openQRM after Installation
Install and Start the „vmware-vsphere“ plugin through the plugin-manager.
Auto-Discover VMware vCenter/vSphere Server in the openQRM network. vSphere Server in other networks can be also added manually.
Auto-Discover active
VMware vSphere Server discovered

<table>
<thead>
<tr>
<th>Comment</th>
<th>UNALIGNED</th>
<th>Added by auto-discovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id:</td>
<td>14512988203906</td>
<td></td>
</tr>
<tr>
<td>IP:</td>
<td>192.168.88.49</td>
<td></td>
</tr>
<tr>
<td>MAC:</td>
<td>00:00:22:98:93:23</td>
<td></td>
</tr>
<tr>
<td>Hostname:</td>
<td>192.168.88.49</td>
<td></td>
</tr>
<tr>
<td>User:</td>
<td>root</td>
<td></td>
</tr>
<tr>
<td>Password:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Add vSphere Server

Discovery ID: 14512988203906
IP Address: 192.168.88.49
MAC Address: 00:0c:29:9d:93:23
Hostname: 192.168.88.49
User: administrator@vsphere.local
Password: ********
Comment: Added by auto-discovery

Submit or Cancel
Added vSphere Host 14512988203906

Discovered vSphere Hosts

**Discover vSphere Hosts**

**Manual Add vSphere Hosts**

Comment

<table>
<thead>
<tr>
<th>Id: 14512988203906</th>
<th>Added by auto-discovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP: 192.168.88.49</td>
<td></td>
</tr>
<tr>
<td>MAC: 00:0c:29:9d:93:23</td>
<td></td>
</tr>
<tr>
<td>Hostname: 192.168.88.49</td>
<td></td>
</tr>
<tr>
<td>User: <a href="mailto:administrator@vSphere.local">administrator@vSphere.local</a></td>
<td></td>
</tr>
<tr>
<td>Password: **********</td>
<td></td>
</tr>
</tbody>
</table>
Select "Hosts" and create a datacenter on the vSphere Server
### Datacenters on vSphere Host 192.168.88.49

**ID:** 14512996740577  
**Name:** 192.168.88.49  
**Resource:** 14512996743986 / 192.168.88.49  
**State:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Cluster/Hosts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no data</td>
</tr>
</tbody>
</table>
Add Datacenter to vSphere Host 192.168.88.49

Name: mydatacenter

Submit  Cancel
Add one or more VMware ESX Host(s) to the datacenter. Please notice that using Cluster of VMware ESX Hosts requires a valid DRS license and a pre-created resource-pool!
Add Host to Datacenter on vSphere Host 192.168.88.49

- **IP Address**: 192.168.88.49
- **Username**: root
- **Password**: 

[Submit] [Cancel]
Datacenters on vSphere Host 192.168.88.49

ID: 14512996740577
Name: 192.168.88.49
Resource: 14512996743986 / 192.168.88.49
State:

<< < 1-1/1 > >

<table>
<thead>
<tr>
<th>Name</th>
<th>Cluster/Hosts</th>
</tr>
</thead>
<tbody>
<tr>
<td>mydatacenter</td>
<td>ESX Host 192.168.88.48</td>
</tr>
</tbody>
</table>

- ADD HOST TO DATACENTER
- ADD CLUSTER TO DATACENTER
- REMOVE DATACENTER
Click on „Hosts“ and select „VMS“
Add a new VM to the VMware vSphere datacenter
Create Virtual Machine on vSphere Host 192.168.88.49

Basic

Name *

ubuntuvm

Hardware

CPU

1 CPU

Memory

512 MB

Datacenter

mydatacenter

ResourcePool

Resources

VMX Version

vmx-07

Guest Id

Suse Linux Enterprise Server 11 (6)

Virtual disk image

DataStore

NAS

New disk (MB)

2000

Provisioning type

Thin provisioning

Existing disk

Provide a datastore path to an installation ISO image
Please notice: In the „beta“ version the „browse“ button is not yet implemented!
Creating the VM also created a new Server for the VM
Go back to „Hosts“ and click on „VMS“
Start the created VM
Start Virtual Machine(s) on vSphere Host 192.168.88.49

ubuntuvm

[Submit, Cancel]
Access the VM console with VNC (NoVNC)
Install the VM with an OS (here Ubuntu)
[![Partition disks]

The installer can guide you through partitioning a disk (using different standard schemes) or, if you prefer, you can do it manually. With guided partitioning you will still have a chance later to review and customize the results.

If you choose guided partitioning for an entire disk, you will next be asked which disk should be used.

Partitioning method:
- Guided - use entire disk
- Guided - use entire disk and set up LVM
- Guided - use entire disk and set up encrypted LVM
- Manual

<Go Back>
OS installation finished
Please install the „openqrm-local-vm-client“ on the VM

```
scp openqrm-local-vm-client [ip-address-of-existing-server]:/tmp/
```

```
openqrm-local-vm-client
```

`openqrm-local-vm-client` will automatically configure the local server and add it to openQRM management.
Stop the VM again
Go to „Cloud – Configuration – Images“ and update the Image of the VM
Select „Everybody“ and submit
<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Type</th>
<th>Storage</th>
<th>Root</th>
<th>Version</th>
<th>Assigned</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>14436977859453</td>
<td>debian8</td>
<td>esx-deployment</td>
<td>cloud</td>
<td>/dev/vol/</td>
<td>Linux</td>
<td>Everybody</td>
<td></td>
</tr>
<tr>
<td>14453804800300</td>
<td>firstdisk</td>
<td>esxinstall-deployment</td>
<td>cloud</td>
<td></td>
<td>Linux</td>
<td>Everybody</td>
<td></td>
</tr>
<tr>
<td>14462548906125</td>
<td>chiron-0.3.4.486_64-uec</td>
<td>ami-deployment</td>
<td>cloud</td>
<td></td>
<td></td>
<td>Everybody</td>
<td></td>
</tr>
<tr>
<td>144697636285</td>
<td>vsta</td>
<td>kvm-bf-deployment</td>
<td>cloud</td>
<td>/var/lib/kvm/storage1/</td>
<td>Linux</td>
<td>Everybody</td>
<td></td>
</tr>
<tr>
<td>14512996746553</td>
<td>192.168.88.49</td>
<td>local-server</td>
<td>cloud</td>
<td>192.168.88.49</td>
<td>Linux</td>
<td>Everybody</td>
<td></td>
</tr>
<tr>
<td>14513067605346</td>
<td>ubuntuvm</td>
<td>vsphere-deployment</td>
<td>cloud</td>
<td>192.168.88.49</td>
<td>Linux</td>
<td>Everybody</td>
<td>0 CCU(s)</td>
</tr>
<tr>
<td>14513067605346</td>
<td>ubuntuvm</td>
<td>vsphere-deployment</td>
<td>cloud</td>
<td>192.168.88.49</td>
<td>Linux</td>
<td>Everybody</td>
<td>0 CCU(s)</td>
</tr>
</tbody>
</table>
At „Cloud – Configuration – Products“ please add a „vsphere VM (localboot)“ Cloud Product
### Product group: Virtualization

<table>
<thead>
<tr>
<th>Name</th>
<th>Virtualization</th>
<th>CCU/h</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>kvm-vm-local</td>
<td>14435349771816</td>
<td>1</td>
<td>KVM VM (localboot)</td>
</tr>
<tr>
<td>vsphere-esx-vm-local</td>
<td>14435349619872</td>
<td>1</td>
<td>ESX VM (localboot)</td>
</tr>
<tr>
<td>hybrid-cloud-vm-local</td>
<td>14462545791416</td>
<td>1</td>
<td>Cloud VM (localboot)</td>
</tr>
<tr>
<td>vsphere VM (localboot)</td>
<td>14512981656372</td>
<td>1</td>
<td>vsphere VM (localboot)</td>
</tr>
</tbody>
</table>

**New Product**

- **Virtualization**: 
- **CCU/h**: 1
- **Description**: vsphere VM (localboot)
At "Cloud – Configuration – Host Pools" please select the VMware vSphere Server.
And update its „assignment“ to the „Admin“ group
Now login into the openQRM Cloud portal and create a new VMware vSphere VM instance.
VMware vSphere Cloud instance starting
openQRM Cloud now fully automatically clones the VM and its Image for the Cloud request.
VMware vSphere Cloud instance fully active. Please click on „NoVNC“
Here the VNC VM console access for the Cloud end-user

```
[ 1.417083] vmbuscsi 0000:03:00.0: VMware PVS/SCSI rev 2 host #2
[ 1.417485] scsi 2:0:0:0: Direct-Access  VMware  Virtual disk  1.0 PQ
 : 0 ANSI: 2
[ 1.418432] sd 2:0:0:0: [sda] 4096000 512-byte logical blocks: (2.09 GB/1.95
GiB)
[ 1.418798] sd 2:0:0:0: [sda] Write Protect is off
[ 1.418997] sd 2:0:0:0: [sda] Cache data unavailable
[ 1.419188] sd 2:0:0:0: [sda] Assuming drive cache: write through
[ 1.419585] sd 2:0:0:0: Attached scsi generic sg0 type 0
[ 1.422304] sda: sda1 sda2 < sda5 >
[ 1.422913] sd 2:0:0:0: [sda] Attached SCSI disk
[ 1.795544] e1000_0000:00:02:00.0 eth0: (PCI:66MHz:32-bit) 08:50:56:35:41:51
[ 1.795646] e1000_0000:00:02:00.0 eth0: Intel(R) PRO/1000 Network Connection
Begin: Running /scripts/local-prompt ... done.
[ 1.999901] EXT4-fs (sda1): INFO: recovery required on readonly filesystem
[ 1.999919] EXT4-fs (sda1): write access will be enabled during recovery
[ 2.056421] EXT4-fs (sda1): recovery complete
[ 2.056882] EXT4-fs (sda1): mounted filesystem with ordered data mode. Opt:
(NULL)
Begin: Running /scripts/local-bottom ... done.
Begin: Running /scripts/init-bottom ... done.
[ 2.138245] input: ImPS/2 Generic Wheel Mouse as /devices/platform/i8042/seri
al/input/input3
```
Please notice!

In most cases the VMware ESX Hosts using self-signed SSL certificates. While this still provides an encrypted data transfer latest versions of programming languages (e.g. Python) may „not like“ the self-signed SSL certificate because of security concerns.

This is general issue which causes several function/API calls fail.

To check if your installation is working properly please run root on openQRM:

```
pip install pyvmomi --upgrade
cd /usr/share/openqrm/plugins/vmware-vsphere/bin/python/
./vmlist.py -s <vsphere-ip-address> -o 443 -u <vsphere-username> -p <vsphere-password>
```

If the last command produces an error instead of a list-output the Python vSphere API (pyvmomi) is not working correctly!

To fix this please find and edit „adapters.py“ (on a Ubuntu System its at /usr/local/lib/python2.7/dist-packages/requests/adapters.py). In this file please find the „def cert_verify“ function function and insert

```
    verify = None
```

as the first statement in this function. After that please try the „vmlist“ command again. It should work fine now.
openQRM Enterprise GmbH
Godesberger Allee 139
53175 Bonn
Germany

Phone +49 (0)228 5344 9500
Fax +49 (0)228 5344 1924
E-Mail info@openqrm-enterprise.com
Web http://www.openqrm-enterprise.com