National Cybersecurity R&D Laboratory

OpenStack [Beta] Linux VM User Manual

Version: V_0.1

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Version Control

Version	Date	Amended by	Summary of Changes
0.1	05 Dec 2020	Aris Cahyadi Risdianto	Init the doc draft.
0.2	02 April 2022	Liu Yuancheng	Small improvement

1. Introduction

Doc Description:

This manual will be used by National Cybersecurity R&D Lab (NCL) services users as a reference for creating a Linux VM in their project under NCL OpenStack [Beta] Testbed and use the SSH to remotely access the Linux VM in their instance from local computer. The document contains two main sections, the **Linux [Ubuntu] VM Creation** section will introduce the detailed steps to create the VM under an instance. The **VM Remote Access** part will introduce how to config remote access to VM from user's local computer.

Doc Type:

External User [Customer] Manual, All NCL external users.

Doc Remark:

- **Customer**: The key contact person and the one who make payment to NCL.
- **User**: The person who will use our NCL service such as access the instance.

2. Linux VM Creation

Follow the steps 2.1 to 2.3 below to create a Linux VM in an instance under user's project.

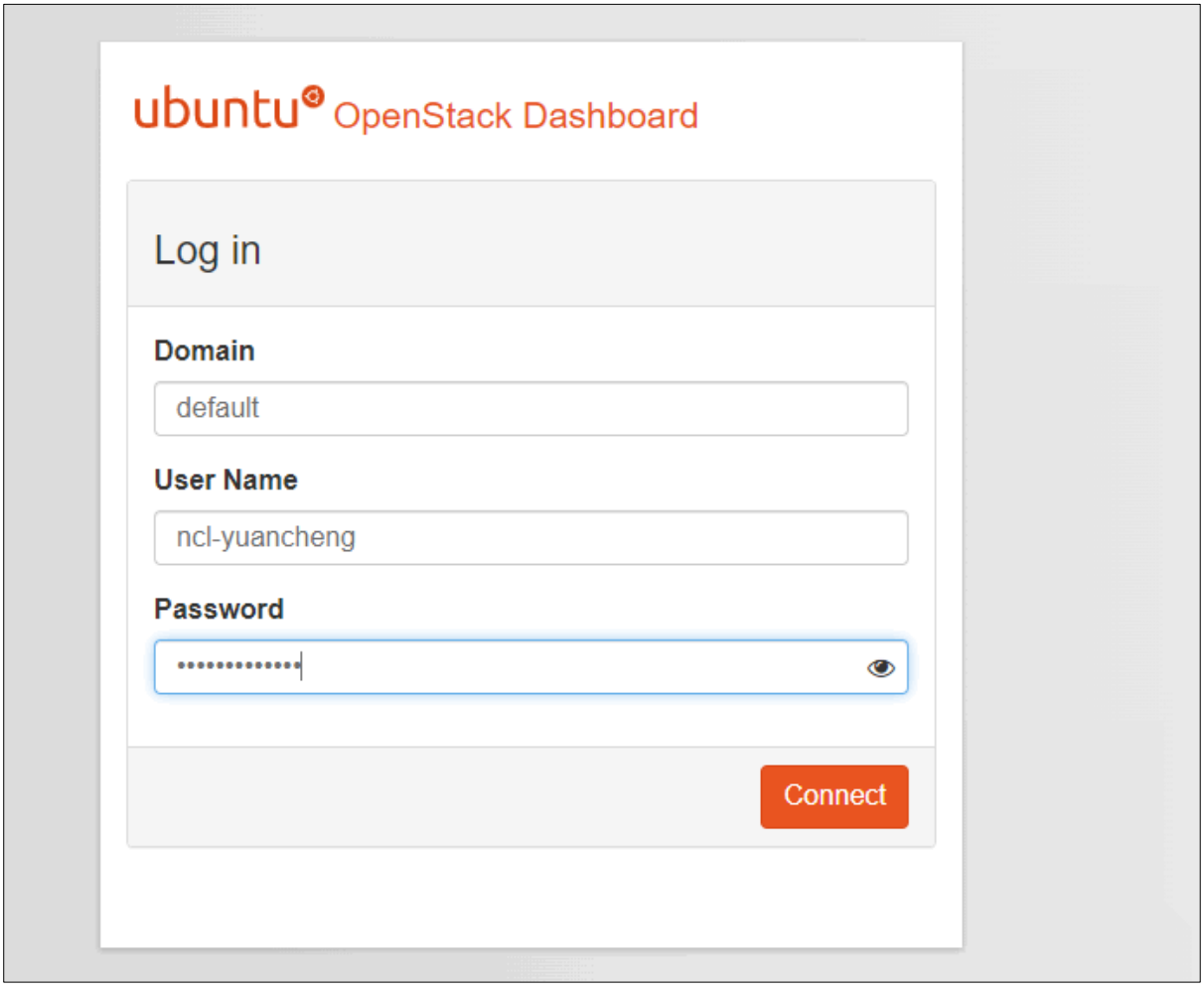
2.1 Login the NCL OpenStack Platform

OpenStack [Beta] platform link: https://openstack.ncl.sg/

Login with the NCL OpenStack [Beta] web account and password under domain **default**. (As shown below, the account username ncl-xxxx)

Domain: default

Username/password: <customer ncl username>/< customer password >



NOTE: If there is any login problem or you don't have a NCL OpenStack [Beta] web account, please contact NCL Support Team (support@ncl.sg).

2.2 Create an Instance with Linux-VM-Image

Follow below steps 2.2.1 to 2.2.3 to create an instance with a NCL public Linux-VM image. In this section, we use Ubuntu 18.05_x64 as an example.

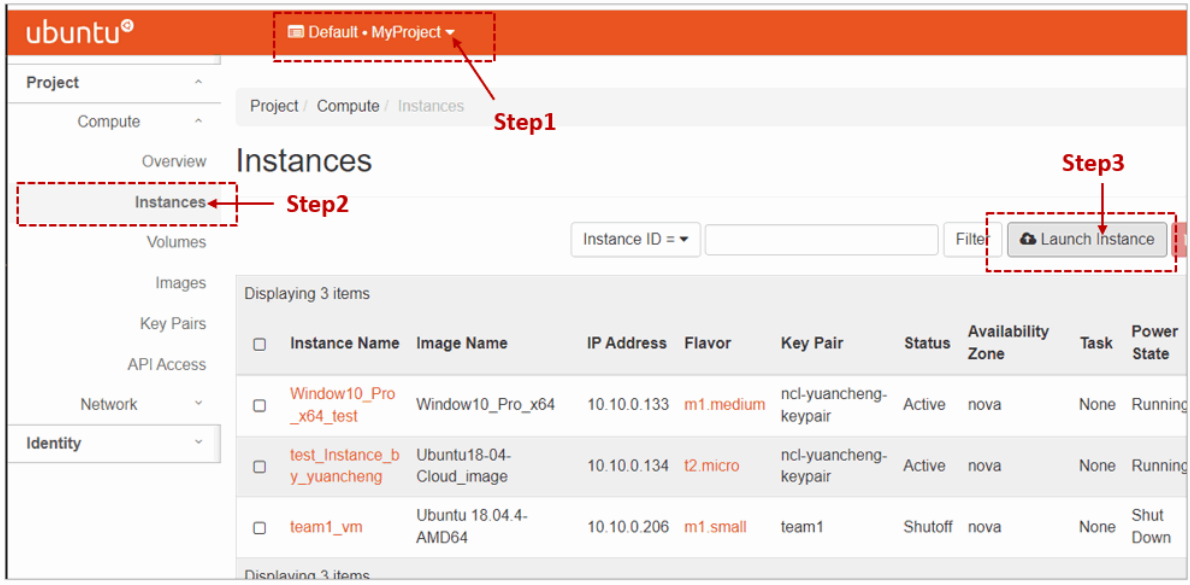
2.2.1 Access the Instance Creation Page

After user login OpenStack [Beta] platform web (as shown below), please select your project and access the instance creation page and follow the below steps:

Step_1: Select your project in the top project selection drop-down menu. If you don't have a project yet, please create a new project or contact NCL-support (support@ncl.sg).

Step_2: In the left side navigation panel, select `Project` => `Compute` => `Instances` tab to get to instance management page.

Step_3: In the instance management page select `launch Instance` button.

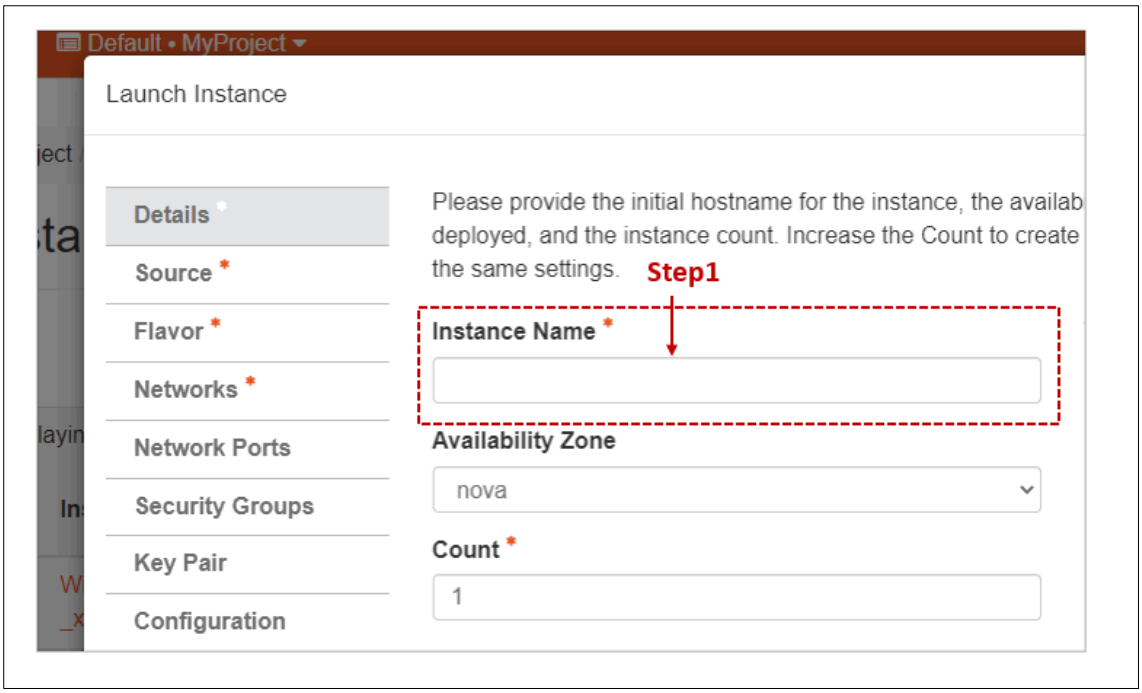


2.2.2 Create an Instance with Ubuntu-VM Image

After the instance configuration dialog pop-up, config the instance with below steps:

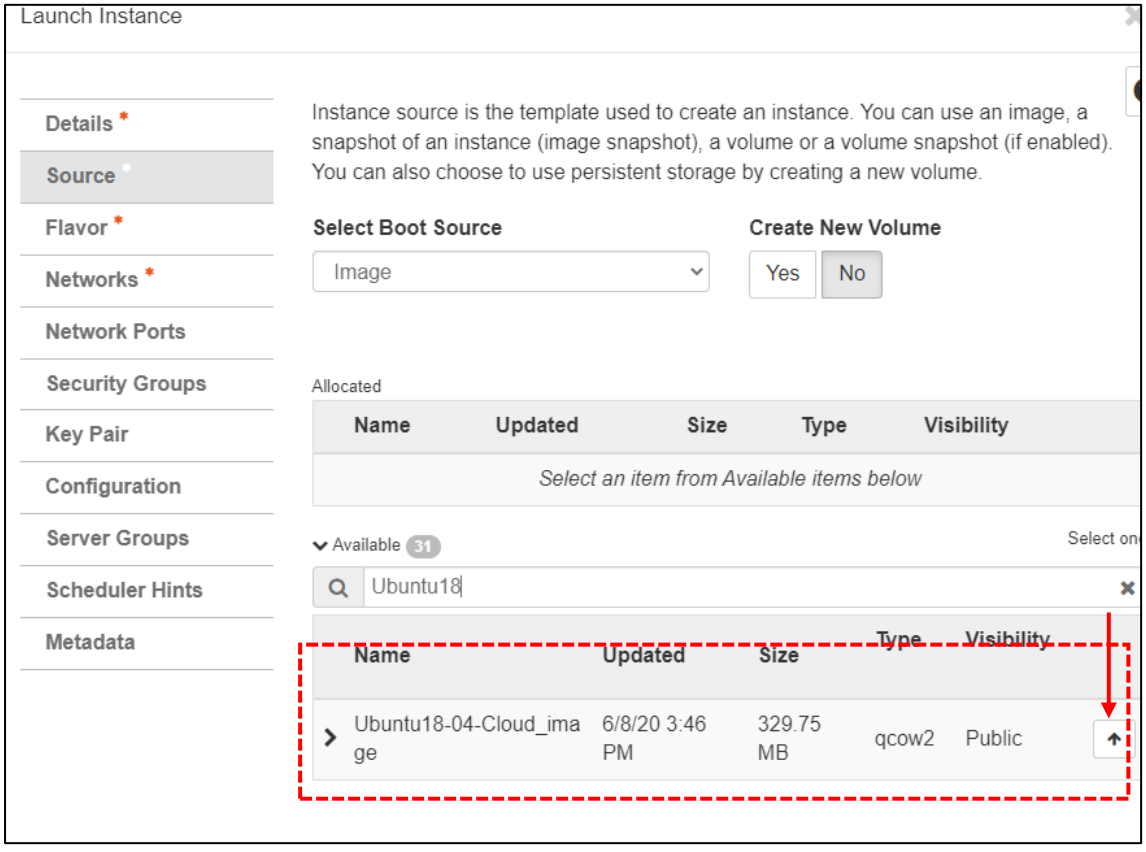
Step_1: Add a unique instance name (instance ID) in the "Details" config page (as shown below). Other setting use default value:

- Availability Zone: **nova**.
- Instance Count: **1**;



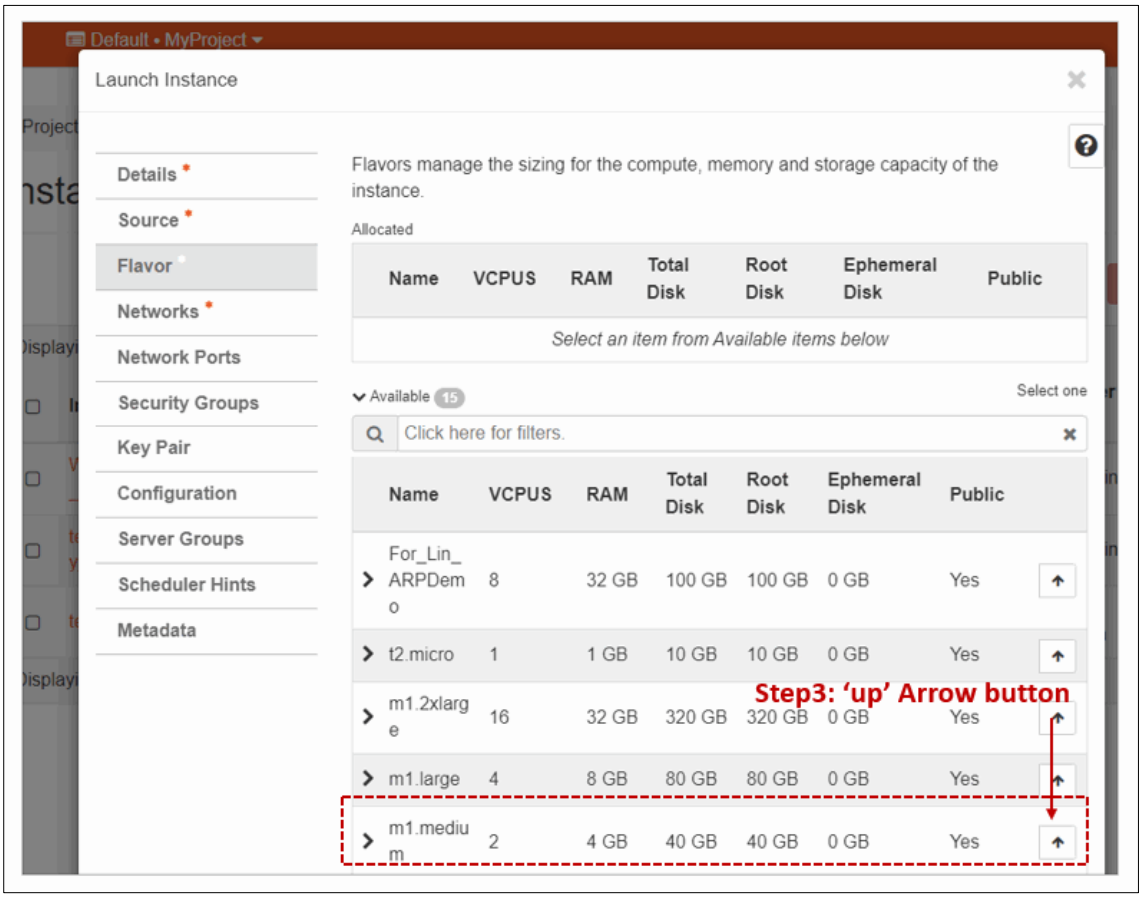
Step_2: Click "Next" then switch to `**source**` page to select the Image, in the public VM-image (*qcow2) available list select the Ubuntu VM image you want to use (example: Ubuntu 18.04_Could_image) and press the '**up**' arrow button to add the image to the allocated list.

Use default setting. Select Boot Source: `**image**`; Create New Volume: `**No**`.

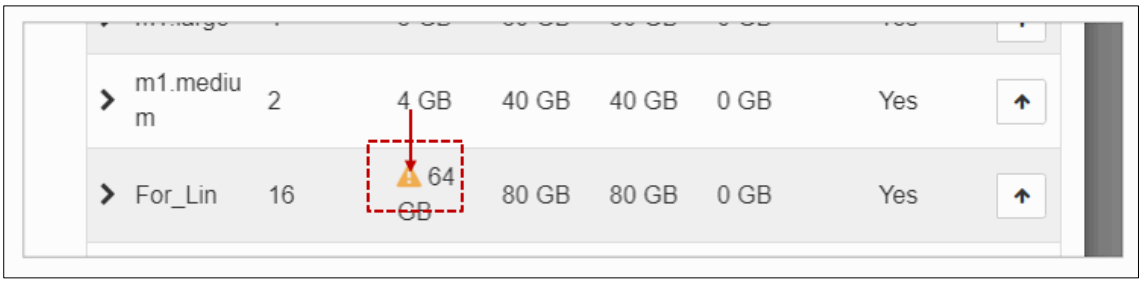


Note: Public image can be used in any instance, but private image can only be used in your own project instance.

Step_3: Switch to “Flavor” page to select the image instance hardware config. Press the 'up' arrow button to add the flavor as shown below:

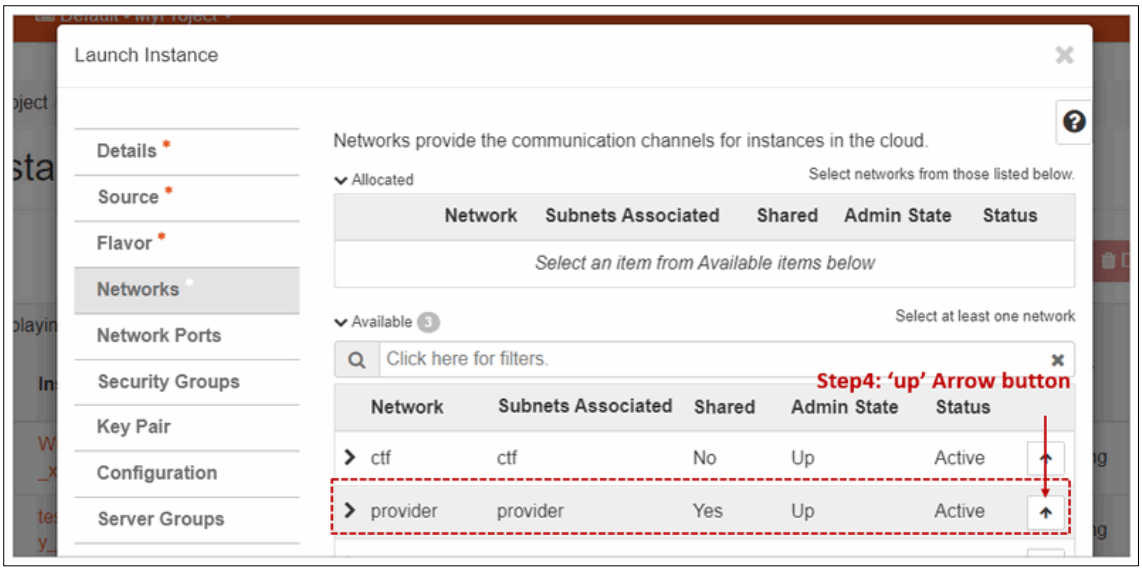


Note: If the flavor shows "alert" icon of the flavor (as shown below), that means your instance doesn't have enough capacity for allocating the hardware flavor. Choose a flavor which does not contain any “alert” icons. Otherwise, please contact NCL support team (support@ncl.sg) to extend the instance capacity if you wish.

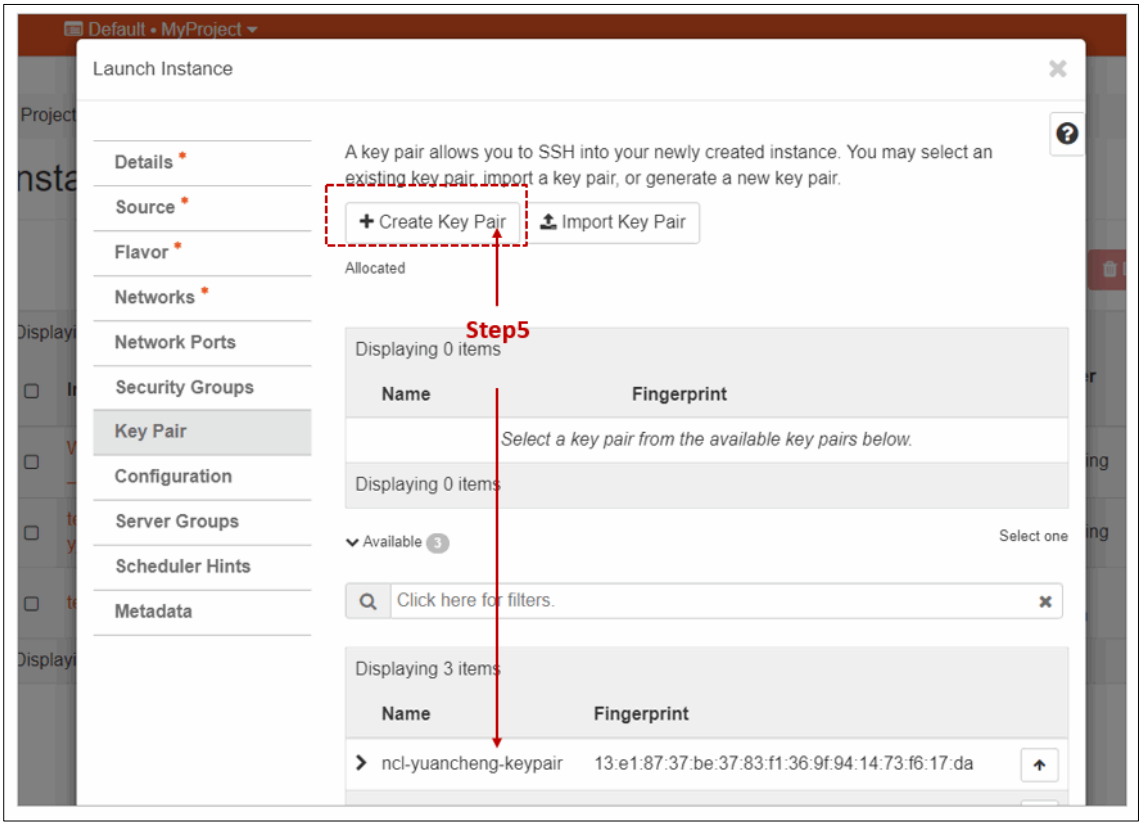


Step_4: Switch to “**Networks**” config page and select provider config. Press the 'up' arrow button to add the provider network (as shown below).

Note: If you want to login to your instance using SSH, you must add the instance to the provider network or assign a floating IP address (e.g., 10.10.0.111) to the instance. In addition, make sure that the 'default' security group allows ICMP (ping) and secure shell (SSH with TCP port 22).

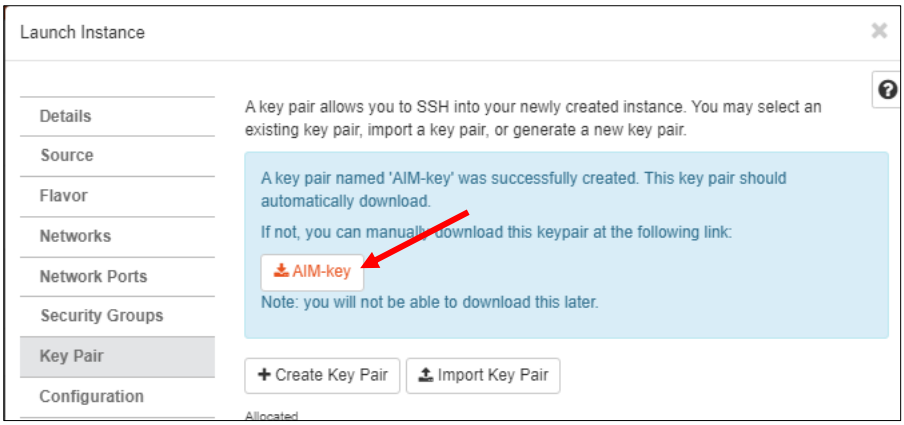


Step_5: Switch to "Key Pair" page to create the keypair. Press the ` **+ Create Key Pair**` button. Type in the keypair name and download the keypair `**\*.pem**` file. Please keep your key pair file and don't share with other people.



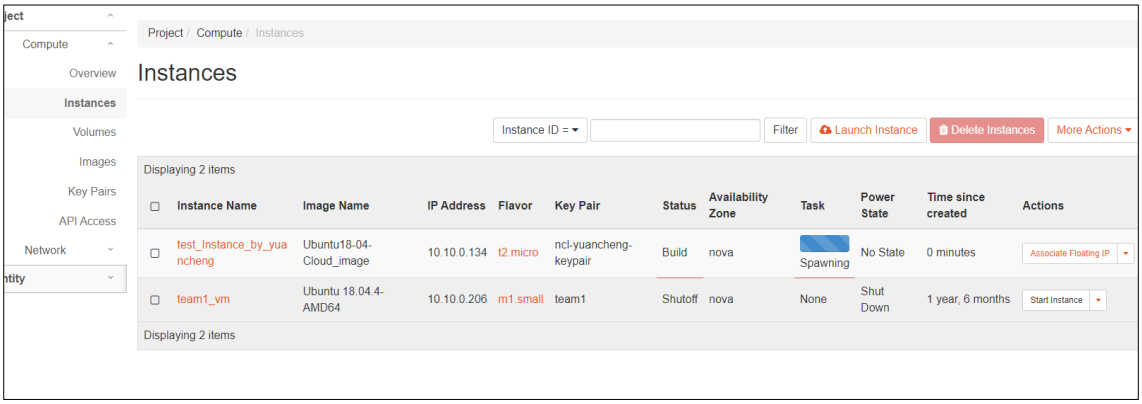
After selected "**+ Create Key Pair**", when the new key pair creation is finished the keypair file download button will show up (as shown below). Press the marked download button.

Note: If you have your own `*.pem` file, you can select the `import key pair` to upload and use it. You may also use the key pair you created before which stored in the system. The key pair you created will be shown in the available list.

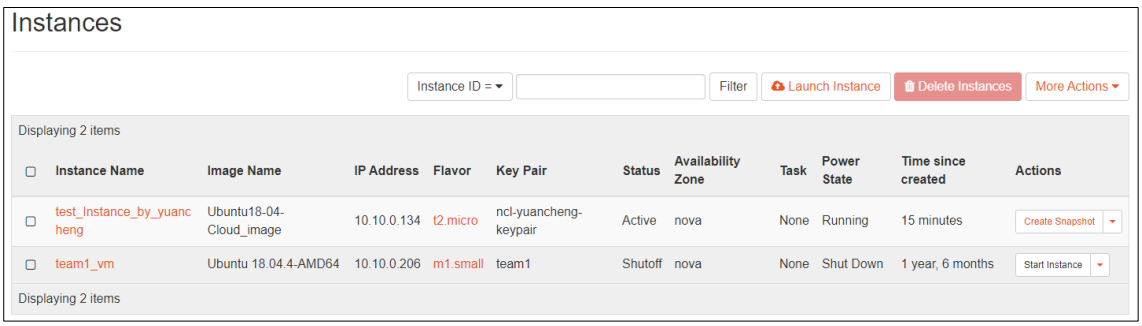


Step_6: Finish all the other setting pages with the default config value and press the "**Launch Instance**" button to launch the VM. (As shown below)

After the instance has been launched, you can see the instance is under spawning:

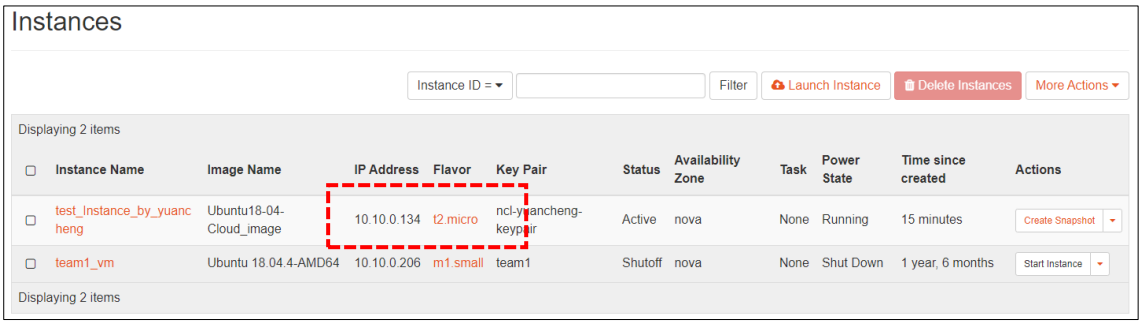


When the "Power State" shows `Running`, the instance is ready for using:



3. Remote Access the Linux VM

Follow below steps to remote access the Ubuntu VM from user's local computer using SSH tools. Get the instance internal IP address from the instance list (as shown below the IP address is **10.10.0.134**):



Open a cmd terminal and follow below steps to run the commends line:

Step_1: login the NCL gateway (SSH to gateway.ncl.sg) with your gateway account with below cmd:

```
ssh <your_user_name>@gateway.ncl.sg
```

Step_2: Create key file under user's folder with below cmd:

```
ssh sudo mkdir .ssh

touch .ssh/key-pair.pem
```

Step_3: Copy your key data (use vi editor) in the key-pair.pem you created:

```
vi .ssh/key-pair.pem

# Open the key-pair file you saved in your local computer and copy the contents to key-pair.pem.

sudo chmod 0600 key-pair.pem
```

Step_4: Login to your instances using SSH from gateway

After copied the common instance key-pair.pem file to your home directory /home/user/.ssh folder on gateway.ncl.sg. Then in terminal, type in below command to access the VM.

```
ssh <user_name>@<10.10.0.x>  -i .ssh/key-pair.pem

example: ssh ubuntu@10.10.0.134 -i .ssh/key-pair.pem
```

Note: 10.10.0.x with the provider / floating IP address of your instance. In this example, the VM IP is 10.10.0.134 (as shown in the section 3 beginning part). For Ubuntu systems, the default user is **ubuntu**. For other operating systems, please refer to this page:

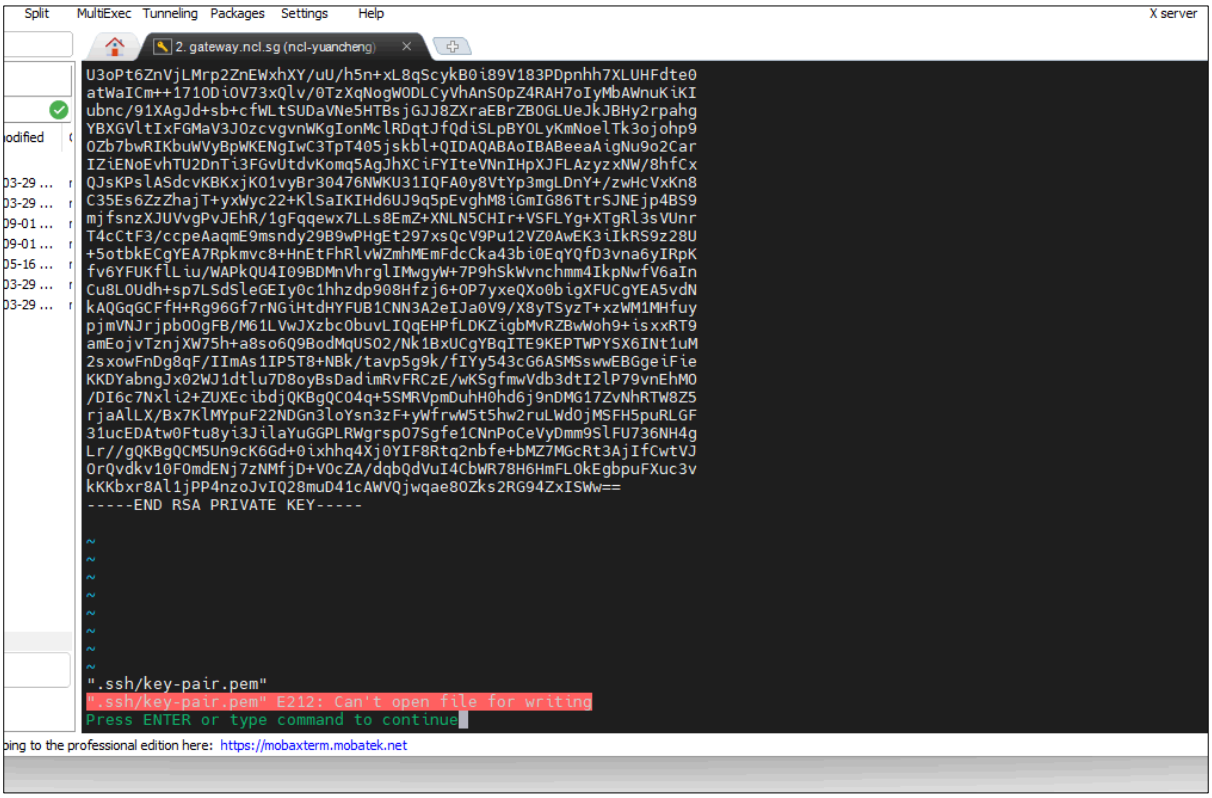
https://docs.openstack.org/image-guide/obtain-images.html.

Step_5: Change password of the default user 'ubuntu' with below cmd:

```
sudo passwd ubuntu
```

Remark:

Example to copy the key contents to your gateway /home/user/.ssh/keypair.pem.



A remote access example is shown below: