



vOperations Suite™ **Installation Guide**

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1 Environmental Requirements

vOperations Suite Installation Guidelines

Number of VMs	1 to 200 VMs	200 to 1000 VMs	1000 to 1500 VMs	1500 to 2000 VMs
<u>VKernel Virtual Machine</u>				
Number of CPU's	4	4	4	4
Memory Allocation	8 GB	8 GB	8 GB	8 GB
Memory Reservation	8 GB	8 GB	8 GB	8 GB
Allocated Storage	64 GB	64 GB	64 GB	64 GB
<u>VKernel Database Selection</u>				
Internal or External	Either	Either	Either	Either
<u>VKernel External Database Server</u>				
CPU Average Utilization	Less than 90%	Less than 80%	Less than 80%	Less than 80%
Network Storage	Optional	Optional	Not Recommended	Not Recommended
<u>VMware vCenter</u>				
5 Minute Interval Statistics Level	2 or 3	2 or 3	2	2
Minimum Privileges	Read Only + Browse	Read Only + Browse	Read Only + Browse	Read Only + Browse
CPU Average Utilization	Less than 90%	Less than 80%	Less than 80%	Less than 80%
<u>vCenter Database Server</u>				
CPU Average Utilization	Less than 90%	Less than 80%	Less than 80%	Less than 80%
Network Storage	Optional	Optional	Not Recommended	Not Recommended

VMware Software Requirements: VMware Player 1.0.0 or later, VMware Workstation 5 or later, VMware ESX Server 3.x or later, VirtualCenter 2.5 or later, or VMware Server 1.03 or later

Hyper-V Software Requirements: Systems Center Operations Manager 2007 R2, Systems Center Virtual Machine Manager 2008 R2

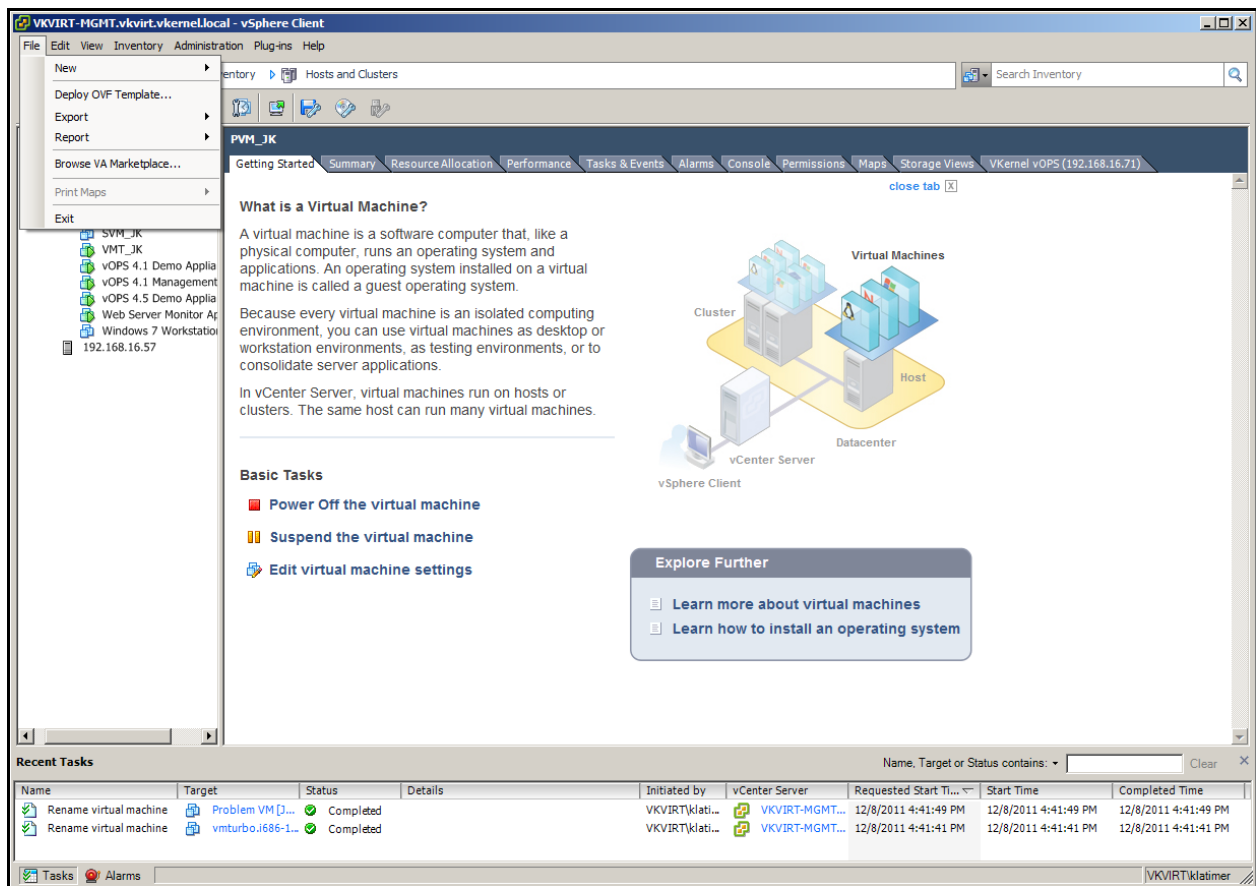
2 Installing the vOperations Suite as a VMware Virtual Machine

The VKernel vOperations Suite (vOPS) comes as a fully configured VMware virtual machine. It is installed directly using the VMware Deploy OVF Template.

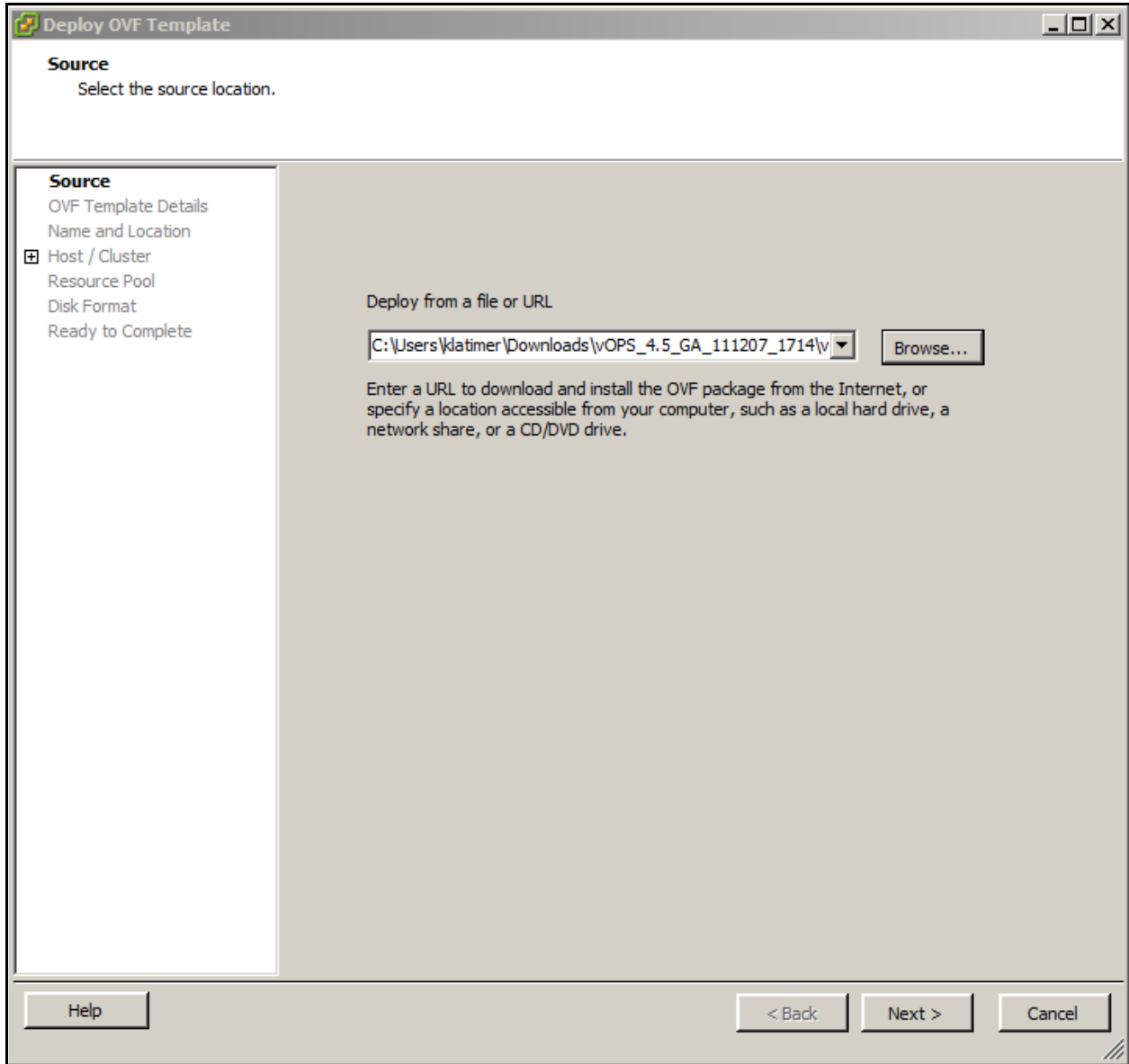
2.1 Download and Install the vOperations Suite

Go to <http://www.vkernel.com/downloads/all/> and download the VMware version of the vOperations Suite. Save it to a Windows server or workstation. The file is a compressed, self-extracting EXE. Double click to run the file and it will create a folder with the OVF file, three VMDK files, the Hyper-V Collector directory, a read me, the end user license agreement and the user documentation.

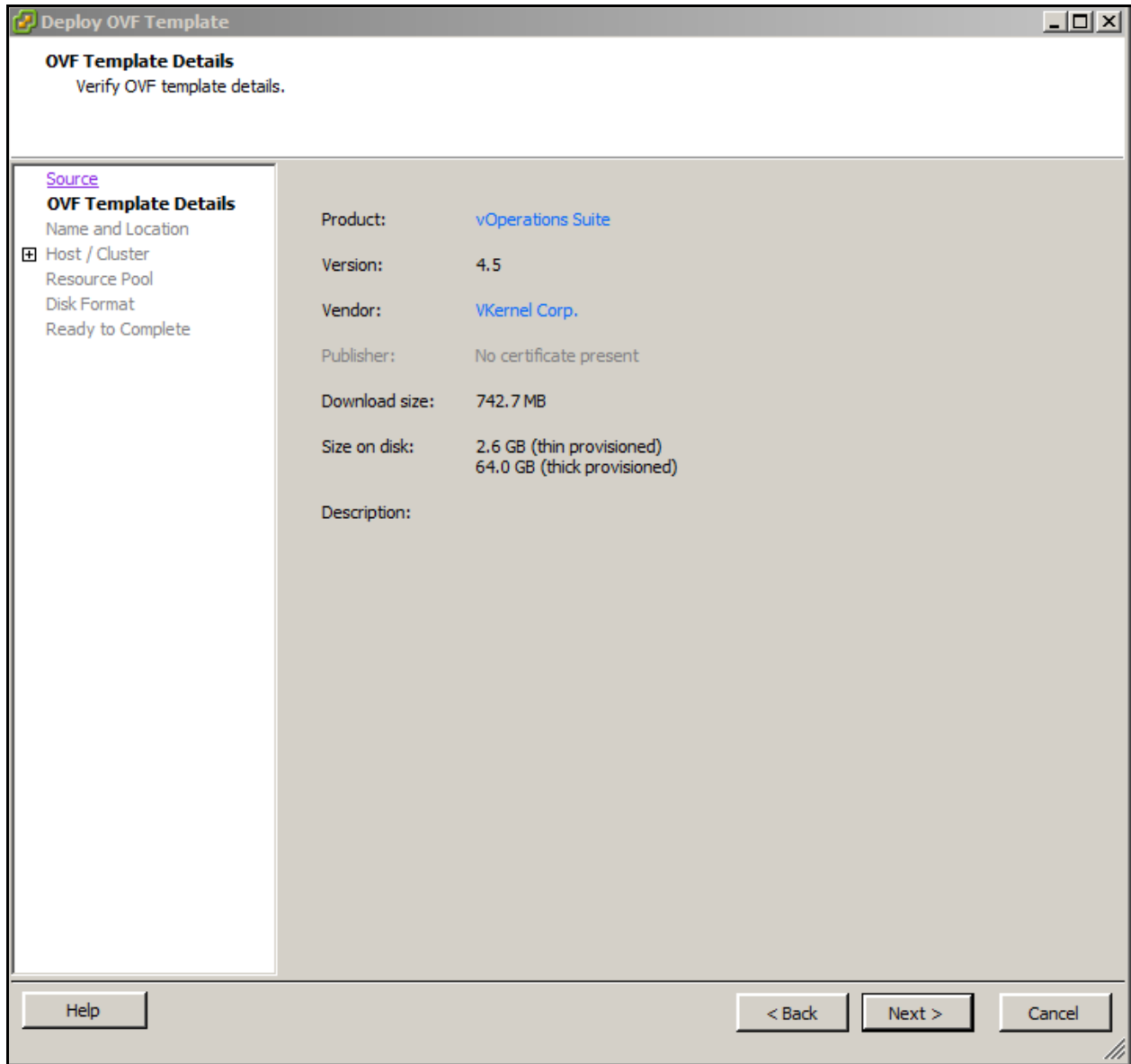
Open the VMware vSphere Client and select **File > Deploy OVF Template**. Refer to the VMware documentation for more information on running the vSphere Client.



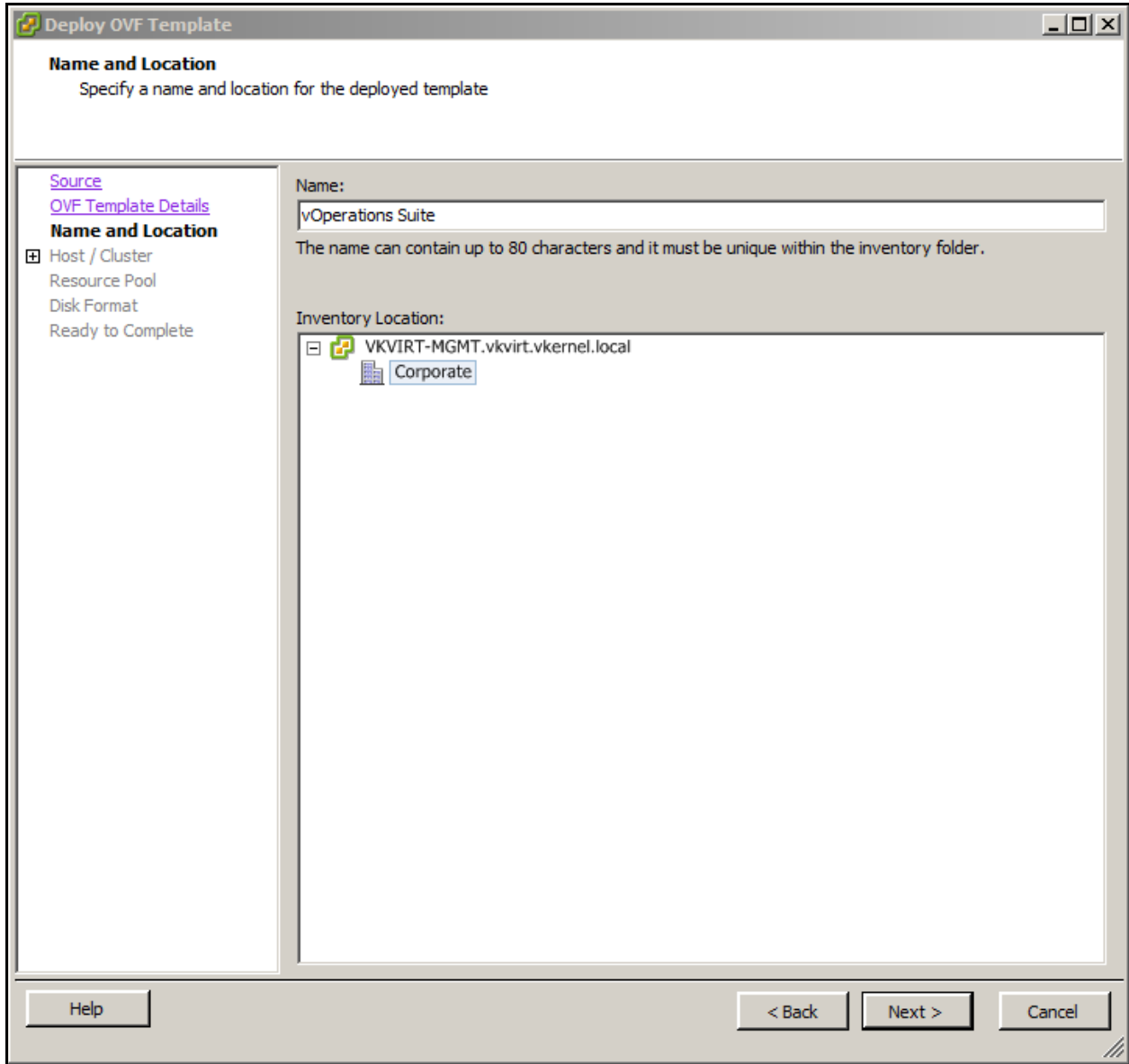
The Deploy OVF wizard will open.



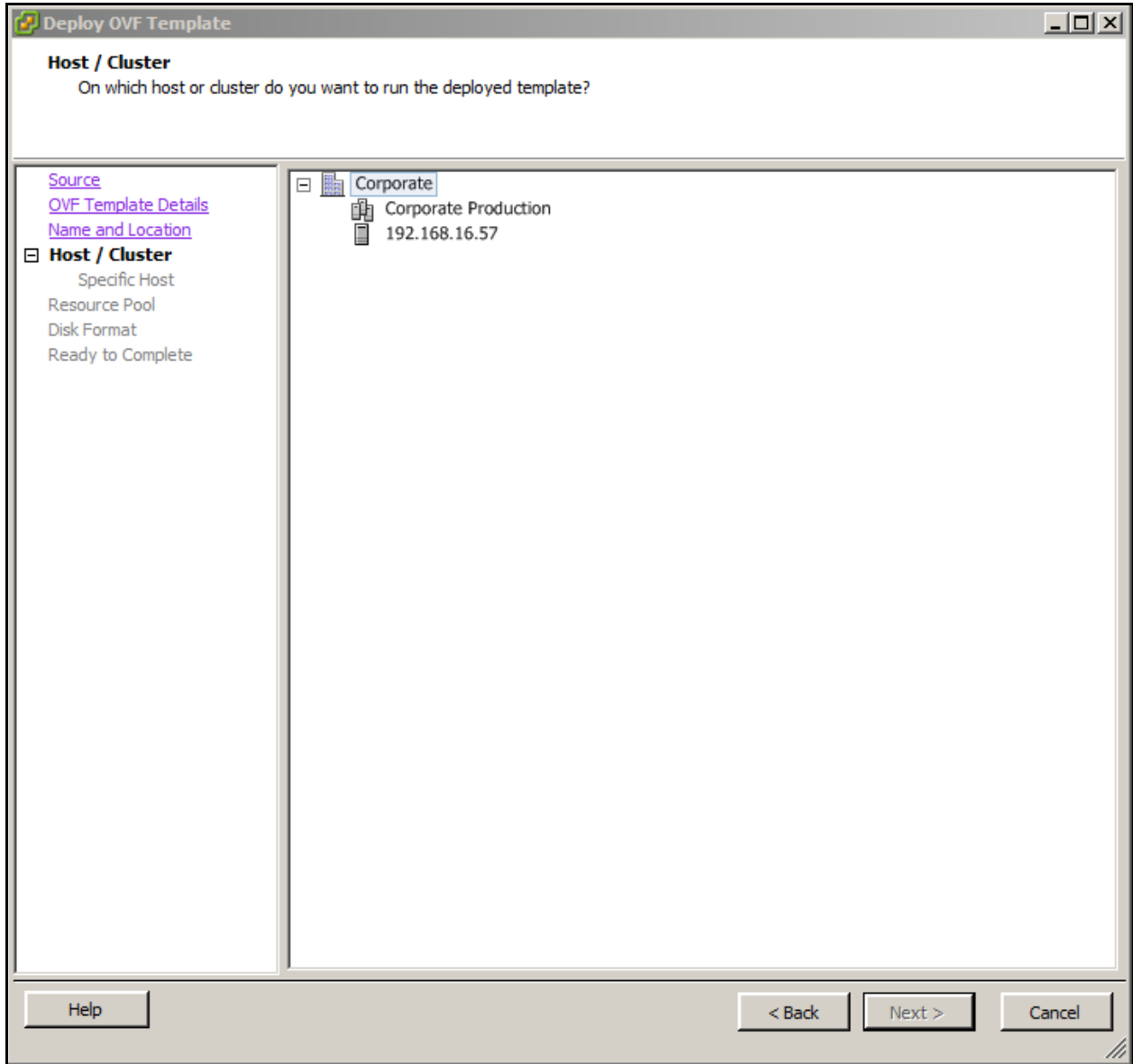
Select **Deploy from file:** and browse to the location of the OVF file extracted above. Click **Next**.



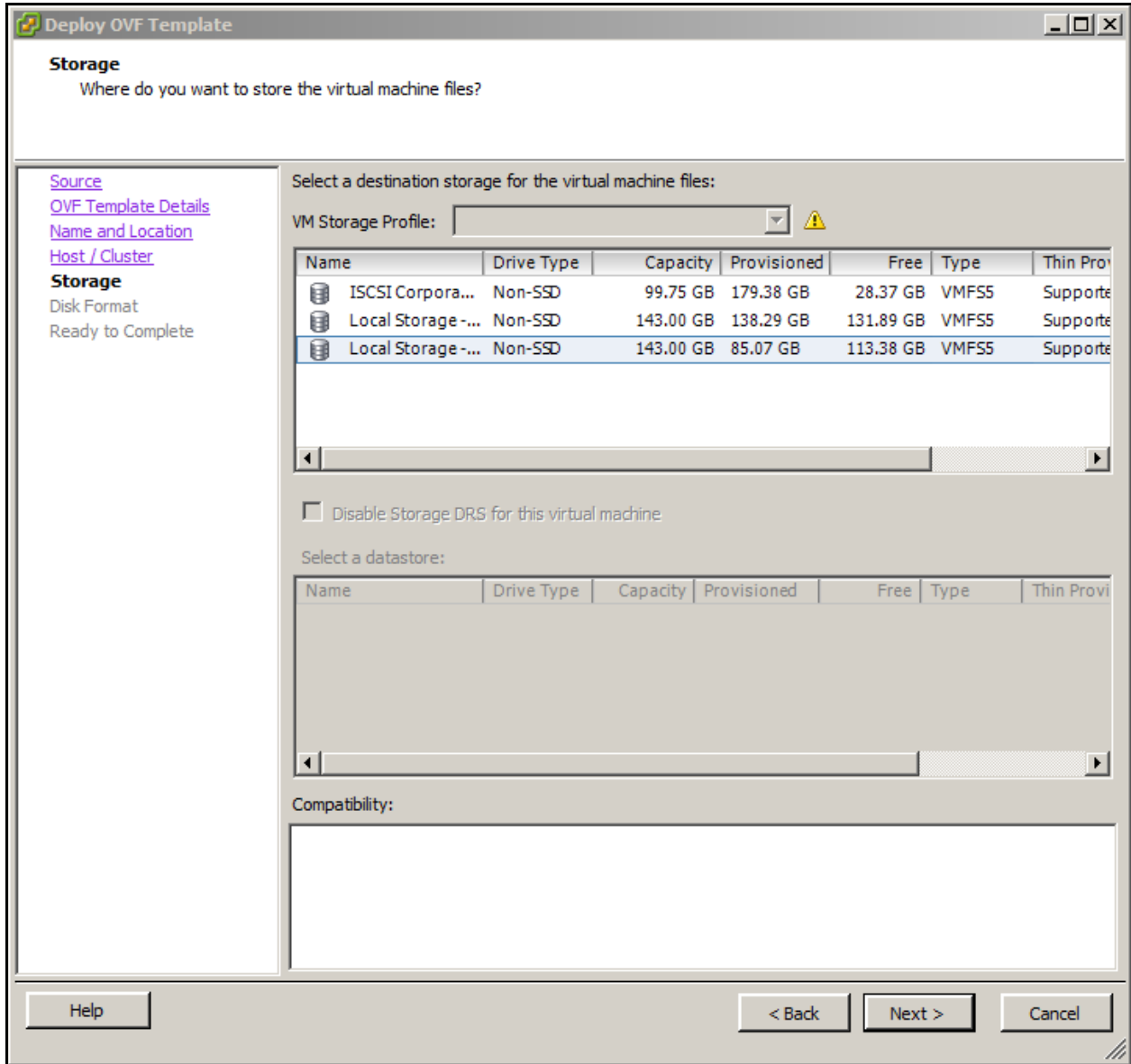
The OVF Template Details are shown. Click **Next**.



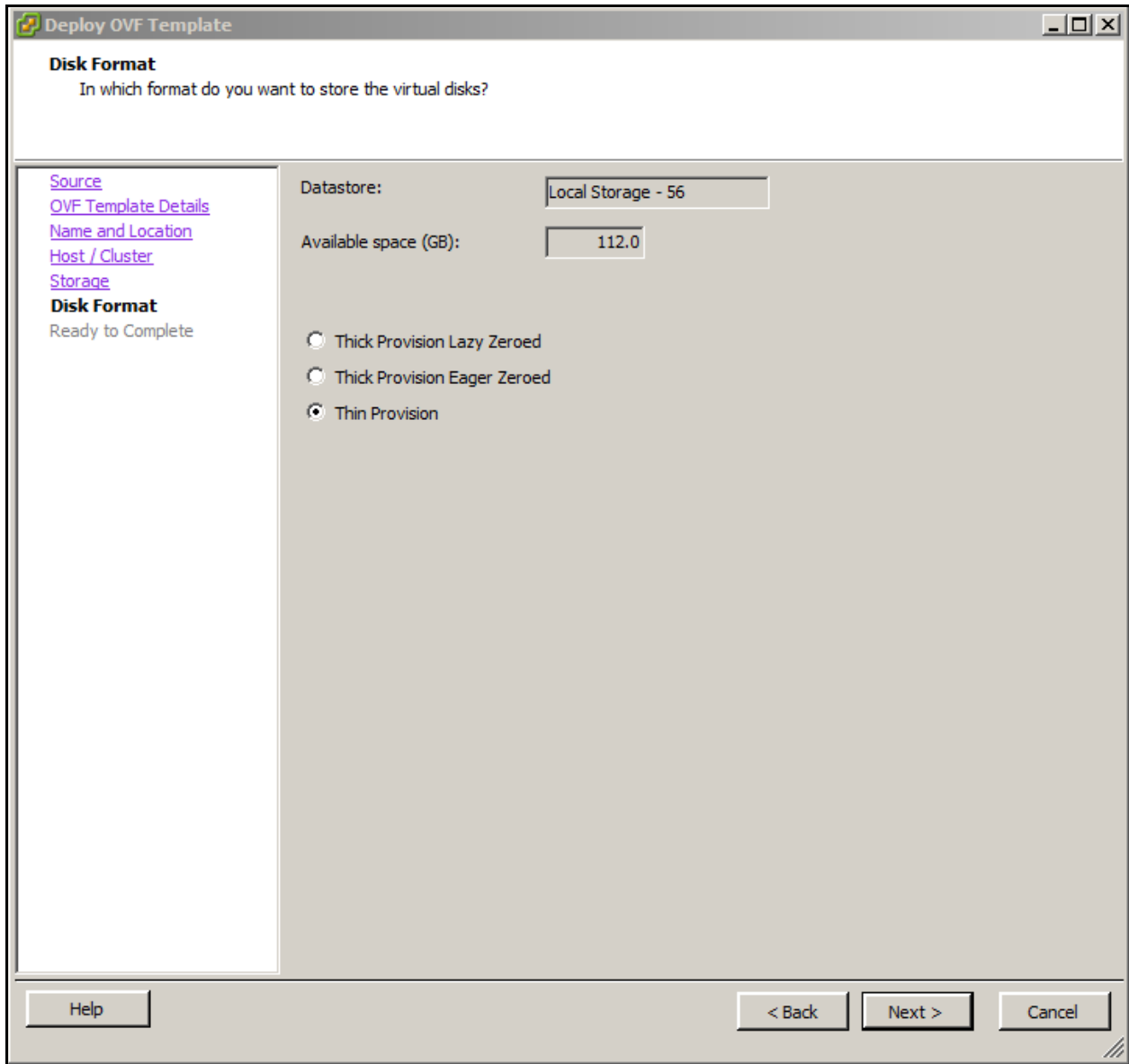
Select a name and destination folder for the virtual machine. Click **Next**.



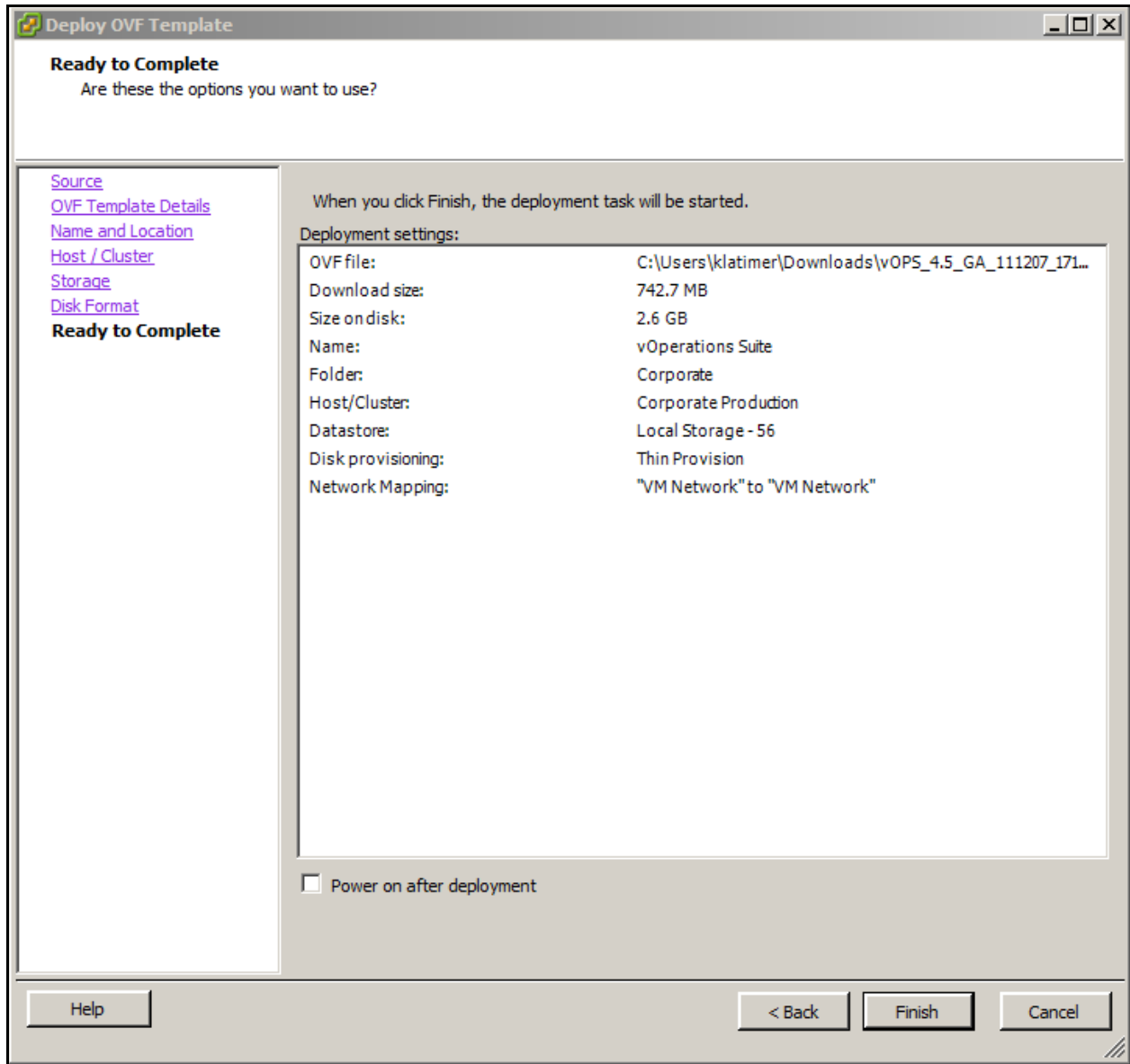
Select a location within the infrastructure hierarchy and click **Next**.



Select the datastore that the VM will reside within and click **Next**.



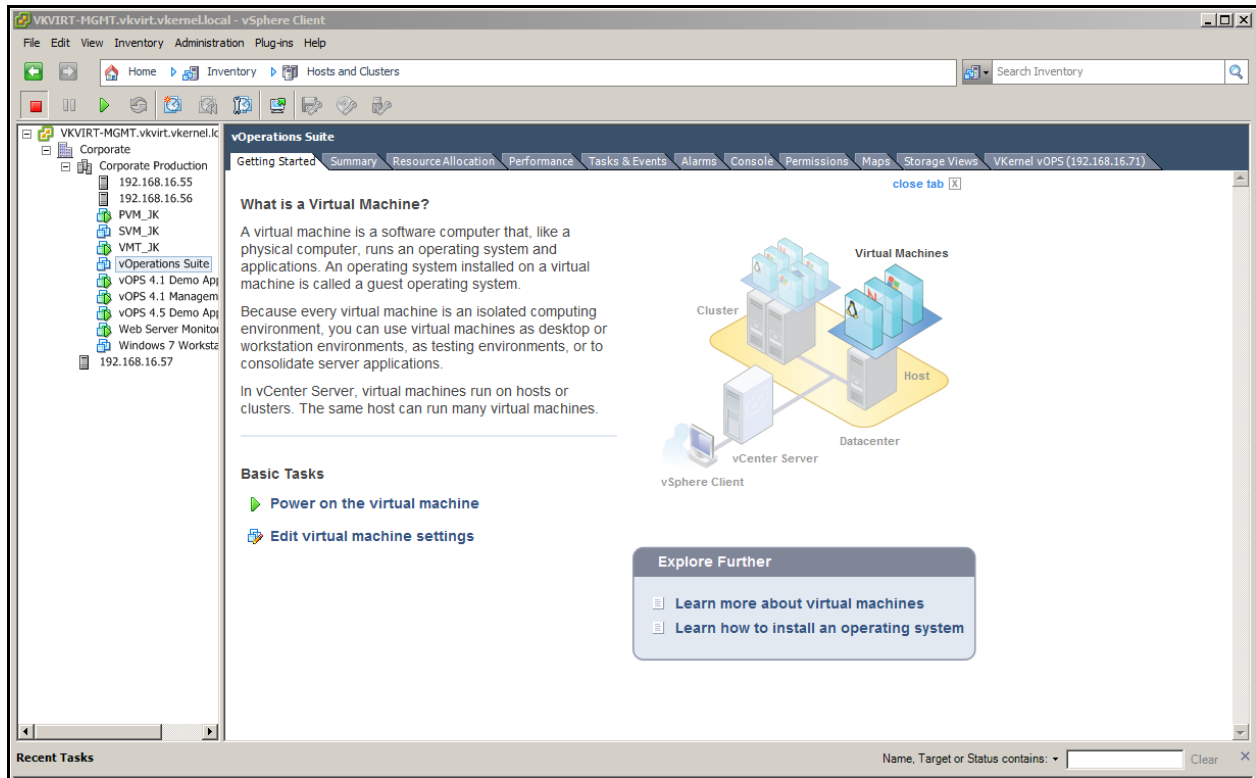
Select the type of datastore provisioning and click **Next**.



Review the deployment settings and click **Finish**.

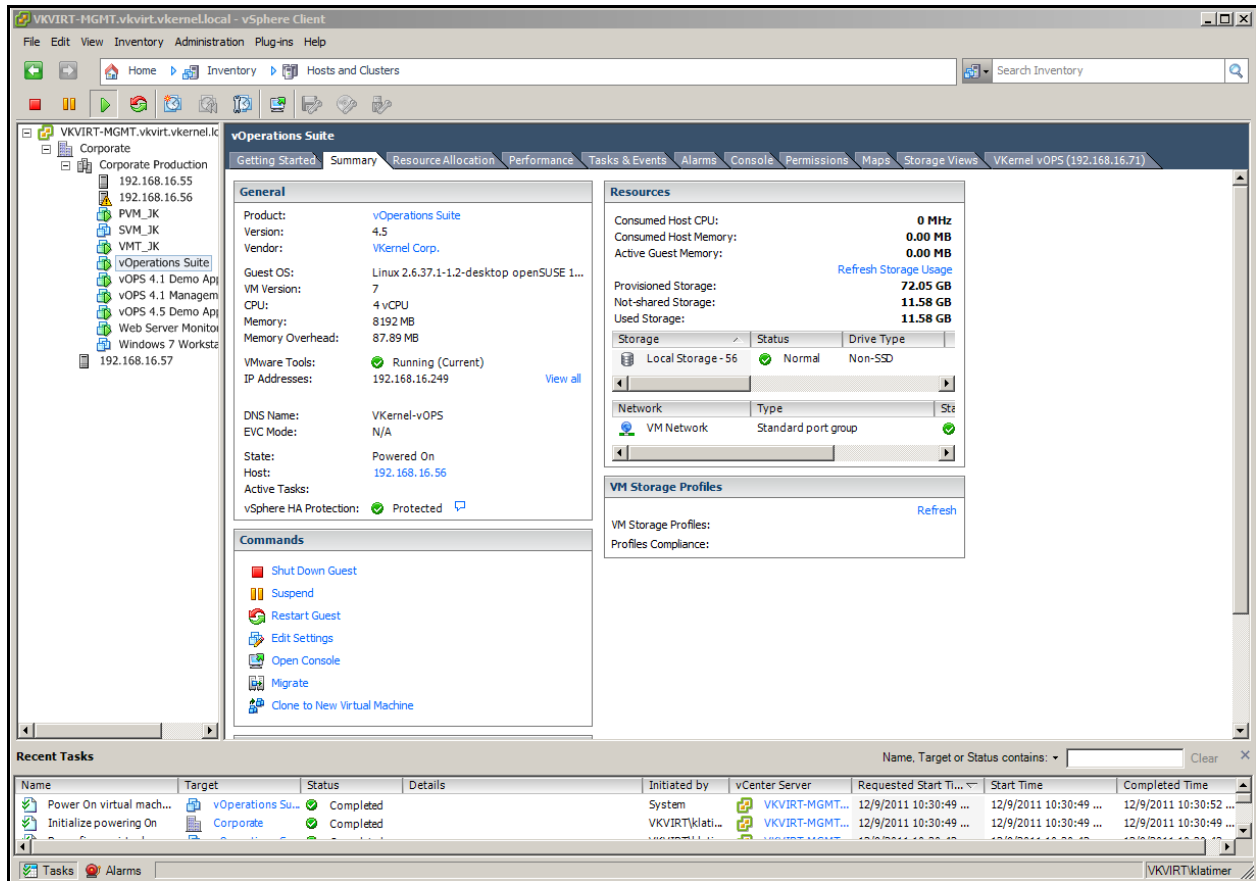
2.2 Power On and Initialize the Virtual Machine

Open vCenter, select the vOperations Suite virtual machine you just installed and click **Power On**.



Once the appliance is started, it will initialize the operating system and start the vOperations Suite. The IP address will be obtained from DHCP server automatically. Pool.ntp.org will be used as the Network Time Protocol (NTP) server by default. These can be changed after the vOperations Suite has been successfully started.

Wait until the IP address of the vOperations Suite appears in the vCenter Summary tab. Once the IP address appears it will take several more minutes to start the application server. Once that is completed, you can access the vOperations Suite using the IP address and a standard browser.

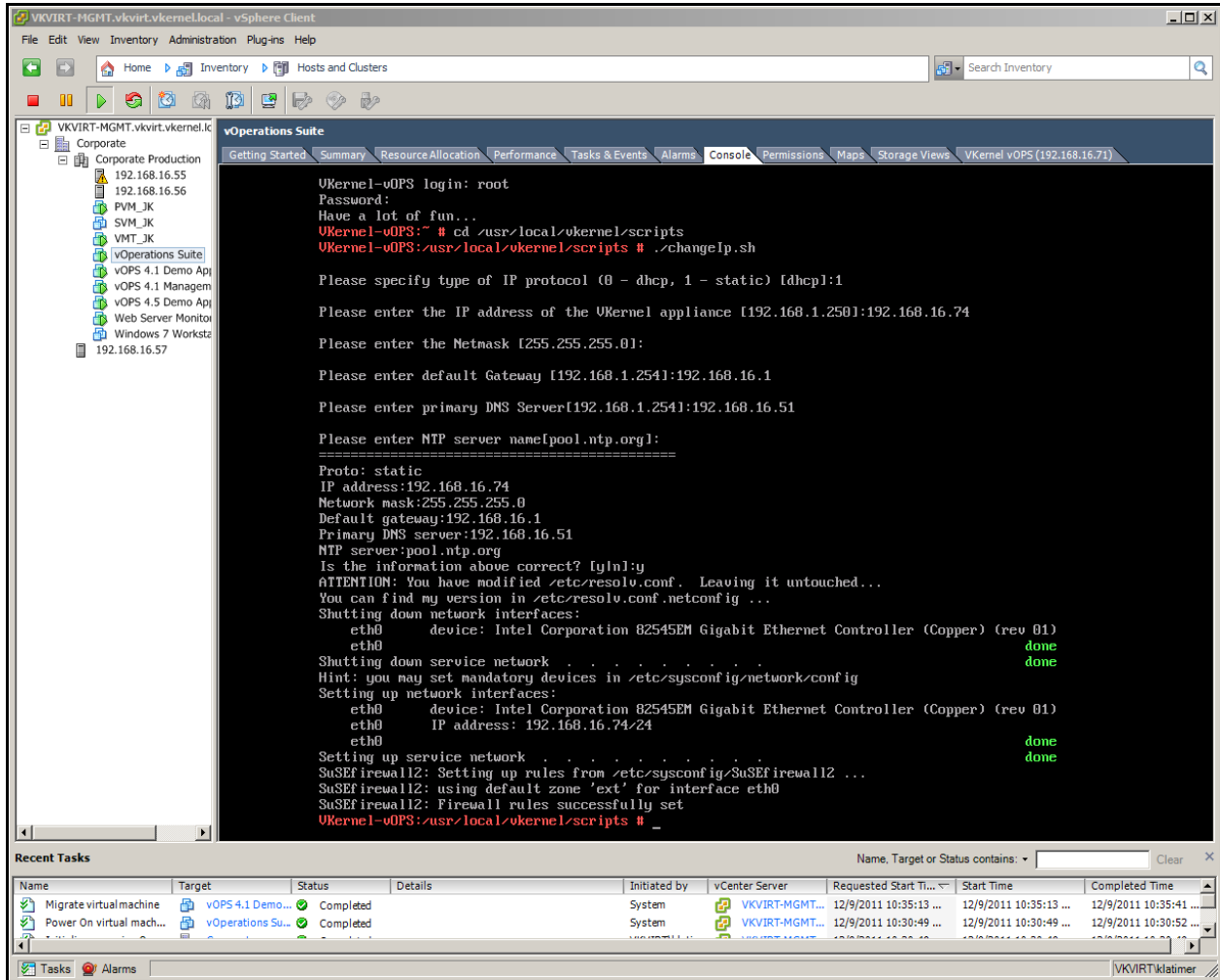


If there is no DHCP server available, the IP address will have to be entered manually before the vOperations Suite will be usable. Open a console window and respond to the questions about the IP address and the network time server.

2.3 Setting a Static IP Address or Changing the Network Time Server

Open a VI Client console window and log in as **root** with **password** for the password.

Change to directory **/usr/local/vkernel/scripts** and run the **changelp.sh** script. Follow the prompts to set the desired IP address and network time server.



Once that is completed, you can access the vOperations Suite using the IP address and a standard browser.

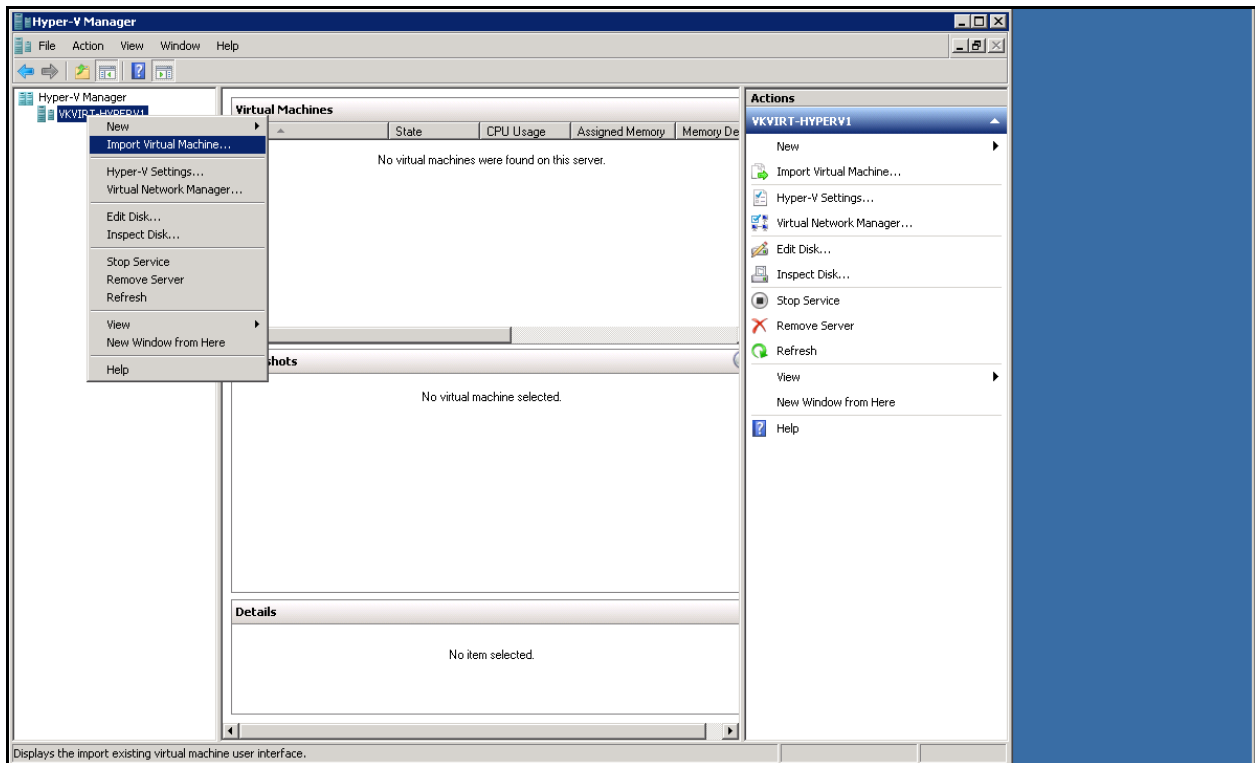
3 Installing the vOperations Suite as a Microsoft Hyper-V Virtual Machine

The VKernel vOperations Suite (vOPS) comes as a fully configured Hyper-V virtual machine. It is installed directly using the Microsoft Hyper-V Manager.

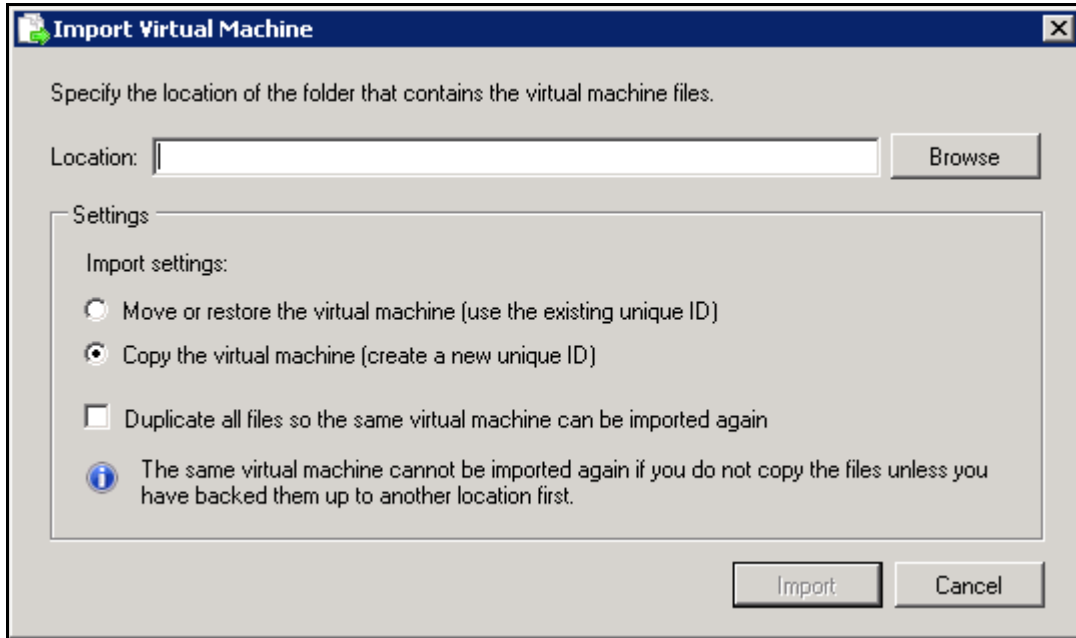
3.1 Download and Install the vOperations Suite

Go to <http://www.vkernel.com/downloads/all/> and download the Microsoft Hyper-V version of the vOperations Suite. Save it to a Windows server or workstation. The file is a compressed, self-extracting EXE. Double click to run the file and it will create a folder with the required VHD directories, the Hyper-V Collector directory, a read me, the end user license agreement and the user documentation.

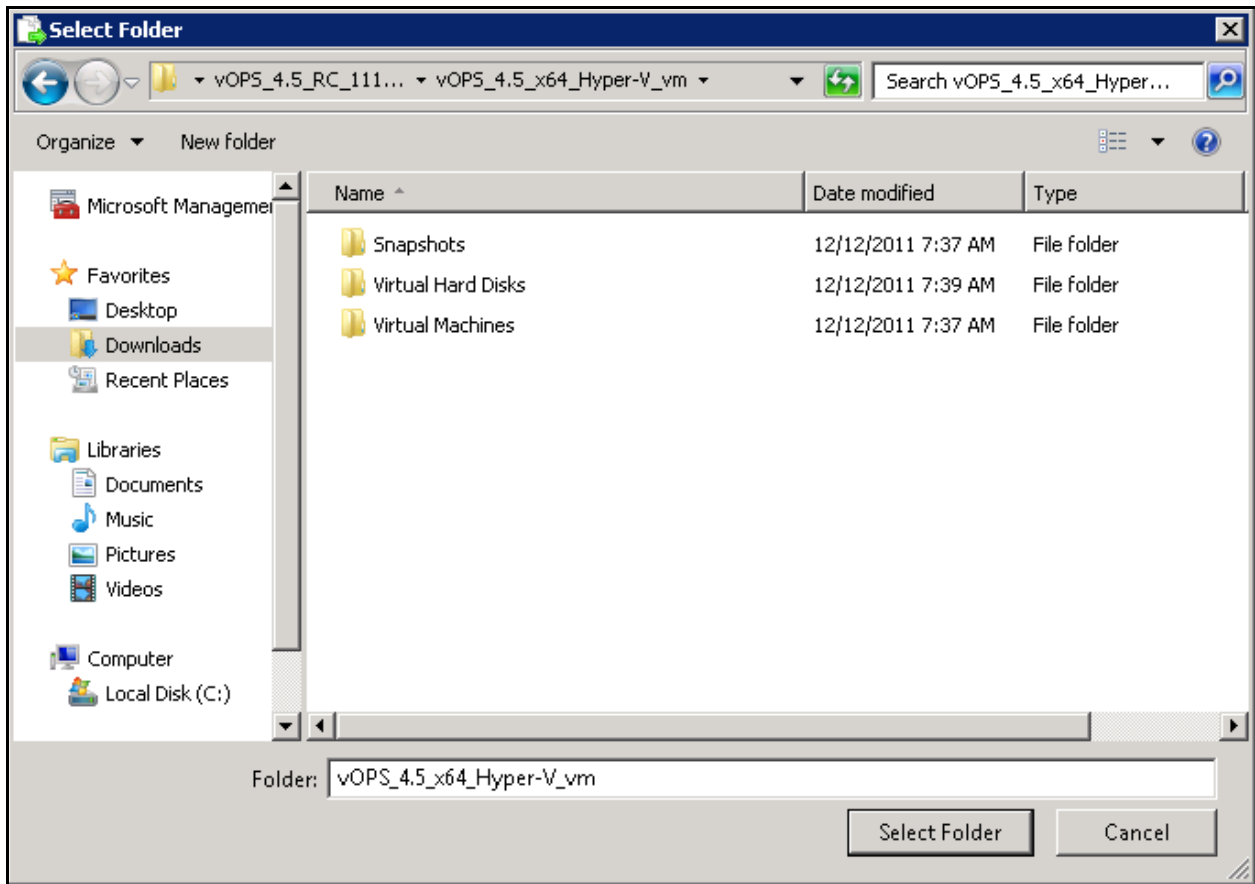
Open the Microsoft Hyper-V Manager, right click on the desired Hyper-V host and select **Import Virtual Machine**. Refer to the Microsoft documentation for more information on running the Hyper-V Manager.



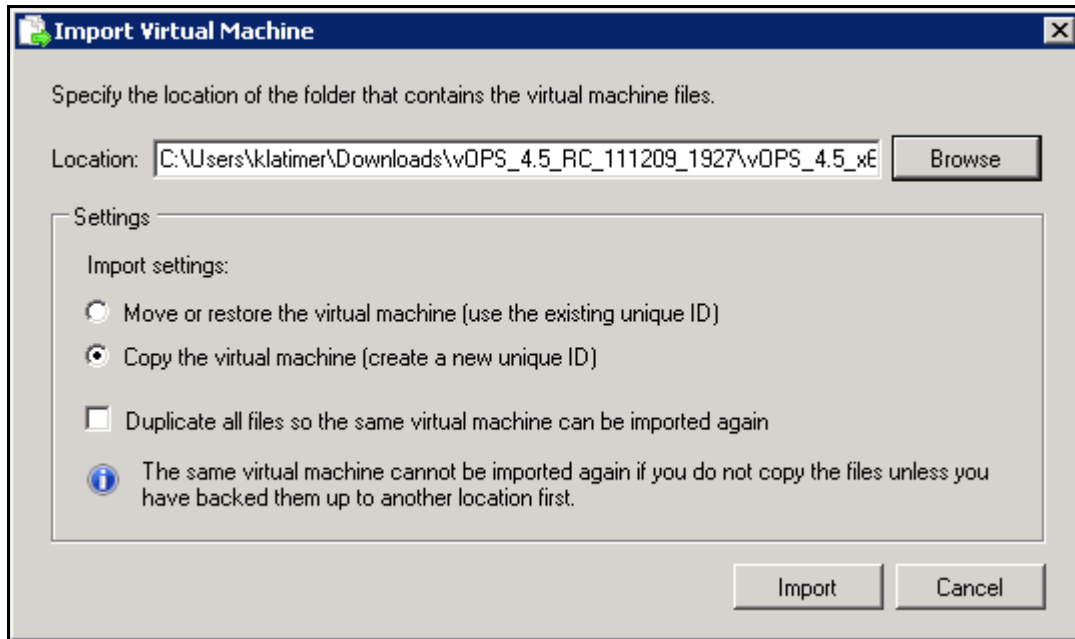
The Import Virtual Machine dialog will open.



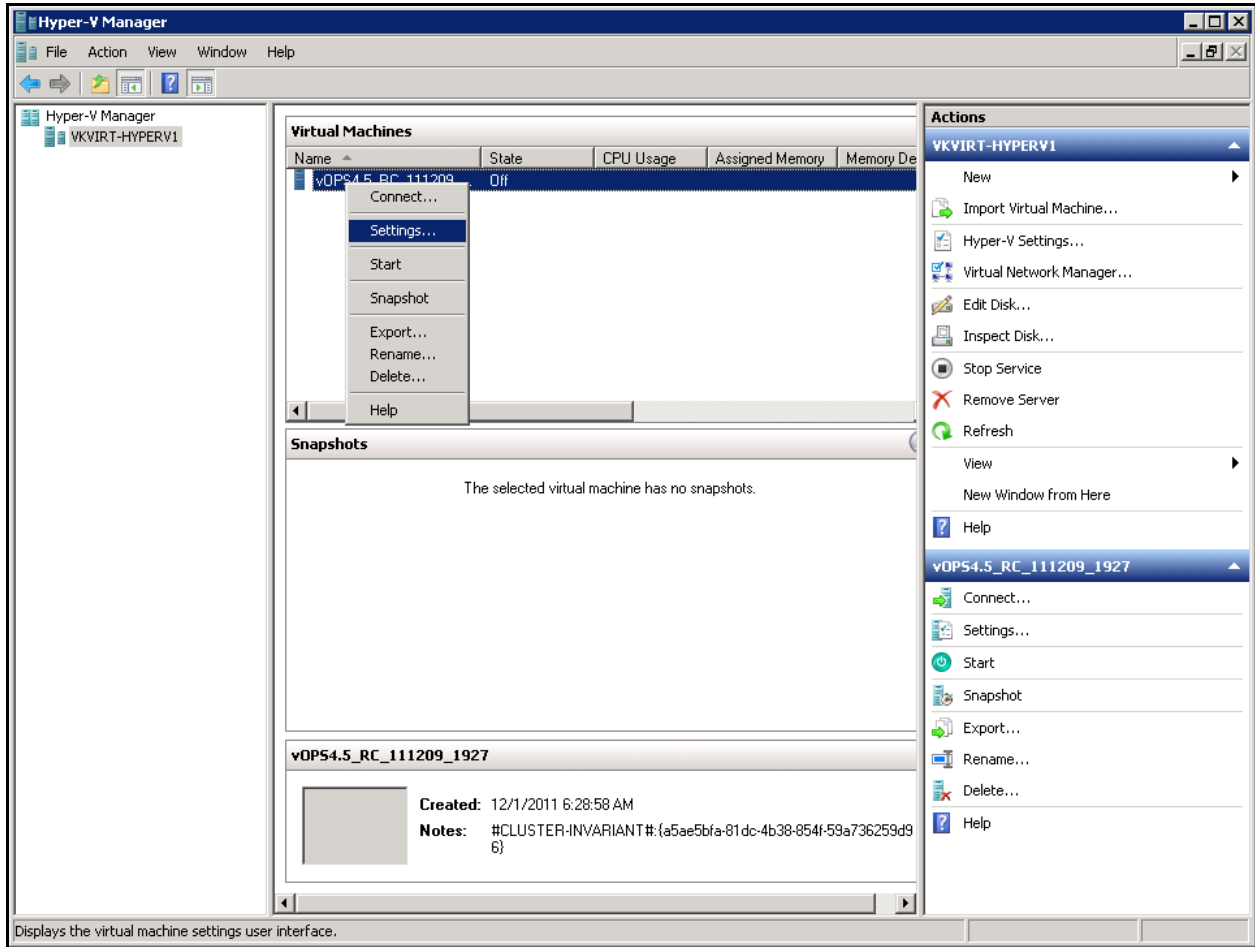
Select **Copy the virtual machine** and press the **Browse** button.



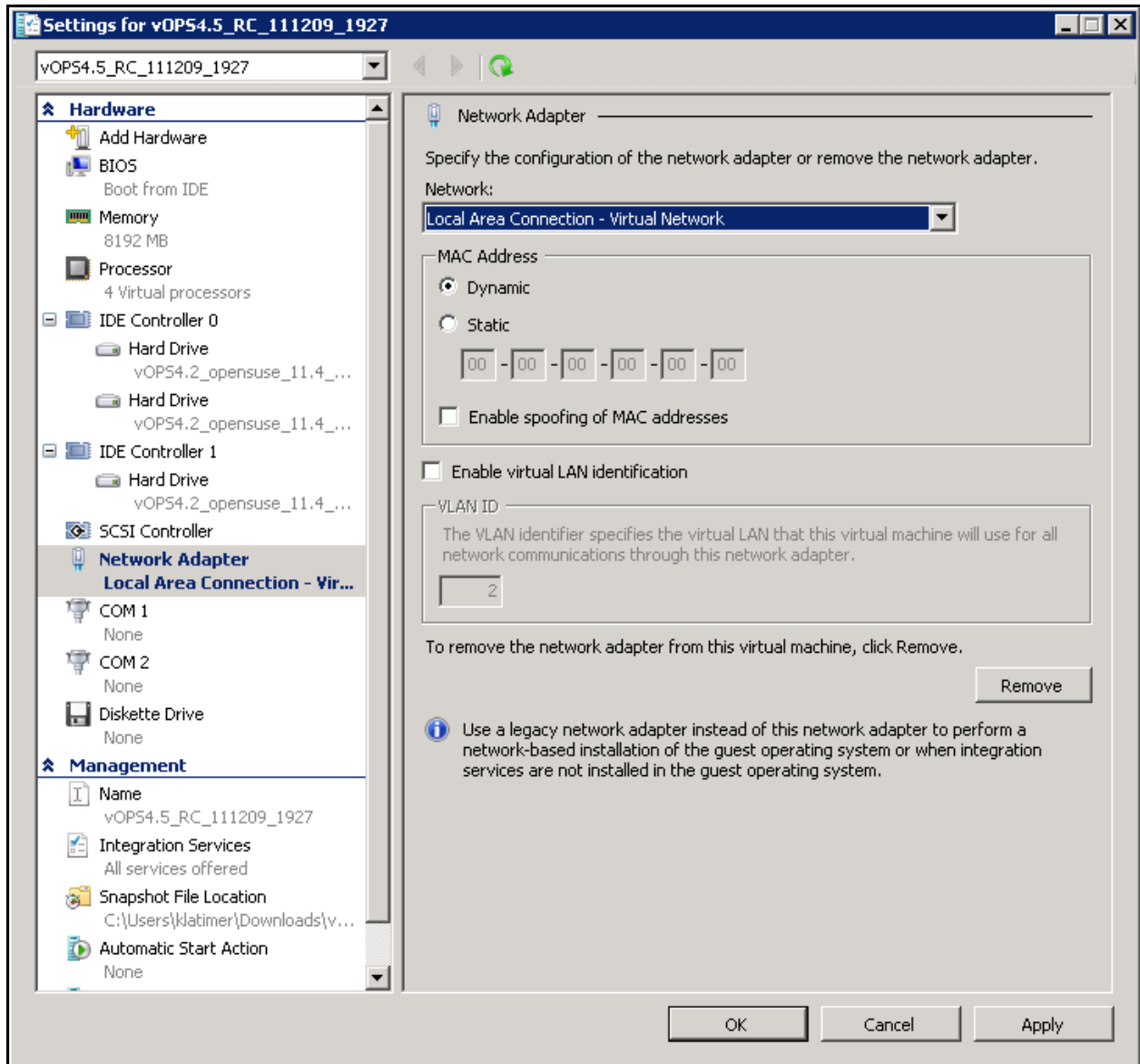
Browse to the location of the VHD directories extracted above. Click **Select Folder**.



The Import Virtual Machine dialog will be shown with the selected folder. Click **Import**.



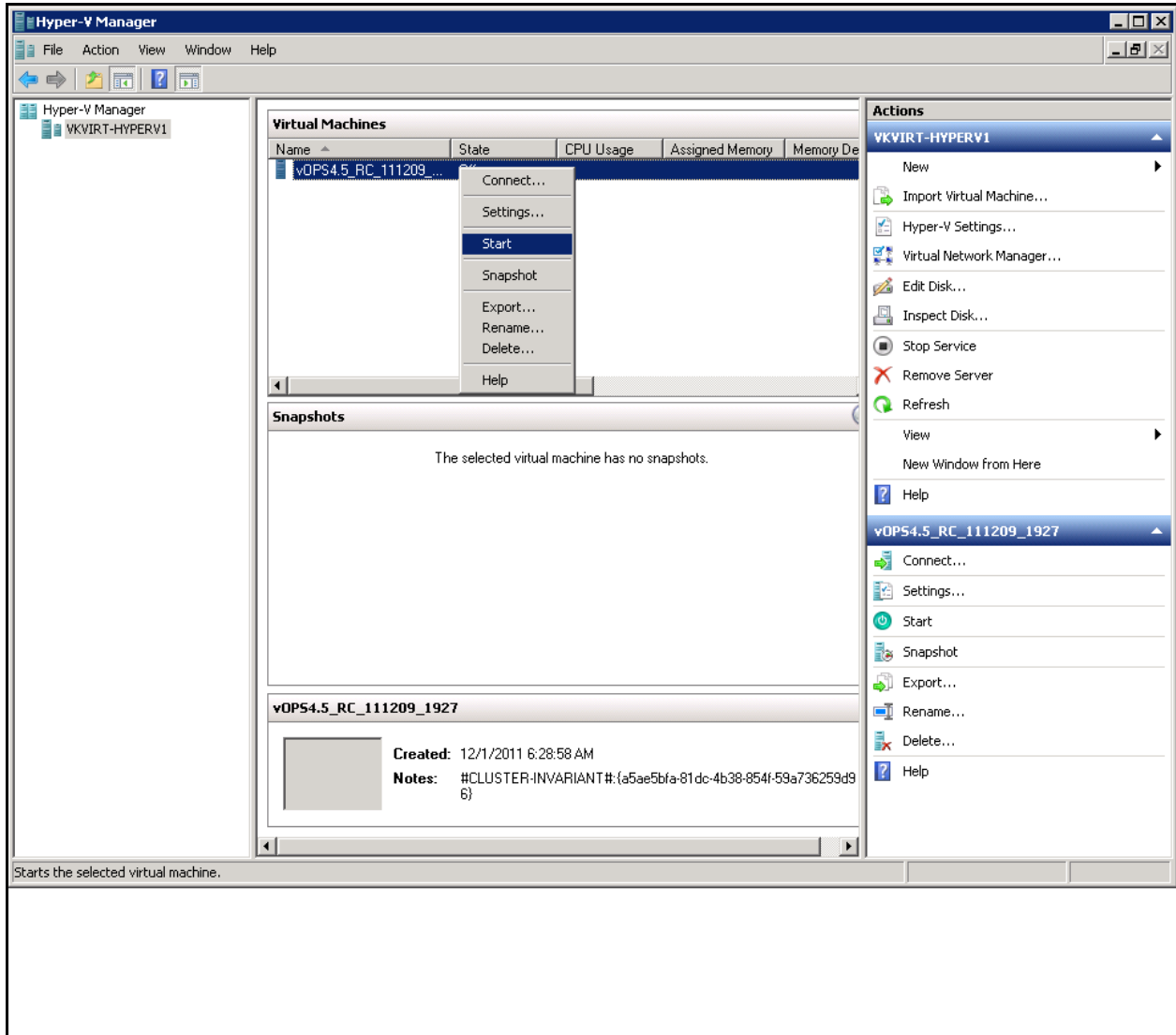
The virtual machine will then be imported and will appear in the list of virtual machines for the host. Right click on the vOperations Suite virtual machine and select **Settings**.



Select the appropriate Network Adapter. Click **OK**.

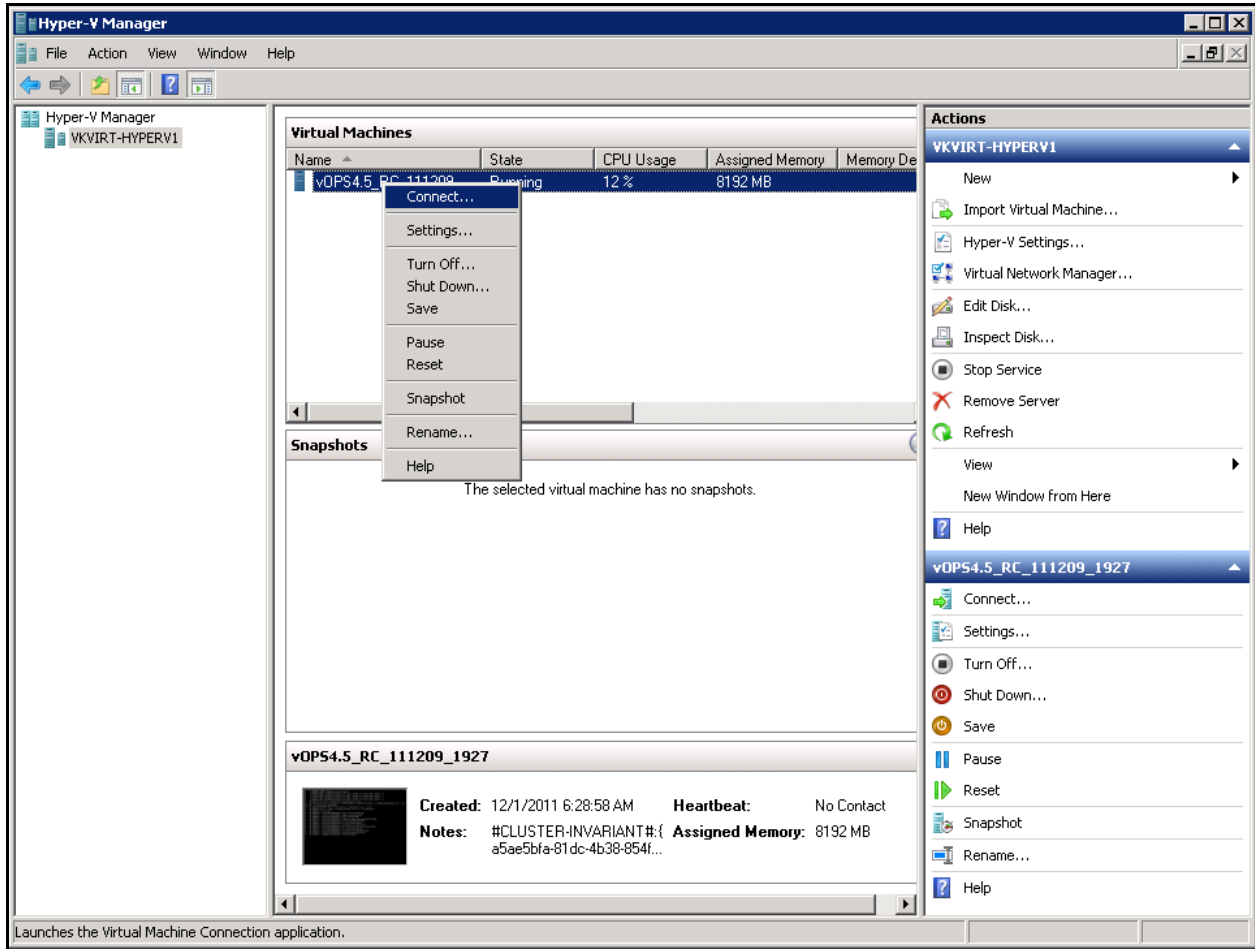
3.2 Power On and Initialize the Virtual Machine

Open the Hyper-V Manager, select the vOperations Suite virtual machine you just installed and click **Start**.

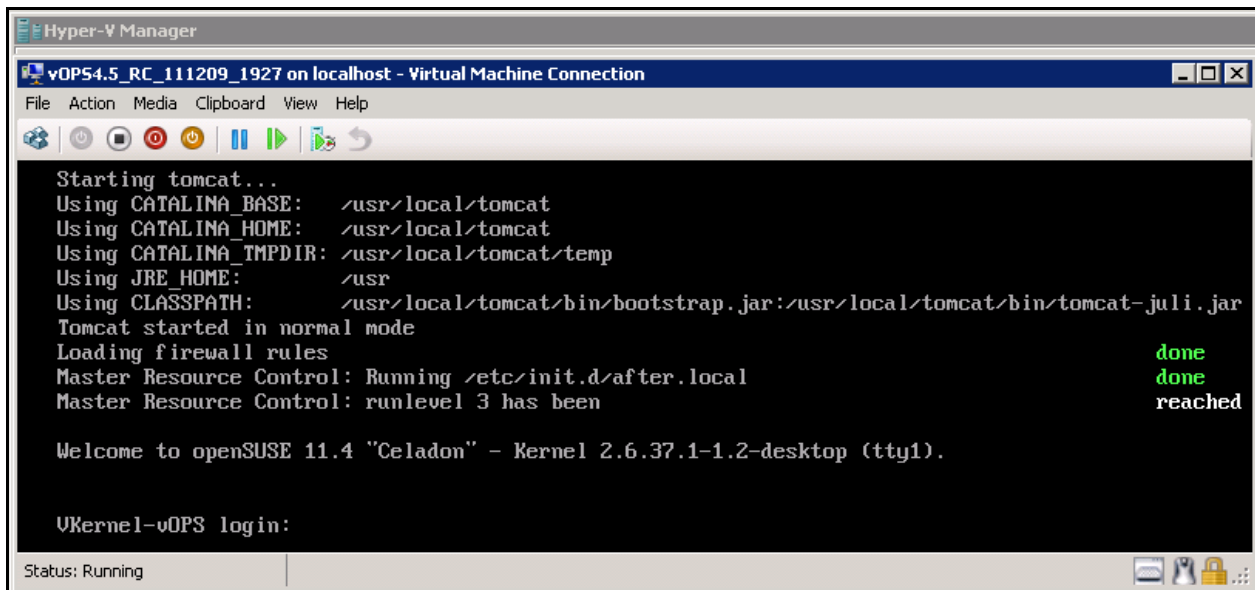


Once the appliance is started, it will initialize the operating system and start the vOperations Suite. The IP address will be obtained from DHCP server automatically. Pool.ntp.org will be used as the Network Time Protocol (NTP) server by default. These can be changed after the vOperations Suite has been successfully started.

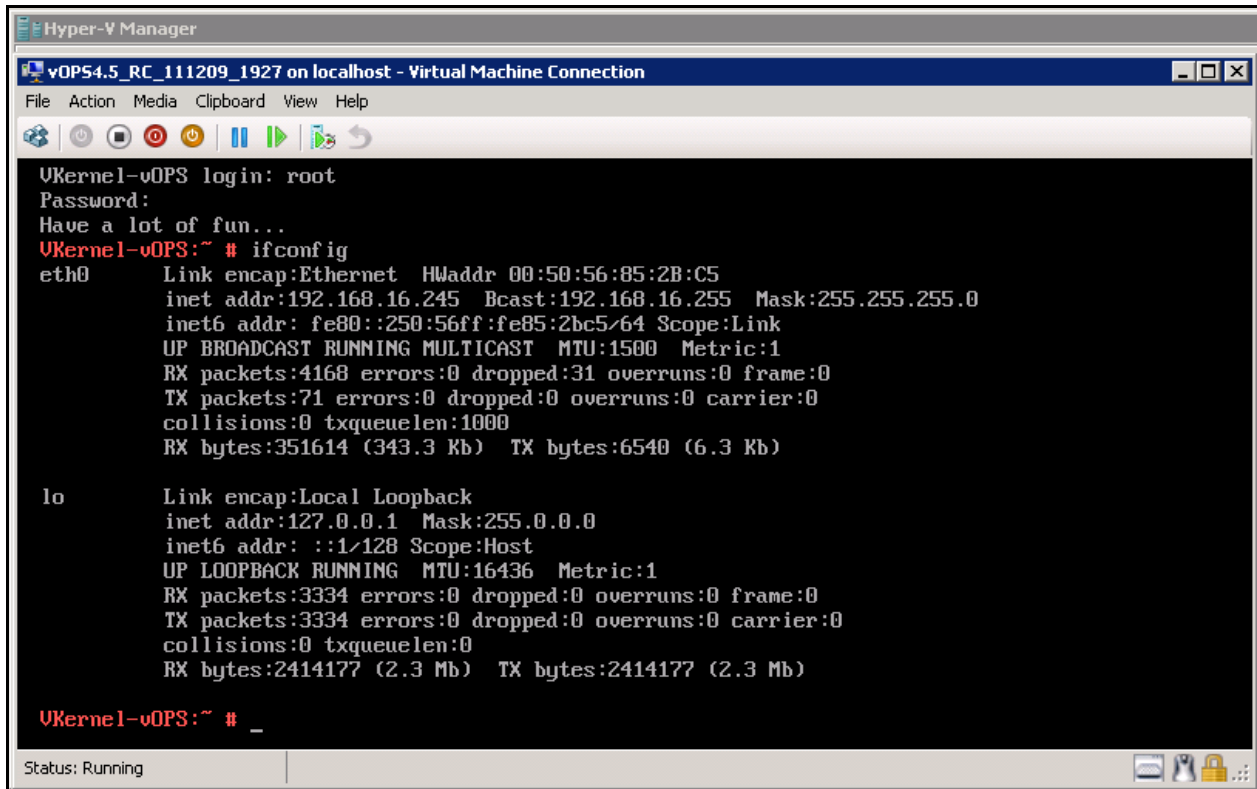
Once the virtual machine is running, right click on the vOperations Suite virtual machine and select **Connect**.



The console will open. Wait until the login prompt appears.



Log in as **root** with password **password** and run the **ifconfig** command.



```
Hyper-V Manager
vOPS4.5_RC_111209_1927 on localhost - Virtual Machine Connection
File Action Media Clipboard View Help
VKernel-vOPS login: root
Password:
Have a lot of fun...
VKernel-vOPS:~ # ifconfig
eth0      Link encap:Ethernet  HWaddr 00:50:56:85:2B:C5
          inet addr:192.168.16.245  Bcast:192.168.16.255  Mask:255.255.255.0
          inet6 addr: fe80::250:56ff:fe85:2bc5/64  Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:4168 errors:0 dropped:31 overruns:0 frame:0
          TX packets:71 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:351614 (343.3 Kb)  TX bytes:6540 (6.3 Kb)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128  Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:3334 errors:0 dropped:0 overruns:0 frame:0
          TX packets:3334 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:2414177 (2.3 Mb)  TX bytes:2414177 (2.3 Mb)

VKernel-vOPS:~ # _
Status: Running
```

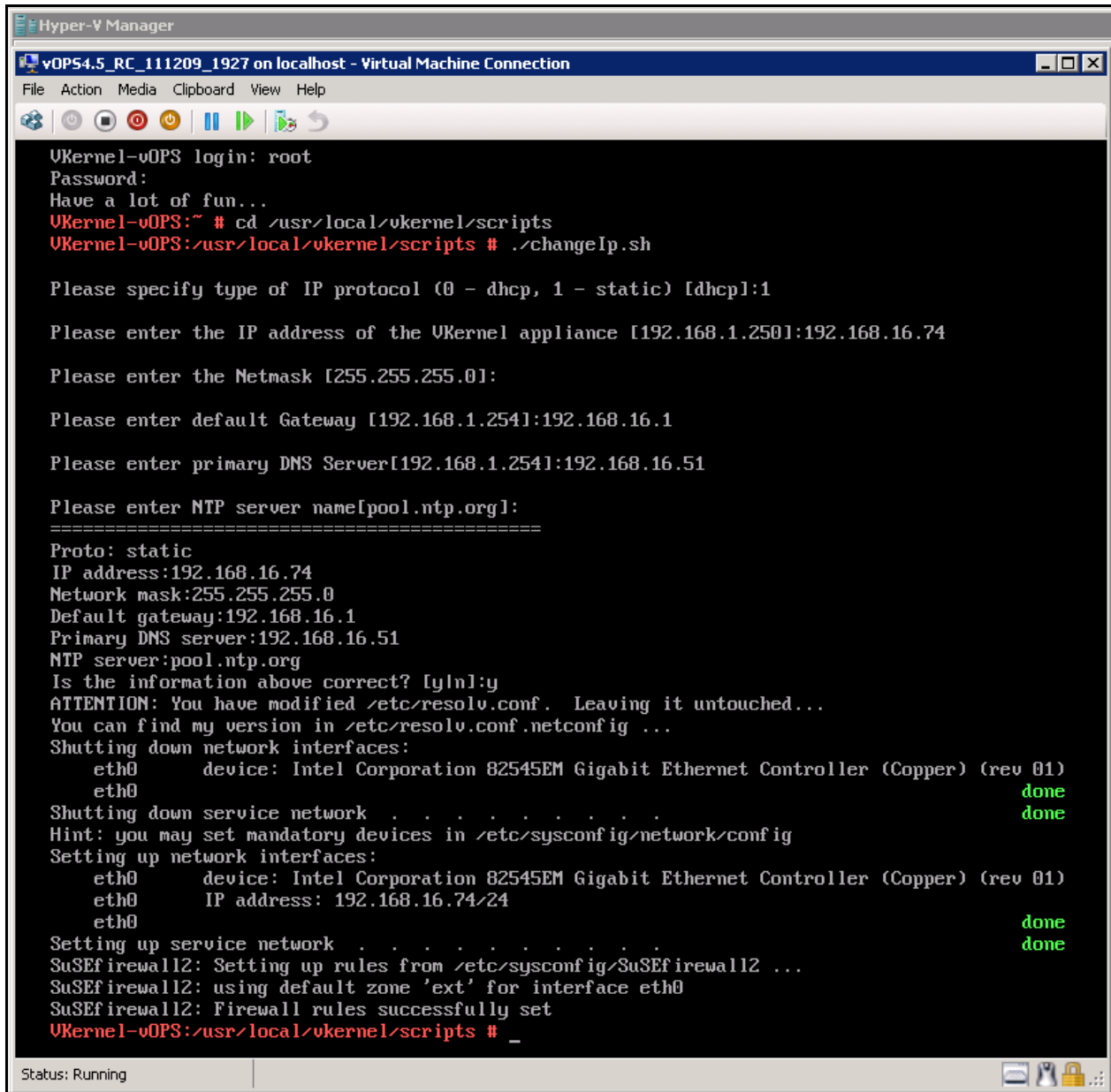
You can access the vOperations Suite using the IP address (**inet addr:**) and a standard browser.

If there is no DHCP server available, the IP address will have to be entered manually before the vOperations Suite will be usable. Respond to the questions about the IP address and the network time server.

3.3 Setting a Static IP Address or Changing the Network Time Server

Use the Hyper-V Manager to connect to the virtual machine and log in as **root** with **password** for the password.

Change to directory **/usr/local/vkernel/scripts** and run the **changelp.sh** script. Follow the prompts to set the desired IP address and network time server.



```
Hyper-V Manager
vOPS4.5_RC_111209_1927 on localhost - Virtual Machine Connection
File Action Media Clipboard View Help
VKernel-vOPS login: root
Password:
Have a lot of fun...
VKernel-vOPS:~ # cd /usr/local/vkernel/scripts
VKernel-vOPS:/usr/local/vkernel/scripts # ./changeIp.sh

Please specify type of IP protocol (0 - dhcp, 1 - static) [dhcp]:1
Please enter the IP address of the VKernel appliance [192.168.1.250]:192.168.16.74
Please enter the Netmask [255.255.255.0]:
Please enter default Gateway [192.168.1.254]:192.168.16.1
Please enter primary DNS Server[192.168.1.254]:192.168.16.51
Please enter NTP server name[pool.ntp.org]:
=====
Proto: static
IP address:192.168.16.74
Network mask:255.255.255.0
Default gateway:192.168.16.1
Primary DNS server:192.168.16.51
NTP server:pool.ntp.org
Is the information above correct? [y|n]:y
ATTENTION: You have modified /etc/resolv.conf. Leaving it untouched...
You can find my version in /etc/resolv.conf.netconfig ...
Shutting down network interfaces:
  eth0      device: Intel Corporation 82545EM Gigabit Ethernet Controller (Copper) (rev 01)
  eth0
Shutting down service network . . . . . done
Hint: you may set mandatory devices in /etc/sysconfig/network/config
Setting up network interfaces:
  eth0      device: Intel Corporation 82545EM Gigabit Ethernet Controller (Copper) (rev 01)
  eth0      IP address: 192.168.16.74/24
  eth0
Setting up service network . . . . . done
SuSEfirewall2: Setting up rules from /etc/sysconfig/SuSEfirewall2 ...
SuSEfirewall2: using default zone 'ext' for interface eth0
SuSEfirewall2: Firewall rules successfully set
VKernel-vOPS:/usr/local/vkernel/scripts # _
```

Status: Running

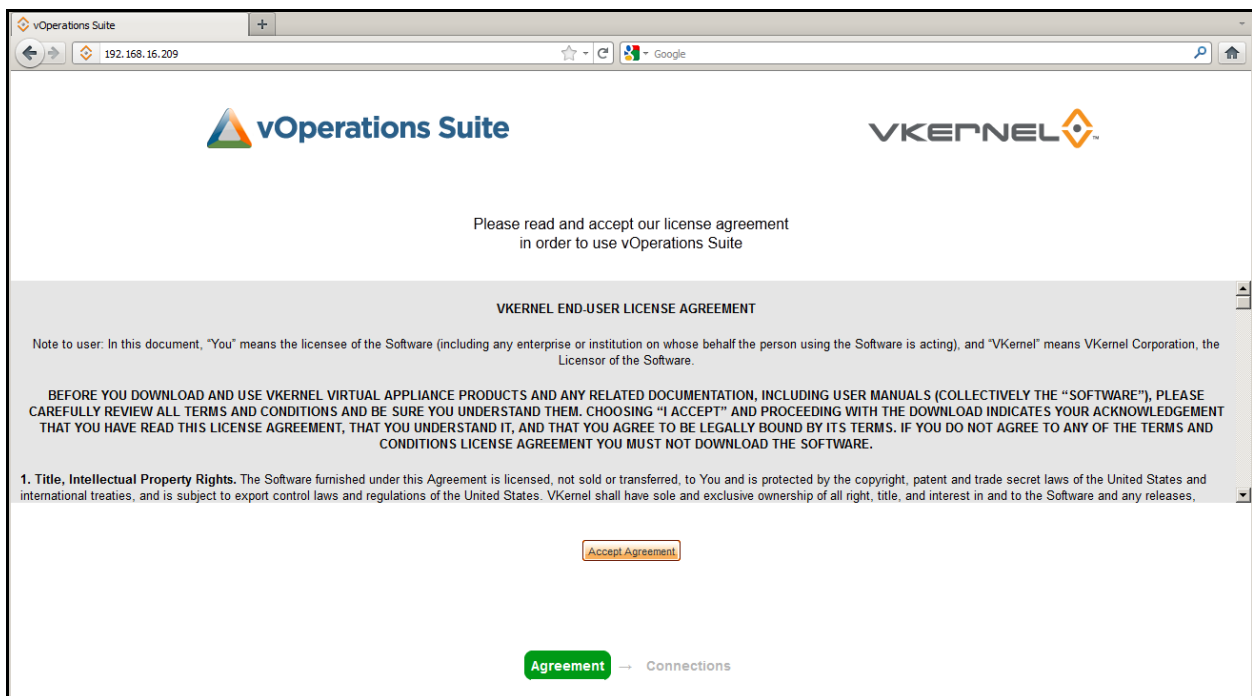
Once that is completed, you can access the vOperations Suite using the IP address and a standard browser.

4 Initial vOperations Suite Configuration

To begin using the vOperations Suite, open a standard browser (Mozilla Firefox or Microsoft Internet Explorer with Adobe Flash 10 or later) and type in the IP address of the vOperations Suite virtual machine. Once the website loads, a username and password is requested. The default username is **vkernel** and the default password is **vkernel**.

4.1 License Agreement

Read and accept the license agreement in order to use vOperations Suite.

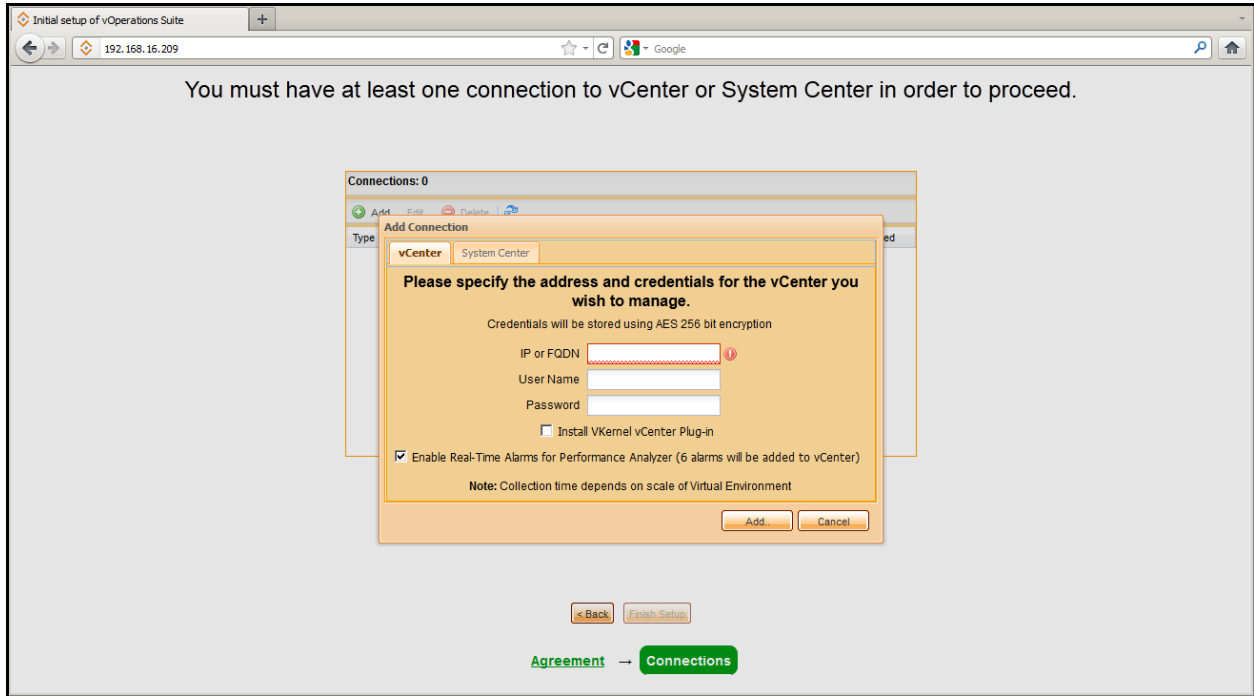


4.2 Connection Management

The environment connection screen will appear and the add connection configuration prompt will open. You must have at least one VMware vCenter or Microsoft Hyper-V connection to complete the configuration.

4.2.1 VMware vCenter Connections

Select the vCenter tab on the Add Connection dialog.



Enter the IP address or hostname and credentials for the system. For vCenter connections, credentials should have Read-Only and Browse Datastore permissions for the entire environment. If you will be using the automated feature for implementing recommendations, the appropriate permissions will be required. The credentials used for the vCenter where the vOperations Suite appliance is installed must also have Virtual Machine State permissions in order for the appliance to be automatically updated.

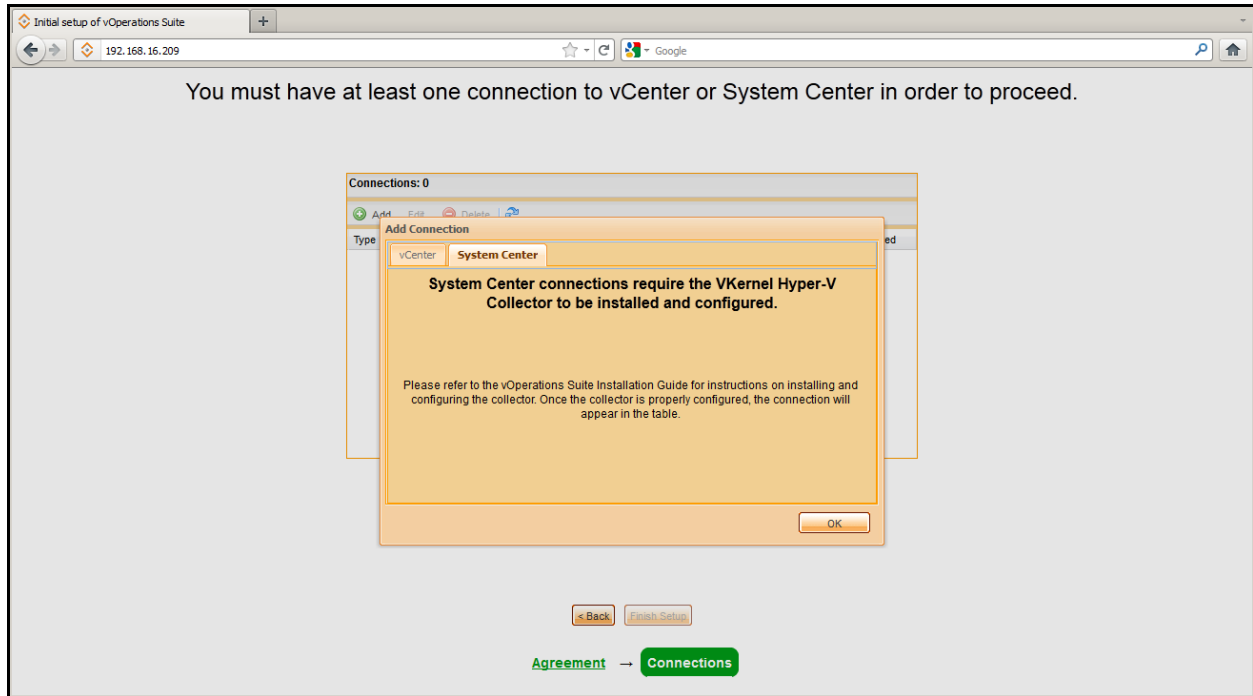
vOperations Suite can be accessed and used from within vCenter using a VKernel plug-in. Check the Install VKernel vCenter Plug-in if you would like the VKernel plug-in installed in vCenter. If the virtual infrastructure client is open at this time, it will need to be closed and reopened in order to see the VKernel plug-in.

The vOperations Suite Performance Analyzer uses vCenter alarms for real time monitoring of the state of the virtual environment. *Six specific VKernel utilization alarms must be installed in vCenter in order to provide the real time functionality. The vCenter credentials must have Alarm permissions in order to create the alarms. Leave the Add VKernel Alarms to vCenter box checked if you want to use the real time analysis capability of Performance Analyzer. Uncheck the box if you do not want the capability. If you leave the box checked, the alarms will be automatically installed.*

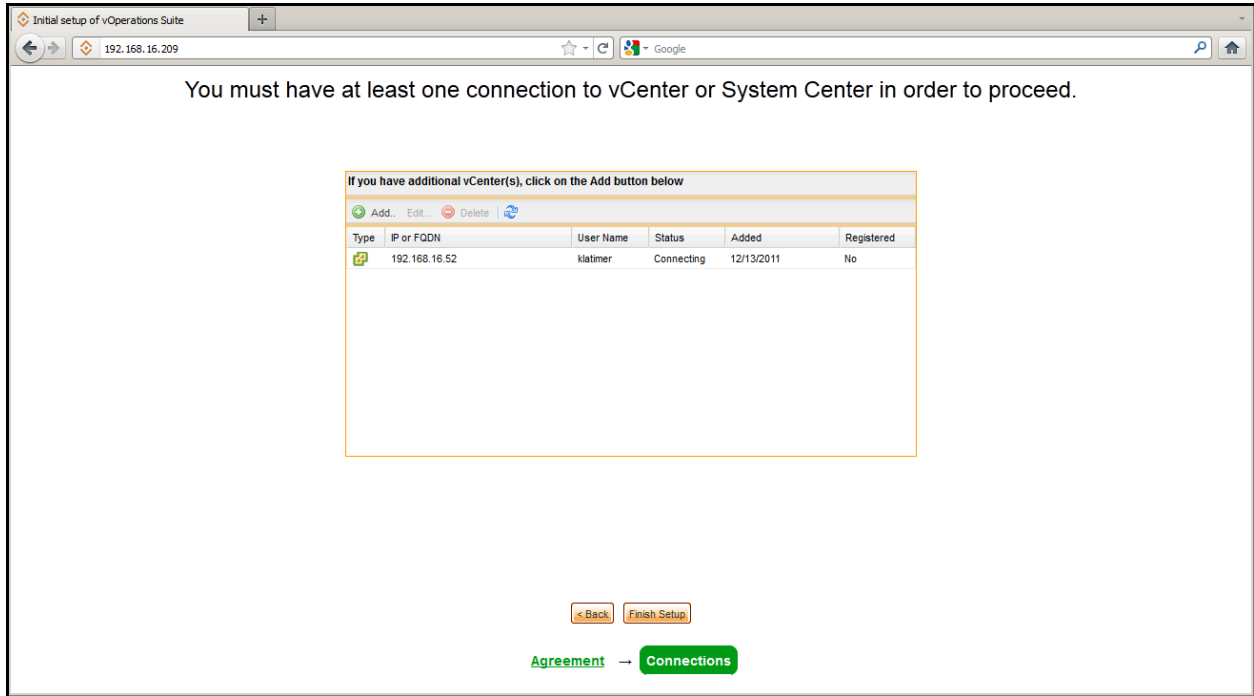
Once a connection is established, the overall configuration can be completed.

4.2.2 Microsoft System Center Connection

Select the System Center tab on the Add Connection dialog.



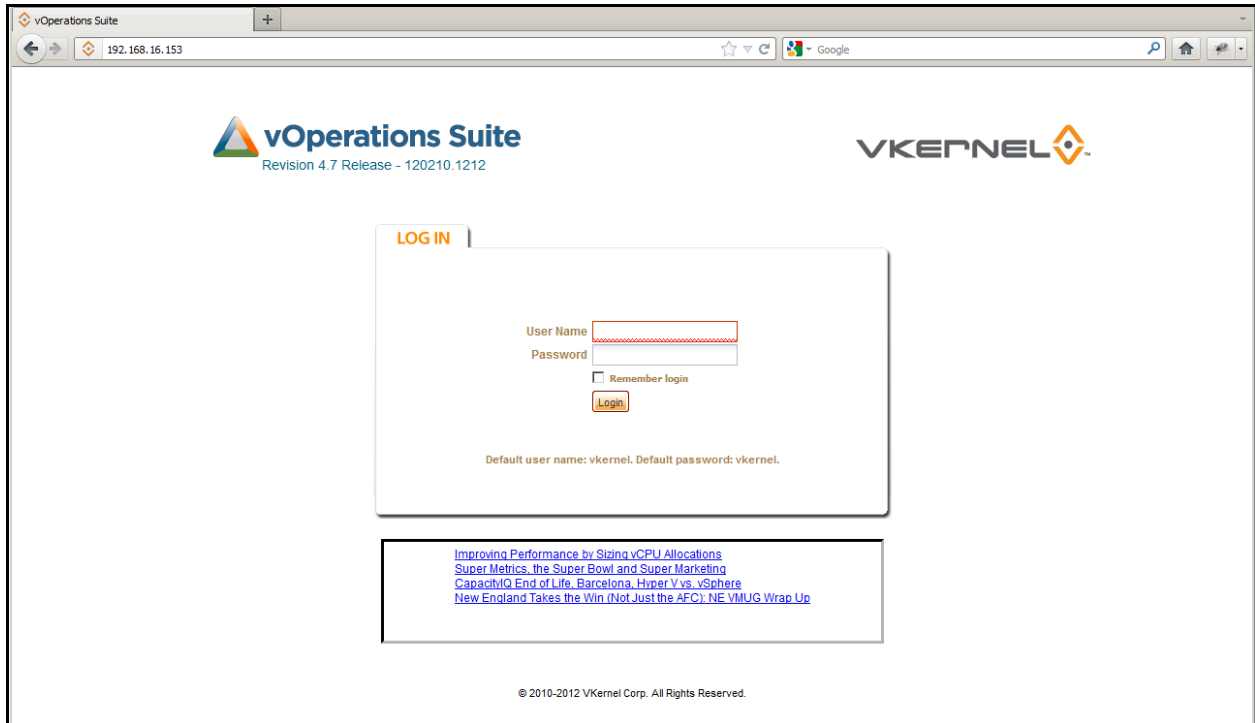
The Microsoft Hyper-V connection is established by installing the VKernel Hyper-V Collector (section 7). Once the Collector is installed and configured, it will appear in the connection list and the overall configuration can be completed.



Click on the **Finish Setup** button. The appliance will now collect all required virtual environment information. Depending on the size of the virtual environment, this can take anywhere from fifteen minutes to several hours.

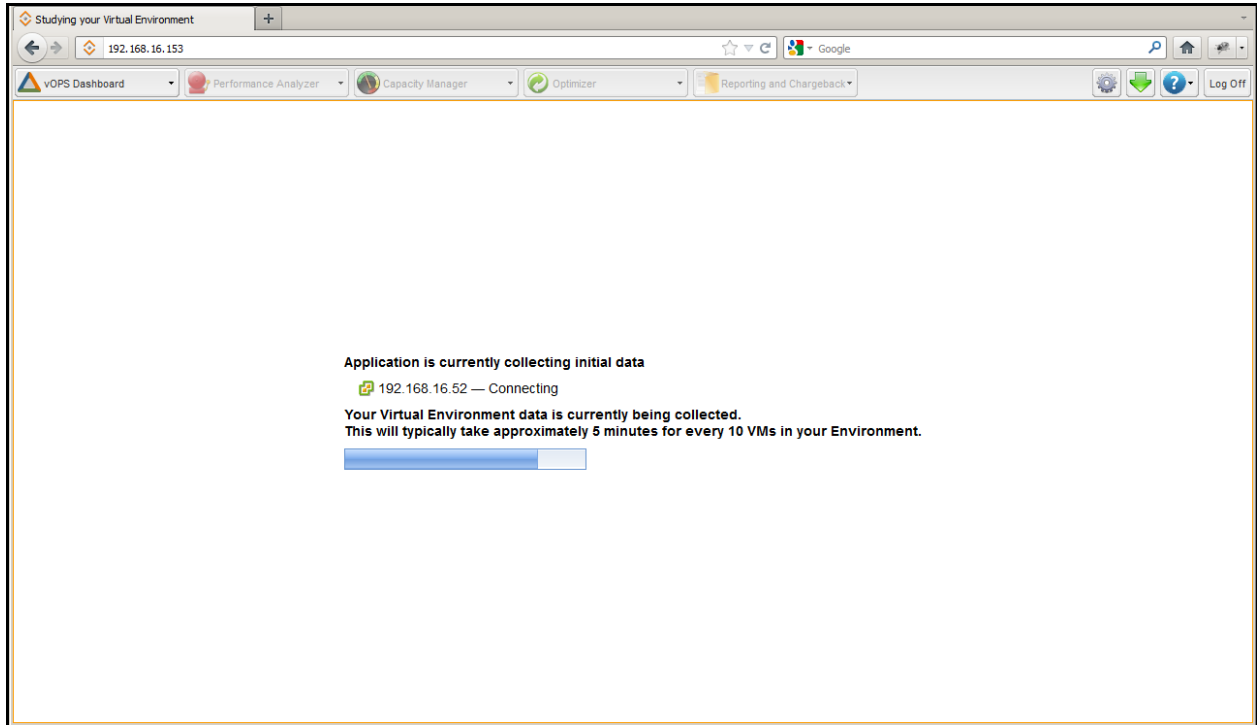
5 vOperations Suite Login

To begin using the vOperations Suite, open a standard browser (Mozilla Firefox or Microsoft Internet Explorer with Adobe Flash 10 or later) and type in the IP address of the vOperations Suite virtual machine. Once the website loads, a username and password is requested.



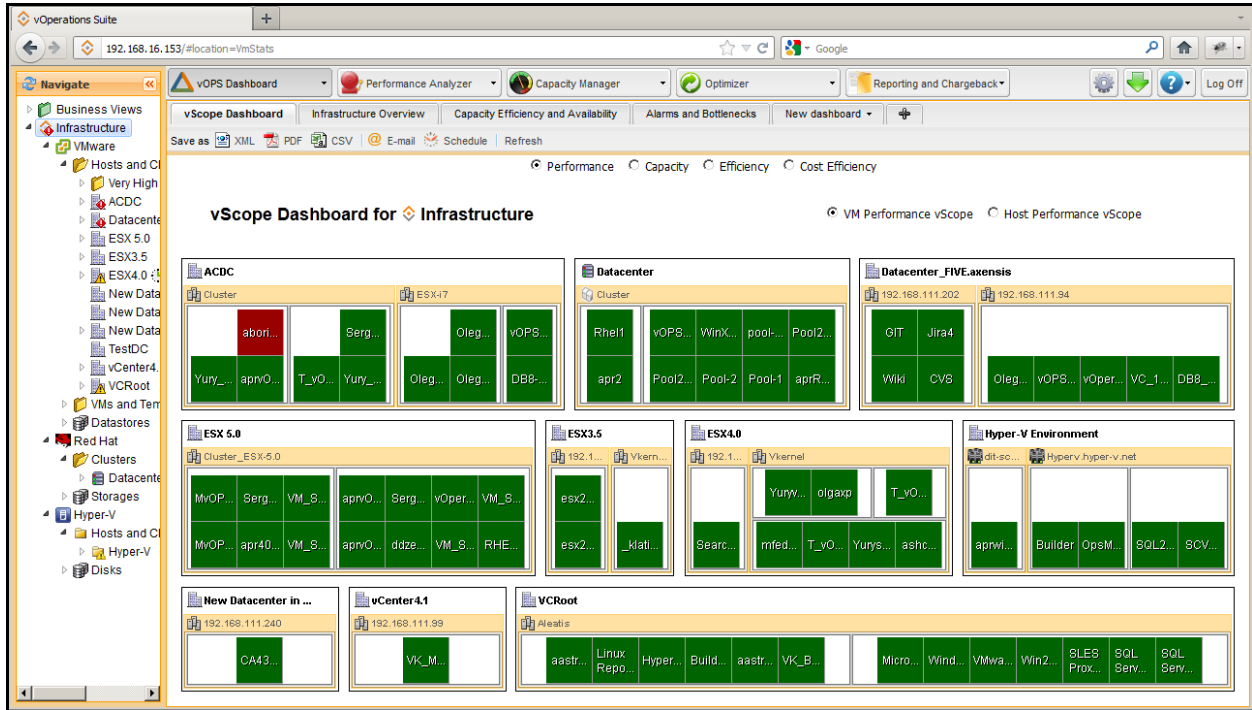
The default username is **vkernel** and the default password is **vkernel**.

If the appliance has recently been configured, it may still be collecting the required virtual environment information. Depending on the size of the virtual environment, this can take anywhere from fifteen minutes to several hours.

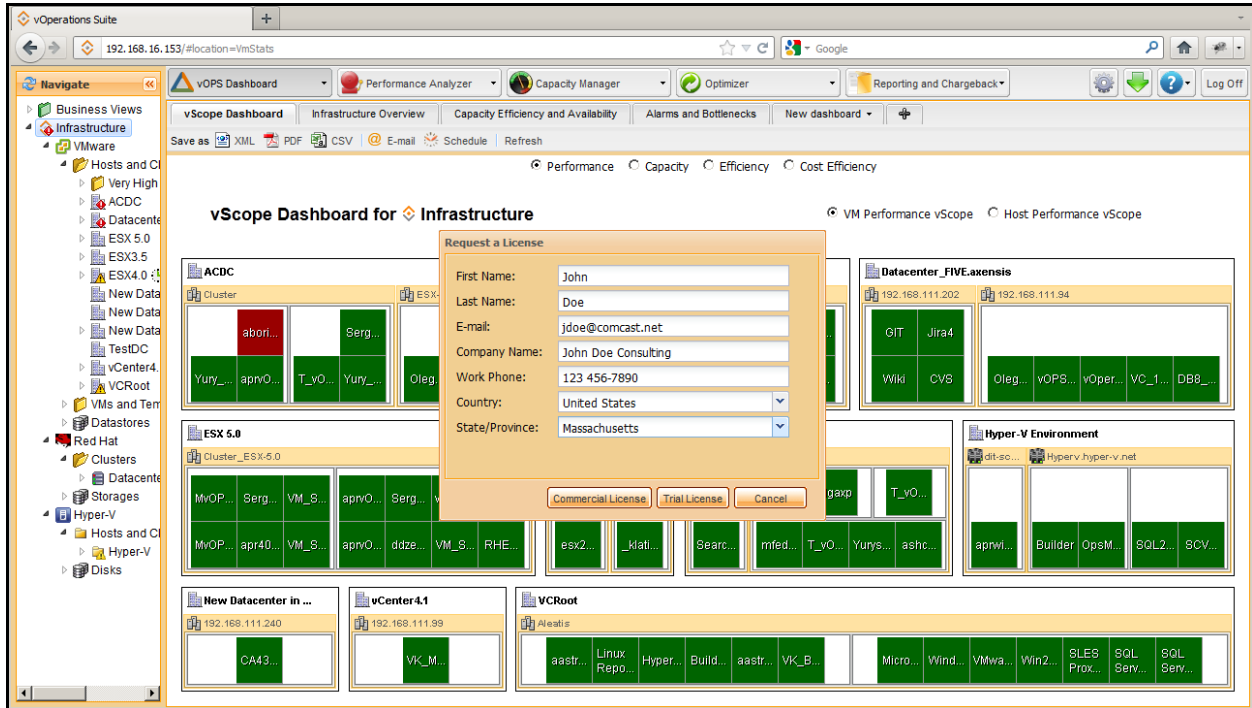


6 Trial License Activation

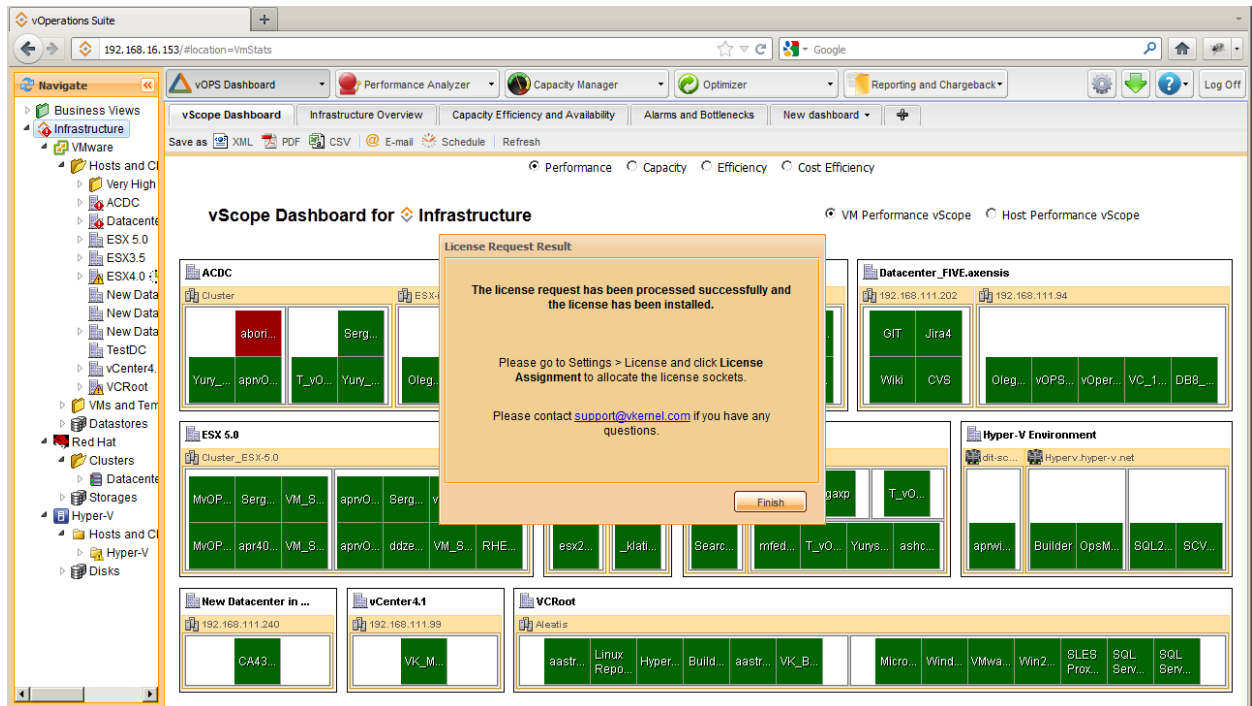
A 30 day free trial of the complete vOperations Suite is readily available. Simply click on one of the product tabs (**Performance Analyzer**, **Capacity Manager**, **Optimizer** or **Reporting and Chargeback**) at the top.



A License request dialog will open. Please fill out all fields and click the **Request License** button.



Your trial license will be immediately processed and installed.



Clicking the **Finish** button after the installation will allow you to begin using the vOperations Suite.

7 VKernel Hyper-V Collector Installation and Configuration

7.1 Installing the VKernel Hyper-V Collector

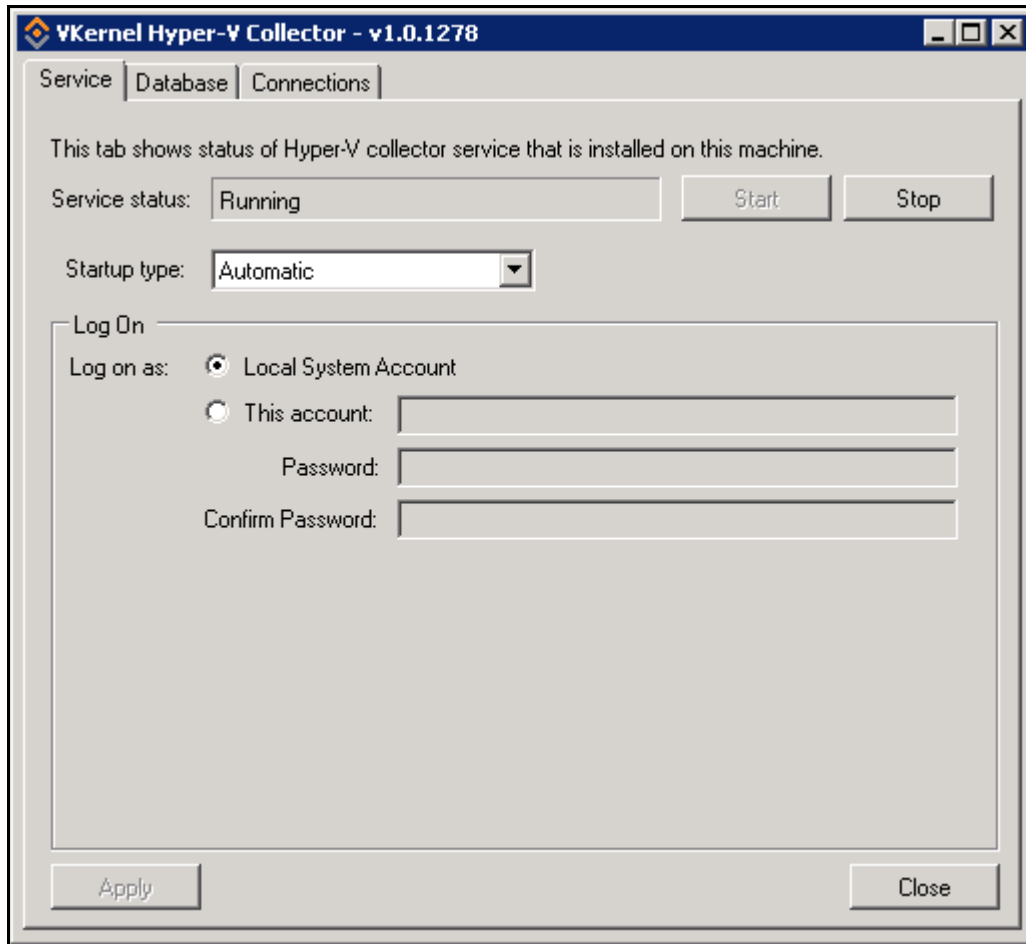
Select the Microsoft Windows server where the VKernel Hyper-V Collector is to be installed. Locate the MSI file from the Hyper-V Collector folder extracted from the vOperations Suite EXE. Copy the MSI file to the selected server.

Double click on the MSI file to install the VKernel Hyper-V Collector.

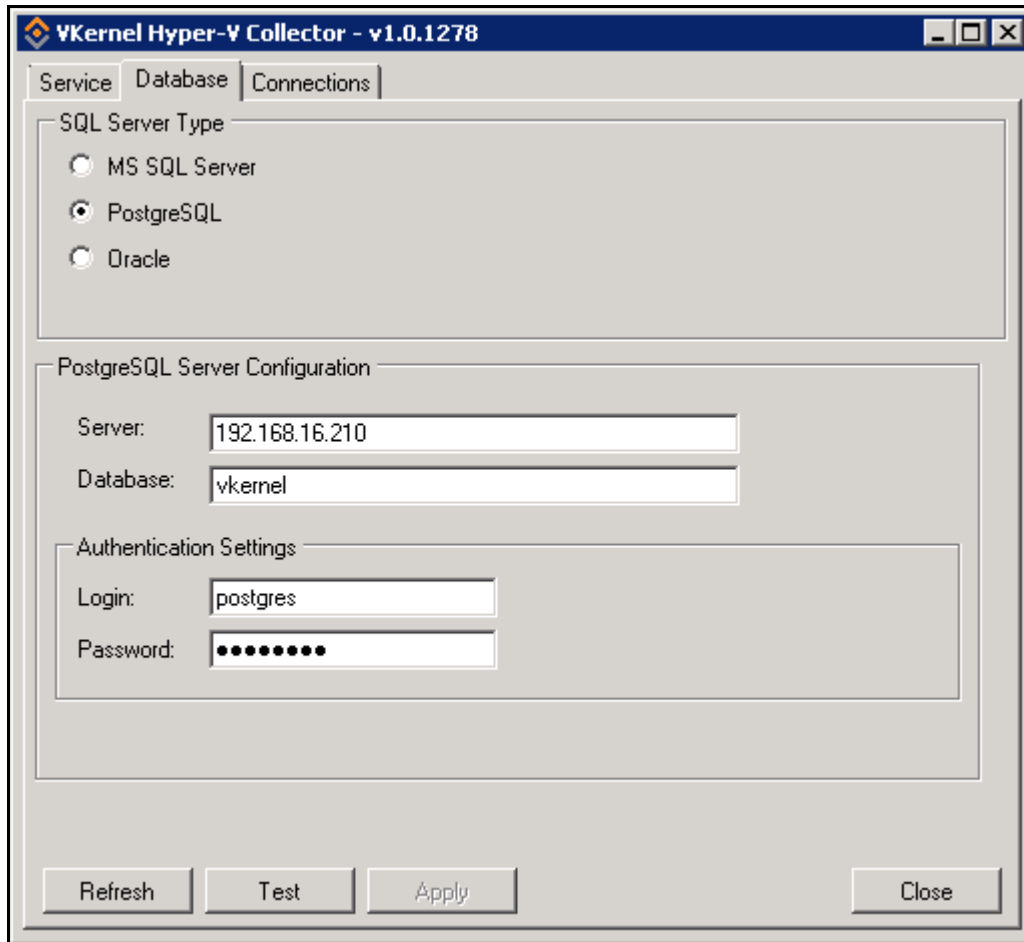
7.2 Configuring the VKernel Hyper-V Collector

After installing the VKernel Hyper-V Collector, navigate to **All Programs > VKernel Hyper-V Collector** and start the collector. The Hyper-V Collector service management dialog will appear.

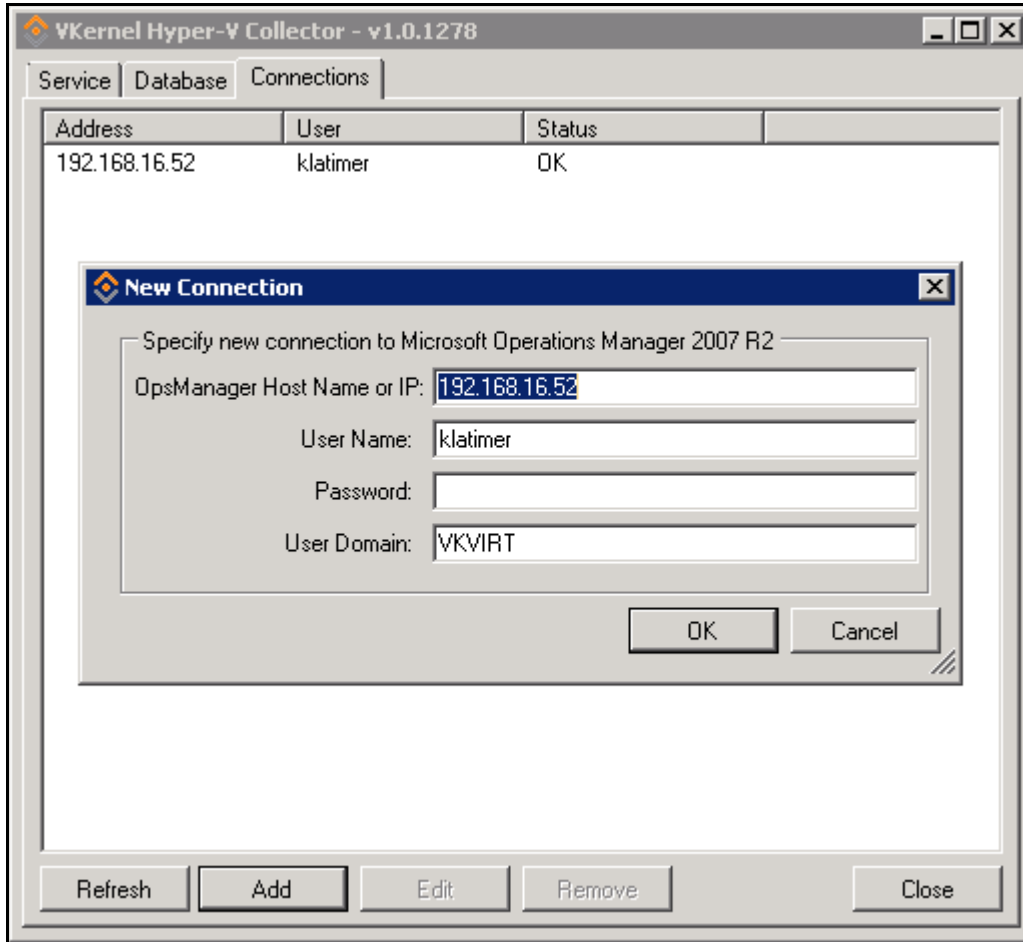
The Service tab shows the status of the VKernel Hyper-V Collector service and the credentials for the service.



The Database tab shows the vOperations Suite Database connection information. Please enter the appropriate type and credentials. If the Embedded PostgreSQL database is used the Server address should be the address of the vOperations Suite virtual machine. For the embedded PostgreSQL database, the account and password are postgres and postgres.



The Connections tab specifies the connection to Systems Center Operations Manager.



If the connection parameters were specified properly, a new connection appears on the connection list. The VKernel Hyper-V Collector service starts immediately.

8 System Center Integration

The VKernel Hyper-V Collector is required in order to propagate the vOperations alarms into the Microsoft System Center Virtual Machine Manager. See section 7 for installation and configuration of the VKernel Hyper-V Collector