

# The VMware DVS plugin for Fuel 6.1 installation guide

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# Contents

<b>1</b>	<b>Revision history</b>	<b>2</b>
<b>2</b>	<b>Document purpose</b>	<b>2</b>
<b>3</b>	<b>Key terms, acronyms and abbreviations</b>	<b>2</b>
<b>4</b>	<b>The VMware DVS plugin</b>	<b>2</b>
<b>5</b>	<b>Licensing information</b>	<b>2</b>
<b>6</b>	<b>Assumptions and limitations</b>	<b>3</b>
6.1	Assumptions . . . . .	3
6.2	Limitations . . . . .	3
<b>7</b>	<b>Requirements</b>	<b>3</b>
<b>8</b>	<b>Installation Guide</b>	<b>3</b>
8.1	Prerequisites . . . . .	3
8.2	Obtaining the VMware DVS plugin . . . . .	4
8.3	Removing the VMware DVS plugin . . . . .	4
<b>9</b>	<b>Configuring VMware DVS plugin</b>	<b>5</b>
<b>10</b>	<b>Usage Guide</b>	<b>7</b>

## 1 Revision history

Version	Revision date	Editor	Comment
0.1	09.01.2015	Igor Gajsin (igajsin@mirantis.com)	Created the first version.

## 2 Document purpose

The purpose of this document is to describe how to install, configure and use the VMware DVS plugin for Fuel 6.1.

## 3 Key terms, acronyms and abbreviations

Term/acronym/abbreviation	Definition
VM	Virtual Machine
MOS	Mirantis OpenStack
OVS	Open vSwitch
Neutron ML2 plugin	The Neutron Modular Layer 2 plugin is a framework allowing OpenStack Networking to simultaneously utilize the variety of layer 2 networking technologies
vmware_dvs driver	The driver in the Neutron ML2 plugin which provides interaction with dvSwitch on vCenter
VMware DVS plugin	The plugin for Fuel which installs and configures vmware_dvs driver on a MOS environment
dvSwitch	distributed vSwitch on VMware ESXi <sup>1</sup>
VMware ESXi	bare-metal hypervisor
VMware vCenter Server	Central control point for VMware vSphere
VMware vSphere	VMware's cloud computing virtualization operating system.

## 4 The VMware DVS plugin

MOS supports using vCenter as a hypervisor in a vCenter-only or heterogeneous, mixed with KVM environments. There is the vmware\_dvs driver for Neutron ML2 plugin which provides usage Neutron for networking in such environments. Thereby environments receives an advanced network features:

- Ability to create multi-tier networks (e.g., web tier, db tier, app tier).
- Control over IP addressing.
- Ability to insert and configure their own services (e.g., firewall, IPS)
- VPN/Bridge to remote physical hosting or customer premises.

## 5 Licensing information

Component	License
vmware_dvs driver	Apache 2.0
VMware DVS plugin	Apache 2.0

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<sup>1</sup>[http://kb.vmware.com/selfservice/microsites/search.do?language=en\\_US&cmd=displayKC&externalId=1010555](http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=1010555)

## 6 Assumptions and limitations

### 6.1 Assumptions

1. dvSwitch must be provisioned by using vCenter firstly and manually.
2. There must be a mapping between physical network and dvSwitch:
  - (a) different physnet to different dvSwitch  
(i.e. physnet1:dvswitch1, physnet2:dvswitch2),
  - (b) different physnet to the same dvSwitch  
(i.e. physnet1:dvswitch1, physnet2:dvswitch1).
3. VLANs will be used as a tenant network separation by KVM's OVS and ESXi's dvSwitch (must be the same for tenant network regardless which switch type OVS or dvSwitch)
4. There must be an ability to:
  - (a) create / terminate a port group on dvSwitch
  - (b) bind port from such port group to a VM
  - (c) disable state of the neutron port group or port on dvSwitch
  - (d) assign multiple vNIC to a single VM deployed on ESXi
5. Name of driver is vmware\_dvs
6. Plugin supports addition controller-nodes after deploy.
7. Plugin has to carry with it code of vmware\_dvs and all their dependencies to be independent from network's conditionals when install.

### 6.2 Limitations

- VMware DVS plugin be enabled only in environments with Neutron as the networking option.
- Only VLANs are supported for tenant network separation (VxLAN support can be added later, if project will be continued).
- Only vSphere 5.5 is supported

## 7 Requirements

The plugin has the following requirements for software

Requirements	Version
Fuel	6.1
vCenter	5.5

## 8 Installation Guide

### 8.1 Prerequisites

This guide assumes that you have installed Fuel and all the nodes of your future environment are discovered and functional. Note, that you need to have a connectivity to correctly configured vCenter with precreated dvSwitch and clusters.

## 8.2 Obtaining the VMware DVS plugin

You can download it from [Fuel Plugins Catalog](#) or build from the [github repositories](#) via some steps:

1. Create and activate a virtual environment:

```
$ virtualenv fpb
$ . fpb/bin/activate
```

2. Install the fuel plugin builder:

```
(fpb)user@host:/path$ pip install fuel-plugin-builder
```

3. Get plugin sources from github.

```
(fpb)user@host:/path$ git clone https://github.com/stackforge/fuel-plugin-vmware-dvs.git
```

4. Patch the template file in the fuel plugin builder

```
(fpb)user@host:/path$ patch fpb/lib/python2.7/site-packages/fuel_plugin_builder/
/templates/build/plugin_rpm.spec.mako fuel-plugin-vmware-dvs/hack.diff
```

5. Build the plugin

```
(fpb)user@host:/path$ fpb --build fuel-plugin-vmware-dvs/
Plugin is built
```

6. Put the plugin into Fuel Master node

```
$ scp fuel-plugin-vmware-dvs-1.0-1.0.1-1.noarch.rpm <Fuel Master node ip>:/tmp
```

7. Login to the Fuel Master node and install the plugin:

```
$ ssh root@<Fuel Master node ip>
[root@nailgun ~]# fuel plugins --install /tmp/fuel-plugin-vmware-dvs-1.01.0.11.noarch.rpm
[root@nailgun ~]# fuel plugins
DEPRECATION WARNING: /etc/fuel/client/config.yaml exists and will be used as the source for
settings. This behavior is deprecated. Please specify the path to your custom settings file
in the FUELCLIENT_CUSTOM_SETTINGS environment variable.
```

id	name	version	package_version
2	fuel-plugin-vmware-dvs	1.0.1	2.0.0

## 8.3 Removing the VMware DVS plugin

To uninstall Zabbix plugin, follow these steps:

1. Delete all Environments in which VMware DVS plugin has been enabled.

2. Uninstall the plugin:

```
# fuel plugins --remove fuel-plugin-vmware-dvs==1.0.1
```

3. Check if the plugin was uninstalled successfully:

id	name	version	package_version

## 9 Configuring VMware DVS plugin

1. [Create a new OpenStack environment](#) with Fuel UI wizard

The screenshot shows the first step of the Fuel UI wizard, titled "Create a new OpenStack environment". On the left is a sidebar with navigation links: "Name and Release" (highlighted in orange), "Compute", "Networking Setup", "Storage Backends", "Additional Services", and "Finish". The main content area has two input fields: "Name" with the value "vmware\_dvs" and "OpenStack Release" with a dropdown menu showing "Juno on Ubuntu 14.04.1 (2014.2.2-6.1) (default)". Below the dropdown is a yellow informational box stating: "By default, packages will be fetched from external repositories. Please make sure your Fuel master node has internet access. To specify alternate repositories, or to create a local mirror, please check the Settings tab before deployment." Below this box is a paragraph: "This option will install the OpenStack Juno packages using Ubuntu as a base operating system. With high availability features built in, you are getting a robust, enterprise-grade OpenStack deployment." At the bottom are three buttons: "Cancel", "← Prev", and "Next →" (which is green and highlighted).

2. Please set vCenter checkbox on choosing compute's type step.

The screenshot shows the second step of the Fuel UI wizard, titled "Create a new OpenStack environment". The sidebar on the left now has "Name and Release" marked with a green checkmark and "Compute" highlighted in orange. The main content area shows three radio button options: "KVM" (unselected), "QEMU" (selected), and "vCenter" (which has a checked checkbox next to its radio button). Each option has a description: "Choose this type of hypervisor if you run OpenStack on hardware" for KVM, "Choose this type of hypervisor if you run OpenStack on virtual hosts" for QEMU, and "Choose this option if you have a vCenter environment with ESXi servers to be used as hypervisors" for vCenter. At the bottom are three buttons: "Cancel", "← Prev", and "Next →" (which is green and highlighted).

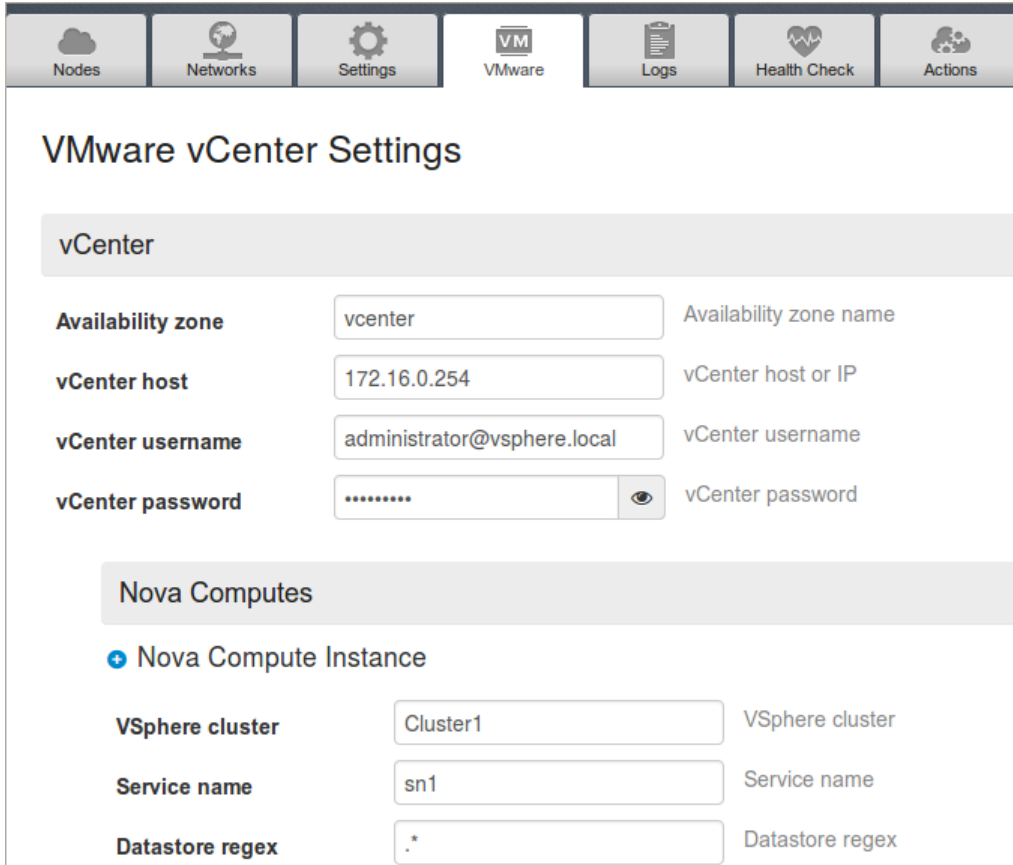
- Please select Neutron with VLAN segmentation network model, which is the only network type supported with VMware DVS plugin

The screenshot shows a wizard window titled "Create a new OpenStack environment". On the left is a sidebar with steps: "Name and Release" (checked), "Compute" (checked), "Networking Setup" (active), "Storage Backends", "Additional Services", and "Finish". The main area is for "Networking Setup". It contains a paragraph: "Choose the private (guest) network configuration. The choice you make here cannot be changed after you finish the wizard. More information see the [Mirantis OpenStack Planning Guide for Network Topology](#)". Below this are three radio button options: 1. "Neutron with VLAN segmentation (default)" - selected. Description: "The networking equipment must be configured for VLAN segmentation. This option supports up to 4095 networks." 2. "Neutron with GRE segmentation" - unselected. Description: "The networking equipment must support GRE segmentation. This option supports up to 65535 networks." 3. "(DEPRECATED) Legacy Networking (nova-network)" - unselected. Description: "Choose this option if you use VMware vCenter or require different subnets for public and floating IP addresses. Note that OpenStack is moving to deprecate nova-network in upcoming releases." At the bottom are three buttons: "Cancel", "Prev", and "Next".

- There are no limitations on other steps in the wizard.
- Add at least 1 Controller and 1 Compute node to the environment.
- Turn on the plugin usage checkbox and set correct name of dvSwitch in the Settings tab.

The screenshot shows the "Settings" tab. At the top, there is a checkbox labeled "use Neutron VMware DVS ML2 plugin" which is checked. Below this, there is a label "Enter the dvSwitch's name." followed by a text input field containing "dvSwitch". To the right of the input field is a paragraph: "Set the name of dvSwitch on vCenter physnet1:dvswitch1,physnet2:dvswitch2 when its multiple."

7. Fill the vmware configuration fields on the VMware tab.



**VMware vCenter Settings**

**vCenter**

**Availability zone**  Availability zone name

**vCenter host**  vCenter host or IP

**vCenter username**  vCenter username

**vCenter password**  vCenter password

**Nova Computes**

**Nova Compute Instance**

**VSphere cluster**  VSphere cluster

**Service name**  Service name

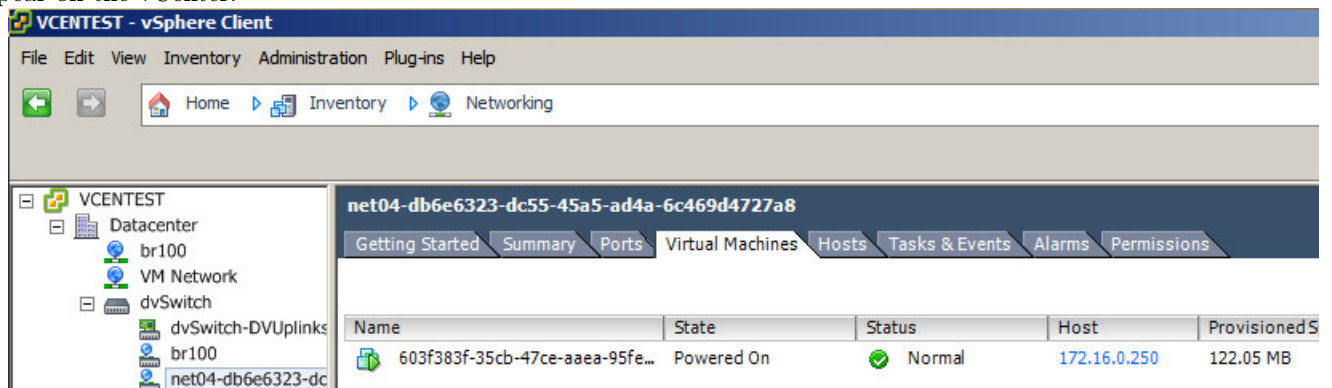
**Datastore regex**  Datastore regex

The rest configuration is up to you. See [Mirantis OpenStack User Guide](#) for instructions to configure other options.

8. Click “Deploy changes” to deploy the environment.

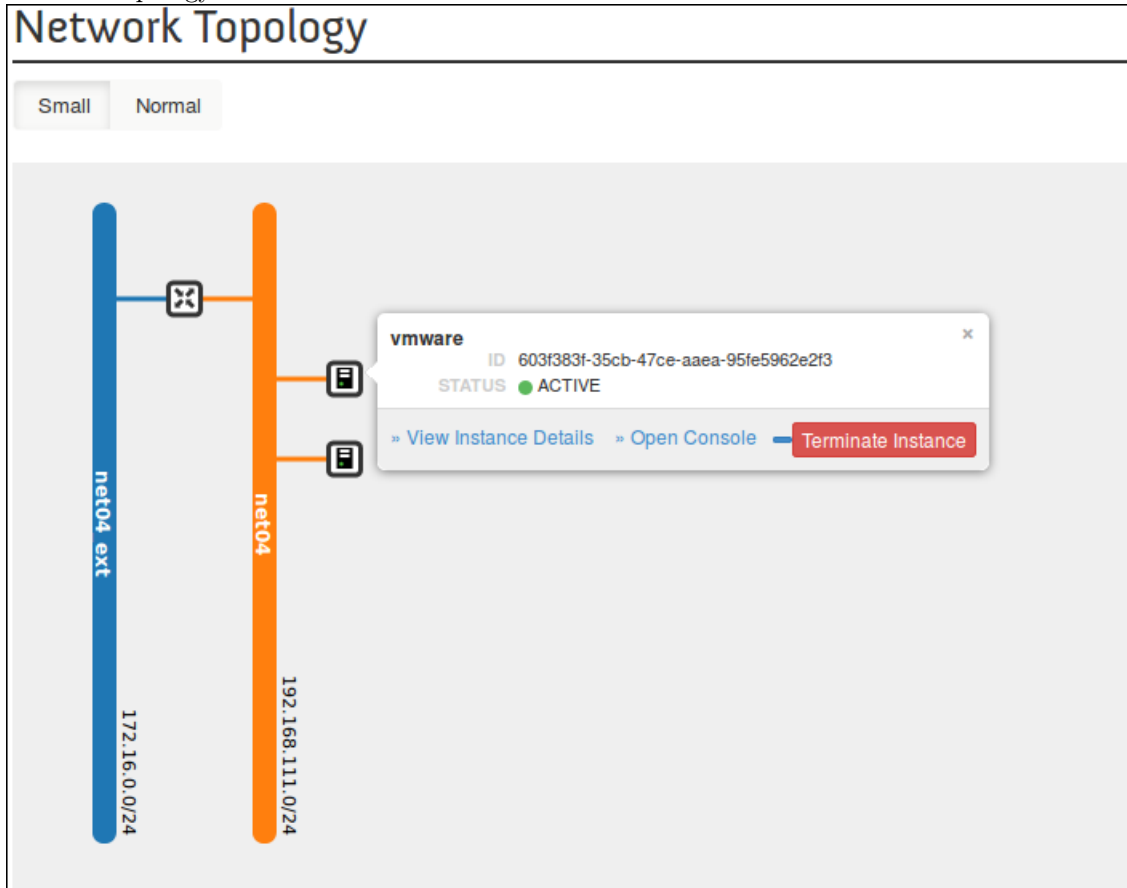
## 10 Usage Guide

Once OpenStack has been deployed, we can start using Neutron for networking. The net04 port group should appear on the vCenter:





Network topology on Horizon should look like:



where vmware is an instance located on the vCenter.

You can use Neutron for such instance totally same way as for KVM located instances.