IACS INSTITUTE FOR APPLIED COMPUTATIONAL SCIENCE AT HARVARD UNIVERSITY

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Guide: OpenNebula Sandbox on AWS

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v2.0 - 14 February 2020

Abstract

This is a guideline document to show how to deploy a hosted private cloud on AWS. The aim is to illustrate the internals of a cloud infrastructure and the view of the administrator.

Requirements

- **First you should have followed the Guide "First Access to AWS"**. It is assumed you already have an AWS account and a key pair, and you are familiar with the AWS EC2 environment.
- Ensure you are in the **US-East-1 (North Virginia)** region.
- You should create a new security group (`opennebula`), in, to open inbound access to the following ports:
    - SSH: Port Range: 22, Source: Anywhere
    - Custom TCP Rule: Port Range: 9869, Source: Anywhere
    - Custom TCP Rule: Port Range: 29876, Source: Anywhere
- The free tier `t2.micro` is sufficient.
- In the AMIs tab, change the view filter to the **community images** and search for AMI `ami-2e1e3d55`. Right click on it and select "Launch Instance". In this wizard, you will need to choose a keypair, **network/subnet (use default)**, and the **"opennebula" security group.**
- The sandbox is a Ubuntu 14.04 virtual machine image with a pre-configured OpenNebula 5.4.0 front-end, a virtualization host using QEMU ready to execute virtual machines, and prepared images to offer a complete and rich cloud experience. Users are able to log into an OpenNebula cloud, peer the managed resources, and launch instances of virtual machines without the hassle of configuring a physical infrastructure.

Acknowledgments

The author is grateful for constructive comments and suggestions from David Sondak, Charles Liu, Matthew Holman, Keshavamurthy Indireshkumar, Kar Tong Tan, Zudi Lin, Nick Stern, Dylan Randle.

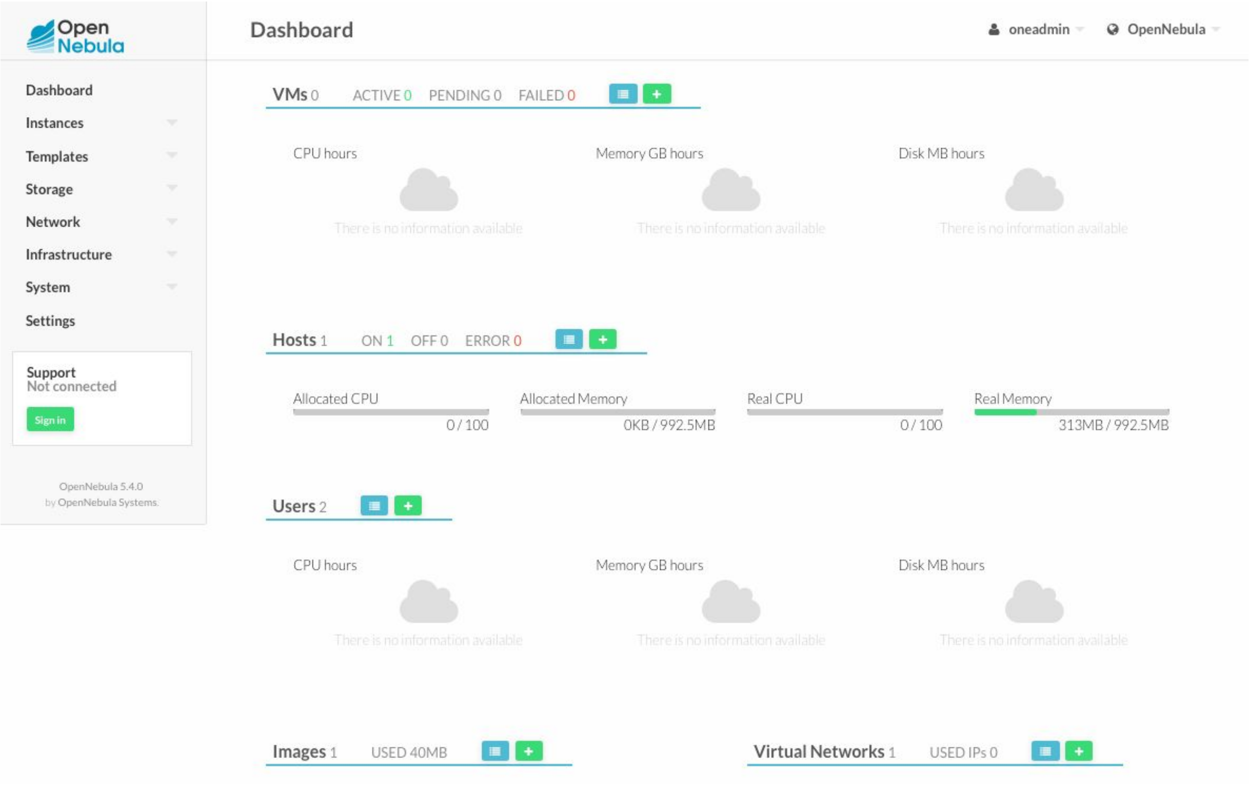
1. Try the Admin View in the Sunstone GUI

- The first thing we're going to do is to log in as oneadmin to take a look at the Admin View of Sunstone, which has more options than the other Sunstone views for a regular users.

- To login to Sunstone open your browser at http://<< ip >>:9869

- The login information is:
  Login: oneadmin
  Password: opennebula

- Take a look at all the already bootstrapped resources in the Sandbox



VMs 0 ACTIVE 0 PENDING 0 FAILED 0

CPU hours — There is no information available
Memory GB hours — There is no information available
Disk MB hours — There is no information available

Hosts 1 ON 1 OFF 0 ERROR 0

Allocated CPU 0 / 100
Allocated Memory 0KB / 992.5MB
Real CPU 0 / 100
Real Memory 313MB / 992.5MB

Users 2

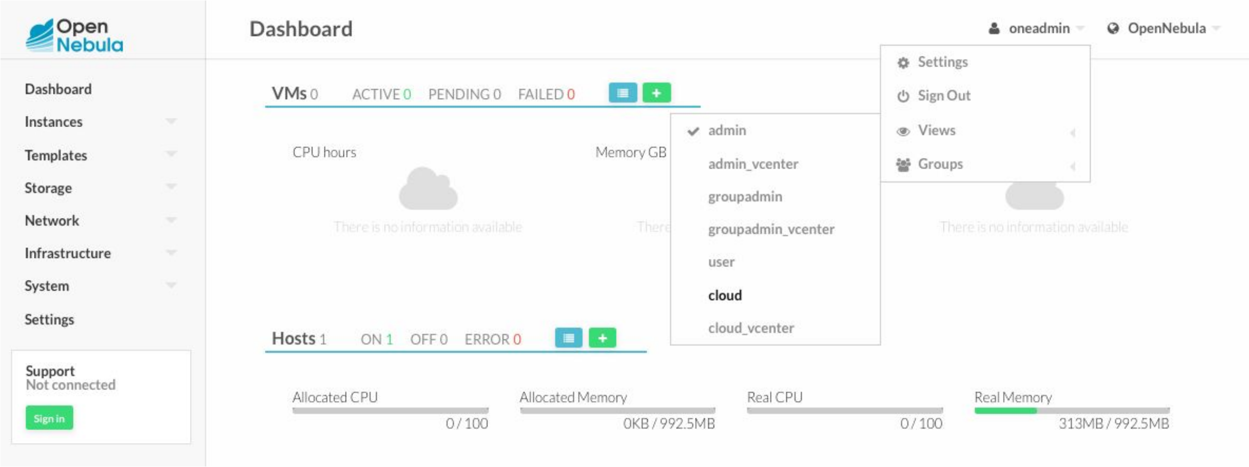
CPU hours — There is no information available
Memory GB hours — There is no information available
Disk MB hours — There is no information available

Images 1 USED 40MB

Virtual Networks 1 USED IPs 0

2. Try the Cloud View

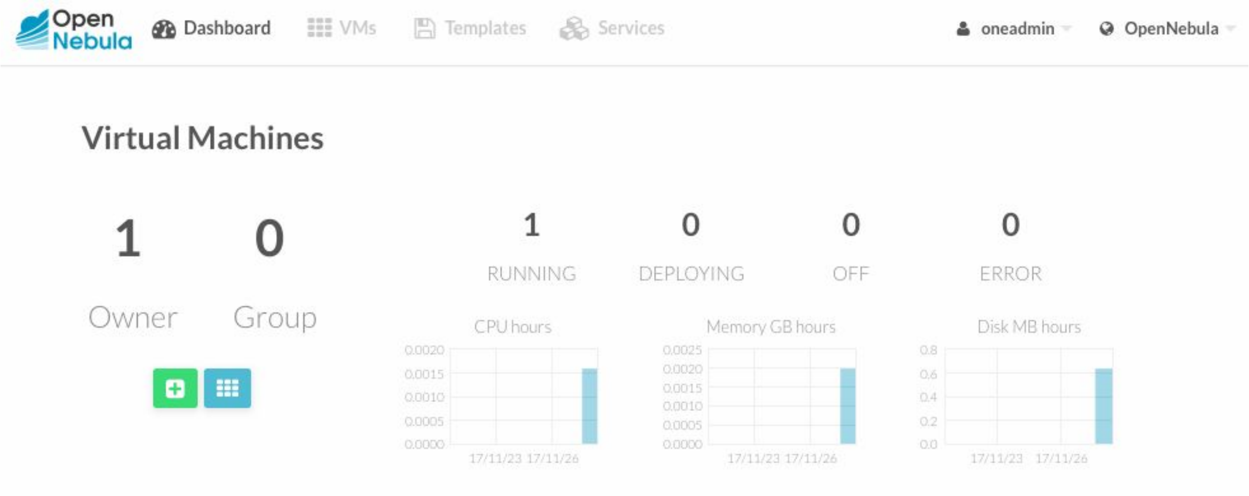
- With the Admin View you can do anything in OpenNebula. Switch to the Cloud View (oneadmin-->Views-->cloud) to see how a final user will see OpenNebula



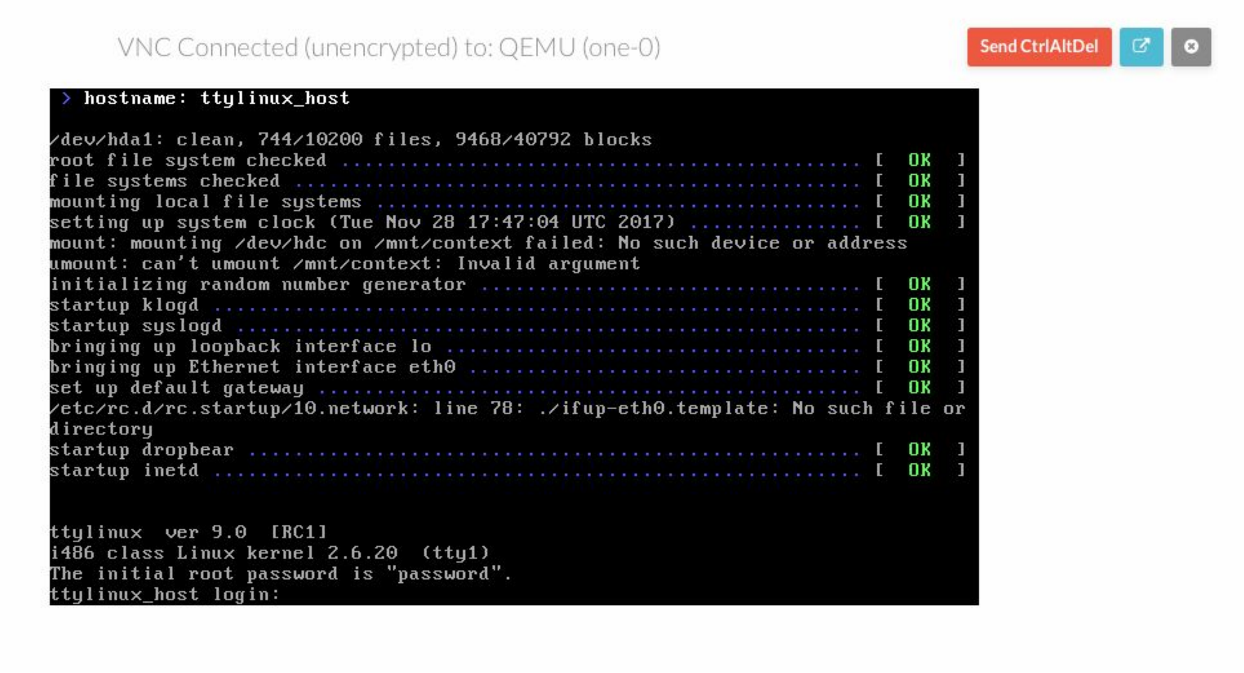
- The Cloud View interface is much simpler and targeted at end users

- Create a new Virtual Machine by clicking the ‘+’ button. Select the only available template and click ‘Create’

- After clicking create you will be taken to the dashboard where you can see your running VMs.



- You can click on your VM and manage it: access it through VNC, Save its state, Reboot it, etc:



VNC Connected (unencrypted) to: QEMU (one-0)

```
 > hostname: ttylinux_host

/dev/hda1: clean, 744/10200 files, 9468/40792 blocks
root file system checked ........................................... [  OK  ]
file systems checked ............................................... [  OK  ]
mounting local file systems ........................................ [  OK  ]
setting up system clock (Tue Nov 28 17:47:04 UTC 2017) ............. [  OK  ]
mount: mounting /dev/hdc on /mnt/context failed: No such device or address
umount: can't umount /mnt/context: Invalid argument
initializing random number generator ............................... [  OK  ]
startup klogd ...................................................... [  OK  ]
startup syslogd .................................................... [  OK  ]
bringing up loopback interface lo .................................. [  OK  ]
bringing up Ethernet interface eth0 ................................ [  OK  ]
set up default gateway ............................................. [  OK  ]
/etc/rc.d/rc.startup/10.network: line 78: ./ifup-eth0.template: No such file or
directory
startup dropbear ................................................... [  OK  ]
startup inetd ...................................................... [  OK  ]


ttylinux  ver 9.0  [RC1]
i486 class Linux kernel 2.6.20  (tty1)
The initial root password is "password".
ttylinux_host login:
```

- Clicking on the Console icon will let you login into the VM. The credentials are:

  Login: root

  Password: password

Stop your instances when are done for the day to avoid incurring charges

Terminate them when you are sure you are done with your instance