

# Nebula FAQ

**NOTE: This is under construction as of 9/2/16**

## What is Nebula?

Nebula is an OpenStack cluster hosted by NCSA. Nebula is meant to be a development and science platform, not a production host for services.  
**[Something about its size/composition? When it came online? How it has grown?]**

## What is OpenStack?

*OpenStack* is a set of software tools for building and managing cloud computing platforms for public and private clouds. It allows many users to share the same physical hardware with each user running their own virtual machine instances. These instances act like independent servers that are under their owners control to create, manage and run.

## Who can use it?

Anyone who is working on projects related to NCSA.

## How do I get access?

Send e-mail to [nebula@ncsa.illinois.edu](mailto:nebula@ncsa.illinois.edu) requesting access to Nebula. Include your name and contact information, what project you are working on and what you want to use your account for. When your account is created you will be sent an e-mail with instructions on how to access the system.

## Do I need to renew every year?

A yearly review will be performed on all Nebula projects to verify they should still have access.

## How do I get help?

1. Read the [Getting Started](#) document
2. Read through this FAQ
3. Join the Nebula chat group at <https://chat.ncsa.illinois.edu/channel/nebula>
4. Submit a ticket by sending e-mail to [nebula@ncsa.illinois.edu](mailto:nebula@ncsa.illinois.edu).
5. Attend the Nebula user's group meetings held every other month: [Nebula OpenStack User's Meetings](#)

## What if I have questions about how to install/manage my instances?

ITS provides support for using and resolving issues with OpenStack on Nebula but does not act as system administrators for each of the instances that the users create on the system. Some issues might be covered in this FAQ, you might get help on the chat group, Google is your friend.

## How can I restore a filesystem that has been set to read-only?

A description of how to recover when OpenStack marks one of your files read-only is [here](#).

## How do I create an instance?

There are a lot of options you can select when you create an instance but at its most basic you select the amount of resources your instance will use by selecting a flavor and you select where your instance will get the operating system that it will run from. You can choose to have your instance boot from an existing image, a snapshot taken from another instance or from a bootable volume. The [Getting Started](#) document walks you through the steps to create a basic instance that boots from an image.

## What are flavors?

Virtual hardware templates are called "flavors" in OpenStack. They define the resources that a new instance will be created with. They specify sizes for RAM, disk, number of cores, and so on. There are [publicly available flavors](#) on Nebula and others that are project defined.

## What is ephemeral disk?

Ephemeral disk is the disk that is created with an instance. Any changes to its contents continue to exist when the instance is paused, suspended, shutdown or rebooted. Any changes are lost when the instance is terminated.

## What boot images are available?

Images are project dependent. All projects have access to this list of images **XXX** but projects may have others as well.

## What images will run in which flavors?

## How do I use keypairs?

**How do I upload a keypair?**

**How do I create a keypair?**

## What are security groups?

**What do they do?**

**Which one should I use?**

**How can I add one after the instance already exists?**

**How do I assign a IP address to my instance**

All of your instances don't need to have a publicly accessible IP address. If the instance does not need to communicate with the outside world it is safer for it not to have one. If you are running a group of instances you can use one of the machines as a gateway with a public IP address, log onto it from remote machines and then use it to access the other machines.

**[Add instructions for assigning a public IP address here]**

**Can I get a DNS name?**

**How do I start and stop an instance?**

Each instance displayed on the Horizon dashboard has a drop down menu associated with it at the far right of the screen. It has options to Pause, Suspend or Terminate the instance. Pausing an instance stores its state in memory while suspending it writes that state information to disk. Terminating an instance deletes it and gets rid of its state information including its ephemeral disk. If an instance has been paused or suspended it can be restarted by selecting Resume from the menu. If an instance has been terminated a new instance needs to be created, the old one cannot be recovered.

**Rebooting an instance**

A soft reboot attempts a graceful shutdown and restart of the instance, a hard reboot power cycles the instance.

**How can I back up my instance?**

**When to take a snapshot**

It is a good idea to create a backup after you create your instance and have loaded your software stack onto it. That way if something happens to your instance you don't have to re-create it from scratch. It is also a very good idea to create a snapshot if you are going to create a lot of running copies of the same image. Snapshots should NOT be used for regular backups. It is resource intensive and will make the Nebula operators grumpy at you.

**Recommended backup methods**

**[some useful suggestions should go here, crashplan?]**

**How do I start an instance from a snapshot?**

**How do I move an instance from one project to another?**

**What are quotas?**

**What are my resource quotas?**

**Who am I sharing them with?**

**How do I get access to more resources (core/memory/disk)?**

**What are volumes?**

A volume is a detachable block storage device, similar to a USB hard drive. You can attach a volume to only one instance. The contents of a volume are not lost when the instance it is attached to is terminated.

**How do I create a volume?**

**How do I boot from a volume?**

**Why would I want to?**

When you boot from a volume it acts as your disk so any changes made to disk are stored in the volume. If you terminate and restart a VM that was booted from a volume, it has the version of the disk that was there when you terminated it. Whereas if you terminate a VM that was started from an image or a snapshot any changes made to the disk are lost and starting a new VM from them uses the old version of the disk.

**What do I need to do to secure my instance?**

Locking an instance

Only open needed ports

Remove default login or change default password

**Should I be using Docker?**