

OpenFiler 2.99.1
X86_64

openfiler

Installation and Configuration Guide V 1.0

Alok Chilka

CodeSocial
info@codesocial.net

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About

Openfiler is an operating system that provides file-based network-attached storage and block-based storage area network.

- 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

Openfiler addresses all the key data storage concerns:

Reliability - Openfiler supports both software and hardware RAID with monitoring and alert facilities; volume snapshot and recovery

Availability - Openfiler supports active/passive high availability clustering, MPIO, and block level replication

Performance - Linux 2.6 kernel supports the latest CPU, networking and storage hardware

Scalability - filesystem scalability to 60TB+, online filesystem and volume growth support

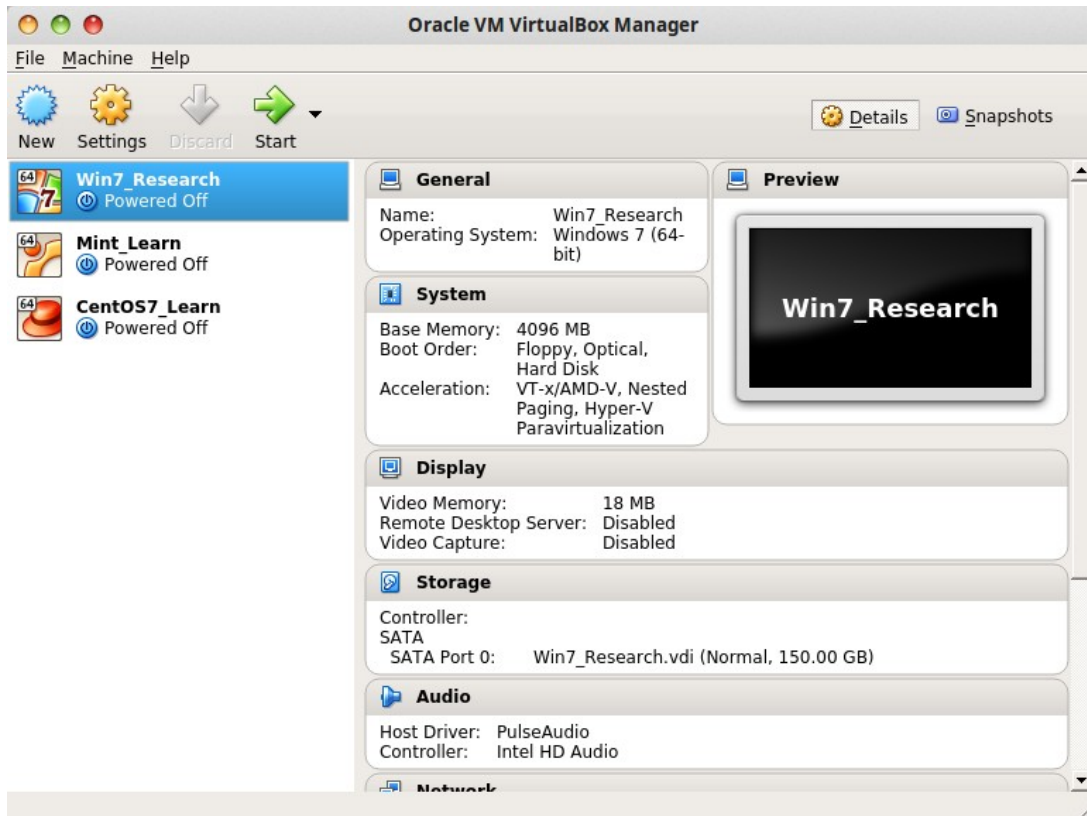
VM Configuration used in this guide

Guest OS :	Linux Mint 17.3 Cinnamon 64bit	username : enigma password : !@root123
VirtualBox :	5.1.30	
RAM :	4GB/6GB	
OpenFiler :	2.99.1	
VDI Space / Storage :	30GB	

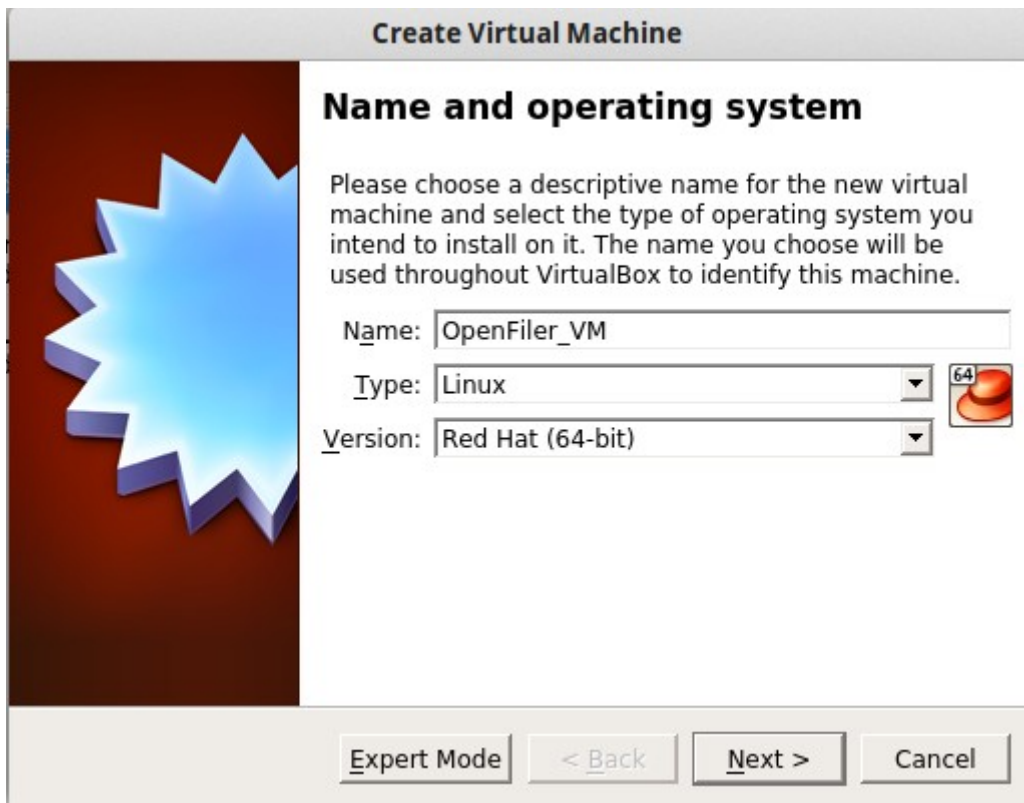
Guest OS :	OpenFiler	username : openfiler passwd : password root username : root root password : !@Ilg007su
VirtualBox :	5.1.30	
RAM :	4GB/6GB	
VDI Space / Storage :	15GB	

Installation

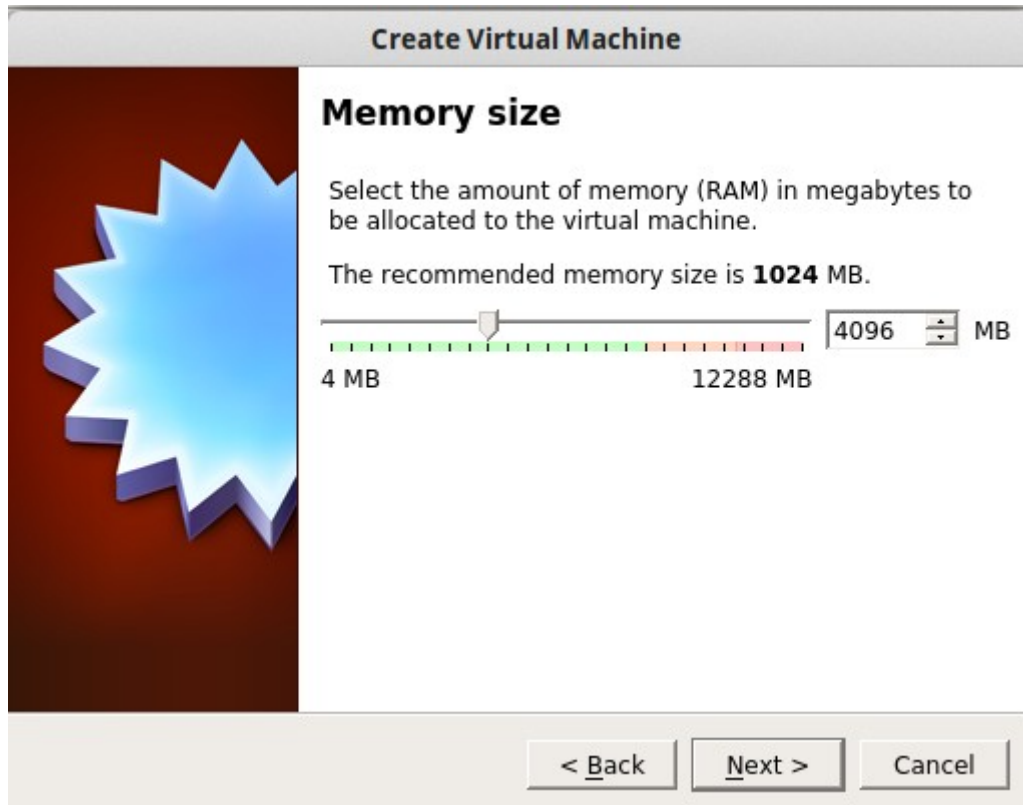
Step 1: Click on New and follow the steps ahead.



Step 2:



Step 3:



Step 4:



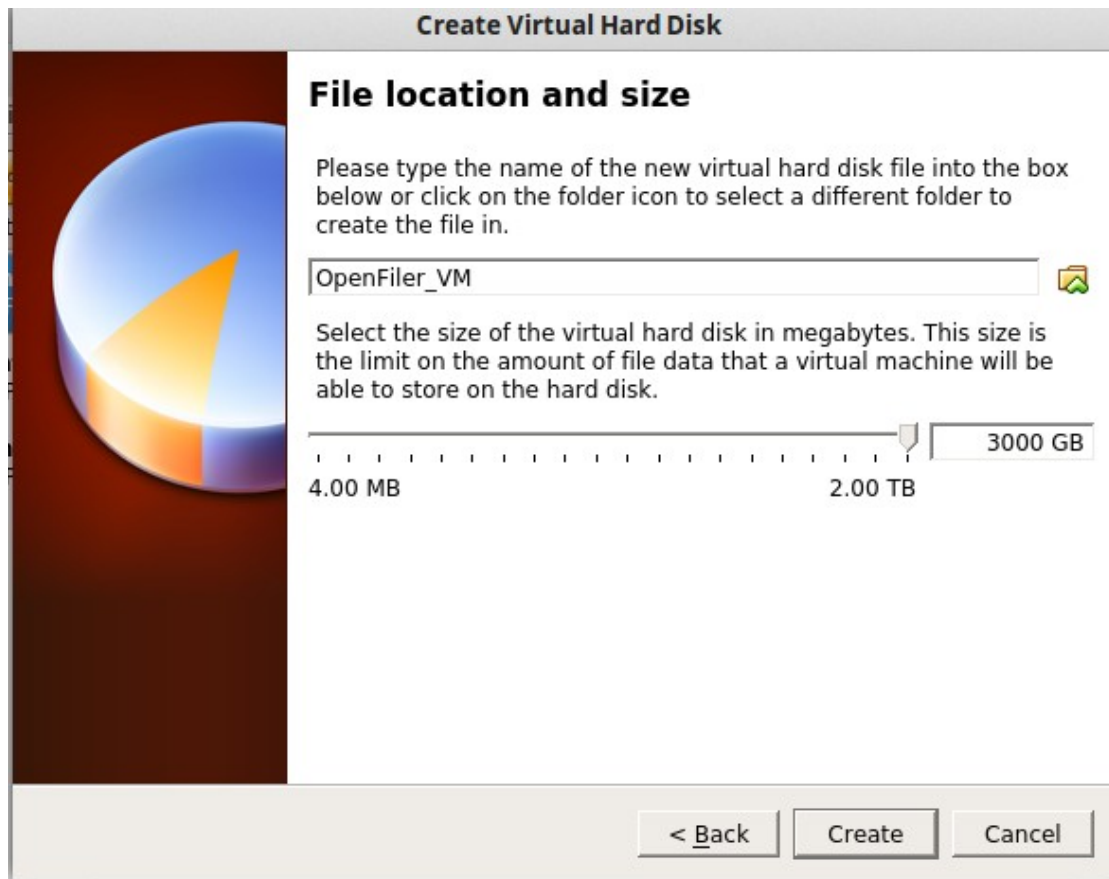
Step 5:



Step 6:



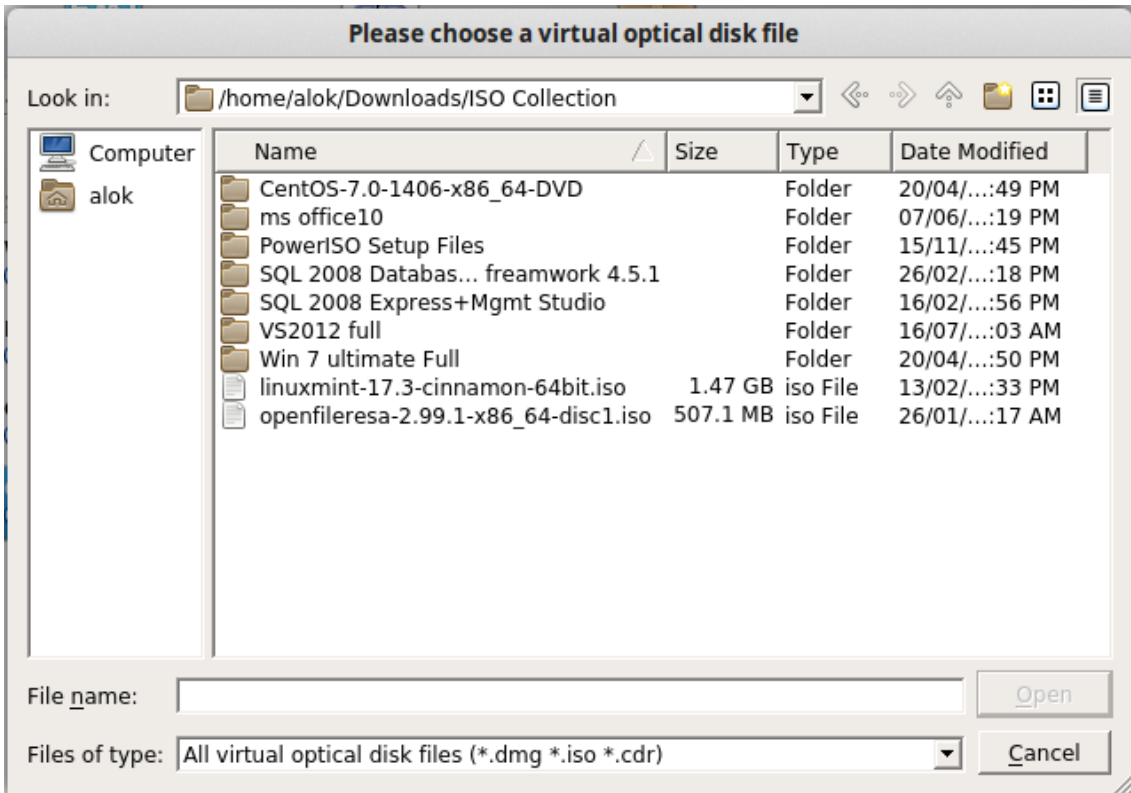
Step 7:



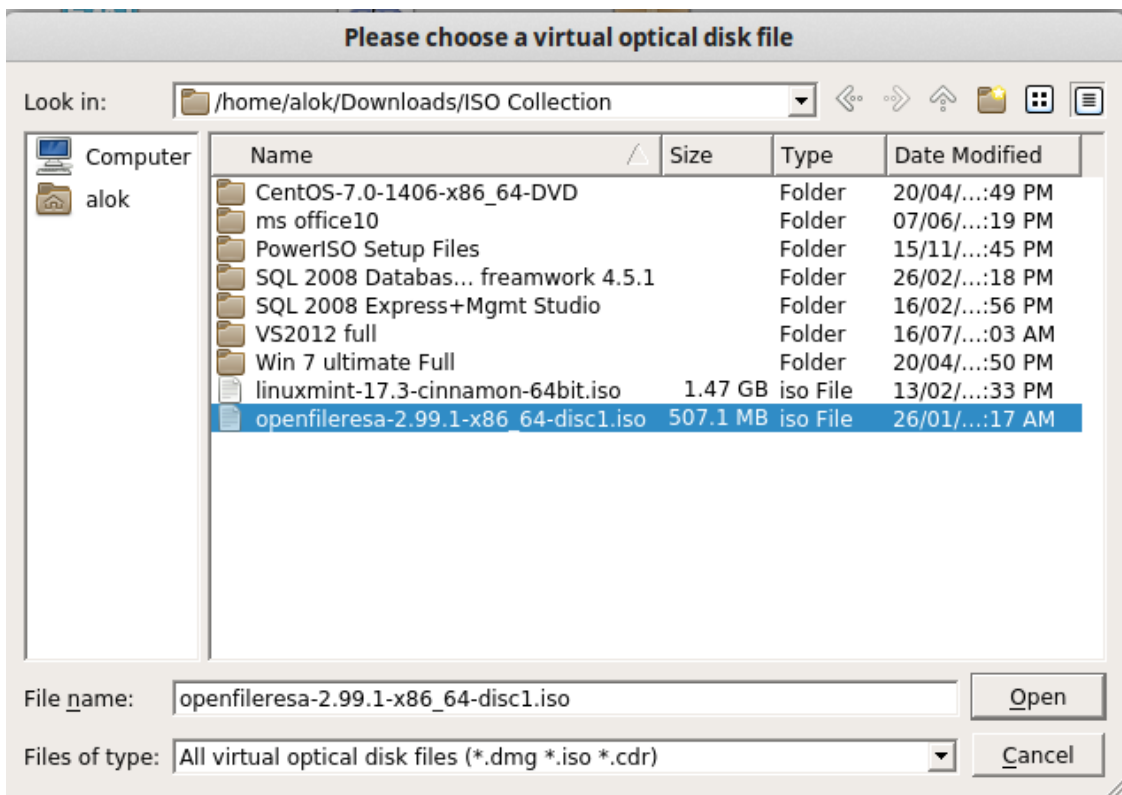
Step 8:



Step 9:



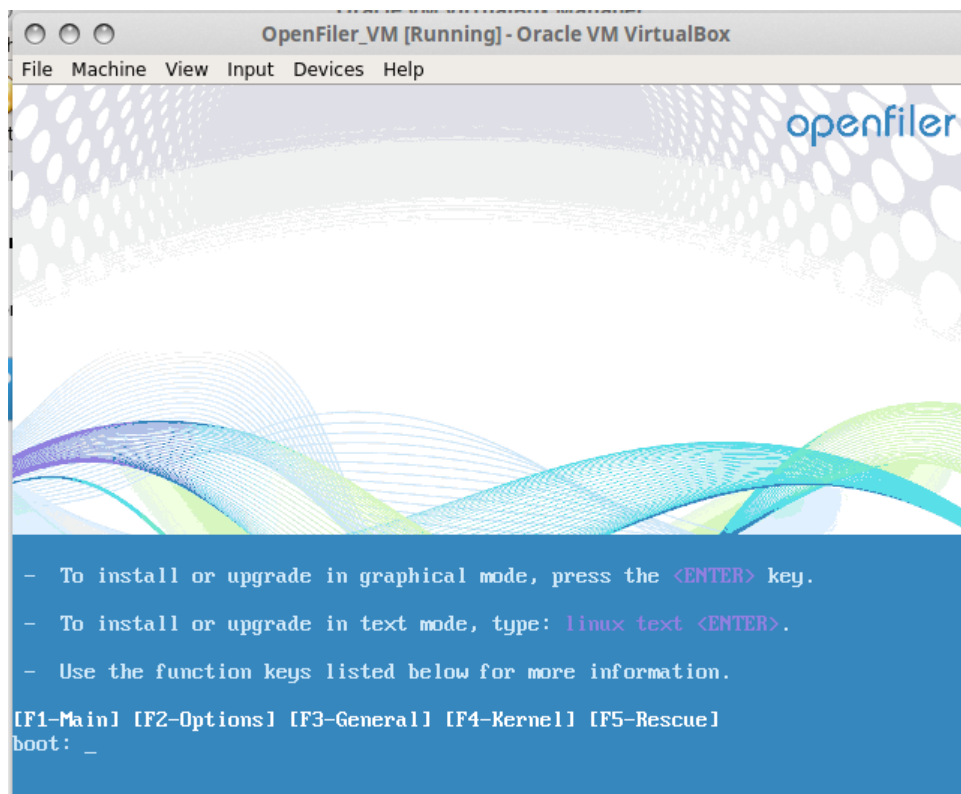
Step 10:



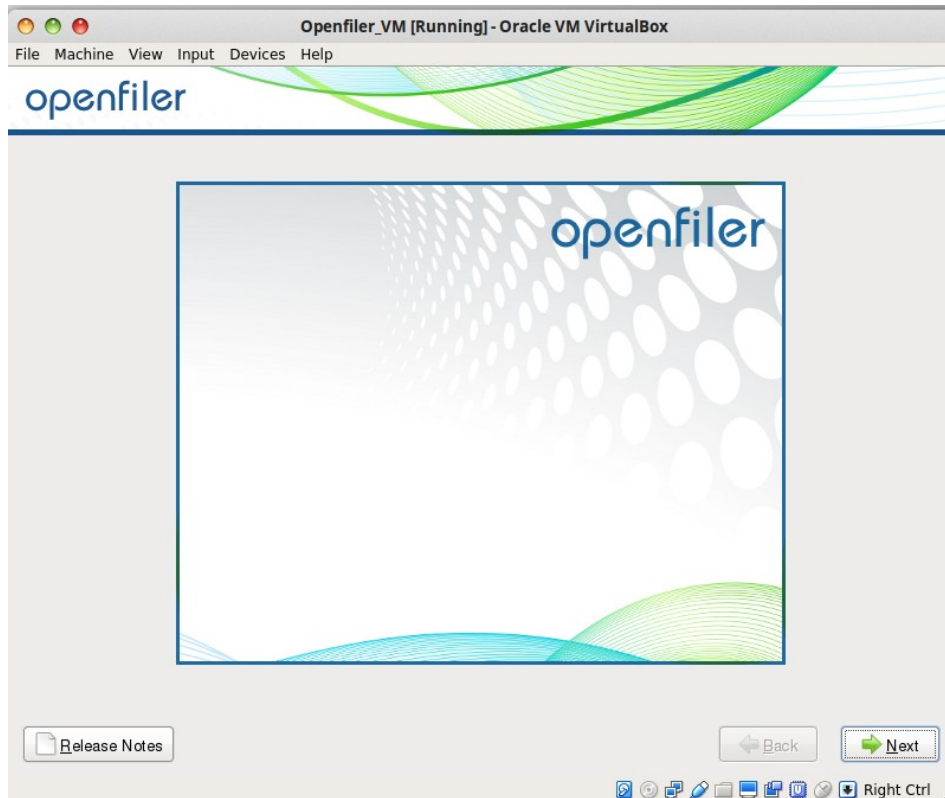
Step 11 :



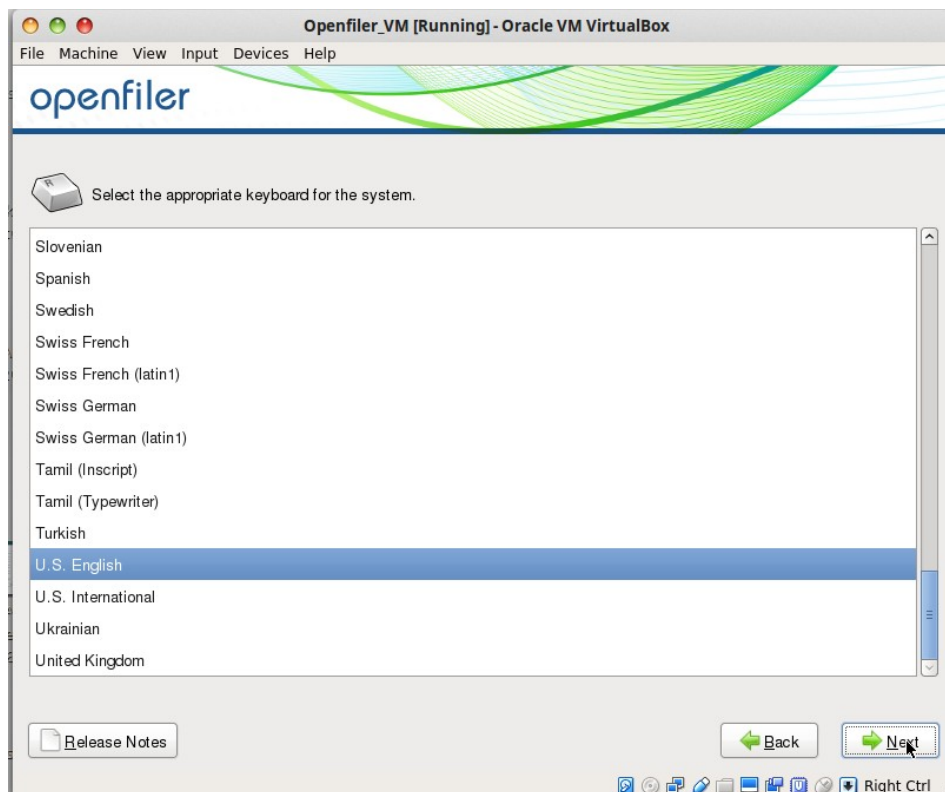
Step 12 :



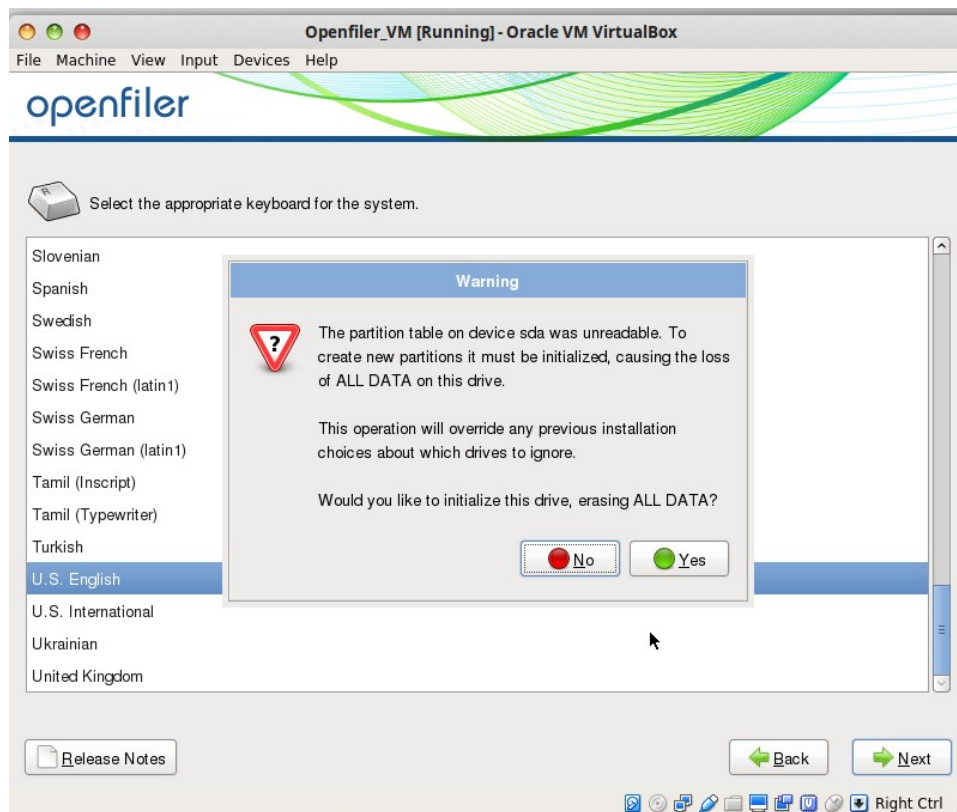
Step 13 :



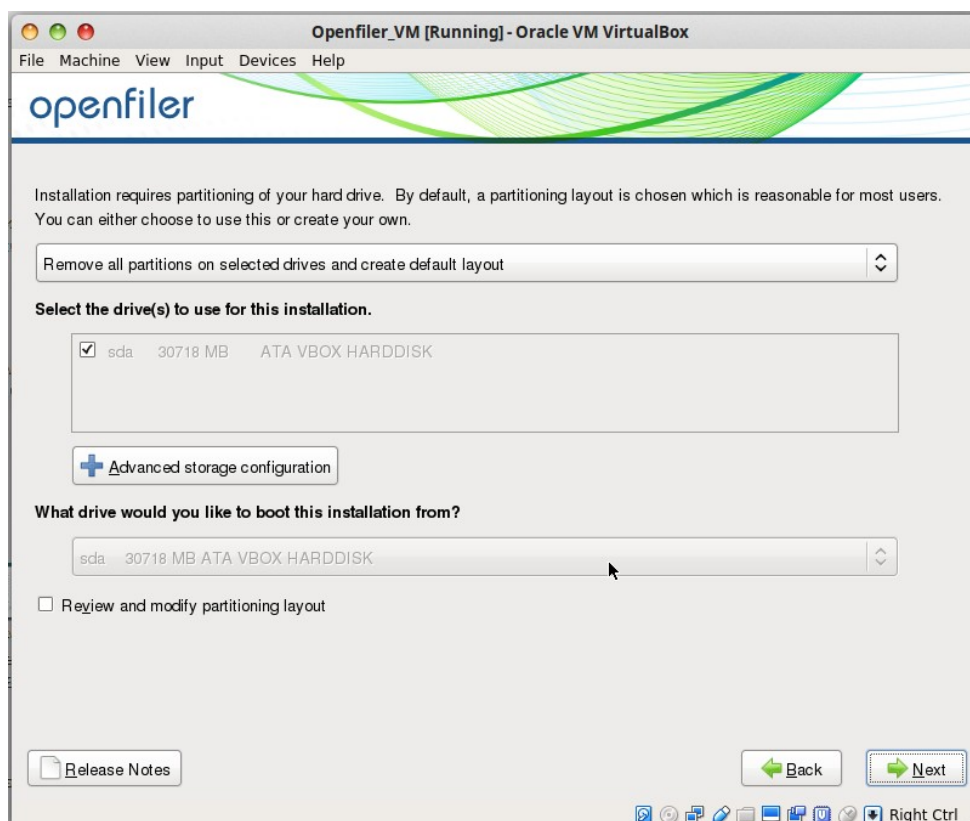
Step 14 :



Step 15 :

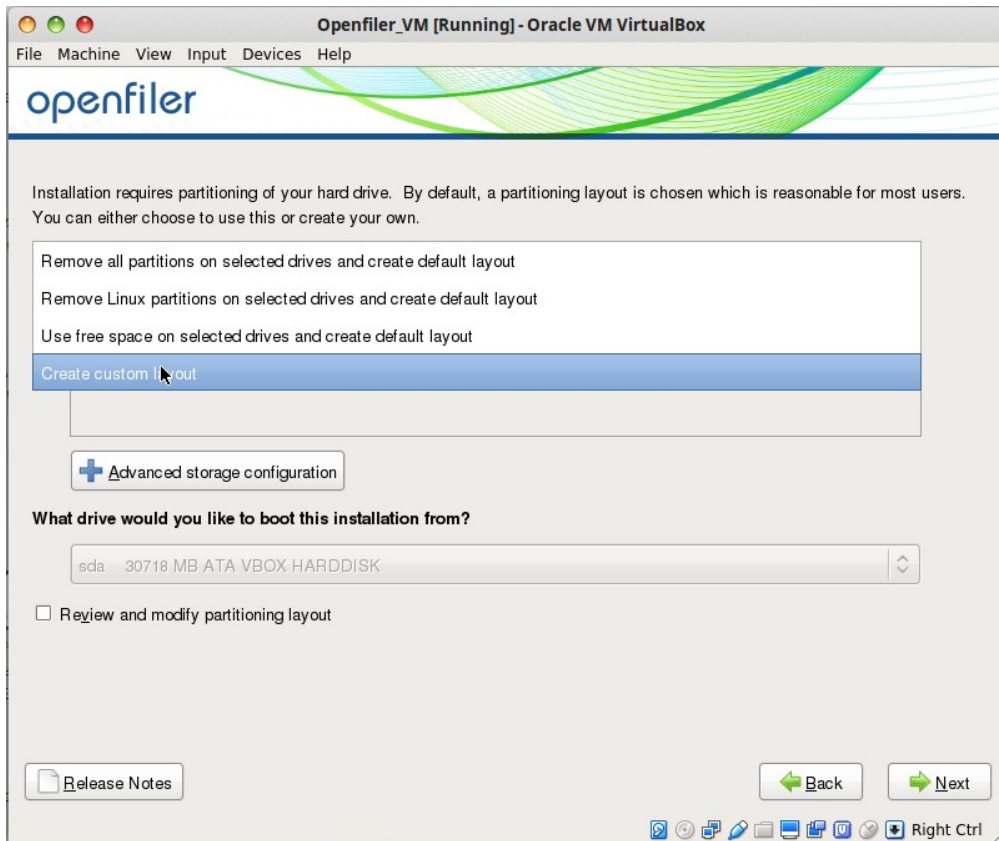


Step 16 :

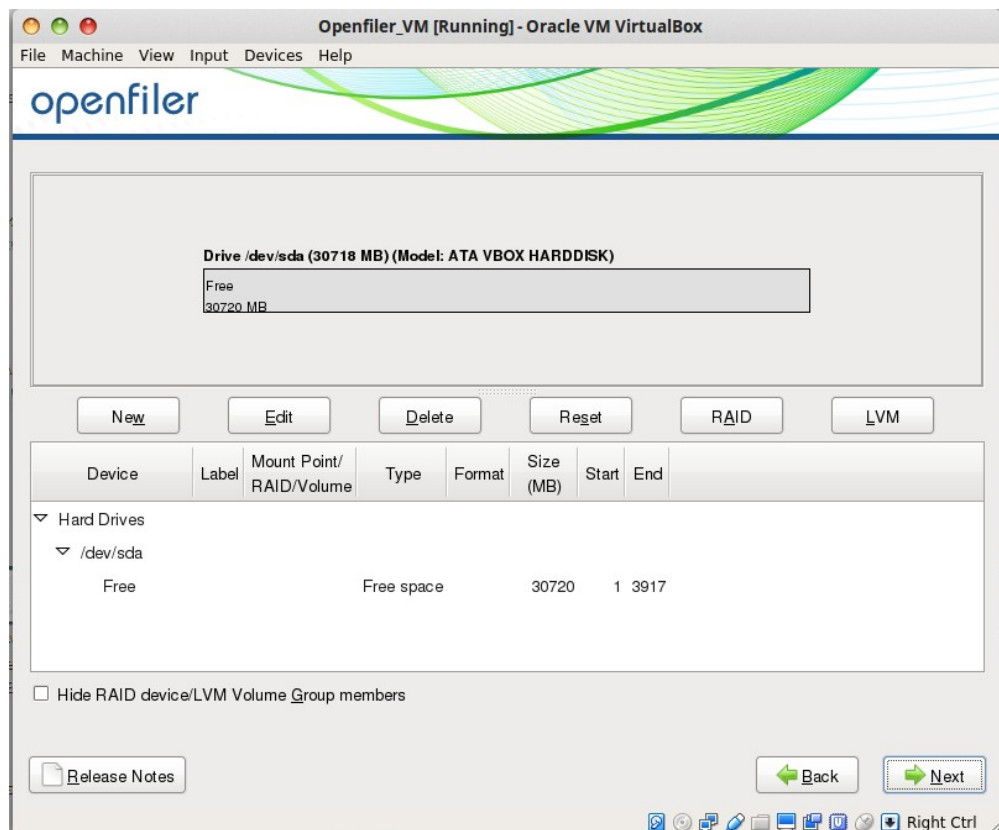


Step 17:

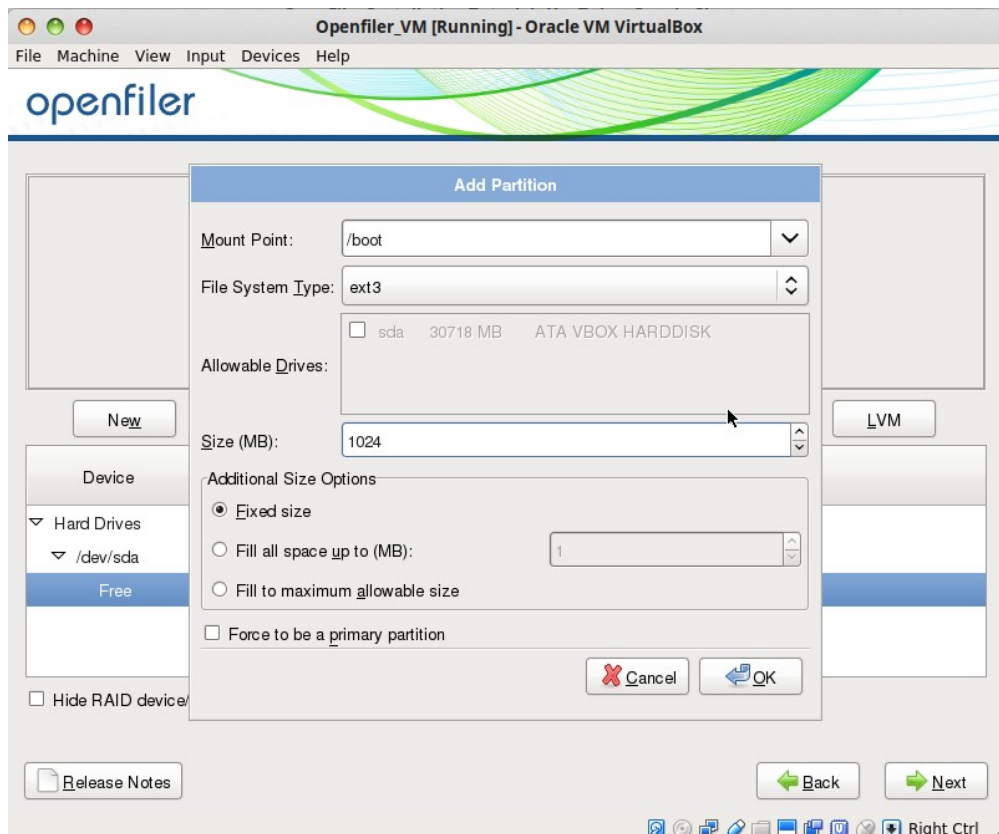
Here you need to select custom layout else you wont be able to create custom sized partitions.



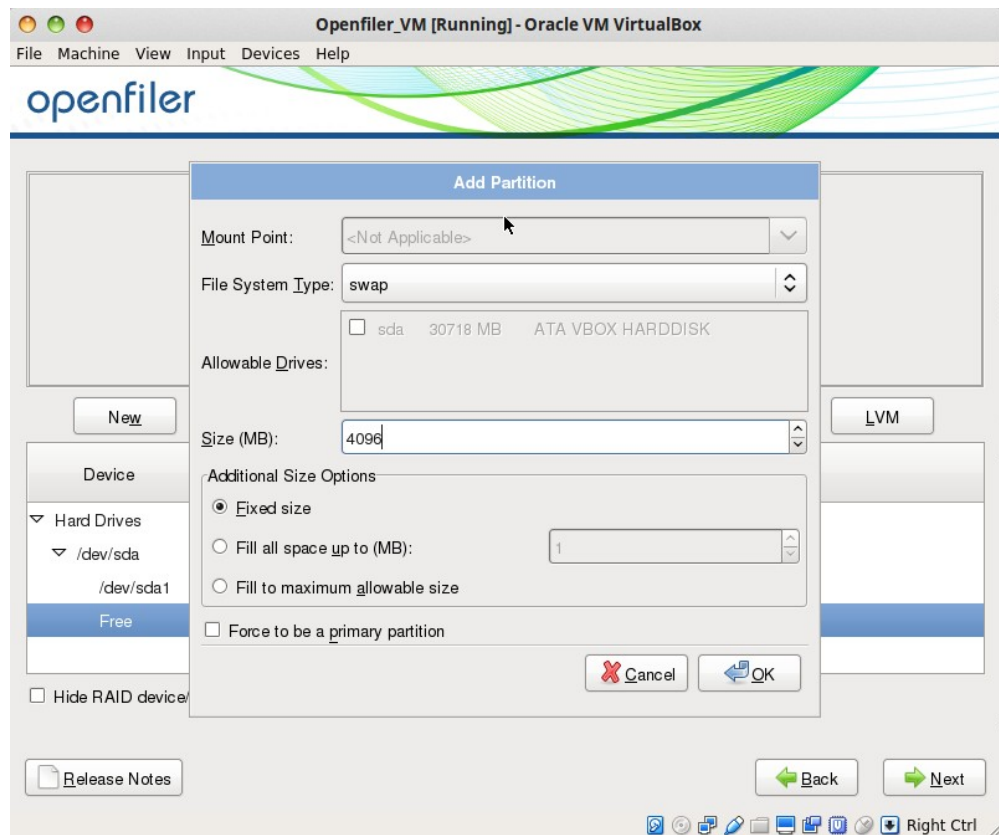
Step 18:



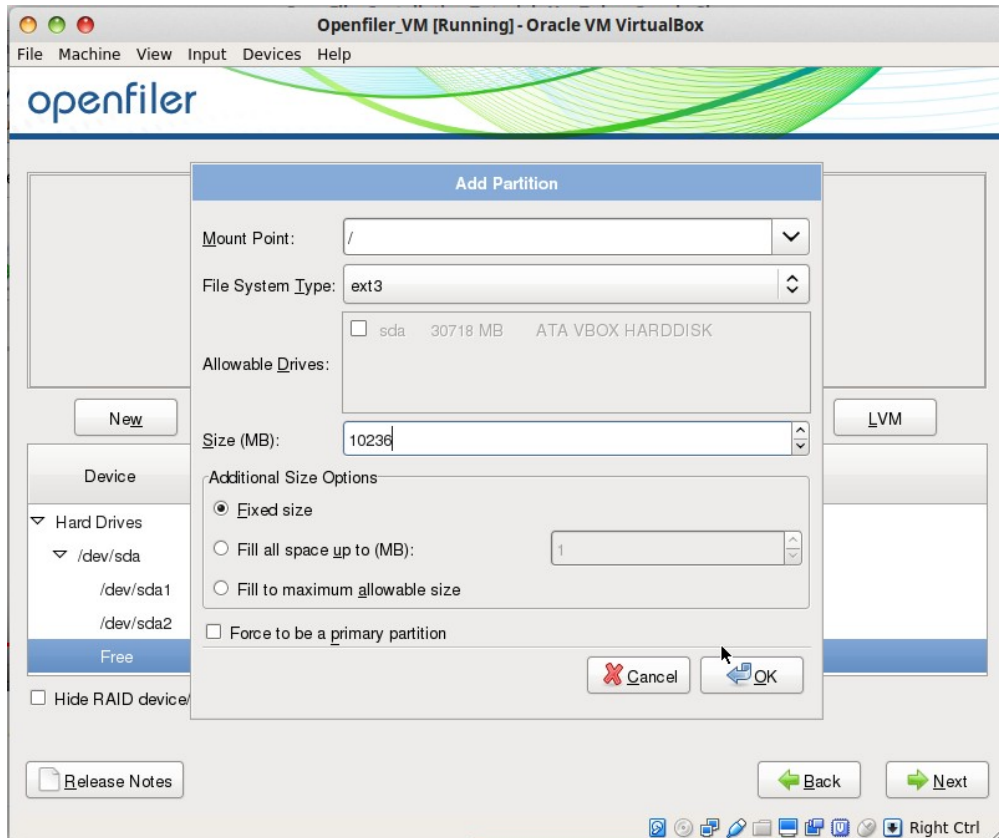
Step 19:



Step 20:

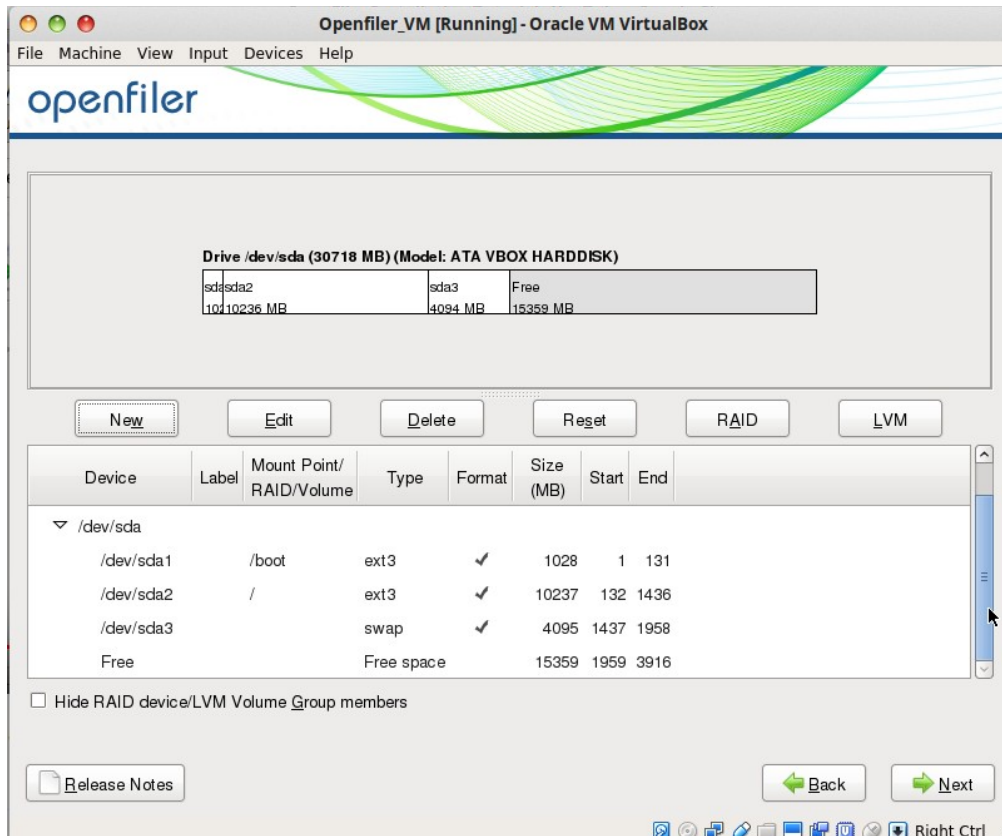


Step 21 :

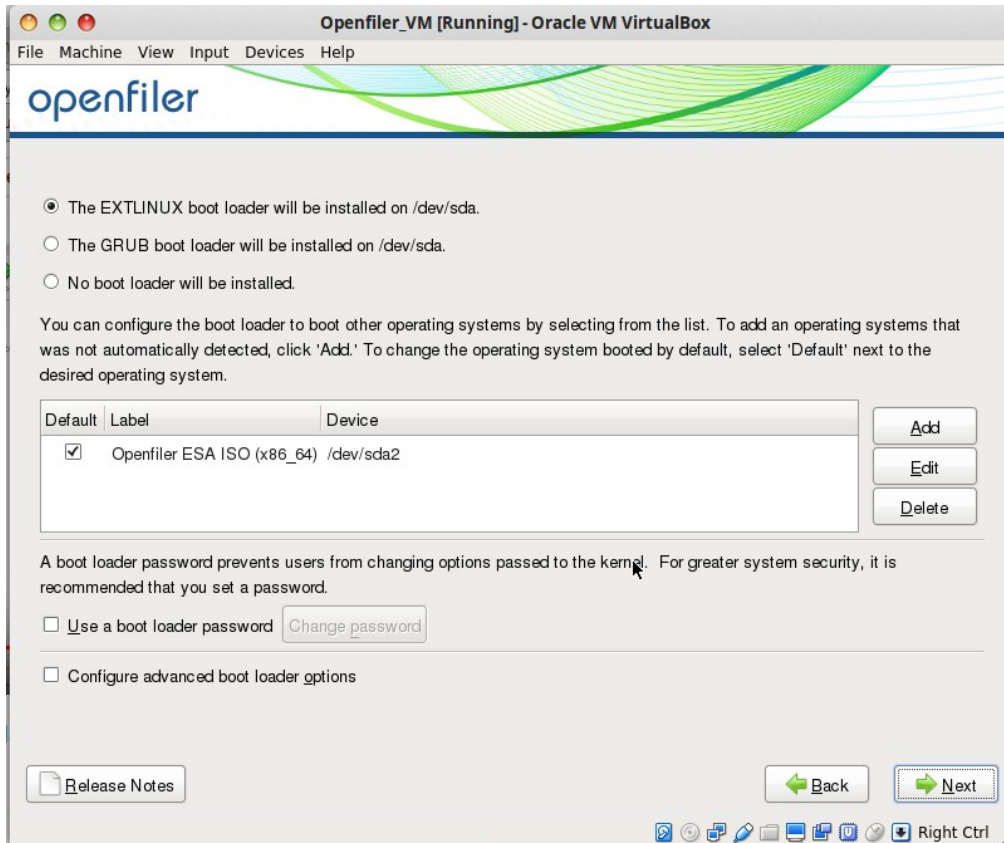


Step 22 :

Keep some space free out of total allocated to VM for later use (i.e. for creating new storage blocks / drives to share further on network)

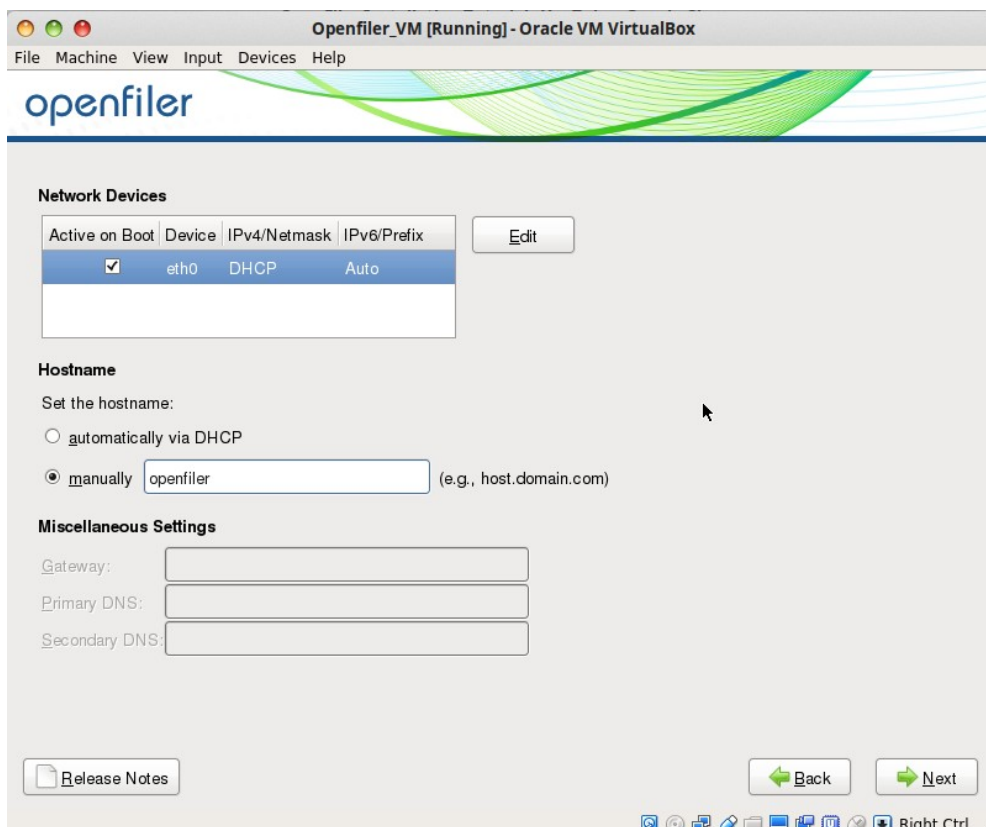


Step 23 :

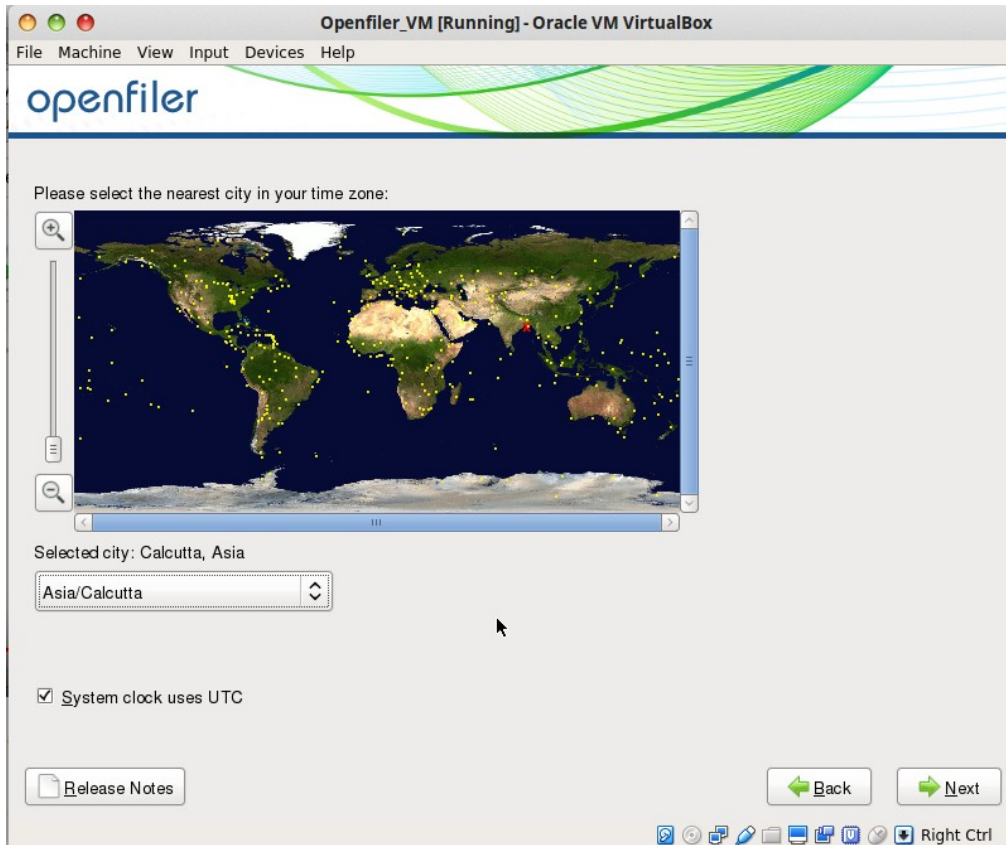


Step 24 :

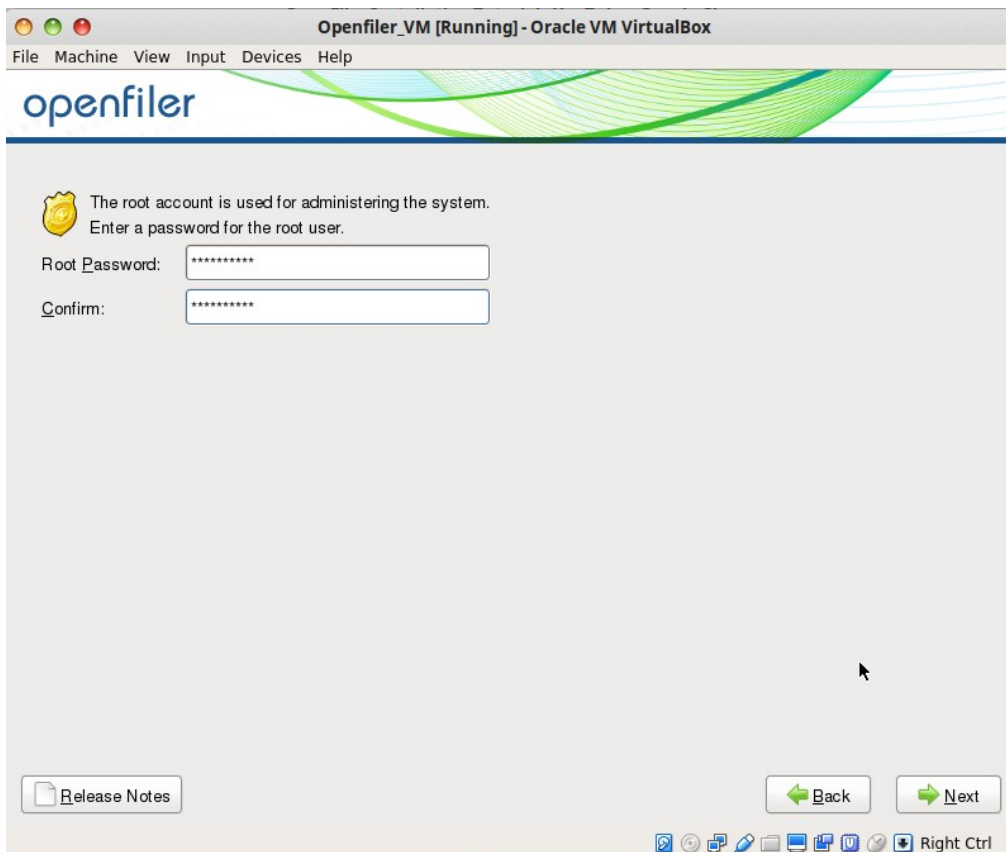
Provide a hostname to your machine and keep the DHCP settings default unless you are not sure of the settings you are planning to do for your network else it may disturb the connectivity of OS on the network.



Step 25 :



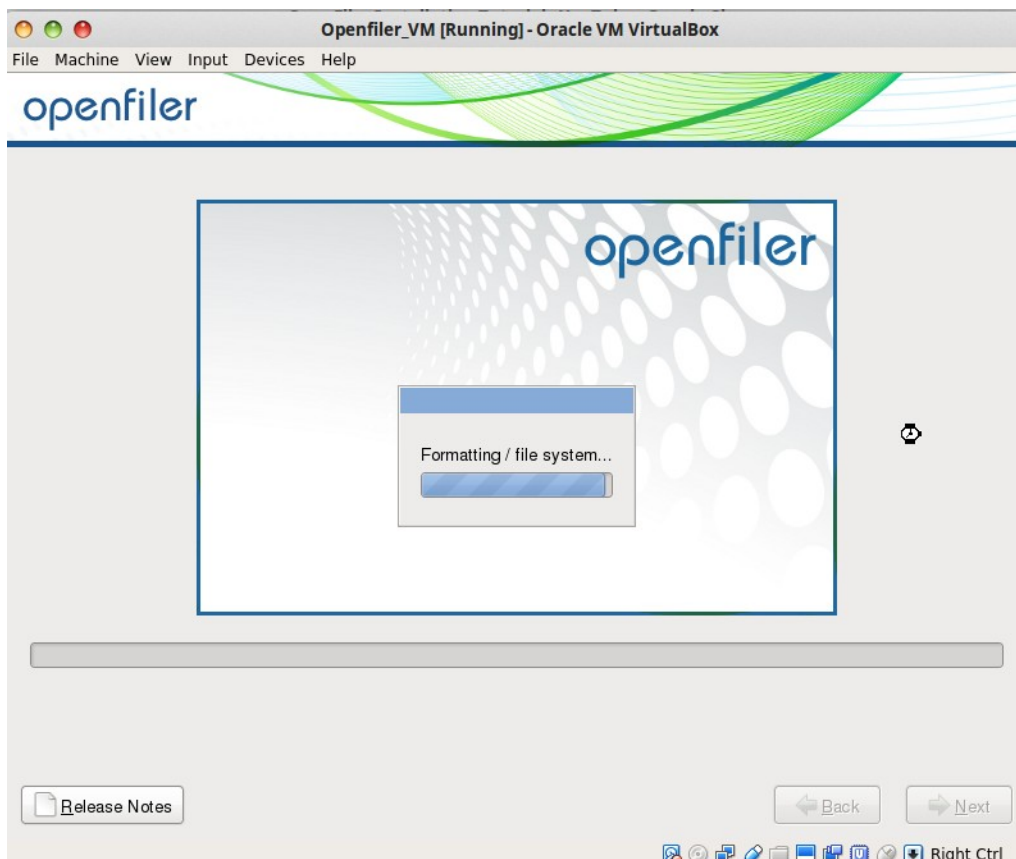
Step 26 :



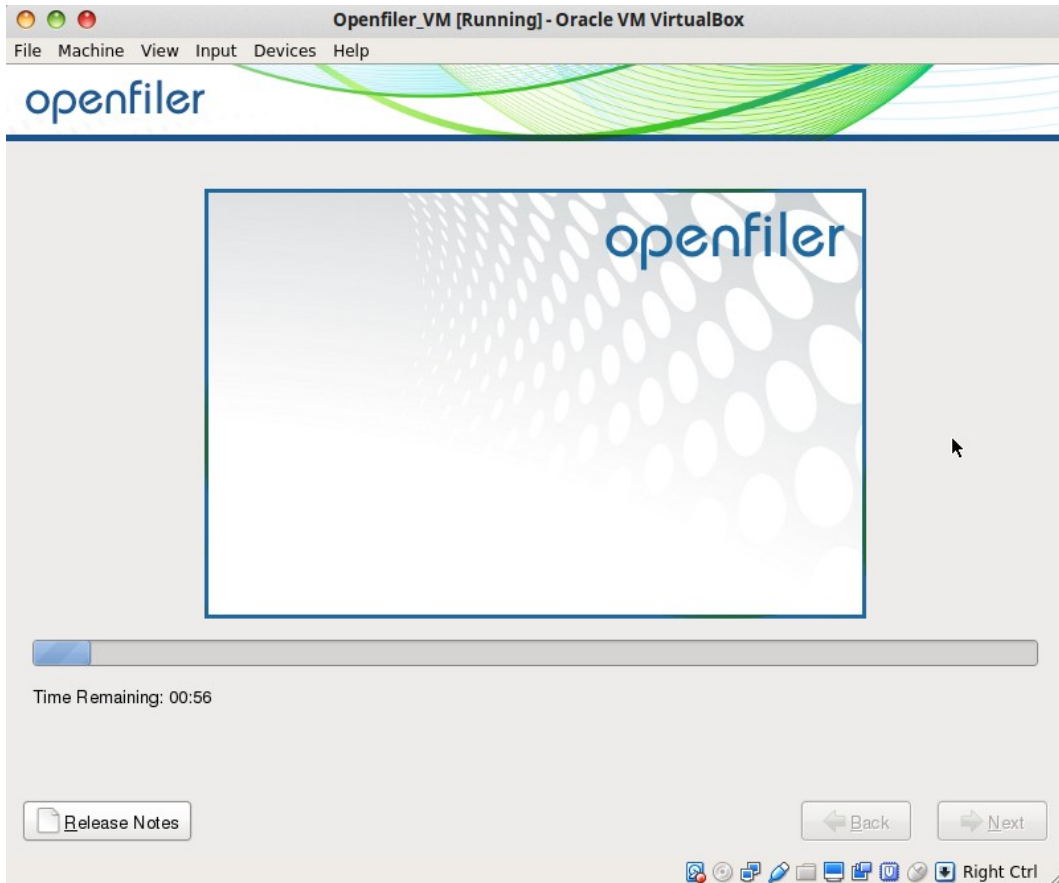
Step 27 :



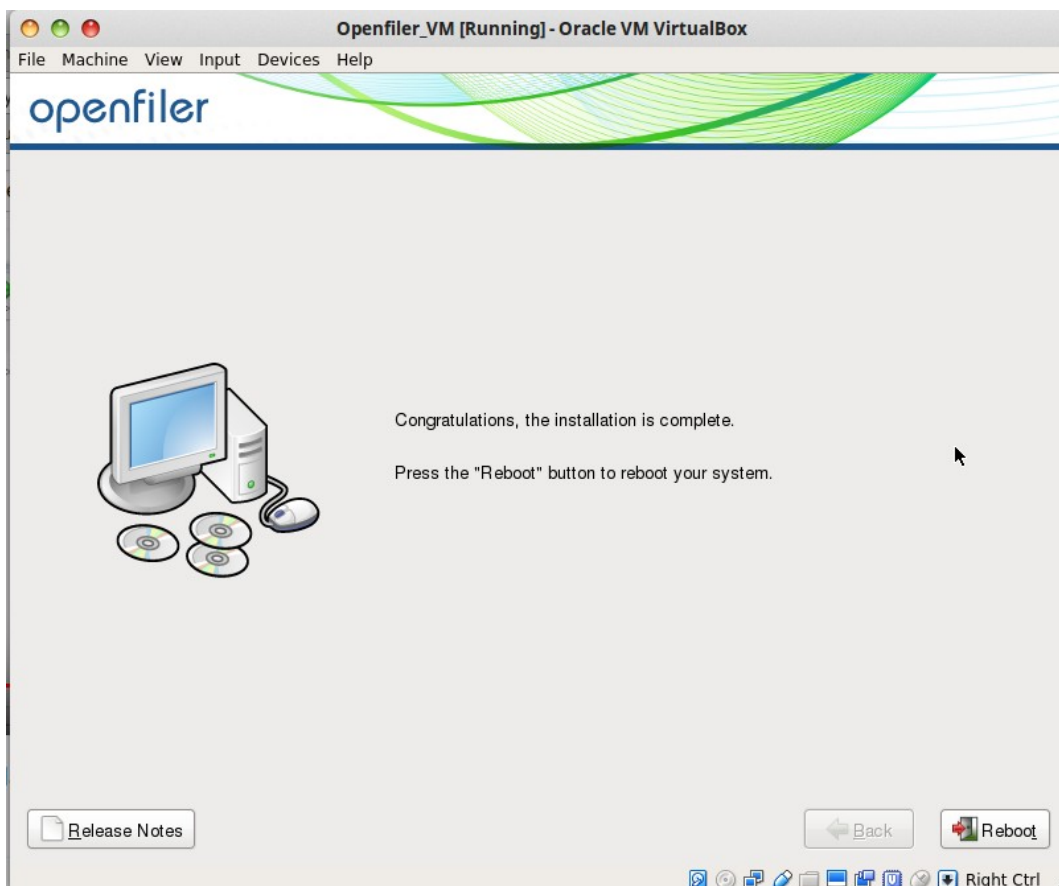
Step 28 :



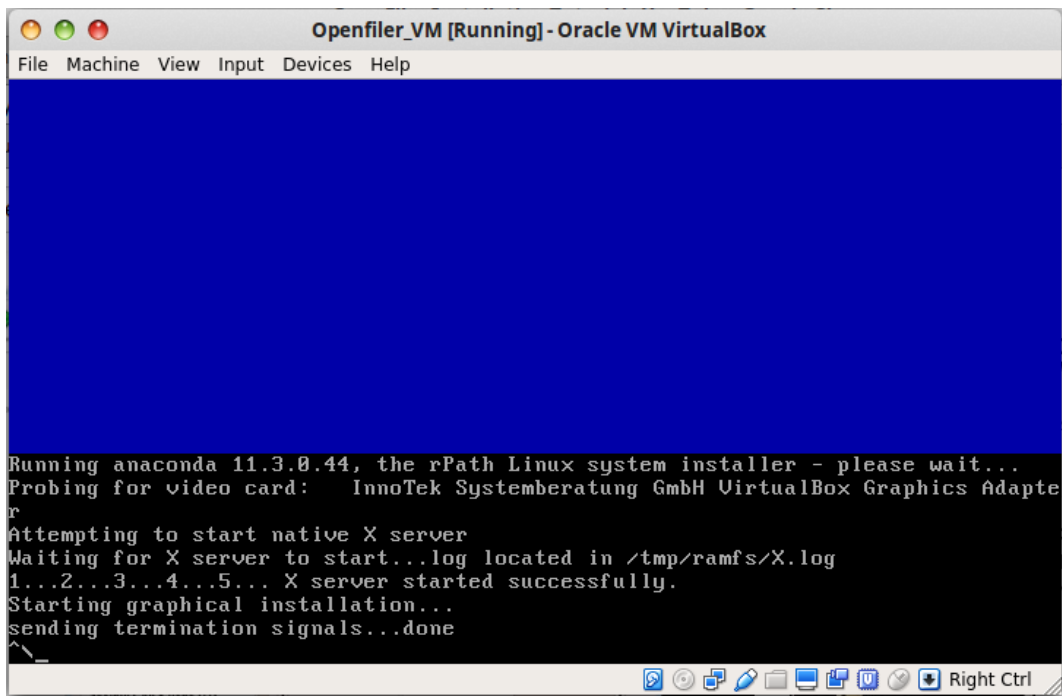
Step 29 :



Step 30 :

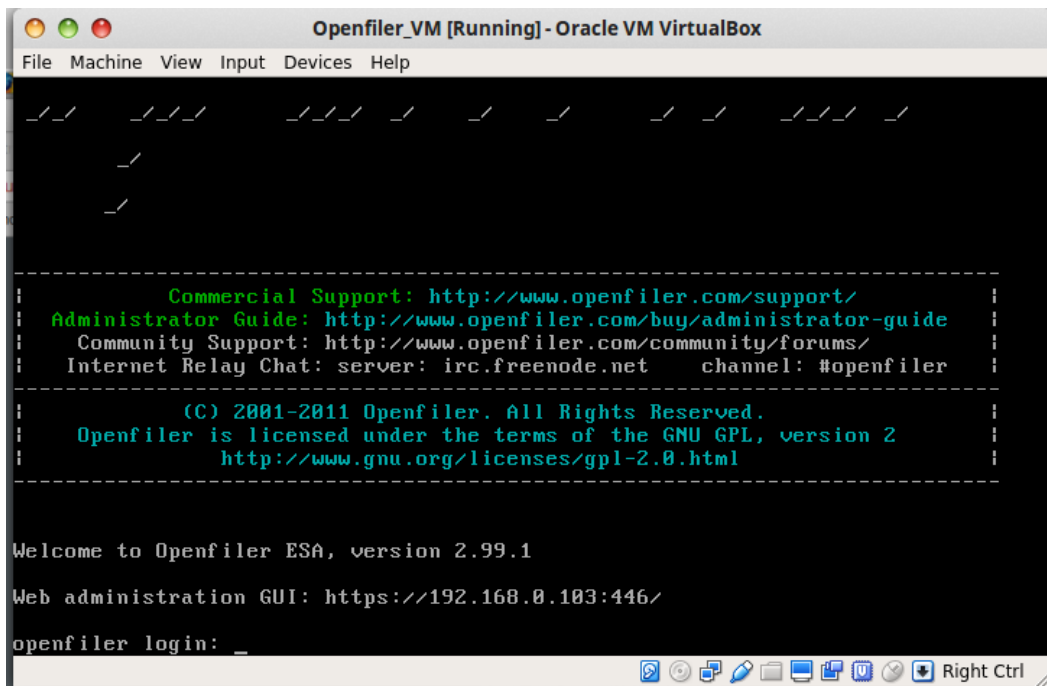


Step 31 :



```
Running anaconda 11.3.0.44, the rPath Linux system installer - please wait...
Probing for video card:  InnoTek Systemberatung GmbH VirtualBox Graphics Adapter
Attempting to start native X server
Waiting for X server to start...log located in /tmp/ramfs/X.log
1...2...3...4...5... X server started successfully.
Starting graphical installation...
sending termination signals...done
```

Step 32 :



```
-----
:      Commercial Support: http://www.openfiler.com/support/      :
:  Administrator Guide: http://www.openfiler.com/buy/administrator-guide  :
:  Community Support: http://www.openfiler.com/community/forums/      :
:  Internet Relay Chat: server: irc.freenode.net   channel: #openfiler  :
:
:      (C) 2001-2011 Openfiler. All Rights Reserved.              :
:  Openfiler is licensed under the terms of the GNU GPL, version 2    :
:      http://www.gnu.org/licenses/gpl-2.0.html                    :
:
:-----

Welcome to Openfiler ESA, version 2.99.1

Web administration GUI: https://192.168.0.103:446/

openfiler login: _
```

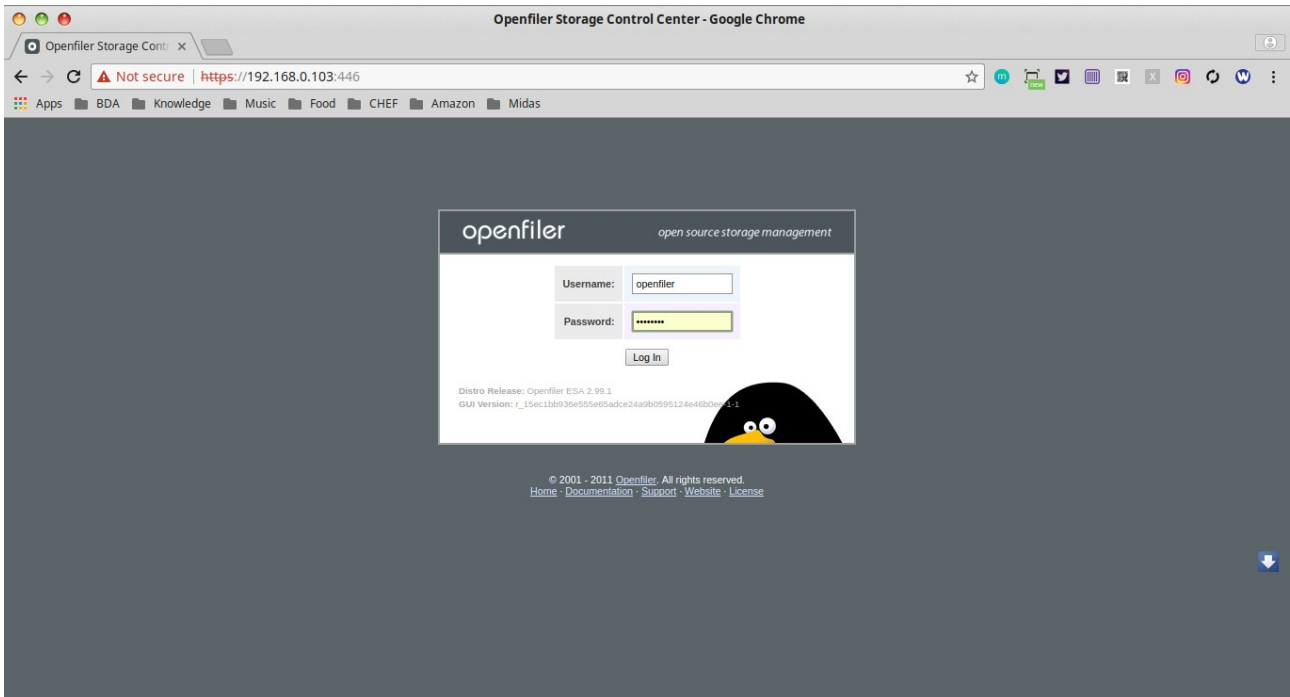
Here you can use command line option to work along with the storage provided if you know the commands well or else you have the GUI version too that makes your work lot more easier. GUI version URL is given on the terminal itself.

Remember : Openfiler runs on port 446 and HTTPS protocol.

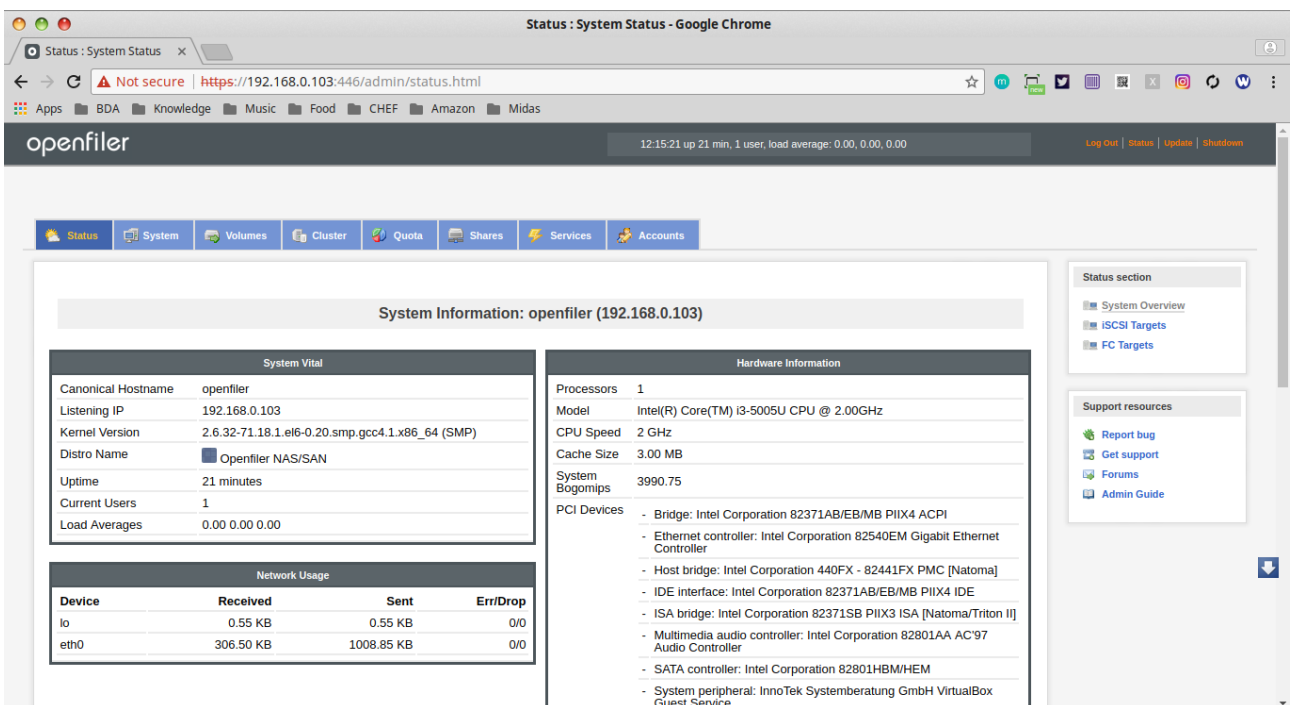
Default Login Credentials for GUI are as follows :

username : openfiler
password : password

Step 33 :



Step 34 :



Kudos!!... Now lets work on some configuration.

Configuration

Step 1: Go to **Services Tab** and enable the necessary services and start them. (CIFS, LDAP, iSCSI Target, iSCSI initiator)

Manage Services				
Service	Boot Status	Modify Boot	Current Status	Start / Stop
CIFS Server	Disabled	Enable	Stopped	Start
NFS Server	Disabled	Enable	Stopped	Start
RSync Server	Disabled	Enable	Stopped	Start
HTTP/Dav Server	Disabled	Enable	Running	Stop
LDAP Container	Disabled	Enable	Stopped	Start
FTP Server	Disabled	Enable	Stopped	Start
iSCSI Target	Disabled	Enable	Stopped	Start
UPS Manager	Disabled	Enable	Stopped	Start
UPS Monitor	Disabled	Enable	Stopped	Start
iSCSI Initiator	Disabled	Enable	Stopped	Start
ACPI Daemon	Enabled	Disable	Running	Stop
SCST Target	Disabled	Enable	Stopped	Start
FC Target	Disabled	Enable	Stopped	Start
Cluster Manager	Disabled	Enable	Stopped	Start

Step 2:

Go to **Accounts Tab**. Now let's configure accounts.

Select the check box : Use LDAP

Select the check box : Local LDAP server

Server : 127.0.0.1

Base DN : dc=example,dc=com

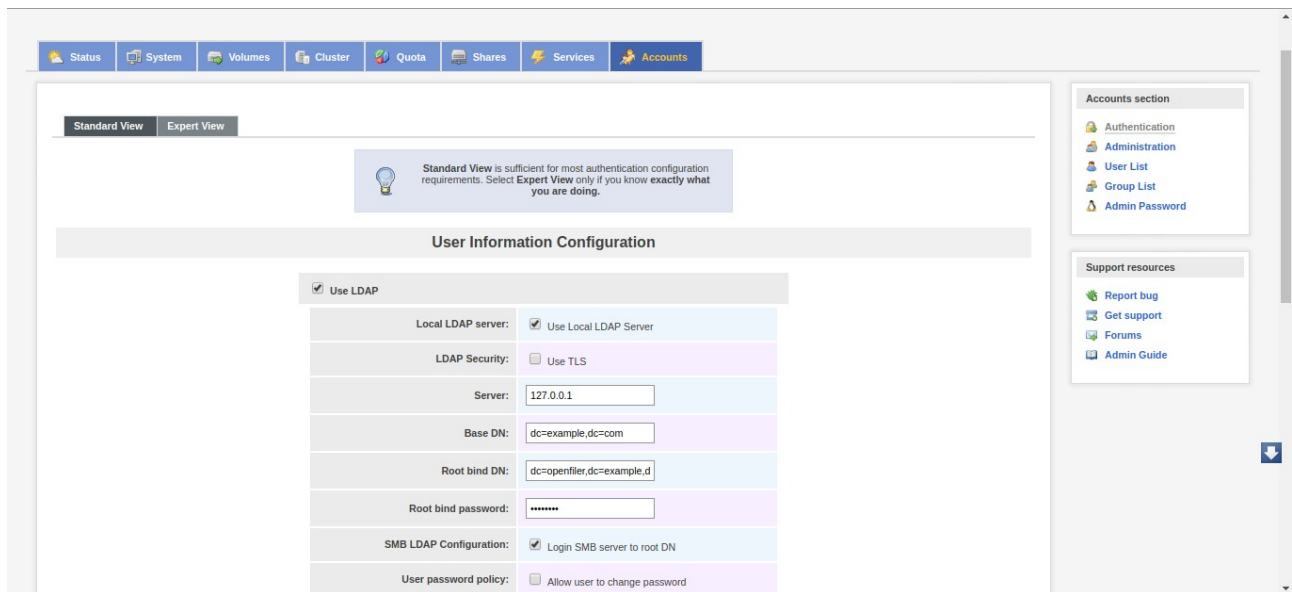
Root bind DN : dc=openfiler,dc=example,dc=com

Root bind password : <your_default_password> i.e. "password"

After making the necessary changes

What is LDAP ??? - (Lightweight Directory Access Protocol) is a software protocol for enabling anyone to locate organizations, individuals, and other resources such as files and devices in a network, whether on the public Internet or on a corporate intranet.

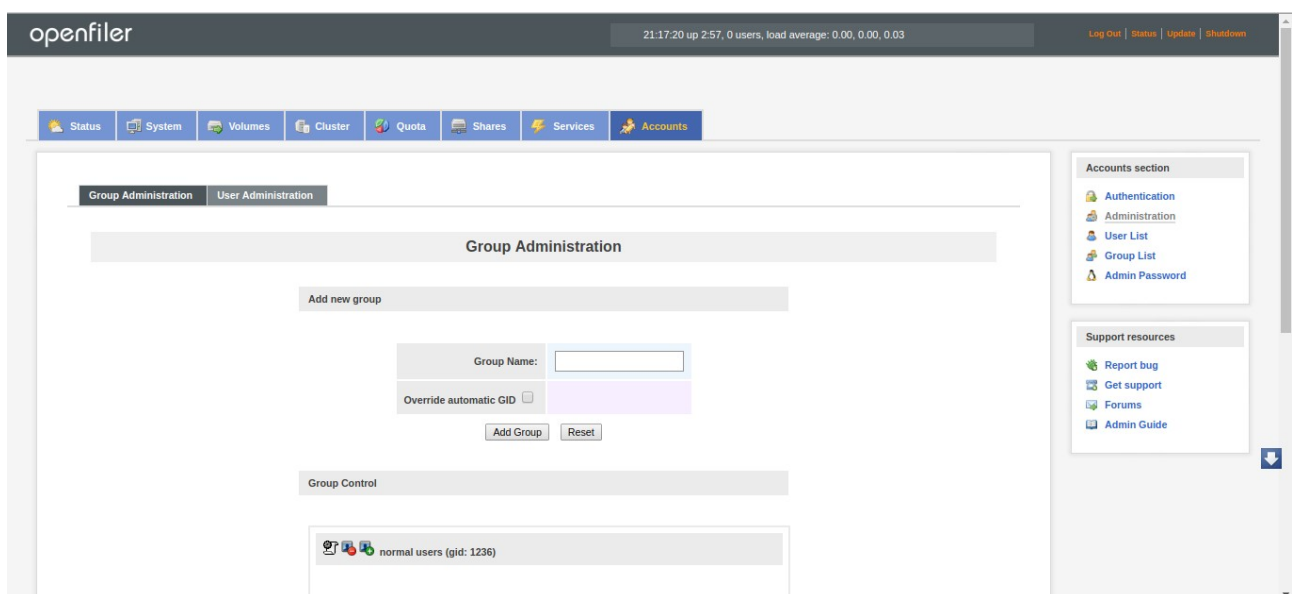
What is DN ??? - The **LDAP** API references an **LDAP** object by its distinguished name (**DN**). A **DN** is a sequence of relative distinguished names (**RDN**) connected by commas. An **RDN** is an attribute with an associated value in the form attribute=value; normally expressed in a UTF-8 string format.



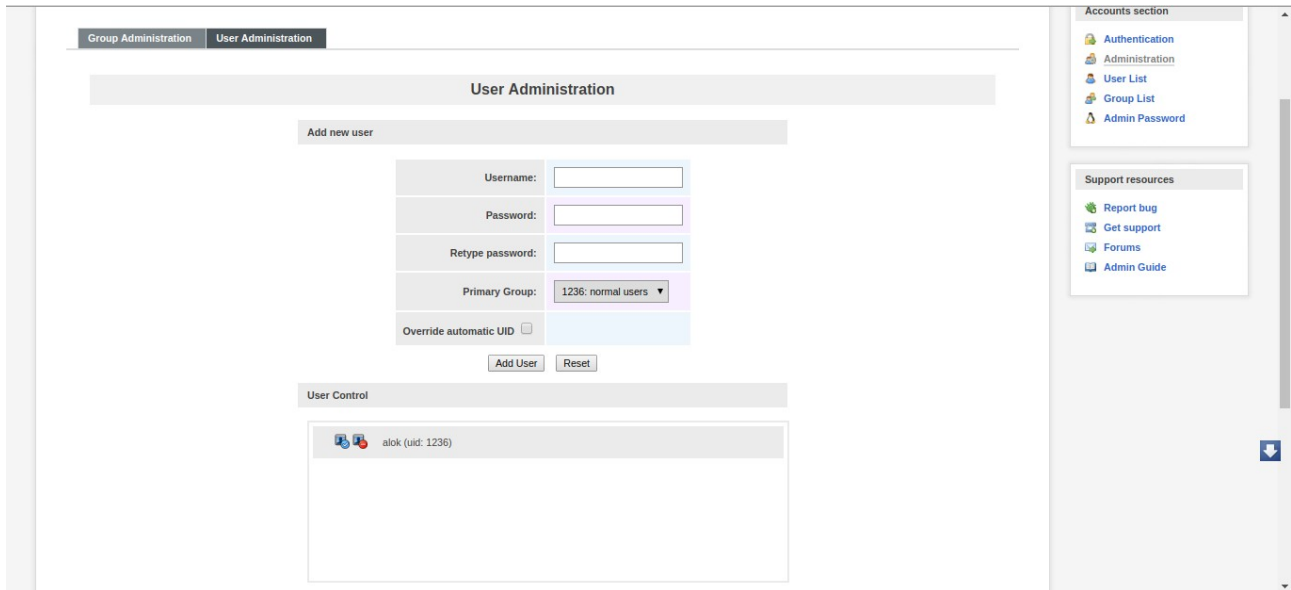
Step 3: Go to **Accounts Tab** and Click on Administration and create a user group and at least one user account.

Here we have created **user group - "normal users"** and **user account with username - "alok"** and **password - "pass123"**. This username and password will be used at the time of accessing the shared folder over network.

Note : Make sure that the gid (group id) is same as that of the uid (user id). For ex. If gid for group - normal user is **1236** in below image then the user id for user – alok should be **1236**. If by default it is not so then delete the user and create it again and while creating the user select the option **Override Automatic UID** and enter the id in the textbox same as that of the group you created.

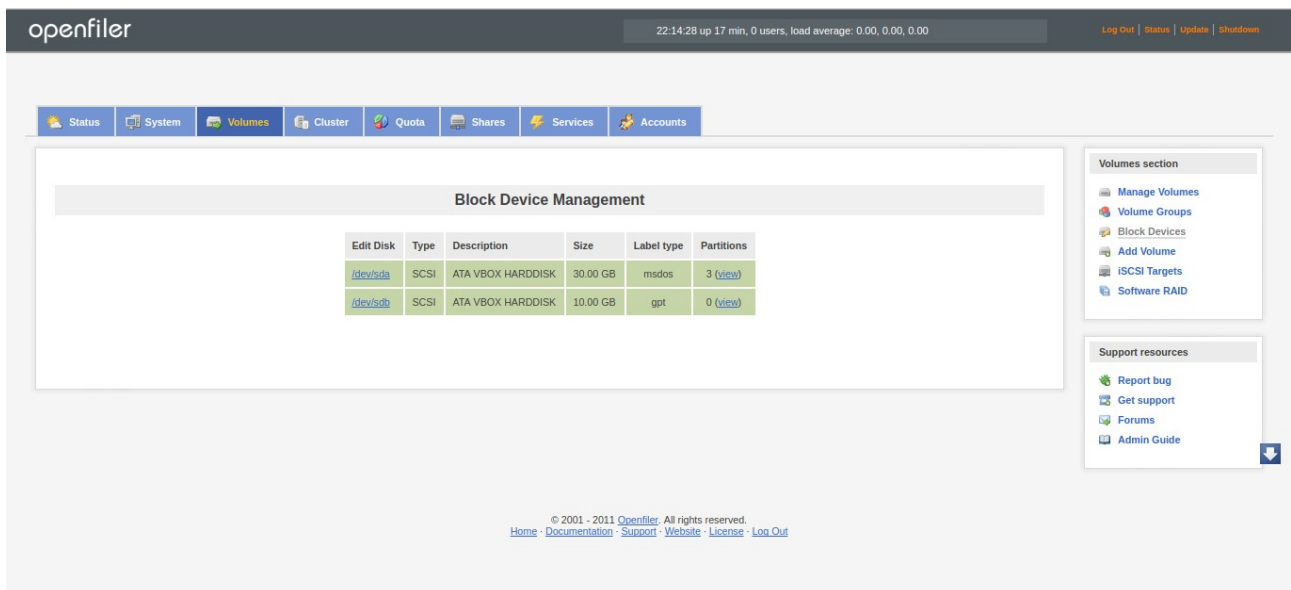


Step 4: Create user account here.



Step 5:

Here the disks attached to openfiler are listed.



Step 6: Select /dev/sdb and click and you can see the disk space capacity details. Here you can create partitions according to your needs.

Free (50%) sdb1 (40%)

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

Create a partition in /dev/sdb

You can use ranges within the following extents:

Mode	Starting cylinder	Ending cylinder	Space
Primary	526	1305	5.98 GB

Mode	Partition Type	Starting cylinder	Ending cylinder	Size	Create	Reset
Primary	Physical volume	526	1305	5.98 GB	Create	In Use

Step 7:

openfiler 22:16:00 up 19 min, 0 users, load average: 0.91, 0.23, 0.07 Log Out | Status | Update | Shutdown

Status System Volumes Cluster Quota Shares Services Accounts

Edit partitions in /dev/sdb (1305 cylinders with "gpt" label)

Device	Type	Number	Start cyl	End cyl	Blocks	Size	Type	Delete
/dev/sdb1	Linux Physical Volume (8x8e)	1	1	525	4212220	4.02 GB	Primary	Delete

Free (50%) sdb1 (40%)

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

Volumes section: Manage Volumes, Volume Groups, Block Devices, Add Volume, iSCSI Targets, Software RAID

Support resources: Report bug, Get support, Forums, Admin Guide

Step 8: Go to **Volumes Tab** and click on Volume Groups and create a volume group and select the disk you want to add to the group. Here we have created **"volgroup1"**.

The screenshot shows the Openfiler web interface. At the top, the 'Volumes' tab is selected. The main content area is titled 'Volume Group Management' and contains a table with the following data:

Volume Group Name	Size	Allocated	Free	Members	Add physical storage	Delete VG
volgroup1	4.00 GB	0 bytes	4.00 GB	View member PVs	All PVs are used	Delete

Below the table is a section titled 'Create a new volume group' with a warning message: 'No existing physical volumes were found, or all existing physical volumes are used. You can create new physical volumes.'

On the right side, there are two panels: 'Volumes section' with links for 'Manage Volumes', 'Volume Groups', 'Block Devices', 'Add Volume', 'iSCSI Targets', and 'Software RAID'; and 'Support resources' with links for 'Report bug', 'Get support', 'Forums', and 'Admin Guide'.

At the bottom, there is a copyright notice: '© 2001 - 2011 Openfiler. All rights reserved.' and links for 'Home', 'Documentation', 'Support', 'Website', 'License', and 'Log Out'.

Step 9: Now create volumes from Add Volume option on right side of the page.

We have created one share volume (partition type : ext3 / ext4).

The screenshot shows the 'Create a volume in "volgroup1"' form. At the top, there is a pie chart showing 'Free (100%)' space. The form fields are as follows:

- Volume Name (*no spaces*. Valid characters [a-z,A-Z,0-9]):
- Volume Description:
- Required Space (MB): (with a slider below)
- Filesystem / Volume type:

A 'Create' button is located at the bottom of the form.

Step 10: Go to **System Tab** and you will see the hostname and interface configuration details. Here you have to add entry for incoming connections under **Network Access Configuration** area. i.e when we will access the volume from outside network we need to add the host and netmask entry in openfiler. For ex. If our ip address range is **192.168.x.x** and netmask range is **255.255.255.x** then we will add the entry as **192.168.0.0** and **255.0.0.0** so it will accept all ip address within that range.

The screenshot shows the Openfiler System Tab configuration page. At the top, there are fields for Hostname (openfiler), Primary DNS (192.168.0.1), Secondary DNS, and Gateway (DHCP Controlled). Below this is the Network Interface Configuration section, which contains a table with the following data:

Interface	Boot Protocol	IP Address	Network Mask	Speed	MTU	Link	Edit
eth0	DHCP	192.168.0.103	255.255.255.0	1000Mb/s	1500	Yes	Configure

Below the table is the Network Access Configuration section, which contains a table with the following data:

Delete	Name	Network/Host	Netmask	Type
<input type="checkbox"/>	server	192.168.0.0	255.0.0.0	Share
New	<input type="text"/>	<input type="text"/>	0.0.0.0	Share

There are 'Update' and 'Cancel' buttons at the bottom of the configuration sections. On the right side, there are links for 'Support resources' including Report bug, Get support, Forums, and Admin Guide.

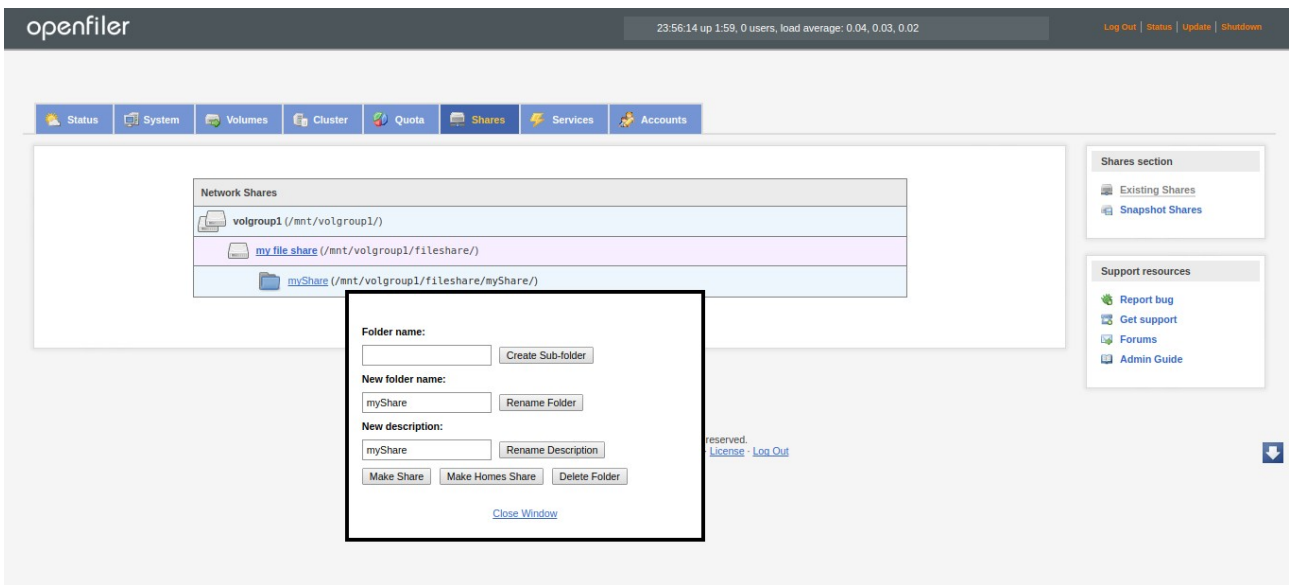
Step 11: Go to **Shares Tab** and you will see the share volume you created listed under the volume group. Right click on the shared volume and create a folder to share.

The screenshot shows the Openfiler Shares Tab. The top navigation bar includes Status, System, Volumes, Cluster, Quota, Shares, Services, and Accounts. The main content area shows a tree view of Network Shares with the following structure:

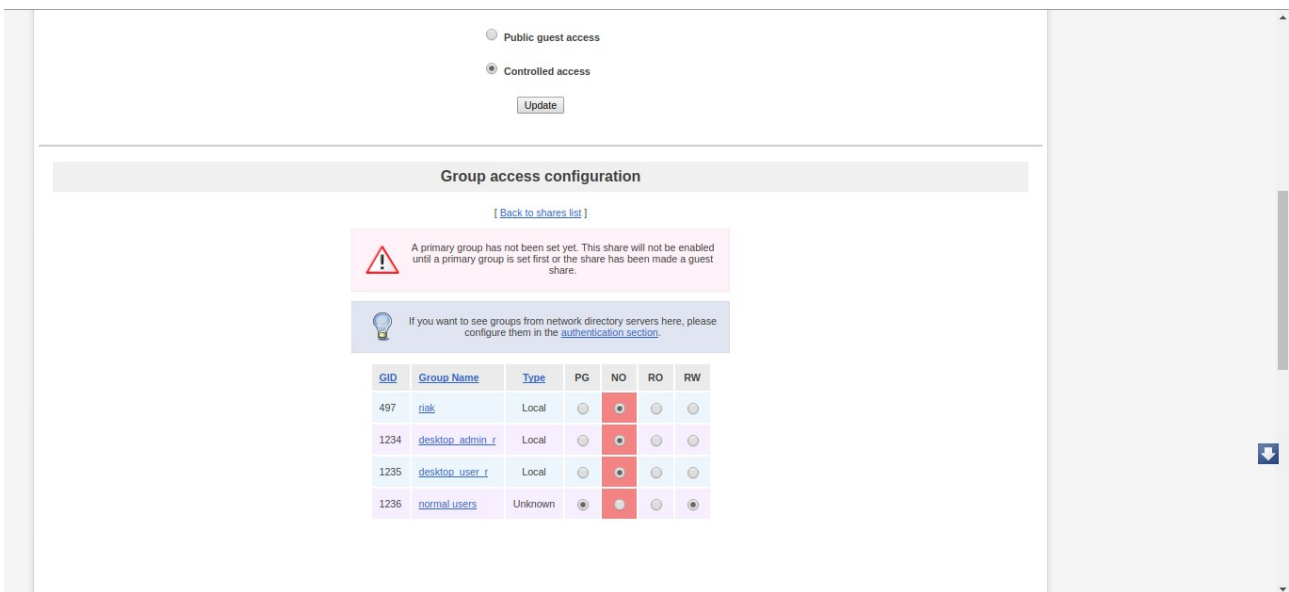
- volgroup1 (/mnt/volgroup1/)
 - my file share (/mnt/volgroup1/fileshare/)
 - myShare

A dialog box is open over the 'myShare' folder, prompting for a 'Folder name:' with the text 'myShare' entered. There is a 'Create Sub-folder' button and a 'Close Window' link. The footer of the page contains copyright information: © 2001 - 2011 Openfiler. All rights reserved. and links for Home, Documentation, Support, Website, License, and Log Out.

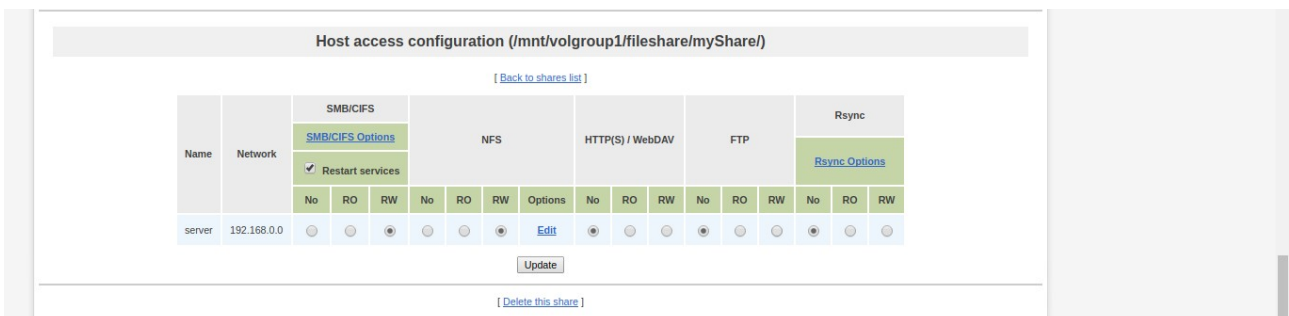
Step 12: Right click on the folder you created and click on **Make Share** button. It will redirect you to access controls page where you will set the read / write permissions as shown in the image below.



Step 13:



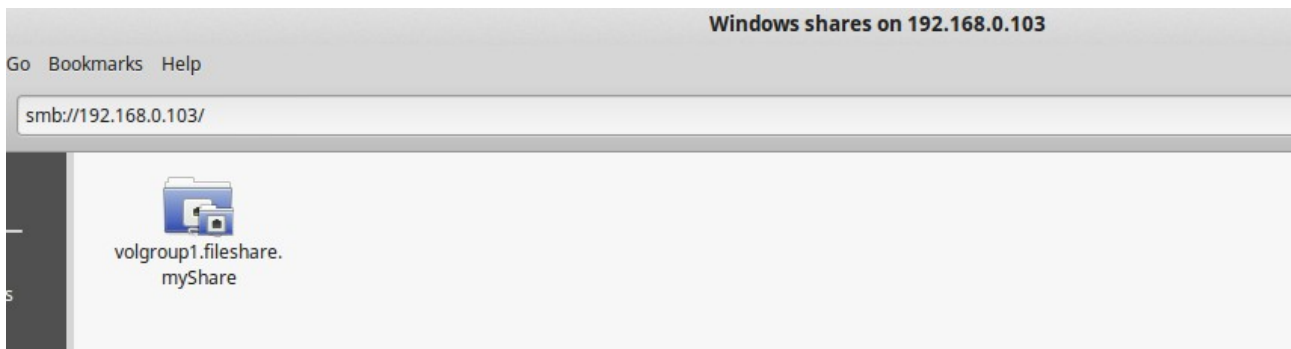
Step 14:



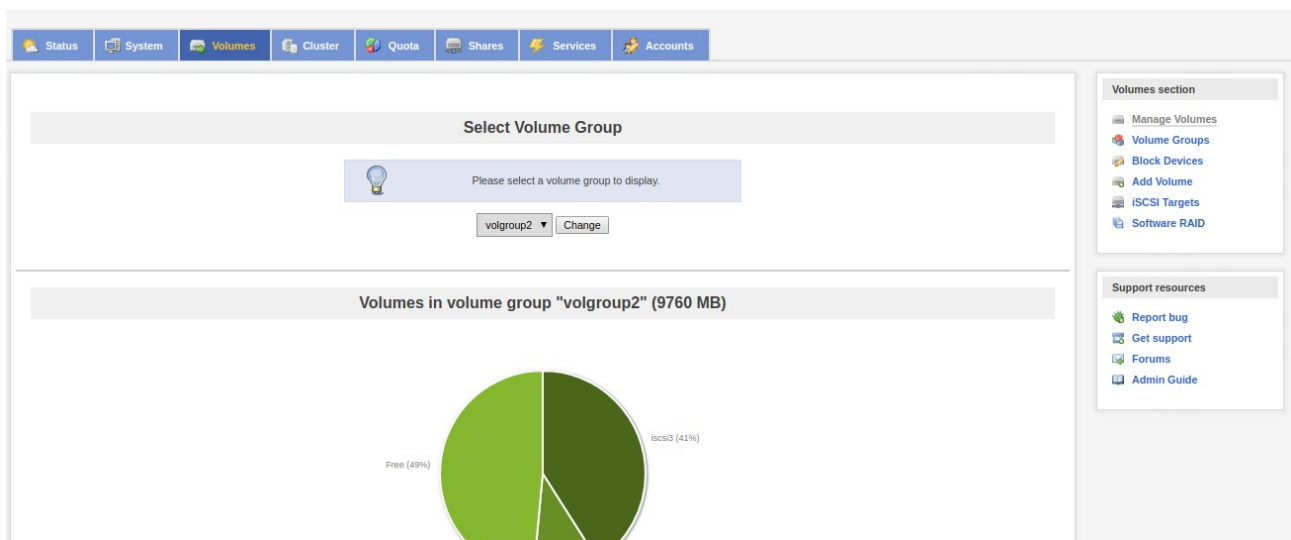
Step 15: To access your volume type in the URL bar of the explorer

[smb://<ip_address>/](smb://<ip_address>)

here the ip address is of your openfiler OS



Step 16: Go to **Volumes Tab** and click on iSCSI Targets on right side of the page.



Step 17:

It will by default create a target name which we have to add by clicking on Add Button.

Target Configuration | LUN Mapping | Network ACL | CHAP Authentication

Add new iSCSI Target

Target IQN: iqn.2006-01.com.openfiler:tsn.4b7d6e389316 [Add]

Select iSCSI Target

Please select an iSCSI target to display and/or edit.

iqn.2006-01.com.openfiler:tsn.763ad3974bce [Change]

Settings for target: iqn.2006-01.com.openfiler:tsn.763ad3974bce

Step 18:

The added target name will appear under LUN mapping tab where we have to actually map the iSCSI volume we created earlier to the target name. Select the appropriate volume name and map it to target name.

Target Configuration | LUN Mapping | Network ACL | CHAP Authentication

LUNs mapped to target: iqn.2006-01.com.openfiler:tsn.763ad3974bce

LUN Id.	LUN Path	R/W Mode	SCSI Serial No.	SCSI Id.	Transfer Mode	Unmap LUN
0	/dev/volgroup1/lscsi	write-thru	PfspGe-QcL4-ZiKD	PfspGe-QcL4-ZiKD	blockio	[Unmap]

Map New LUN to Target: "iqn.2006-01.com.openfiler:tsn.763ad3974bce"

Name	LUN Path	R/W Mode	SCSI Serial No.	SCSI Id.	Transfer Mode	Map LUN
iSCSI Target 3	/dev/volgroup2/lscsi3	write-thru	9s8Znr-8eL2-UjHp	9s8Znr-8eL2-UjHp	blockio	[Map]
iSCSI Target 4	/dev/volgroup2/lscsi4	write-thru	l95sst-etl8-d0M2	l95sst-etl8-d0M2	blockio	[Map]

Step 19:

After mapping the volume then enable the access for the requests coming via incoming connections. Select **Allow** from the dropdown under **Access** column show below and click on **Update** button. That's it your iSCSI volume is ready to export now and accessed from another location.

Target Configuration | LUN Mapping | Network ACL | CHAP Authentication

iSCSI host access configuration for target "iqn.2006-01.com.openfiler:tsn.763ad3974bce"

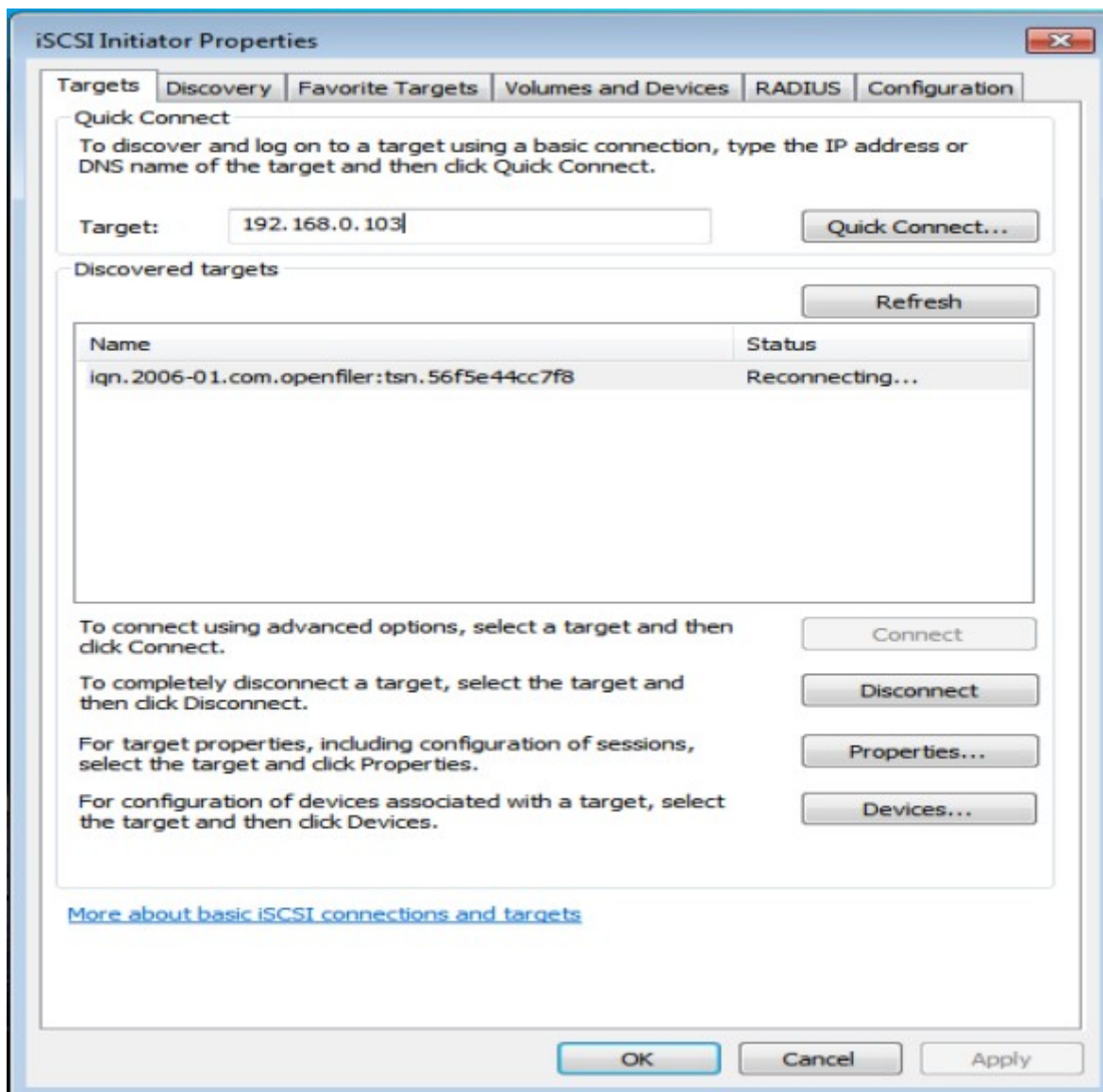
Name	Network/Host	Netmask	Access
server	192.168.0.0	255.0.0.0	Allow

[Update]

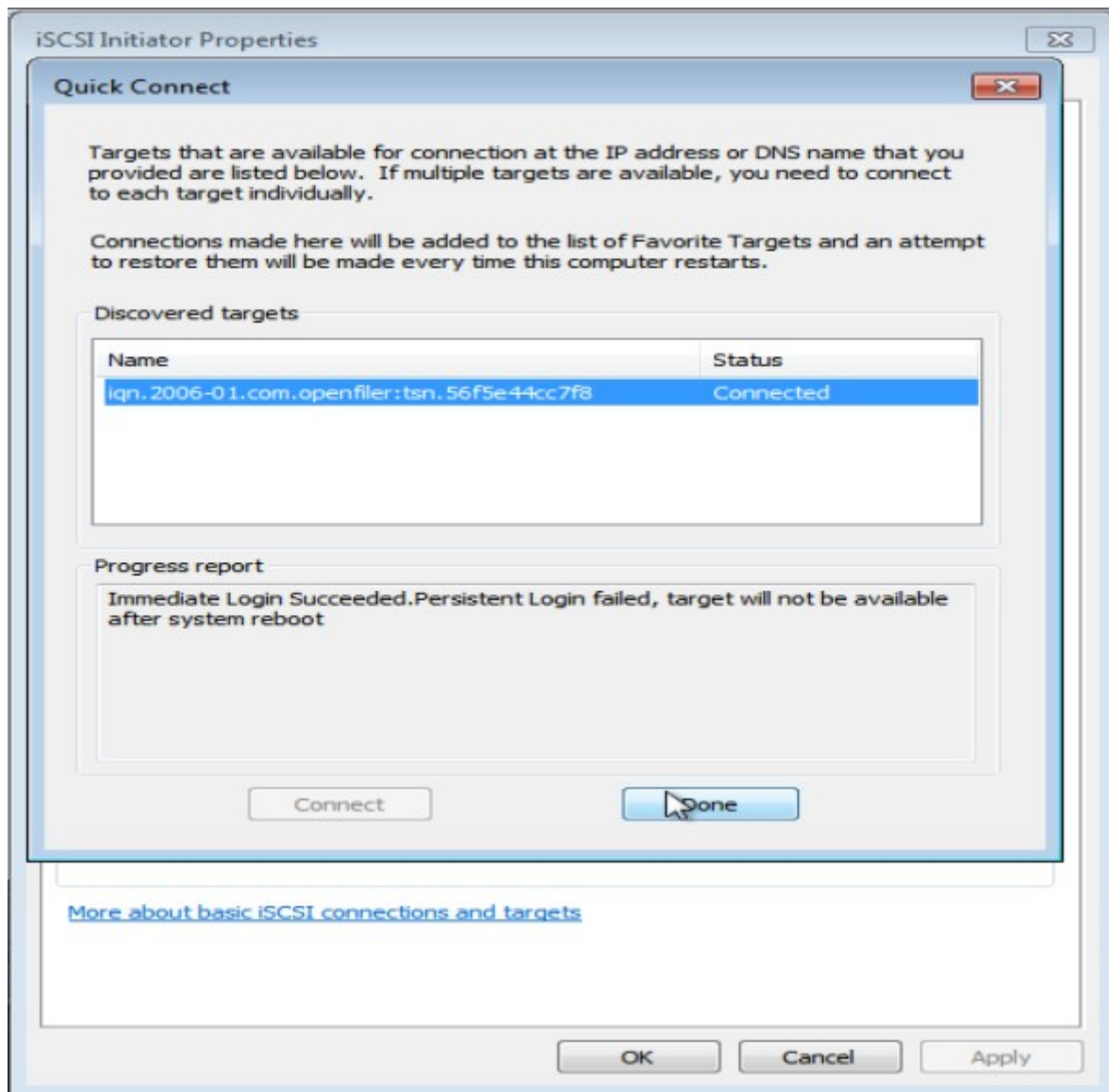
Step 20: Go to control panel and open iSCSI initiator.



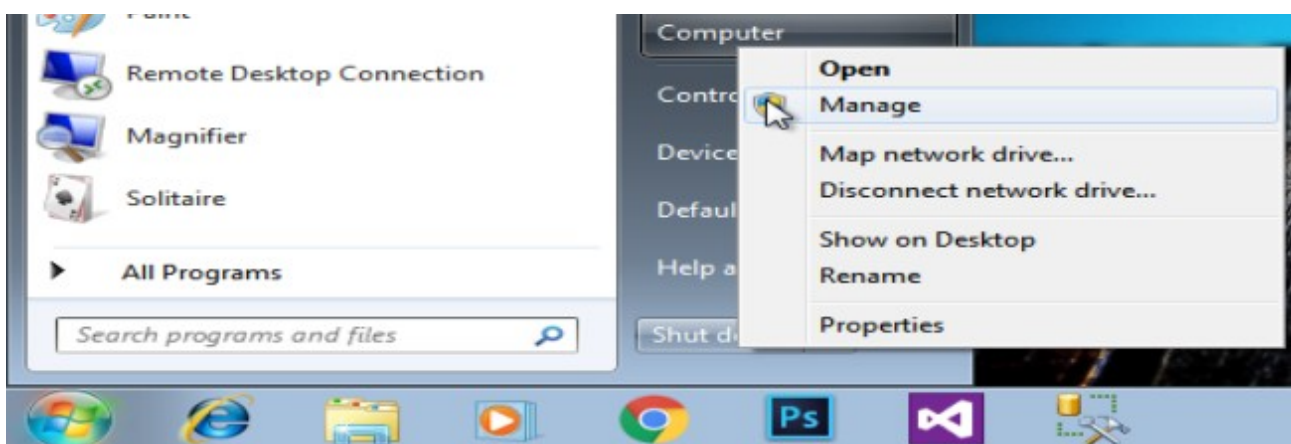
Step 21: Enter the target ip address and click on **Quick connect**.



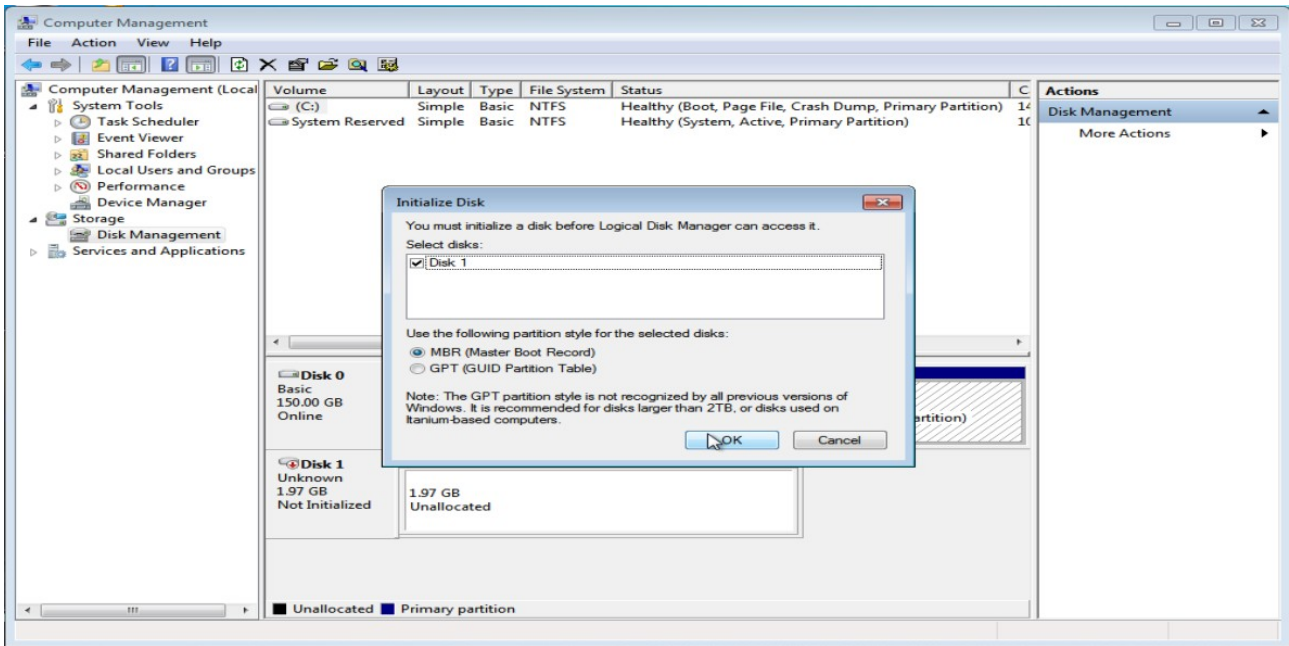
Step 22: Your mapped iSCSI target names should appear here. Select the name and click Done.



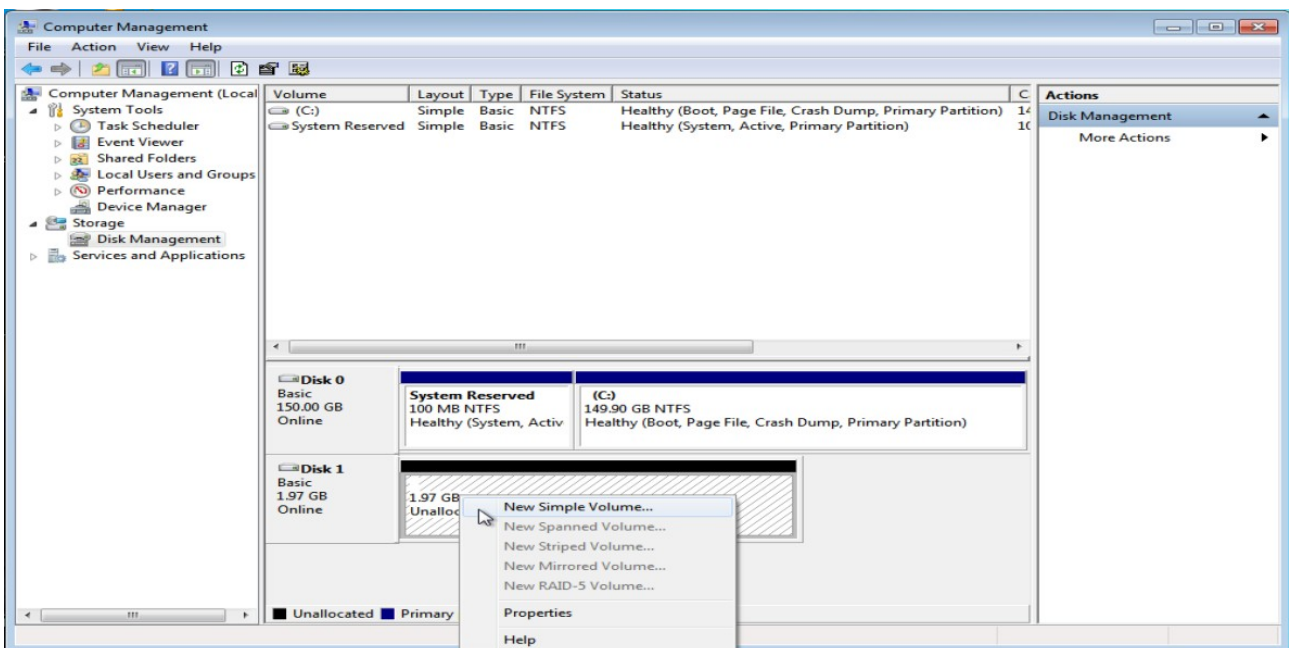
Step 23: Now open Computer Management window and check for the new disk added under Disk Management section. The new disk will be appear as unallocated space.



Step 24 :



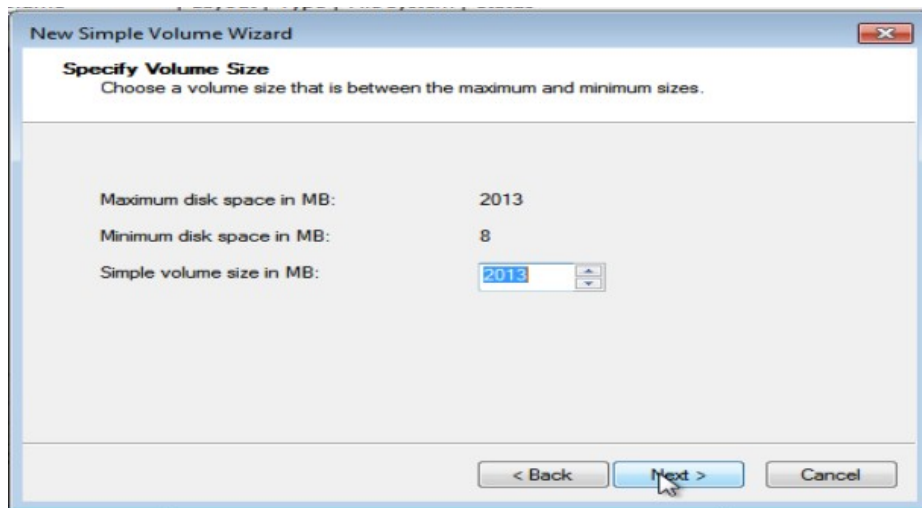
Step 25 : Perform the steps below to create a new volume to use from the unallocated space.



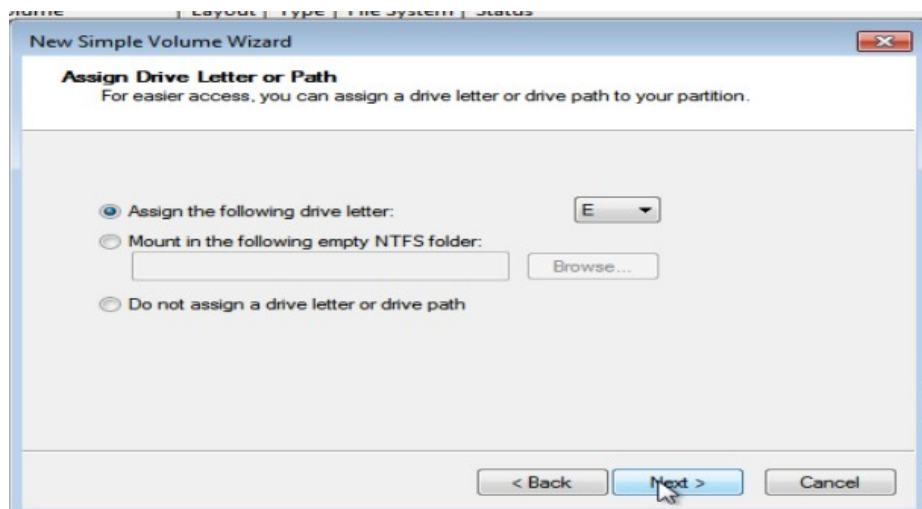
Step 26 :



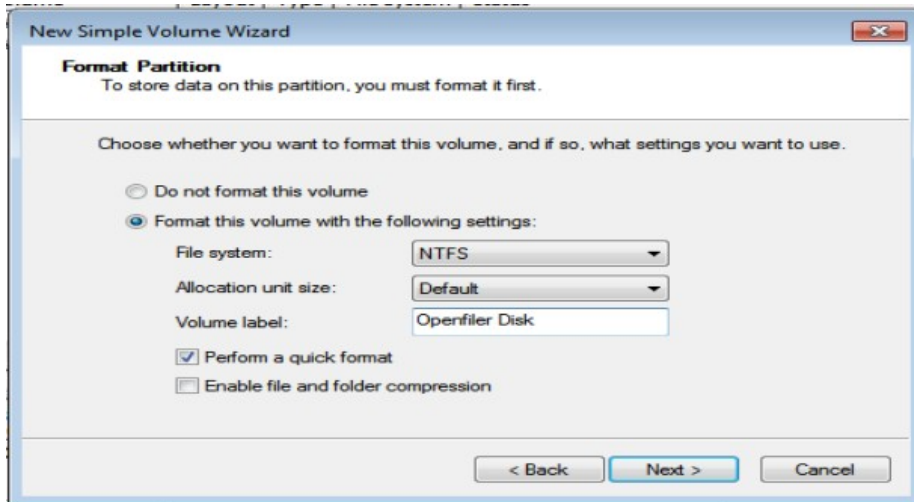
Step 27:



Step 28 :



Step 29:



Step 30 :



Step 31:

