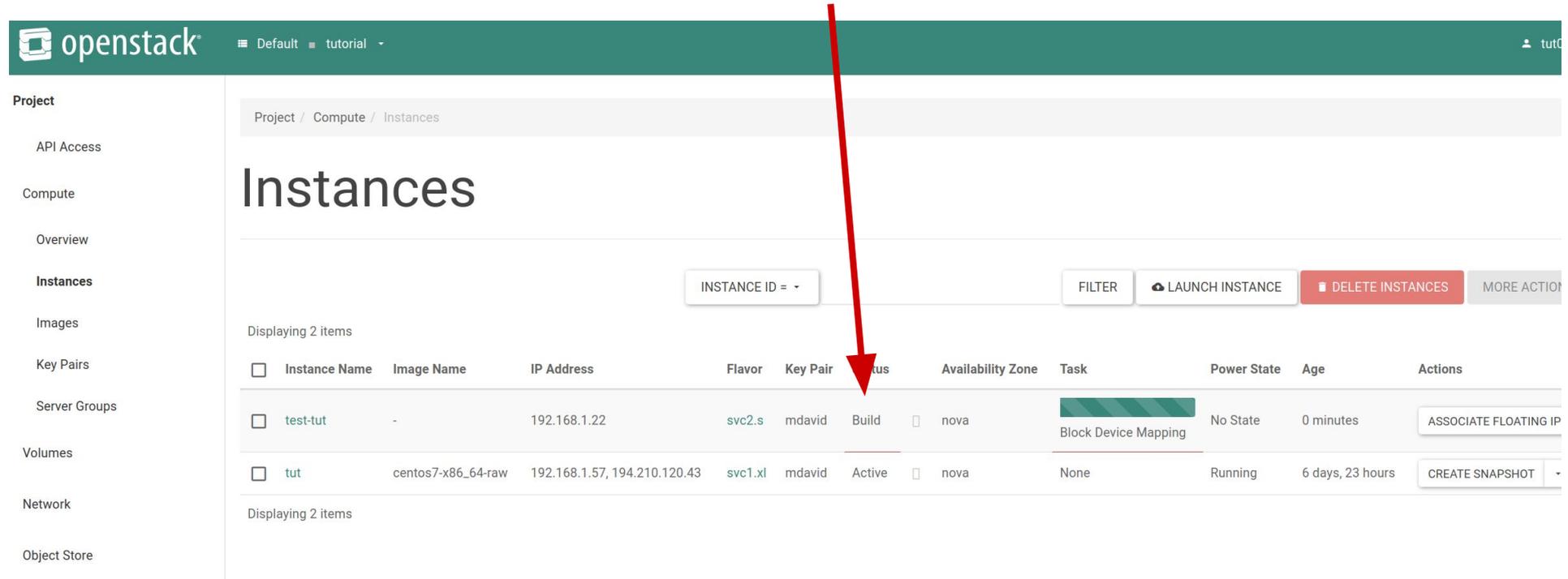
```

users:
- name: ubuntu
  ssh_authorized_keys:
    - ssh-rsa AAAA...
    - ssh-rsa AAAA...

```

# Dashboard - Instances

Building - spawning



openstack Default tutorial

Project / Compute / Instances

## Instances

INSTANCE ID = FILTER LAUNCH INSTANCE DELETE INSTANCES MORE ACTION

Displaying 2 items

<input type="checkbox"/>	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
<input type="checkbox"/>	test-tut	-	192.168.1.22	svc2.s	mdavid	Build	nova	Block Device Mapping	No State	0 minutes	ASSOCIATE FLOATING IP
<input type="checkbox"/>	tut	centos7-x86_64-raw	192.168.1.57, 194.210.120.43	svc1.xl	mdavid	Active	nova	None	Running	6 days, 23 hours	CREATE SNAPSHOT

Displaying 2 items

# Instance - detailed information


Default tutorial

**Project**

API Access

Compute

Overview

**Instances**

Images

Key Pairs

Server Groups

Volumes

Network

Object Store

Identity

## test-tut

Overview
Interfaces
Log
Console
Action Log

<b>Name</b>	test-tut
<b>ID</b>	f6b36cb2-7b59-47e1-860a-dd32c2fe60c8
<b>Description</b>	-
<b>Project ID</b>	e51b8a89b30945adbf52a5d568912e4c
<b>Status</b>	Active
<b>Locked</b>	False
<b>Availability Zone</b>	nova
<b>Created</b>	Sept. 6, 2019, 2:43 p.m.
<b>Age</b>	0 minutes

### Specs

<b>Flavor Name</b>	svc2.s
<b>Flavor ID</b>	47a96ab3-4905-4ec6-8d50-0babac3c6e06
<b>RAM</b>	2GB
<b>VCPUs</b>	2 VCPU
<b>Disk</b>	40GB

### IP Addresses

<b>tutorial_net</b>	192.168.1.22
---------------------	--------------

### Security Groups

<b>default</b>	ALLOW IPv4 from default
	ALLOW IPv4 icmp from 0.0.0.0/0
	ALLOW IPv6 to ::/0
	ALLOW IPv4 22/tcp from 0.0.0.0/0
	ALLOW IPv6 from default
	ALLOW IPv4 to 0.0.0.0/0

Active - running



# Instance console

The screenshot shows the OpenStack dashboard interface. On the left is a navigation sidebar with categories like Project, Compute, and Network. The main area has a breadcrumb trail: Overview > Interfaces > Log > Console > Action Log. A red arrow points to the 'Console' tab. Below the breadcrumb is the 'Instance Console' heading. A purple banner contains a warning: 'If console is not responding to keyboard input: click the grey status bar below. [Click here to show only console](#). To exit the fullscreen mode, click the browser's back button.' Below this is a terminal window titled 'Connected (encrypted) to: QEMU (instance-0000210f)'. The terminal output shows: 'CentOS Linux 7 (Core) Kernel 3.10.0-957.12.2.el7.x86\_64 on an x86\_64 test-tut login: \_'.

You can check that the VM is ready for you to login. **Do not try to login in the console, since only ssh key pair access is allowed.**

# Associate floating (Public) IP

## Instances

INSTANCE ID = ▾

Displaying 2 items

<input type="checkbox"/>	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
<input type="checkbox"/>	test-tut	centos7-x86_64-raw	192.168.1.22	svc2.s	m david	Active	nova	None	Running	2 minutes	<input type="button" value="CREATE SNAPSHOT"/>
<input type="checkbox"/>	tut	centos7-x86_64-raw	192.168.1.57, 194.210.120.43	svc1.xl	m david	Active	nova	None	Running	6 days, 23 hours	<input type="button" value="ASSOCIATE FLOATING IP"/> <input type="button" value="ATTACH INTERFACE"/> <input type="button" value="DETACH INTERFACE"/> <input type="button" value="EDIT INSTANCE"/> <input type="button" value="ATTACH VOLUME"/> <input type="button" value="DETACH VOLUME"/> <input type="button" value="UPDATE METADATA"/>

Displaying 2 items

### Manage Floating IP Associations

IP Address \*

NO FLOATING IP ADDRESSES ALLOCATED  Select the IP address you wish to associate with the selected instance or port.

Port to be associated \*

TEST-TUT: 192.168.1.22 ▾

### Allocate Floating IP

Pool \*

PUBLIC\_NET ▾

Description:

Allocate a floating IP from a given floating IP pool.

Description

Project Quotas

Floating IP 1 of 50 Used

### Manage Floating IP Associations

IP Address \*

194.210.120.123  Select the IP address you wish to associate with the selected instance or port.

Port to be associated \*

TEST-TUT: 192.168.1.22 ▾

Allocating and associating a floating IP (public IP) to the instance

# Associate floating (Public) IP

## Instances

INSTANCE ID = ▾

FILTER
  LAUNCH INSTANCE
  DELETE INSTANCES
  MORE ACTIONS ▾

Displaying 2 items

<input type="checkbox"/>	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
<input type="checkbox"/>	test-tut	centos7-x86_64-raw	192.168.1.22	svc2.s	mdavid	Active	nova	None	Running	2 minutes	<input type="checkbox"/> CREATE SNAPSHOT <input type="checkbox"/> ASSOCIATE FLOATING IP <input type="checkbox"/> ATTACH INTERFACE
<input type="checkbox"/>	tut	centos7-x86_64-raw	192.168.1.57, 194.210.120.43	svc1.xl	mdavid	Active	nova	None	Running	6 days, 23 hours	

## Instances

INSTANCE ID = ▾

Displaying 2 items

<input type="checkbox"/>	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status
<input type="checkbox"/>	test-tut	centos7-x86_64-raw	192.168.1.22, 194.210.120.123	svc2.s	mdavid	Active

Port to be associated \*

TEST-TUT: 192.168.1.22

<input type="checkbox"/>	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Task	Power State
<input type="checkbox"/>	test-tut	centos7-x86_64-raw	192.168.1.22	svc2.s	mdavid	Active	None	Running
<input type="checkbox"/>	tut	centos7-x86_64-raw	192.168.1.57, 194.210.120.43	svc1.xl	mdavid	Active	None	Running

Allocating and associating a floating IP (public IP) to the instance

# ssh to VM

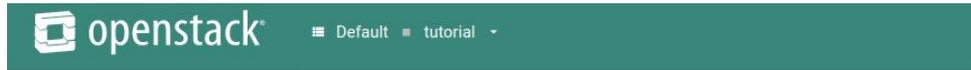
```
david@pcdavid:~$ ll .ssh/id*  
-rw----- 1 david david 1743 ago 22 2018 .ssh/id_rsa  
-rw-r--r-- 1 david david 630 ago 22 2018 .ssh/id_rsa.keystore  
-rw-r--r-- 1 david david 402 ago 22 2018 .ssh/id_rsa.pub
```

ssh private key  
check permissions

ssh public key

```
david@pcdavid:~$  
david@pcdavid:~$ ssh centos@194.210.120.123  
Warning: Permanently added '194.210.120.123' (ECDSA) to the list of known hosts.  
X11 forwarding request failed on channel 0  
[centos@test-tut ~]$
```

# Dashboard – Network topology



Project

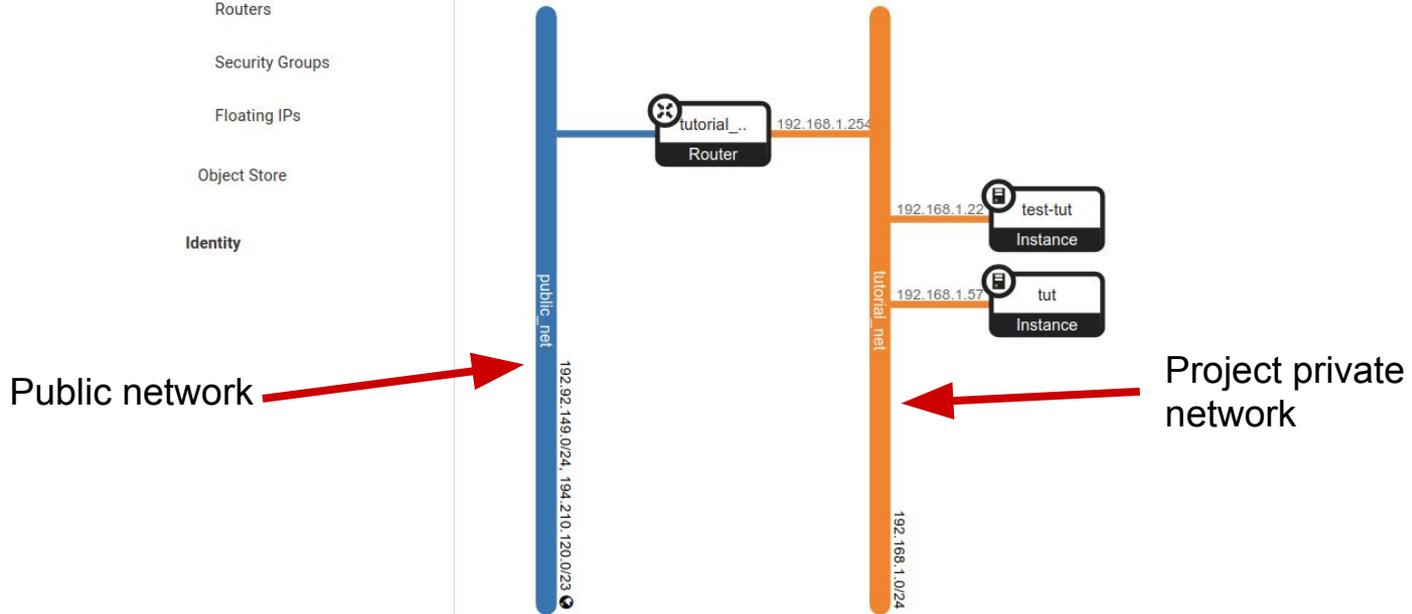
- API Access
- Compute
- Volumes
- Network
- Network Topology**
- Networks
- Routers
- Security Groups
- Floating IPs
- Object Store
- Identity

Project / Network / Network Topology

## Network Topology

Topology Graph

SMALL NORMAL



LAUNCH INSTANCE + CREATE NETWORK + CREATE ROUTER

# Dashboard – Volumes

Create a volume

openstack Default tutorial tut001

Project / Volumes / Volumes

## Volumes

Filter + CREATE VOLUME ACCEPT TRANSFER DELETE VOLUMES

Displaying 2 items

<input type="checkbox"/>	Name	Description	Size	Status	Group	Type	Attached To	Availability Zone	Bootable	Encrypted	Actions
<input type="checkbox"/>	0f1fb6a2-c02d-4d12-ac6b-ef58cf890a49	-	40GiB	In-use	-	-	/dev/sda on test-tut	nova	Yes	No	EDIT VOLUME -
<input type="checkbox"/>	f71a5816-5de2-4483-9980-b1f16fa3aedf	-	650GiB	In-use	-	-	/dev/sda on tut	nova	Yes	No	EDIT VOLUME -

Displaying 2 items

Volumes

# Dashboard – Create a Volume

Volume name

Volume size

**Create Volume**

Volume Name  
test-vol

Description

Volume Source  
NO SOURCE, EMPTY VOLUME

Type  
NO VOLUME TYPE

Size (GiB) \*  
10

Availability Zone  
NOVA

Group  
NO GROUP

**Description:**  
Volumes are block devices that can be attached to instances.

**Volume Type Description:**  
If "No volume type" is selected, the volume will be created without a volume type.

**Volume Limits**

Total Gibibytes 690 of 5,000 GiB Used

Number of Volumes 2 of 150 Used

CANCEL CREATE VOLUME

Create volume

# Dashboard – Volumes

Attach to instance

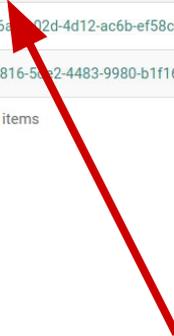
## Volumes

Filter  + CREATE VOLUME ACCEPT TRANSFER DELETE VOLUMES

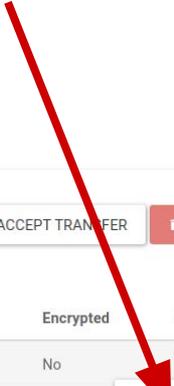
Displaying 3 items

<input type="checkbox"/>	Name	Description	Size	Status	Group	Type	Attached To	Availability Zone	Bootable	Encrypted	Actions
<input type="checkbox"/>	test-vol	-	10GiB	Available	-	-		nova	No	No	EDIT VOLUME
<input type="checkbox"/>	0f1fb6a2-2d4d12-ac6b-ef58cf890a49	-	40GiB	In-use	-	-	/dev/sda on test-tut	nova	Yes	No	EDIT VOLUME EXTEND VOLUME MANAGE ATTACHMENTS CREATE SNAPSHOT CHANGE VOLUME TYPE UPLOAD TO IMAGE CREATE TRANSFER DELETE VOLUME UPDATE METADATA
<input type="checkbox"/>	f71a5816-5e2-4483-9980-b1f16fa3aedf	-	650GiB	In-use	-	-	/dev/sda on tut	nova	Yes	No	

Displaying 3 items



Newly created Volume



# Dashboard – Attach Volume

Manage Volume Attachments

Instance	Device	Actions
No items to display.		

### Attach To Instance

Attach to Instance ?

TEST-TUT (F6B36CB2-7B59-47E1-860A-DD32C2FE60C8)

CANCEL ATTACH VOLUME

Select which instance to attach volume



Attach to instance



# Dashboard – Attach Volume

Default tutorial

Status Active  
Locked False  
Availability Zone nova  
Created Sept. 6, 2019, 2:43 p.m.  
Age 1 week, 2 days

### Specs

Flavor Name svc2.s  
Flavor ID 47a96ab3-4905-4ec6-8d50-0babac3c6e06  
RAM 2GB  
VCPUs 2 VCPU  
Disk 40GB

### IP Addresses

tutorial\_net 192.168.1.22, 194.210.120.123

### Security Groups

default ALLOW IPv4 from default  
ALLOW IPv4 icmp from 0.0.0.0/0  
ALLOW IPv6 to ::/0  
ALLOW IPv4 22/tcp from 0.0.0.0/0  
ALLOW IPv6 from default  
ALLOW IPv4 to 0.0.0.0/0

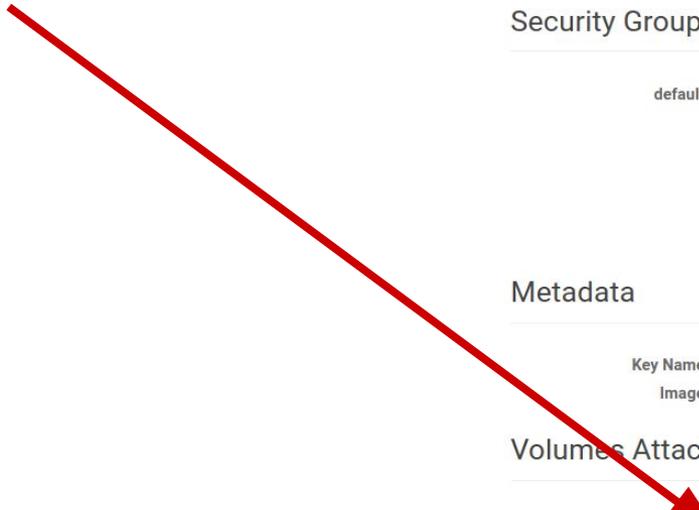
### Metadata

Key Name mdavid  
Image None

### Volumes Attached

Attached To 0f1fb6a2-c02d-4d12-ac6b-ef58cf890a49 on /dev/sda  
Attached To test-vol on /dev/sdb

Volume device in VM



# Console - Partitions

Check partition table

Format device

```

[centos@test-tut ~]$ cat /proc/partitions
major minor #blocks name
 8         0 41943040 sda
 8         1 41941999 sda1
 8         16 10485760 sdb

[centos@test-tut ~]$ sudo mkfs.xfs /dev/sdb
meta-data=/dev/sdb             isize=512    agcount=4, agsize=655360 blks
      =                       sectsz=512   attr=2, projid32bit=1
      =                       crc=1        finobt=0, sparse=0
data     =                       bsize=4096  blocks=2621440, imaxpct=25
      =                       sunit=0     swidth=0 blks
naming   =version 2             bsize=4096  ascii-ci=0 ftype=1
log      =internal log         bsize=4096  blocks=2560, version=2
      =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                 extsz=4096  blocks=0, rtextents=0
  
```

Formatted device

```

[centos@test-tut ~]$ sudo parted /dev/sdb
GNU Parted 3.1
Using /dev/sdb
Welcome to GNU Parted! Type 'help' to view a list of commands.
(parted) print
Model: QEMU QEMU HARDDISK (scsi)
Disk /dev/sdb: 10,7GB
Sector size (logical/physical): 512B/512B
Partition Table: loop
Disk Flags:

Number  Start  End    Size  File system  Flags
  1      0,00B  10,7GB 10,7GB xfs

(parted)
  
```

# Security groups

Project / Network / Security Groups

## Security Groups

Filter  + CREATE SECURITY GROUP DELETE SECURITY GROUPS

Displaying 1 item

<input type="checkbox"/>	Name	Security Group ID	Description	Actions
<input type="checkbox"/>	default	d541a240-2b87-4a96-a5a1-97820d7e8aa6	Default security group	<span>MANAGE RULES</span>

Displaying 1 item

## Manage Security Group Rules: default (d541a240-2b87-4a96-a5a1-97820d7e8aa6)

Serves as firewall for the public network

default: rules

Port 22/ssh open

Displaying 6 items

<input type="checkbox"/>	Direction	Ether Type	IP Protocol	Port Range	Remote IP Prefix
<input type="checkbox"/>	Egress	IPv4	Any	Any	0.0.0.0/0
<input type="checkbox"/>	Egress	IPv6	Any	Any	::/0
<input type="checkbox"/>	Ingress	IPv4	Any	Any	-
<input type="checkbox"/>	Ingress	IPv4	ICMP	Any	0.0.0.0/0
<input type="checkbox"/>	Ingress	IPv4	TCP	22 (SSH)	0.0.0.0/0

# Security groups

**Name** test-tut  
**ID** 17d80dc2-daac-4bd8-8269-09f4d39da2d7  
**Description** -  
**Project ID** e51b8a89b30945adbf52a5d568912e4c  
**Status** Active  
**Locked** False  
**Availability Zone** nova  
**Created** May 10, 2021, 9:32 a.m.  
**Age** 2 minutes

## Specs

**Flavor Name** svc1.s  
**Flavor ID** 693832dd-b6b1-41d5-a67a-06de3df4a67f  
**RAM** 2GB  
**VCPUs** 1 VCPU  
**Disk** 40GB

## IP Addresses

**tutorial\_net** 192.168.1.26, 194.210.120.241

## Security Groups

**default** ALLOW IPv4 from default  
ALLOW IPv4 icmp from 0.0.0.0/0  
ALLOW IPv6 to ::/0  
ALLOW IPv4 22/tcp from 0.0.0.0/0  
ALLOW IPv6 from default  
ALLOW IPv4 to 0.0.0.0/0

```
david@pcdavid:~$ nmap 194.210.120.241 -p 22 -Pn
Starting Nmap 7.60 ( https://nmap.org ) at 2021-05-10 10:50 WEST
Nmap scan report for 194.210.120.241
Host is up (0.0020s latency).

PORT      STATE SERVICE
22/tcp    open  ssh

Nmap done: 1 IP address (1 host up) scanned in 0.10 seconds
```

Port 22/ssh open

# Security groups

Example: nginx - port TCP/80

```

root@test-tut:/home/ubuntu# systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2021-05-10 09:55:08 UTC; 4min 57s ago
     Docs: man:nginx(8)
  Main PID: 1329 (nginx)
    Tasks: 2 (limit: 2344)
   Memory: 5.8M
    CGroup: /system.slice/nginx.service
            └─1329 nginx: master process /usr/sbin/nginx -g daemon on; master_process on;
              └─1330 nginx: worker process

May 10 09:55:08 test-tut systemd[1]: Starting A high performance web server and a reverse proxy server...
May 10 09:55:08 test-tut systemd[1]: Started A high performance web server and a reverse proxy server.
root@test-tut:/home/ubuntu# netstat -tanp
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:80             0.0.0.0:*               LISTEN      1329/nginx: master
tcp        0      0 127.0.0.53:53         0.0.0.0:*               LISTEN      525/systemd-resolve
tcp        0      0 0.0.0.0:22            0.0.0.0:*               LISTEN      596/sshd: /usr/sbin
tcp        0      0 127.0.0.1:6010        0.0.0.0:*               LISTEN      871/sshd: ubuntu@pt
tcp        0      0 192.168.1.26:22      58.57.111.22:3577      TIME_WAIT   -
tcp        0      0 192.168.1.26:22      194.210.119.252:51080  ESTABLISHED 753/sshd: ubuntu [p
tcp6       0      0 :::80                 :::*                    LISTEN      1329/nginx: master
tcp6       0      0 :::22                 :::*                    LISTEN      596/sshd: /usr/sbin
  
```

nginx - port TCP/80 is filtered

```

david@pcdavid:~$ nmap 194.210.120.241 -p 80 -Pn
Starting Nmap 7.60 ( https://nmap.org ) at 2021-05-10 11:03 WEST
Nmap scan report for 194.210.120.241
Host is up.

PORT      STATE  SERVICE
80/tcp    filtered http

Nmap done: 1 IP address (1 host up) scanned in 2.03 seconds
david@pcdavid:~$
  
```

# Security groups

### Create Security Group

Name \*

http/https

Description

Description: Security groups are sets of IP filter rules that are applied to network interfaces of a VM. After the security group is created, you can add rules to the security group.

**CREATE SECURITY GROUP**

Create a new Security Group

### Add Rule

Rule \*

CUSTOM TCP RULE

Description

Direction

INGRESS

Open Port \*

PORT

Port \*

80

Remote \*

CIDR

CIDR

0.0.0.0/0

Description: Rules define which traffic is allowed to instances assigned to the security group. A security group rule consists of three main parts:

**Rule:** You can specify the desired rule template or use custom rules, the options are Custom TCP Rule, Custom UDP Rule, or Custom ICMP Rule.

**Open Port/Port Range:** For TCP and UDP rules you may choose to open either a single port or a range of ports. Selecting the "Port Range" option will provide you with space to provide both the starting and ending ports for the range. For ICMP rules you instead specify an ICMP type and code in the spaces provided.

**Remote:** You must specify the source of the traffic to be allowed via this rule. You may do so either in the form of an IP address block (CIDR) or via a source group (Security Group). Selecting a security group as the source will allow any other instance in that security group access to any other instance via this rule.

Add firewall rule TCP 80

Manage Security Group Rules: http/https (47b8-9a8c-a04e6a795cda)

Displaying 4 items

<input type="checkbox"/>	Direction	Ether Type	IP Protocol	Port Range	Remote IP Prefix
<input type="checkbox"/>	Egress	IPv4	Any	Any	0.0.0.0/0
<input type="checkbox"/>	Egress	IPv6	Any	Any	::/0
<input type="checkbox"/>	Ingress	IPv4	TCP	80 (HTTP)	0.0.0.0/0
<input type="checkbox"/>	Ingress	IPv4	TCP	443 (HTTPS)	0.0.0.0/0

Displaying 4 items

# Security groups

Displaying 1 item

Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
<input type="checkbox"/> test-tut	ubuntu-20.04-amd64-raw	192.168.1.26, 194.210.120.241	svc1.s	mdavid	Active	nova	None	Running	34 minutes	CREATE SNAPSHOT DISASSOCIATE FLOATING IP ATTACH INTERFACE DETACH INTERFACE EDIT INSTANCE ATTACH VOLUME DETACH VOLUME UPDATE METADATA <b>EDIT SECURITY GROUPS</b> EDIT PORT SECURITY GROUPS

Displaying 1 item

### Edit Instance

Information **Security Groups**

Add and remove security groups to this instance from the list of available security groups.

**Warning:** If you change security groups here, the change will be applied to all interfaces of the instance. If you have multiple interfaces on this instance and apply different security groups per port, use "Edit Port Security Groups" action instead.

All Security Groups

http/https	+
------------	---

Instance Security Groups

default	-
---------	---

**2**  
Select Security Group

### Edit Instance

Information **Security Groups**

Add and remove security groups to this instance from the list of available security groups.

**Warning:** If you change security groups here, the change will be applied to all interfaces of the instance. If you have multiple interfaces on this instance and apply different security groups per port, use "Edit Port Security Groups" action instead.

All Security Groups

No security groups found.

Instance Security Groups

default	-
http/https	-

**3**  
Add+Save Security Group

**1**  
Edit Security Group

## IP Addresses

tutorial\_net 192.168.1.26, 194.210.120.241

## Security Groups

<b>http/https</b>	ALLOW IPv6 to ::/0
	ALLOW IPv4 to 0.0.0.0/0
	ALLOW IPv4 443/tcp from 0.0.0.0/0
	ALLOW IPv4 80/tcp from 0.0.0.0/0
<b>default</b>	ALLOW IPv4 from default
	ALLOW IPv4 icmp from 0.0.0.0/0
	ALLOW IPv6 to ::/0
	ALLOW IPv4 22/tcp from 0.0.0.0/0
	ALLOW IPv6 from default
	ALLOW IPv4 to 0.0.0.0/0

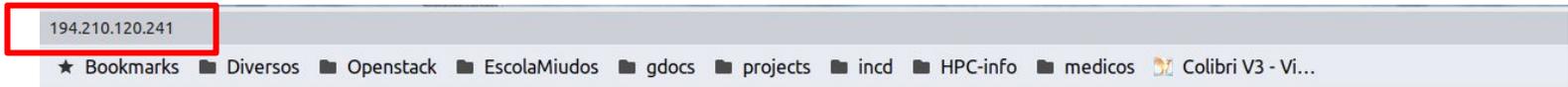
# Security groups

Port is now opened to public

```
david@pcdavid:~$ nmap 194.210.120.241 -p 80 -Pn
Starting Nmap 7.60 ( https://nmap.org ) at 2021-05-10 11:07 WEST
Nmap scan report for 194.210.120.241
Host is up (0.0018s latency).

PORT      STATE SERVICE
80/tcp    open  http

Nmap done: 1 IP address (1 host up) scanned in 0.03 seconds
```



Service is accessible to public

## Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to [nginx.org](https://nginx.org). Commercial support is available at [nginx.com](https://nginx.com).

*Thank you for using nginx.*

# Dashboard – Create a snapshot

Create snapshot - live instance



## Instances

INSTANCE ID - - FILTER LAUNCH INSTANCE DELETE INSTANCES MORE ACTIONS -

Displaying 2 items

<input type="checkbox"/>	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
<input type="checkbox"/>	test-tut	centos7-x86_64-raw	192.168.1.22	svc2.s	mdavid	Active	nova	None	Running	2 minutes	CREATE SNAPSHOT
<input type="checkbox"/>	tut	centos7-x86_64-raw	192.168.1.57, 194.210.120.43	svc1.xl	mdavid	Active	nova	None	Running	6 days, 23 hours	

Displaying 2 items

- ASSOCIATE FLOATING IP
- ATTACH INTERFACE
- DETACH INTERFACE
- EDIT INSTANCE
- ATTACH VOLUME
- DETACH VOLUME
- UPDATE METADATA
- EDIT SECURITY GROUPS
- EDIT PORT SECURITY GROUPS
- CONSOLE

# Dashboard – Create a snapshot

## Create Snapshot

Snapshot Name \*

test-snap

Description:

A snapshot is an image which preserves the disk state of a running instance.

CANCEL CREATE SNAPSHOT

IP Address	Flavor	Key Pair	Status	Availability Zone
192.168.1.22, 194.210.120.123	svc2.s	mdavid	Active	nova
192.168.1.57, 194.210.120.43	svc1.xl	mdavid	Active	nova

Snapshot name

Create snapshot

# Dashboard – Show snapshot

## Images

Click here for filters or full text search.

+ CREATE IMAGE

DELETE IMAGES

Displaying 17 items

<input type="checkbox"/>	Name ▾	Type	Status	Visibility	Protected	Disk Format	Size	
<input type="checkbox"/>	> ubuntu-19.04-amd64-raw	Image	Active	Public	No	RAW	2.20 GB	LAUNCH ▾
<input type="checkbox"/>	> ubuntu-19.04-amd64	Image	Active	Public	No	QCOW2	473.19 MB	LAUNCH ▾
<input type="checkbox"/>	> ubuntu-18.04-amd64-raw	Image	Active	Public	No	RAW	2.20 GB	LAUNCH ▾
<input type="checkbox"/>	> ubuntu-18.04-amd64	Image	Active	Public	No	QCOW2	327.63 MB	LAUNCH ▾
<input type="checkbox"/>	> ubuntu-16.04-amd64-raw	Image	Active	Public	No	RAW	2.20 GB	LAUNCH ▾
<input type="checkbox"/>	> ubuntu-16.04-amd64	Image	Active	Public	No	QCOW2	282.75 MB	LAUNCH ▾
<input type="checkbox"/>	> test-snap	Snapshot	Active	Private	No	QCOW2	0 bytes	LAUNCH ▾

# Dashboard – Show snapshot

## test-snap

### Image

<b>ID</b>	affb1b5c-ed90-4b26-af60-99fd1e28caa2
<b>Type</b>	
<b>Status</b>	Active
<b>Size</b>	0 bytes
<b>Min. Disk</b>	40
<b>Min. RAM</b>	0
<b>Disk Format</b>	QCOW2
<b>Container Format</b>	BARE
<b>Created At</b>	9/16/19 12:01 PM
<b>Updated At</b>	9/16/19 12:02 PM

### Security

<b>Owner</b>	e51b8a89b30945adbf52a5d568912e4c
<b>Filename</b>	-
<b>Visibility</b>	Private
<b>Protected</b>	No
<b>Checksum</b>	d41d8cd98f00b204e9800998ecf8427e

### Custom Properties

<b>bdm_v2</b>	True
<b>Virtual Size</b>	
<b>os_hash_value</b>	cf83e1357eefb8bdf1542850d66d8007d620e4050b5715dc83f4a921d36ce9ce47d0d13c5d85f2b0ff8318d2877eec2f63b931bd47417a81a538327af927da3e
<b>os_require_quiesce</b>	yes
<b>Tags</b>	
<b>locations</b>	[{"url":"rbd://3db72b11-6b19-477b-b947-02d735c745c5/images/affb1b5c-ed90-4b26-af60-99fd1e28caa2/snap","metadata":{}}]
<b>hw_qemu_guest_agent</b>	yes
<b>block_device_mapping</b>	[{"guest_format": null, "boot_index": 0, "delete_on_termination": true, "no_device": null, "snapshot_id": "4964c42a-80a5-4a9b-9e5b-4314a5781d47", "volume_type": null, "device_name": "/dev/sda", "disk_bus": "scsi", "image_id": null, "source_type": "snapshot", "tag": null, "device_type": "disk", "volume_id": null, "destination_type": "volume", "volume_size": 40}, {"guest_format": null, "boot_index": null, "delete_on_termination": false, "no_device": null, "snapshot_id": "74712e83-4963-439d-81a1-531b1bd3d4c5", "volume_type": null, "device_name": "/dev/sdb", "disk_bus": null, "image_id": null, "source_type": "snapshot", "tag": null, "device_type": null, "volume_id": null, "destination_type": "volume", "volume_size": 10}]
<b>os_hidden</b>	false

# Dashboard – Terminate instance

Confirm Delete Instance

Warning: Deleted instances are not recoverable.

You have selected:

- "test-tut"

CANCEL DELETE INSTANCE

Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State
test-tut	centos7-x86_64-raw	192.168.1.22, 194.210.120.123	svc2.s	mdavid	Active	nova	None	Running
tut	centos7-x86_64-raw	192.168.1.57, 194.210.120.43	svc1.xl	mdavid	Active	nova	None	Running

# Object store - Swift

Project / Object Store / Containers

## Containers

+ CONTAINER

Select a container to browse.

Click here for filters or full text search.

No items to display.

Create a container - **directory**

### Create Container

Container Name \*  
tutorial-cont

Container name must not contain "/".

Container Access  
 PUBLIC  NOT PUBLIC

A Public Container will allow anyone with the Public URL to gain access to your objects in the container.

Project / Object Store / Containers

## Containers

+ CONTAINER

Click here for filters or full text search.

**tutorial-cont**

Object Count:	0
Size:	0 bytes
Date Created:	May 10, 2021
<input type="checkbox"/> Public Access:	Disabled

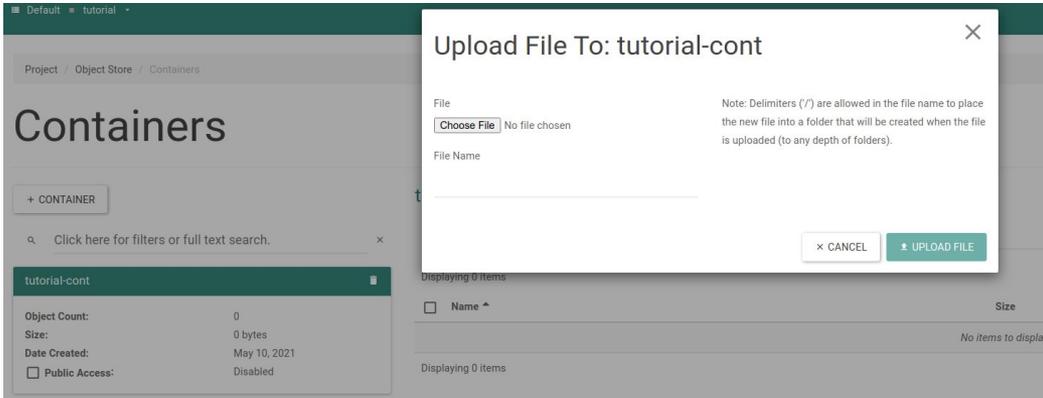
Displaying 0 items

Name ^

Displaying 0 items

Container created, also shown details

# Object store - Swift



Upload a file into the previous container - **directory**

