

VKernel SearchMyVM Installation Guide

Version 3.0

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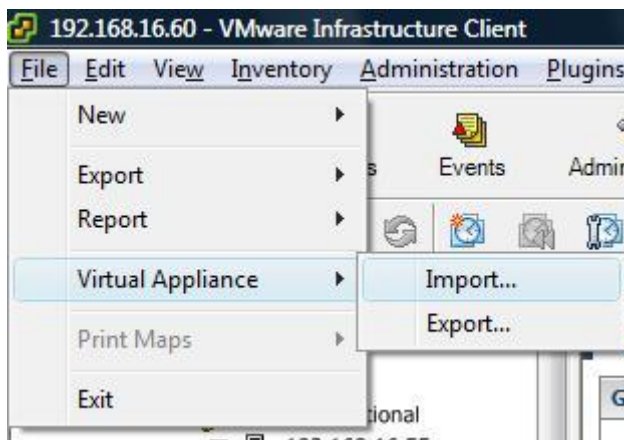
1. Installing the Appliance

You can deploy the appliance by using either VMware Converter or VirtualCenter 2.5 or higher. Prior to performing any action, read through the appendix for the latest system requirements.

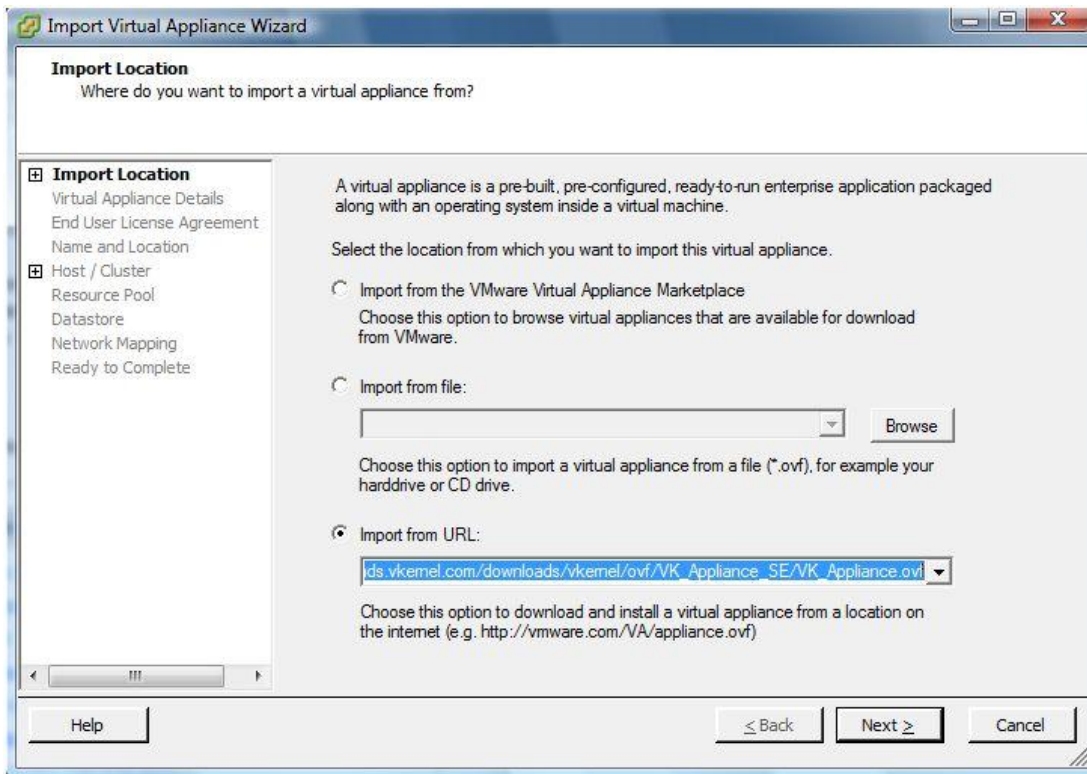
1.1. Installation Using VirtualCenter

This method of installation requires that your VirtualCenter server has access to the internet. If it does not, please see the next section for installation using VMware Converter.

In preparation to import a VKernel appliance into VirtualCenter, you need to obtain the URL for the OVF file. If you go to <http://www.vkernel.com/downloads/all/> and click on the desired appliance, you will be taken to the download page. On the download page, click the link for **Open Virtual Format (OVF)**. When prompted for registration information, enter existing credentials and select **Login**. If not registered, complete the Register Now section, and select **Register**. You will be brought to a page with the URL for the OVF file. You will need this URL in one of the proceeding steps.



From within VirtualCenter, select **File > Virtual Appliance > Import...**



In the first window of the import wizard, select the radio button for **Import from URL** and paste in the location of the OVF file that you just obtained from the website. Click **Next** and proceed to complete the remaining steps in the import wizard. The appliance will then begin to download and install.

1.2. Installation Using VMware Converter

Download the latest version of VMware Converter from <http://www.vmware.com/download/converter/>. Complete the registration information and select **Submit**, and then select the **Download Now** button. After reviewing the license agreement, select the **Accept** button, and again select the **Download** option under the latest version. Choose the **Save File** button, and browse to a location to save the file. Select the saved file for install and follow the on-screen prompts.



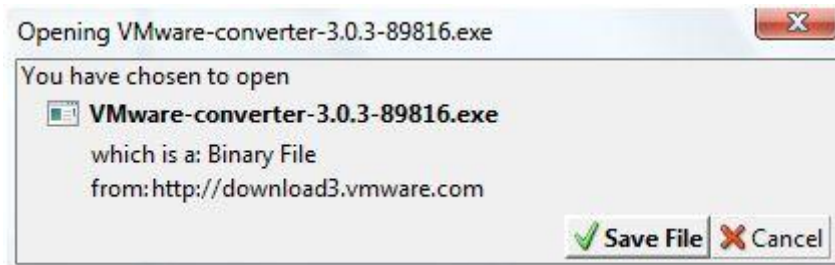
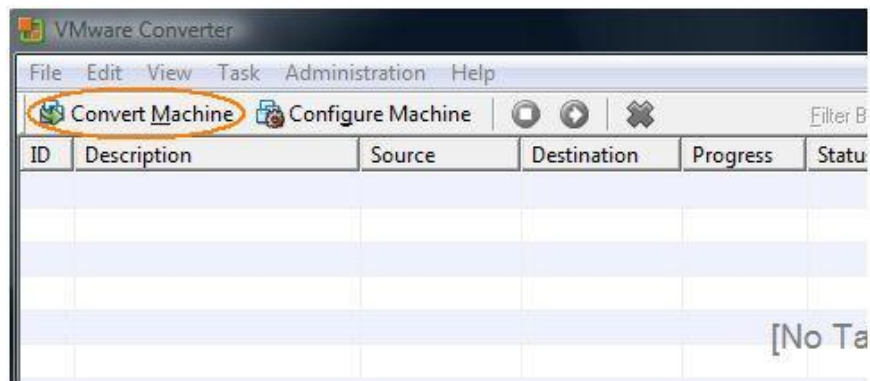


Figure 1 - VMware Converter Download

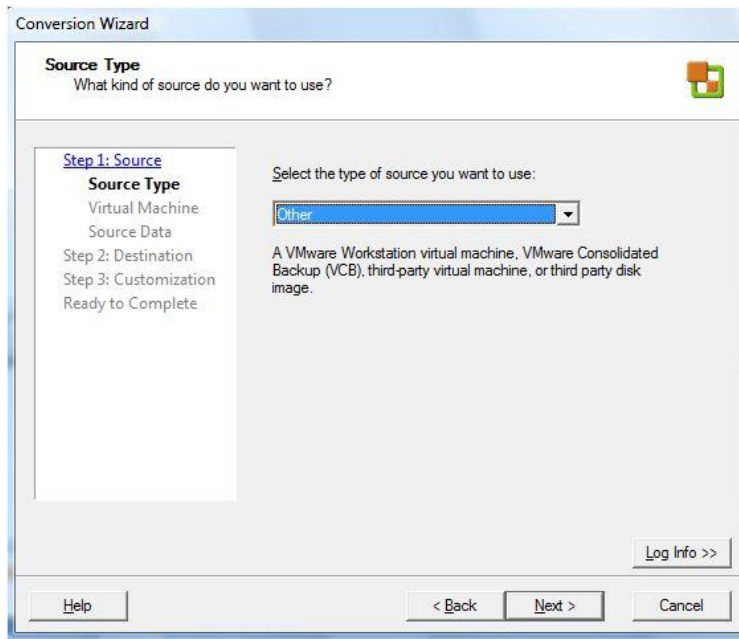
After you install VMware converter, you can download the latest version of the virtual appliance from <http://www.vkernel.com/downloads/all/>. When prompted for registration information, enter existing credentials and select **Login**. If not registered, complete the **Not Registered Yet** section, and select **Register**. After reviewing the License Agreement, mark the checkbox next to **I read and accept the license agreement** and select **Next**.

Select one of the HTTP download links. When prompted to **Open** or **Save** this file, select **Save** and choose a location to save this file to. The file is saved as a compressed, self-extracting EXE. Running this EXE will create a folder with three VMDK files and a VMX file.

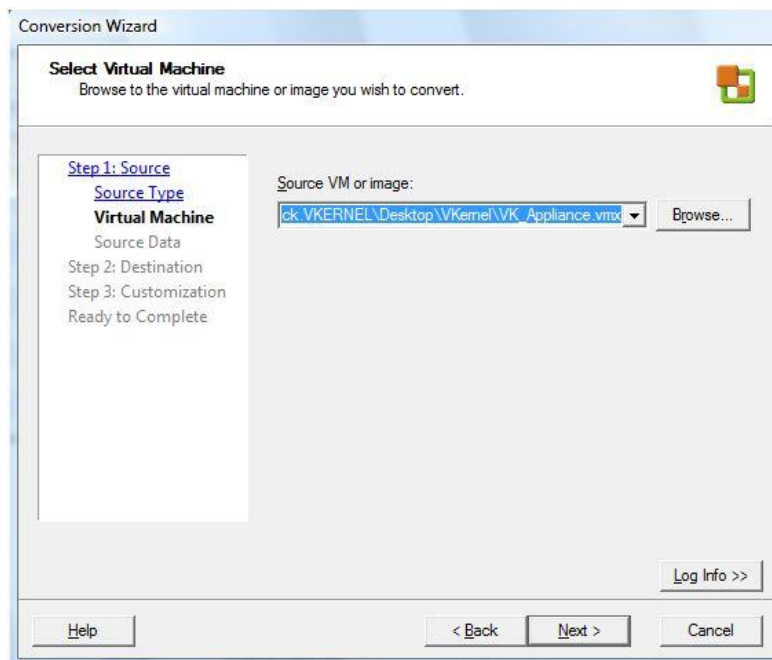
Run VMware Converter and select **Convert Machine**. Note: previous versions of VMware converter refer to this as “import machine”.



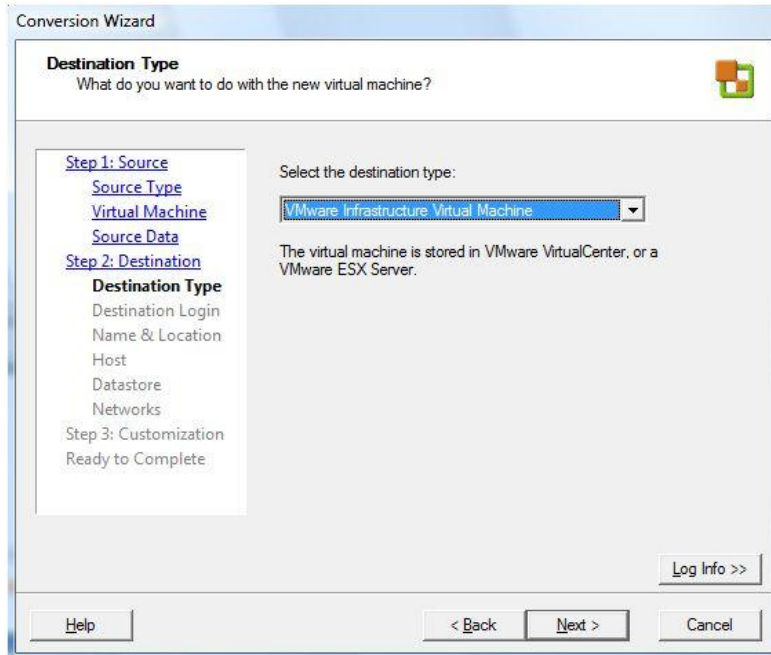
The VMware Converter Import Wizard will pop up. Select **Next** twice to get to the Source Type screen.



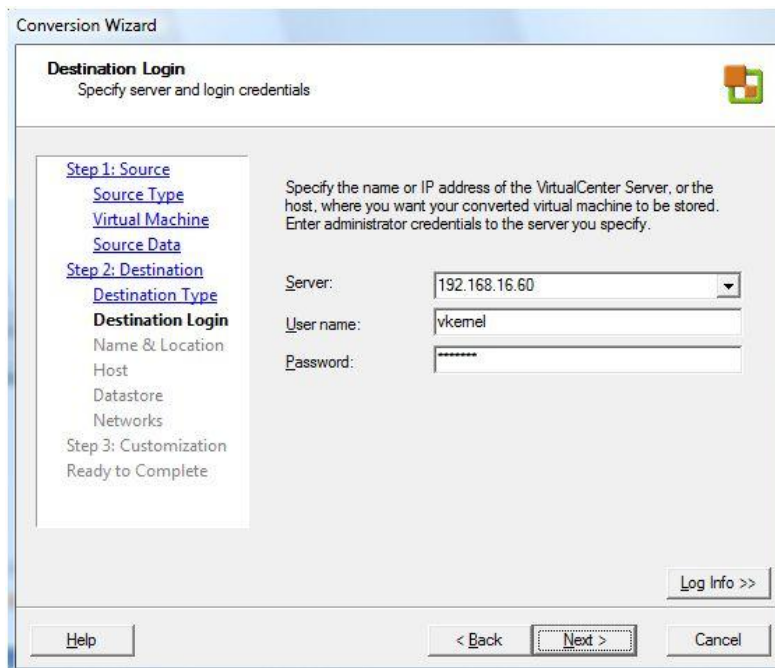
Select **Other** from the dropdown box and click **Next**.



Browse to the VMX file located on your computer and select **Next** twice. You may receive a message that says, "Warning: Cannot configure the source image." Ignore this message and continue with the proceeding steps.

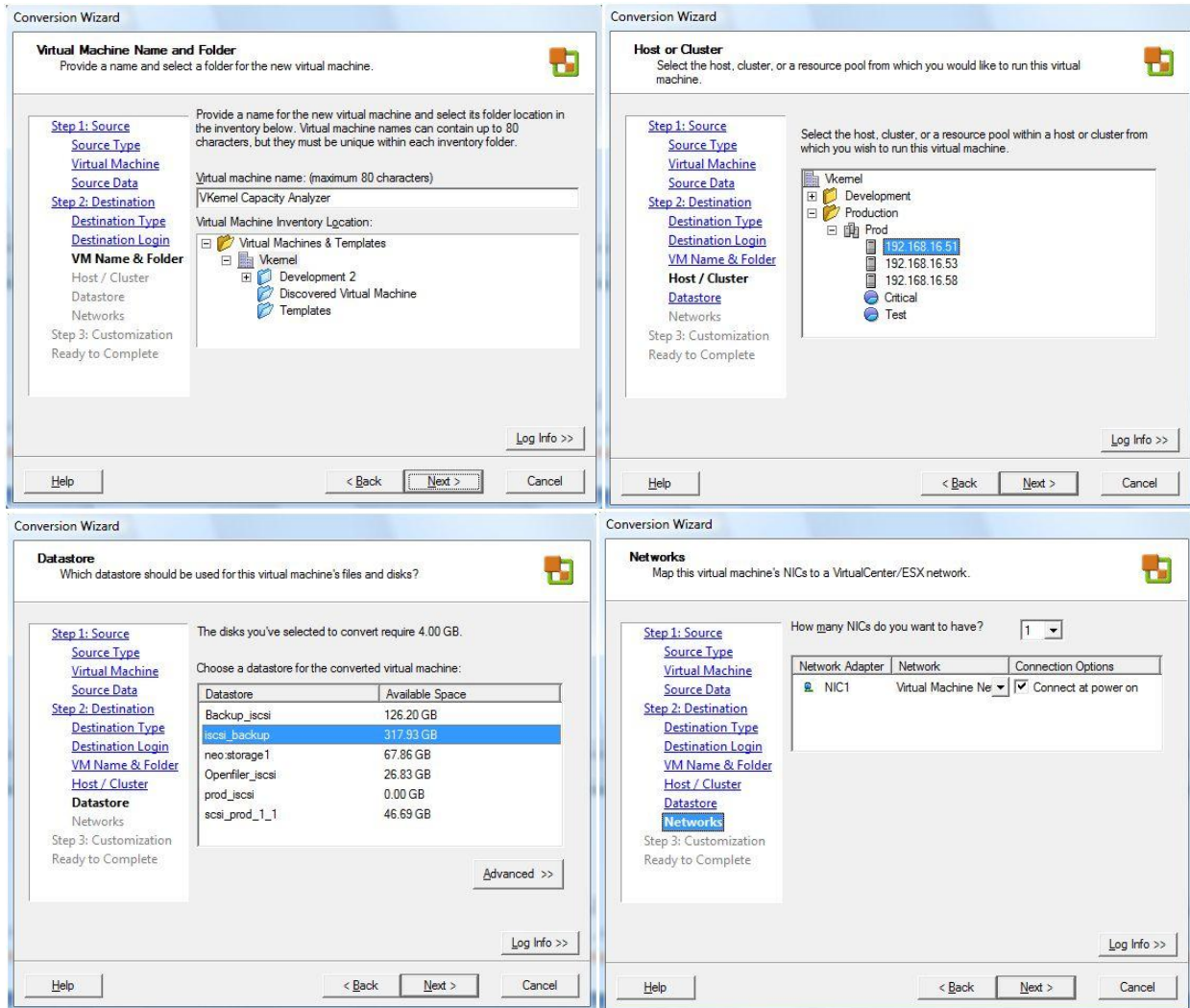


For destination type, select **VMware Infrastructure Virtual Machine** and click **Next**.



Input the locations and credentials for the VirtualCenter Server or ESX host where you want to install the appliance and click **Next**. Conclude the following steps by creating a name for the new virtual machine and giving it a server and datastore location to install to.



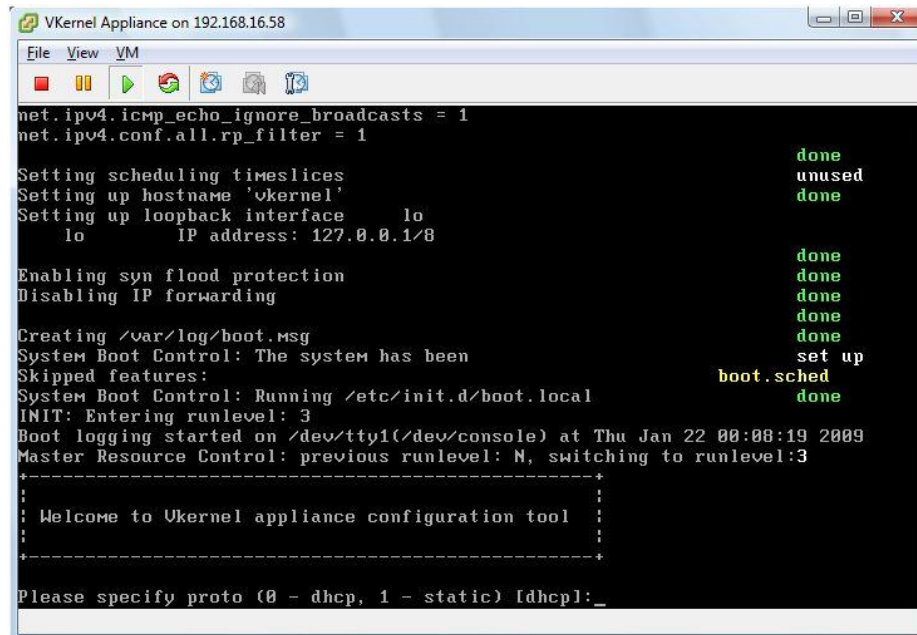


Refer to VMware's documentation for more information on using VMware Converter:
http://www.vmware.com/support/pubs/converter_pubs.html.



2. Preparing the Appliance for Use

Click **Power On** and wait until the appliance starts. The first time the VKernel appliance runs, open a console window and you will be prompted to setup the networking information.



```
net.ipv4.icmp_echo_ignore_broadcasts = 1
net.ipv4.conf.all.rp_filter = 1

Setting scheduling timeslices           done
Setting up hostname 'vkernel'         unused
Setting up loopback interface         done
lo                                     done
      IP address: 127.0.0.1/8

Enabling syn flood protection         done
Disabling IP forwarding               done

Creating /var/log/boot.msg             done
System Boot Control: The system has been set up
Skipped features:                     boot.sched
System Boot Control: Running /etc/init.d/boot.local done
INIT: Entering runlevel: 3
Boot logging started on /dev/tty1(/dev/console) at Thu Jan 22 00:08:19 2009
Master Resource Control: previous runlevel: N, switching to runlevel:3

-----+
: Welcome to Vkernel appliance configuration tool :
:-----+

Please specify proto (0 - dhcp, 1 - static) [dhcp]:_
```

Figure 2 - IP Address Type

If you will be using DHCP to assign the address, type **0** and press the **Enter** key to continue. If you will be assigning a static IP address, type **1** and press the **Enter** key to continue. You will then be prompted to enter the IP address, network mask, default gateway and DNS server. Review the information entered, and accept by typing **Y** and then **Enter**.

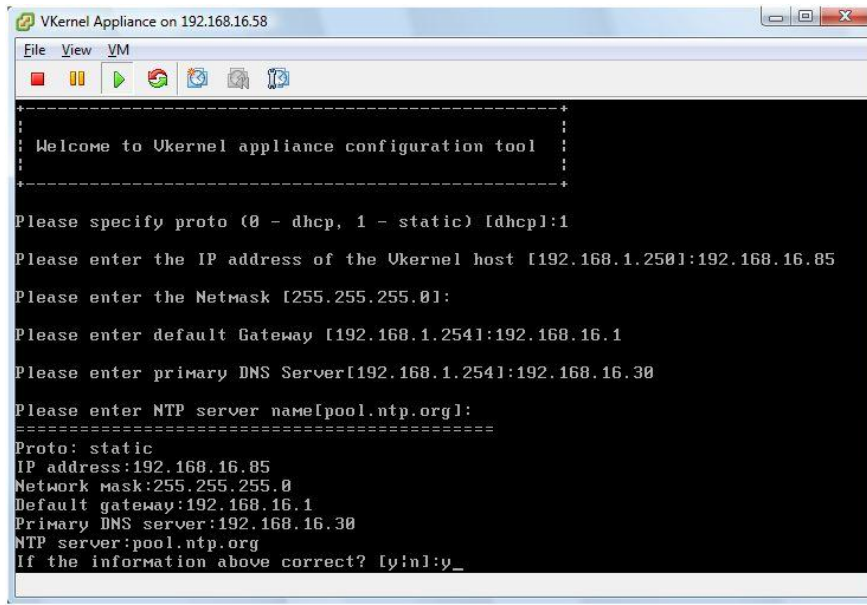


Figure 3 - Static IP Address

You will then be prompted for a time server. You can either accept the default, or enter your own. After the appliance has successfully started, a banner will appear with instructions on how to access the appliance from a web browser. Please save this information for future use.

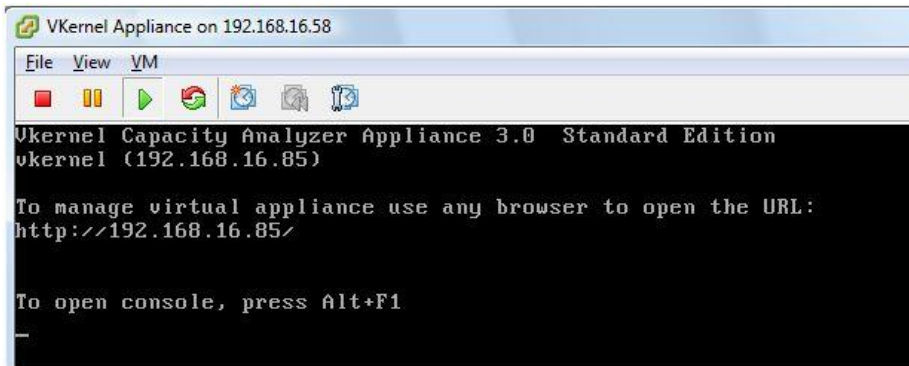


Figure 4 - Banner for Browser Access

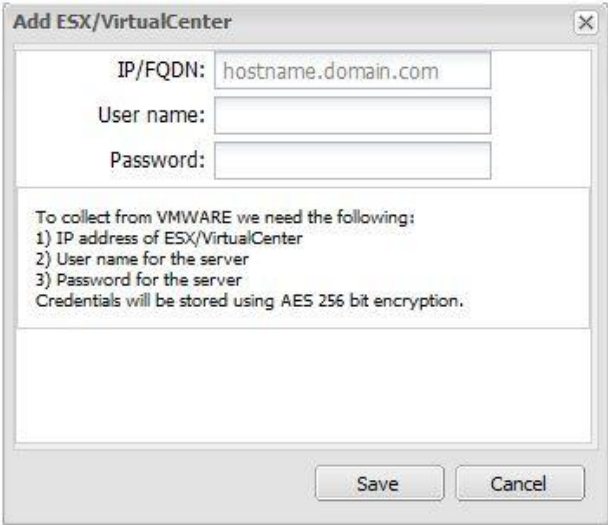
The VKernel appliance is now ready for use.

3. Connection Management

To begin using the software, open a supported browser and type in the IP address of the VKernel appliance. To view a list of supported browsers and versions, please visit the FAQ on the VKernel website: <http://www.vkernel.com/support/FAQ/>.

3.1. Adding Connections

You should now be prompted to create a connection between the VKernel appliance and your ESX hosts or VirtualCenter systems. Enter the IP address or hostname and credentials for the system. For VirtualCenter, credentials should have Read-Only permissions for the entire environment and Browse permissions for the datastores. Click **Save** to create this connection. After authorization, the credentials will be stored using AES 256-bit encryption. At this point, enter additional systems or click **Close** to return to the main screen.



The screenshot shows a dialog box titled "Add ESX/VirtualCenter". It features three input fields: "IP/FQDN:" containing "hostname.domain.com", "User name:", and "Password:". Below these fields is a text area with the following text: "To collect from VMWARE we need the following: 1) IP address of ESX/VirtualCenter, 2) User name for the server, 3) Password for the server. Credentials will be stored using AES 256 bit encryption." At the bottom of the dialog are "Save" and "Cancel" buttons.

Figure 5 - Add ESX/VirtualCenter

The initial collection can take some time and is dependent on the number of virtual machines and hosts entered. By default, hours of historical data is set to 168 in order to collect a week prior to initial setup. If you have not had the VirtualCenter 5 Minute statistics interval set to level 2, please do so now. This setting can be changed by going to the **Administration** menu option in VirtualCenter, selecting **VirtualCenter Management Server Configuration** and then choosing **Statistics** from the left column (see Figure 8).

While the initial collection is running, you will see “connecting” in the Status column next to the VirtualCenter connection. When the collection has finished, that will change to “OK”. If you connected to VirtualCenter, you will see all the hosts managed by that VirtualCenter. Note: the collection time can be longer than if you connect to each ESX host.

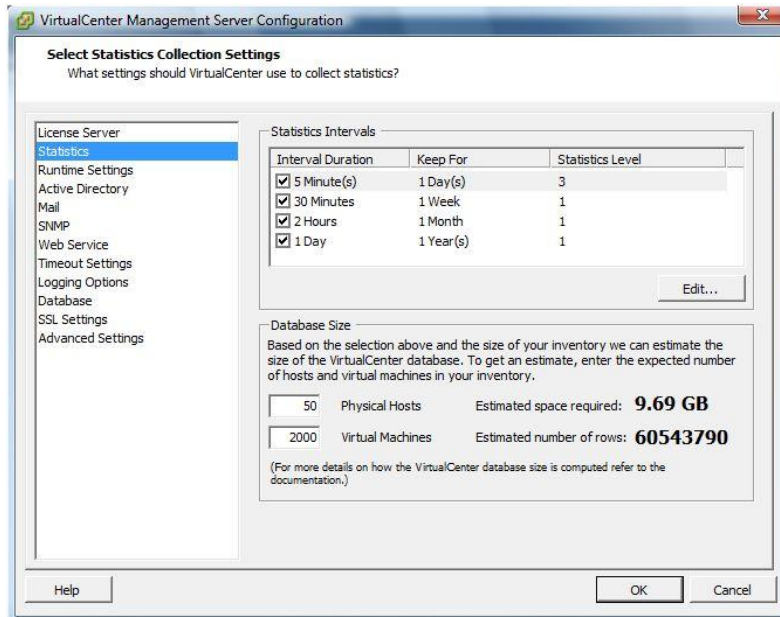


Figure 6 - Statistics Collection Level

The appliance will now begin collecting information. Reports generated immediately may not contain data until the initial collection has completed.

As your virtual environment undergoes changes, it may be necessary to add, remove or modify the systems VKernel is managing. To manage these connections select **Settings > Manage Connections**.

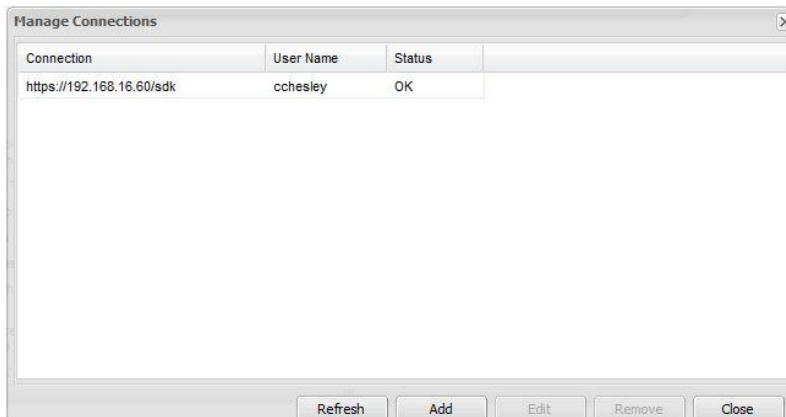
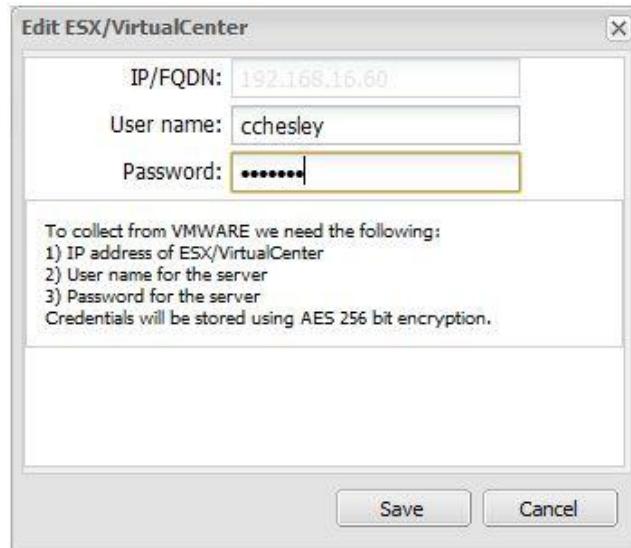


Figure 7 - Manage Connections



3.2. Edit Connections

To edit the credentials of an existing ESX/VirtualCenter connection, choose the connection from the list in the Manage Connection dialog and click **Edit**.



The screenshot shows a dialog box titled "Edit ESX/VirtualCenter". It contains three input fields: "IP/FQDN:" with the value "192.168.16.60", "User name:" with the value "cchesley", and "Password:" with a masked password "*****". Below these fields is a text area with the following text: "To collect from VMWARE we need the following: 1) IP address of ESX/VirtualCenter 2) User name for the server 3) Password for the server Credentials will be stored using AES 256 bit encryption." At the bottom of the dialog are "Save" and "Cancel" buttons.

Figure 8 - Edit Connection

Enter the correct IP/FQDN, user name and/or password. The hours of historical data to collect allows you to set how far back in time you want to collect data for. Select **Save** to save your changes and return to the Manage Connections Dialog box.

3.3. Remove Connections

Choose the connection from the list in the Manage Connections dialog and select **Remove**. Select **Yes** in the confirm dialog to remove the connection, or **No** to return to the Manage Connections dialog without removing the connection.

4. Appendix

4.1. Scripts

For all scripts, the following instructions apply.

Requirements:

- Internet Connection

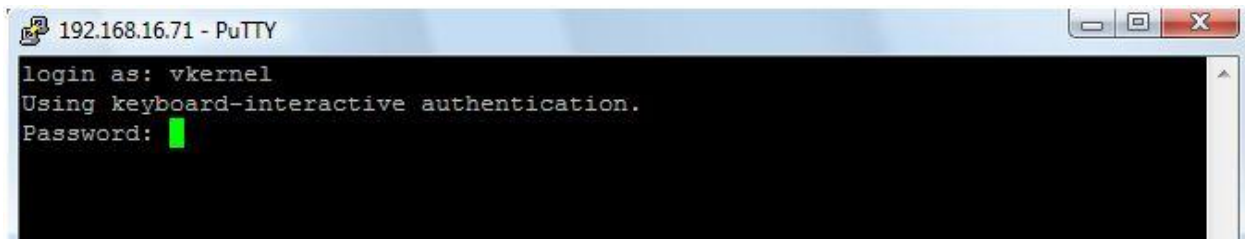
- Access to the VMware console or an SSH client

- Registered account at VKernel site (only required to update the appliance)

If you are using an SSH client, log in to the appliance with the following credentials

Username: vkernel

Password: vkernel



```
192.168.16.71 - PuTTY
login as: vkernel
Using keyboard-interactive authentication.
Password: █
```

Type 'su' and specify root password (the default root password is 'password')



```
192.168.16.71 - PuTTY
vkernel@vkernel:~> su
Password:
vkernel:/home/vkernel # █
```

If you are at the VMware Console, press Alt + F1 and log in with root credentials:

Username: root

Password: password (this is the default password--use your own if you changed it).



```
File View VM
Starting CRON daemon done
Loading keymap querty/us.map.gz done
Loading compose table winkeys shiftctrl latin1.add done
Start Unicode mode done
Loading console font lat9u-16.psfu -n trivial (K done
Starting VKernel monitor...
VKernel monitor started
Starting VKernel collector...
VKernel collector started
Starting hardware scan on boot done
Starting Firewall Initialization (phase 3 of 3) done
Master Resource Control: runlevel 3 has been reached
Failed services in runlevel 3: xinetd
Skipped services in runlevel 3: nfs

Welcome to SUSE LINUX Enterprise Server 9 (i586) - Kernel 2.6.5-7.244-snp (tty1)

beta10 login: root
Password:
You have new mail in /var/mail/root.
Last login: Fri May 18 08:56:39 on tty2
beta10:~ #
```

If you have no direct connection to the Internet you can use HTTP proxy or SOCKS proxy. To set up the updater to work via proxy you need to edit `/usr/local/vkernel/tools/ant/proxy.properties`

Edit the Proxy.properties file by typing:

```
vi /usr/local/vkernel/tools/ant/proxy.properties
```

Press the 'i' key (make sure that you see the -- INSERT -- message at the bottom of the console).

Edit the file to specify IP, port and credentials of your proxy server. If you have HTTP proxy, please edit the proxy.host and proxy.port variables. If you have a SOCKS proxy, please edit the socks.proxy.host and socks.proxy.port variables. If your server requires authorization please specify correct credentials in proxy.user and proxy.pass variables.

When you have completed your changes, press ESC.

To save your changes, enter `:wq` and press Enter.

4.1.1. Update the appliance

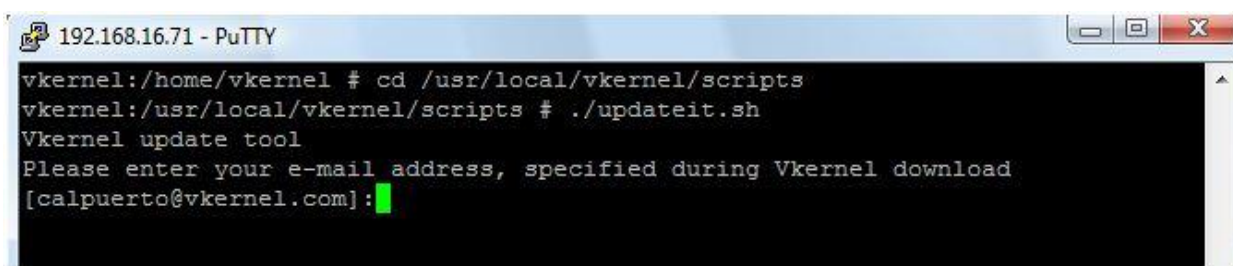
You cannot perform the update using an SSH connection. Please perform the update from the console view within the VI client.

Run the following command:

```
/usr/local/vkernel/scripts/updateit.sh
```



You will be prompted to enter an e-mail address. Please note that you need to enter a valid Vkernel login; it should be the one you created during the VKernel download.



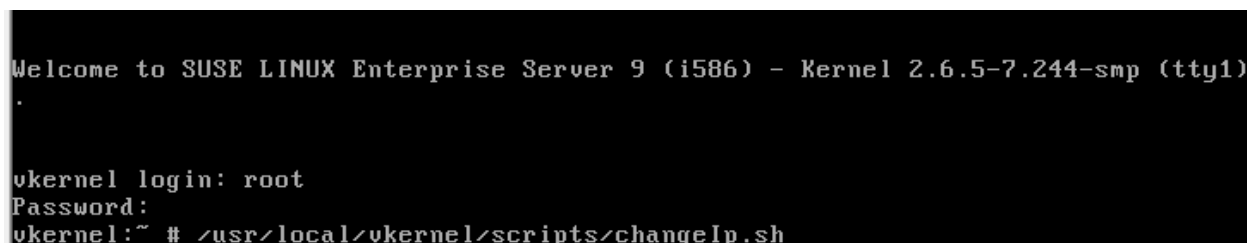
```
192.168.16.71 - PuTTY
vkern:/home/vkernel # cd /usr/local/vkernel/scripts
vkern:/usr/local/vkernel/scripts # ./updateit.sh
Vkernel update tool
Please enter your e-mail address, specified during Vkernel download
[calpuerto@vkernel.com]:
```

Once the address has been validated, the update will be performed. If the address cannot be found in the database of registered users you will be presented with an appropriate error message. At this point, the VKernel update will be downloaded and installed.

4.1.2. Change Network Information

To reconfigure any part of the IP address scheme, you can run the following script:

/usr/local/vkernel/scripts/changelp.sh



```
Welcome to SUSE LINUX Enterprise Server 9 (i586) - Kernel 2.6.5-7.244-smp (tty1)
.
vkern login: root
Password:
vkern:~ # /usr/local/vkernel/scripts/changeIp.sh _
```

If you will be using DHCP to assign the address, type 0 and press the Enter key to continue. If you will be assigning a static IP address, type 1 and press the Enter key to continue. You will then be prompted to enter the IP address, network mask, default gateway and DNS server. Review the information entered, and accept by typing Y and then Enter.

You will then be prompted for a time server. You can either accept the default, or enter your own. After completing your changes, reboot the appliance for those changes to take effect. To reboot, run the following command:

shutdown -r now.



4.2. Migrating the MySQL DB

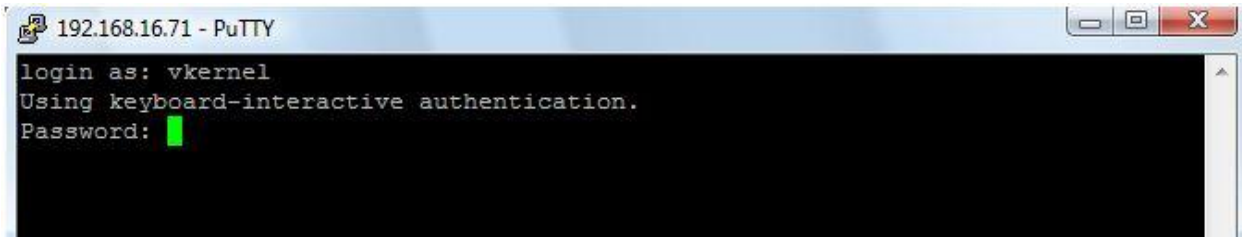
This requires access to the VMware console or an SSH client.

Login to the source VM from which you want to migrate the DB

If you are using an SSH client, login with the following credentials:

Username: vkernel

Password: vkernel



```
192.168.16.71 - PuTTY
login as: vkernel
Using keyboard-interactive authentication.
Password: █
```

Type 'su' and specify the root password (default root password is 'password')



```
192.168.16.71 - PuTTY
vkernel@vkernel:~> su
Password:
vkernel:/home/vkernel # █
```

If you are using a VirtualCenter Console, press Alt + F1 and log in with root credentials:

Username: root

Password: password (this is the default password--use your own if you changed it).



```
File View VM
Starting CRON daemon done
Loading keymap querty/us.map.gz done
Loading compose table winkeys shiftctrl latin1.add done
Start Unicode mode done
Loading console font lat9w-16.psfu -n trivial (K done
Starting VKernel monitor...
VKernel monitor started
Starting VKernel collector...
VKernel collector started
Starting hardware scan on boot done
Starting Firewall Initialization (phase 3 of 3) done
Master Resource Control: runlevel 3 has been reached
Failed services in runlevel 3: xinetd
Skipped services in runlevel 3: nfs

Welcome to SUSE LINUX Enterprise Server 9 (i586) - Kernel 2.6.5-7.244-snp (tty1)

beta10 login: root
Password:
You have new mail in /var/mail/root.
Last login: Fri May 18 08:56:39 on tty2
beta10:~ #
```

Go to /usr/local/vkernel/scripts by typing:

```
cd /usr/local/vkernel/scripts
```

Type the following command:

```
./dumpDB.sh
```

Wait until the script is completed, it can take some time. Check the 'vkernel.sql.bz2' file in the current folder and copy it to the target VM (The target is the VM where you want to migrate the DB).

To copy you can use the 'sftp' utility. For example if you have source VM A (with IP 192.168.111.68) and target VM B (with IP 192.168.111.64) type the following:

```
sftp vkernel@192.168.111.64
```

Answer 'yes' and enter the password (the default is vkernel). Next type:

```
cd /tmp
```

Then type:

```
put vkernel.sql.bz2
```

After that the DB is copied to vm B in /tmp/vkernel.sql.bz2. Type quit to close the connection. Log in to the target VM (VM B in example). Go to /usr/local/vkernel/scripts



by typing:

```
cd /usr/local/vkernel/scripts
```

Then type:

```
./migratedb.sh
```

To answer the question, please enter the full path to the SQL dump archive. Enter the full path to the copied DB file (/tmp/vkernel.sql.bz2 in example). After the process is completed, delete the old DB file by typing:

```
rm /tmp/vkernel.sql.bz2
```

4.3. Technical Specifications

4.3.1. SearchMyVM Specifics

Minimum Requirements		
Software	VMware Player 1.0.0 or higher, VMware Workstation 5 or higher, VMware ESX Server 3.x or higher, VirtualCenter 2.5 or higher, or VMware Server 1.03 or higher	
Built-in Software	Tomcat	5.5.20
	Apache	2.2.4
	VMware Tools	3.5.0-82663
	MySQL	5.0.45

4.3.2. Default Credentials

User Name: vkernel
Password: vkernel
Root password: password



4.3.3. Ports Required

Port used for collection:	outbound 443
Port used for update script:	outbound 80
Port used for time sync script:	outbound 123 (default)
SSH:	inbound 22

All other ports are blocked by default

4.3.4. Frequency of Data Collection:

Hosts:	5 min.
VMs:	5 min.
Inventory Objects:	5 min.

