

OM  
OM Namah Sivanandaya

We will begin by installing a three node Oracle Solaris 11 x86\_64 VCS cluster with a failover HA zone.  
Based on above discussion, we need:

0) Desire to learn.

1) At least an i3 PC/Laptop with about 6-8Gb of RAM and Intel VT or AMD-V enabled. Power on the machine and open the BIOS Enable Intel VTd or AMD IOMMU, if the options are available. Intel VTd and AMD IOMMU are used for PCI passthrough.  
Select Save & Exit.

2) A virtualisation mechanism (you don't need this if you have your own physical servers), you can choose Oracle VirtualBox, however, I recommend VMware Workstation 10 (or whatever is the latest release at this time), I have found it to use less RAM.

We will run Solaris 11 and Red Hat Enterprise Linux (RHEL) as Virtual Machines (VM's).

We will use the latest free/trialware versions of RHEL/Solaris/VCS/VMware workstation.

NOTE: Some trialware expires after 30 days, so START NOW.

3) We will need shared storage (as discussed earlier), for this we choose Openfiler (openfiler.com).

4) We need an ssh client, we will use "putty"

5) We need a good browser, we will use google chrome.

So, go ahead and download, google chrome. Download adobe reader. These are free.

All software that we need:

- 1) VMware workstation 10
- 2) Openfiler
- 3) Solaris 11
- 4) VCS
- 5) Putty
- 6) RHEL

About 3,240,000 results (0.26 seconds)

Ad - VMware - download vmware workstation 10

**VMware Workstation 10** - We are proud to introduce 8.1

Get VMware Workstation 10

Are you? Here are the features:

- New Workstation 10
- VMware app (see below)
- Download VMware Workstation 10

**Download VMware Workstation 10**

Get VMware Workstation 10

See the direct installation package to download from the site below. You may be interested in VMware Workstation 10.1 for Windows, 10.1.0.24, 64-bit Workstation 10.1.0.24 for Windows 32-bit, 10.1.0.24 for Linux 64-bit

**VMware Workstation 10** - VMware Workstation 10.1.0.24 for Windows 64-bit

VMware Workstation 10.1.0.24 for Windows 64-bit

VMware Workstation 10.1.0.24 for Windows 64-bit

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Product	Release Date	
<a href="#">VMware Workstation 10 for Windows</a>		
<a href="#">VMware Workstation 10.0.1 for Windows</a>	2013-10-24	<a href="#">Click to Download</a>
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<a href="#">VMware Workstation 10.0.1 for Linux</a>	2013-10-24	<a href="#">Click to Download</a>

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# Download VMware Workstation 10.0.1 for Windows

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**Documentation** Release Notes

**Release Date** 2015-03-04

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**Product/Details**

VMware Workstation for Windows  
 File size: 481M  
 File type: exe  
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Information about MD5 checksums and SHA1 checksums.

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Drivers & Tools

File

VMware Workstation for Windows

File Size: 491M

File Type: exe

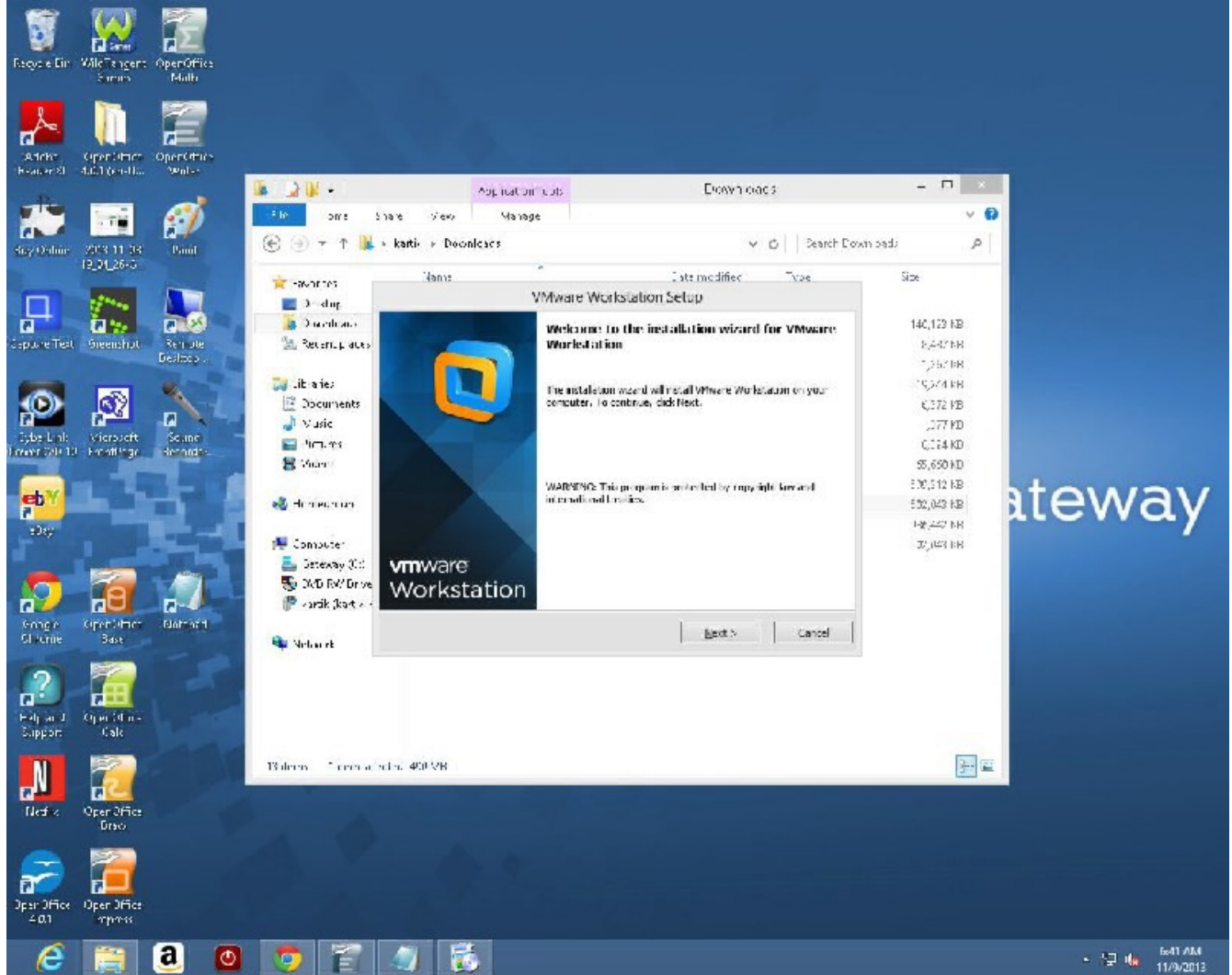
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MD5 (checksum): 01f951d3c0c0a011

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Agree to the End User Agreement, if you cannot agree, then, we, cannot, proceed.



File begins downloading.  
Wait for download to complete.  
Minimize google chrome, or, whatever browser you are using.  
Double click downloaded file.

Allow the program to make changes to your computer.

Click Next

Accept the license agreement

Choose "Typical" install.

Click "Next"

Click Next

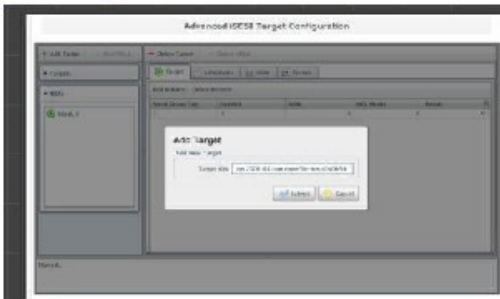
Click Next

Next

Click "Continue"

Click "Finish"





## Unified Storage

NAS Features - CIFS, NFS, HTTP

SAN Features - iSCSI, FC

High Availability / Failover

Block Replication (LAN & WAN)

Web-based Management

Cost-free Storage Capacity Expansion



### Commercial Support

LMLA: +1 914 353 3713  
 USA: +1 678 363-1231  
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### IRC Live Chat

Network: [#openfiler](#)  
 Channel: [#openfiler](#)  
[Use our community.com for development questions](#)

### Community Forums

Support of the community by the community. Join the community. Take the lead.


In Chrome, go to <http://www.openfiler.com>

At the top right, there is a SMALL, "download" link, click that.




**Openfiler**


Your download will start shortly.

Familiar with this download? Please use the [direct link](#) or [archive mirror](#).Mirror provided by  HIVELOCITY**Recommended Projects** FreeNAS NAS4Free CoenMediaVault**Keep Me Updated** Openfiler

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"Our average talk time in the call center was 2:25-2:35 – about 10 seconds above industry average. Now it's down to 2:15-2:20."  
**-- Amar Narain, Director of IT at Pizza Pizza**


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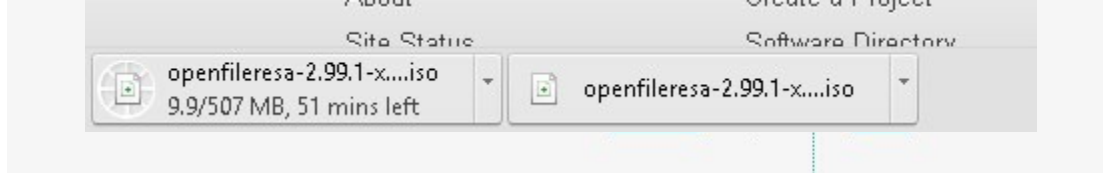
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We will select:

Click on the download arrow.

It says, your download will begin shortly, no need to do anything else on this page – just ads are there.



If problems, click on “direct link”

I clicked on direct link, and gotm it, see bottom left of screen

It downloaded it twice – my mistake

Anyway, now we are ready for the most important part of the session:

Installing opnfiler on Vmware Workstation 10.

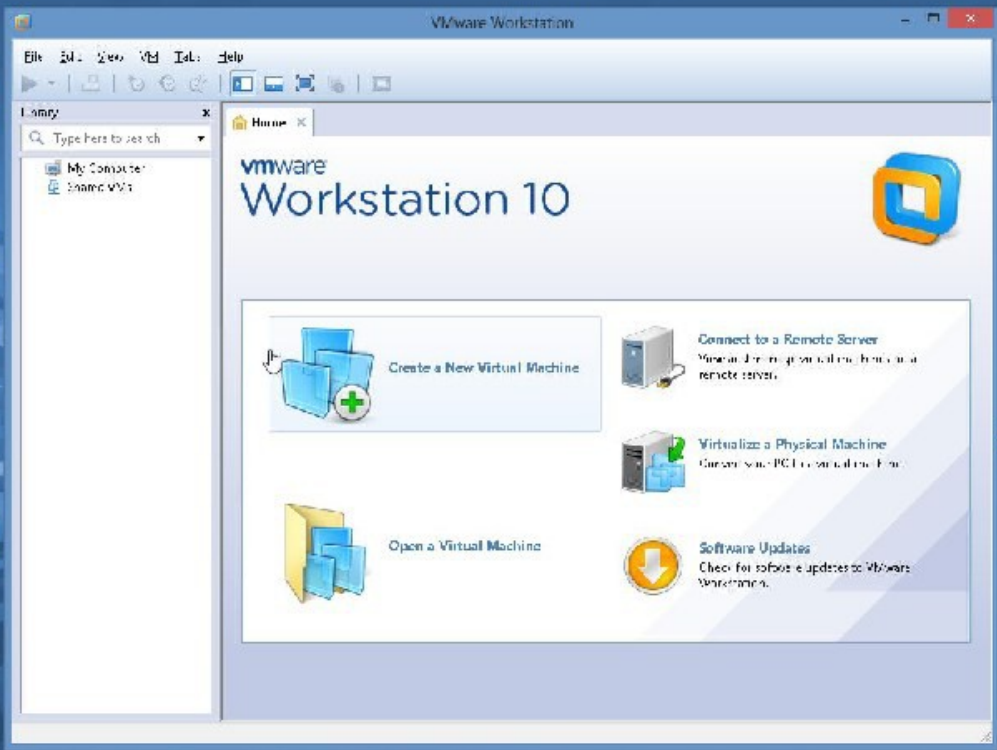
Launch Vmware workstation 10:



Do you see the VMware workstation 10 icon?

Double click it.





ay

Click on “Create a New Virtual Machine” in the center of the VMware Workstation 10 window.

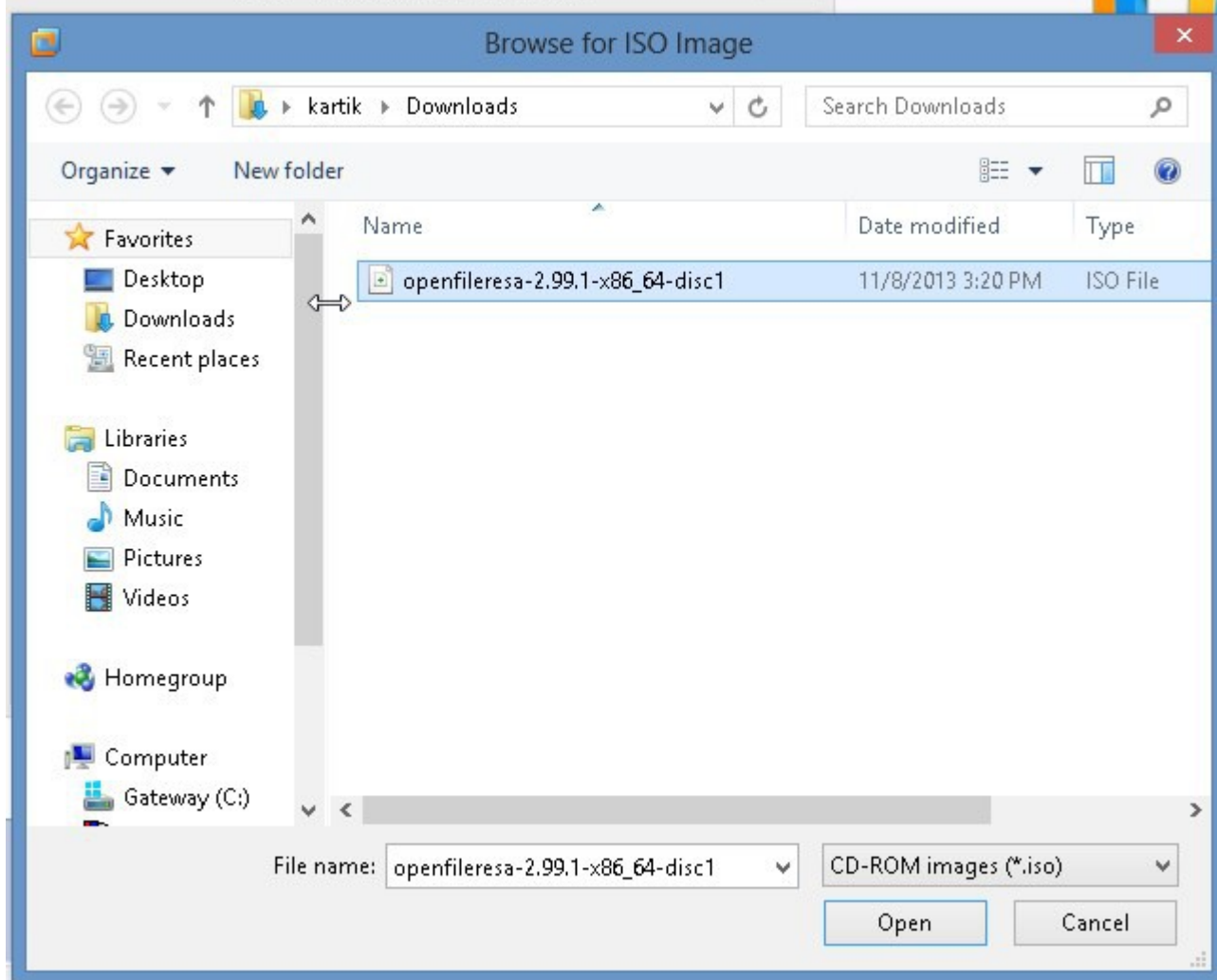


Choose "Typical"



WE will select the option for “Installer disc image file (iso)” :

Click “Browse”



Select the openfiler iso, we downloaded earlier.

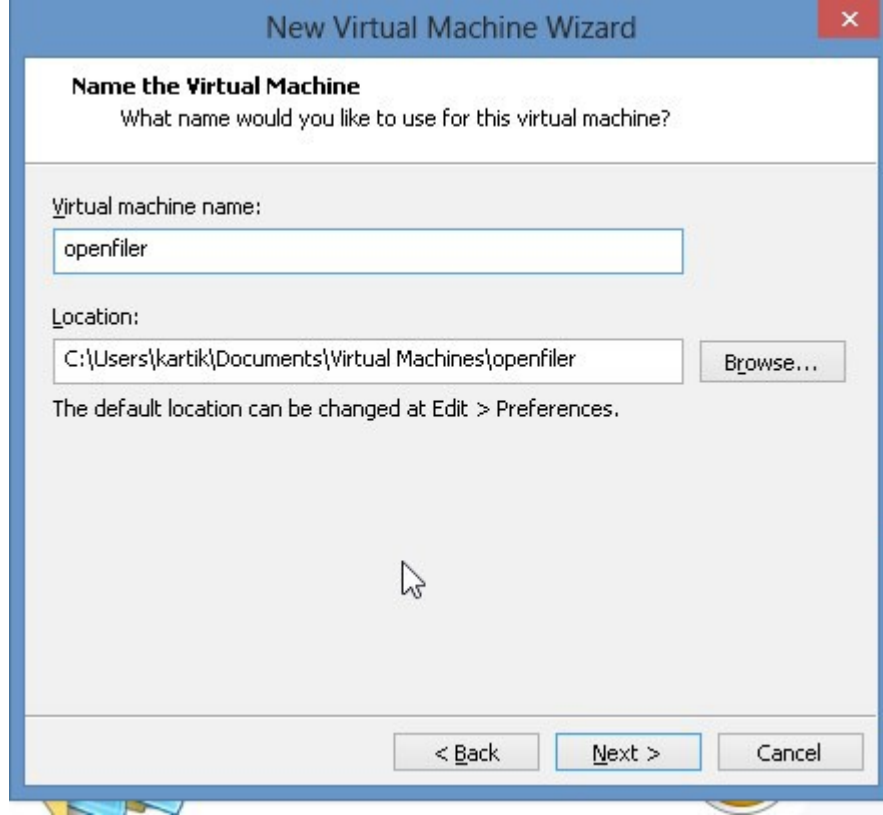
Iso file means disc image file.



Click "Next"

PLEASE BE VERY CAREFUL HERE AND MAKE THE SELECTIONS AS SHOWN BELOW





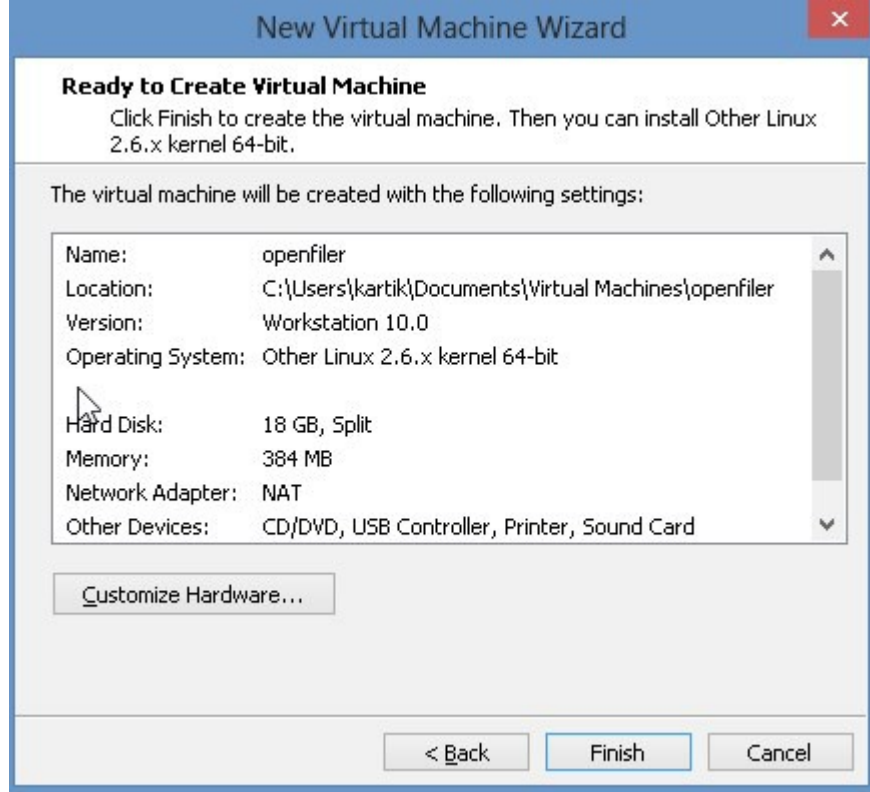
Click "Next"

Change "Virtual Machine Name" to "openfiler"



Click "Next"

Please change Maximum disk size from the default 8Gb to 18Gb.



Click "Next"

Click "Customize Hardware"

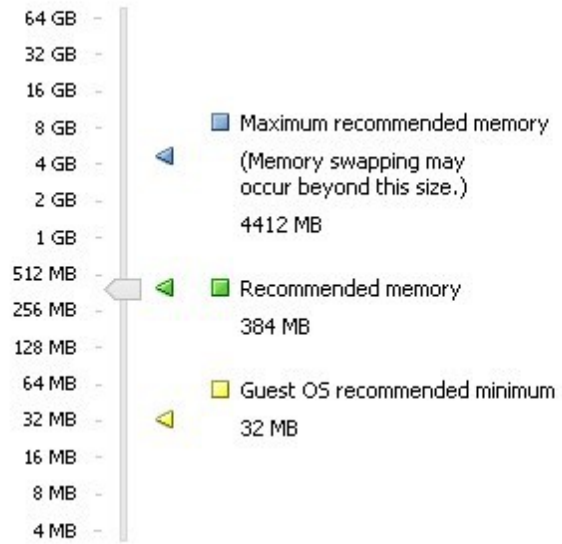
# Hardware

Device	Summary
Memory	384 MB
Processors	1
New CD/DVD (...)	Using file C:\Users\kartik\Downloa...
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

## Memory

Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.

Memory for this virtual machine:  MB



Add...

Remove

Close

Help

# Hardware



Device	Summary
Memory	384 MB
Processors	1
New CD/DVD (...)	Using file C:\Users\kartik\Downloa...
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

Device status

Connected

Connect at power on

Network connection

Bridged: Connected directly to the physical network

Replicate physical network connection state

NAT: Used to share the host's IP address

Host-only: A private network shared with the host

Custom: Specific virtual network

VMnet0

LAN segment:

LAN Segments... Advanced...

Add... Remove

Close Help

Select "Network Adapter"

Go, to Right side and select “Bridged: Connected directly to the physical network”

# Hardware



Device	Summary
Memory	384 MB
Processors	1
New CD/DVD (...)	Using file C:\Users\kartik\Downloa...
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

Device status

Connected

Connect at power on

Network connection

Bridged: Connected directly to the physical network

Replicate physical network connection state

NAT: Used to share the host's IP address

Host-only: A private network shared with the host

Custom: Specific virtual network

VMnet0

LAN segment:

LAN Segments... Advanced...

Add... Remove

Close Help







Device	Summary
Memory	384 MB
Processors	1
New CD/DVD (...)	Using file C:\Users\kartik\Downloa...
Network Adapter	Bridged (Automatic)
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

**Memory**

Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.

Memory for this virtual machine:  MB

64 GB -  
32 GB -  
16 GB -  
8 GB -  
4 GB -  
2 GB -  
1 GB -  
512 MB -  
256 MB -  
128 MB -  
64 MB -  
32 MB -  
16 MB -  
8 MB -  
4 MB -

- Maximum recommended memory (Memory swapping may occur beyond this size.) 4412 MB
- Recommended memory 384 MB
- Guest OS recommended minimum 32 MB

Increase Memory to 1Gb.

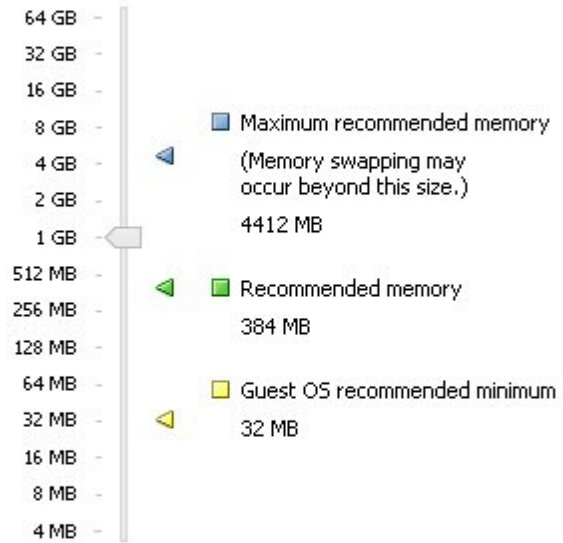


Device	Summary
Memory	1 GB
Processors	1
New CD/DVD (...)	Using file C:\Users\kartik\Downloa...
Network Adapter	Bridged (Automatic)
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

Memory

Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.

Memory for this virtual machine:  MB



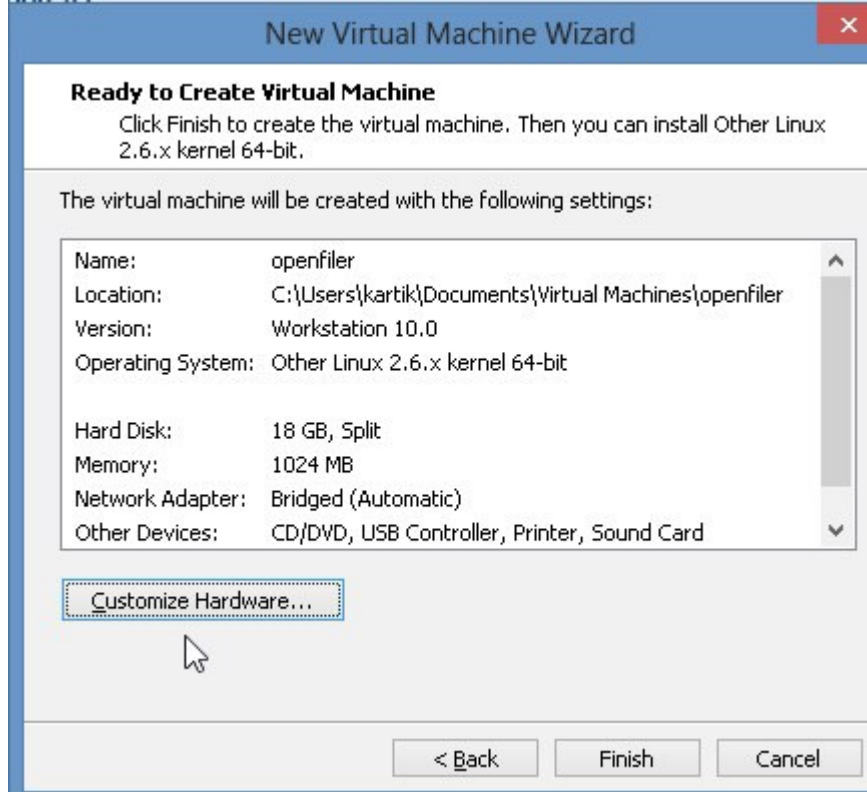
Add...

Remove

Close

Help

Click "Close"



Click "Finish"



Type here to search

- My Computer
- openfiler
- Shared VMs

### openfiler

- Power on this virtual machine
- Edit virtual machine settings

#### Devices

Memory	1 GB
Processors	1
Hard Disk (SCSI)	18 GB
CD/DVD (IDE)	Using file C:\Use...
Network Adapter	Bridged (Autom...
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

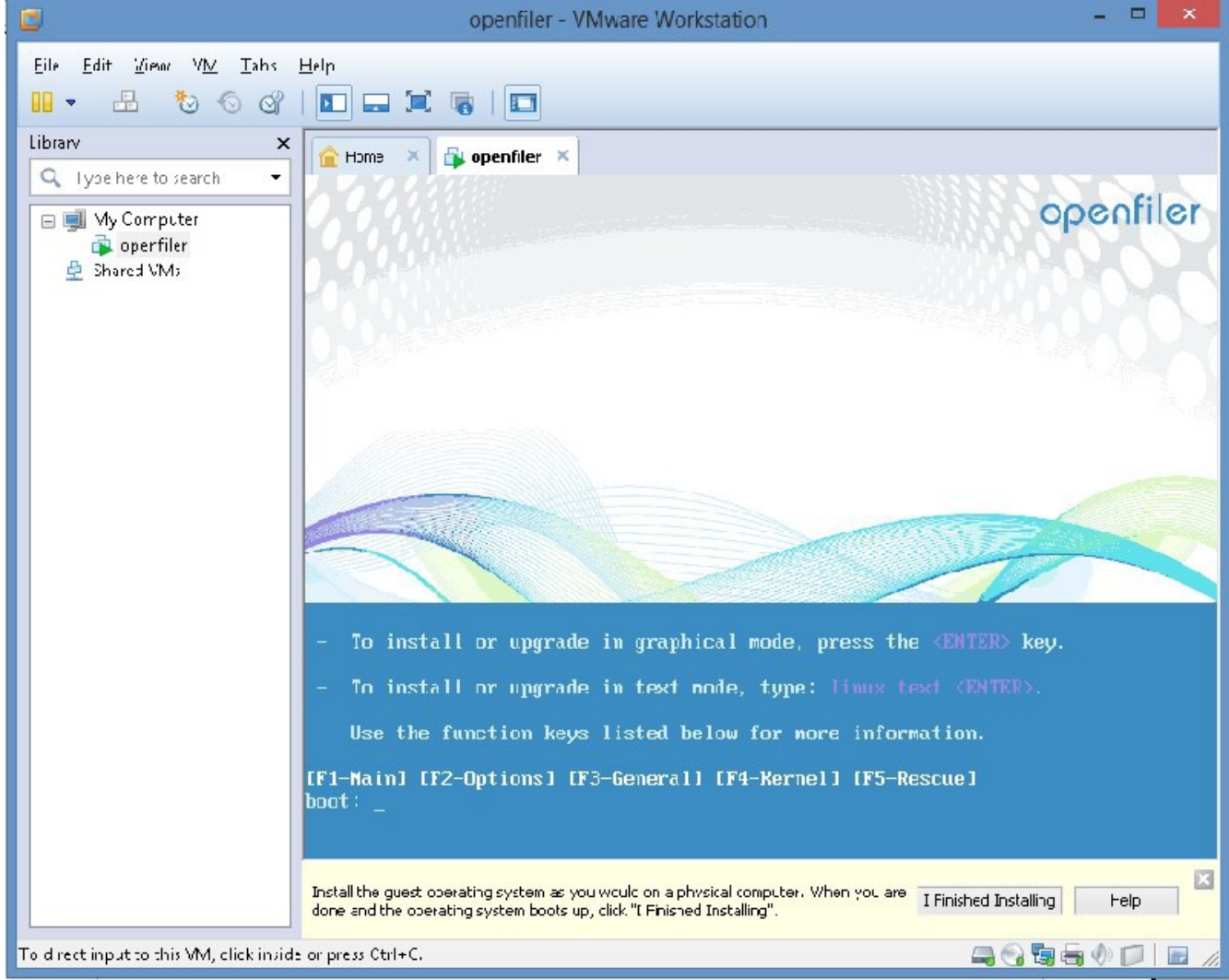
#### Description

Type here to enter a description of this virtual machine.



#### Virtual Machine Details

- State:** Powered off
- Configuration file:** C:\Users\carol\Documents\Virtual Machines\openfiler\openfiler.vmx
- Hardware compatibility:** Workstation 10.0 virtual machine



On the right side, click, “Power on this virtual machine”

Please put mouse inside the right side and press "Enter" key.

You will see a message saying "Press Ctrl-Alt" to return to your computer.



File Edit View VM Tools Help


Library

Type here to search

- My Computer
- openfiler
- Share - vltb

Home openfiler

# openfiler



Release Notes

Back Next

Click in the virtual screen to send keystrokes

Install the guest operating system as you would on a physical computer. When you are done and the operating system boots up, click "Finished Installing".

Finished Installing Help

To direct input to this VM, click inside or press: Ctrl+G

Go into right side, and press “Enter” button.

You will notice mouse becomes “dark” - go ahead and press the “Next” button

File Edit View VM Tools Help

Library

My Computer  
openfiler  
Shared VMs

# openfiler

Select the appropriate keyboard for the system.

- Slovenian
- Spanish
- Swedish
- Swiss French
- Swiss French (latin1)
- Swiss German
- Swiss German (latin1)
- Tamil (Inscript)
- Tamil (Typewriter)
- Turkish
- U.S. English**
- U.S. International
- Ukrainian
- United Kingdom

Release Notes

Back Next

Click in the virtual screen to send keystrokes

Install the guest operating system as you would on a physical computer. When you are done and the operating system boots up, click "Finished Installing".

Finished Installing Help

To direct input to this VM, click inside or press Ctrl-G

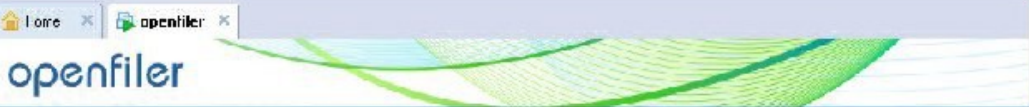
Press "Next button"



Library

Type here to search

- My Computer
- openfiler
- Shared VMs



Select the appropriate keyboard for the system.

- Slovenian
- Spanish
- Swedish
- Swiss French
- Swiss French (at n1)
- Swiss German
- Swiss German (latin1)
- Tamil (Inscript)
- Tamil (Typewriter)
- Turkish
- U.S. English**
- U.S. International
- Ukrainian
- United Kingdom

**Warning**

The partition table on device sda was unrecognizable. To create new partitions it must be initialized, causing the loss of ALL DATA on this drive.

This operation will override any previous installation choices about which drives to ignore.

Would you like to initialize this drive, erasing ALL DATA?

Release Notes

Back

Next

Click in the virtual screen to send keystrokes.

Install the guest operating system as you would on a physical computer. When you are done and the operating system boots up, click "Finished Installing".

Finished Installing

Help



Select "Yes"

Type here to search

- Mv Computer
  - openfiler
  - Shared VMs



Installation requires partitioning of your hard drive. By default, a partitioning layout is chosen which is reasonable for most users. You can alternatively choose to use this or create your own.

Remove all partitions on selected drives and create default layout

Select the drive(s) to use for this installation.

- sda 18426 MB VMware, VMware Virtual S

+ Advanced storage configuration

What drive would you like to boot this installation from?

sda 18426 MB VMware, VMware Virtual S

Review and modify partitioning layout

Reese's Notes

Back

Next

Click on the virtual screen to send keystrokes

Install the guest operating system as you would on a physical computer. When you are done and the operating system boots up, click "Finish Installing".

Finished Installing

Help

Please click on the “Next” button.



File Edit View VM Tools Help

Libraries  
suspend this guest operating system  
openfiler

My Computer  
openfiler  
Shared VMs

# openfiler

Installation requires partitioning of your hard drive. By default, a partitioning layout is chosen which is reasonable for most users. You can either choose to use this or create your own.

Remove all partitions on selected drives and create default layout

Select the drive(s) to use for

- sda 16426 MB


+ Advanced storage

What drive would you like

- sda 16426 MB VMW

Review and modify partitioning layout

### Warning

 You have chosen to remove all partitions (ALL DATA) on the following drives:

sdew/sda

Are you sure you want to do this?

Click in the virtual screen to send keystrokes

Install the guest operating system as you would on a physical computer. When you are done and the operating system boots up, click "Finished Installing".

To direct input to this VM, click inside or press C+I+G

Please select "Yes"



Library

Type here to search

- My Computer
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### Network Devices

Active on Boot	Device	IPv4/Net mask	IPv6/Prefix	Edit
<input checked="" type="checkbox"/>	eth0	DHCP	/Auto	

### Hostname

Set the hostname:

- automatically via DHCP
- manually  (e.g., host.domain.com)

### Miscellaneous Settings

Gateway:

Primary DNS:

Secondary DNS:

Release Notes

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Next

Click in the virtual screen to see keyboard keys

Install the guest operating system as you would on a physical computer. When you are done and the operating system has booted, click "Finished Installing".

Finished Installing

Next




Please select "Next"

File Edit View VM Tabs Help

Home openfiler

# openfiler

Please select the nearest city in your time zone:



Selected city: New York, America (Eastern Time)

America/New York

System clock uses UTC

Release Notes

Back Next

Click in the virtual screen to send key strokes. Install the guest operating system as you would on a physical computer. When you are done and the operating system boots up, click "Finished Installing".

Finished Installing Help

Direct input to this VM, click inside or press Ctrl+G.

I am in Chicago, so, I will select, Chicago, Time Zone.



Library

Type here to search

- My Computer
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  - Shared VMs

Home x openfiler x

# openfiler

Please select the nearest city in your time zone:



Selected city: Chicago, America (Central Time)

America/Chicago

System clock uses UTC

Release Notes

Back

Next

Click in the virtual screen to send keystrokes

Treat all the guest operating systems as you would on a physical computer. When you are done and the operating system boots up, click "I Finished Installing".

I Finished Installing

Help

To direct input to this VM, click inside or press Ctrl+G.



Please click "Next"



File Edit View VM Tabs Help

Library

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# openfiler

The root account is used for administering the system.  
Enter a password for the root user.

Root Password:

Confirm:

Release Notes

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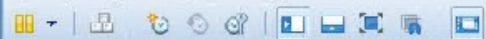
Click in the virtual screen to send keystrokes

Install the guest operating system as you would for a physical computer. When you are done and the operating system boots up, click "Finished Installing".

Finished Installing Help

To direct input to this VM, click inside or press Ctrl+G.

Please enter a suitable, easy to remember, root password. Please, then, click, "Next".



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- My Computer
- openfiler
- Shared Folders

Home x openfiler x

# openfiler



Click next to begin installation of Openfiler ESA ISO (x86\_64). A complete log of the installation can be found in the file `/root/install.log` after rebooting your system.

A kickstart file containing the installation options selected can be found in the file `/root/eneconda-ks.cfg` after rebooting the system.

Release Notes

Back

Next

Click in the virtual screen to send keystrokes.

Install the guest operating system as you would on a physical computer. When you are done and the operating system boots up, click "I Finished Installing".

I Finished Installing

Help

To direct input to this VM, click inside or press Ctrl+G.



Please click "Next"



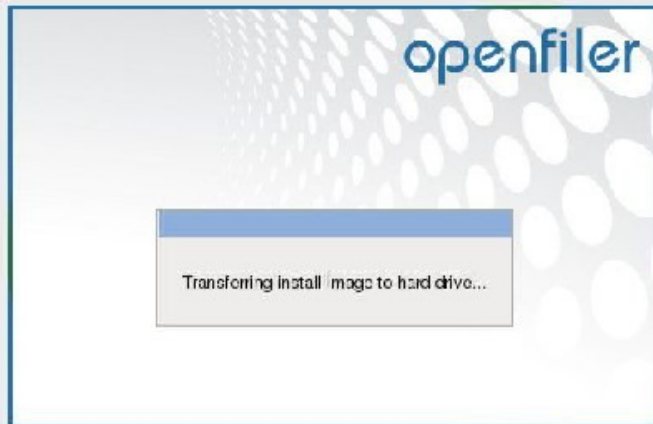
Library

Type here to search

- My Computer
- openfiler
- Shared VMs

Home openfiler

# openfiler



Release Notes

Back

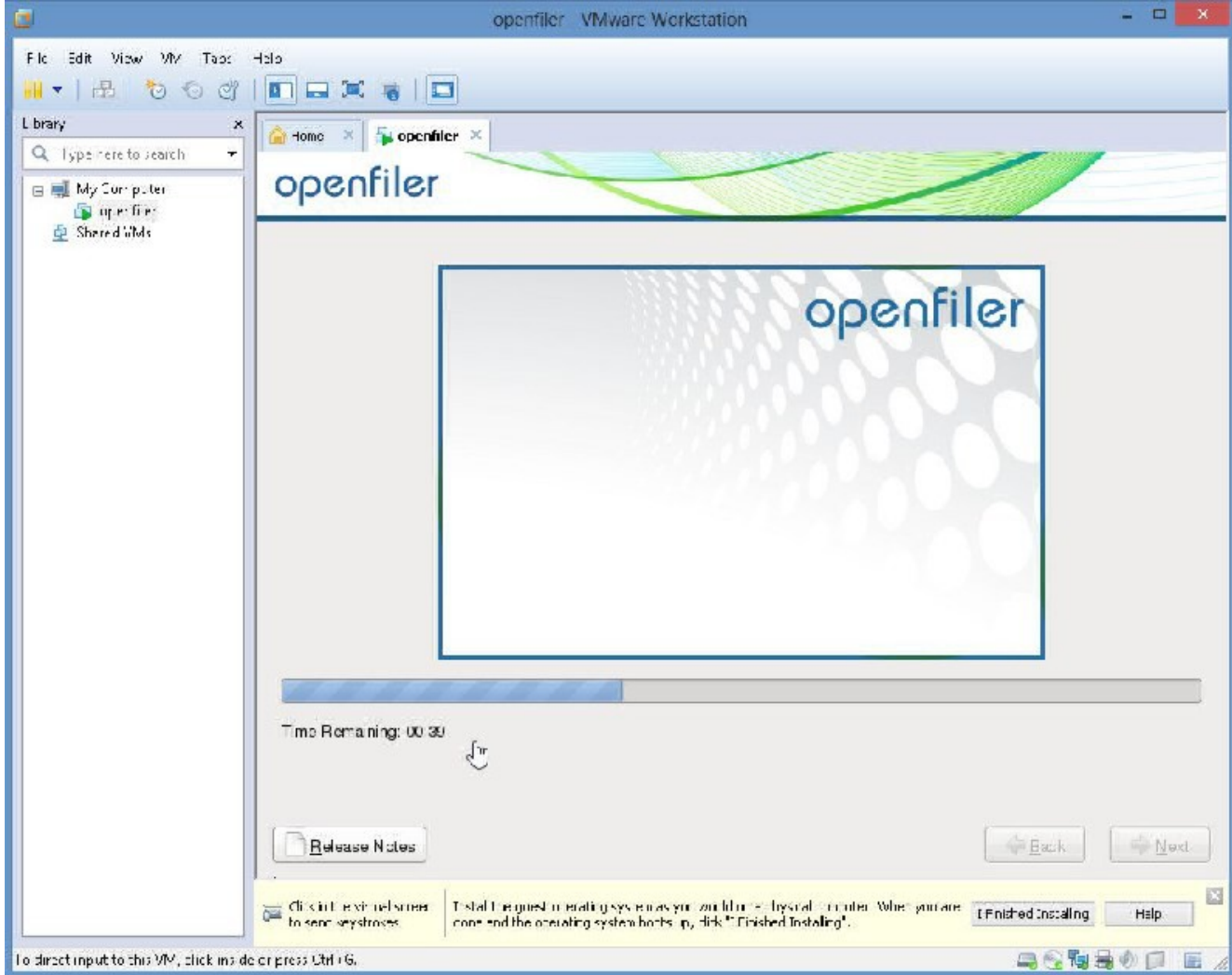
Next

Click in the virtual screen to send keystrokes. Install the guest operating system as you would on a physical computer. When you are done and the operating system boots up, click 'I Finished Installing'.

I Finished Installing

eb





Library

type here to search

- My Computer
  - openfiler
  - Shared VMs

openfiler



Time Remaining: 00:00

Release Notes

Back

Next

Click in the virtual screen to send keystrokes

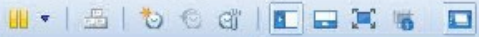
Install the guest operating system as you would on a physical computer. When you are done and the operating system boots up, click "Finished Installing".

Finished Installing

Help

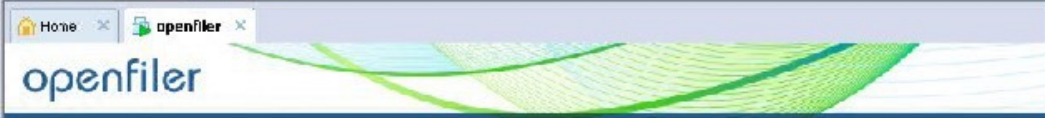
Please wait





Type here to search

- My Computer
- openfiler
- Shared VMs



Congratulations, the installation is complete.

Press the "Reboot" button to reboot your system.

Release Notes

Back

Reboot

Click in the virtual screen to send keystrokes. Install the guest operating system as you would on a physical computer. When you are finished installing, click "Finished Installing".

Finished Installing

Help

To direct input to this VM, click inside or press Ctrl+G.



Please click on "Reboot"



Type here to search

- My Computer
- openfiler
- Shared VMs

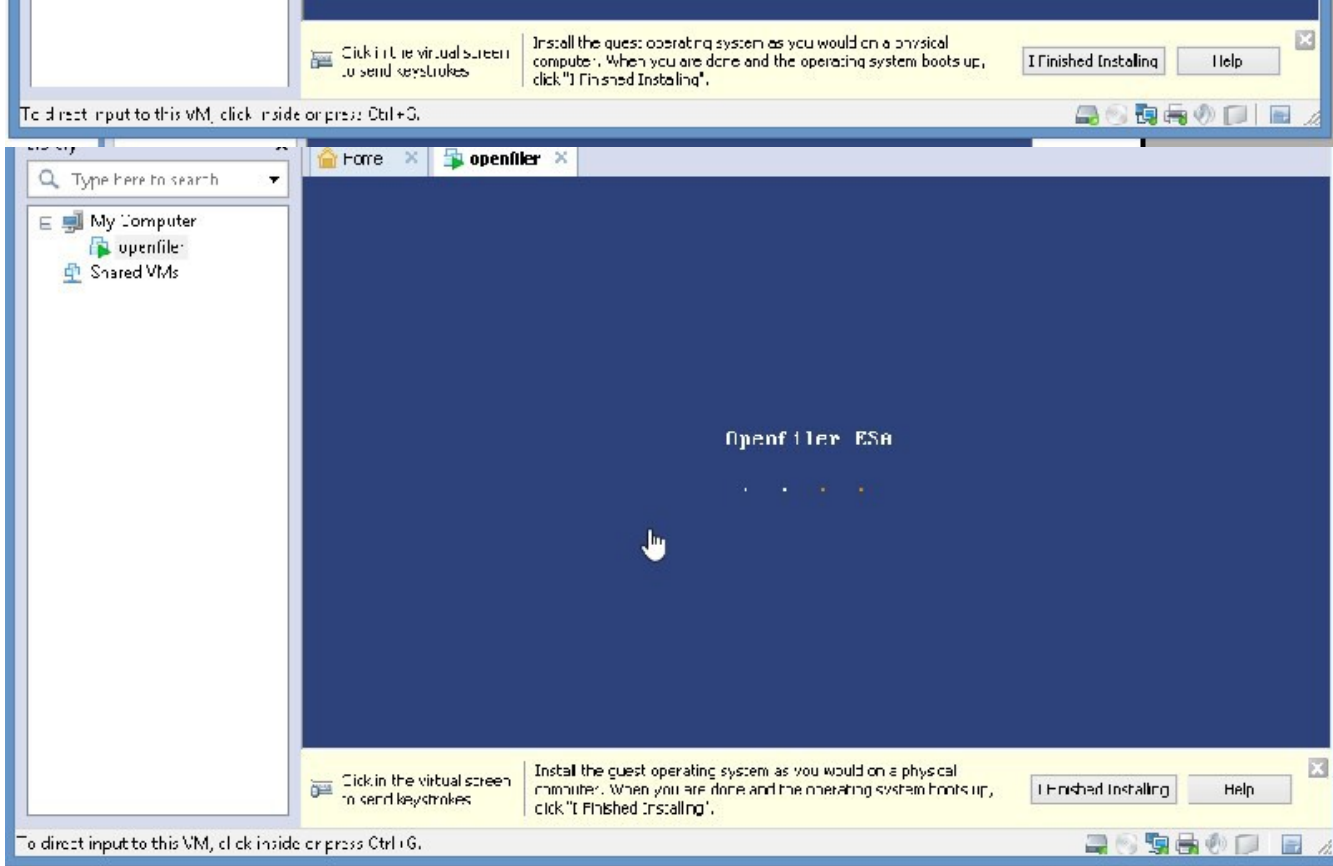
```
Running anaconda 11.3.0.44, the rPath Linux system installer - please wait...
Probing for video card:  VMware SVGA II Adapter
Attempting to start native X server
Waiting for X server to start...log located in /tmp/rpmfs/X.log
1...2...3...4...5... X server started successfully.
Starting graphical installation...
sending termination signals...done
sending kill signals...done
Disabling swap...
/tmp/sda3
unmounting filesystems...
/mnt/runtime done
disabling /dev/loop0
/proc/bus/usb done
/proc done
/dev/pts done
/sys done
/tmp/rpmfs done
/mnt/sysimage/hboot done
/mnt/sysimage/sys done
/mnt/sysimage/proc done
/mnt/sysimage/dev done
/mnt/sysimage done
rebooting system
```

Click in the virtual screen to send keystrokes

Install the guest operating system as you would on a physical computer. When you are done and the operating system boots up, click "I Finished Installing".

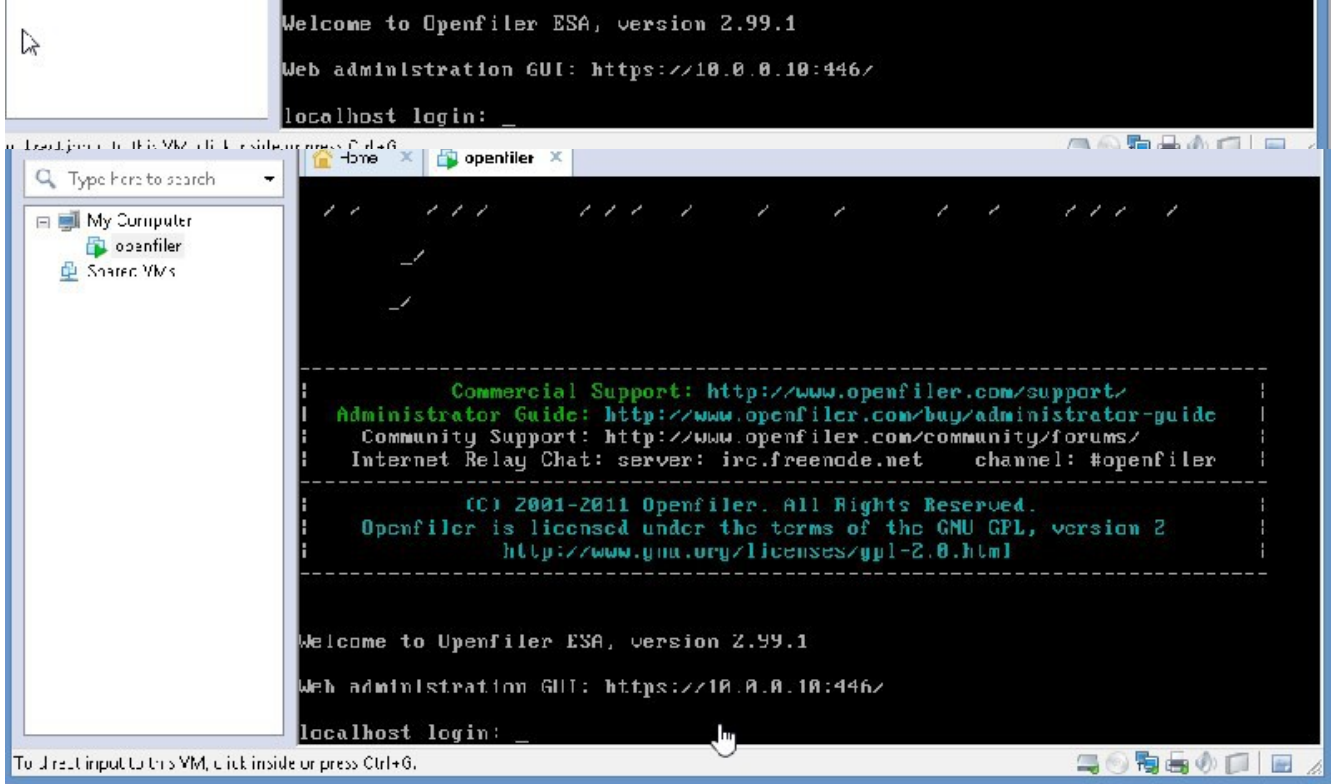
To direct input to this VM, click inside or press Ctrl+D.





Please note this message that appears in the openfiler window:

Please click "I finished installing"



WE get the above screen, your IP address will definitely be different than mine. Anyway, please note this down, for instance, I will note this down:

So, I have to go to [HTTPS://10.0.0.10:446/](https://10.0.0.10:446/) TO ADMINISTER OPENFILER. PLEASE NOTE IT IS HTTPS AND NOT HTTP.

So, open a browser tab, and let's go there:

Username and password for this is:

USERNAME: openfiler NOTE: in lowercase

PASSWORD: password



### The site's security certificate is not trusted!

You attempted to reach **10.0.0.10**, but the server presented a self-signed certificate issued by an entity that is not trusted by your computer's operating system. This may mean that the server has generated its own security certificate, either through a self-signed certificate authority, or a certificate that is signed internally by your communications.

You should not proceed, especially if you have never seen this warning before for this site.

---

[▶ Learn more about SSL](#)

Please click, “proceed anyway”





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[Home](#) - [Documentation](#) - [Support](#) - [Website](#) - [Feedback](#)

Please enter “openfiler” for username and “password” for password.



SCSI Target    Disabled    Disable    Running    Stop

Status    System    Volumes    Cluster    Quota    Shares    **Services**    Accounts

### Manage Services

Service	Boot Status	Modify Boot	Current Status	Start / Stop
LDAP Server	Disabled	<a href="#">Enable</a>	Stopped	<a href="#">Start</a>
NFS Server	Disabled	<a href="#">Enable</a>	Stopped	<a href="#">Start</a>
ESync Server	Disabled	<a href="#">Enable</a>	Stopped	<a href="#">Start</a>
HTTP/Web Proxy	Disabled	<a href="#">Enable</a>	Running	<a href="#">Stop</a>
LDAP Client	Enabled	<a href="#">Disable</a>	Stopped	<a href="#">Start</a>
FTP Server	Disabled	<a href="#">Enable</a>	Stopped	<a href="#">Start</a>
iscsi-target	Disabled	<a href="#">Enable</a>	Stopped	<a href="#">Start</a>
UFS Manager	Disabled	<a href="#">Enable</a>	Stopped	<a href="#">Start</a>
UFS Monitor	Disabled	<a href="#">Enable</a>	Stopped	<a href="#">Start</a>
iscsi-initiator	Disabled	<a href="#">Enable</a>	Stopped	<a href="#">Start</a>
ADCM Daemon	Enabled	<a href="#">Disable</a>	Running	<a href="#">Stop</a>
SCSI Target	Enabled	<a href="#">Disable</a>	Stopped	<a href="#">Start</a>
FC Target	Disabled	<a href="#">Enable</a>	Stopped	<a href="#">Start</a>
Cluster Manager	Disabled	<a href="#">Enable</a>	Stopped	<a href="#">Start</a>

**Services section**

- [Manage Services](#)
- [SMB/CIFS Setup](#)
- [LDAP Setup](#)
- [NFS Setup](#)
- [Rsync Setup](#)
- [iSCSI Target Setup](#)
- [FTP Setup](#)

**Support resources**

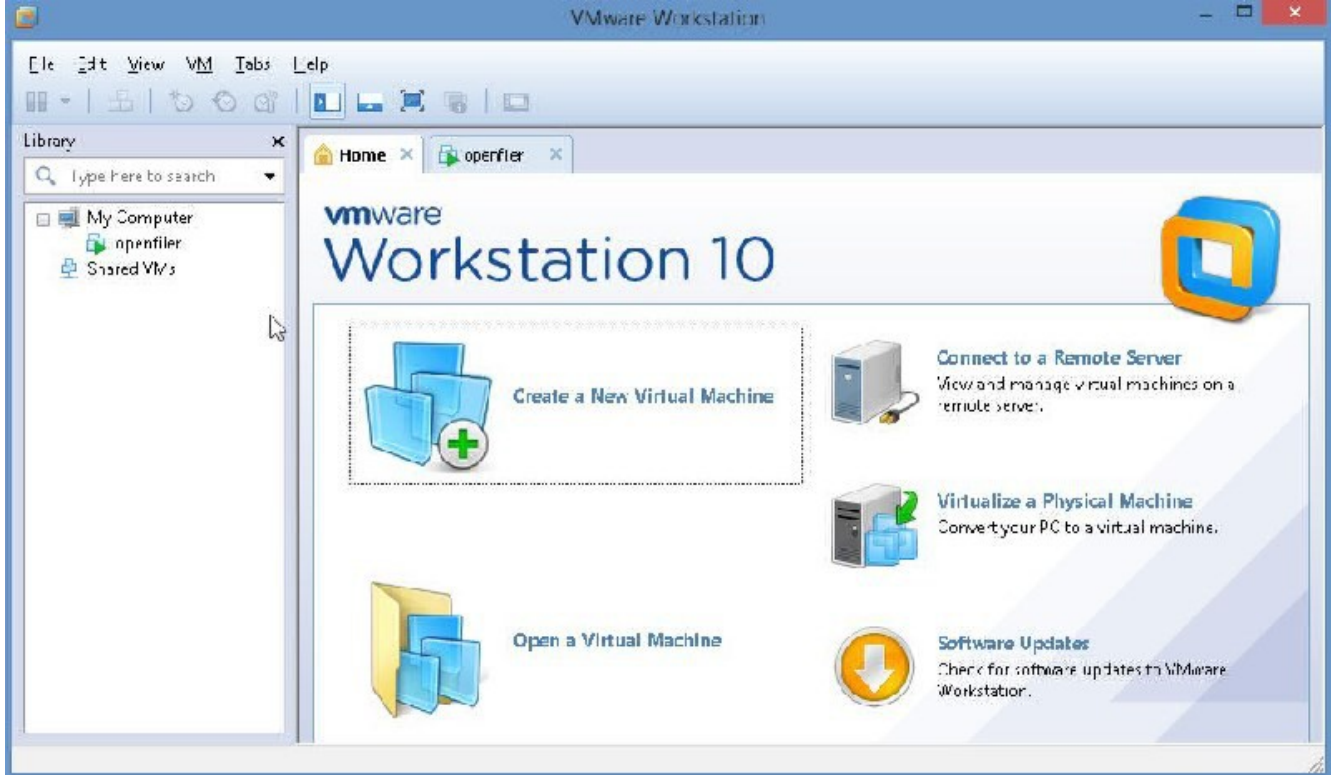
- [Report bug](#)
- [Get support](#)
- [Forums](#)
- [Admin Guide](#)

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[Home](#) - [The installation](#) - [Support](#) - [Web site](#) - [License](#) - [Log Out](#)

Please select Services, from top tab list

Please NOTE:

Please ENABLE it and START it.

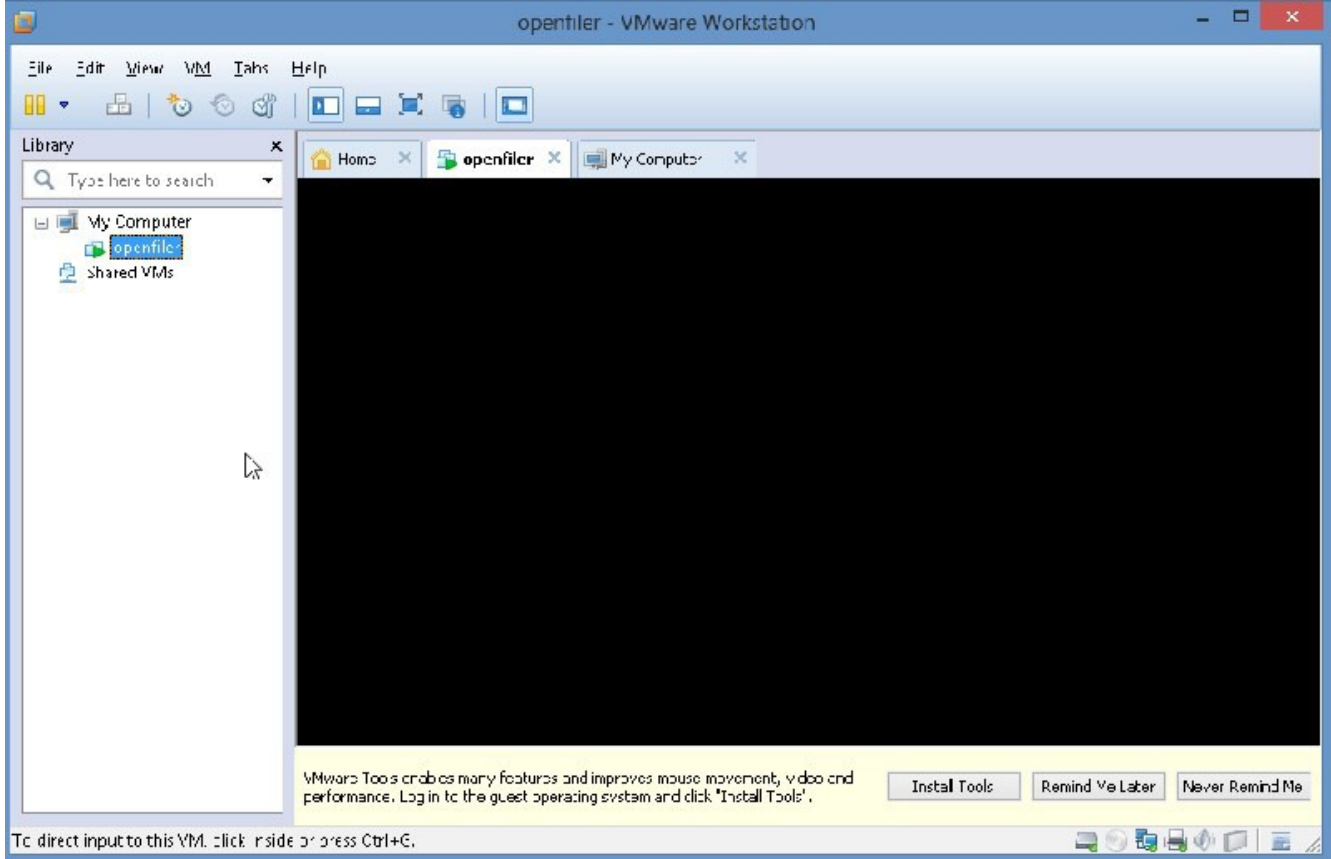


Now, let us go back to VMware Workstation 10 and add disks to Openfiler. To do this, we first add the disks to openfiler in VMware Workstation 10 and then reboot openfiler

ADDING DISKS TO OPENFILER

GO TO VMWARE WORKSTATION 10 WINDOW

SELECT OPENFILER WITH ONE MOUSE CLICK(NOT DOUBLEW CLICK)



Click on VM at top

Select "Settings"

Align Left (Ctrl+L)

Hardware Options

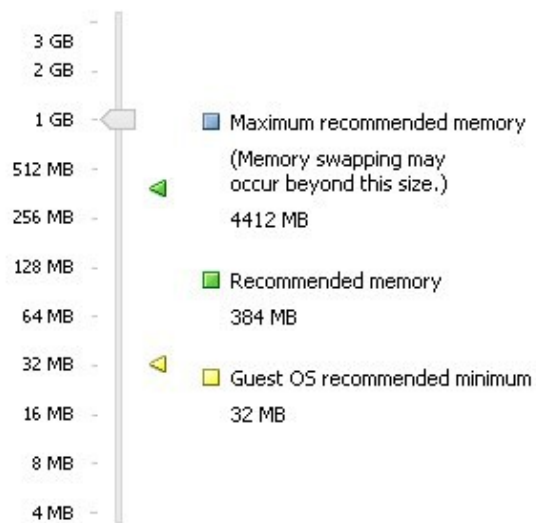
Device	Summary
Memory	1 GB
Processors	1
Hard Disk (SCSI)	18 GB
CD/DVD (IDE)	Using file C:\Users\kartik\Downloads\o...
Network Adapter	Bridged (Automatic)
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

Add... Remove

Memory

Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.

Memory for this virtual machine: 1024 MB

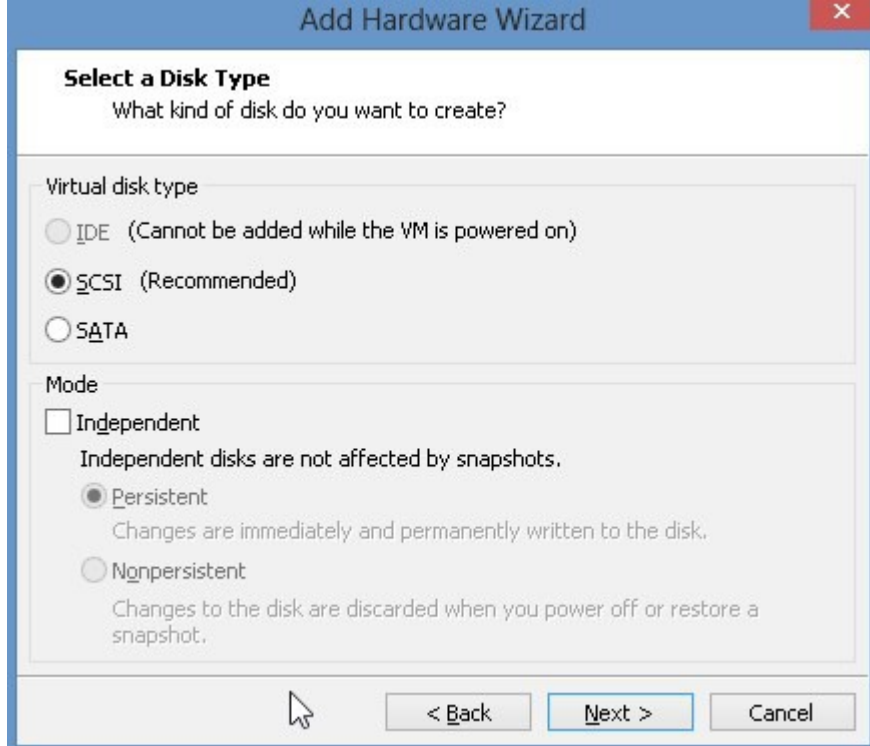


⚠ The virtual machine must be powered off to reduce the amount of memory.

OK Cancel Help

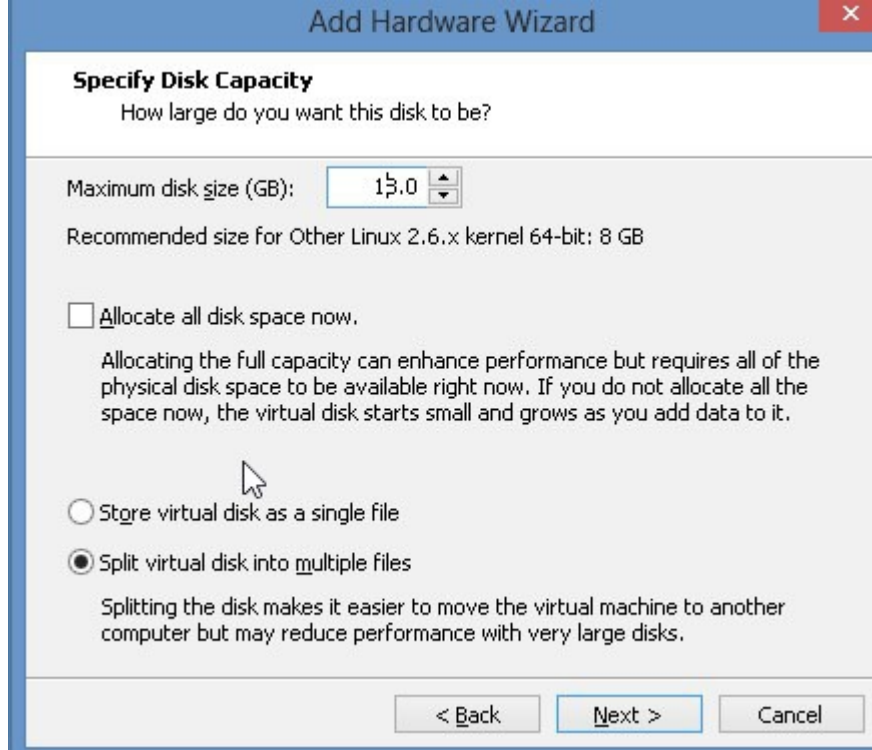


click on Add



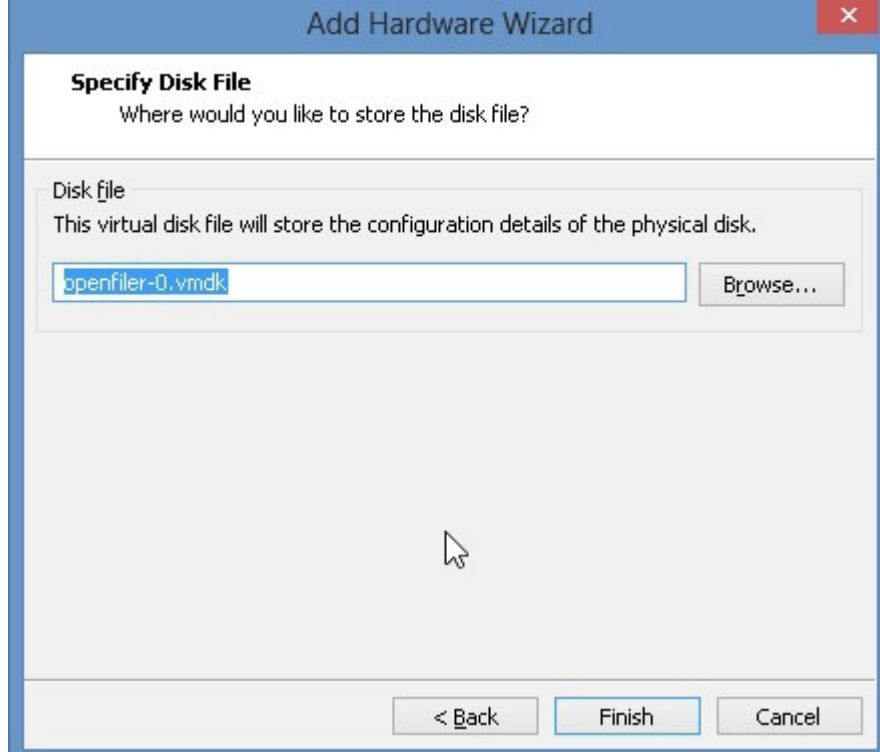
Click "Next"

Click on "Next"



Click on Next  
Please change size to 18Gb

Please click "Next"



Please click "Finish"

We will add another Hard Disk, so, similarly, on your own, now, add another Hard Disk.

Finally, it will look like this:

# Virtual Machine Settings



Hardware Options

Device	Summary
Memory	1 GB
Processors	1
Hard Disk (SCSI)	18 GB
New Hard Disk (S...)	18 GB
New Hard Disk (5...)	18 GB
CD/DVD (IDE)	Using file C:\Users\kartik\Downloads\o...
Network Adapter	Bridged (Automatic)
USB Controller	Present
Sound Card	Auto detect
Printer	Present
Display	Auto detect

## Disk file

openfiler-1.vmdk

## Capacity

Current size: 2.9 MB  
System free: 856.1 GB  
Maximum size: 18 GB

## Disk information

Disk space is not preallocated for this hard disk.  
Hard disk contents are stored in multiple files.

Utilities ▾

Advanced...

Add...

Remove

OK

Cancel

Help

[Status](#) | [System](#) | [Volumes](#) | [Cluster](#) | [Quota](#) | [Shares](#) | [Services](#) | [Accounts](#)

## Network Configuration

Hostname:	<input type="text" value="ice.nest.localdomain"/>
Primary DNS:	<input type="text" value="75.75.75.75"/>
Secondary DNS:	<input type="text" value="75.75.75.75"/>
Gateway:	<input type="text" value="DHCP Controlled"/>

## Network Interface Configuration

Interface	Used Protocol	IP Address	Network Mask	Speed	MTU	Link	Edit
<a href="#">eth1</a>	DHCP	10.0.0.10	255.255.255.0	1000Mbps	1500	Yes	

[Go to Network Configuration](#)

## Network Access Configuration

Delete	Name	Network/Host	Netmask	Type
New	<input type="text"/>	<input type="text"/>	<input type="text" value="255.255.255.0"/>	<input type="text" value="Static"/>

## System section

- [Network Setup](#)
- [Clock Setup](#)
- [UPS Management](#)
- [Shutdown/Reboot](#)
- [Notification](#)
- [System Update](#)
- [Backup/Restore](#)
- [Secure Console](#)

## Support resources

- [Report Bug](#)
- [Get Support](#)
- [Features](#)
- [Admin Guide](#)

Please click “OK”

REBOOTING OPENFILER

GO TO THE BROWSER MANAGEMENT URL

IN MY CASE IT WAS [HTTPS://10.0.0.10:446/](https://10.0.0.10:446/)

Now to reboot openfiler? Please go to the “System” tab:



the right pane, please select Shutdown/Reboot

- Status
- system**
- Volumes
- Cluster
- Quota
- Shares
- Services
- Accounts

### Shutdown the system

Shutdown type:	<input checked="" type="radio"/> Power off <input type="radio"/> Reboot
Delay before shutdown:	0   minutes
<input type="checkbox"/> Check filesystems on startup	

[Shutdown](#)

- #### System section
- Network Setup
  - Clock Setup
  - UPS Management
  - Shutdown/Reboot
  - Mailification
  - System Update
  - Backup/Restore
  - Secure Console
- #### Support resources
- Request help
  - Get support
  - Forums
  - Admin Guide

Click on Shutdown

Please change to Reboot.



Please click on the “Shutdown” button.

Welcome Administrator!  
You can [administer the storage device from here.](#)

[Log out.](#)

**Distro Release:** Openfiler ESA 2.99.1

**GUI Version:** r\_15ec1bb936e555e65adce24a9b0595124e46b0ee-1-1



Wait for sometime for openfiler to reboot, then, please click on “You can administer the storage device from here”

We are back to this screen:



[Status](#) | [system](#) | [Volumes](#) | [Cluster](#) | [Quota](#) | [Shares](#) | [services](#) | [Accounts](#)

## Volume Group Management

[Volume Group home](#) | [Size](#) | [Allocated](#) | [Free](#) | [Members](#) | [Add physical storage](#) | [Delete VG](#)

### Create a new volume group



no existing physical volumes were found, so we couldn't  
do, since volumes are dead. You can [create new physical  
volumes](#)

#### Volumes section

- [Manage Volumes](#)
- [Volume Groups](#)
- [Block Devices](#)
- [Add Volumes](#)
- [iSCSI Targets](#)
- [Software RAID](#)

#### Support resources

- [Report bug](#)
- [Get support](#)
- [Forums](#)
- [Admin Guide](#)

Please click on “Volumes” tab

In right pane, please click on block devices:

We see this:



- Status
- system
- Volumes
- Cluster
- Quota
- Shares
- Services
- Accounts

## Block Device Management

File Disk	Type	Description	Size	Label Type	Partitions
<a href="#">/dev/sdb</a>	SCSI	VMware, VMware virtual b	17.89 GB	mdcs	0 ( <a href="#">View</a> )
<a href="#">/dev/sdc</a>	SCSI	VMware, VMware virtual b	17.92 GB	JL-	0 ( <a href="#">View</a> )
<a href="#">/dev/sdd</a>	SCSI	VMware, VMware virtual b	17.92 GB	IT-	0 ( <a href="#">View</a> )

## Volumes section

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volumes
- ISCSI Targets
- Software RAID

## Support resources

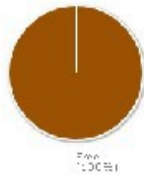
- Report bug
- Get support
- Forums
- Admin Guide

We see the two drives we added via VMware Workstation 10, in my case they are: /dev/sdb abd /dev/sdc with 0 partitions.

[Status](#) [system](#) [Volumes](#) [Cluster](#) [Quota](#) [Shares](#) [Services](#) [Accounts](#)

## Edit partitions in /dev/sdb (23-19 cylinders with "gpt" label)

Device	Type	Number	Start cyl	End cyl	Blocks	Size	Type	Delete
--------	------	--------	-----------	---------	--------	------	------	--------

[Back to the list of physical storage devices](#)

## Create a partition in /dev/sdb

💡 You can use ranges with the following elements:

Mode	Starting cylinder	Ending cylinder	Space
Primary	1	2049	1024 GB

Mode	Partition Type	Starting cylinder	Ending cylinder	Size	Create	Reset
Primary	Physical volume	1	2049	1024 GB	Create	Reset

## Volumes section

- [Manage Volumes](#)
- [Volume Groups](#)
- [Disk & Devices](#)
- [Add Volume](#)
- [FSCK Targets](#)
- [Software RAID](#)

## Support resources

- [Report Bug](#)
- [Get support](#)
- [Features](#)
- [Admin Guide](#)

NOTE: PLEASE DO NOT TOUCH THE DISK WITH THREE PARTITIONS, THAT IS THE OPENFILER BOOT DRIVE

Now, we click on /dev/sdb

Click on "create"

Volumes section

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volume
- iSCSI Targets
- Software RAID

Lcid partitions in /dev

Device	Type	Size
/dev/sda1	Linux (labeled) (ext4)	100 GB



[Back to the list of volumes - storage devices](#)

Create a partition in /dev/sclb

To create a partition with the following details:

Mode	Starting cylinder	Ending cylinder	Space
Primary	2412	2479	67.68 MB

Mode	Partition Type	Starting cylinder	Ending cylinder	Size	Create	Reset
Primary	Physical volume	2412	2479	67.68 MB	Create	In Use

Volumes settings

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volume
- iSCSI Targets
- Software RAID

Support resources

- Report bug
- Get support
- Forums
- Admin Guide

NOTE: DO NOT CLICK ON CREATE AGAIN

FROM RIGHT PLANE, CLICK ON “VOLUME GROUPS”

- Status
- system
- Volumes**
- Cluster
- Quota
- Shares
- Services
- Accounts

### Volume Group Management

- Volume Group home
- Size
- Allocated
- Free
- Members
- Add physical storage
- Delete VG

### Create a new volume group

add physical storage to volume group A P a r t i t i o n  
+ -

Volume group name (no spaces)

Select physical volumes to add

/dev/sdb1 17.0 GiB

Add volume group

#### Volumes section

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volumes
- ISCSI Targets
- Software RAID

#### Support resources

- Report bug
- Get support
- Forums
- Admin Guide

give a volume group name: VOL0 AND CHECK /DEV/SDB1

- Status
- system
- Volumes**
- Cluster
- Quota
- Shares
- Services
- Accounts

### Volume Group Management

- Volume Group home
- Size
- Allocated
- Free
- Members
- Add physical storage
- Delete VG

### Create a new volume group

add new volumes to an existing volume group A P a z d 9 \_  
+ -

Volume group name (no spaces)

vg\_0

Select physical volumes to add

/dev/sdb1 17.0 GiB

Add volume group

#### Volumes section

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volumes
- ISCSI Targets
- Software RAID

#### Support resources

- Report bug
- Get support
- Forums
- Admin Guide

CLICK ON “ADD VOLUME GROUP”

- Status
- system
- Volumes
- Cluster
- Quota
- Shares
- Services
- Accounts

### Volume Group Management

Volume Group Name	Size	Allocated	Free	Members	Add physical storage	Delete VR
volo	17.0 GB	0 bytes	17.0 GB	<a href="#">View member PUs</a>	<a href="#">Add physical storage</a>	<a href="#">Delete VR</a>

### Create a new volume group



No existing physical volumes were found, or existing physical volumes are used. You can create new physical [volumes](#).

- Volumes section
  - Manage Volumes
  - Volume Groups
  - Block Devices
  - Add Volumes
  - ISCSI Targets
  - Software RAID
- Support resources
  - Report bug
  - Get support
  - Forums
  - Admin Guide

IN RIGHT PLANE SELECT “ADD VOLUME”



- Status
- System
- Volumes
- Cluster
- Quota
- Shares
- Services
- Accounts

### Select Volume Group

Please select a volume group to create a volume in.

cc 0 Change

### Block storage statistics for volume group "vol0"

Total Space	Used Space	Free Space
17392632 bytes (17392 MB)	0 bytes (0 MB)	17392632 bytes (17392 MB)



0% (0.00%)

### Create a volume in "vol0"

Volume Name (*no spaces*, valid characters [a-zA-Z0-9]):	<input type="text"/>
Volume Description:	<input type="text"/>
Required Space (MB):	<input type="text" value="25"/> <input type="text"/>
Filesystem / Volume type:	XFS <input type="text" value="xfs"/>

Create


#### Volumes section

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volume
- FC/ST Targets
- Followers: RAID

#### Support resources

- Report bug
- Get support
- Forums
- Admin Guide

## Create a volume in "vol0"

<b>Volume Name (*no spaces*. Valid characters [a-z,A-Z,0-9]):</b>	<input type="text" value="LUN0"/>
<b>Volume Description:</b>	<input type="text" value="LUN0"/>
<b>Required Space (MB):</b>	<input type="text" value="17568"/> 
<b>Filesystem / Volume type:</b>	<input type="text" value="block (iSCSI,FC,etc)"/>

PLEASE MODIFY THE FIELDS AS SHOWN IN THE SCREENSHOT BELOW, REMEMBER TO CHANGE ALL FIELDS:

SO, WE HAVE MAXED OUT ON THE "REQUIRED SPACE" AND CHOSEN BLOCK(ISCSI) FOR FILESYSTEM/VOLUME TYPE

THIS IS VERY IMPORTANT, PLEASE DO NOT MESS THIS UP

PLEASE CLICK CREATE

### Add new iSCSI Target

Target IQN	Add
<input type="text" value="iqn.2016-01.com.openfiler:32768034738"/>	<input type="button" value="Add"/>

**Volumes section**

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volume
- iSCSI Targets
- Software RAID

**Support resources**

- Report Bug
- Get support
- Forums
- Admin Guide



un0 (100%)

Volume name	Volume description	Volume size	File system type	File system size	FS used space	FS free space	Delete	Properties	Snapshots
un0	LUN0	1,000 MB	ISO9660	Not applicable	Not applicable	Not applicable	<a href="#">Delete</a>	<a href="#">Edit</a>	<a href="#">Create</a>

0 MB allocated to snapshots

0 MB of free space left

NOW GO TO RIGHT PLANE AND SELECT ISCSI TARGETS

- Storage
- System
- Volumes
- Director
- Quota
- Shares
- Services
- Accounts

- Target Configuration
- LUN Mapping
- Network ACL
- CHAP Authentication

### Add new iSCSI Target

Target ID:

### Select iSCSI Target

Please read an iSCSI target to display information.

### Settings for target: iqn.2000-01.com.openfiler:tsn.32/acf984/c8

Target Attribute	Attribute Value
HeaderDigest	None
DataDigest	None
MaxConnections	1
InflightRPT	100
ImmediateData	On
MaxRecvDataSegmentLength	131072
MaxSendDataSegmentLength	131072
MaxBufferSize	>> 4
MaxBufferSize	>> 4
DataOutTimeOut	>
DataInTimeOut	>
MaxOutstandingRPT	0
DataPDUOrder	On
DataSequenceOrder	On
ErrorRecoveryLevel	0
Wirecode	15
QueueCommands	Yes

- Volumes section**
- Manage Volumes
  - Volume Groups
  - Block Devices
  - Add Volume
  - iSCSI Targets
  - Software RAID
- Support resources**
- Report bug
  - Get support
  - Forum
  - Admin Guide

PLEASE CLICK ADD

[Status](#) | [System](#) | [Volumes](#) | [Cluster](#) | [Quota](#) | [Shares](#) | [Services](#) | [Accounts](#)[Target Configuration](#) | [LUN Mapping](#) | [Network ACL](#) | [CHAP Authentication](#)

1 LUNs mapped to target: iqn.2006-01.com.openfiler:tsn.127aef9847e8



No LUNs mapped to this target

Map New LUN to Target: "iqn.2006-01.com.openfiler:tsn.327aef9847e8"

Name	LUN Path	R/W Mode	SCSI Serial No.	SCSI Id.	Transfer Mode	Map LUN
LUN0	/dev/vol0/lun0	<input type="text" value="write-thru"/>	Ap943-c001H-A120	Ap91b-c001H-A120	<input type="text" value="block"/>	<input type="button" value="Map"/>

## Volumes section

- [Manage Volumes](#)
- [Volume Groups](#)
- [Block Devices](#)
- [Add Volumes](#)
- [iSCSI Targets](#)
- [Software RAID](#)

## Support resources

- [Report bug](#)
- [Get support](#)
- [Forums](#)
- [Admin Guide](#)

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NO NEED TO DO ANYTHING IN ABOVE SCREENSHOT

PLEASE SELECT "LUN MAPPING" TAB

PLEASE CLICK "MAP"

### Volumes section

- Status
- System
- Volumes
- Cluster

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volume
- iSCSI Targets
- Software RAID

Target Configuration | LUN Mapping | Network ACL

LUNs mapped to target: i

LUN Id.	LUN Path	R/W Mode	!
0	/dev/sd1/sd1L	write-thru	!

Test

Inmap LUN

Unmap



All LUNs mapped

#### Volumes section

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volume
- iSCSI Targets
- Software RAID

#### Support resources

- Report bug
- Get support
- Forum
- Admin Guide



NOW WE HAVE TO DO THE SAME FOR THE SECOND DRIVE WE ADDED WHICH IS NAMED /DEV/SDC

HERE ARE THE SCREENSHOTS FOR THAT:

SELECT "BLOCK DEVICES"

- Status
- System
- Volumes
- Cluster
- Quota
- Shares
- Services
- Accounts

### Edit partitions in /dev/sdc (2349 cylinders with "gpt" label)

Device	Type	Number	Start cyl	End cyl	Blocks	Size	Type	Delete
--------	------	--------	-----------	---------	--------	------	------	--------



[Back to the list of physical storage devices](#)

### Create a partition in /dev/sdc

You can use ranges with the following elements:

Mode	Starting cylinder	Ending cylinder	Space
Primary	1	2049	130.99 GB

Mode	Partition Type	Starting cylinder	Ending cylinder	Size	Create	Delete
Primary	Physical volume	1	2049	130.99 GB	Create	Delete

#### Volumes section

- Manage Volumes
- Volume Groups
- File & Directories
- Add Volume
- FSCK Targets
- Software RAID

#### Support resources

- Report Bug
- Get support
- Features
- Admin Guide

CLICK ON /DEV/SDC

Volumes section

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volume
- iSCSI Targets
- Software RAID

Edit partitions in /dev

Device	Type	Num
/dev/sdc	Linux (lvm) (9300)	1



[Back to the list of volumes and storage devices](#)

Create a partition in /dev/sdc

To create a partition with the following details:

Mode	Starting cylinder	Ending cylinder	Space
Primary	2412	2479	67.68 MB

Mode	Partition Type	Starting cylinder	Ending cylinder	Size	Create	Reset
Primary	Physical volumes	2412	2479	67.68 MB	Create	In Use

**Volumes settings**

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volume
- iSCSI Targets
- Software RAID

**Support resources**

- Report bug
- Get support
- Forums
- Admin Guide

CLICK CREATE

CLICK ON VOLUME GROUPS IN RIGHT PANE

- Status
- system
- Volumes**
- Cluster
- Quota
- Shares
- Services
- Accounts

## Volume Group Management

Volume Group Name	Size	Allocated	Free	Members	Add physical storage	Delete VG
vcl0	27.10 GB	27.10 GB	0 bytes	1 wk_member Pvs	Add Pvs	VG contains volumes

## Create a new volume group



valid characters for volume group name: A-Z a-z 0-9

Volume group name (no spaces)

select physical volumes to add

 /dev/sd1 12.16 GB

## Volumes section

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volumes
- ISCSI Targets
- Software RAID

## Support resources

- Report bug
- Get support
- Forums
- Admin Guide

WE WILL NAME THIS VOL1 AND CHECK /DEV/SDC1 AND CLICK "CREATE VOLUME GROUP"

[Status](#) | [system](#) | [Volumes](#) | [Cluster](#) | [Quota](#) | [Shares](#) | [services](#) | [Accounts](#)

## Volume Group Management

Volume Group Name	Size	Allocated	Free	Members	Add physical storage	Delete VG
vg0	27.10 GB	27.10 GB	0 bytes	1 wk_member Pvs	Add Pvs	VG contains volumes

## Create a new volume group



valid characters for volume group name: A-Z a-z 0-9

Volume group name (no spaces)

vg0

select physical volumes to add

 /dev/sda1 27.16 GB

Add volume group

## Volumes section

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volumes
- ISCSI Targets
- Software RAID

## Support resources

- Report bug
- Get support
- Forums
- Admin Guide

CLICK "ADD VOLUME GROUP"

- Status
- System
- Volumes
- Cluster

Volumes section

Volume Group Name	Size	Allocated
v011	27.10 GB	0 bytes
v012	27.10 GB	27.10 GB

Volumes section

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volume
- iSCSI Targets
- Software RAID

Delete VG

Delete

[Go Back to Volumes](#)


Volumes section

- Manage Volumes
- Volume Groups
- Block Devices
- Add Volume
- iSCSI Targets
- Software RAID

Support resources

- Report bug
- Get support
- Forum
- Admin Guide

Create a new volume group

 No existing physical systems were found, or an existing physical volume was used. You can [update your iSCSI volumes](#)

ON RIGHT PANE CLICK ADD VOLUME



Status System **Volumes** Cluster Quota Shares Services Accounts

### Select Volume Group

Please select a volume group to create a volume in

**vol0** Change

### Block storage statistics for volume group "vol0"

Total Space:	Used Space:	Free Space:
2,753,968 Bytes (2,750 MB)	2,753,968 Bytes (2,750 MB)	0 Bytes (0 MB)

Used 100%

Create a volume in "vol0"

**Volumes, sidebar**

- Storage Volumes
- Volume Groups**
- Block Devices
- Add Volume
- iSCSI Targets
- Software RAID

**Support resources**

- Report bug
- Get support
- Features
- Admin Guide

UNFORTUNATELY VOL0 – WHERE WE HAVE ALREADY CREATED A VOLUME IS SELECTED BY DEFAULT, WE NEED TO CHANGE IT TO “VOL1”

SO CHANGE IT TO VOL1

CLICK CHANGE

- Status
- system
- Volumes
- Cluster
- Quota
- Shares
- Services
- Accounts

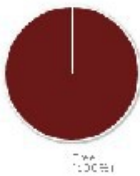
### Select Volume Group

Please select a volume group to create a volume in.

CC

### Block storage statistics for volume group "vol1"

Total Space	Used Space	Free Space
17392632 bytes (17392 MB)	0 bytes (0 KB)	17392632 bytes (17392 MB)



### Create a volume in "vol1"

Volume Name (*no spaces*, valid characters [a-zA-Z0-9]):	<input type="text"/>
Volume Description:	<input type="text"/>
Required Space (MB):	<input type="text" value="25"/> <input type="text"/>
Filesystem / Volume type:	XFS <input type="button" value="help"/>

- #### Volumes section
- Manage Volumes
  - Volume Groups
  - Block Devices
  - Add Volume
  - ISCSI Targets
  - Followers: RAID

- #### Support resources
- Report bug
  - Get support
  - Forums
  - Admin Guide

NAME THE VOLUME "LUN1" DESCRIPTION "LUN1" MAX OUT ON "REQUIRED SPACE"  
AND SELECT "BLOCK/ISCSI" AS FILESYSTEM/VOLUME TYPE, SHOWN BELOW:

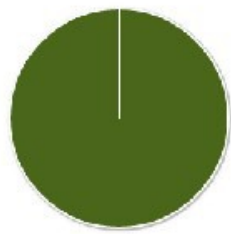
- Status
- System
- Volumes
- Cluster
- Quota
- Shares
- Services
- Accounts

### Select Volume Group

Please create a volume group to display.

### Volumes in volume group "vol1" (17568 MB)



100%

Volume name	Volume description	Volume size	File system type	File system size	FS used space	FS free space	Delete	Properties	Snapshots
vol1	LUNC	17568 MB	ISO9660	Not applicable	Not applicable	Not applicable	<a href="#">Delete</a>	<a href="#">Edit</a>	<a href="#">Create</a>

0 MB allocated to snapshots

0 MB of free space left

- Volumes section**
- Manage Volumes
  - Volume Groups
  - File & Directories
  - Add Volume
  - FSCK Targets
  - Software RAID
- Support resources**
- Report Bug
  - Get Support
  - Features
  - Admin Guide

CLICK CREATE

[Status](#) | [System](#) | [Volumes](#) | [Cluster](#) | [Quota](#) | [Shares](#) | [Services](#) | [Accounts](#)[Target Configuration](#) | [LUN Mapping](#) | [Network ADI](#) | [CHAP Authentication](#)

LUNs mapped to target: iqn.2006-01.com.openfiler:tsn.327aef9847e8

LUN ID	LUN Path	R/W Mode	SCSI Serial No.	SCSI ID	Transfer Mode	Mount LUN
1	/dev/sg0:0	write thru	4040404040404040	4040404040404040	thru	<a href="#">Mount</a>

Map new LUN to Target: "iqn.2006-01.com.openfiler:tsn.327aef9847e8"

Name	LUN Path	R/W Mode	SCSI Serial No.	SCSI ID	Transfer Mode	Map LUN
LUN1	/dev/sg0:0	<input type="text" value="write thru"/>	4040404040404040	4040404040404040	<input type="text" value="thru"/>	<a href="#">Map</a>

## Volumes section

- [Manage Volumes](#)
- [Volume Groups](#)
- [Unlock Devices](#)
- [Add Volume](#)
- [iSCSI Targets](#)
- [Software RAID](#)

## Support resources

- [Report bug](#)
- [Get support](#)
- [Forums](#)
- [Admin Guide](#)

ON RIGHT PANE CLICK ISCSI TARGETS

AFTER CLICKING ISCSI TARGETS, YOU WILL SEE:

CLICK MAP ON LUN1, YOU WILL, THEN, SEE:


openfiler 09:20:07 up 30 min, 0 users, load average: 0.00, 0.00, 0.00 Log Out | Status | Help | Settings

[Status](#)
[System](#)
[Volumes](#)
[Cluster](#)
[Quota](#)
[Shares](#)
[Services](#)
[Accounts](#)

[Target Configuration](#)
[LUN Mapping](#)
[Network ACL](#)
[CHAP Authentication](#)

LUNs mapped to target: iqn.2006-01.com.openfiler:tsn.327aef9817e8

LUN ID	LUN Path	R/W Mode	FCST Serial No.	FCST ID	Transfer Mode	Mapping LUN
0	/dev/vol0/p0	write thru	App11E-05VH-A020	App11E-05VH-A020	block o	<a href="#">map</a>
1	/dev/vol0/p1	write thru	App11E-05VH-A020	App11E-05VH-A020	block o	<a href="#">map</a>

 All available FCST LUNs for this target are listed.

[Report bug](#)
[Get support](#)
[Features](#)
[Admin Guide](#)

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now that we have the shared storage(the necessity of shared storage has been explained earlier), WE ARE NOW READY TO INSTALL SOLARIS.

TO DO THIS FIRST WE NEED TO DOWNLOAD IT.

GO TO [HTTP://WWW.ORACLE.COM](http://www.oracle.com):





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OR, GO TO:

<http://www.oracle.com/technetwork/server-storage/solaris11/downloads/index.html>



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### Oracle Solaris 11 Downloads

Oracle Solaris 11.4 is the latest release of the Solaris operating system. It includes new features, bug fixes, and performance improvements. Download the latest release now.

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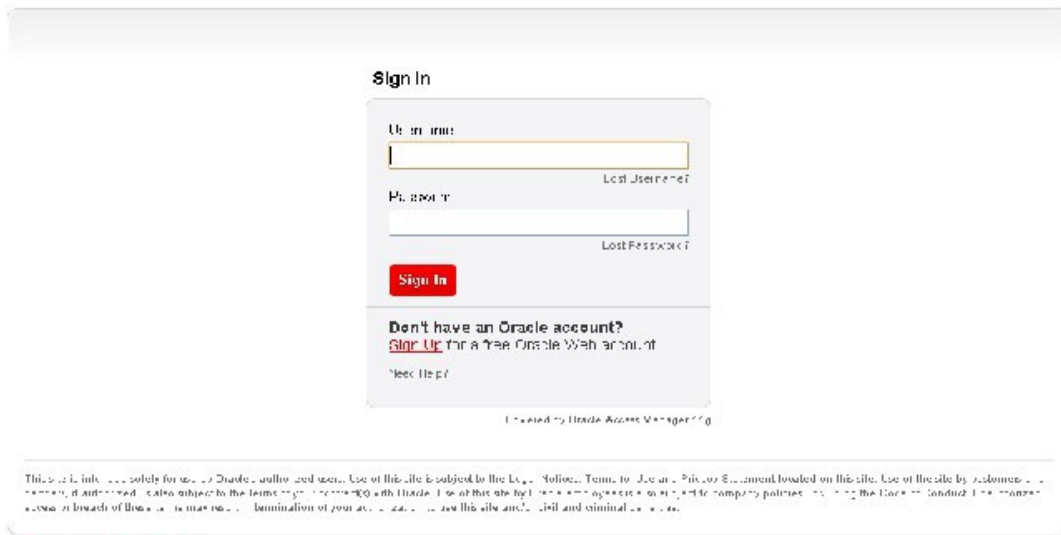
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PLEASE ACCEPT THE LICENSE AGREEMENT:  
WE WILL DOWNLOAD THIS:

CLICK ON DOWNLOAD ARROW

PLEASE REGISTER AND DOWNLOAD THE OPERATING SYSTEM.

AFTER YOU HAVE DOWNLOADED THE SOLARIS 11 X86 TEXT INSTALL SOFTWARE, WE NOW GO BACK TO OUR VIRTUALIZATION PLATFORM, WHICH IS, VMWARE WORKSTATION 10 AND INSTALL SOLARIS 11 THERE, THIS IS AGAIN AN IMPORTANT STEP AND IT IS GOOD IF YOU FOLLOW THE DIRECTIONS:



CLICK “CREATE NEW VIRTUAL MACHINE”

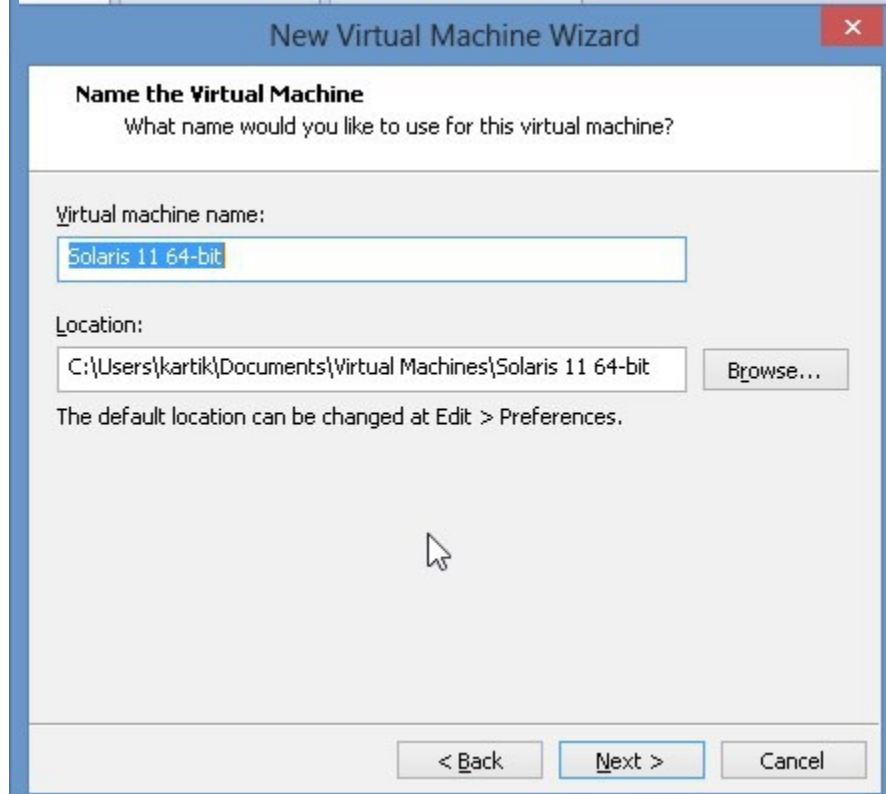




CHOOSE THE “TYPICAL” OPTION

CLICK NEXT

SELECT INSTALL DISC ISO IMAGE



BROWSE FOR THE SOLARIS 11 X86 ISO THAT YOU DOWNLOADED

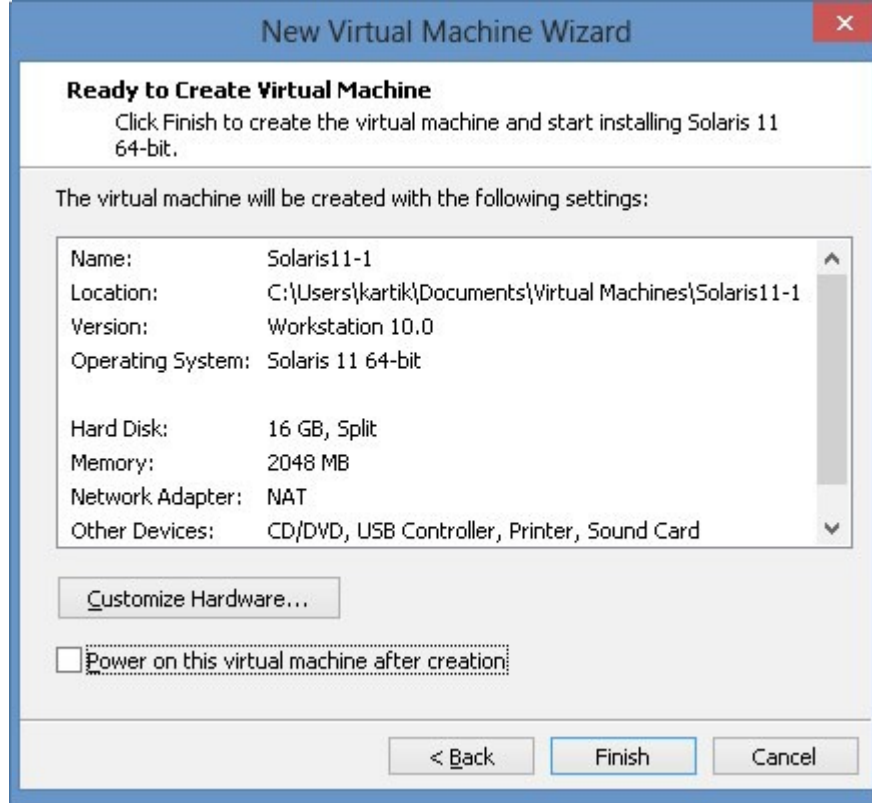
NOTE;VMWARE WORKSTATION AUTODETECTS SOLARIS 11 64 BIT, THIS IS BOTH GOOD AND BAD, IT IS BAD BECAUSE IT WILL TRY TO DO THINGS AUTOMATICALLY(WE WONT GET A CHANCE TO LEARN!!), SO, WE'LL FIX THAT SOON ENOUGH

CLICK NEXT



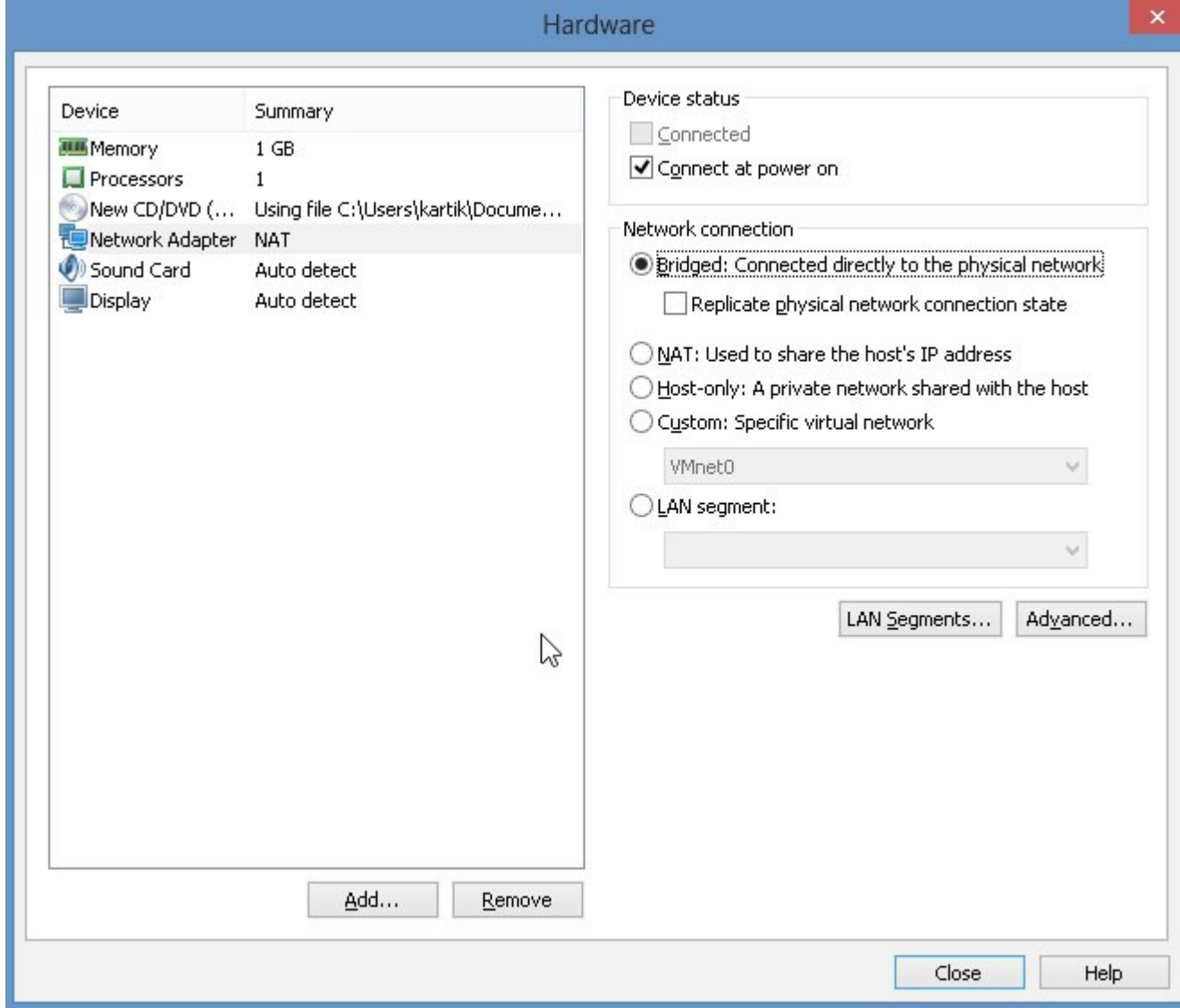
PLEASE CHANGE THE NAME OF THIS VIRTUAL MACHINE TO “SOLARIS11-1”

click next



CLICK NEXT

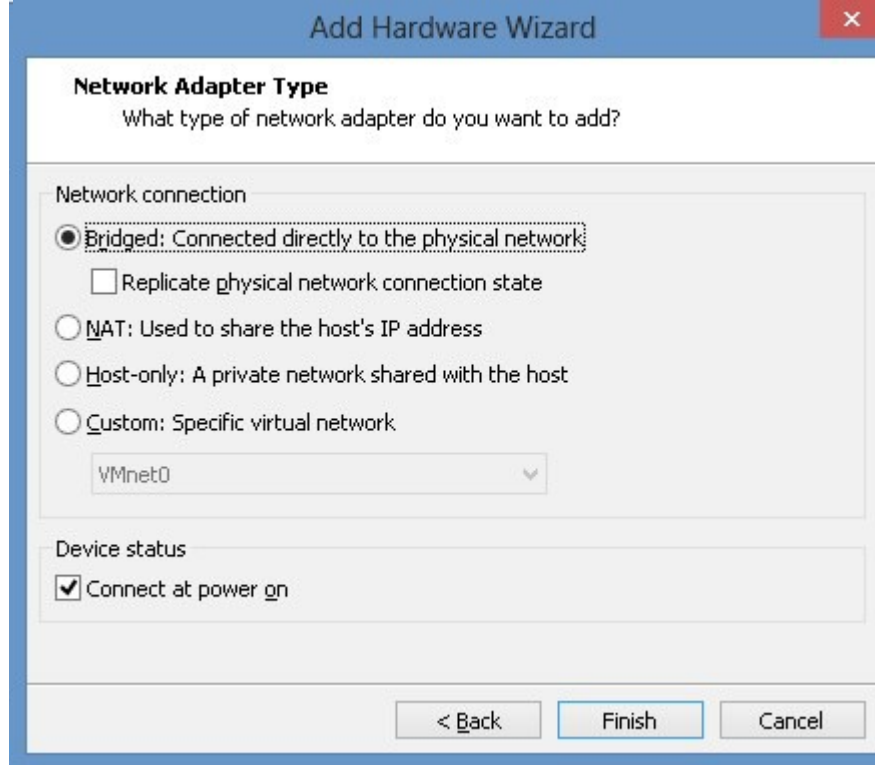
NOTE: POWER ON VIRTUAL MACHINE AFTER CREATION IS CHECKED, PLEASE UNCHECK IT:



CLICK ON “CUSTOMIZE HARDWARE”  
CHANGE MEMORY TO 1Gb  
CHANGE NETWORK ADAPTER TO BRIDGED

NOW, IF YOU REMEMBER WE NEED HEARTBEAT LINKS BETWEEN THE TWO NODES OF THE CLUSTER, SO, WE WILL ADD NETWORK ADAPTERS, WE NEED TWO MORE, SO, WE WILL ADD TWO NETWORK ADAPTERS, ONE AT A TIME:

CLICK ON “ADD” SELECT NETWORK ADAPTER



CLICK NEXT

NOTE: WE HAVE CHANGED THE NETWORK ADAPTER TO BRIDGED, CLICK FINISH.

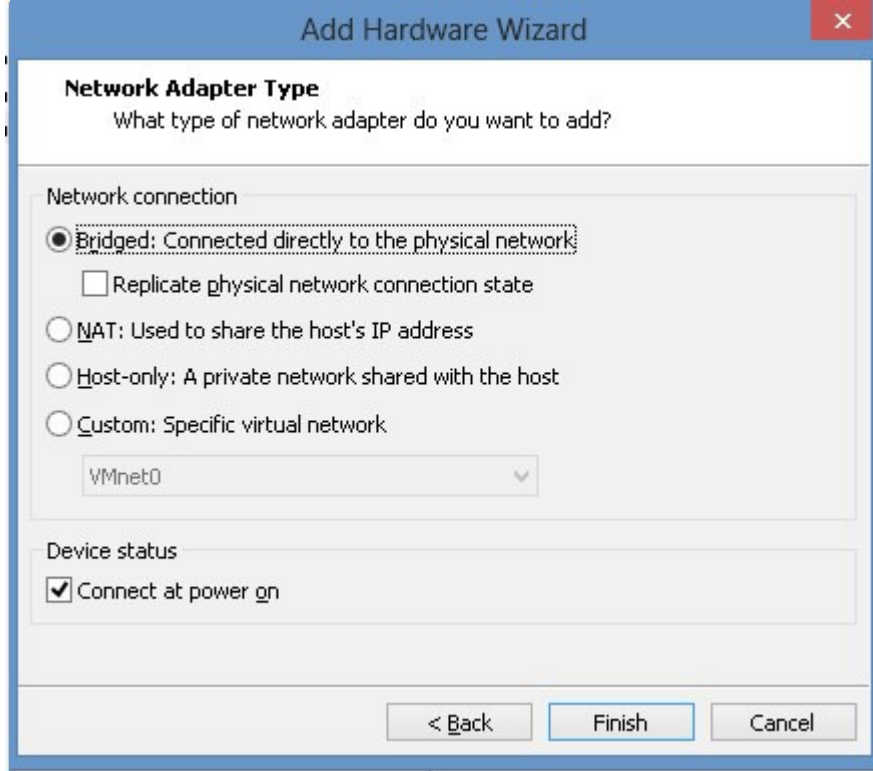




NOW WE HAVE TO ADD ANOTHER NETWORK ADAPTER, HERE ARE THE SCREENSHOTS:

SELECT NETWORK ADAPTER

CLICK NEXT



AGAIN NOTE DEFAULT IS “NAT”, WE NEED TO CHANGE IT TO “BRIDGED” AS BEFORE:

CLICK FINISH

# Hardware



Device	Summary
Memory	1 GB
Processors	1
New CD/DVD (...)	Using file C:\Users\kartik\Docume...
Network Adapt...	Bridged (Automatic)
Network Adapter	Bridged (Automatic)
Network Adapt...	Bridged (Automatic)
Sound Card	Auto detect
Display	Auto detect

Device status

Connected

Connect at power on

Network connection

Bridged: Connected directly to the physical network

Replicate physical network connection state

NAT: Used to share the host's IP address

Host-only: A private network shared with the host

Custom: Specific virtual network

VMnet0

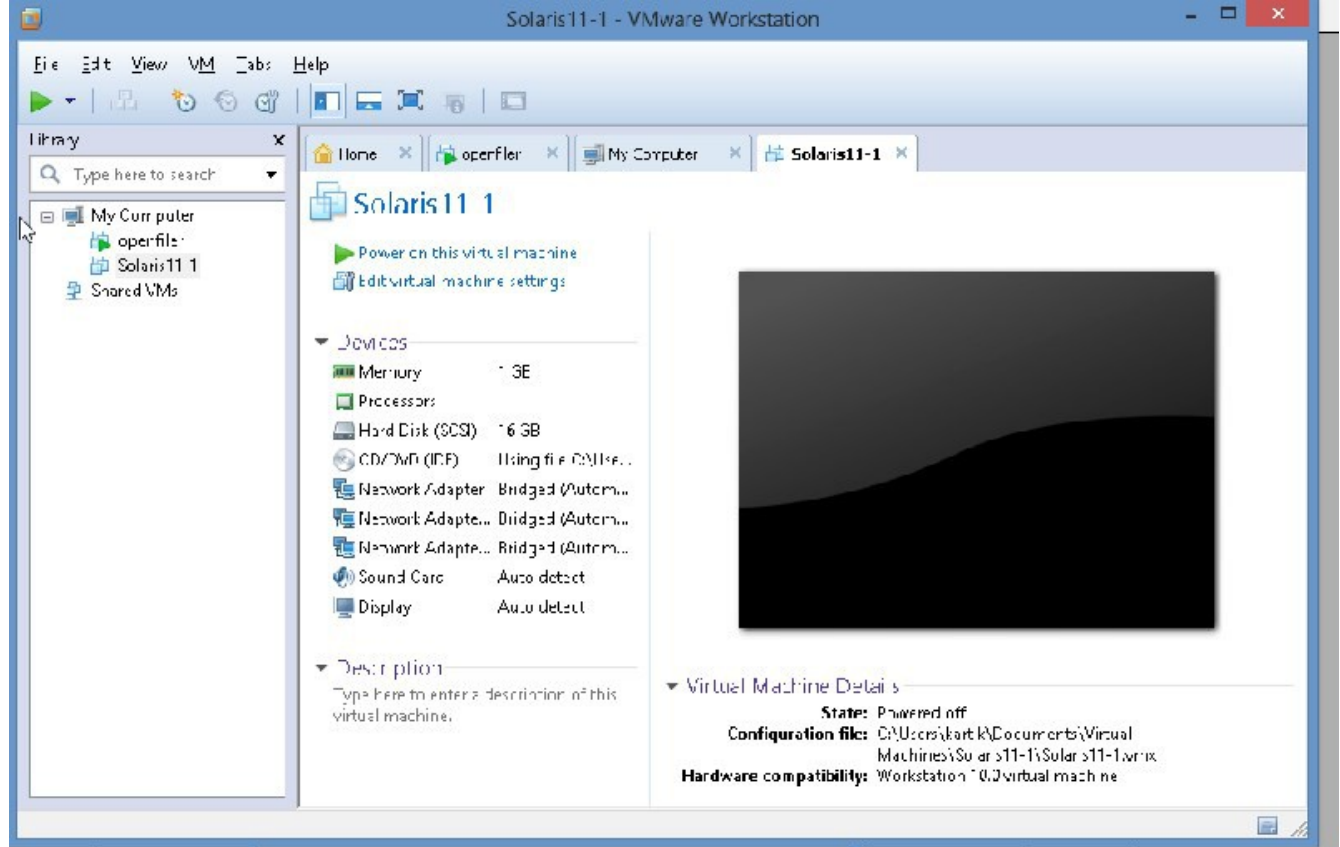
LAN segment:

LAN Segments... Advanced...

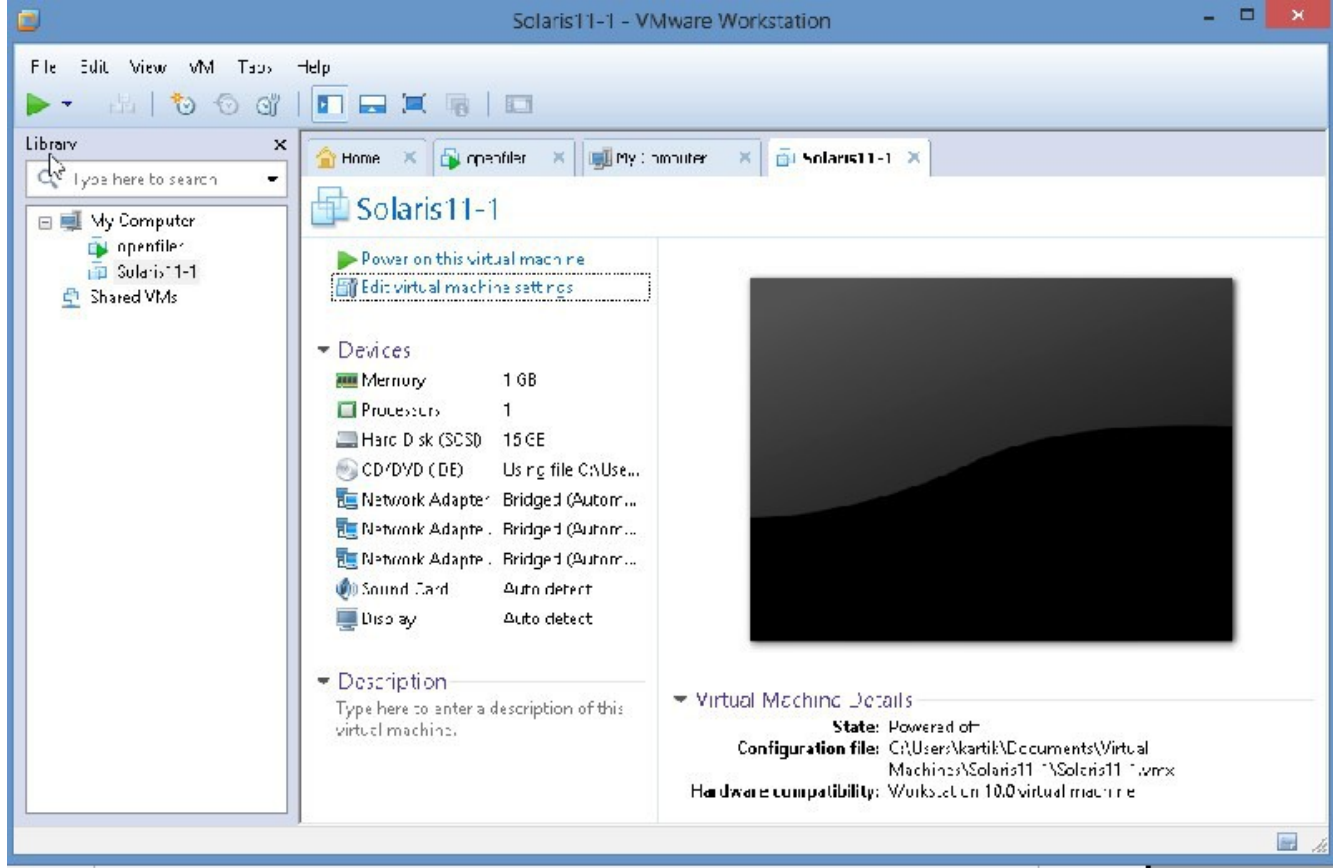
Add... Remove

Close Help

CLICK "CLOSE"



CLICK FINISH

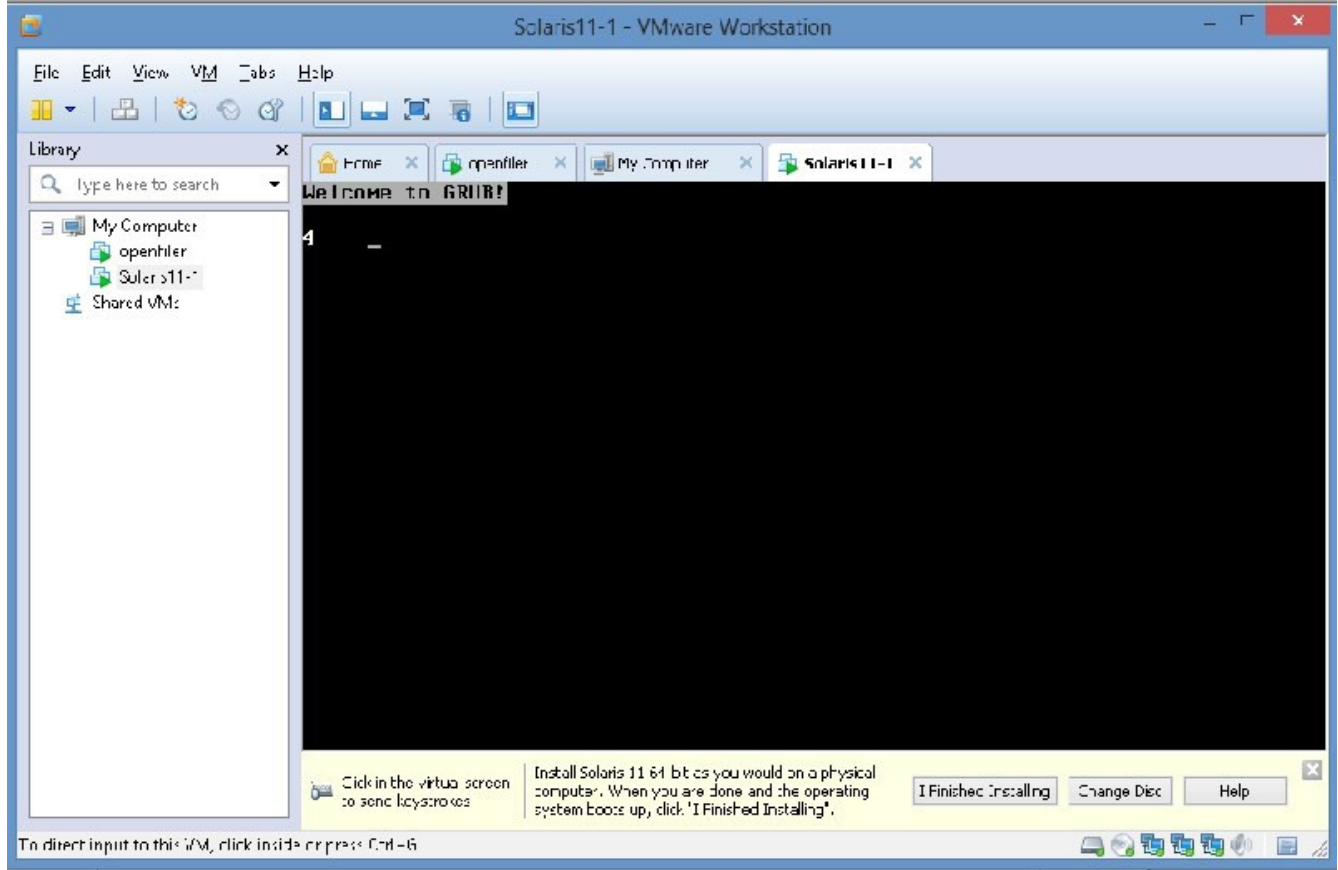


IN RIGHT PLANE CLICK “EDIT VIRTUAL MACHINE SETTINGS”

EVERYTHING LOOKS GREAT, HIT CANCEL

IN RIGHT PLANE, CLICK, POWERON THIS VIRTUAL MACHINE:





THEN YOU SEE:

- My Computer
  - usb-lun
  - Solaris11-1
  - Shared VMs

```
SunOS Release 5.11 Version 11.1 64-bit.  
Copyright (c) 1983, 2012, Oracle and/or its affiliates. All rights reserved.  
Remounting root: read/write  
Probing for device nodes ...  
█
```

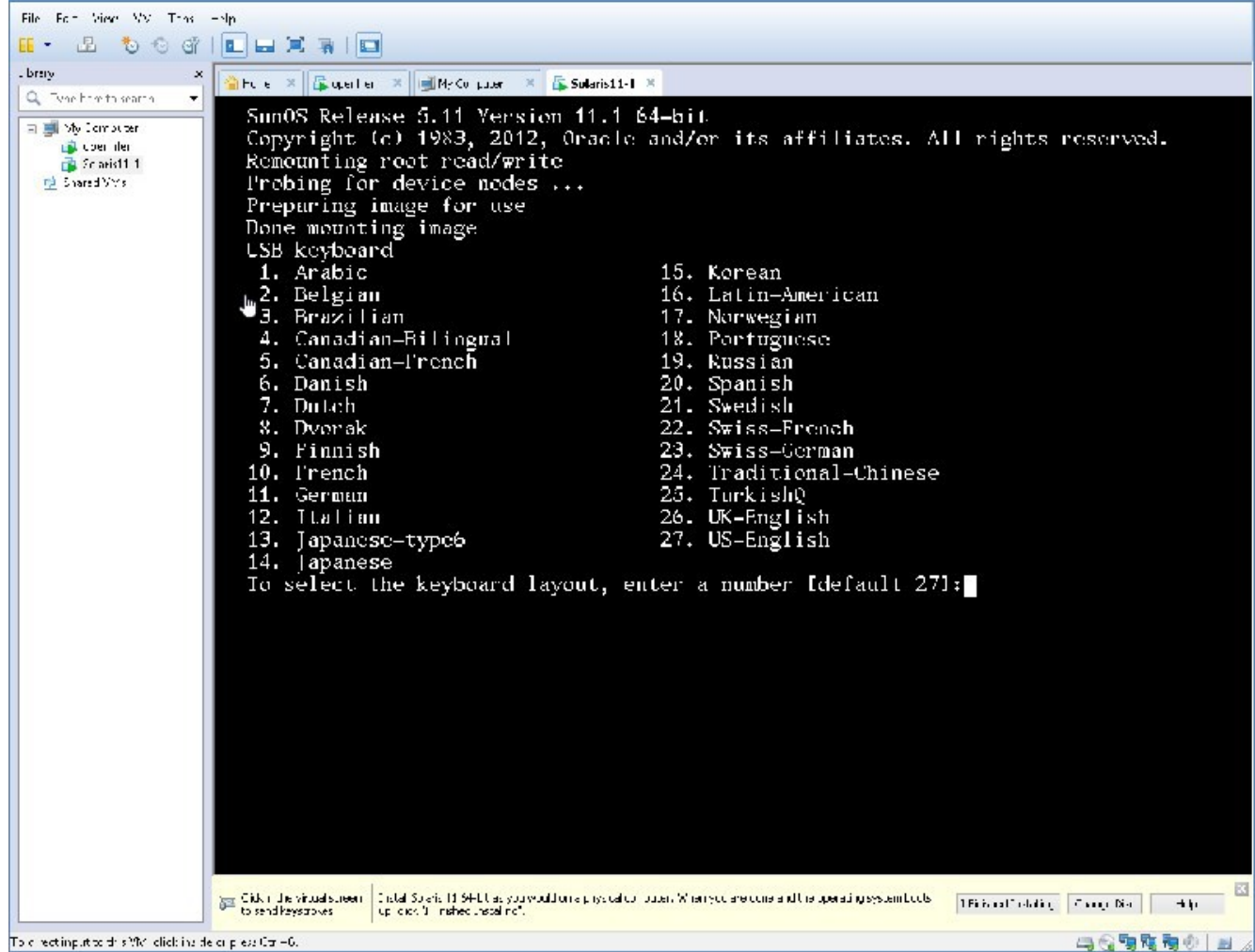
Click in the virtual screen to move the mouse. Press Solaris ... C=64-bit as you would on a physical computer. When you are done and the operating system boots up, click "Finish Installing".

Finished Installing Change Desc Help

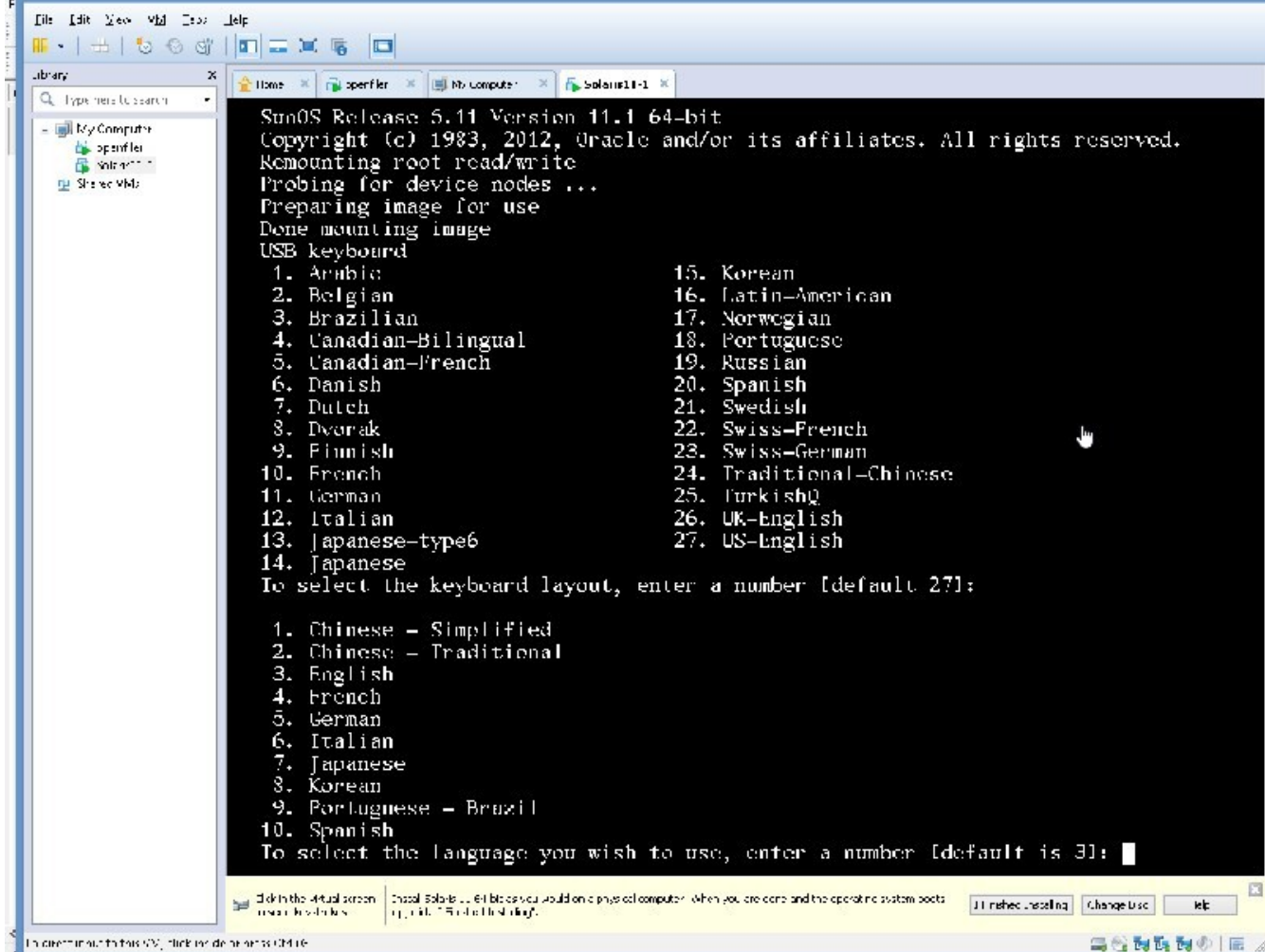
THEN



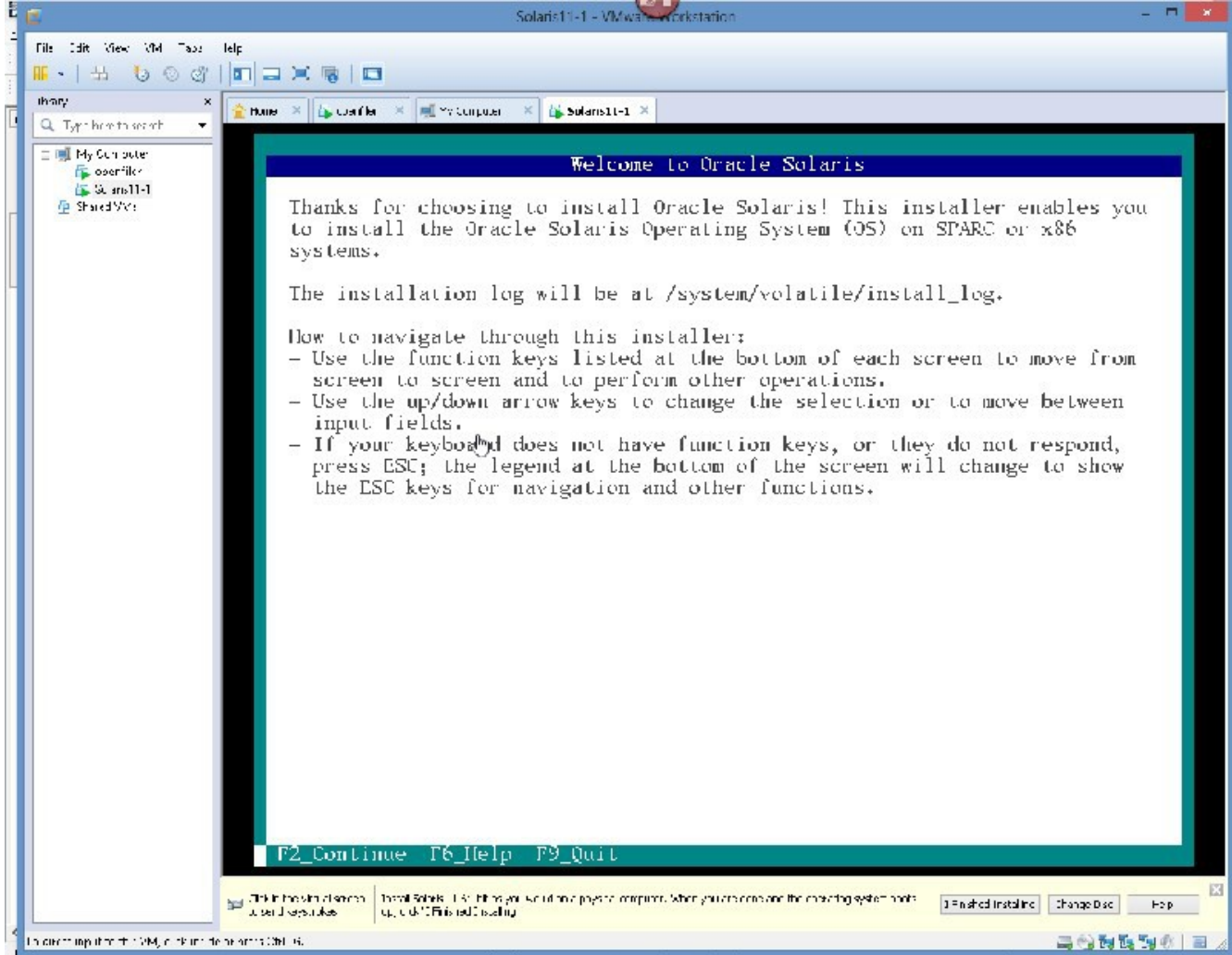




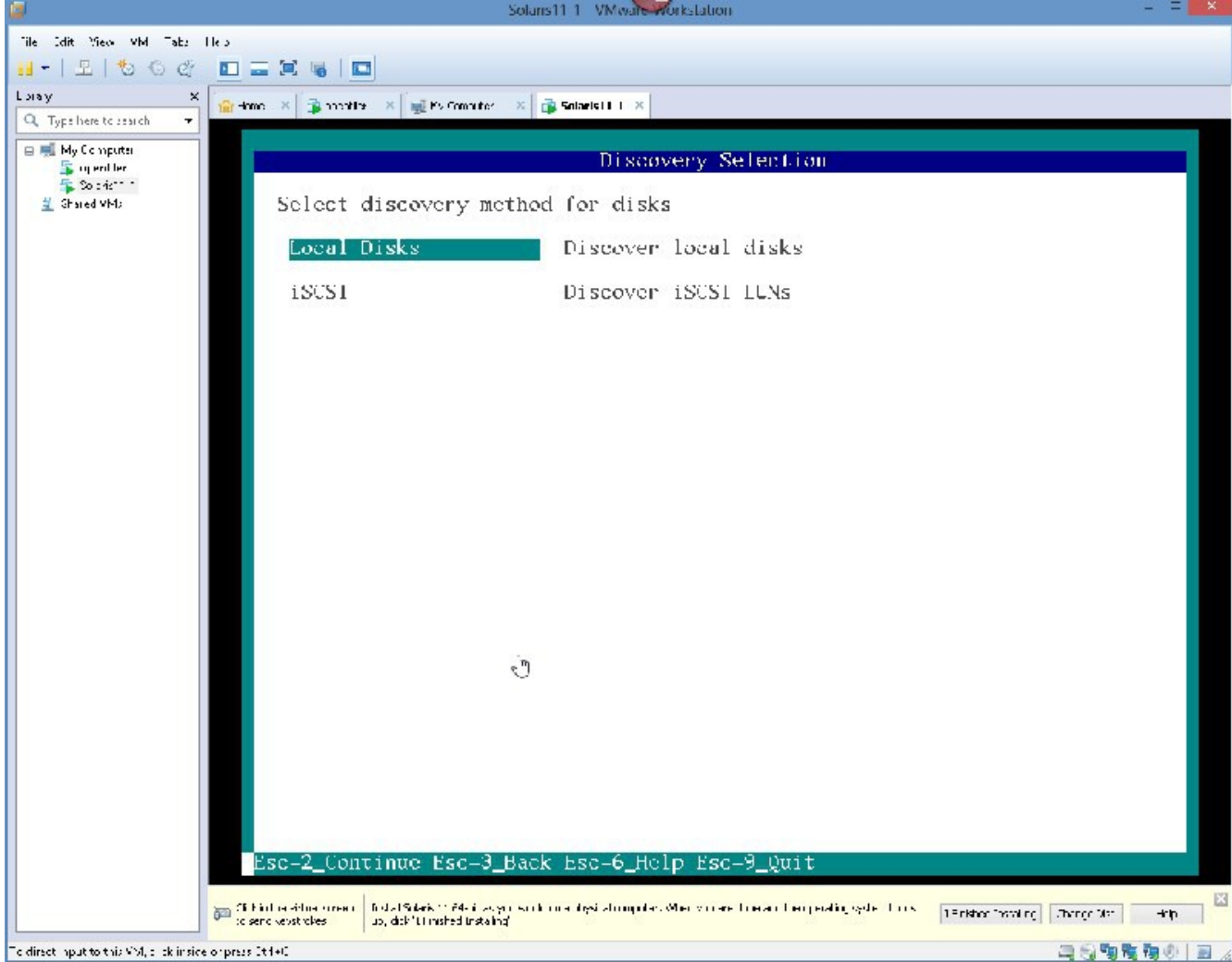
PLEASE ACCEPT DEFAULT







ACCEPT DEFAULT



PRESS THE COMBINATION “Esc 2”



- My Computer
- operfile
- Shared disk

### Disks

Where should Oracle Solaris be installed?  
 Minimum size: 2.9GB Recommended minimum: 4.9GB

Type	Size(GB)	Boot	Device
scsi	16.0	+	c3t0d0 VMware,

A GPT labeled disk was not found. The following is proposed.

Partition Type	Size(GB)	Partition Type	Size(GB)
BIOS Boot Part.	0.2	Unused	0.0
Solaris	15.7	Unused	0.0
Unused	0.0	Unused	0.0
Unused	0.0	Unused	0.0

1 more partitions

Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit

Click in the status screen to view boot logs. Install Solaris 11.3! If you work on a physical computer, when you are done and the operating system boots up, it will display "Welcome".

Uninstall Solaris Change Disc Help



GPT Partitions: 16.0GB sds1 Root

Oracle Solaris can be installed on the whole disk or a GPT partition on the disk.

The following GPT partitions were found on the disk.

Partition type	Size(GB)	Partition type	Size(GB)
BIOS Boot Part	0.2	Unused	0.0
Solaris	15.7	Unused	0.0
Unused	0.0	Unused	0.0
Unused	0.0	Unused	0.0

1 more partitions

**Use the entire disk**

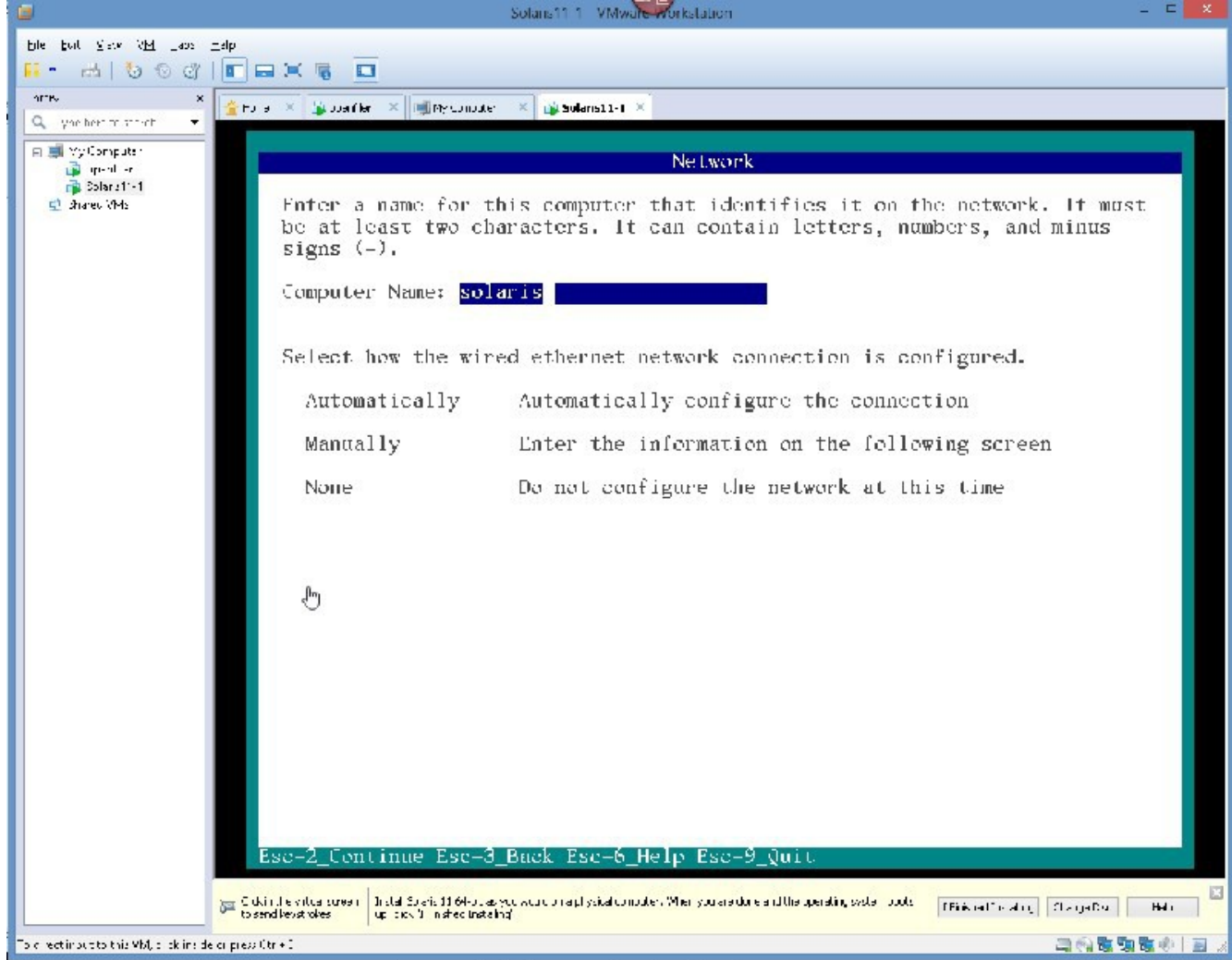
Use a GPT partition of the disk

Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit

Click in the Oracle screen to install Solaris 11.1 as you would on a physical computer. When you are done and the operating system boots up, click "Finish" at the bottom.

Finished Installing | Cancel | Help

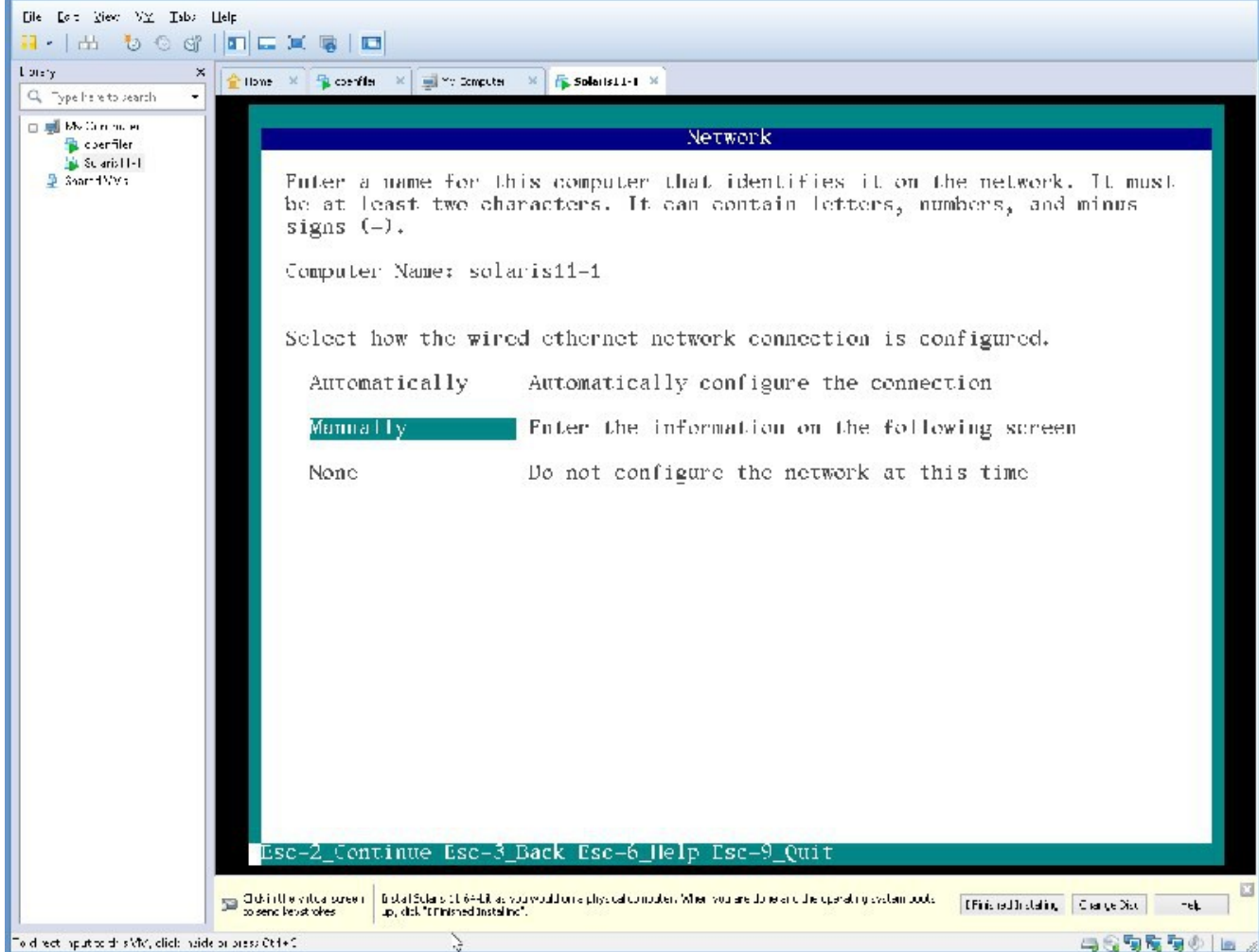




PRESS Esc 2



GIVE IT THE NAME solairs11-1, then, USING THE ARROW KEYS, GO DOWN TO “MANUALLY CONFIGURE THE NETWORK”



PRESS Esc 2 TO CONTINUE

The screenshot shows a VMware Workstation window titled "Solaris11-1 - VMware Workstation". The main display area is a terminal window titled "Manual Network Configuration". The terminal text reads: "Select the one wired network connection to be configured during installation", followed by a list of options: "net0 (e1000g0)", "net1 (pcn0)", and "net2 (pcn1)". The option "net0 (e1000g0)" is highlighted with a green selection bar. At the bottom of the terminal window, a status bar contains the text: "Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit". Below the terminal window, there are three buttons: "Finished Installing", "Change Disk", and "Help". At the very bottom of the VMware window, there is a yellow informational bar with text: "Click the data source to see details." and "Install Solaris 11.1 on a physical computer. After you are done with the operating system, look at the links for details." To the left of the terminal window, there is a "Library" pane with a search bar and a tree view showing "My Computers" and "Shared VMs".



- My Computer
- Network
- Scenic11
- Share1234

### Manually Configure: net0

Enter the configuration for this network connection. All entries must contain four sets of numbers, 0 to 255, separated by periods.

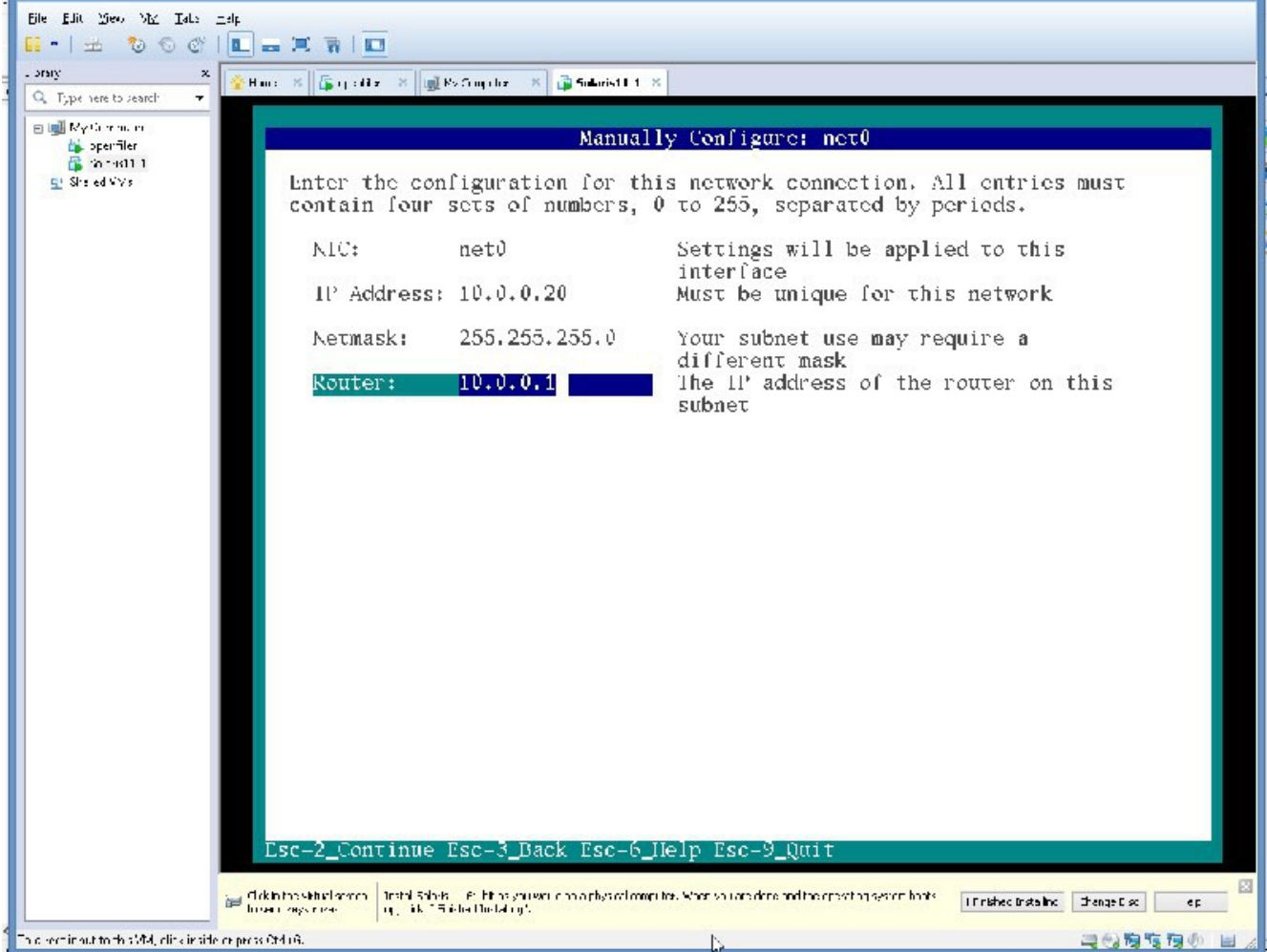
NIC:	net0	Settings will be applied to this interface
IP Address:		Must be unique for this network
Netmask:	255.255.255.0	Your subnet use may require a different mask
Router:		The IP address of the router on this subnet

Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit

Click in the virtual screen. Use all keyboard. Press Solaris ... if it is you work on a physical computer. When you are done and the operating system boots you will see the following

Finished installing Change Disc Help

GIVE IT AN IP ADDRESS IN YOUR SUBNET, I AM GONNA TRY 10.0.0.20, AND YOU SHOULD HAVE ROUTER INFORMATION, IN MY CASE IT IS 10.0.0.1







- My Computer
  - operfiles
  - Settings
  - Start Menu

### DNS Name Service

Indicates whether or not the system should use the DNS name service.

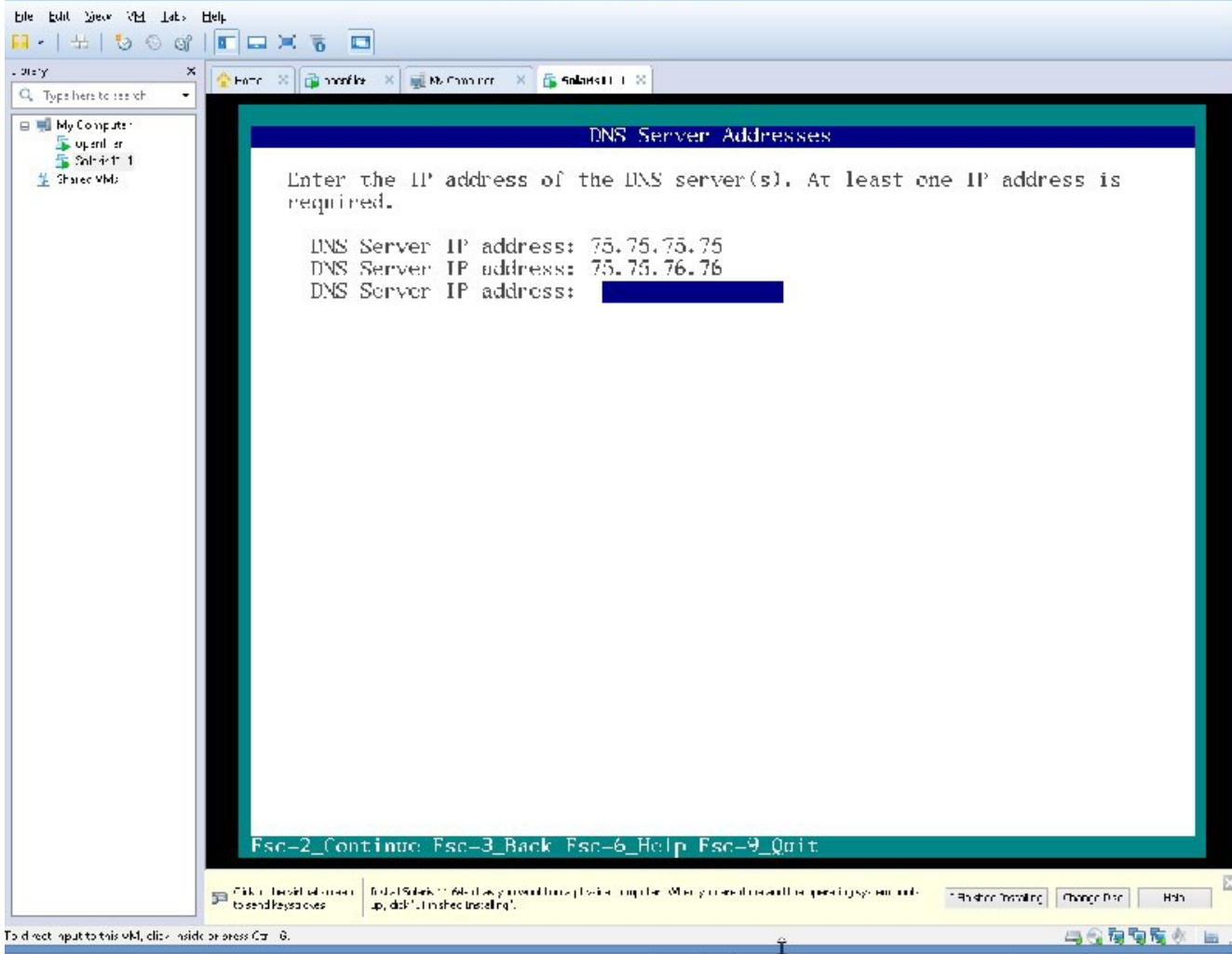
**Configure DNS**  
Do not configure DNS

Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit

Click in the virtual console to send keystrokes. Press Shift+F10 to open a context menu. After you have finished the operation with the console, click "Finish" to return to the host.

Finished Installing | Configure | Help







### DNS Search List

Enter a list of domains to be searched when a DNS query is made. If no domain is entered, only the DNS domain chosen for this system will be searched.

Search domain: hsd1.il.comcast.net.  
Search domain: \_\_\_\_\_  
Search domain: \_\_\_\_\_  
Search domain: \_\_\_\_\_  
Search domain: \_\_\_\_\_  
Search domain: \_\_\_\_\_

Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit



Library

Type here to search

My Computer

- openfire
- Solaris11-1
- Share with

### Alternate Name Service

From the list below, select one name service to be used by this system. If the desired name service is not listed, select None. The selected name service may be used in conjunction with DNS.

- None
- LDAP
- NIS

cr

Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit

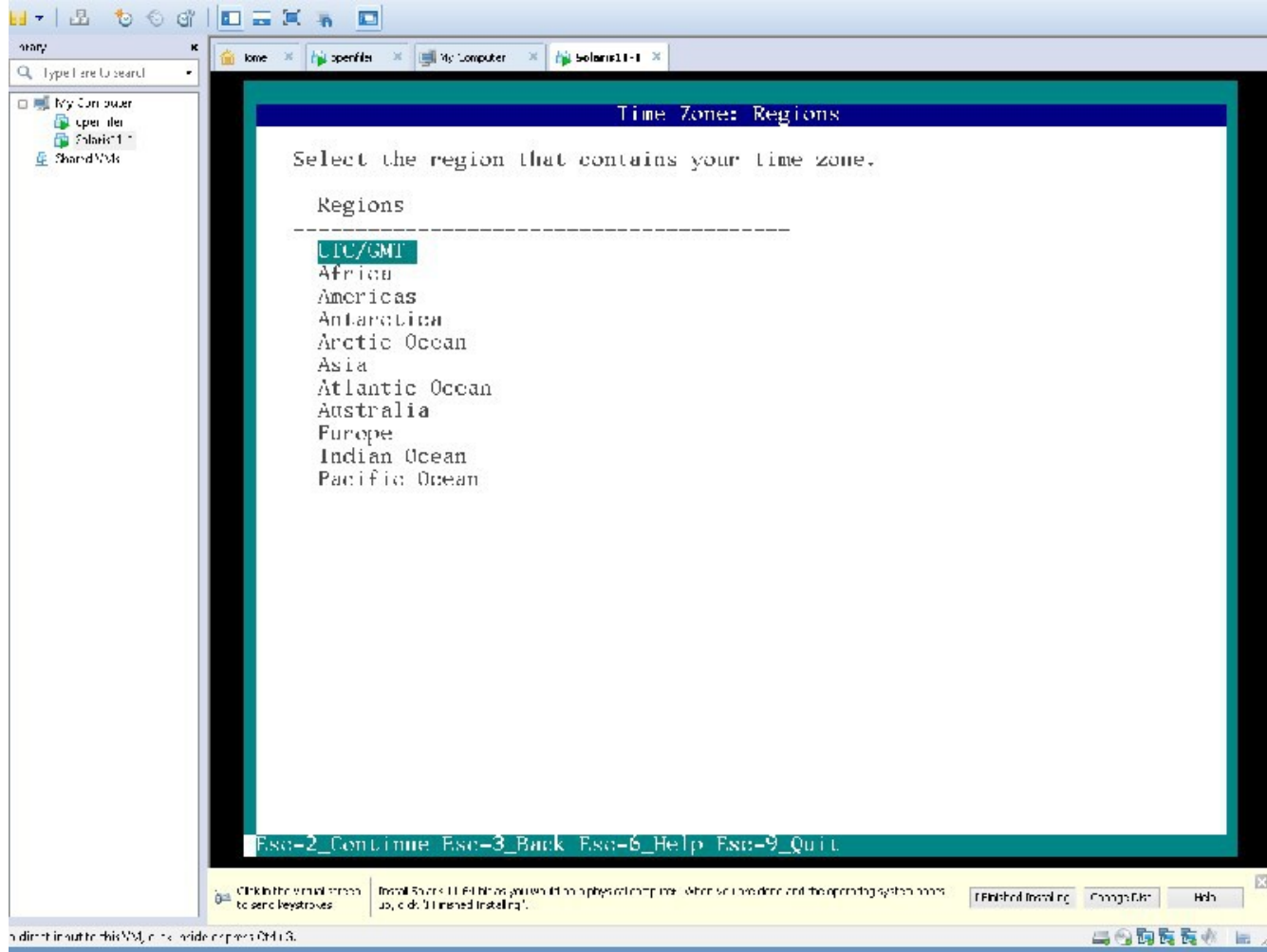
Click on the status bar to send feedback

Build 544613: 64-bit, as you see it on a physical computer. While you are here, read the operating system logs.

Finish Installing Cancel Help







Set the Time Zone, I am in Chicago, so I will choose US Central

- My Computer
- coerfile
- Solaris 11-1
- Saved VMs

### Time Zone: Regions

Select the region that contains your time zone.

Regions

---

- LTC/GMT
- Africa
- Americas**
- Antarctica
- Arctic Ocean
- Asia
- Atlantic Ocean
- Australia
- Europe
- Indian Ocean
- Pacific Ocean

Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit

Click in the virtual console to send keystrokes to the guest Solaris 11-1 (as you would on a physical computer). When you are done, the console passes back to the host. [Refresh] [Close] [Help]



File Edit View My Tabs Help

Home x Server x Desktop x Solaris 1.1 x

Type file to search

- My Computer
- server
- Solaris 1.1
- Search

**Time Zone: Locations**

Select the location that contains your time zone.

Locations

---

- ^ Jamaica
- | Martinique
- | Mexico
- | Montserrat
- | Nicaragua
- | Panama
- | Paraguay
- | Peru
- | Puerto Rico
- | Sint Maarten
- | St. Bartholomy
- | St. Kitts & Nevis
- | St. Lucia
- | St. Martin (French part)
- | St. Pierre & Miquelon
- | St. Vincent
- | Suriname
- | Trinidad & Tobago
- | Turks & Caicos Is
- | **United States**
- | Uruguay
- | Venezuela
- | Virgin Islands (UK)
- Virgin Islands (US)

Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit

Click in the virtual screen to bring it to the foreground.

Install Solaris 1.1.04-01 as you would on a physical computer. When you are done and the operating system boots up, call the `date` command.

Unboxed Installation Change Desc Help

VMware Workstation 4.5.2 build-120266



**Time Zone**

Select your time zone.

Time Zones

---

- Eastern Time
  - | Eastern Time - Michigan - most locations
  - | Eastern time - Kentucky - Louisville area
  - | Eastern Time - Kentucky - Wayne County
  - | Eastern Time - Indiana - most locations
  - | Eastern time - Indiana - Daviess, Dubois, Knox & Martin Counties
  - | Eastern time - Indiana - Pulaski County
  - | Eastern Time - Indiana - Crawford County
  - | Eastern Time - Indiana - Pike County
  - | Eastern time - Indiana - Switzerland County
  - Central Time**
  - | Central Time - Indiana - Perry County
  - | Central time - Indiana - Starke County
  - | Central Time - Michigan - Dickinson, Gogebic, Iron & Menominee Counti
  - | Central Time - North Dakota - Oliver County
  - | Central Time - North Dakota - Morton County (except Mandan area)
  - | Central time - North Dakota - Mercer County
  - | Mountain Time
  - | Mountain Time - south Idaho & east Oregon
  - | Mountain time - Navajo
  - | Mountain Standard Time - Arizona
  - | Pacific Time
  - | Alaska Time
  - | Alaska Time - Alaska panhandle

Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit



File Edit View VM Help

Home operf er My Computer Solaris11-1

type here to search

My Computer  
operf er  
Solaris11-1

### Date and Time

Edit the date and time as necessary.  
The time is in 24 hour format.

Year: 2013 (YYYY)  
Month: 11 (1-12)  
Day: 09 (1-30)  
Hour: 06 (0-23)  
Minute: 56 (0-59)

Lsc-2\_Continue Lsc-3\_Back Lsc-6\_Help Lsc-9\_Quit

Click in the console screen to send keystrokes. Install Solaris 11.0-6 as you would on a physical computer. When you are done and the operating system boots up, click Finish installing.

Installing Change Back



### Users

Define a root password for the system and user account for yourself.

System Root Password

Root password: ██████████  
Confirm password: ██████████

Create a user account

Your real name:  
Username:  
User password:  
Confirm password:

Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit

Library

Type name to search

- My Computer
  - operfler
  - Shared disks

### LSOF5

Define a root password for the system and user account for yourself.

System Root Password

Root password: \*\*\*\*

Confirm password: \*\*\*\*

Create a user account.

Your real name: Kartik Vashishta

Username: kartik

User password: \*\*\*\*

Confirm password: \*\*\*\*

Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit

Click the mouse screen to send keystrokes

Install Solaris 11.5-11 as your root for a physical computer. When you are done with the operating system installation, del. "Finished installing"

Finished installing | Change Disk | Help



File Edit View VM Help

Home openfile My Computer Solaris11-1

Search: Type here to search

My Computer  
openfile  
Solaris11-1  
Shared VMs

### Support - Registration

Provide your email address to be informed of security issues, install the product and initiate configuration manager.

Please see <http://www.oracle.com/goto/solarisautoreg> for details.

Email:

Easier for you if you use your My Oracle Support email address/username.

Please enter your password if you wish to receive security updates via My Oracle Support.

My Oracle Support password:

Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit

Click in the virtual screen as usual here.  
Install Solaris 11. Update as you would on a physical computer. When you are done and the operating system boots up, it will finish installing.

Finished Installing Change Disc Help

Connect input to this VM. Connect to address VM-3.



**Support - Network Configuration**

To improve products and services, Oracle Solaris relays configuration data to the Oracle support organization.

Select an internet access method for OCM and ASR.

- No proxy** Use system internet connection parameters
- Proxy Enter proxy information on the next screen
- Aggregation Hubs Enter hubs information on the next screen

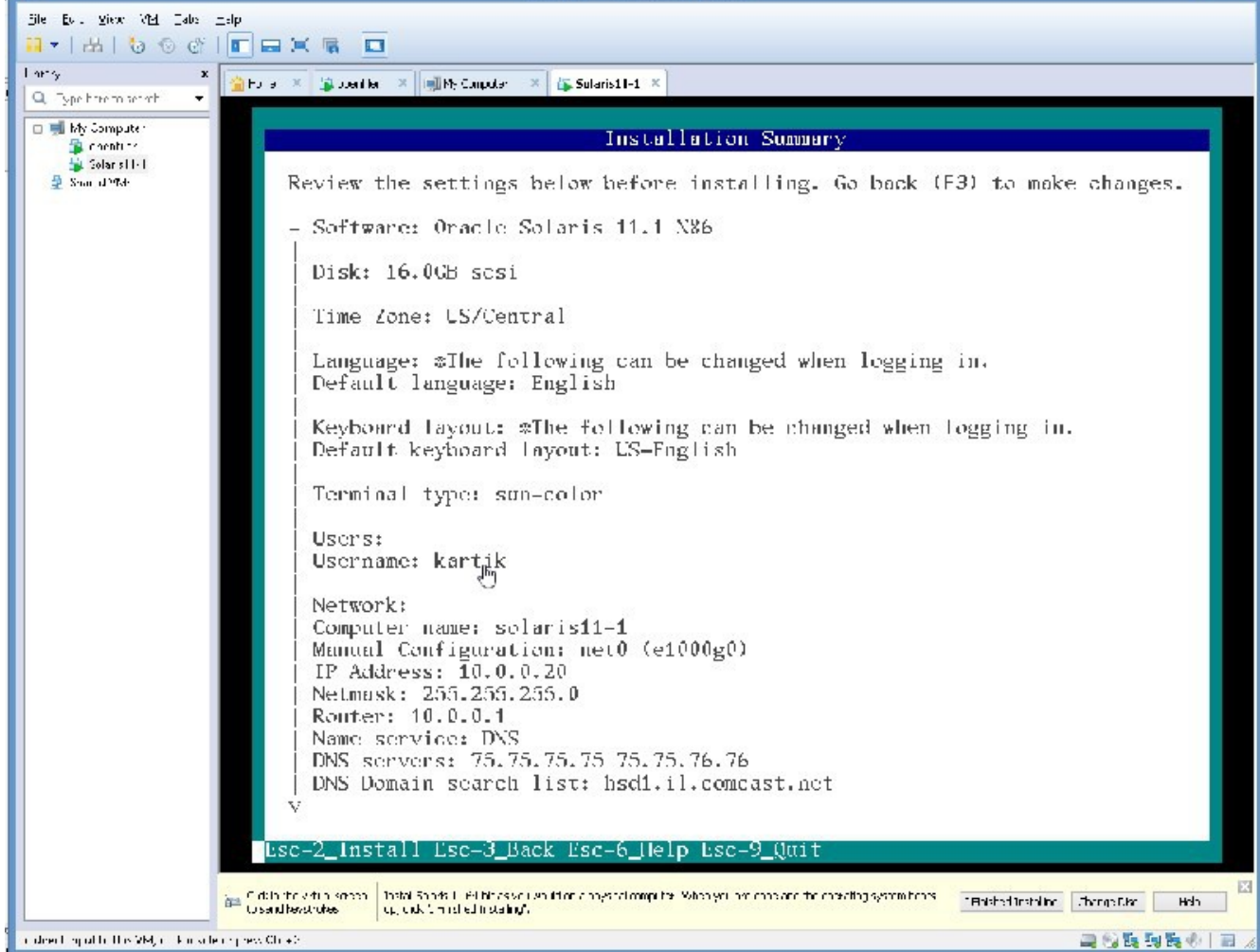
Esc-2\_Continue Esc-3\_Back Esc-6\_Help Esc-9\_Quit

End of installation Change Help

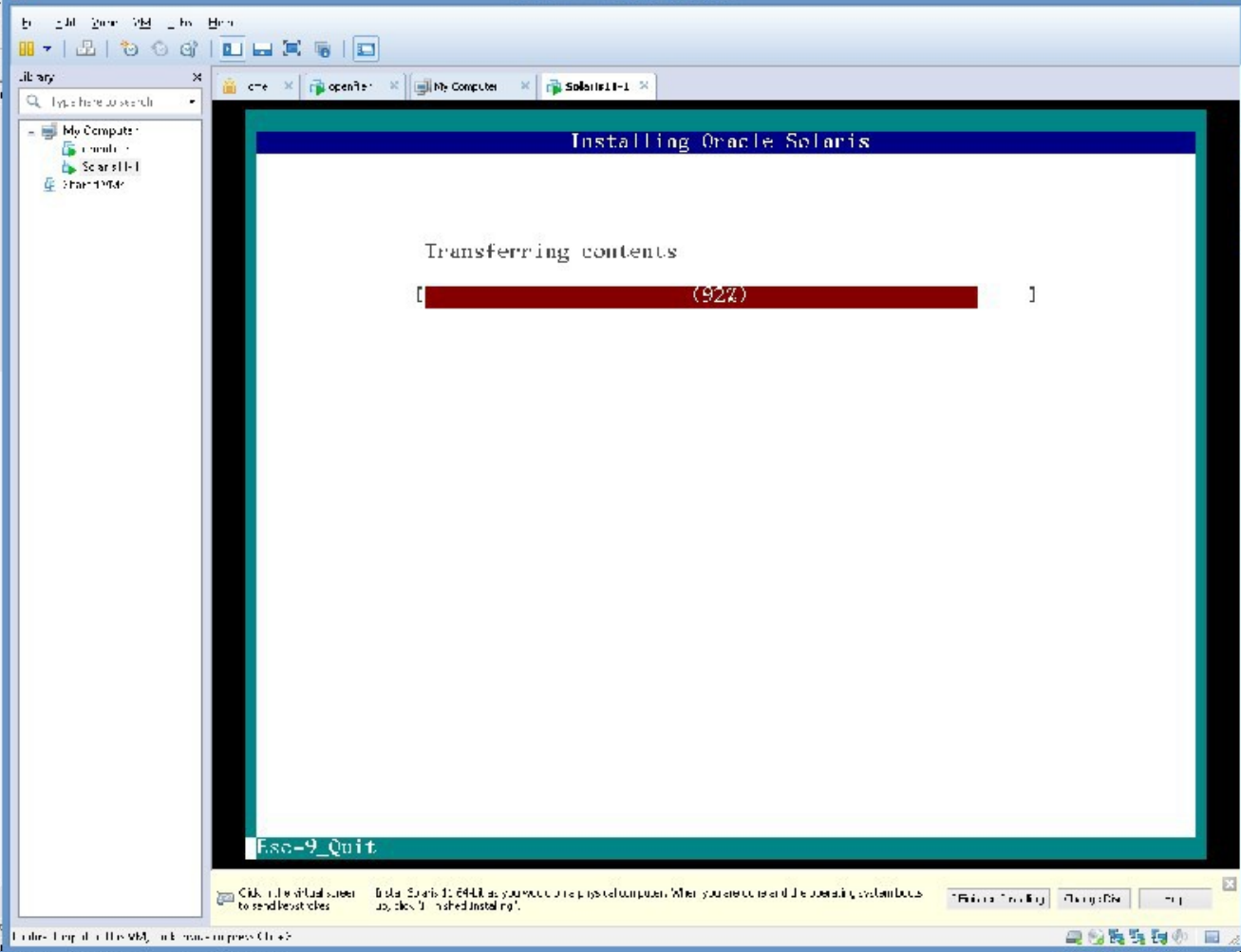
To direct input to this VM, click inside the window. Ctrl+G.











after a very short while:

- My Computer
- Server
- Solaris11-1
- Server VMs

### Installation Complete

The installation of Oracle Solaris has completed successfully.

Reboot to start the newly installed software or Quit if you wish to perform additional tasks before rebooting.

The installation log is available at /system/volatile/install\_log. After reboot it can be found at /var/log/install/install\_log.

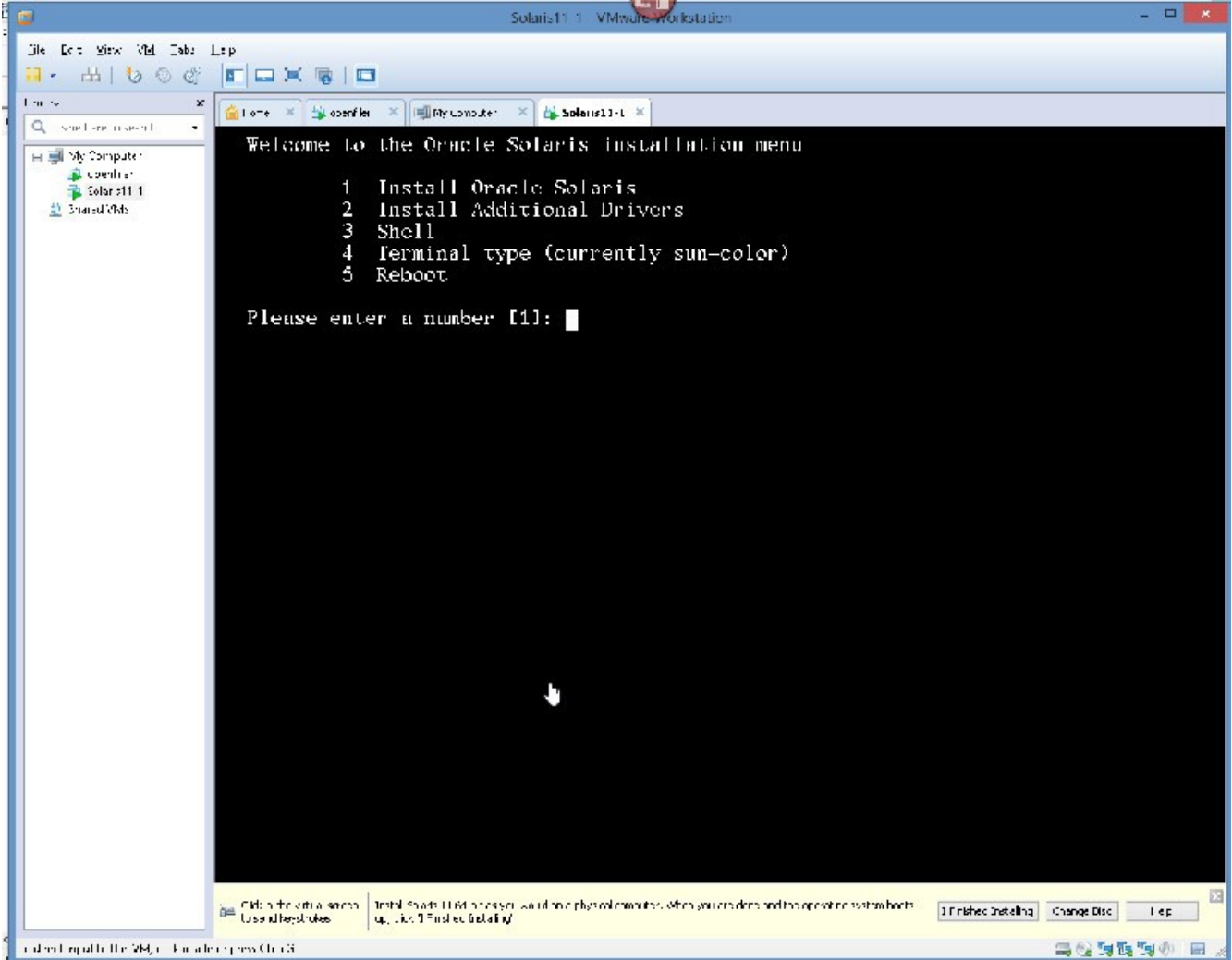
Esc-4\_View Log Esc-8\_Reboot Esc-9\_Quit

Click in the virtual screen to enter keystrokes. Press Ctrl+Alt to release the mouse. Press Ctrl+Alt+P to toggle full screen. Press Ctrl+Alt+T to toggle terminal. Press Ctrl+Alt+F1 to toggle floating. Press Ctrl+Alt+F2 to toggle fullscreen. Press Ctrl+Alt+F3 to toggle windowed. Press Ctrl+Alt+F4 to toggle maximize. Press Ctrl+Alt+F5 to toggle restore down. Press Ctrl+Alt+F6 to toggle close. Press Ctrl+Alt+F7 to toggle quit. Press Ctrl+Alt+F8 to toggle help. Press Ctrl+Alt+F9 to toggle about. Press Ctrl+Alt+F10 to toggle settings. Press Ctrl+Alt+F11 to toggle preferences. Press Ctrl+Alt+F12 to toggle help.

Finished installing Change User Help

Esc 8

NOTE – YOU MIGHT HAVE TO HIT ENTER INSIDE THE BOX AND THEN PRESS Esc 8





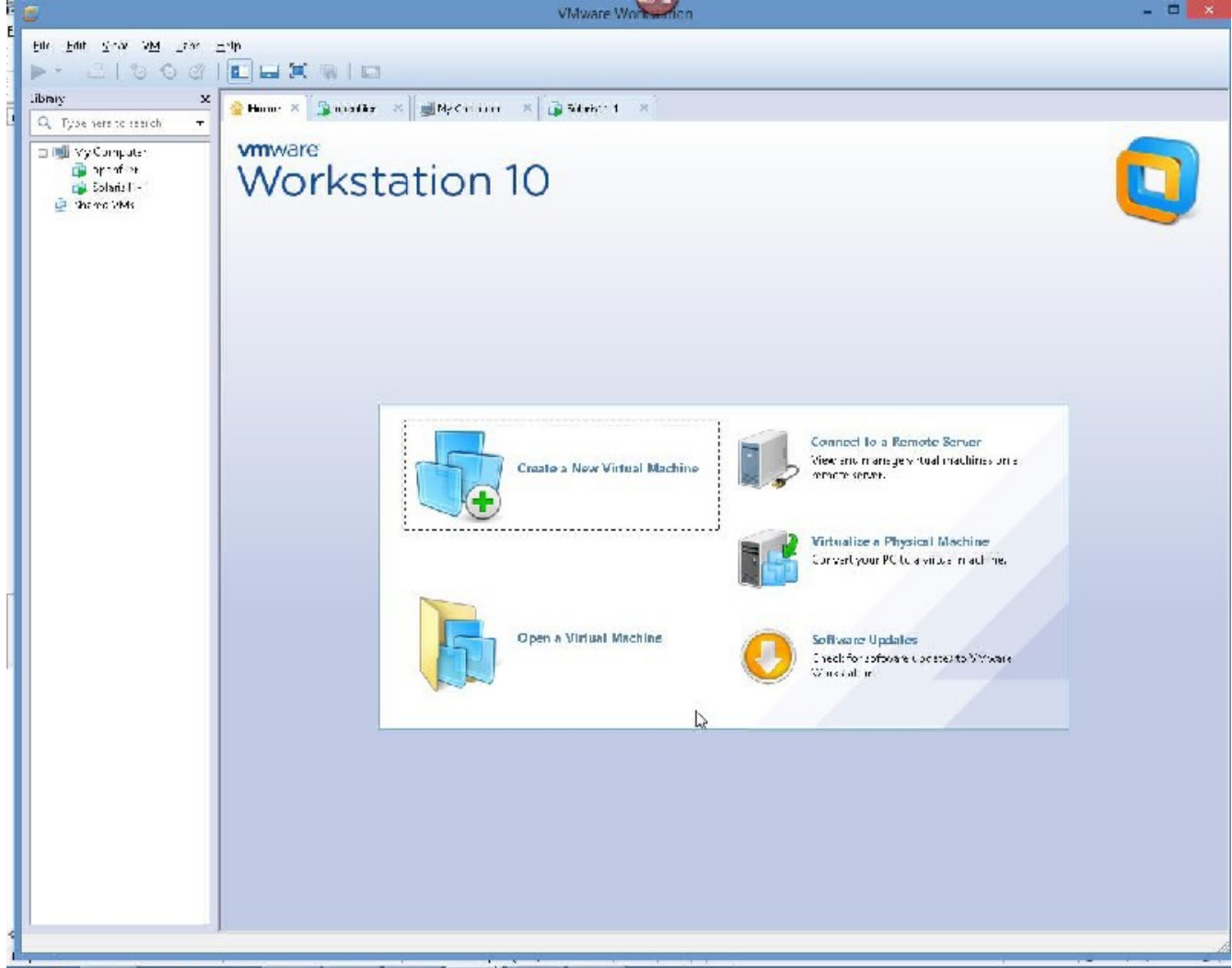
please choose option 5



CONGRATULATIONS YOU JUST INSTALLED SOLARIS 11

CLICK "I FINISHED INSTALLING"

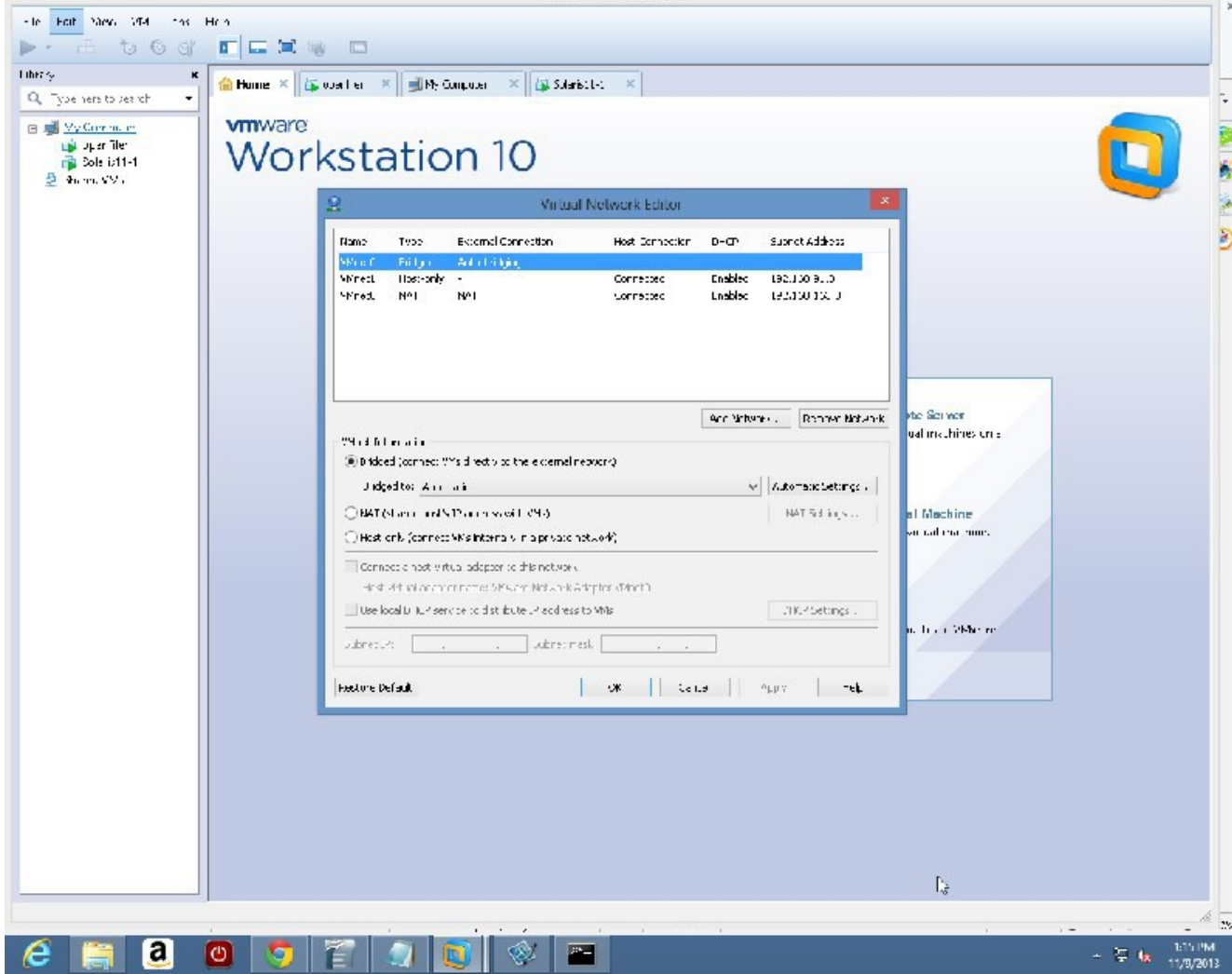
TEST FOR NETWORK



WE NEED TO MAKE ONE CHANGE IN VMWARE WORKSTATION 10

SO GO TO YOUR VMWARE WORKSTATAION 10

SELECT EDIT – VIRTUAL NETWORK EDITOR



PLEASE CHANGE THE AUTOMATIC TO WHATEVER YOU HAVE FROM THE DROP  
DOWN(AVOID WIRELESS)

My Computer

- My Computer
- My Recent Places
- My Computer
- My Recent Places
- My Computer
- My Recent Places

# vmware Workstation 10



### Virtual Network Editor

Name	Type	Status	Connected to	Host Connection	IP	Subnet Address
VMnet0	Bridged	Intel(R) 825790 Gigabit Net...				
VMnet1	Host-only		Connected	VMnet1	192.168.255.0	
VMnet8	NAT	NAT	Connected	VMnet8	192.168.165.0	

All Networks...  Feature Networks...

**VMnet Information**  
 Bridged (connects VMs directly to the external network)  
 Bridged to:    
 NAT (connects VMs to the Internet via NAT)  
 Host-only (connects VMs privately to each other on the host)  
 Connect a host virtual adapter to this network  
 Use local DHCP service to distribute IP addresses to VMs

Subnet IP:  Subnet mask:

File Server  
Use machines on a

Virtual Machine  
Virtual Machine

Virtual Machine  
Virtual Machine

Virtual Machine  
Virtual Machine



APPLY – OK

NOW WE NEED TO CREATE THE SECONDNODE OF THE CLUSTER, AND WE CAN START ALL OVER AGAIN AND DO THAT, AND I RECOMMEND YOU DO THAT.

OR

WE CAN CLONE THIS SOLARIS VM. TO DO SO WE FOLLOW THESE STEPS:

File Edit View Help Tools Help

Home | oosfile | My Computer | Solaris11-1

```

Loading smf(5) service descriptions: 199/199
Configuring devices.
Hostname: solaris11-1
Nov  9 13:07:25 solaris11-1 sendmail[1168]: My unqualified host name (solaris11-1)
unknown; sleeping for retry
Nov  9 13:07:25 solaris11-1 sendmail[1168]: My unqualified host name (solaris11-1)
unknown; sleeping for retry

solaris11-1 console login: root
Password:
Roles can not login directly
Login incorrect
Nov  9 13:07:36 solaris11-1 login: login account failure: Permission denied

solaris11-1 console login: kartik
Password:
Oracle Corporation      SunOS 5.11      11.1      September 2012
kartik@solaris11-1:~$ Nov  9 13:08:25 solaris11-1 sendmail[1168]: unable to qual
ify my own domain name (solaris11-1) -- using short name
Nov  9 13:08:25 solaris11-1 sendmail[1168]: unable to qualify my own domain name
(solaris11-1) -- using short name

kartik@solaris11-1:~$ ping yahoo.com
yahoo.com is alive
kartik@solaris11-1:~$ su -
Password:
Nov  9 13:15:30 solaris11-1 su: 'su root' succeeded for kartik on /dev/console
Oracle Corporation      SunOS 5.11      11.1      September 2012
root@solaris11-1:~# dladm show-link
LINK          CLASS      MTU      STATE    OVER
net1          phys      1500     unknown --
net0          phys      1500     up       --
net2          phys      1500     unknown --
root@solaris11-1:~#

```

Click in the virtual screen to send keystrokes

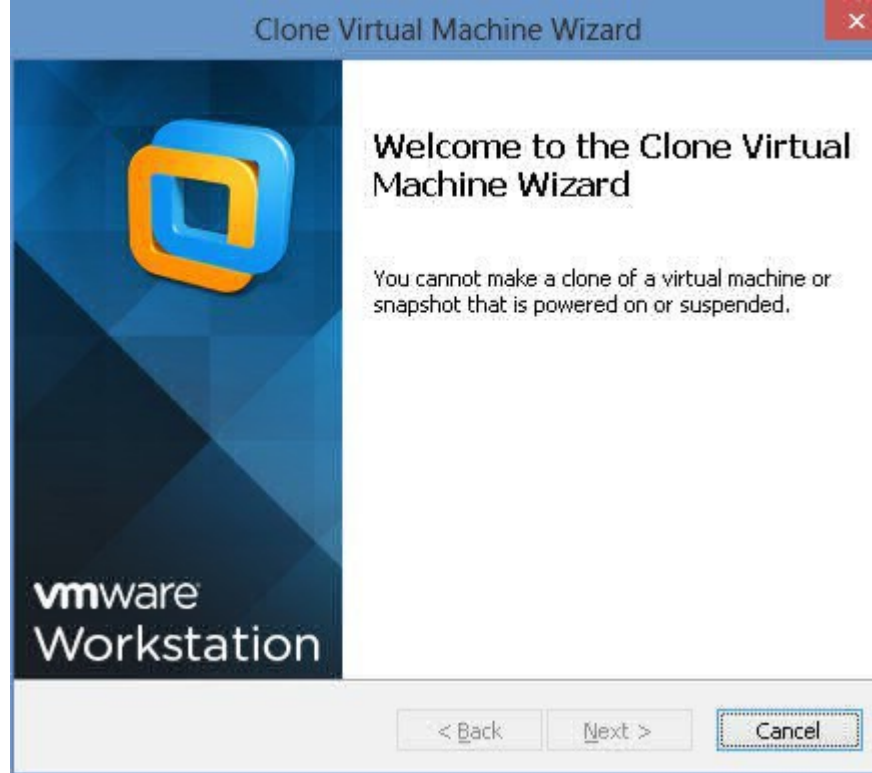
Initial Solaris 11 OS installation should only be performed on a physical computer. When you are done and the operating system boots up, click on Finished Installing.

Finished Installing | Change OS... | Help

To direct up, use the VM, click inside or press Ctrl + S

ON LEFT PANE HIGHLIGHT THE SOLARIS VM

RIGHT CLICK ON IT – SCROLL DOWN TO “MANAGE” – SELECT “CLONE”



hit cancel

SO WE'LL POWER IT DOWN GRACEFULLY  
ISSUE THE COMMAND FROM CONSOLE AS ROOT  
init 5

Library

My Computer

- Up-entier
- Virtual
- Share VMs

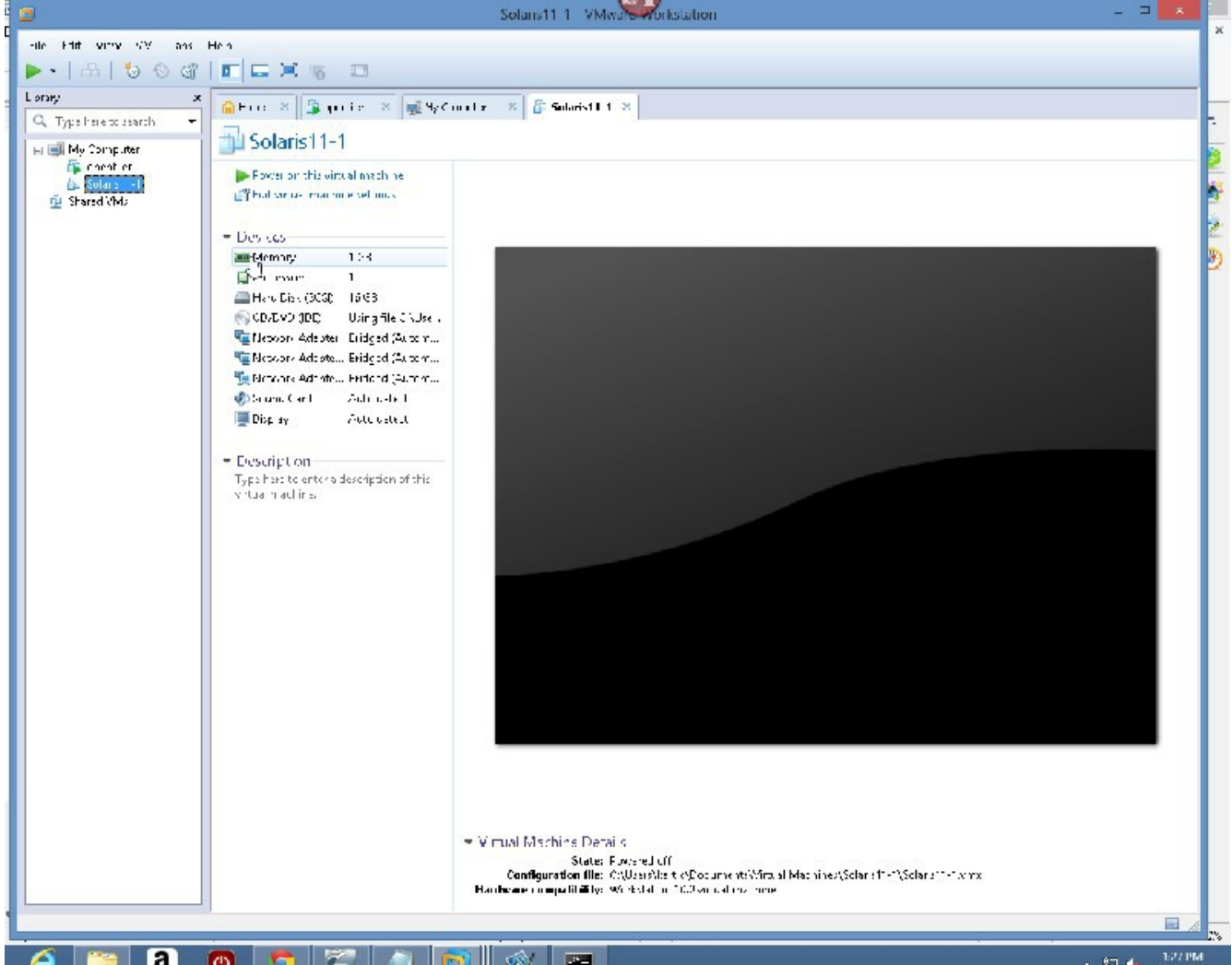
```
Nov 9 13:07:25 solaris11-1 sendmail[1165]: My unqualified host name (solaris11-1)
unknown; sleeping for retry

solaris11-1 console login: root
Password:
Roles can not login directly
Login incorrect
Nov 9 13:07:36 solaris11-1 login: login account failure: Permission denied

solaris11-1 console login: kartik
Password:
Oracle Corporation SunOS 5.11 11.1 September 2012
kartik@solaris11-1:~$ Nov 9 13:08:25 solaris11-1 sendmail[1163]: unable to qual
ify my own domain name (solaris11-1) -- using short name
Nov 9 13:08:25 solaris11-1 sendmail[1165]: unable to qualify my own domain name
(solaris11-1) -- using short name

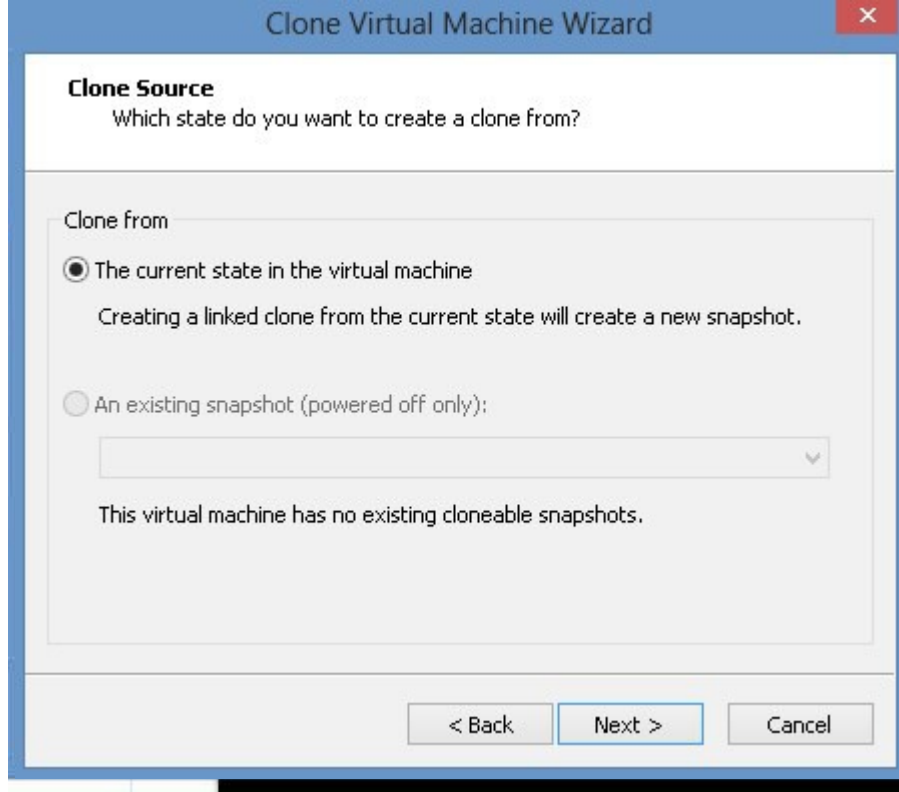
kartik@solaris11-1:~$ ping yahoo.com
yahoo.com is alive
kartik@solaris11-1:~$ su -
Password:
Nov 9 13:15:30 solaris11-1 su: 'su root' succeeded for kartik on /dev/console
Oracle Corporation SunOS 5.11 11.1 September 2012
root@solaris11-1:~# dladm show-link
LINK CLASS MIL STATE OVER
net1 phys 1500 unknown --
net0 phys 1500 up --
net2 phys 1500 unknown --
root@solaris11-1:~# init 5
updating /platform/i386/boot_archive
updating /platform/i386/amd64/boot_archive
root@solaris11-1:~# svc.startd: The system is coming down. Please wait.
svc.startd: 129 system services are now being stopped.
```

Close this window to send guest OS to disk. [Close] [Cancel] [Change VM] [Help]



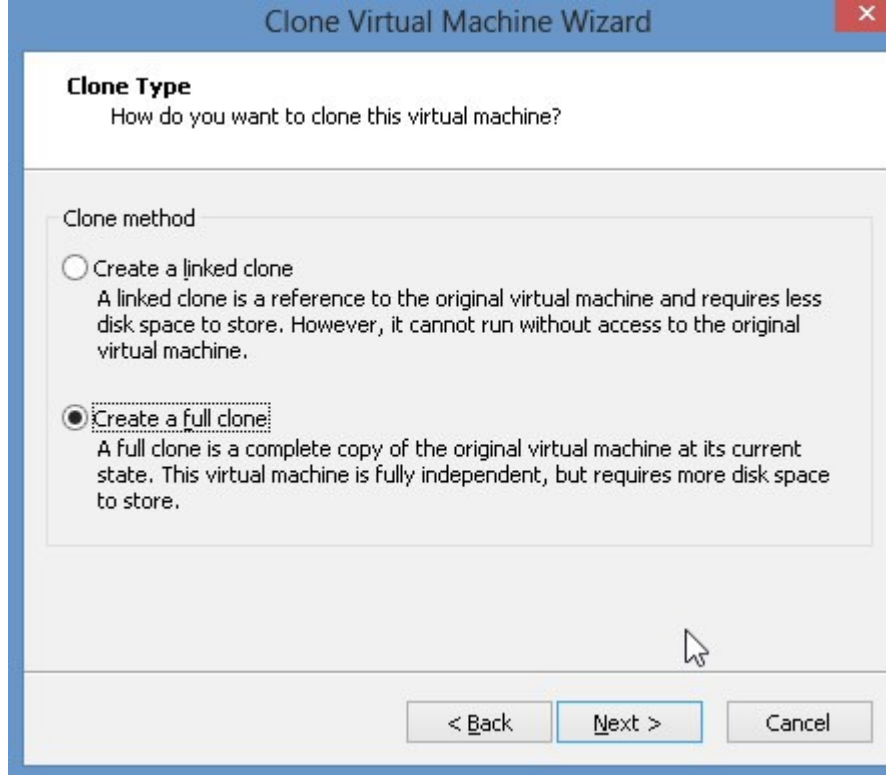
So NOW IT IS POWERED OFF:

SELECT SOLARIS11-1, VM - "MANAGE" - "CLONE"



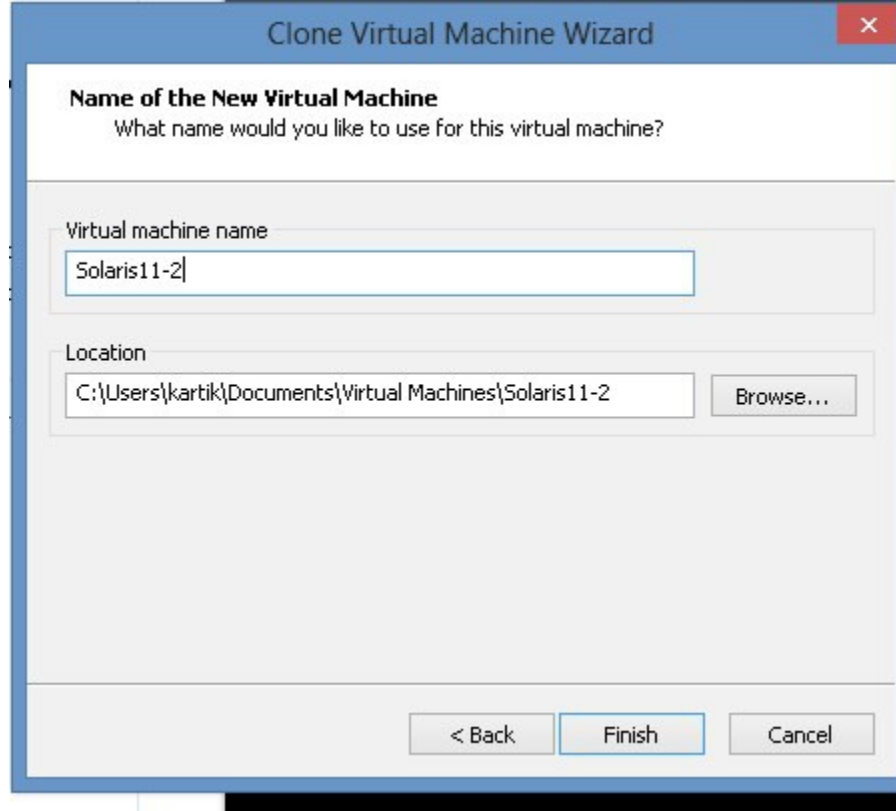
CLICK NEXT





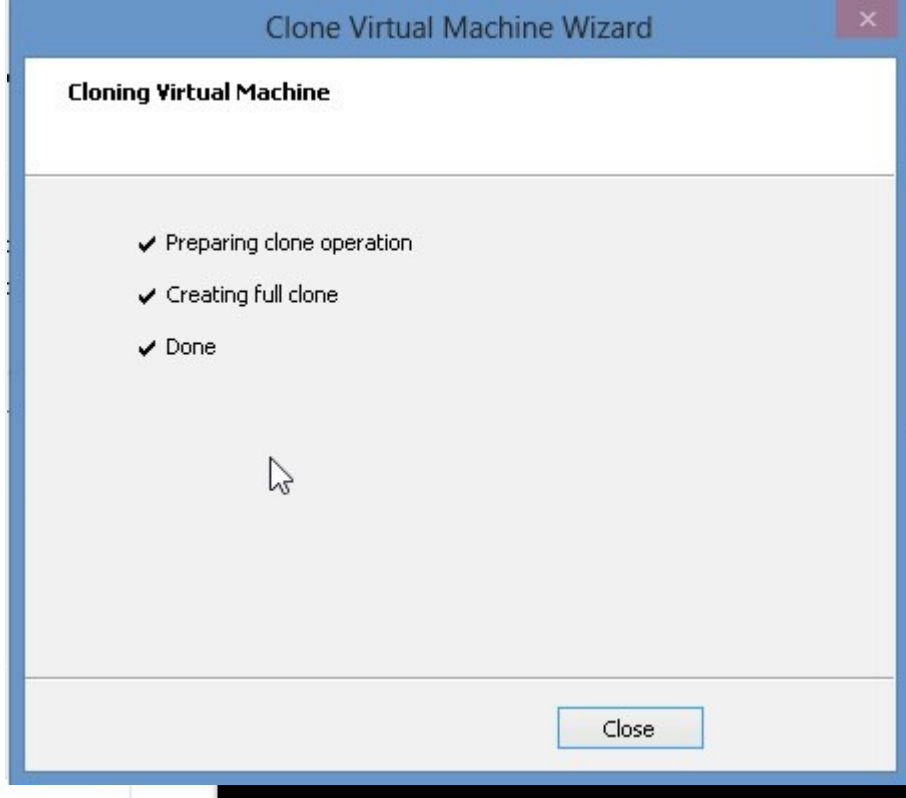
CLICK NEXT

WE DO NOT WANT A LINKED CLONE – WE WANT A FULL CLONE, SO PLEASE CHECK  
CREATE A FULL CLONE

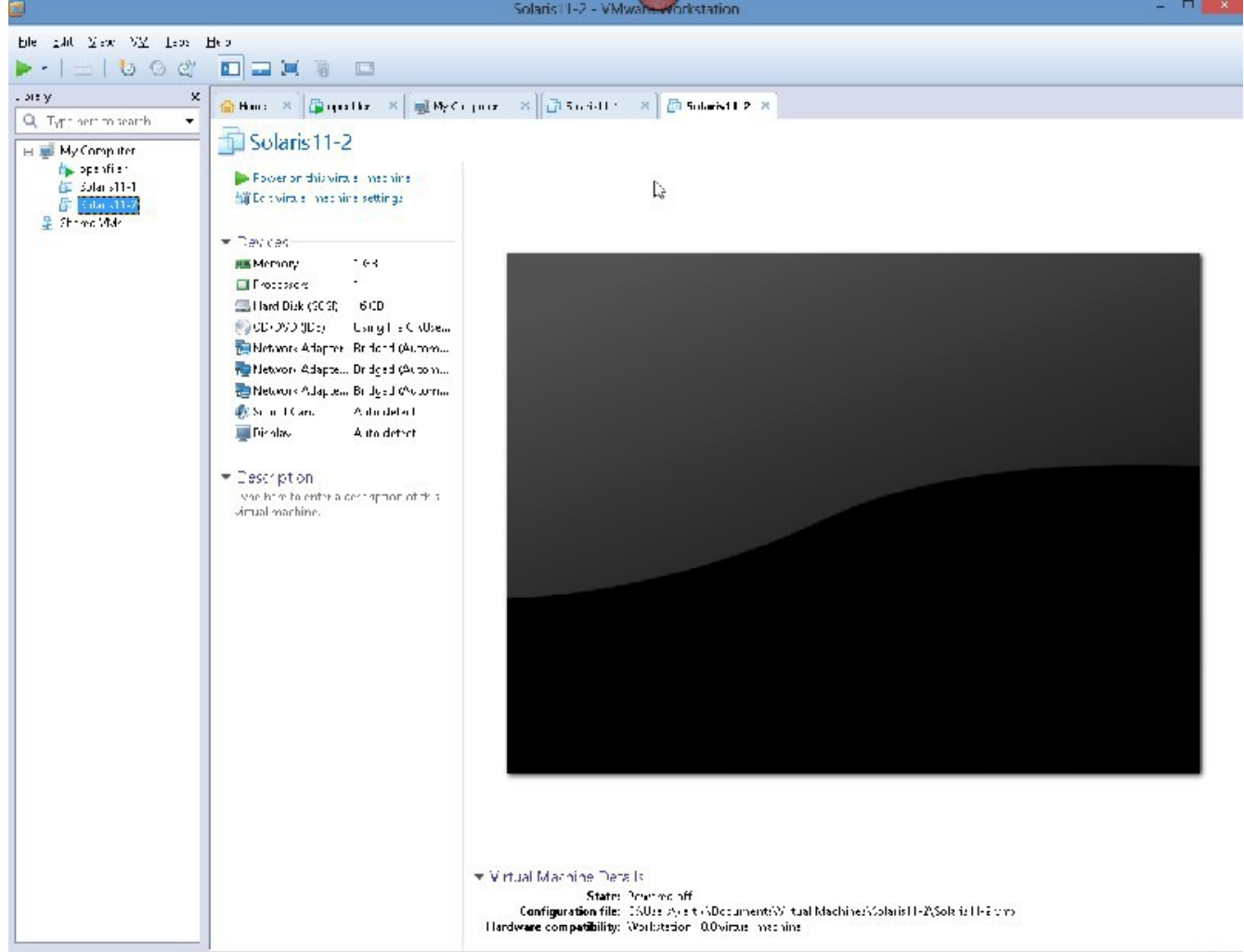


NOW THAT WE HAVE DESELECTED LINKED CLONE AND SELECTED FULL CLONE, CLICK NEXT, PLEASE

WE WILL NAME IT SOLARIS11-2



PLEASE CLICK FINISH

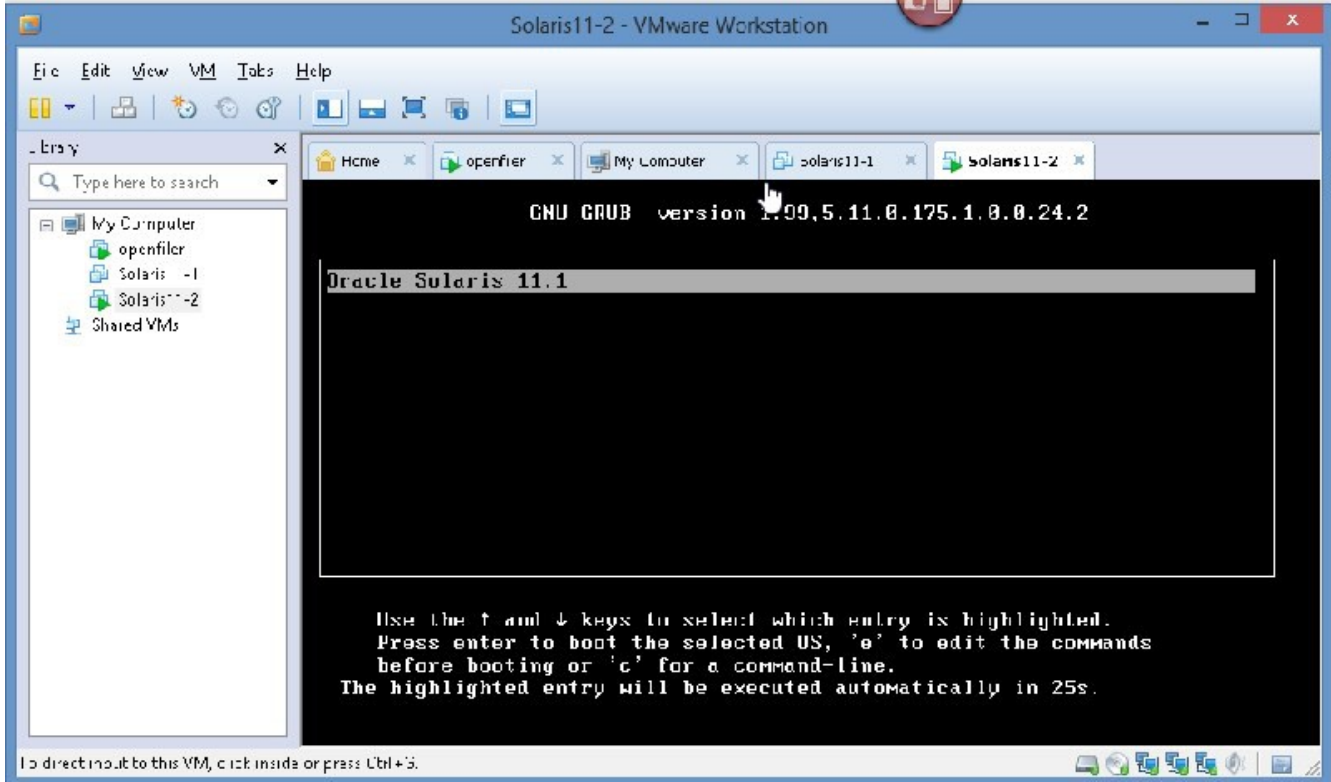


CLICK "CLOSE"

NOW WE HAVE TO BOOT solaris11-2 UP AND CHANGE ITS IP ADDRESS, NAME ETC BECAUSE WHEN IT GOT CLONED, IT BECAME AN EXACT COPY OF solaris11-1.

LET'S DO THAT.

CLICK ON "POWER ON THIS VIRTUAL MACHINE IN LEFT PANE.



Type here to search

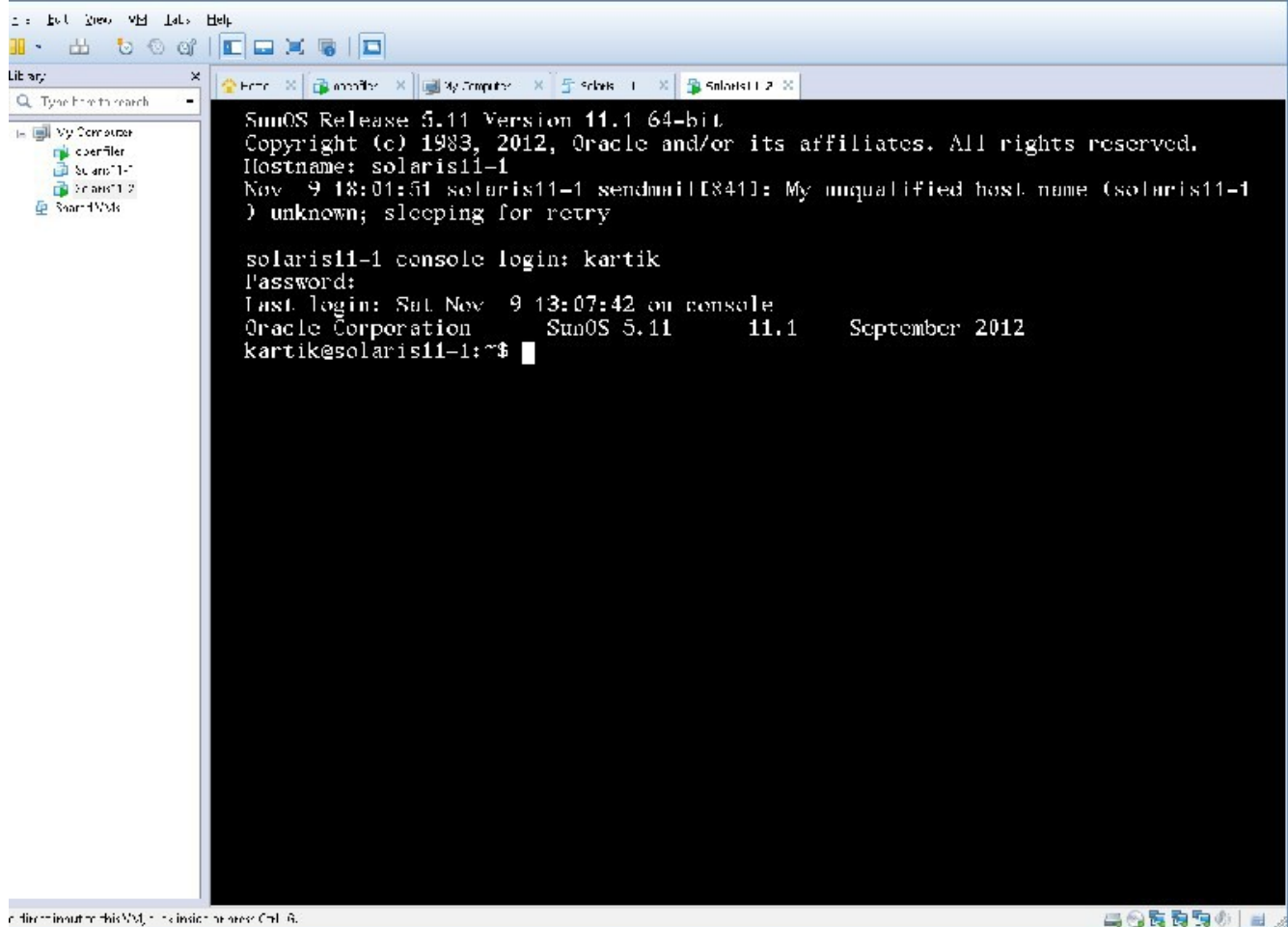
- My Computer
- Openfiles
- Solaris11-1
- Solaris11.2
- Shared Folders

```
SunOS Release 5.11 Version 11.1 64-bit
Copyright (c) 1983, 2012, Oracle and/or its affiliates. All rights reserved.
Hostname: solaris11-1
Nov  9 17:52:09 solaris11-1 sendmail[7941]: My unqualified host name (solaris11-1
) unknown; sleeping for retry

solaris11-1 console login: █
```

AS YOU CAN SEE IT IS NAMED solaris11-1, so, we have to change its name and IP address.





Let us enable root to login directly via ssh to the system, so we can work directly ssh into the system:

```
vi /etc/default/login
comment out the line that says CONSOLE
# If CONSOLE is set, root can only login on that device.
# If the specified device is /dev/console, then root can also log into
# any of the currently enabled /dev/vt/# virtual terminal devices.
# Comment this line out to allow remote login by root.
#
#CONSOLE=/dev/console
```

Next, change this file:

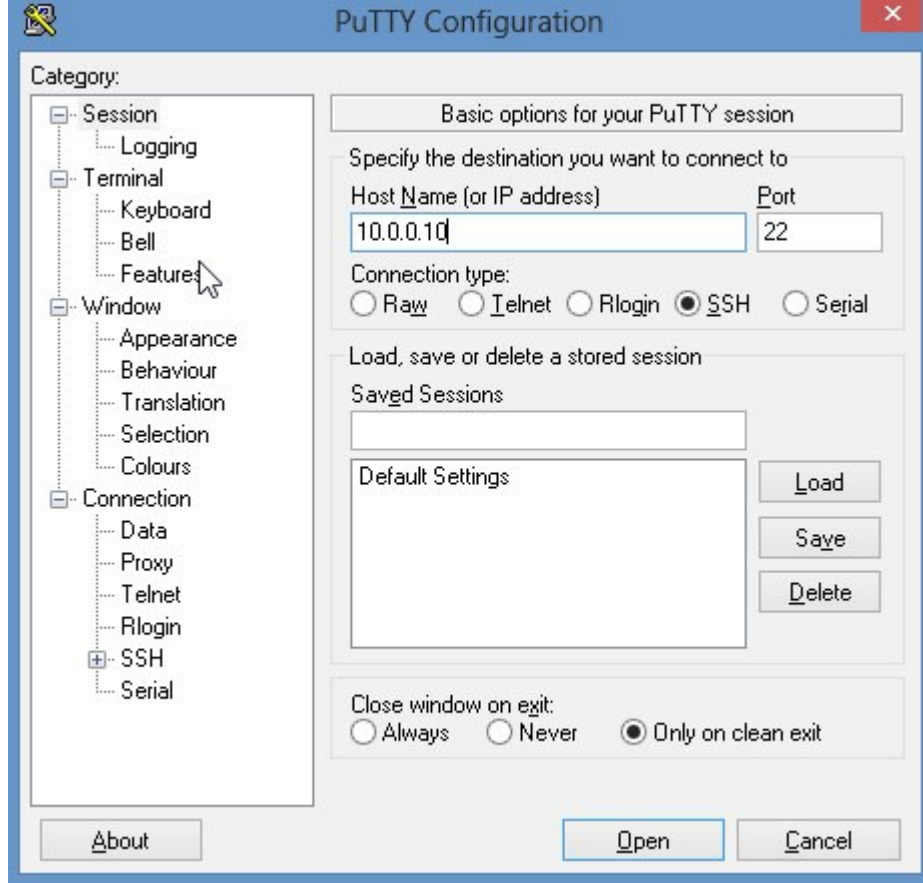
```
/etc/ssh/sshd_config
```

PermitRootLogin yes (it is set to no)

Then, do this:

```
rolemod -K type=normal root
```

then svcadm restart ssh



Now root can login directly via putty.

GOING FORWARD WE WILL DO OUR WORK VIA PUTTY, PUTTY CAN BE DOWNLOADED FROM:

<http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>

```
root@solaris11-1:~# svccfg -s system/identity:node setprop config/nodename="solaris11-2"  
root@solaris11-1:~# svccfg -s system/identity:node refresh  
root@solaris11-1:~# svcadm restart system/identity:node
```

so, now when we do a hostname command on the system:

```
root@solaris11-1:~# hostname  
solaris11-2  
root@solaris11-1:~#
```

Now we can boot up the original system(the system we cloned)

Let us boot up solairs11-1

go to VMWARE WORKSTATION window, select solairs11-1, right click on it, and select, power on guest.

```
login as: kartik  
Using keyboard-interactive authentication.  
Password:  
Last login: Sat Nov 9 18:38:49 2013  
Oracle Corporation SunOS 5.11 11.1 September 2012  
kartik@solaris11-1:~$ su -  
Password:  
Oracle Corporation SunOS 5.11 11.1 September 2012  
root@solaris11-1:~#  
root@solaris11-1:~# vi /etc/default/login  
root@solaris11-1:~# vi /etc/ssh/sshd_config  
root@solaris11-1:~# rolemod -K type=normal root  
root@solaris11-1:~# svcadm restart ssh  
root@solaris11-1:~#
```

Now, we'll set things up so that root from solaris11-1 can ssh to solaris11-2 without password, and, vice versa, this is a requirement for VCS installation.

```
root@solaris11-1:~# pwd
/root
root@solaris11-1:~# mkdir .ssh
root@solaris11-1:~# ssh-keygen -t dsa
Generating public/private dsa key pair.
Enter file in which to save the key (/root/.ssh/id_dsa):
Enter passphrase (empty for no passphrase): NOTE: just hit enter
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_dsa.
Your public key has been saved in /root/.ssh/id_dsa.pub.
The key fingerprint is:
fc:a6:1b:29:05:e0:ae:f2:99:b7:0b:61:39:a3:a3:c3 root@solaris11-1
root@solaris11-1:~#
```

Do the same thing on solaris11-2

Now, copy the contents on /root/.ssh/id\_dsa.pub of one system into a new file called /root/.ssh/authorized\_keys of the other system, do this for both systems.

As a test from solaris11-1 launch the command:

```
root@solaris11-1:~/.ssh# ssh solaris11-2 date
The authenticity of host 'solaris11-2 (10.0.0.30)' can't be established.
RSA key fingerprint is 63:c8:a8:f7:74:54:d8:2c:d7:bb:cc:97:73:d6:d3:22.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'solaris11-2,10.0.0.30' (RSA) to the list of known hosts.
Saturday, November 9, 2013 06:55:53 PM CST
root@solaris11-1:~/.ssh#
```

This part works

Now from solairs11-2

```
root@solaris11-2:~/.ssh# ssh solaris11-1 date
The authenticity of host 'solaris11-1 (10.0.0.20)' can't be established.
RSA key fingerprint is 63:c8:a8:f7:74:54:d8:2c:d7:bb:cc:97:73:d6:d3:22.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'solaris11-1,10.0.0.20' (RSA) to the list of known hosts.
Saturday, November 9, 2013 06:56:13 PM CST
root@solaris11-2:~/.ssh#
```

This part works too.

Going forward, it won't ask the yes/no question, wanna check:

```
root@solaris11-1:~/.ssh# ssh solaris11-2 date
Saturday, November 9, 2013 07:02:17 PM CST
root@solaris11-1:~/.ssh#
AND
```

Norton | Small Business | Enterprise | Partners


Symantec | Enterprise

United States | Shopping | Search


Products & Solutions | Support & Communities | Security Response | Try & Buy

## Choose Your Destination


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[Visit Site](#)



**ENTERPRISE**  
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- Inside Operations
- Devolvers
- Finalists
- Watch

Security Response

- Alerts, Incidents & Detection
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- Spay Intelligence
- Obigo

THREATGRID


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All Minuses & Risks

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27/11/2013 11:10:10 AM | Norton Security Solutions



```
root@solaris11-2:~/.ssh# ssh solaris11-1 date
Saturday, November 9, 2013 07:02:33 PM CST
root@solaris11-2:~/.ssh#
```

Now we are ready to install VCS on the two systems.

Download VCS software from [symantec.com](http://symantec.com)

close the pop up window

# Symantec Corporate Responsibility in a Connected World

Our People, Your Information, and The World.

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## Trialware: Veritas Storage Foundation and High Availability (HA) Solutions

This site provides the bits and packages necessary to install version 6.0.x of the following products:

- Veritas Dynamic Multi-Snapshot (DM-S)
- Veritas Cluster Server (VCS)
- Veritas Replicator
- Veritas Storage Foundation (SF)
- Veritas Storage Foundation HA (SFHA)
- Veritas Storage Foundation Cluster File System (SFCFS)
- Veritas Storage Foundation Cluster File System -X (SFCFSHX)
- Veritas Storage Foundation for Oracle RAC (FFORAC)
- Symantec Virtual Store (SVS) (Note that this product is only supported on PE-F1.5 and PE-F1.5 Sport)

On the following Operating System platforms:

- Solaris 10 and 11 on Sparc and x64
- AIX 6.1 and 7.1
- HP-UX 11i v3
- Red Hat Enterprise Linux 6 and 6
- Novell SUSE Linux Enterprise Server 10 and 11 SP3
- Oracle Enterprise Linux 5, 6, and 7
- Oracle Enterprise Linux 7 Update 4 or Ubuntu 14.04 Enterprise Server Release 2 (only with Veritas Cluster Server)
- VMware ESX 5.1 and 5.5

### Before Installation

Before attempting to install these products, visit the [Symantec Operations Readiness Tool \(SORT\)](#) to validate your system configuration. SORT will give you access to the latest patches, the latest Veritas Cluster Server application and replication agents, or the latest Dynamic Multi-Snapshot (DM-S) Array Support Libraries and Array Proxy Modules (ASL-APMs).

### After Installation

Install [Veritas Operations Manager \(VUM\)](#) to manage and report on the Storage Foundation server just deployed. Veritas Operations Manager is a comprehensive management platform that helps you optimize your data center costs, provide control and visibility and control, measure availability, scale operations, increase storage utilization and maintain compliance.

For users downloading Veritas Cluster Server running in VMware environments, the binaries include a plug-in for the VMware vCenter console. Veritas Operations Manager may be used in addition to the vSphere plug-in to configure and manage Veritas Cluster Server.

### Hardware Compatibility List

- In order to support the usage of VMK files in Cluster File System, an Array Support Library (ASL) is required to recognize the hardware. [VMwareLink Download ASLs](#).
- To use CFS with the VMFS multi-writer option, Coordination Point Servers (CPS) must be used for split-brain protection. ([See Symantec Storage Foundation for product documentation](#)).
- For storage hardware support with Storage Foundation, please refer to: [Hardware Compatibility List](#).

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Click on

File	Size	
Storage Foundation and High Availability Solutions 6.0.1 for Solaris x64	532 MB	<a href="#">DOWNLOAD NOW</a>

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Download this file.

Now we have to ftp this file to any one of the two Solaris, systems.

Download filezilla or WinSCP



select the WinSCP package at <http://winscp.net/eng/download.php>

- Session
- └─ Stored sessions
- Environment
- └─ Directories
- SSH
- Preferences

Session

File protocol:

SFTP

Host name:

Port number:

22

User name:

Password:

Private key file:

Select color

Advanced options

About...

Languages

Login

Save... ▾

Close



- Session
- └─ Stored sessions
- Environment
- └─ Directories
- SSH
- Preferences

Session

File protocol:  
SCP

Host name: 10.0.0.20      Port number: 22

User name: kartik      Password: ●●●●●●

Private key file:  ...

Select color

Advanced options

About...    Languages    Login    Save... ▾    Close

Local Mark Els Commands Session Options Remote Help

kerik@10.0.0.20

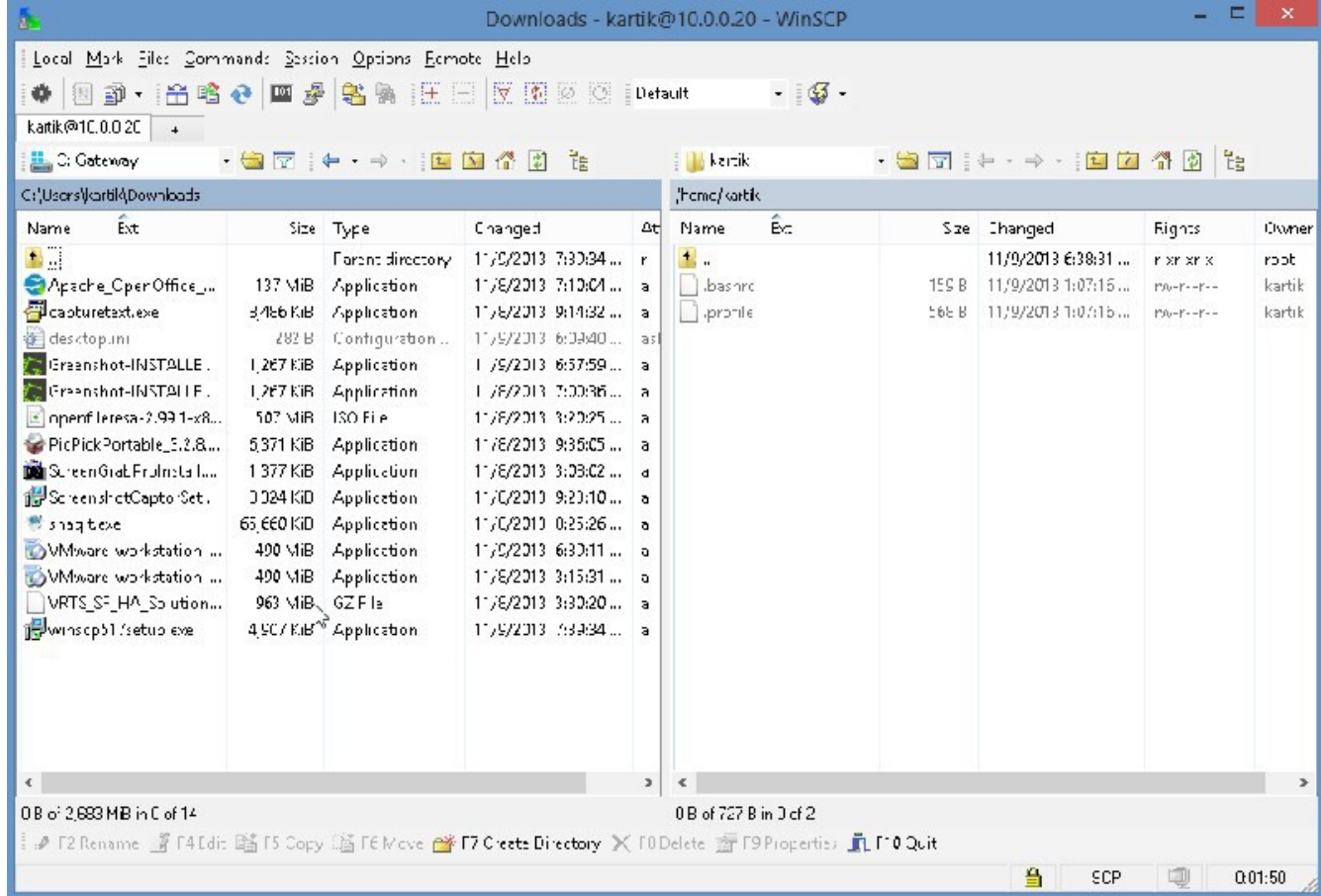
My documents: - / kartik

C:\Users\kartik\Documents						/home/kartik					
Name	Ext	Size	Type	Changed	Attr	Name	Ext	Size	Changed	Rights	Owner
DurationCounter			Folder	11/9/2013 7:05:44 ...	r	.			11/9/2013 6:33:31 ...	-xr-xr-x	root
My Music			Folder	11/8/2013 9:24:05 ...		.ssh		159 B	11/9/2013 1:07:10 ...	-w-r--r--	kerik
My Pictures			Folder	11/8/2013 5:02:10 ...	sh	configfile		568 B	11/9/2013 1:07:10 ...	-w-r--r--	kerik
My Videos			Folder	11/8/2013 5:02:10 ...	sh						
My Webs			Folder	11/8/2013 8:17:20 ...	s						
Snagit			Folder	11/8/2013 8:25:57 ...							
VCS home			Folder	11/9/2013 5:53:57 ...							
VCS tutorial			Folder	11/9/2013 6:00:30 ...							
Virtual Machines			Folder	11/9/2013 1:35:44 ...							
link.VCS100.conf#		110 B	ODT# File	11/9/2013 7:05:44 ...	sh						
desktop.ini		407 B	Configuration...	11/9/2013 5:53:00 ...	sd						
sol-11_1-text-x86.iso		565 MiB	ISO File	11/8/2013 5:20:51 ...	r						
VCS100.ndt		9,157 KiB	Open Document...	11/9/2013 7:05:56 ...	r						

0 B of 594 MiB in 0 of 12      0 B of 727 B in 0 of 2

F2 Rename F4 Edit F5 Copy F6 Move F7 Create Directory F8 Delete F9 Properties F10 Quit

SCP 0:00:15



Copy over the file VRTS\_SF\_HA....

Local Mark Files Commands Session Options Remote Help

karik@10.0.0.20

C: Gateway /home/kartik

Name	Ext	Size	Type	Charocc	At	Name	Ext	Size	Changed	Rights	Owner
.			Parent directory		11/9/2013 7:59:14...	.					
Apache_OpenOffice...		137 MiB	Application		11/9/2013 7:10:01...	..		150 B	11/9/2013 6:38:31...	r-xr-xr-x	root
caacoretst.exe		8,486 KiB	Application			..		150 B	11/9/2013 1:07:16...	rw-r--r--	karik
desktop.ini		282 B	Configuration			..		150 B	11/9/2013 1:07:16...	rw-r--r--	karik
Greenshot-INSTALLE...		1,267 KiB	Application								
Greenshot-INSTALLE...		1,267 KiB	Application								
openif-eresas-2.591-x8...		507 MiB	ISO File								
PicPickPortable_3.2.8...		6,371 KiB	Application								
ScreenGrabProInstall...		1,377 KiB	Application								
ScreenShotCaptorSet...		8,324 KiB	Application								
snag-ite		60,500 KiB	Application								
VMware-workstation...		490 MiB	Application								
VMware-workstation...		490 MiB	Application								
wRTS_SF_HA_Solution...		968 MiB	Gzip File								
winsetup517setup.exe		4,307 KiB	Application		11/9/2013 7:59:34...						

3% Copying

Cancel

Minimize

Once finished:

Stay idle

Time left: 0:01:54 Time elapsed: 0:00:05

Bytes transferred: 30,000 K B Speed: 0,000 KiB/s

Speed (KiB/s):

Unlimited

963 MiB of 2,603 MiB in 1 of 14 0 0 of 727 B in 0 of 2

F2 Rename F4 Edit F5 Copy F6 Move F7 Create Directory F8 Delete F9 Properties F10 Out

SCP 0.03.34

While this is being done let us configure the heartbeat links on the two solaris systems

```
root@solaris11-1:~/.ssh# ipadm create-ip net1
root@solaris11-1:~/.ssh# ipadm create-addr -T static -a 12.12.12.12/24 net1/v4
root@solaris11-1:~/.ssh# ipadm create-ip net2
root@solaris11-1:~/.ssh# ipadm create-addr -T static -a 12.12.12.13/24 net2/v4
root@solaris11-1:~/.ssh#
```

So We created two interfaces with IP addresses 12.12.12.12 and 12.12.12.13 on net1 and net2 respectively.

Similarly on the second node:

```
root@solaris11-2:~/.ssh# ipadm create-ip net1
root@solaris11-2:~/.ssh# ipadm create-addr -T static -a 12.12.12.14/24 net1/v4
root@solaris11-2:~/.ssh# ipadm create-ip net2
root@solaris11-2:~/.ssh# ipadm create-addr -T static -a 12.12.12.15/24 net2/v4
```

NOTE: The heartbeat interfaces should be on a private LAN, here they are on the 12.12.12.X subnet

```
root@solaris11-1:~/ssh# ping 12.12.12.14
12.12.12.14 is alive
root@solaris11-1:~/ssh# ping 12.12.12.15
12.12.12.15 is alive
root@solaris11-1:~/ssh#
```

```
root@solaris11-2:~/ssh# ping 12.12.12.12
12.12.12.12 is alive
root@solaris11-2:~/ssh# ping 12.12.12.13
12.12.12.13 is alive
root@solaris11-2:~/ssh#
```

As you may see from above we pinged the interfaces of the other host from one another

By now the scp is over

```
root@solaris11-1:~/ssh# cd ~kartik
root@solaris11-1:/home/kartik# ls -al
total 1974344
drwxr-xr-x  2 kartik  staff    5 Nov 9 19:43 .
dr-xr-xr-x  2 root   root     2 Nov 9 18:38 ..
-rw-r--r--  1 kartik  staff   159 Nov 9 13:07 .bashrc
-rw-r--r--  1 kartik  staff   568 Nov 9 13:07 .profile
-rw-r--r--  1 kartik  staff 1010115654 Nov 8 17:30
VRTS_SF_HA_Solutions_6.0.1_Solaris_x64.tar.gz
root@solaris11-1:/home/kartik#
```

```
root@solaris11-1:/home/kartik# gzip -d VRTS_SF_HA_Solutions_6.0.1_Solaris_x64.tar.gz
root@solaris11-1:/home/kartik#
```

```
root@solaris11-1:/home/kartik# tar xvf VRTS_SF_HA_Solutions_6.0.1_Solaris_x64.tar
```

```
root@solaris11-1:/home/kartik# cd dvd2-sol_x64/
root@solaris11-1:/home/kartik/dvd2-sol_x64# ls -al
total 12
drwxr-xr-x  4 root   root     4 Aug 3 2012 .
drwxr-xr-x  3 kartik staff    6 Nov 9 19:58 ..
drwxr-xr-x 17 root   root    20 Aug 3 2012 sol10_x64
drwxr-xr-x 17 root   root    20 Aug 3 2012 sol11_x64
root@solaris11-1:/home/kartik/dvd2-sol_x64# cd sol11_x64/
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# ls -al
total 105
drwxr-xr-x 17 root   root    20 Aug 3 2012 .
drwxr-xr-x  4 root   root     4 Aug 3 2012 ..
```

- 1) Veritas Dynamic Multi-Pathing (DMP)
- 2) Veritas Cluster Server (VCS)
- 3) Veritas Storage Foundation (SF)
- 4) Veritas Storage Foundation and High Availability (SFHA)
- 5) Veritas Storage Foundation Cluster File System HA (SFCFSHA)
- 6) Symantec VirtualStore (SVS)
- 7) Veritas Storage Foundation for Oracle RAC (SF Oracle RAC)
- b) Back to previous menu

Select a product to install: [1-7,b,q] █

```
drwxrwxr-x 4 root root 7 Aug 3 2012 cluster_server
-rw-r--r-- 1 root root 860 Aug 3 2012 copyright
drwxrwxr-x 10 root root 14 Aug 3 2012 docs
drwxrwxr-x 3 root root 6 Aug 3 2012 dynamic_multipathing
drwxrwxr-x 3 root root 6 Aug 3 2012 file_system
-rwxr-xr-x 1 root root 6322 Jul 24 2012 installer
drwxrwxr-x 4 root root 4 May 7 2012 perl
drwxrwxr-x 3 root root 4 Aug 3 2012 pkgs
drwxrwxr-x 7 root root 18 Aug 3 2012 scripts
drwxrwxr-x 4 root root 7 Aug 3 2012 storage_foundation
drwxrwxr-x 4 root root 7 Aug 3 2012 storage_foundation_cluster_file_system_ha
drwxrwxr-x 4 root root 7 Aug 3 2012 storage_foundation_for_oracle_rac
drwxrwxr-x 4 root root 7 Aug 3 2012 storage_foundation_high_availability
drwxrwxr-x 3 root root 6 Aug 3 2012 virtualstore
drwxrwxr-x 3 root root 6 Aug 3 2012 volume_manager
-rwxr-xr-x 1 root root 18331 Jul 24 2012 webinstaller
drwxrwxr-x 2 root root 3 Aug 3 2012 windows
drwxrwxr-x 4 root root 4 Jul 24 2012 xprt1
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64#
```

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# ./installer
```

Choose option "1"

```
Would you like to enable the Global Cluster Option? [y,n,q] (n) 

2) Enable Keyless Licensing and complete system licensing later

How would you like to license the systems? [1-2,q] (2) 

vb001ps          veritas Cluster Server - Consolidated Point Server
vb001psa        veritas Cluster Server Unified Agents by Quantum
vb001psaa       veritas Cluster Server Enterprise Agents by Quantum
vb001psab       veritas Storage Foundation Manage List by Quantum
vb001psac       veritas virtual Business Service
vb001psad       veritas Storage Foundation Installer

Press [Enter] to continue: 
```

Choose option 2

Please choose option 3



Select default option# 2

```
Veritas Cluster Server (VCS) Install Program
scicrs111-1 scicrs111-2

To configure VCS the following information is required:

  a unique cluster name
  use of node name per system user and heartbeat links
  a unique cluster IP subnet between 1-255.255

  One or more heartbeat links and one or more private links
  One or more public or heartbeat link and a capability link

All system configuration is done in this file.
Enter the unique cluster name [q,?] █

If user exception allows a split brain occur, therefore, to avoid data corruption due to split brain in the environment, I/O fencing has to be enabled.
If you do not enable I/O Fencing, you do so at your own risk
See the Administration Guide for more information on I/O Fencing
Do you want to configure I/O Fencing in enabled mode? [y,n,q,?] [y] █
```

select "n"

hit enter

Select YES

Select YES

Press ENTER

```
The following data is required to configure the Virtual IP of the Cluster:  
  a public NIC used by each system on the cluster  
  a Virtual IP address and network  
Do you want to configure the Virtual IP? [y,n,q,?] (n) y  
Active NIC devices discovered on system...: net0 net1 net2  
Enter the NIC for Virtual IP of the Cluster to use on solaris11-1: [n,q,?] [net0]  
Is net0 to be the public NIC used by all systems? [y,n,q,b,?] [y]  
Enter the Virtual IP address for the Cluster: [n,q,?] 10.0.0.0.50  
10.0.0.0.50 is not a valid IP address  
Enter the Virtual IP address for the Cluster: [n,q,?] 10.0.0.50  
Enter the NetMask for IP 10.0.0.50: [n,q,?] (255.255.255.0)
```

```
Veritas Cluster Server 6.3... Install Program  
solaris11 solaris11 3
```

```
Cluster Virtual IP verification:
```

```
NIC: net0  
IP: 10.0.0.50  
NetMask: 255.255.255.0
```

```
To this information correct? [y,n,q] (y) █
```

WE will name our cluster as “ourcluster”

select default option# 1

Just accept the fdefaults ansd say yes “y”

Select YES for this

```
10.0.0.20
Veritas Cluster Server 5.0.1 Install Program
*****

The following information is required to configure SMTP notifications:

The domain-based hostname of the SMTP server
The email address of each SMTP recipient
A minimum severity level of messages to send to each recipient

Do you want to configure SMTP notifications? [y,n,q,?] (n) █
```

Select NO for this

Select YES for this

select yes

select No

```
Fencing configuration
 1) Configure Clusterwide Prio. client based fencing
 2) Configure disk based fencing

Select the fencing mechanism to be configured in this Application Cluster: [1-2,q] :
Are you sure you want to quit? [Y,n] (y) y

Controller log files and summary file are saved on:
  /opt/VRTM/Install/Logs/Installer-FCID11CR20C.Rpt

Would you like to view the summary file? [y,n,q] (n)

root@soisat11-1:/home/corbic/ovdi-sol x86/sb111 x86# |
Veritas Cluster Server Startup completed successfully
```

Select No

Select "q"

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# tail -f /var/VRTSvcs/log/
```

```
CmdServer-log_A.log engine_A.log   hstart.log   HostMonitor_A.log  tmp/
uuidconfig.log
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# tail -f /var/VRTSvcs/log/engine_A.log
SMF_METHOD=start
SMF_RESTARTER=svc:/system/svc/restarter:default
SMF_ZONENAME=global
TZ=localtime
```

```
2013/11/09 20:44:39 VCS INFO V-16-6-15002 (solaris11-2) hatrigger:hatrigger executed
/opt/VRTSvcs/bin/internal_triggers/dump_tunables solaris11-2 1  successfully
2013/11/09 20:44:40 VCS INFO V-16-1-10304 Resource webip (Owner: Unspecified, Group:
ClusterService) is offline on solaris11-2 (First probe)
2013/11/09 20:44:40 VCS NOTICE V-16-1-10438 Group ClusterService has been probed on system
solaris11-2
2013/11/09 20:44:44 VCS NOTICE V-16-1-10438 Group VCShmg has been probed on system
solaris11-2
2013/11/09 20:44:44 VCS NOTICE V-16-1-10435 Group VCShmg will not start automatically on
System solaris11-2 as the system is not a part of AutoStartList attribute of the group.
```

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# export PATH=$PATH:/opt/VRTSvcs/bin
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# hastatus -sum
```

```
-- SYSTEM STATE
```

```
-- System      State      Frozen
```

```
A solaris11-1  RUNNING   0
A solaris11-2  RUNNING   0
```

```
-- GROUP STATE
```

```
-- Group      System      Probed  AutoDisabled  State
```

```
B ClusterService solaris11-1  Y      N             ONLINE
B ClusterService solaris11-2  Y      N             OFFLINE
```

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64#
```

YOUR FRIENDS ARE THESE VCS COMMANDS:

```
export PATH=$PATH:/opt/VRTSvcs/bin
```

```
hastatus -sum
```

tail -f /var/VRTSvcs/log/engine\_A.log NOTE: ALWAYS KEEP THIS COMMAND RUNNING IN A SEPERATE PUTTY SESSION ON ONE OF THE CLUSTER NODES.



NOW WE WILL INSTALL A NON GLOBAL ZONE AND MAKE IT “HIGHLY AVAILABLE”(HA) (PUT IT UNDER VCS CONTROL).

FIRST WE HAVE TO CONFIGURE SHARED STORAGE(STORAGE THAT IS SEEN BY BOTH NODES – DRIVES THAT ARE SEEN BY BOTH NODES, HOWEVER, ARE UNDER THE CONTROL OF ONLY ONE NODE AT A TIME)

WE WILL MAKE USE OF OPENFILER ISCSI TO DO THAT.

WE HAVE TO SET UP ISCSI DISCOVERY ON OUR SOLARIS SYSTEMS, THIS IS ACCOMPLISHED IN TWO EASY COMMANDS.

REMEMBER THE IP ADDRESS OF OPENFILER IS 10.0.0.10

run the following commands on both nodes:

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# iscsiadm add discovery-address 10.0.0.10:3260
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# iscsiadm modify discovery --sendtargets enable
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# devfsadm -i iscsi
```

and do and behold

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# format
Searching for disks...done
```

AVAILABLE DISK SELECTIONS:

```
0. c8t0d0 <VMware,-VMware Virtual S-1.0-16.00GB>
/pci@0,0/pci15ad,1976@10/sd@0,0
1. c9t2d0 <OPNFILER-VIRTUAL-DISK-0 cyl 2237 alt 2 hd 255 sec 63>
/iscsi/disk@0000iqn.2006-01.com.openfiler%3Atsn.327aef9847e80001,0
2. c9t3d0 <OPNFILER-VIRTUAL-DISK-0 cyl 2237 alt 2 hd 255 sec 63>
/iscsi/disk@0000iqn.2006-01.com.openfiler%3Atsn.327aef9847e80001,1
Specify disk (enter its number):
```

we see our two SAN drives, they are: c9t2d0 and c9t3d0  
Hit Ctrl-d

and on node solaris11-2

```
root@solaris11-2:~/.ssh# iscsiadm add discovery-address 10.0.0.10:3260
root@solaris11-2:~/.ssh# iscsiadm modify discovery --sendtargets enable
root@solaris11-2:~/.ssh# devfsadm -i iscsi
root@solaris11-2:~/.ssh# format
Searching for disks...done
```

#### AVAILABLE DISK SELECTIONS:

```
0. c8t0d0 <VMware,-VMware Virtual S-1.0-16.00GB>
/pci@0,0/pci15ad,1976@10/sd@0,0
1. c9t2d0 <OPNFILER-VIRTUAL-DISK-0 cyl 2237 alt 2 hd 255 sec 63>
/iscsi/disk@0000iqn.2006-01.com.openfiler%3Atsn.327aef9847e80001,0
2. c9t3d0 <OPNFILER-VIRTUAL-DISK-0 cyl 2237 alt 2 hd 255 sec 63>
/iscsi/disk@0000iqn.2006-01.com.openfiler%3Atsn.327aef9847e80001,1
Specify disk (enter its number):
Hit Ctrl-d
```

NOW WE WILL CREATE A ZPOOL ON ONE OF THE SHARED DRIVES(LUN'S) AND CREATE A ZFS FILESYSTEM ON THAT ZPOOL AND USE IT AS THE ROOT FOR OUR SOLARIS NON GOBAL ZONE

ON NODE 1(solaris11-1)

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# zpool create spool c9t2d0
```

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# zpool create spool c9t2d0
```

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# zfs create spool/mnt
```

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# zonecfg -z testzone
```

Use 'create' to begin configuring a new zone.

```
zonecfg:testzone> create -b
```

```
zonecfg:testzone> set zonepath=/spool/mnt/testzone
```

```
zonecfg:testzone> set ip-type=shared
```

```
zonecfg:testzone> add net
```

```
zonecfg:testzone:net> set physical=net0
```

```
zonecfg:testzone:net> set address=10.0.0.60
```

```
zonecfg:testzone:net> end
```

```
zonecfg:testzone> verify
```

```
zonecfg:testzone> commit
```

```
zonecfg:testzone>
```

```
zonecfg:testzone> exit
```

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64#
```

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# zoneadm -z testzone install
```

The following ZFS file system(s) have been created:

```
spool/mnt/testzone
```

Progress being logged to /var/log/zones/zoneadm.20131110T112051Z.testzone.install

Image: Preparing at /spool/mnt/testzone/root.

PROGRESS:

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# zoneadm -z testzone install
```

The following ZFS file system(s) have been created:

spool/mnt/testzone

Progress being logged to /var/log/zones/zoneadm.20131110T112051Z.testzone.install

Image: Preparing at /spool/mnt/testzone/root.

AI Manifest: /tmp/manifest.xml.G6a4Bq

SC Profile: /usr/share/auto\_install/sc\_profiles/enable\_sci.xml

Zonename: testzone

Installation: Starting ...

Creating IPS image

Startup linked: 1/1 done

Installing packages from:

solaris

origin: <http://pkg.oracle.com/solaris/release/>

DOWNLOAD	PKGS	FILES	XFER (MB)	SPEED
Completed	183/183	33556/33556	222.2/222.2	782k/s

PHASE

ITEMS

Installing new actions

41103/46825

PROGRESS:

Updating package state database Done

Updating image state Done

Creating fast lookup database Done

Installation: Succeeded

Note: Man pages can be obtained by installing pkg:/system/manual

done.

Done: Installation completed in 624.658 seconds.

Next Steps: Boot the zone, then log into the zone console (zlogin -C)

to complete the configuration process.

Log saved in non-global zone as

/spool/mnt/testzone/root/var/log/zones/zoneadm.20131110T112051Z.testzone.install

[root@solaris11-1:/home/kartik/dvd2-sol\\_x64/sol11\\_x64#](#)

SO NOW OPEN ANOTHER PUTTY WINDOW OF solaris11-1

IN THE FIRST WINDOW TYPE:

[root@solaris11-1:/home/kartik/dvd2-sol\\_x64/sol11\\_x64#](#) zoneadm -z testzone boot

IN THE SECOND WINDOW JUST OPENED TYPE:

## System Configuration Tool

System Configuration Tool enables you to specify the following configuration parameters for your newly-installed Oracle Solaris 11 system:

- system hostname, time zone, user and root accounts, name services

System Configuration Tool produces an SMF profile file in `/system/volatile/scit_profile.xml`.

How to navigate through this tool:

- Use the function keys listed at the bottom of each screen to move from screen to screen and to perform other operations.
- Use the up/down arrow keys to change the selection or to move between input fields.
- If your keyboard does not have function keys, or they do not respond, press ESC; the legend at the bottom of the screen will change to show the ESC keys for navigation and other functions.

F2 Continue F6 Help F9 Quit



## DNS Name Service

Indicates whether or not the system should use the DNS name service.

### **Configure DNS**

Do not configure DNS

|

Esc-2 Continue Esc-3 Back Esc-6 Help Esc-9 Quit

Hot Esc 2



## DNS Search List

Enter a list of domains to be searched when a DNS query is made. If no domain is entered, only the DNS domain chosen for this system will be searched.

Search domain: **comcast.net**

Search domain:

Search domain:

Search domain:

Search domain:

Search domain:

I

Esc-2 Continue Esc-3 Back Esc-6 Help Esc-9 Quit  
ESC-2\_CONTINUE ESC-3\_BACK ESC-6\_HELP ESC-9\_QUIT

type in your routers IP address, mine is 10.0.0.1

Hit Esc 2



type in your domain from your ISP, mine is comcast.net, Hit Esc 2



I will select Americas – Central Time, hit Esc 2





## Users

Define a root password for the system and user account for yourself.

System Root Password

Root password:

Confirm password:

Create a user account

Your real name:

Username:

User password:

Confirm password:

Esc-2 \_Continue Esc-3 \_Back Esc-6 \_Help Esc-9 \_Quit

Esc 2

## System Configuration Summary

Review the settings below before continuing. Go back (F3) to make changes.

q Time Zone: US/Central

x

x Language: \*The following can be changed when logging in.

x Default language: C/POSIX

x Terminal type: vt100

x

x Users:

x Username: kartik

x

x Network:

x Computer name: testzone

x Name service: DNS

x DNS servers: 10.0.0.1

x DNS Domain search list: comcast.net

x

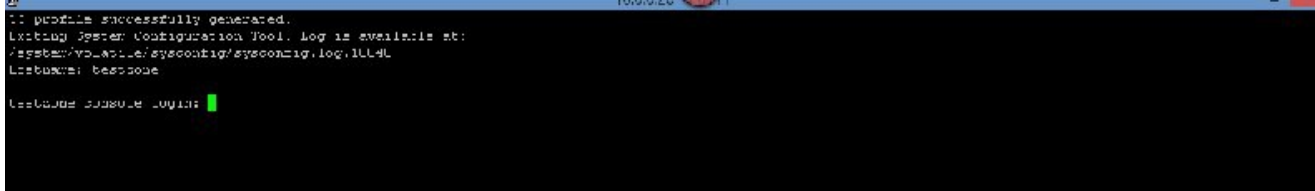
x Support configuration:

v Not generating a Support profile as OCM and ASR services are not

Esc-2 Apply Esc-3 Back Esc-6 Help Esc-9 Quit







testzone console login: kartik

Password:

Oracle Corporation SunOS 5.11 11.1 September 2012

kartik@testzone:~\$ su Nov 10 05:46:01 testzone sendmail[10918]: My unqualified host name (testzone) unknown; sleeping for retry

Nov 10 05:46:01 testzone sendmail[10914]: My unqualified host name (testzone) unknown; sleeping for retry

kartik@testzone:~\$ su -

Password:

Nov 10 05:46:32 testzone su: 'su root' succeeded for kartik on /dev/console

Oracle Corporation SunOS 5.11 11.1 September 2012

root@testzone:~# Nov 10 05:47:01 testzone sendmail[10918]: unable to qualify my own domain name (testzone) -- using short name

NOW ADD THE CLUSTER NODES TO THIS ZONE'S HOSTS FILE

root@testzone:~# svcadm disable sendmail

root@testzone:~# echo "10.0.0.20 solaris11-1" >> /etc/hosts

root@testzone:~# echo "10.0.0.30 solaris11-2" >> /etc/hosts

root@testzone:~#

NOW WE HAVE TO ADD THIS ZONE TO VCS

GO BACK TO NODE 1 (solaris11-1)

root@solaris11-1:/home/kartik/dvd2-sol\_x64/sol11\_x64# hastatus -sum

-- SYSTEM STATE

-- System	State	Frozen
-----------	-------	--------

A solaris11-1	RUNNING	0
---------------	---------	---

A solaris11-2	RUNNING	0
---------------	---------	---

-- GROUP STATE

-- Group	System	Probed	AutoDisabled	State
----------	--------	--------	--------------	-------

B ClusterService	solaris11-1	Y	N	ONLINE
------------------	-------------	---	---	--------

B ClusterService	solaris11-2	Y	N	OFFLINE
------------------	-------------	---	---	---------

```
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# hagr -add testgrp
VCS WARNING V-16-1-11335 Configuration must be ReadWrite : Use haconf -makerw
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# haconf -makerw
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# hagr -add testgrp
VCS NOTICE V-16-1-10136 Group added; populating SystemList and setting the Parallel attribute
recommended before adding resources
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# hagr -modify testgrp Parallel 0
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# hagr -modify testgrp SystemList solaris11-1
0 solaris11-2 1
root@solaris11-1:/home/kartik/dvd2-sol_x64/sol11_x64# hagr -modify testgrp AutoStartList
solaris11-1
```

```
root@solaris11-1:/tmp# hares -add vcspool Zpool testgrp
VCS NOTICE V-16-1-10242 Resource added. Enabled attribute must be set before agent monitors
root@solaris11-1:/tmp# hares -modify vcspool Critical 1
root@solaris11-1:/tmp# hares -modify vcspool ChkZFSMounts 1
root@solaris11-1:/tmp# hares -modify vcspool FailMode continue
root@solaris11-1:/tmp# hares -modify vcspool ForceOpt 1
root@solaris11-1:/tmp# hares -modify vcspool ForceRecoverOpt 0
root@solaris11-1:/tmp# zpool list
NAME      SIZE  ALLOC   FREE  CAP  DEDUP  HEALTH  ALTROOT
rpool    15.6G  7.29G  8.33G  46%  1.00x  ONLINE  -
spool    17.1G   448M  16.7G   2%  1.00x  ONLINE  -
root@solaris11-1:/tmp# hares -modify vcspool PoolName spool
root@solaris11-1:/tmp# hares -modify vcspool AltRootPath /
root@solaris11-1:/tmp# hares -modify vcspool ZoneResName vcszone
root@solaris11-1:/tmp#
root@solaris11-1:/tmp# hares -modify vcspool Enabled 1
root@solaris11-1:/tmp# hazonesetup -g testgrp -r vcszone -z testzone -p abc123 -a -s solaris11-
1,solaris11-2
V-16-34-1107 Group testgrp is already present
VCS WARNING V-16-1-10563 Key solaris11-1 already in list.
VCS WARNING V-16-1-10563 Key solaris11-1 already in list.
VCS WARNING V-16-1-10563 Key solaris11-2 already in list.
bash: /opt/VRTSvcs/bin/halogin: No such file or directory
root@solaris11-1:/tmp#
root@solaris11-1:/tmp# hares -link vcszone vcspool
root@solaris11-1:/tmp#haconf -dump
```

NOW WE COPY OVER THE ZONE CONFIGURATION FILES FROM NODE1 TO NODE 2,  
THESE ARE LOCATED ON /etc/zones on NODE1

```
root@solaris11-1:/etc/zones# cd /etc/zones
root@solaris11-1:/etc/zones# ls -al
total 28
drwxr-xr-x  2 root  sys      10 Nov 10 05:31 .
drwxr-xr-x 80 root  sys     179 Nov 10 05:34 ..
-rw-r--r--  1 root  sys     345 Nov 10 05:31 index
lrwxrwxrwx  1 root  root     16 Nov  9 13:03 SUNWdefault.xml -> ./SYSdefault.xml
-r--r--r--  1 root  bin     375 Sep 19 2012 SYSblank.xml
```

```

-r--r--r-- 1 root  bin    368 Sep 19 2012 SYSdefault-shared-ip.xml
-r--r--r-- 1 root  bin    492 Sep 19 2012 SYSdefault.xml
lrwxrwxrwx 1 root  root    16 Nov  9 13:03 SYSsolaris.xml -> ./SYSdefault.xml
-r--r--r-- 1 root  bin    494 Sep 19 2012 SYSsolaris10.xml
-rw-r--r-- 1 root  root    405 Nov 10 05:19 testzone.xml
root@solaris11-1:/etc/zones# cat index
# ident "%Z%%M% %I%  %E% SMI"
# Copyright 2005 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
# DO NOT EDIT: this file is automatically generated by zoneadm(1M)
# and zonecfg(1M). Any manual changes will be lost.
#
global:installed:/
testzone:installed:/spool/mnt/testzone:3c02adee-7da4-40ab-d0c6-bfe4820aacc3
root@solaris11-1:/etc/zones# cat testzone.xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE zone PUBLIC "-//Sun Microsystems Inc//DTD Zones//EN"
"file:///usr/share/lib/xml/dtd/zonecfg.dtd.1">
<!--
DO NOT EDIT THIS FILE. Use zonecfg(1M) instead.
-->
<zone name="testzone" zonpath="/spool/mnt/testzone" autoboot="false" brand="solaris" ip-
type="shared">
<network physical="net0" address="10.0.0.60" configure-allowed-address="true"/>
</zone>
root@solaris11-1:/etc/zones#

```

```

root@solaris11-1:/etc/zones# scp index solaris11-2:/etc/zones
index          100% |
*****
*****| 345    00:00
root@solaris11-1:/etc/zones# scp testzone.xml solaris11-2:/etc/zones
testzone.xml   100% |
*****
*****| 405    00:00
root@solaris11-1:/etc/zones#

```

NOW GO TO NODE 2 AND EDIT THE index file

```

root@solaris11-2:/etc/zones# vi index
# ident "%Z%%M% %I%  %E% SMI"
# Copyright 2005 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
# DO NOT EDIT: this file is automatically generated by zoneadm(1M)
# and zonecfg(1M). Any manual changes will be lost.
#
global:installed:/

```

```
testzone:installed:/spool/mnt/testzone:3c02adee-7da4-40ab-d0c6-bfe4820aacc3
~
~
```

WE WILL REPLACE “installed” in testzone by “configured”, AND WE WILL REMOVE THE uuid ENTRY, SO AFTER EDITS IT LOOKS LIKE THIS:

```
root@solaris11-2:/etc/zones# vi index
root@solaris11-2:/etc/zones# cat index
# ident "%Z%%M% %I%  %E% SMI"
# Copyright 2005 Sun Microsystems, Inc. All rights reserved.
# Use is subject to license terms.
#
# DO NOT EDIT: this file is automatically generated by zoneadm(1M)
# and zonecfg(1M). Any manual changes will be lost.
#
global:installed:/
testzone:configured:/spool/mnt/testzone:
root@solaris11-2:/etc/zones#
```

NOW GO BACK TO NODE 1

halt testzone on solaris11-1 and export spool

```
root@solaris11-1:/etc/zones# zoneadm -z testzone halt
root@solaris11-1:/etc/zones# zpool export spool
root@solaris11-1:/etc/zones#
```

```
root@solaris11-1:/etc/zones# hastatus -sum
```

-- SYSTEM STATE

-- System	State	Frozen
-----------	-------	--------

A solaris11-1	RUNNING	0
A solaris11-2	RUNNING	0

-- GROUP STATE

-- Group	System	Probed	AutoDisabled	State
----------	--------	--------	--------------	-------

B ClusterService	solaris11-1	Y	N	ONLINE
B ClusterService	solaris11-2	Y	N	OFFLINE
B testgrp	solaris11-1	Y	N	OFFLINE FAULTED
B testgrp	solaris11-2	Y	N	PARTIAL

-- RESOURCES FAILED

```

-- Group      Type      Resource      System
D testgrp    Zone      vcszone       solaris11-1

-- RESOURCES ONLINING
-- Group      Type      Resource      System      IState
F testgrp    Zone      vcszone       solaris11-2  W_ONLINE
root@solaris11-1:/etc/zones#

```

CLEAR THE FAULTS ON NODE1 (solaris11-1)

```

root@solaris11-1:/etc/zones# hares -clear vcszone -sys solaris11-1
root@solaris11-1:/etc/zones#

```

```

root@solaris11-1:/etc/zones# hastatus -sum

```

```

-- SYSTEM STATE
-- System      State      Frozen
A solaris11-1  RUNNING   0
A solaris11-2  RUNNING   0

-- GROUP STATE
-- Group      System      Probed  AutoDisabled  State
B ClusterService solaris11-1  Y      N      ONLINE
B ClusterService solaris11-2  Y      N      OFFLINE
B testgrp      solaris11-1  Y      N      OFFLINE
B testgrp      solaris11-2  Y      N      ONLINE
root@solaris11-1:/etc/zones#

```

Now run this command on node2:

```

root@solaris11-2:/etc/zones# export PATH=$PATH:/opt/VRTSvcs/bin
root@solaris11-2:/etc/zones# hazonesetup -g testgrp -r vcszone -z testzone -p abc123 -a -s solaris11-1,solaris11-2
V-16-34-1107 Group testgrp is already present
VCS WARNING V-16-1-10563 Key solaris11-1 already in list.
VCS WARNING V-16-1-10563 Key solaris11-1 already in list.
VCS WARNING V-16-1-10563 Key solaris11-2 already in list.
VCS WARNING V-16-1-10563 Key solaris11-2 already in list.
V-16-34-1114 Resource vcszone already present
bash: /opt/VRTSvcs/bin/halogin: No such file or directory
root@solaris11-2:/etc/zones#

```

## Now we will test switching the zone from one node to another

check which node the service Group (zone) is running:

```
root@solaris11-2:/etc/zones# hastatus -sum
```

```
-- SYSTEM STATE
-- System      State      Frozen

A solaris11-1  RUNNING   0
A solaris11-2  RUNNING   0

-- GROUP STATE
-- Group       System      Probed  AutoDisabled  State

B ClusterService solaris11-1  Y      N      ONLINE
B ClusterService solaris11-2  Y      N      OFFLINE
B testgrp      solaris11-1  Y      N      OFFLINE
B testgrp      solaris11-2  Y      N      ONLINE
root@solaris11-2:/etc/zones#
```

it is running on node 2, to test our work, we will try to switch it to node 1

on either node run the command:

```
hagr -switch testgrp -to solaris11-1
```

```
root@solaris11-1:/etc/zones# agr -switch testgrp -to solaris11-1
root@solaris11-1:/etc/zones#
```

constantly keep typing this command on either node:

```
hastatus -sum
```

```
root@solaris11-2:/etc/zones# hastatus -sum
```

```
-- SYSTEM STATE
-- System      State      Frozen

A solaris11-1  RUNNING   0
A solaris11-2  RUNNING   0

-- GROUP STATE
-- Group       System      Probed  AutoDisabled  State

B ClusterService solaris11-1  Y      N      ONLINE
B ClusterService solaris11-2  Y      N      OFFLINE
```

```
B testgrp    solaris11-1    Y    N    STARTING|PARTIAL
B testgrp    solaris11-2    Y    N    OFFLINE
```

```
-- RESOURCES ONLINING
```

```
-- Group      Type      Resource      System      IState
F testgrp     Zone      vcszone       solaris11-1  W_ONLINE
root@solaris11-2:/etc/zones#
```

```
root@solaris11-2:/etc/zones# hastatus -sum
```

```
-- SYSTEM STATE
```

```
-- System      State      Frozen
A solaris11-1  RUNNING   0
A solaris11-2  RUNNING   0
```

```
-- GROUP STATE
```

```
-- Group      System      Probed  AutoDisabled  State
B ClusterService solaris11-1    Y    N    ONLINE
B ClusterService solaris11-2    Y    N    OFFLINE
B testgrp      solaris11-1    Y    N    ONLINE
B testgrp      solaris11-2    Y    N    OFFLINE
root@solaris11-2:/etc/zones#
```

So, we have successfully implemented zone failover/switchover.