
vOneCloud Documentation

Release 1.2.1

OpenNebula Systems

March 23, 2015

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RELEASE NOTES VONECLOUD 1.2.1

1.1 What's New vOneCloud 1.2

vOneCloud 1.2 is powered by OpenNebula Fox Fur, and, as such, includes all the functionality present in [OpenNebula 4.10 Fox Fur](#).

The following Cloud Management features have been introduced in vOneCloud 1.2:

- *Import running VMs.* vCenter running Virtual Machines can now be imported seamlessly in vOneCloud without powering them off and hence without any downtime!
- *Support for vCenter Networks.* vCenter Networks and Distributed vSwitches can now be imported into vOneCloud, and then used in VM Templates to define network interfaces in vCenter virtual machines attached to these Networks and Distributed vSwitches
- *Attach/Detach network interfaces.* Virtual Machines can now dynamically (ie, while running) have networks interfaces attached or removed.
- *HTTP proxy support.* Corporate HTTP proxies are supported now in vOneCloud.
- *New Cloud vCenter view.* Designed for provision end users with vCenter resources in a simple way through vOneCloud.

The following *components* have been introduced in vOneCloud 1.2:

- The new vOneCloud *Control Console* is a text based wizard to aid in the OneCloud bootstrap process.
- The vOneCloud *Control Panel* is a slick web interface oriented to the configuration of the vOneCloud services as well as used to upgrade to a newer version of vOneCloud. It also includes the possibility to access the OpenNebula logs.

The *Automated Upgrade process* implemented by the *Control Panel* will only be available to users with an active support subscription. With this functionality users will be notified when a new vOneCloud release is available for download and they will be able to upgrade the vOneCloud platform with a single click.

1.2 Resolved Issues in 1.2.1

Besides bug fixes and performance improvements in OpenNebula 4.10.4, the following issues have been resolved in this release:

- Display logs in the Control Panel
- Sunstone notifies the administrator user when there is a new release.
- Information of the newly available releases in the Control Panel

- Better VLAN tagged Network handling in Sunstone

1.3 Resolved Issues in 1.2.0

The following issues present in vOneCloud 1.0 have been solved in 1.2:

Name	Description
Removed unused VM actions	VM actions which do not apply in vCenter VM like for instance, VM resize and undeploy actions
Fixes for hybrid connectors	Various fixes in configuration, information display and usability
Fix support in HTTP Proxy	Now available for all vOneCloud services
Removed unused views	Sunstone views that did not apply were removed to avoid confusion

1.4 Upgrade

Upgrading to a newer version of vOneCloud is only supported for users with an [active support subscription](#). The upgrade process is carried out in the *Control Panel web interface*.

When a new vOneCloud release is available for download, users with an active support subscription will be notified in the Sunstone interface (in particular, in the Control Panel link), as well as in the main Dashboard area of the Control Panel, and will be able to upgrade with a single click. The Control Panel component will, behind the scenes:

- download the new vOneCloud packages
- install the new vOneCloud packages, keeping the existing configuration
- restart the OpenNebula service, with no downtime whatsoever to the currently running virtual machines.

The Control Panel will display a message after the upgrade is performed, at this moment vOneCloud services would be up and running and updated to the latest version.

1.5 System Requirements

<p>Warning: It is advised to manage one vCenter by only one vOneCloud. Otherwise VMs from both server will clash and produce errors.</p>

The following components are needed to be present in the infrastructure to implement a cloud infrastructure run by vOneCloud:

Component	Observations
vCenter 5.5	<ul style="list-style-type: none"> • The IP or DNS needs to be known, as well as the credentials (username and password) of an admin user. • DRS is not required but it is recommended. vOneCloud does not schedule to the granularity of ESX hosts, and you would need DRS to select the actual ESX host within the cluster. Otherwise the VM will be started in the ESX host associated to the VM Template • All ESX belonging to the same vCenter cluster to be exposed to vOneCloud need to share at least one datastore among them. • VMs that will be instantiated through vOneCloud saved as VMs Templates in vCenter.
ESX 5.5	<ul style="list-style-type: none"> • With at least 2 GB of free RAM and 1 free CPU • To enable VNC functionality from vOneCloud there are two requirements: 1) the ESX hosts need to be reachable from vOneCloud and 2) the ESX firewall should allow for VNC connections (see the note below)

Note: To enable VNC functionality for vOneCloud, repeat the following procedure for each ESX:

- In the vSphere client proceed to Home -> Inventory -> Hosts and Clusters
- Select the ESX host, Configuration tab and select Security Profile in the Software category.
- In the Firewall section, select the Properties. Enable GDB Server, then click OK.

Make sure that the ESX hosts are reachable from vOneCloud.

vOneCloud ships with a default of 2 CPUs and 2 GB of RAM, and as such it has been certified for infrastructures of the following dimensions:

- Up to 4 vCenters
- Up to 40 ESXs managed by each vCenter
- Up to 1.000 VMs in total, each vCenter managing up to 250 VMs
- Up to 100 users, being the concurrent limit 10 users accessing the system simultaneously

Note: For infrastructures exceeding the aforementioned limits, we recommend an installation of OpenNebula from scratch on a bare metal server, using the [vCenter drivers](#)

1.6 Known Issues and Limitations

1.6.1 Known Issues

These known issues will be addressed in future versions of vOneCloud.

<p>Hybrid IP addresses not shown in Sunstone VM datatable Running VMs are imported without VNC</p>	<p>They are displayed in the info panel of the VM, which appears below the datatable after clicking the VM in the datatable All running VMs are imported without VNC capabilities in vOneCloud, regardless of the availability of an open VNC port on said VMs</p>
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If you find any new issue, please let us know in the [Community Questions](#) section of the [vOneCloud Support Portal](#).

1.6.2 Limitations

These limitations will be addressed in future versions of vOneCloud:

Limitation	Description
<p>VM Unsupported Operations</p>	<p>The following operations are only supported from vCenter:</p> <ul style="list-style-type: none"> • Attach/detach disk to a running VM • Migrate VM to different ESX clusters
<p>No MultivCenter Templates</p>	<p>vOneCloud Templates representing two or more vCenter VM Templates cannot currently be defined.</p>
<p>No spaces in Clusters</p>	<p>VMware Clusters with space in their names are not supported</p>
<p>No proxy support for SoftLayer</p>	<p>If vOneCloud is running behind a corporate http proxy, the SoftLayer hybrid connectors won't be available</p>
<p>No auth proxy support for Azure</p>	<p>Azure driver only supports proxies without authentication. That is, without username and password.</p>
<p>No FILES support in context</p>	<p>Contextualization in vOneCloud does not support passing files to Virtual Machines</p>
<p>No multi-VM app support Cannot import "one-" VMs</p>	<p>OneFlow component is not yet shipped with vOneCloud VMs deployed by another instance of vOneCloud, or machines named with a leading "one-" cannot be imported again</p>

If you find any new limitation, feel free to add a feature request in [Community - Feature Request](#) section of the [vOneCloud Support Portal](#).

OVERVIEW

2.1 Introduction

vOneCloud extends vCenter with cloud features such as provisioning, elasticity and multi-tenancy. vOneCloud is designed for companies that want to create a self-service cloud environment on top of their VMware infrastructure without having to abandon their investment in VMware and retool the entire stack. vOneCloud leverages advanced features such as vMotion, HA or DRS scheduling provided by the VMware vSphere product family.

This section describes the vOneCloud platform as a whole, and its components, features and roles.

2.2 What Is?

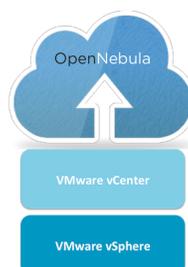
vOneCloud

The Open Replacement for vCloud

vOneCloud is an [OpenNebula](#) distribution optimized to work on existing VMware vCenter deployments. It deploys an enterprise-ready OpenNebula cloud just in a few minutes where the infrastructure is managed by already familiar VMware tools, such as vSphere and vCenter Operations Manager, and the provisioning, elasticity and multi-tenancy cloud features are offered by OpenNebula. It inherits all the [benefits](#) from the open source cloud management platform, adding an easy to deploy, easy to use aspect due to pre configuration of the OpenNebula install contained within the appliance.

vOneCloud is distributed as a virtual appliance in OVA format for vSphere. It contains all required OpenNebula services within a single CentOS Linux appliance. All components are fully open-source and have been certified to work in enterprise environments, vOneCloud 1.2 includes:

CentOS	7.0
OpenNebula	4.10.4



The following table summarizes the benefits of vOneCloud:

Powerful	Virtual data centers, self-service, datacenter federation, hybrid cloud on VMware environments
Cost Effective	Free, there are no license costs, all components are fully open-source software
Flexible	Completely open, customizable and modular, so it can be adapted to your needs
No Lock-in	Platform independent, gradually migrate to other virtualization platforms
Simple	Very easy to install, upgrade, and maintain, with easy-to-use graphical interfaces
Enterprise-ready	Certified, production-ready with commercial support subscriptions and professional services

2.3 vOneCloud Features

vOneCloud leverages the [functionality of OpenNebula](#). The following features come preconfigured and can be used **out-of-the-box** with vOneCloud:

- **Cloud User Interfaces**
 - Simple, clean, intuitive portals for cloud consumers and Virtual Datacenter (VDC) administrators.
- **Cloud Admin Interfaces**
 - SunStone Portal for administrators and advanced users
 - Powerful CLI that resembles typical UNIX commands applications
- **Import Existing Resources**
 - Import existing vCenter VM Templates
 - Import existing vCenter Networks and Distributed vSwitches
 - Import existing running Virtual Machines
- **On-demand Provision of Virtual Data Centers**

- Dynamic creation of Virtual Data Centers (VDCs) as fully-isolated virtual infrastructure environments where a group of users, under the control of the VDC administrator, can create and manage compute capacity
- Placement of VDCs to multiple vCenters

- **Hybrid Cloud**

- Cloud-bursting of VMs to public clouds

- **Fast Provisioning**

- Automatic provision of Virtual Machines from a Template catalog
- VM Template cloning and editing capabilities to maintain Template catalog
- Snapshotting

- **Security and Resource Consumption Control**

- Resource Quota Management to track and limit computing resource utilization
- Fine-grained accounting and monitoring
- Complete isolated VDCs and organizations
- Fine-grained ACLs and user quotas
- Powerful user, group and role management
- vCenter Network and Distributed vSwitch support
- Attach/detach network interfaces functionality

- **Enterprise Datacenter Component Integration Capabilities**

- Integration with user management services like Active Directory and LDAP.
- HTTP Proxy support

- **Reliability, Efficiency and Massive Scalability**

- Profit from years of testing and production use
- Be sure that your Cloud Management Platform will be up to the task

vOneCloud additionally brings new configuration and upgrade tools:

- **Appliance and Services Configuration**

- Control Console for vOneCloud appliance configuration
- Control Panel (Web UI) for vOneCloud services configuration

- **Smooth Upgrade Process**

- Automatic upgrade process and notifications through the Control Panel available for users with an active support subscription

If you feel that there is a particular feature interesting for the general public, feel free to add a feature request in [Community - Feature Request section of the vOneCloud Support Portal](#). vOneCloud can leverage all the functionality that OpenNebula delivers, but some of it needs **additional configuration** steps:

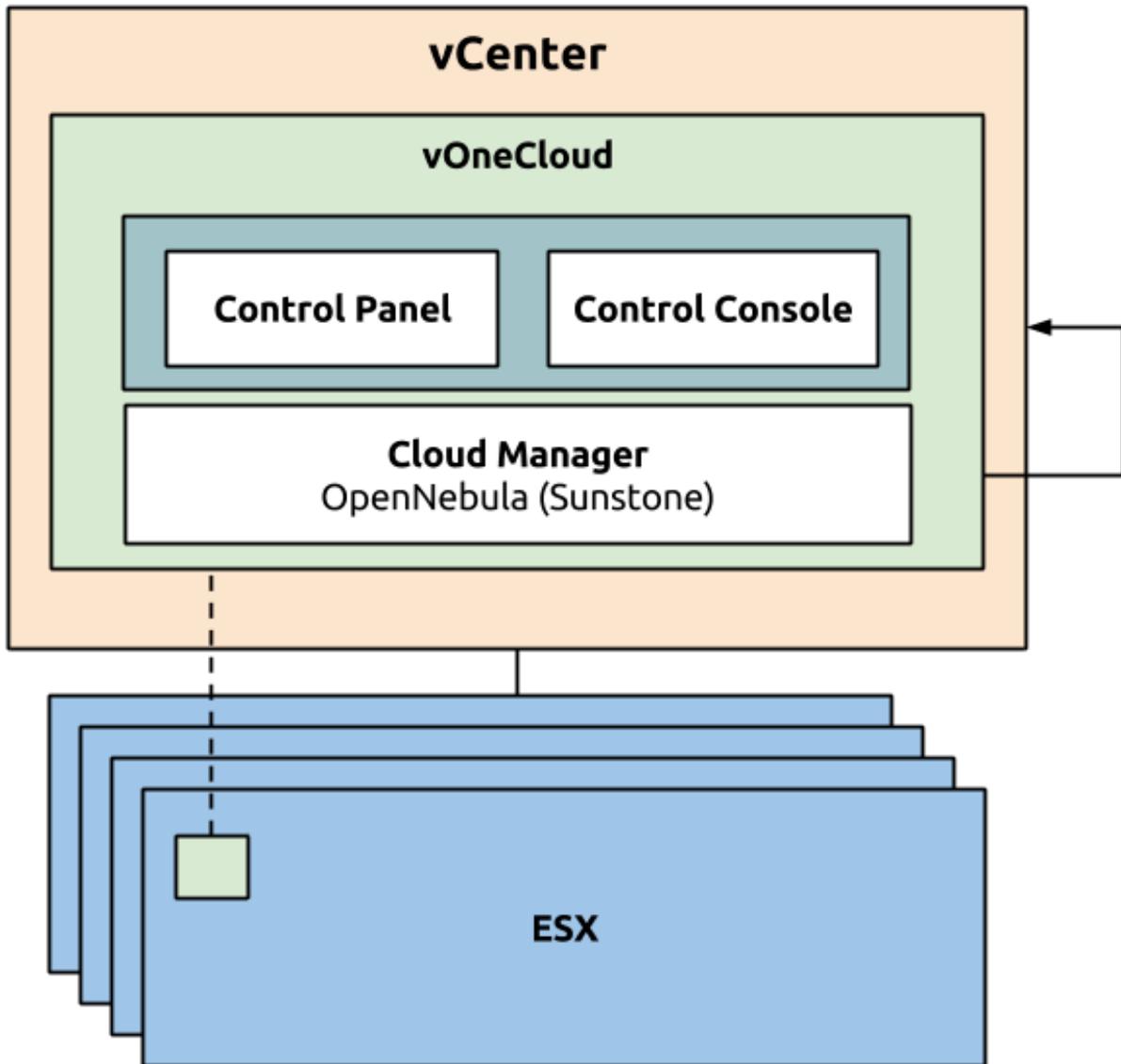
- **Centralized Management of Multiple Zones.** Federate different datacenters by joining several vOneCloud instances.
- **Community Virtual Appliance Marketplace.** Create your own marketplace or benefit from community contributions with an online catalog of ready-to-run virtual appliances.

- **Broad Commodity and Enterprise Platform Support.** Underlying OpenNebula software features an amazingly flexible and plugin oriented architecture that eases the integration with existing datacenter components. Do no reinvent your datacenter, evolve it!
- **Virtual & Physical Infrastructure Control.** Manage all aspects of your physical (hypervisors, storage backends, etc) & virtualized (VM lifecycle, VM images, virtual networks, etc) from a centralized web interface (Sunstone).
- **Management of multi-VM application (services) through the OneFlow component.** OneFlow allows users and administrators to define, execute and manage multi-tiered applications, or services composed of interconnected Virtual Machines with deployment dependencies between them. Each group of Virtual Machines is deployed and managed as a single entity.

Although the configuration is tailored for vCenter infrastructures, all the power of OpenNebula is contained in vOneCloud and it can be unleashed!

2.4 Components

This diagram reflects the relationship between the components that compose the vOneCloud platform.



2.4.1 vCenter infrastructure

- vOneCloud is an appliance that is executed under vCenter. vOneCloud then leverages this previously set up infrastructure composed of vCenter and ESX nodes.

2.4.2 OpenNebula (Cloud Manager)

- **OpenNebula** acts as the Cloud Manager of vOneCloud, responsible for managing your virtual vCenter resources and adding a Cloud layer on top of it.
- **Sunstone** is the web-based graphical interface of OpenNebula. It is available at http://<appliance_ip>. This interface is at the same time the main administration interface for you cloud infrastructure, and consumer interface for the final users of the cloud.

2.4.3 Control Console and Control Panel

Control Console and Control Panel are two components which have the goal of configuring different aspects of the vOneCloud appliance: network, appliance user accounts, OpenNebula (Sunstone) configuration and services.

- The *Control Console* is a text based wizard accessible through the vCenter console to the vOneCloud appliance and has relevance in the bootstrap process and the configuration of the appliance
- The *Control Panel* is a slick web interface and is oriented to the configuration of the vOneCloud services as well as used to update to a newer version of vOneCloud.

2.5 Accounts

The vOneCloud platform ships with several pre-created user accounts which will be described in this section:

Account	Interface	Role	Description
root	linux	Appliance administrator	This user can log into the appliance (local login, no SSH).
oneadmin	vOneCloud Control Panel	vOneCloud Appliance administrator	Used to configure several aspects of the vOneCloud Appliance infrastructure: OpenNebula services, automatic upgrades, and drivers configuration (hybrid drivers and Active Directory integration).
CloudAdmin	OpenNebula (Sunstone)	Cloud Administrator	Cloud Administrator. Run any task in OpenNebula, including creating other users.

Different *cloud roles* can be used in order to offer and consume cloud provisioning services in Sunstone (vOneCloud Web UI). These roles can be defined through Sunstone, and in particular CloudAdmin comes preconfigured as the Cloud Administrator.

2.5.1 root linux account

vOneCloud runs on top of Linux (in particular CentOS 7 <<http://www.centos.org/>>), therefore the administrators of the vOneCloud appliance should be able to have console access to the appliance. The appliance comes with a *root* account with an undefined password. This password **must** be set during the first boot of the appliance. The *vOneCloud Control Console* will prompt the administrator for a new root password.

Please note that ssh access to the root account is disabled by default in the appliance, the only possible way of logging in, is to log in using an alternate TTY in the vCenter console of the vOneCloud appliance and logging in.

Note: Console access to the appliance is not required by vOneCloud. Use it only under special circumstances. If you are a user with an active support subscription, make sure any changes applied in the appliance are supported by the vOneCloud support.

2.5.2 oneadmin account

The main use of this account is to access the vOneCloud Control Panel (http://<appliance_ip>:8000). Only this account will have access to the Control Panel, no other user will be allowed to log in.

However, the *oneadmin* account is also a valid Sunstone account, but we **strongly recommend not to use this account to access the Sunstone Web UI**, relying instead in the pre-existing *CloudAdmin* account (see below).

The *oneadmin* account password is set by the admin user during the initial configuration of the vOneCloud Control Console. The **password can only be changed in the vOneCloud Control Console**. After changing it the user **must** restart the OpenNebula service in the *vOneCloud Control Panel*.

2.5.3 *CloudAdmin* OpenNebula (Sunstone) account

This account is used to log into Sunstone. It is a Cloud Administrator account, capable of running any task within OpenNebula, however, since this account cannot log into the vOneCloud Control Panel, it cannot control Appliance infrastructure, only the virtual resources.

This account should also be used to create other accounts within Sunstone, either with the same level of privileges (by placing a new account in the *oneadmin* group) or final user without admin privileges. These final users can either be *VDCadmins* or *cloud consumers*.

The default password for this account is *CloudAdmin* (just like the username). Make sure you change the password within Sunstone once you log in.

SIMPLE CLOUD DEPLOYMENT

3.1 All About Simplicity

vOneCloud is preconfigured to be plugged into your existing vCenter infrastructure and quickly start using its cloud features. vOneCloud is the perfect choice for companies that want to create a self-service cloud environment on top of their VMware infrastructure without having to abandon their investment in VMware and retool the entire stack.

Simple to Use	Simple graphical interfaces for cloud consumers, and VDC and cloud administrators.
Simple to Update	New versions can be easily installed with no downtime of the virtual workload.
Simple to Adopt	Add cloud features, do not interfere in existing VMware procedures and workflows.
Simple to Install	CentOS appliance deployable through vSphere, able to import your system

This guide will guide through all the needed steps to deploy vOneCloud and prepare your new cloud to provision your end users.

3.2 Download and Deploy

Download links:

- [vOneCloud-1.2.1.ova](#) (md5sum: 69c27cdc1ab667d56ea0509b19960854)

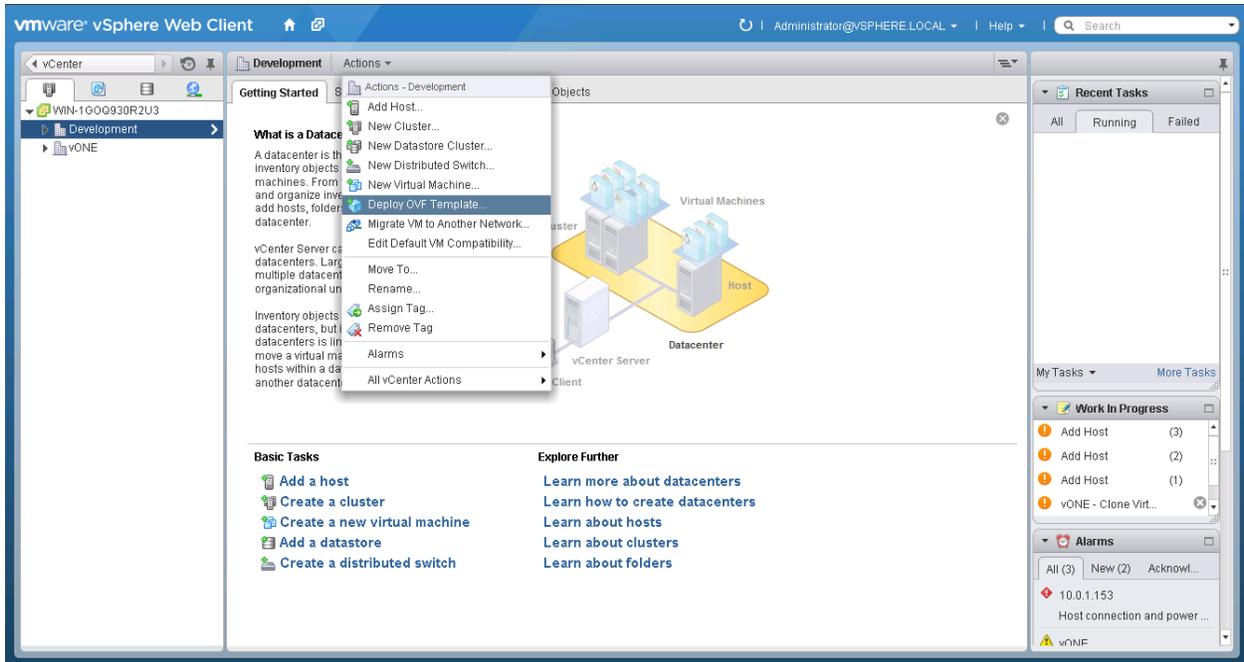
You can import this OVA appliance to your vCenter infrastructure. It is based on [CentOS 7](#) and has the VMware tools enabled.

The appliance requirements are kept to a strict minimum so it can be executed in any vCenter installation. However, before deploying it, please read the *system requirements*.

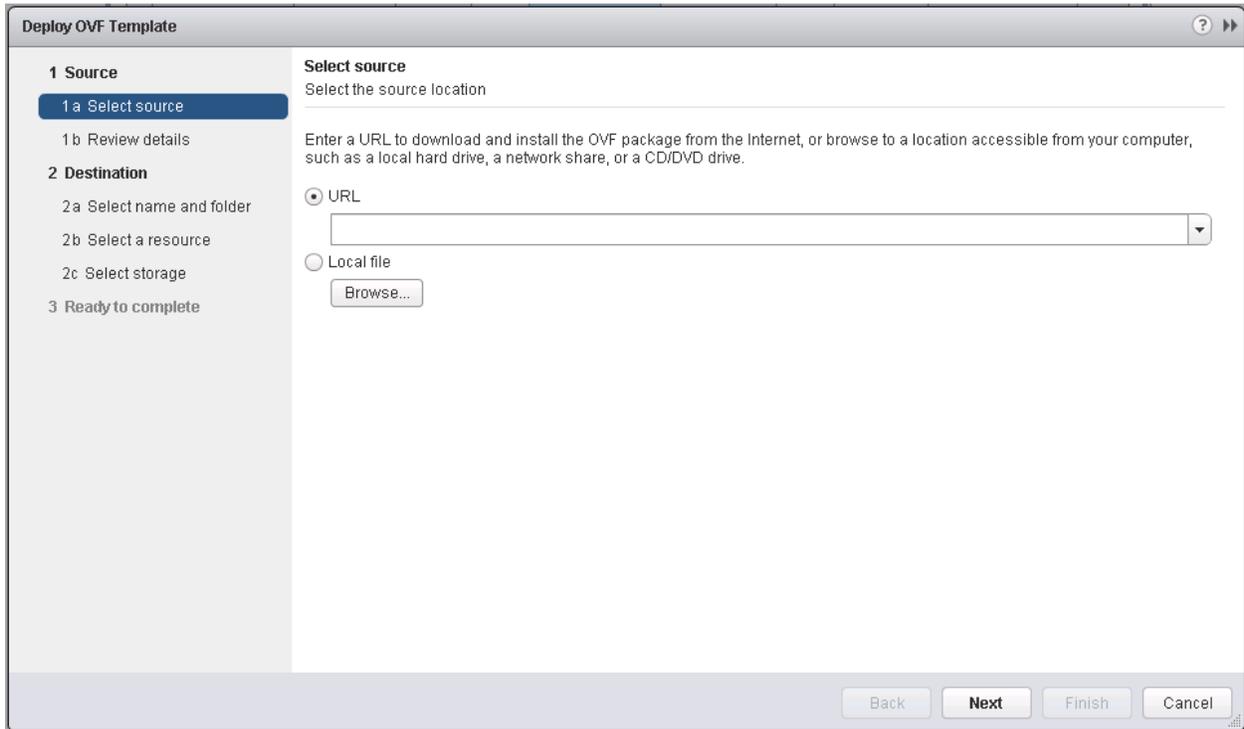
Follow the next steps to deploy a fully functional vOneCloud:

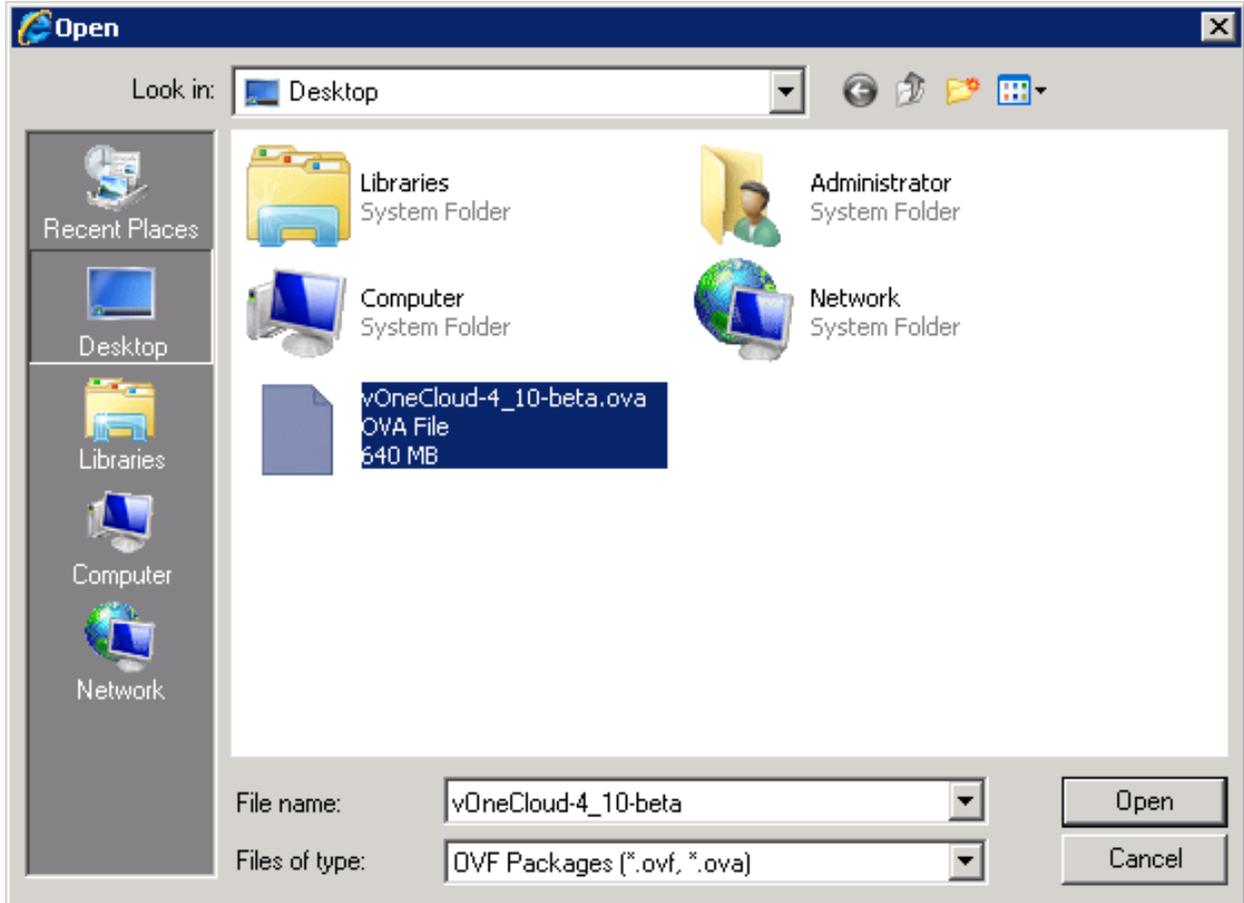
3.2.1 Step 1. Deploying the OVA

Login to your vCenter installation and select the appropriate datacenter and cluster, where you want to deploy the appliance. Select the `Deploy OVF Template`.

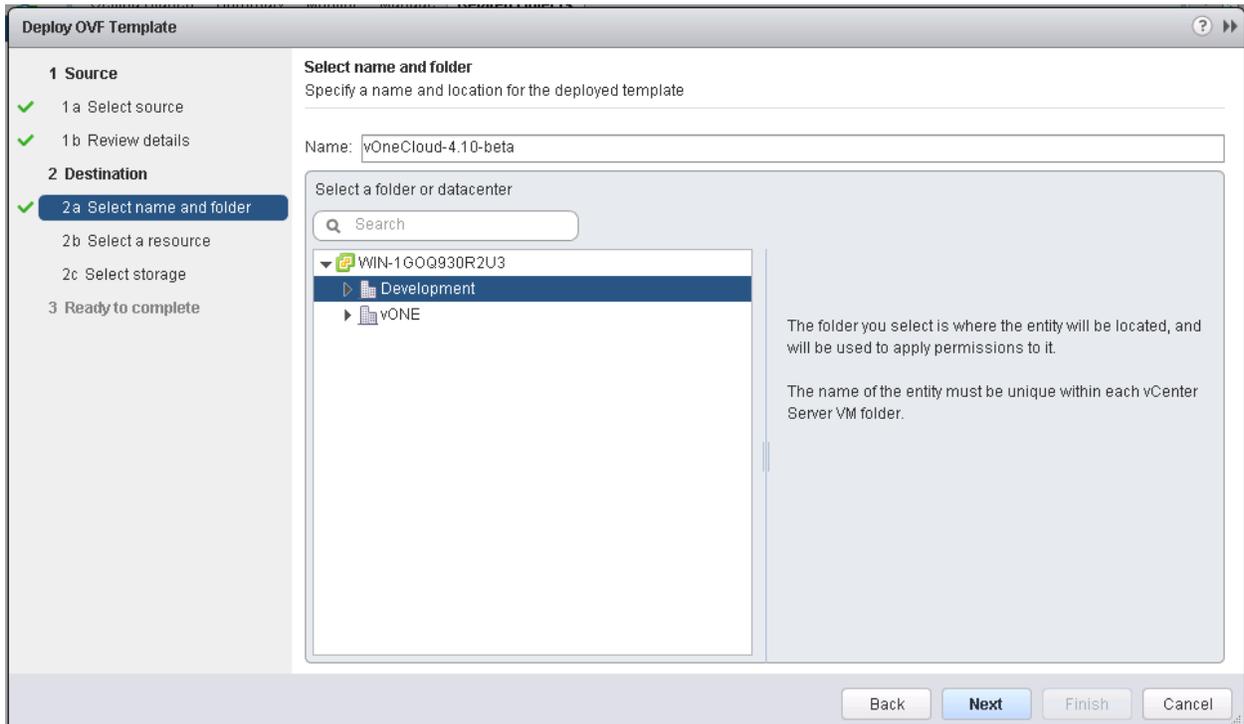


You have the option now to input the URL of the appliance (you can find it at the top of this page), or if you have previously downloaded it, you can simply browse to the download path as such:

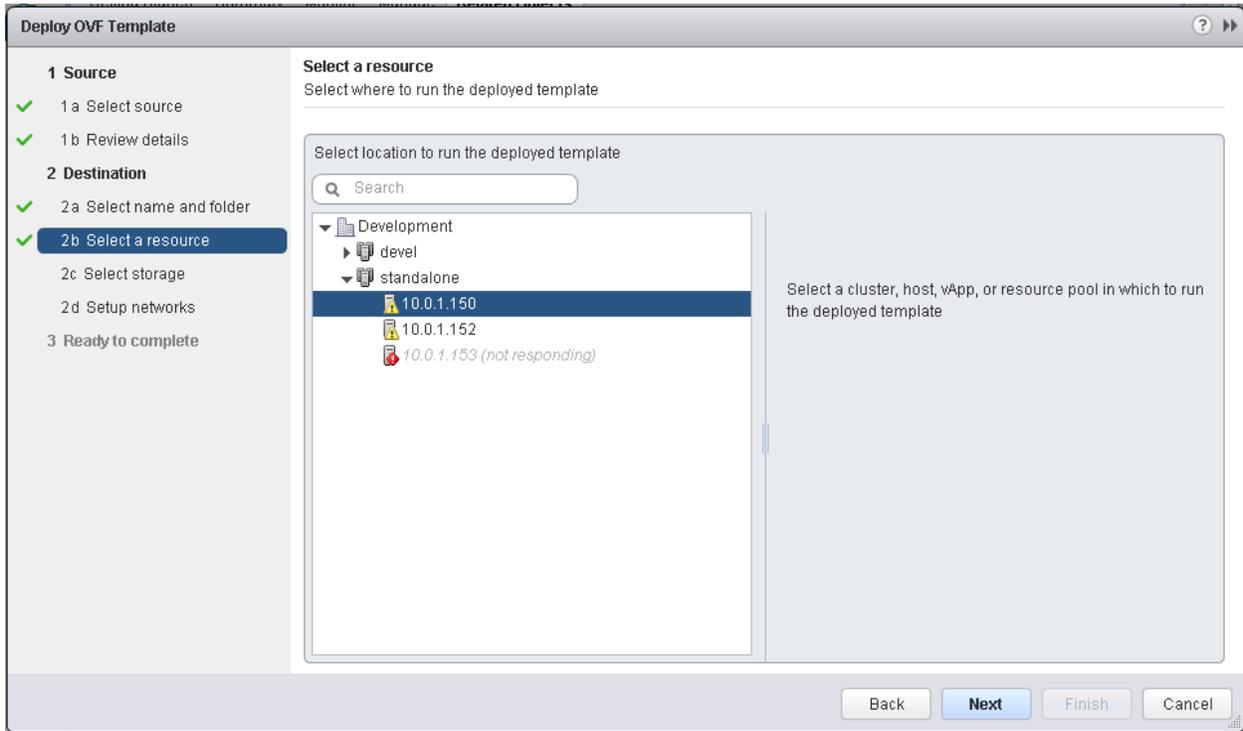




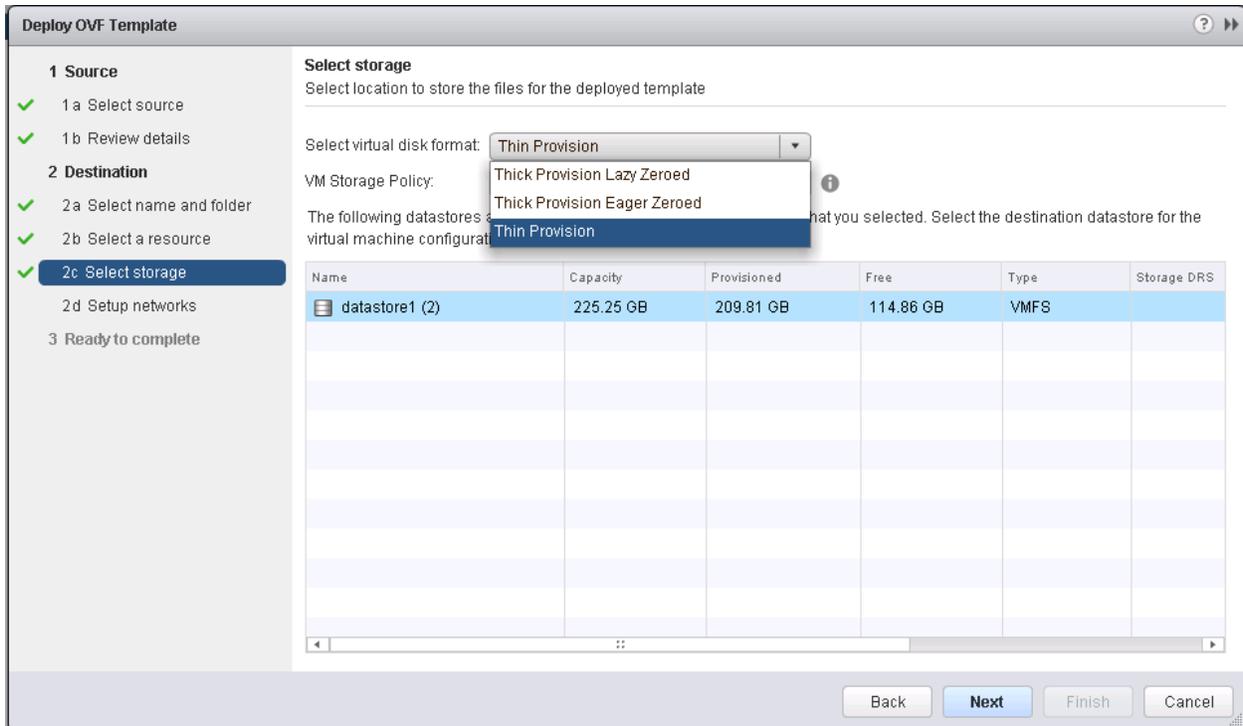
Select the name and folder:



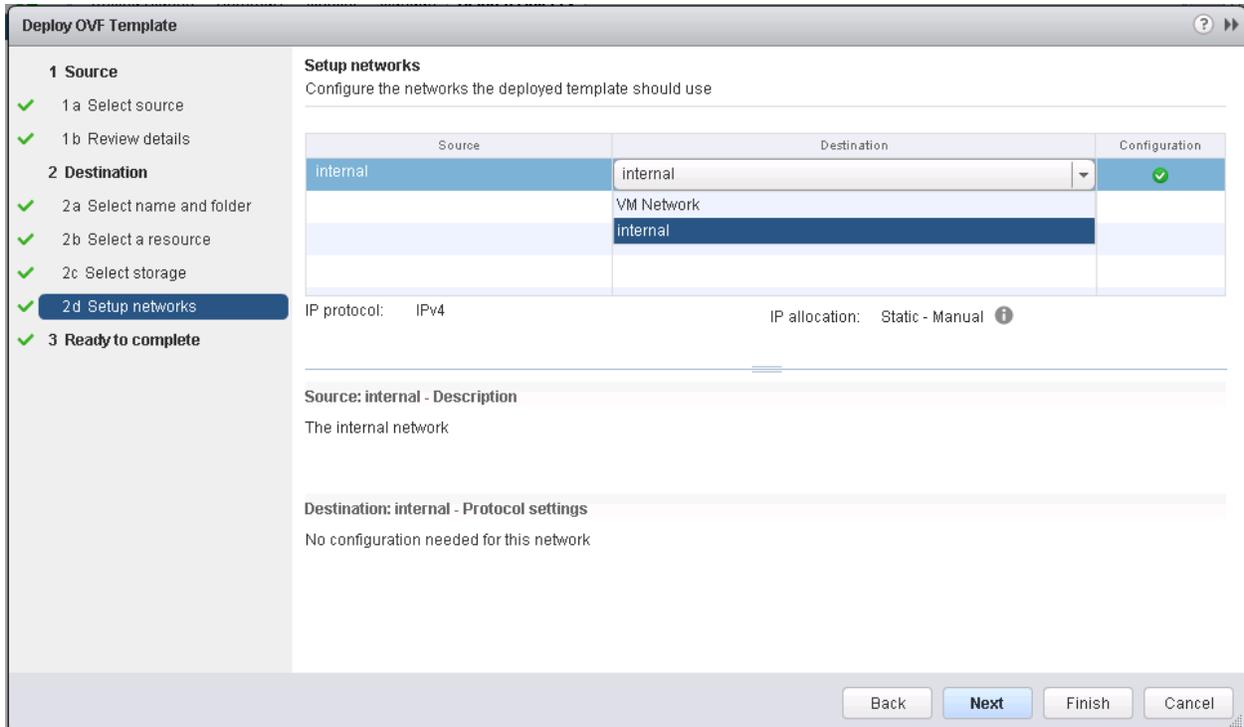
Select a resource to run the appliance:



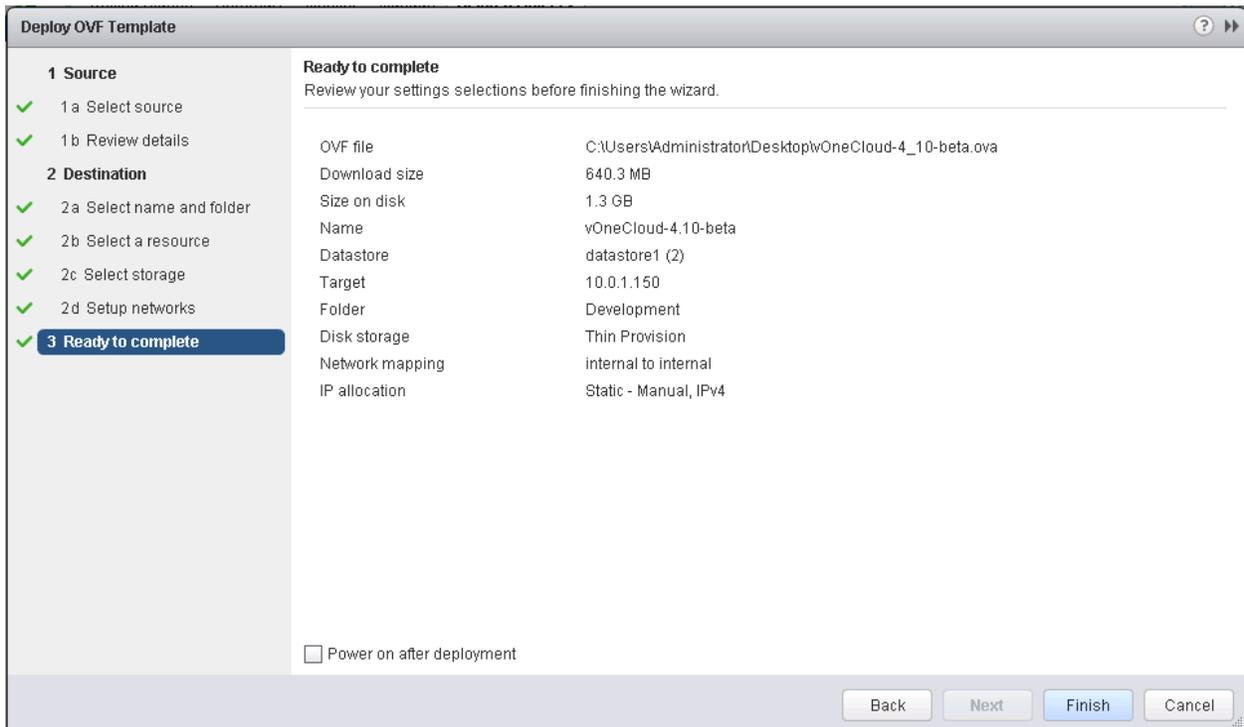
Select the datastore:



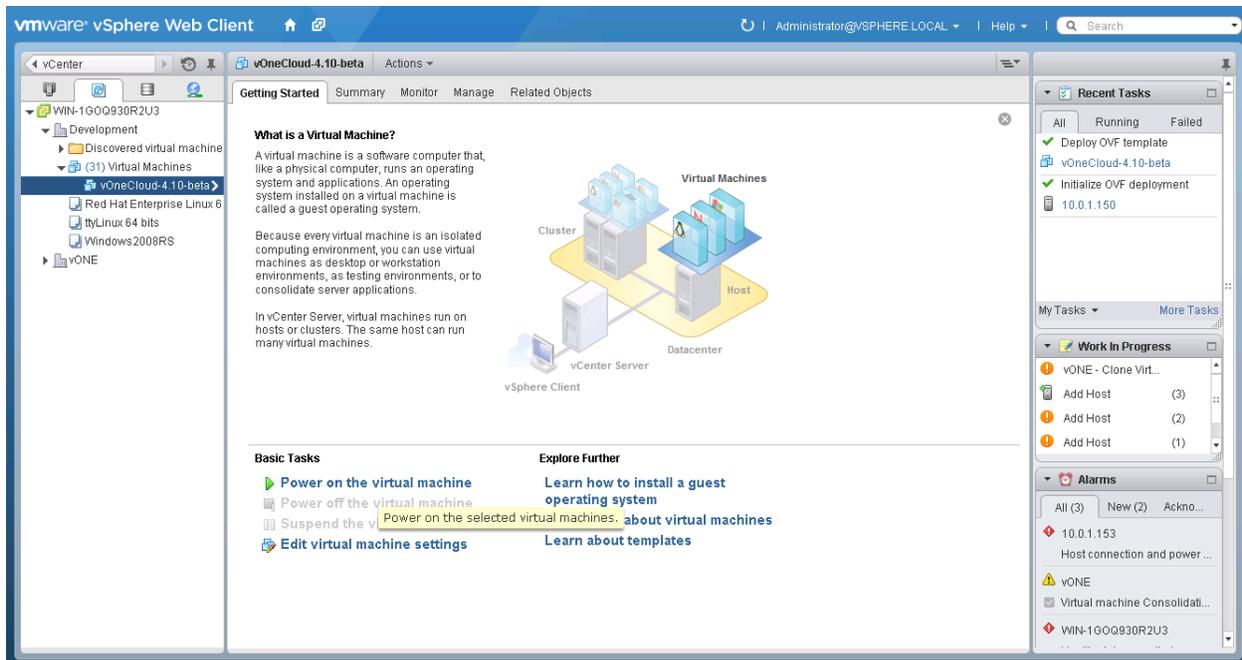
Select the Network. You will need to choose a network that has access to the ESX hosts.



Review the settings selection and click finish. Wait for the Virtual Machine to appear in the cluster.



Now you can power on the Virtual Machine:



3.2.2 Step 2. vOneCloud Control Console - Initial Configuration

When the VM boots up you will see in the vCenter console in vCenter the *vOneCloud Control Console*, showing this wizard:



In this wizard you should **configure the network**. If you are using DHCP you can simply skip to the next item.

If you are using a static network configuration, answer yes and you will need to use a ncurses interface to:

- “Edit a connection”
- Select “Wirect connection 1”
- Change IPv4 CONFIGURATION from <Automatic> to <Manual> and select “Show”

- Input the desired IP address/24 in Addresses
- Input Gateway and DNS Servers
- Select OK and then quit the dialog.

Next, you can **configure the proxy** if your network topology requires a proxy to access the internet. However please note that it's absolutely fine to use vOneCloud without any internet access at all, as you will be able to do most of the things, except for automatic upgrades and hybrid cloud access.

Afterwards you need to define a **root password**. You won't be using this very often, so write it down somewhere safe. It's your master password to the appliance.

The next item is the **oneadmin account password**. You will only need this to login to the vOneCloud Control Panel, a web-based configuration interface we will see very shortly. Check the [Accounts section](#) to learn more about vOneCloud roles and users.

We have now finished the vOneCloud Control Console initial configuration wizard. As the wizard itself will point out now you can open the vOneCloud Control Panel by pointing your browser to `http://<appliance_ip>:8000` and using the *oneadmin* account and password just chosen.

3.2.3 Step 3. vOneCloud Control Panel - Manage Services

The *vOneCloud Control Panel* will allow the administrator to:

- Check for new vOneCloud versions and manage upgrades.
- Configure Active Directory / LDAP integration and hybrid cloud drivers: Amazon EC2, Windows Azure and IBM SoftLayer.
- Start the OpenNebula services
- Manage automatic upgrades.

Click on the configuration icon if you need to configure one of the supported options. Keep in mind that you can run this configuration at any moment. We recommend to start inspecting vOneCloud's functionality before delving into advanced configuration options like the aforementioned ones.

After clicking on the Start button, proceed to log in to Sunstone (OpenNebula's frontend) by opening: `http://<appliance_ip>` and using the default login *CloudAdmin / CloudAdmin* user and password.

Note: There is a guide available that documents the configuration interfaces of the appliance [here](#).

3.2.4 Step 4. Enjoy the Out-of-the-Box Features

After opening the Sunstone interface (`http://<appliance_ip>` with *CloudAdmin / CloudAdmin* user and password) you are now ready to enjoy the *out-of-the-box features* of vOneCloud!

Move on to the [next section](#) to start using your cloud by importing your vCenter infrastructure.

3.2.5 Login to the Appliance

Warning: If you make **any** changes to OpenNebula configuration files under `/etc/one` please note that they **will** be either discarded in the next upgrade, or overwritten by vOneCloud Control Center. Keep in mind that only those features configurable in Sunstone or in vOneCloud Control Console and Control Panel are officially supported. Any other customizations are not supported by [vOneCloud Support](#).

All the functionality you need to run your vOneCloud can be accessed via Sunstone, and all the support configuration parameters are available either in the *vOneCloud Control Console* or in the *vOneCloud Control Panel*.

To access the *vOneCloud command line interface* open the vCenter console of the vOneCloud Virtual Machine appliance and change the tty (Ctrl + Alt + F2). Afterwards, log in with the *root* account and the password you used in the *initial configuration*, and switch to the *oneadmin* user.

3.3 Import Existing vCenter

Importing a vCenter infrastructure into vOneCloud can be carried out easily through the Sunstone Web UI. Follow the next steps to import an existing vCenter as well as any already defined VM Template and Networks.

You will need the IP or hostname of the vCenter server, as well as an administrator credentials to successfully import resources from vCenter.

3.3.1 Step 1. Sunstone login

Log in into Sunstone as **vOneCloud**, as explained in *the previous section*.

3.3.2 Step 2. Acquire vCenter Resources

In Sunstone, proceed to the `Infrastructure --> Hosts` tab and click on the “+” green icon.

The screenshot shows the OpenNebula web interface. On the left is a sidebar with navigation links: Dashboard, System, Virtual Resources (Virtual Machines, Templates), Infrastructure (Clusters, Hosts, Virtual Networks, Zones), and Support (Not connected, Sign in). The main content area is titled 'Hosts' and features a refresh icon, a green '+' button, and a search input field. Below this is a table with columns: ID, Name, Cluster, and RVMs. The table shows one entry with '1 TOTAL' RVMs. A red arrow points to the green '+' button.

Warning: vOneCloud does not currently support spaces in vCenter cluster names

In the dialog that pops up, select vCenter as Type in the dropdown. You now need to fill in the data according to the following table:

Hostname	vCenter hostname (FQDN) or IP address
User	Username of a vCenter user with administrator rights
Password	Password for the above user

Create Host

Type: vCenter Cluster: Default (none)

vCenter

User: Administrator@vsphere.local Hostname: 10.0.1.211

Password:

Please select the vCenter Clusters to be imported to OpenNebula. Each vCenter Cluster will be included as a new OpenNebula Host

vOneDatacenter Clusters

Testing

Production

^ Templates

Hadoop Experiment422485bf-0dc0-1750-a4b4-d0328a2e27e0

HPC Env42245383-a3b6-108d-a90c-1471c136d9a0

^ Networks

VM Network Port Group

SIZE: 255 TYPE: Ethernet

MAC (optional):

Note: Running VMs panel won't be filled if the vCenter cluster is not imported. To import running VMs from a Cluster, the vCenter cluster needs to be imported first as a vOneCloud host.

After the vCenter cluster is selected in Step 2, a list of vCenter VM Templates and both Networks and Distributed vSwitches will be presented to be imported into vOneCloud. Select all the Templates, Networks and Distributed vSwitches you want to import, and vOneCloud will generate vOneCloud VM Template and Virtual Networks resources

representing the vCenter VM templates and vCenter Networks and Distributed vSwitches respectively.

Additionally, these vOneCloud VM templates can be edited to add information to be passed into the instantiated VM. This process is called *Contextualization*.

Also, Virtual Networks can be further refined with the inclusion of different [Address Ranges](#). This refinement can be done at import time, defining the size of the network one of the following supported Address Ranges:

- IPv4: Need to define at least starting IP address. MAC address can be defined as well
- IPv6: Can optionally define starting MAC address, GLOBAL PREFIX and ULA PREFIX
- Ethernet: Does not manage IP addresses but rather MAC addresses. If a starting MAC is not provided, vOneCloud will generate one.

The networking information will also be passed onto the VM in the *Contextualization* process. Regarding the vCenter VM Templates and Networks, is important to take into account:

- vCenter **VM Templates with already defined NICs** that reference Networks in vCenter will be imported without this information in vOneCloud. These NICs will be invisible for vOneCloud, and therefore cannot be detached from the Virtual Machines. The imported Templates in vOneCloud can be updated to add NICs from Virtual Networks imported from vCenter (being Networks or Distributed vSwitches).
- We recommend therefore to use **VM Templates in vCenter without defined NICs**, to add them later on in the vOneCloud VM Templates

3.3.3 (Optional) Step 3. Import vCenter Running Virtual Machines / Reacquire VM Templates and Networks

If the vCenter infrastructure has running Virtual Machines, vOneCloud can import and subsequently manage them. The process involves using the same dialog as in Step 2, which will now present the running VMs for the vCenter clusters already imported in vOneCloud. To import running vCenter VMs:

1. Proceed to the `Infrastructure --> Hosts` tab and click on the “+” green icon. Select vCenter as Type in the dropdown and fill in the credentials and the IP or hostname of vCenter.
2. You will now see running vCenter VMs that can be imported in vOneCloud. Select the VMs that need to be imported one and click import button.
3. After the VMs are imported you can operate on their lifecycle, assign them to particular users, attach or detach network interfaces, create snapshots, etc. All the functionality that vOneCloud supports for regular VMs is present for imported VMs.

Create Host

Type: vCenter Cluster: Default (none)

vCenter

User: Administrator@vsphere.local Hostname: 10.0.1.4

Password:

Clusters

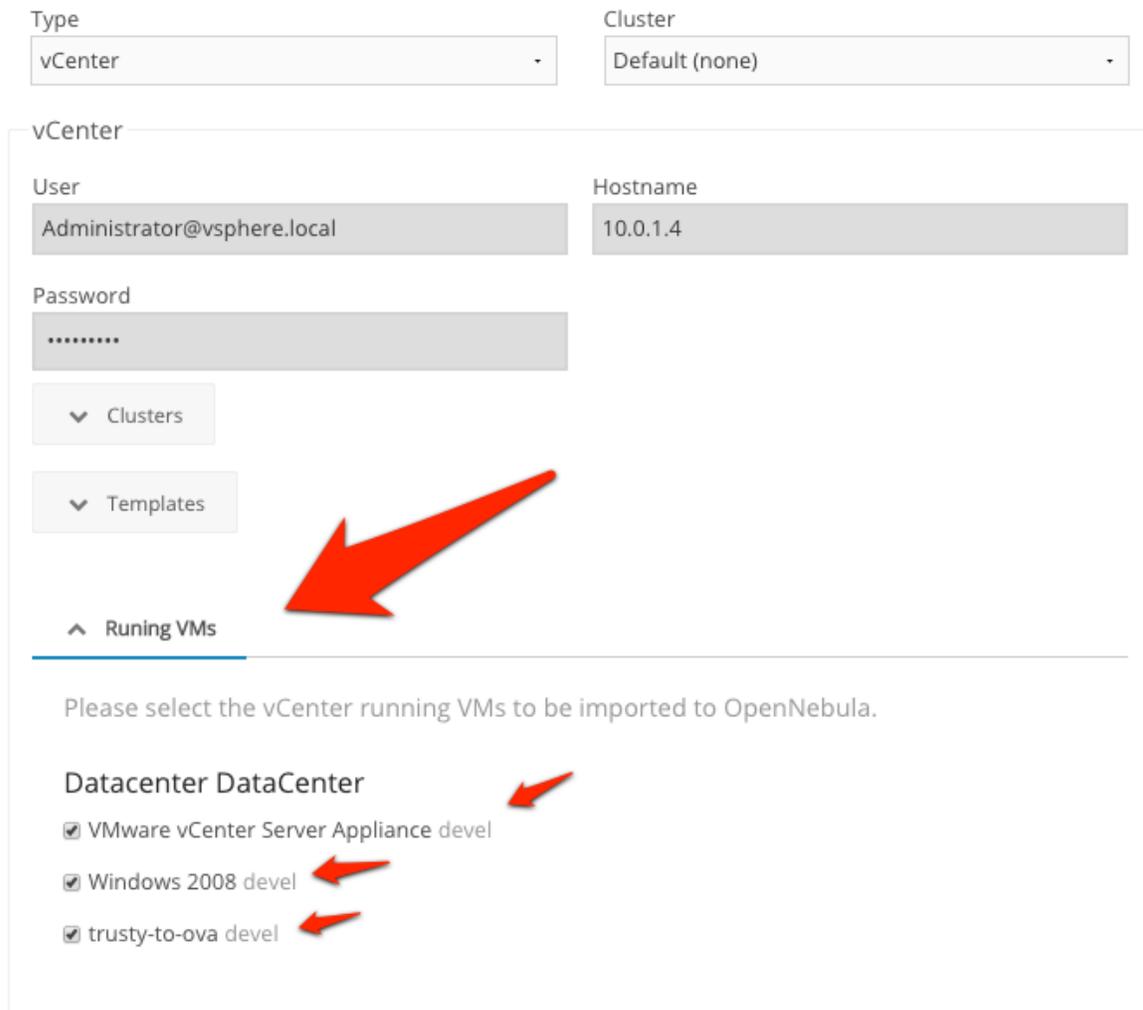
Templates

Running VMs

Please select the vCenter running VMs to be imported to OpenNebula.

Datacenter DataCenter

- VMware vCenter Server Appliance devel
- Windows 2008 devel
- trusty-to-ova devel



Note: The vCenter VM Templates, Networks, Distributed vSwitches and running Virtual Machines can be imported regardless of their position inside VM Folders, since vOneCloud will search recursively for them.

3.3.4 Step 4. Check Resources

Now it's time to check that the vCenter import has been successful. In Infrastructure --> Hosts check vCenter has been imported, and if all the ESX hosts are available:

Note: Take into account that one vCenter cluster (with all its ESX hosts) will be represented as one vOneCloud host.

The screenshot shows the OpenNebula web interface. The sidebar on the left contains navigation links: Dashboard, System, Virtual Resources (Virtual Machines, Templates), Infrastructure (Clusters, Hosts, Virtual Networks, Zones), and Support (Not connected, Sign in, Control Panel). The main content area is titled 'Host devel' and features a table of hosts. The table has columns for Hostname, Status, Real CPU, and Real Memory. A single host is listed with Hostname '10.0.1.3', Status 'on', Real CPU '31 / 800 (4%)', and Real Memory '14.2GB / 16GB (89%)'. Above the table are buttons for 'Info', 'Graphs', 'VMs', and 'ESX'. The 'ESX' button is highlighted with a blue box and a red arrow. Another red arrow points to the 'Hosts' link in the sidebar, and a third red arrow points to the host entry in the table. At the top right, there are buttons for 'Select cluster', 'Enable', 'Disable', and a red button with a trash icon. The footer of the interface reads 'OpenNebula 4.10.2 by OpenNebula Systems.'

3.3.5 Step 5. Instantiate a VM Template

Everything is ready! Now vOneCloud is prepared to manage Virtual Machines. In Sunstone, go to *Virtual Resources* --> *Templates*, select one of the templates imported in **Step 2** and click on *Instantiate*. Now you will be able to control the lifecycle of the VM.

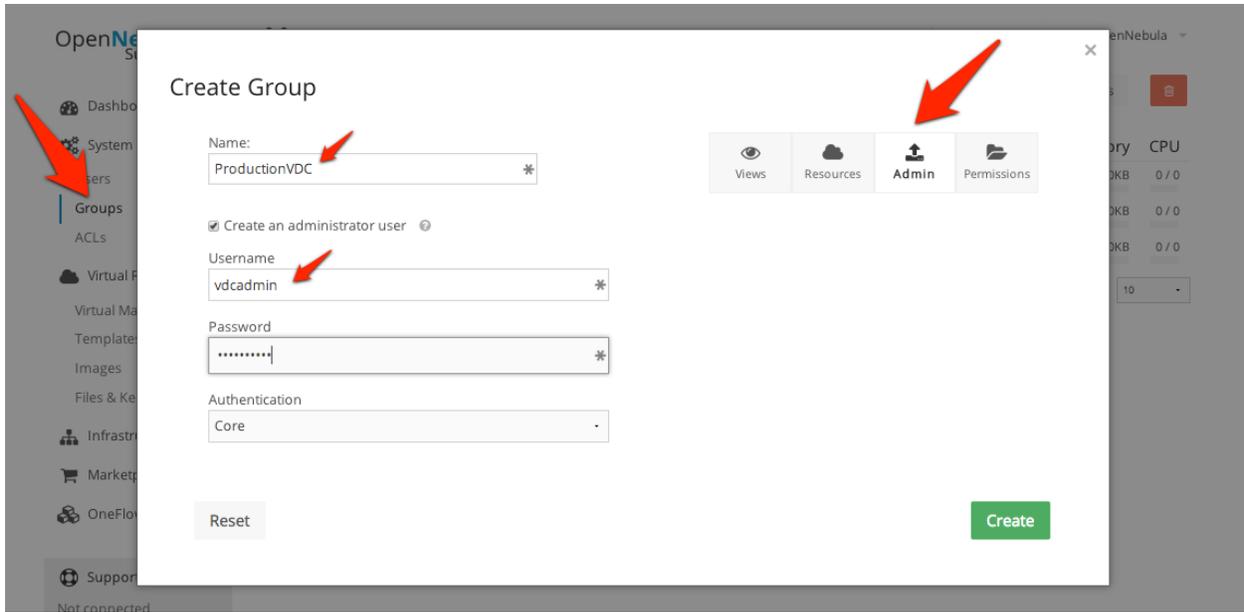
More information on available operations over VMs [here](#).

3.4 Create a Virtual Datacenter

The provisioning model by default in vOneCloud is based on three different *roles* using three different web *interfaces*. *vOneCloud* user comes preconfigured and is the **Cloud Administrator**, in full control of all the physical and virtual resources and using the vCenter view.

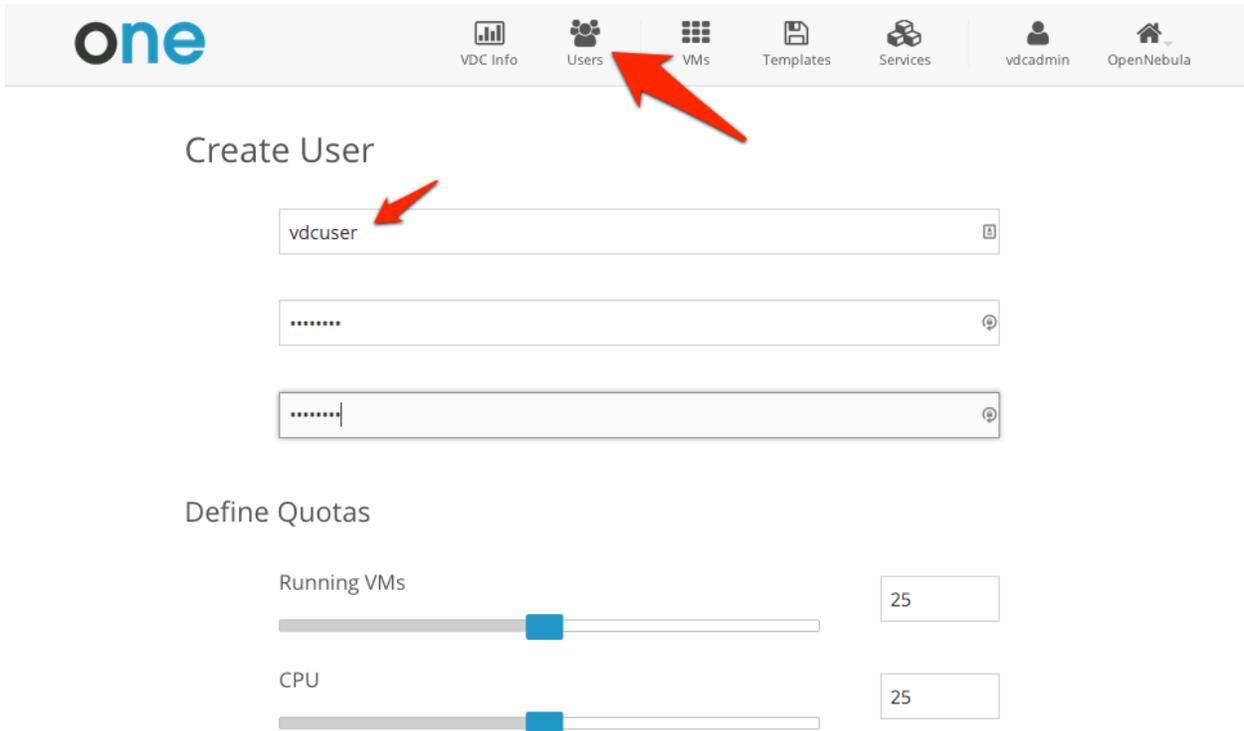
The whole cloud can be divided in isolated partitions, called Virtual Datacenters, or VDCs. VDC are defined as group of users with access to a set of physical hosts and their associated resources in a transparent way. A **VDC Admin** manages her partition of the cloud, including user management, but only within her VDC, not for the whole cloud like the **Cloud Administrator**.

Let's create a VDC named *ProductionVDC* with an administrator called **vdadmin**:



In the *Resources* tab you can choose which physical resources are assigned to the VDC. By default it will use all the available resources.

Now login again using this newly created **vdcadmin**. The VDC Admin view will kick in. Try it out creating the first *vdcuser* and assign them quotas on resource usage:



As *vOneCloud* user, in the vCenter View, you will be able to see all the VM Templates that have been automatically created when importing the vCenter infrastructure. You can assign any of these VM Templates to the VDC:

OpenNebula Sunstone

Template 0

Dashboard

System

Users

Groups

ACLs

Virtual Resources

Virtual Machines

Templates

Infrastructure

Clusters

Hosts

Zones

Marketplace

OneFlow

Update Instantiate Clone

Info Template

Information		Permissions:	Use	Manage	Admin
ID	0	Owner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Name	tyLinux 64 bits	Group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Register time	16:30:37 22/10/2014	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ownership		Owner	vOneCloud		
		Group	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> 0: oneadmin <input type="checkbox"/> 1: users <input type="checkbox"/> 101: ProductionVDC 		

OpenNebula 4.9.80 by OpenNebula Systems

The same applies for Virtual Networks these VM Templates may use.

If you log with `vduser`, the view will change to the vCenter Cloud View, where `vduser` can start consuming VMs based on the VM Template shared by the **cloud administrator** and allowed by the `vdadmin`:

one

VMs Templates Services vduser OpenNebula

Virtual Machines

+ Search

There are no Virtual Machines

Previous Next 6

OpenNebula 4.9.80 by OpenNebula Systems

Read more about VDC managing.

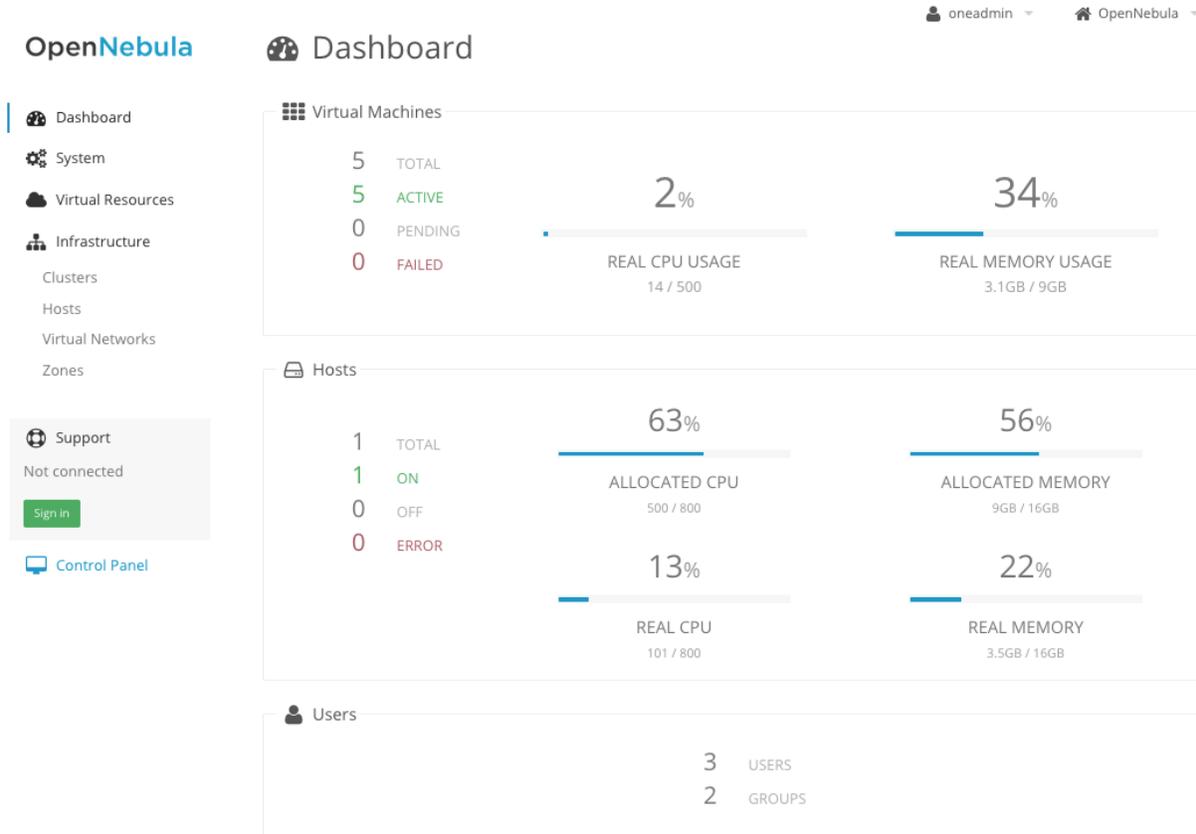
3.5 vOneCloud Interfaces

vOneCloud offers a rich set of interfaces to interact with your cloud infrastructure, tailored for specific needs of cloud administrators and cloud users alike.

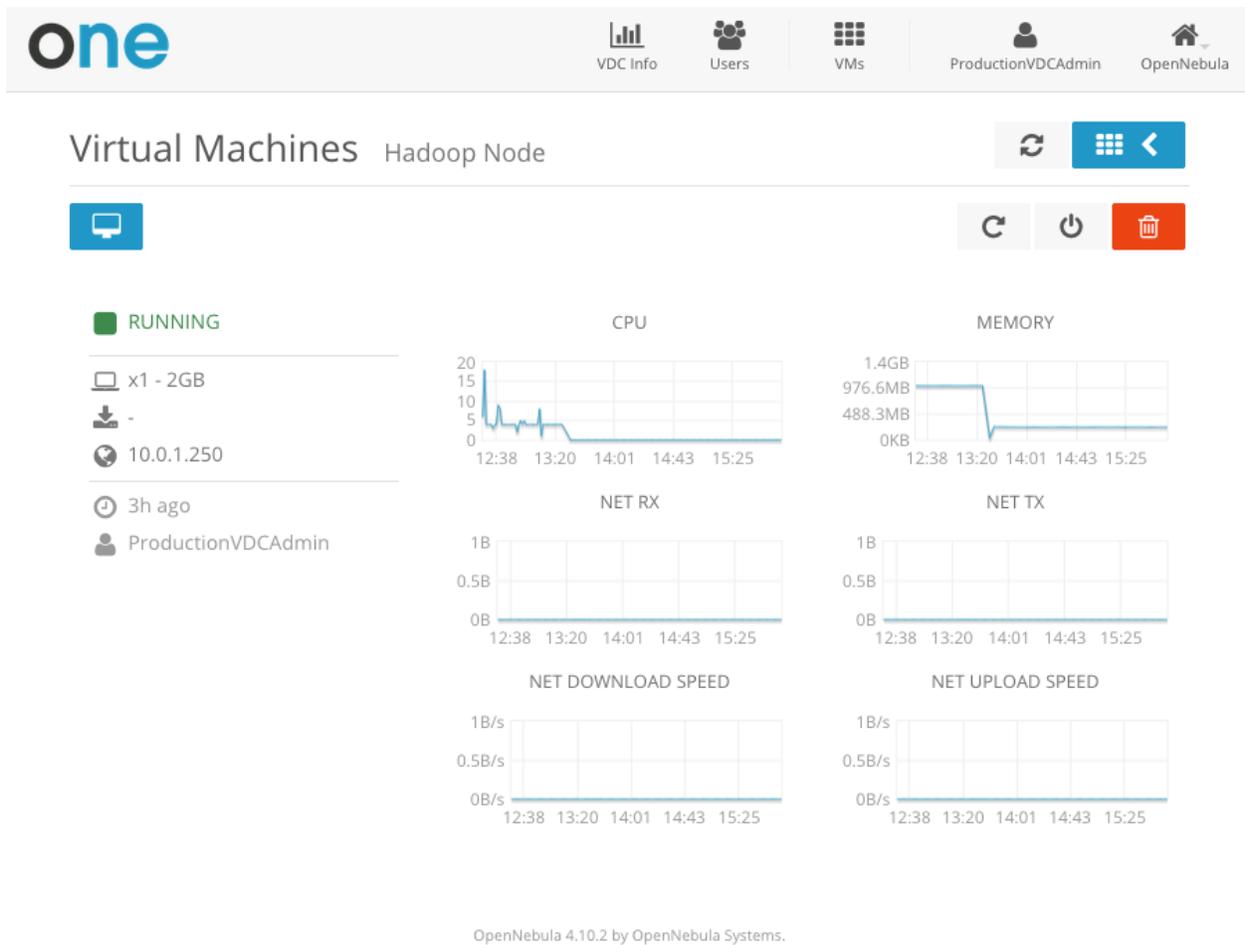
3.5.1 Web Interface (Sunstone)

vOneCloud web interface, called Sunstone, offers three main views:

- **Sunstone vCenter view:** Aimed at cloud administrators, this view is tailored to present all the available options to manage the physical and virtual aspects of your vCenter infrastructure.



- **Sunstone VDC Admin View:** Aimed at Virtual Datacenter administrators, this interface is designed to manage all the virtual resources of the VDC, including the creation of new users.



- **Sunstone vCenter Cloud View:** Aimed at end users, this interface eases virtual resource provisioning and hides all the complexity of the cloud that is going on behind the scenes. It is a tailored version of the Sunstone Cloud View, with adjusted functionality relevant to vOneCloud and vCenter.

one

VMs IT-Service-Manager OpenNebula

Create Virtual Machine

BlogServerForSalesDept

Select a Template

System VDC Saved

Search

RHEL 7 LAMP Production
redhat
vCenter Template imported by OpenNebula from Cluster level

Ubuntu 14.04 DevBox
ubuntu
vCenter Template imported by OpenNebula from Cluster level

Previous 1 Next 6

3.5.2 Command Line Interface (CLI)

If you are a SysAdmin, you will probably appreciate vOneCloud's [CLI](#), which uses the same design philosophy behind *nix commands (one command for each task).

Moreover, vOneCloud ships with a powerful tool (`onevcenter`) to import vCenter clusters, VM Templates and Networks. The tool is self-explanatory, just set the credentials and IP to access the vCenter host and follow on screen instructions.

To access the vOneCloud command line interface you need to *login into the vOneCloud appliance*, and switch to the `oneadmin` user.

3.5.3 Application Programming Interfaces (API)

If you are a DevOp, you are probably used to build scripts to automate tasks for you. vOneCloud offers a rich set of APIs to build scripts to perform these tasks in different programming languages:

- [xmlrpc API](#) Talk directly to the OpenNebula core
- [Ruby OpenNebula Cloud API \(OCA\)](#) Build tasks in Ruby
- [Java OpenNebula Cloud API \(OCA\)](#) Build tasks in Java

SECURITY AND RESOURCE CONSUMPTION CONTROL

4.1 Introduction

vOneCloud ships with several authentication plugins that can be configured to pull user data from existing authentication backends.

vOneCloud also implements a powerful permissions, quotas and ACLs mechanisms to control which users and groups are allowed to use which physical and virtual resources, keeping a record of the consumption of these resources as well as monitoring their state periodically.

Take control of your cloud infrastructure!

4.2 Users, Groups and ACLs

vOneCloud offers a powerful mechanism for managing, grouping and assigning roles to users. Permissions and Access Control List mechanisms ensures the ability to allow or forbid access to any resource controlled by vOneCloud, being physical or virtual.

4.2.1 User & Roles

vOneCloud can manage different types of users, attending to the permissions they have over infrastructure and logical resources.

User Type	Permissions	View
Cloud Administrators	enough privileges to perform any operation on any object	vcenter
VDC Administrators	manage a limited set of resources and users	vdcadmin
VDC & End Users	access a simplified view with limited actions to create new VMs	cloud

Note: VDC is the acronym for Virtual Datacenter

OpenNebula Sunstone

Users

oneadmin OpenNebula

Dashboard System Users Groups ACLs Virtual Resources Infrastructure Marketplace OneFlow Support

Refresh + Password Auth Quotas Search

ID	Name	Group	Auth driver	VMs	Memory	CPU
4	Doe	BlueVDC	core	1 / 5	1GB / 10GB	1 / 5
3	John	BlueVDC	core	10 / 10	10GB / 60GB	10 / 20
2	BlueVDC-admin	BlueVDC	core	4 / -	3.5GB / -	5 / -
1	serveradmin	oneadmin	server_cipher	0 / 0	0KB / 0KB	0 / 0
0	oneadmin	oneadmin	core	0 / 0	0KB / 0KB	0 / 0

Showing 1 to 5 of 5 entries

« 1 » 10

6 TOTAL

Learn more about user management [here](#).

4.2.2 Group & VDC Management

A **group** in vOneCloud is an authorization boundary for users, but it can also be used to partition the cloud infrastructure and define what resources are available to each group.

A **resource provider** is a set of physical hosts and associated datastores and virtual networks, which is logically grouped into a cluster. When you assign a resource provider to a group, users in that group will be able to use resources of that cluster.

A group and an associated resource provider forms a **Virtual Datacenter (VDC)**. VDCs are a great way to partition your cloud into smaller clouds, with their administrator and users, completely isolated from other VDCs.

OpenNebula

Groups

oneadmin OpenNebula

Dashboard System Users Groups ACLs Virtual Resources Infrastructure Marketplace OneFlow Support

Refresh + Search Update Quotas

ID	Name	Users	VMs	Memory	CPU
100	BlueVDC	0	0 / -	0KB / -	0 / -
1	users	0	0 / -	0KB / -	0 / -
0	oneadmin	3	-	-	-

Showing 1 to 3 of 3 entries

Previous 1 Next 10

3 TOTAL

OpenNebula 4.10.2 by OpenNebula Systems.

Support Not connected Sign in Control Panel

Read more about [groups](#) and [VDCs](#).

4.2.3 Access Control Lists

vOneCloud implements a very useful ACL mechanism that enables fine-tuning of allowed operations for any user, or group of users. Each operation generates an authorization request that is checked against the registered set of ACL rules. There are predefined ACLs that implements default behaviors (like VDC isolation), but they can be altered by the cloud administrator.

OpenNebula Sunstone Access Control Lists

oneadmin OpenNebula

Dashboard System Users Groups **ACLs** Virtual Resources Infrastructure Marketplace OneFlow Support

ID	Applies to	Affected resources	Resource ID / Owned by	Allowed operations	Zone
9	User BlueVDC-admin	Virtual Machines, Images, VM Templates, Documents	Group BlueVDC	use, manage, create	All
8	User BlueVDC-admin	Users	Group BlueVDC	use, manage, admin, create	All
7	Group BlueVDC	Virtual Machines, Documents	Group BlueVDC	use	All
6	Group BlueVDC	Virtual Machines, Images, VM Templates, Documents	All	create	All
5	Group BlueVDC	Virtual Networks, Datastores	All	use	OpenNebula
4	Group BlueVDC	Hosts	All	manage	OpenNebula
3	Group users	Virtual Networks, Datastores	All	use	OpenNebula
2	Group users	Hosts	All	manage	OpenNebula
1	All	Zones	All	use	All
0	Group users	Virtual Machines, Virtual Networks, Images, VM Templates, Documents	All	create	OpenNebula

Showing 1 to 10 of 10 entries

« 1 » 10 ▾

Writing (or even reading) ACL rules is not trivial, more information about [ACLs](#) [here](#).

4.3 Resource Quotas

vOneCloud quota system tracks user and group usage of system resources, allowing the cloud administrator to set limits on the usage of these resources.

Quota limits can be set for:

- **users**, to individually limit the usage made by a given user.
- **groups**, to limit the overall usage made by all the users in a given group.

Tracking the usage on:

- **Compute**: Limit the overall memory, cpu or VM instances

Warning: OpenNebula supports additional quotas for **Datastores** (control amount of storage capacity), **Network** (limit number of IPs), **Images** (limit VM instances per image). However these quotas are not available for the vCenter drivers.

Quotas can be updated either from the vCenter View:



Update Quota

VM Datastore Image VNet

VMs
1 / 5

CPU
1 / 5

Memory
1024 / 10240 MB

Volatile disks
0 / Default (∞) MB

Or from the VDC Admin View:

VDC Info Users VMs Templates Services vOneCloud OpenNebula

Users VDCUser

Running VMs
CPU
Memory (GBs)

Refer to [this guide](#) to find out more.

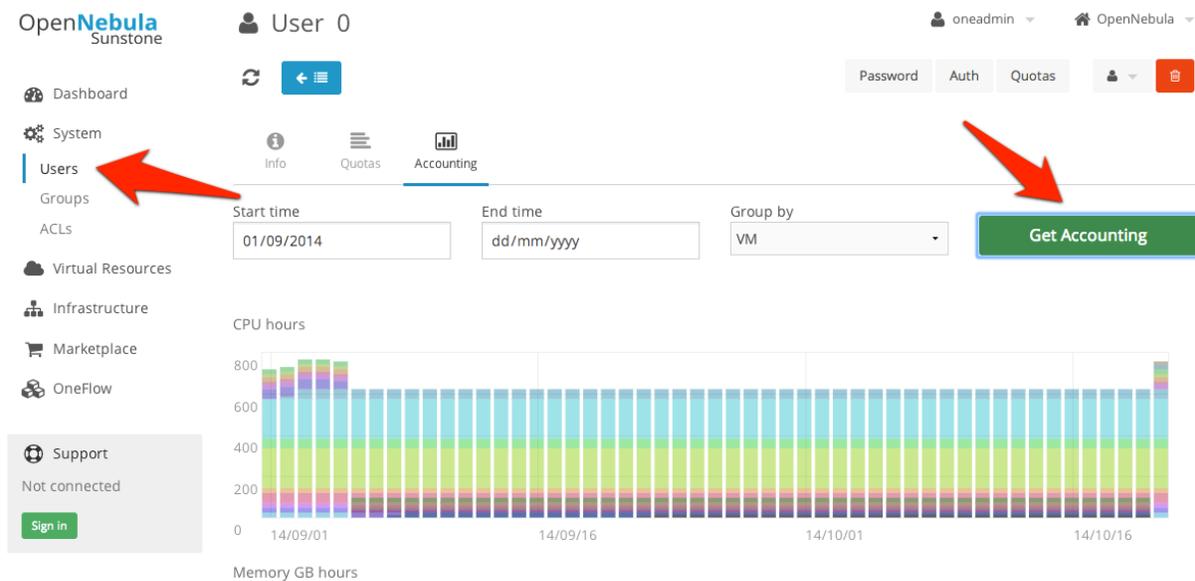
4.4 Accounting & Monitoring

vOneCloud is constantly monitoring the infrastructure resources to keep track of resource consumption. The objective is twofold: being able to have a clear picture of the infrastructure to aid in the resource scheduling, as well as being able to enforce *resource quotas* and give accounting information.

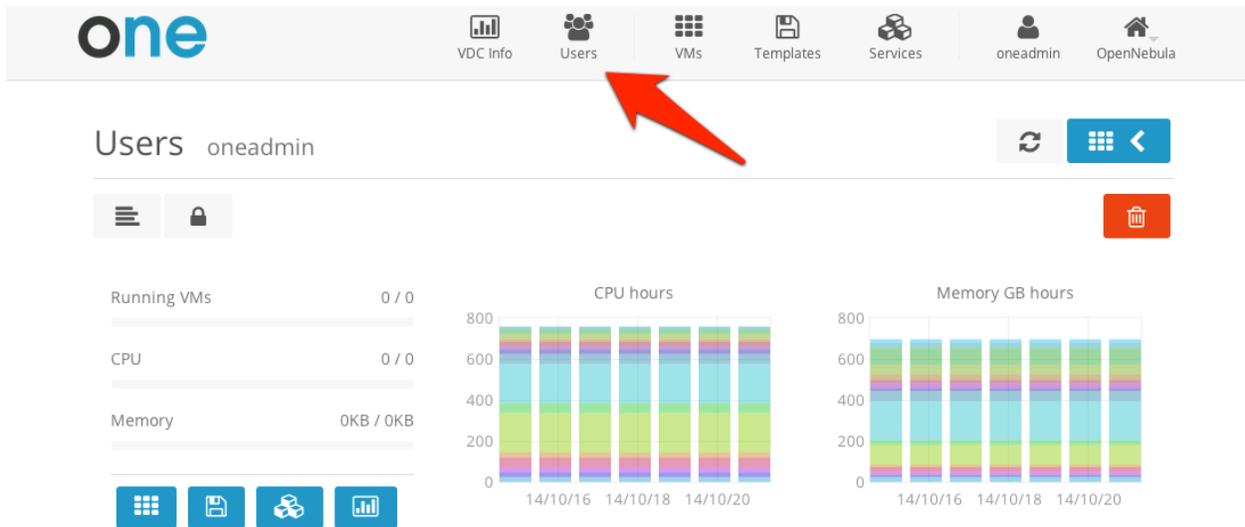
The monitoring subsystem gathers information relative to hosts and virtual machines, such as host and VM status, basic performance indicators and capacity consumption. vOneCloud comes preconfigured to retrieve such information directly from vCenter.

Using the information from the monitoring subsystem, vOneCloud is able to provide accounting information, both in text and graphically. An administrator can see the consumption of a particular user or group in terms of hours of CPU consumed, or total memory used in a given time window. This information is useful to feed a chargeback or billing platform.

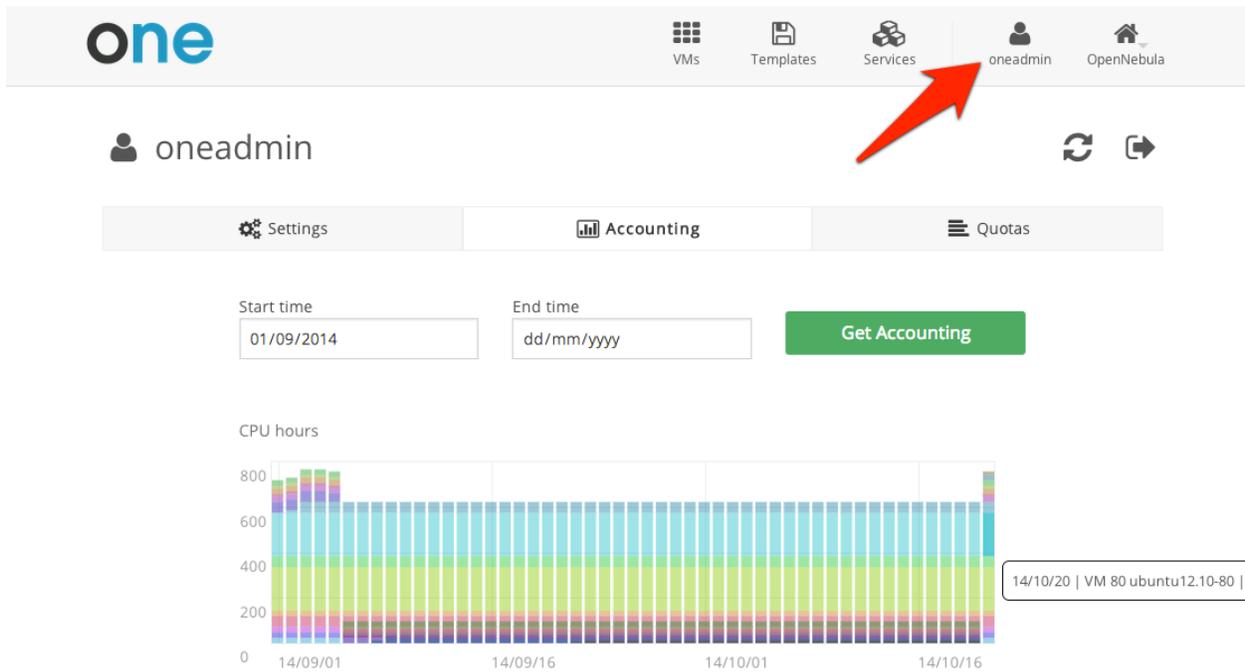
Accounting information is available from the vCenter View:



From the VDC Admin View:



And from the vCenter Cloud View:



Learn more on the monitoring and accounting subsystems

GUEST CONFIGURATION

5.1 Introduction

vOneCloud will use pre configured vCenter VM Templates, which leverages the functionality provided by vCenter to build such templates. Additionally, vOneCloud provides functionality to tailor the VM guest Operating System to adjust it for the end user needs. The mechanism that allows for information sharing between the vOneCloud interface and the Virtual Machine is called contextualization.

This section will instruct on the needed actions to be taken into account to build vOneCloud Templates to deliver cloud users with personalized and perfectly adjusted Virtual Machines.

5.2 Building a Template for Contextualization

In order to pass information to the instantiated VM template, the Context section of the vOneCloudVM Template can be used. These templates can be updated in the Virtual Resources -> Templates tab of the vOneCloud GUI, and they can be updated regardless if they are *directly imported from vCenter* or *created through the vOneCloud Templates tab*.

Note: Installing the Contextualization packages in the Virtual Machine image is required to pass this information to the instantiated VM template. Make sure you follow the *Guest Contextualization* guide to properly prepare your VM templates.

The screenshot shows the OpenNebula 'Create Template' wizard. The 'Context' tab is selected, and a red arrow points to the 'Context' tab icon. The 'Public Key' field contains a long alphanumeric string. The 'Add SSH contextualization' checkbox is checked. The 'Add Network contextualization' checkbox is also checked. The 'Add OneGate token' checkbox is unchecked. The wizard is in the 'Wizard' mode.

Warning: Passing files and network information to VMs through contextualization is currently not supported

Different kinds of context information can be passed onto the VMs:

5.2.1 Network & SSH

Networking information can be passed onto the VM, namely the information needed to correctly configure each one of the VM network interfaces.

You can add here an public keys that will be available in the VM at launch time to configure user access through SSH.

5.2.2 User Inputs

These inputs are a special kind of contextualization that built into the templates. At instantiation time, the end user will be asked to fill in information for the defined inputs, and the answers will be packed and passed onto the VM.

For instance, vOneCloud administrator can build a VM Template that will ask for the MySQL password (the MySQL software will be configured at VM boot time and this password will be set) and for instance whether or not to enable WordPress:

Create Template

Wizard Advanced

General Input/Output **Context** Scheduling Hybrid Other

Network & SSH
Files
User Inputs
Custom vars

User Inputs

Name	Type	Description
MySQLPassword	password	Password for the MySQL Database
EnableWordpress	text	Yes or No

+ Add another attribute

OpenNebula 4.10.1 by OpenNebula Systems.

The end user will then be presented with the following form when instantiating the previously defined VM Template

Custom Attributes

* Password for the MySQL Database

* Enable WordPress: Yes or No

Create

5.2.3 Custom vars

These are personalized information to pass directly to the VM, in the form of Key - Value.

5.3 Guest Contextualization

The information defined at the *VM Template building* time is presented to the VM using the VMware VMCI channel. This information comes encoded in base64 can be gathered using the VMware Tools.

In order to make your VMs aware of OpenNebula, you **must** install the *official packages*. Packages for both Linux and Windows exist that can collect this data and configure the supported parameters.

Parameter	Description
SET_HOST	Change the hostname of the VM. In Windows the machine needs to be restarted.
SSH_PUBLIC_KEY	SSH public keys to add to authorized_keys file. This parameter only works with Linux guests.
USERNAME	Create a new administrator user with the given user name. Only for Windows guests.
PASSWORD	Password for the new administrator user. Used with USERNAME and only for Windows guests.
DNS	Add DNS entries to resolv.conf file. Only for Linux guests.
NETWORK	If set to "YES" vOneCloud will pass Networking for the different NICs onto the VM

In Linux guests, the information can be consumed using the following command (and acted accordingly):

```
$ vmttoolsd --cmd 'info-get guestinfo.opennebula.context' | base64 -d
MYSQLPASSWORD = 'MyPassword'
ENABLEWORDPRESS = 'YES'
```

5.3.1 Linux Packages

The linux packages can be downloaded from its [project page](#) and installed in the guest OS. There is one rpm file for Debian and Ubuntu and an rpm for RHEL and CentOS. After installing the package shutdown the machine and create a new template.

5.3.2 Windows Package

The official [addon-opennebula-context](#) provides all the necessary files to run the contextualization in Windows 2008 R2.

The contextualization procedure is as follows:

1. Download `startup.vbs` and `context.ps1` to the Windows VM and save them in `C:\`.
2. Open the Local Group Policy Dialog by running `gpedit.msc`. Under: Computer Configuration -> Windows Settings -> Scripts -> startup (right click); browse to the `startup.vbs` file and enable it as a startup script.

After that power off the VM and create a new template from it.

INFRASTRUCTURE CONFIGURATION

6.1 Introduction

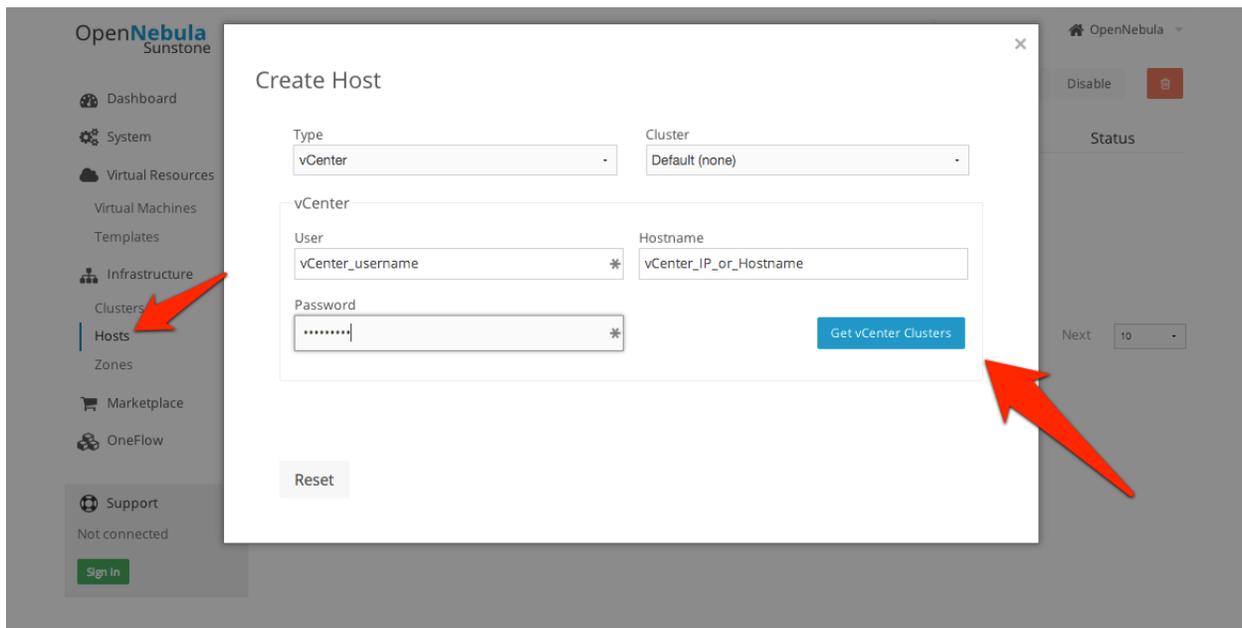
Now that you are familiar with vOneCloud concepts and operations, it is time to extend its functionality by adding new infrastructure components and/or configuring options that do not come enabled by default in vOneCloud, but are present in the software nonetheless.

6.2 Add New vCenters, VM Templates and Networks

vOneCloud can manage an unlimited number of vCenters. Each vCenter is going to be represented by an vOneCloud host, which in turn abstracts all the ESX hosts managed by that particular instance of vCenter.

The suggested usage is to build vOneCloud templates for each VM Template in each vCenter. The built in scheduler in vOneCloud will decide which vCenter has the VM Template needed to launch the VM.

The mechanism to add a **new vCenter** is exactly the same as the one used to *import the first one into vOneCloud*. It can be performed graphically from the vCenter View:



Note: vOneCloud will create a special key at boot time and save it in `/var/lib/one/.one/one_key`. This key will be used

as a private key to encrypt and decrypt all the passwords for all the vCenters that vOneCloud can access. Thus, the password shown in the vOneCloud host representing the vCenter is the original password encrypted with this special key.

To create a new **vOneCloud VM Template**, let's see an example:

First things first, to avoid misunderstandings, there are two VM templates we will refer to: the vOneCloud VM Templates and the vCenter VM Templates. The former are created in the vOneCloud web interface (Sunstone), whereas the latter are created directly through the vCenter Web Client.

A cloud administrator builds two vOneCloud templates to represent one vCenter VM Template available in vCenterA and another available in vCenterB. As previous work, the cloud administrator creates **two vCenter VM templates**, one in each vCenter.

To create a vOneCloud VM template representing a vCenter VM Template, log in into Sunstone as **vOneCloud** user as in explained [here](#), proceed to the `Virtual Resources -> Templates`, and click on the + sign. Select `vCenter` as the hypervisor, and type in the `vCenter Template UUID`. In the `Scheduling` tab you can select the hostname of the specific vCenter. The `Context` tab allows to pass information onto the VM to tailor it for its final use (read more about it [here](#)). In `Network` tab a valid Virtual Network (see below) can be added to the VM, possible values for the MODEL type of the network card are:

- virtuale1000
- virtuale1000e
- virtualpcnet32
- virtuaisriovethernetcard
- virtualvmxnetm
- virtualvmxnet2
- virtualvmxnet3

The screenshot displays the configuration wizard for a vCenter template. The 'General' tab is selected, showing the following fields and options:

- Name:** A text input field.
- Description:** A text input field.
- vCenter Template UUID:** A text input field.
- Hypervisor:** Radio buttons for KVM, VMware, Xen, and vCenter (selected).
- Logo:** A dropdown menu.
- Memory:** A slider set to 512 MB.
- CPU:** A slider set to 1.
- VCPU:** A slider.

At the bottom, it says "OpenNebula 4.10.1 by OpenNebula Systems."

Fill in with UUID **uuidA** in and select host vCenterA. Repeat for vCenterB.

If a user instantiates one of these templates, the vOneCloud scheduler will pick the right vCenter in which to instantiate the VM Template.

Using *the automated process for importing vCenter infrastructures*, vOneCloud will generate the above template for you at the time of importing vCenterA.

vCenter Networks/Distributed vSwitches and **running VMs** for a particular vCenter cluster can be imported in vOneCloud after the cluster is imported using the same procedure to import the vCenter cluster, making use of the Infrastructure --> Hosts tab in the vCenter View.

A representation of a vCenter Network or Distributed vSwitch in vOneCloud can be created in vOneCloud by creating a Virtual Network and setting the BRIDGE property to **exactly the same name as the vCenter Network**. Leave "Default" network model if you don't need to define VLANs for this network, otherwise chose the "VMware" network model.

✕

Create Virtual Network

Wizard
Advanced mode

General
Configuratio
Addresses
Context

Bridge: ⓘ

Network model: ⓘ

Default
▾

Default: dummy driver that doesn't perform any network operation. Firewalling rules are also ignored.

Reset
Create

Several different Address Ranges can be added as well in the Virtual Network creation and/or Update dialog, pretty much in the same way as it can be done at the time of acquiring the resources explained in the *Import vCenter guide*.

Read more about the [vCenter drivers](#).

6.3 Hybrid Clouds

vOneCloud is capable of outsourcing virtual machines to public cloud providers. This is known as cloud bursting, and it is a feature of hybrid clouds where VMs are launched in public clouds if the local infrastructure is saturated.

If you want to extend your private cloud (formed by vOneCloud and vCenter) to create a hybrid cloud, you will need to configure at least one of the supported public clouds: Amazon EC2, IBM SoftLayer and Microsoft Azure. All hybrid drivers are already enabled in vOneCloud, but you need to configure them first with your public cloud credentials.

You will need to access the *Control Panel* in order to configure the hybrid support in vOneCloud.

6.3.1 Step 1. Configure a Hybrid Region

In the Control Panel is possible to add regions of Amazon EC2, IBM SoftLayer and Microsoft Azure to be used within vOneCloud.

vOneCloud

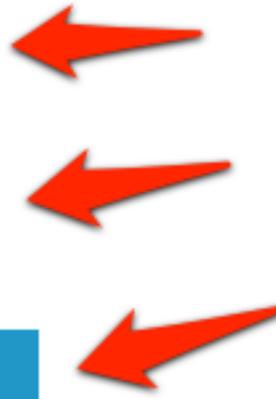
 Home

Add Active Directory Server

Add EC2 Region

Add Azure Region

Add Softlayer Region



Remember to restart OpenNebula to apply the changes.

Apply Settings

Each region from the different supported cloud providers have different requirements in terms of configuration:

Amazon EC2

EC2 Region
Region Name*

Default
Access Key ID*

Secret Access Key*

Capacity m1.small*

Capacity m1.large*

Capacity m1.xlarge*

The capacity that you attach to this region will define the maximum number and type of Virtual Machines that vOneCloud will be able to launch in the represented Amazon EC2 region. The different instance types are defined as follows:

Name	Memory	CPU
m1.small	1.7 GB	1
m1.medium	3.75 GB	1
m1.large	7.5 GB	2

Follow the tool tips that appear on mouse over to correctly configure the parameters.

You need the Access and Secret key to be retrieved from your AWS account. More information on Amazon EC2 support can be found [here](#).

MS Azure

Azure Region

Region Name*

Default

Pem Management Certificate*

Subscription ID*

Management Endpoint

Capacity small*

Capacity medium*

Capacity large*

The capacity that you attach to this region will define the maximum number and type of Virtual Machines that vOneCloud will be able to launch in the represented MS Azure region. The different instance types are defined as follows:

Name	Memory	CPU
Small	1.75 GB	1
Medium	3.5 GB	2
Large	7 GB	4

Follow the tool tips that appear on mouse over to correctly configure the parameters.

You need the Pem Management Certificate to be retrieved from your AWS account. Follow the next steps to craft a valid certificate:

- First, the Subscription ID, that can be uploaded and retrieved from Settings -> Subscriptions
- Second, the Management Certificate file, that can be created with the following steps. We need the .pem file (for the ruby gem) and the .cer file (to upload to Azure):

```
## Install openssl
## CentOS
$ sudo yum install openssl
## Ubuntu
$ sudo apt-get install openssl

## Create certificate
$ openssl req -x509 -nodes -days 365 -newkey rsa:2048 -keyout myPrivateKey.key -out myCert.pem
$ chmod 600 myPrivateKey.key

## Concatenate key and pem certificate
$ cat myCert.pem myPrivateKey.key > vOneCloud.pem

## Generate .cer file for Azure
$ openssl x509 -outform der -in myCert.pem -out myCert.cer
```

- Third, the certificate file (.cer) has to be uploaded to Settings -> Management Certificates

Afterwards, copy the context of the .pem certificate in the clipboard and paste it in the text area of the Control Panel Pem Management Certificate field.

More information on MS Azure support can be found [here](#).

Note: Azure hybrid connectors only support non authenticated http proxies

IBM SoftLayer

Softlayer Region

Region Name*

Default

Username*

API Key*

Capacity slcci.small*

Capacity slcci.medium*

Capacity slcci.large*

The capacity that you attach to this region will define the maximum number and type of Virtual Machines that vOneCloud will be able to launch in the represented IBM SoftLayer region. The different instance types are defined as follows:

Name	Memory	CPU
slcci.small	1 GB	1
slcci.medium	4 GB	2
slcci.large	8 GB	4

Follow the tool tips that appear on mouse over to correctly configure the parameters.

You need your SoftLayer Username and the API Key that can be retrieved from your SoftLayer Control Panel. More information on IBM SoftLayer support can be found [here](#).

Warning: If vOneCloud is running behind a corporate http proxy, the SoftLayer hybrid connectors won't be available

6.3.2 Step 2. Restart vOneCloud services

Click on the “Apply Settings” button. For changes to take effect, you need to restart vOneCloud services and wait for OpenNebula state to be ON.

vOneCloud 1.2

vOneCloud is up to date.

No active subscription detected. Subscribe to manage upgrades.

UUID	026c671e-391f-4248-897f-485f58f15d1b
Installation Date	2015-02-12 17:18:11 +0000
Version	1.2
Upgrade Date	2015-02-12 17:18:11 +0000

Configure

This vOneCloud release supports the following configuration options:

- EC2 Drivers
- Azure Drivers
- SoftLayer Drivers
- Active Directory integration

[Configure OpenNebula](#)

OpenNebula Status

OpenNebula is **ON**
You can connect to vOneCloud at <http://localhost/>

[Subscribe](#)

[Restart](#)

[Stop](#)

Admin Tasks

Bootstrap OpenNebula	2015-02-12 17:18:49 +0000	SUCCESS
Start OpenNebula	2015-02-12 17:18:49 +0000	SUCCESS
Reconfigure OpenNebula	2015-02-12 17:18:49 +0000	SUCCESS

[All Tasks](#)

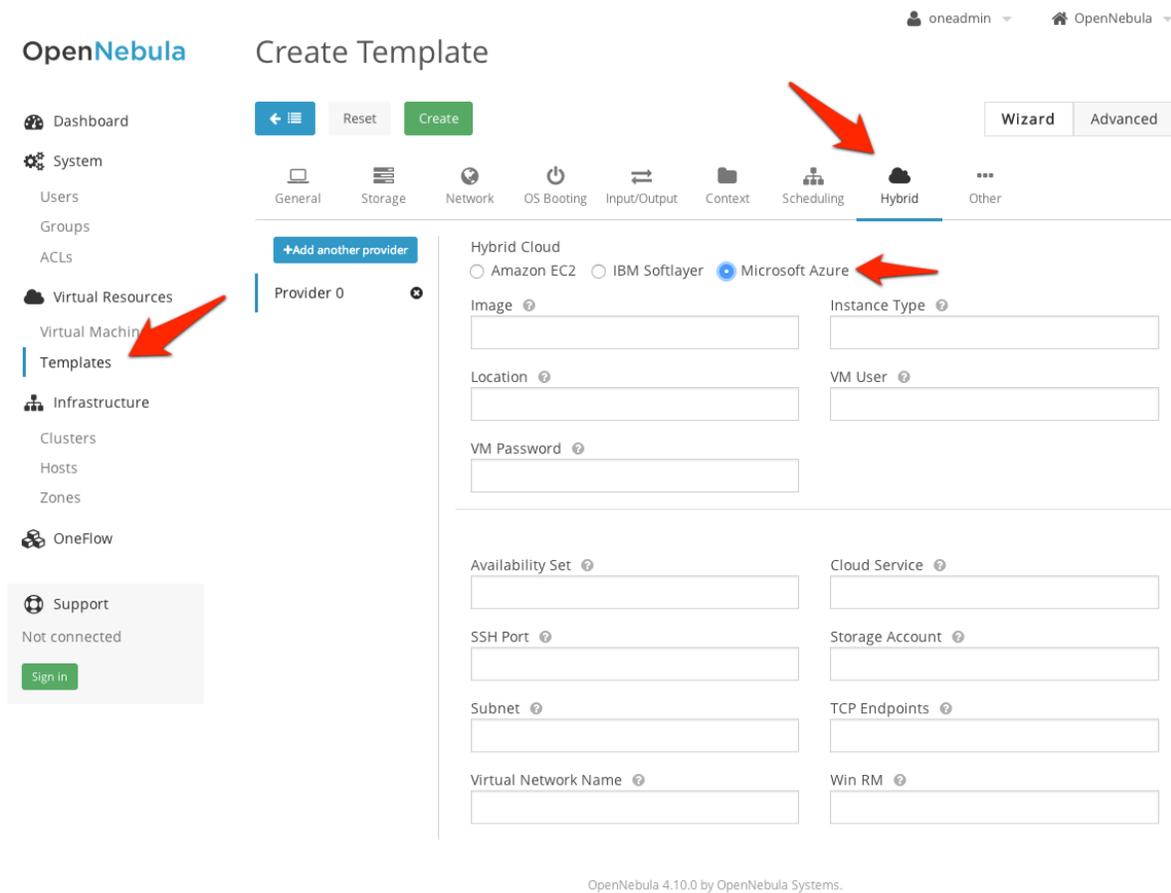
6.3.3 Step 3. Create vOneCloud hybrid resources

Afterwards, each region can be represented by vOneCloud hosts can be added from the vCenter View:

The screenshot shows the OpenNebula Sunstone interface. On the left sidebar, the 'Hosts' menu item is highlighted with a red arrow. The main window displays the 'Create Host' dialog box. In the 'Host type' dropdown menu, 'vCenter' is selected and highlighted with a red arrow. The dialog box contains the following fields: 'Cluster' (Default (none)), 'Hostname' (empty), and 'Password' (empty). A 'Get vCenter Clusters' button is located at the bottom right of the dialog box. The 'Reset' button is at the bottom left. The 'Status' section on the right shows 'Disable' and 'Status'.

The hybrid approach is carried out using hybrid templates, which represents the virtual machines locally and remotely.

The idea is to build a vOneCloud hybrid VM template that represents the same VM in vCenter and in the public cloud. This can be carried out using the hybrid section of the VM Template creation dialog (you can add one or more public cloud provider)



Moreover, you need to add in the Scheduling tab a proper host representing the appropriate public cloud provider. For instance, for an EC2 hybrid VM Template:

OpenNebula **Create Template** oneadmin OpenNebula

Dashboard System Virtual Resources

Virtual Machines
Templates
 Images
 Files & Kernels

Infrastructure
 Clusters
 Hosts
 Datastores
 Virtual Networks
 Zones

Marketplace
 OneFlow

Support
 Open 0
 Pending 1
 Submit a Request

Reset Create

General Storage Network OS Booting Input/Output Context **Scheduling** Hybrid Other

Wizard Advanced

Placement Policy

Host Requirements

Select Hosts Select Clusters

Search

ID	Name	RVMs	Allocated CPU	Allocated MEM	Status
<input type="checkbox"/> 3	ams01	0	0 / 500 (0%)	0KB / 5GB (0%)	ON
<input type="checkbox"/> 2	west-europe	0	0 / 700 (0%)	0KB / 8GB (0%)	ON
<input type="checkbox"/> 1	ec2-us-east	0	0 / 500 (0%)	0KB / 5GB (0%)	ON
<input type="checkbox"/> 0	kvm1	1	100 / 1600 (6%)	128MB / 15.5GB (1%)	ON

Previous 1 Next

Please select one or more hosts from the list

Expression

Datastore Requirements

Expression

Once templates are ready, they can be consumed at VM creation time from the Cloud View:

Select a Template

System	VDC	Saved
<input type="text" value="Search"/>		
<p>ttylinux server</p>  <p>A simple linux server</p>	<p>Windows 7 Desktop</p>  <p>A windows 7 installation with MS Office suite</p>	<p>RHEL 6.5 - EC2</p>  <p>RHEL Server 6.5 in Amazon EC2, us-east-1</p>
<p>Windows 8 - Azure</p>  <p>A Windows VM in Azure cloud</p>	<p>AzureUbuntu14.04</p>  <p>...</p>	<p>SoftLayerRedHat7</p>  <p>...</p>
<p>« 1 » 6 ▾</p>		

Learn more about [hybrid support](#).

6.4 Authentication

By default, vOneCloud authentication uses an internal user/password system with user and group information stored in an internal database.

vOneCloud can pull users from a corporate Active Directory (or LDAP), all the needed components are enabled and just an extra configuration step is needed. As requirements, you will need an Active Directory server with support for simple user/password authentication, as well as a user with read permissions in the Active Directory user's tree.

You will need to access the *Control Panel* in order to configure the Active Directory support in vOneCloud. After the configuration is done, users that exist in Active Directory can begin using vOneCloud.

6.4.1 Step 1. Configure Active Directory support

Click on the “Configure OpenNebula” button

vOneCloud

vOneCloud 1.2

vOneCloud is up to date.

No active subscription detected. Subscribe to manage upgrades.

Subscribe

UUID	026c671e-391f-4248-897f-485f58f15d1b
Installation Date	2015-02-12 17:18:11 +0000
Version	1.2
Upgrade Date	2015-02-12 17:18:11 +0000

Configure

This vOneCloud release supports the following configuration options:

- EC2 Drivers
- Azure Drivers
- SoftLayer Drivers
- Active Directory integration

Configure OpenNebula



vOneCloud Control Center 1.2 by OpenNebula Systems

In the following screen, select the “Add Active Directory” category

OpenNebula State

OpenNebula is **ON**

You can connect to vOneCloud at <http://localhost/>

Restart

Stop

Admin Tasks

Bootstrap OpenNebula

2015-02-12 17:18:49 +0000

SUCCESS

Start OpenNebula

2015-02-12 17:18:49 +0000

SUCCESS

Reconfigure OpenNebula

2015-02-12 17:18:49 +0000

SUCCESS

All Tasks

vOneCloud

 Home

Add Active Directory Server

Add EC2 Region

Add Azure Region

Add Softlayer Region

Remember to restart OpenNebula to apply the changes.

Apply Settings



Fill the needed fields following the criteria described in the next table

Attribute	Description
Server Name	Chosen name for the authentication backend
User	Active Directory user with read permissions in the user's tree plus the domain.
Password	Active Directory user password
Authentication method	Active Directory server authentication method (eg simple)
Encryption	simple or simple_tls
Host	hostname or IP of the Domain Controller
Port	port of the Domain Controller
Base Domain	base hierarchy where to search for users and groups
Group	group the users need to belong to. If not set any user will do
User Field	Should use sAMAccountName for Active Directory. Holds the user name, if not set 'cn' will be used
Group Field	field name for group membership, by default it is 'member'
User Group Field	user field that that is in in the group group_field, if not set 'dn' will be used

vOneCloud

[Home](#)

Add Active Directory Server

Active Directory server

Server Name*

User

Password

Authentication method*

Encryption

Host*

Click on the “Apply Settings” button when done.

6.4.2 Step 2. Restart vOneCloud services

For changes to take effect, you need to restart vOneCloud services and wait for OpenNebula state to be ON.

vOneCloud 1.2

vOneCloud is up to date.

No active subscription detected. Subscribe to manage upgrades.

UUID	026c671e-391f-4248-897f-485f58f15d1b
Installation Date	2015-02-12 17:18:11 +0000
Version	1.2
Upgrade Date	2015-02-12 17:18:11 +0000

Configure

This vOneCloud release supports the following configuration options:

- EC2 Drivers
- Azure Drivers
- SoftLayer Drivers
- Active Directory integration

[Configure OpenNebula](#)

OpenNebula Status

OpenNebula is ON
 You can connect to vOneCloud at <http://localhost/>

[Subscribe](#)

[Restart](#)

[Stop](#)

Admin Tasks

Bootstrap OpenNebula 2015-02-12 17:18:49 +0000	SUCCESS
Start OpenNebula 2015-02-12 17:18:49 +0000	SUCCESS
Reconfigure OpenNebula 2015-02-12 17:18:49 +0000	SUCCESS

[All Tasks](#)

You can find more information on the integration with Active Directory [in this guide](#).

vOneCloud supports a variety of other authentication methods with advanced configuration, follow the links to find the configuration steps needed (*Advanced Login* needed):

<p>X509 Authentication</p> <p>SSH Authentication</p>	<p>Strengthen your cloud infrastructure security</p> <p>Users will generate login tokens based on standard ssh rsa keypairs for authentication</p>
--	--

APPLIANCE CONFIGURATION

7.1 Introduction

The vOneCloud appliance features two components to simplify the configuration tasks needed to set-up, configure, maintain and upgrade the cloud: the vOneCloud Control Console (text-based) and the vOneCloud Control Panel (web-based).

This sections explains each of these interfaces, how to access them and the available configuration options.

7.2 Control Console

This is a text-based interface available used to run basic configuration tasks in the vOneCloud appliance.

A screenshot of a terminal window showing the vOneCloud Control Console. The title is "vOneCloud" in a stylized font, with "by OpenNebula Systems" below it. The main text reads: "Welcome to vOneCloud Control Console. You have started vOneCloud for the first time. Follow this short wizard to configure it:". Below this is a list of tasks: "- Configure Network", "- Configure proxy", "- Set the root password", "- Change the password for oneadmin in OpenNebula", and "- Open vOneCloud Control Panel (web-based interface)". At the bottom, it says "Press enter to continue...".

```
vOneCloud
by OpenNebula Systems

Welcome to vOneCloud Control Console. You have started vOneCloud for the first
time. Follow this short wizard to configure it:

- Configure Network
- Configure proxy
- Set the root password
- Change the password for oneadmin in OpenNebula
- Open vOneCloud Control Panel (web-based interface)

Press enter to continue...
```

The Control Console is available by opening the vOneCloud appliance console in vCenter. It requires no authentication since only the vCenter administrator will be able to open the vOneCloud console.

This component runs in two stages. The initial bootstrap stage, and the basic configuration stage.

7.2.1 Initial Bootstrap

The initial bootstrap is a configuration wizard which is part of the deployment process of vOneCloud, and it **must** be run. During this step the user will be prompted to configure the following aspects:

- Configure Network
- Set the root password
- Change the password for oneadmin in OpenNebula
- Configure proxy

Once this wizard has been executed the user is ready to open the vOneCloud Control Panel at http://<appliance_ip>:8000 in order to continue with the deployment configuration and to start the OpenNebula service.

Note that during this step the *oneadmin* account password will be set, which will be then used to access the vOneCloud Control Panel.

7.2.2 Basic Configuration

At any given moment, the vOneCloud administrator may choose to open the vOneCloud appliance console in vCenter to perform some additional configuration:

- Networking configuration, which is useful if the networking configuration changes at any given time.
- Proxy configuration.
- Change the oneadmin password. Note that this step requires that the vOneCloud administrator restarts the OpenNebula service in the *vOneCloud Control Panel*.

7.3 Control Panel

This is a web based interface available at http://<appliance_ip>:8000 which handles many aspects of the vOneCloud platform configuration. The Control Panel can be reached at any time from the Sunstone GUI using the Control Panel link in the bottom of the left hand side menu.

The screenshot shows the OpenNebula Dashboard. On the left is a sidebar with navigation items: Dashboard, System, Virtual Resources, Infrastructure, OneFlow, Support (Not connected), and Control Panel. A red arrow points to the 'Control Panel' link. The main area displays 'Virtual Machines' with a summary: 2 TOTAL, 2 ACTIVE, 0 PENDING, and 0 FAILED. Below that, 'Hosts' are shown: 1 TOTAL and 1 ON.

To log in the administrator will need the *oneadmin* account, which is set in the initial configuration of the Control Console.

The next section documents the available information and actions in this interface

7.3.1 Appliance Management

In the dashboard of the Control Panel you will be able to see the following information:

Parameter	Description
UUID	Each vOneCloud appliance has an automatically generated UUID used to identify it. This information is required by vOneCloud Support for users with an active support subscription.
Installation Date	Records the date of the vOneCloud first deployment.
Version	Active vOneCloud version
Upgrade Date	Records the date of last vOneCloud upgrade.

vOneCloud Control Panel

vOneCloud 1.2

vOneCloud is up to date.

No active subscription detected. Subscribe to manage upgrades.

Subscribe

UUID	6bbc3a6e-3836-a3a2-b25d-4c1f146439d0
Installation Date	2015-02-13 18:26:29 +0000
Version	1.2
Upgrade Date	2015-02-13 18:26:29 +0000

Configure

This vOneCloud release supports the following configuration options:

- EC2 Drivers
- Azure Drivers
- SoftLayer Drivers
- Active Directory integration

Configure OpenNebula

vOneCloud Control Center 1.2 by [OpenNebula Systems](#)

Additionally vOneCloud will report the subscription status:

- No subscription detected
- Active subscription
- Expired subscription

7.3.2 Configuration Management

The configuration action handles the supported configuration of the vOneCloud appliance:

- *Hybrid drivers (Amazon EC2, IBM SoftLayer, MS Azure).*
- *Active Directory or LDAP integration.*

If the configuration is changed while OpenNebula is running, it will need to be restarted. A warning will appear in the dashboard reminding the user to restart the OpenNebula service.

OpenNebula State

OpenNebula is ON

You can connect to vOneCloud at <http://10.0.1.252/>

Restart

Stop

Admin Tasks

Bootstrap OpenNebula

2015-02-13 18:27:16 +0000

success

Start OpenNebula

2015-02-13 18:27:16 +0000

success

Reconfigure OpenNebula

2015-02-13 18:27:16 +0000

success

[All Tasks](#)

7.3.3 Service Management

The OpenNebula services can be managed in the main dashboard: start, stop and restart.

Any of these actions will trigger one or more tasks. If one of these tasks fails, the user will be notified, and those with an active support subscription will be able to send the error report to the vOneCloud Support.

7.3.4 Log Access

The Control Panel features the possibility to access the OpenNebula logs.

7.3.5 Automatic Upgrades

When a new vOneCloud release is available for download users will be notified. User with an active support subscription will be able to upgrade with a single click. In the main Dashboard area the user will be notified if there is a new release available. In that case the user will be able to click a button that will start the upgrade.

Note: Before running an automatic upgrade users are recommended to create a vCenter snapshot of the vOneCloud appliance in order to revert back to it in case of failure.

7.4 Troubleshooting

This section details what actions to take if any of the vOneCloud appliance configuration functions fails.

7.4.1 Cannot Check for Upgrades

When the vOneCloud Repository cannot be reached this message will be displayed:

OpenNebula Systems vOneCloud Repository is unreachable. Cannot check for upgrades. Read the Troubleshooting guide for more info.

This means that the appliance cannot reach the appliance repository at [vonecloud.com](https://downloads.vonecloud.com). In the first place, check from your browser that this website is up: <https://downloads.vonecloud.com/version>, it should display a message like:

```
{“error”:”Invalid Data.”}
```

If that works, then it’s probably a networking configuration error. Make sure that the network of the appliance has been properly set (see [here](#)). It also might be a proxy problem if the appliance requires a proxy to access the internet. If you are sure these configuration parameters are correct, perform a *manual login to the appliance* and check the following items:

- Inspect the routes *ip route*
- If you are not using a proxy, make sure you can reach the Google DNS to test internet connection: *ping 8.8.8.8*.
- Run the following command: *curl -kv https://downloads.vonecloud.com/version*. If you are using a proxy run this instead: *HTTPS_PROXY=http://<proxy_user>:<proxy_pass>@<proxy_host>:<proxy_port> curl -kv https://downloads.vonecloud.com/version*.

If you are sure the network is properly configured, please feel free to submit a support to [vOneCloud Support](#).

7.4.2 Job Failure

A job should never fail. If it fails you should submit a support ticket with the attached Job Crashed Report (link found in the Job page) to [vOneCloud Support](#).