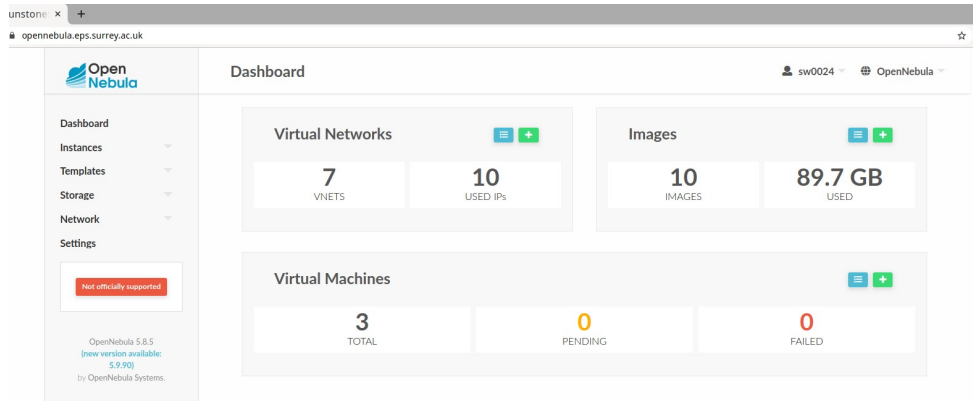


OpenNebula

Getting Started

Go to <https://opennebula.eps.surrey.ac.uk/> and log in with your usual user name and password which will take you to the Dashboard view:



Explore the UI a bit and see what you find. Some documentation is available here:

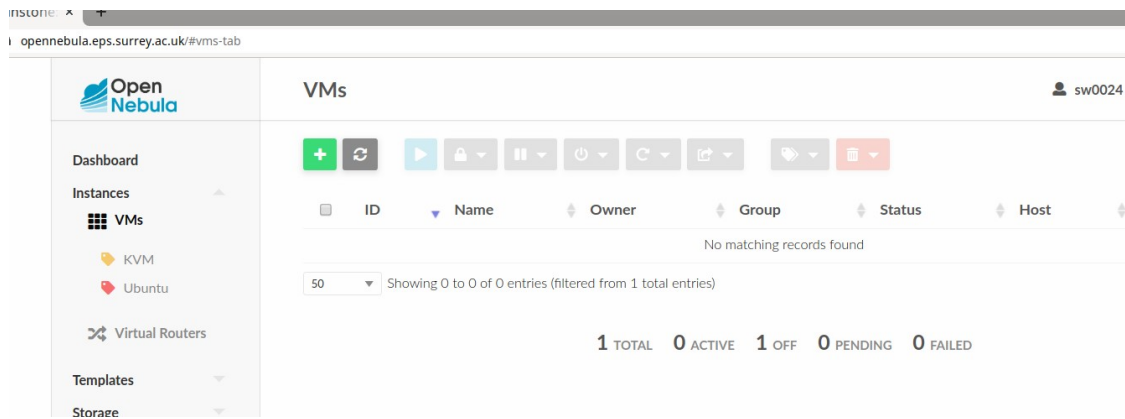
<https://bookstack.eps.surrey.ac.uk/books/open-nebula>

Note that while you can use OpenNebula to create your own servers and networks, it has the following limitations:

- It is not designed for High Performance Computing(HPC) / High Throughput Computing (HTC)... If you need that then please use Orca (HTCondor)
- It's not a desktop replacement as it not linked with the usual Uni resources. You should use the Virtual Desktop at <https://desktops.surrey.ac.uk> instead which gives you access to your student home areas
- Don't use it as a replacement for running applications on the lab machines as those are much more powerful (unless you need root access for some reason)
- It is not externally available, ie you can host a webserver but no computer outside your OpenNebula instances will be able to see it
- You cannot ssh into Open Nebula's virtual networks and you must use the remote access clients
- The Open Nebula web interface is not accessible on internet. You must be on campus to access it
- There is no long term data storage. You can transfer files using USB pass-through ⓘ There are limits on how much you can use... Each student currently can use up to:
 - 10 CPU
 - 10 VMS
 - 20 GB RAM
 - 200GB
- This means you can have 10 Vms with 1 CPU, 2GB of RAM and 20GB disk space each or 1 VM with 10 CPUs, 20GB of RAM and 200GB of disk space or any other combination which does not exceeds these limits.
- We will monitor usage and these quotas might be decreased/increased depending on how they are (ab)used.

Creating a VM

We will now create our first VM. Go to the Dashboard and under Instances click on VMs. You might not have any VMs yet:



Click on the plus symbol to add a new instance. You should be presented with a choice of VM templates to choose from. Select the “Ubuntu Desktop 18.04 - SPICE”. Give your VM a name, eg “MyFirstVM”

Explore the UI and bit and see what options are available to set and explore the documentation to see what some of these options mean. What RAM is allocated? How much hard disk us assigned?

To connect your VM to a Virtual Network, click on the drop-down in the bottom list that says "network". This will open up the network menu where you can create network interfaces for your VM and assign the interfaces to virtual networks.

Network

Interface Internet VLAN

Interface type

☐ Alias ?

Network selection

☐ Automatic selection ?

You selected the following network: Internet VLAN



ID	Name	Owner	Group	Reservation	Cluster	Leases
16	Private VXLAN Network-16	pk0011	users	No	0	3 / 256
11	Internet VLAN	m12236	oneadmin	No	0	5 / 65536
5	81 Subnet	m12236	oneadmin	No	0	1 / 1

10 Showing 1 to 3 of 3 entries

Previous 1 Next

Force IPv4: ?

Security Groups ?

Please select one or more security groups from the list



ID	Name	Owner	Group
0	default	oneadmin	oneadmin

10 Showing 1 to 1 of 1 entries

Previous 1 Next

[+ Network Interface](#)

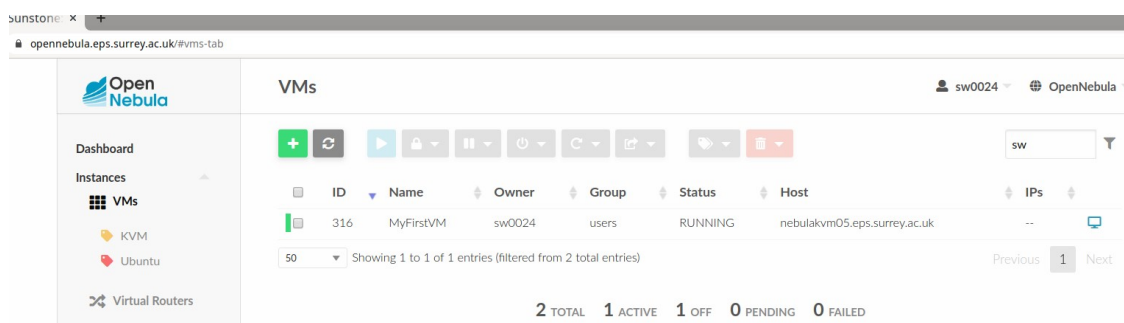
To add a network interface click on the blue "+ Network Interface" button

Select the network you want this interface to connect to

In the "Force IPv4" field you can provide a specific IPv4 address you would like the machine to have. Open Nebula will only be able to assign this IP to your instance if it is available (not taken already and within the valid IP range) on the Virtual Network you have chosen.

You can repeat this process and add multiple interfaces / networks to the VM

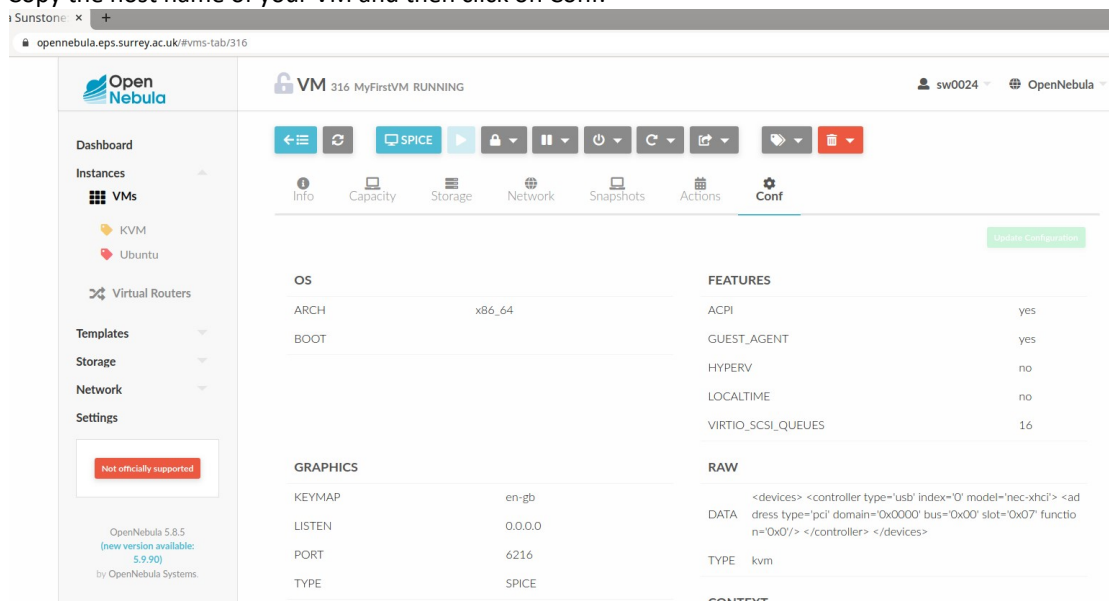
Once you have finished customising your VM you can scroll up to click on the green "Create" button. You should now be presented with a view similar to the following:



If it does not show as running, click on the refresh symbol to reload the page.

Now we are ready to connect to it. Click on the VM to see the details page.

Copy the host name of your VM and then click on Conf.

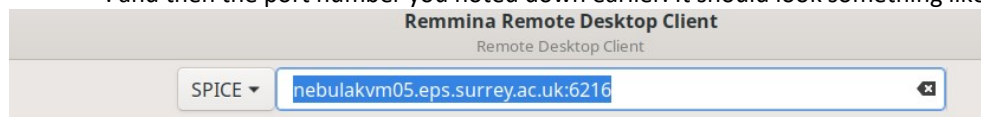


In the Graphics section, note the port number (6216 here... yours is likely to be different) and the Type SPICE which is the protocol we use to connect to the instance.

Given the host name, the port number and the connection protocol we are now ready to connect to your instance.

You can access the VM directly in your browser by clicking on the SPICE button at the top which will open a separate browser tab. This is an easy way to simply test the VM but is not necessarily the best user experience. The recommended way is to use the Remmina client which installed on all Linux machines on campus.

Start your Remmina client and change the protocol to SPICE. Copy the hostname into the text box followed by a colon : and then the port number you noted down earlier. It should look something like this:



From Mac you could try Small AnyDesk or Small Chrome Remote Desktop.

Hit Enter and a new window should open up. Maximise it and log in as "user" with password "password". (Did you see those settings earlier when you explored the UI?)

You should now be logged in to your first VM! You might need to change the resolution to suit your needs. Simply look for the Screen Display utility in your Ubuntu VM and change the Screen Display Resolution (e.g. set it to 1400x900).

Cleaning up

In order for OpenNebula to run and be useful to a large number of students using it, we need to do a bit of house keeping at the end of each lab. Once you are finished with the lab please follow the following steps:

- Don't leave your VMs running as they use up CPU and space that other people then cannot use. Shut down your VMs by going to your VM overview screen, selecting them all and then select Power Off from the Power Off drop down list.
- Once your machines are powered off, you should also Undeploy them, ie select them all and then select Undeploy from the Power Off drop down list.
- The difference between Power Off and Undeploy is that Undeploy also moves them back to an off-line storage freeing up space on the nodes that run the VMs. Restarting your VMs will take a bit longer as the VM image needs to be copied onto a VM host but it's still fast enough and means that we are not going to run out of disk space.
- If you want to remove your VM completely, ie properly delete it then use the Trash Can symbol and select Terminate. This will remove your VM and you will need to recreate it from scratch using the provided templates.