

Installing and Configuring OpenFiler

By Justin Mah

Requirements

- VMware Workstation Pro/Player (Player can be downloaded free here:
<https://www.vmware.com/ca/products/workstation-player/workstation-player-evaluation.html>)
- Copy of OpenFiler (can be downloaded here:
https://sourceforge.net/projects/openfiler/files/openfiler-distribution-iso-2.99-x64/openfiler-esa-2.99.1-x86_64-disc1.iso/download?use_mirror=astuteinternet)

Instructions

Know how to create a virtual machine? If not please see the tutorial on how to create a virtual machine before proceeding.

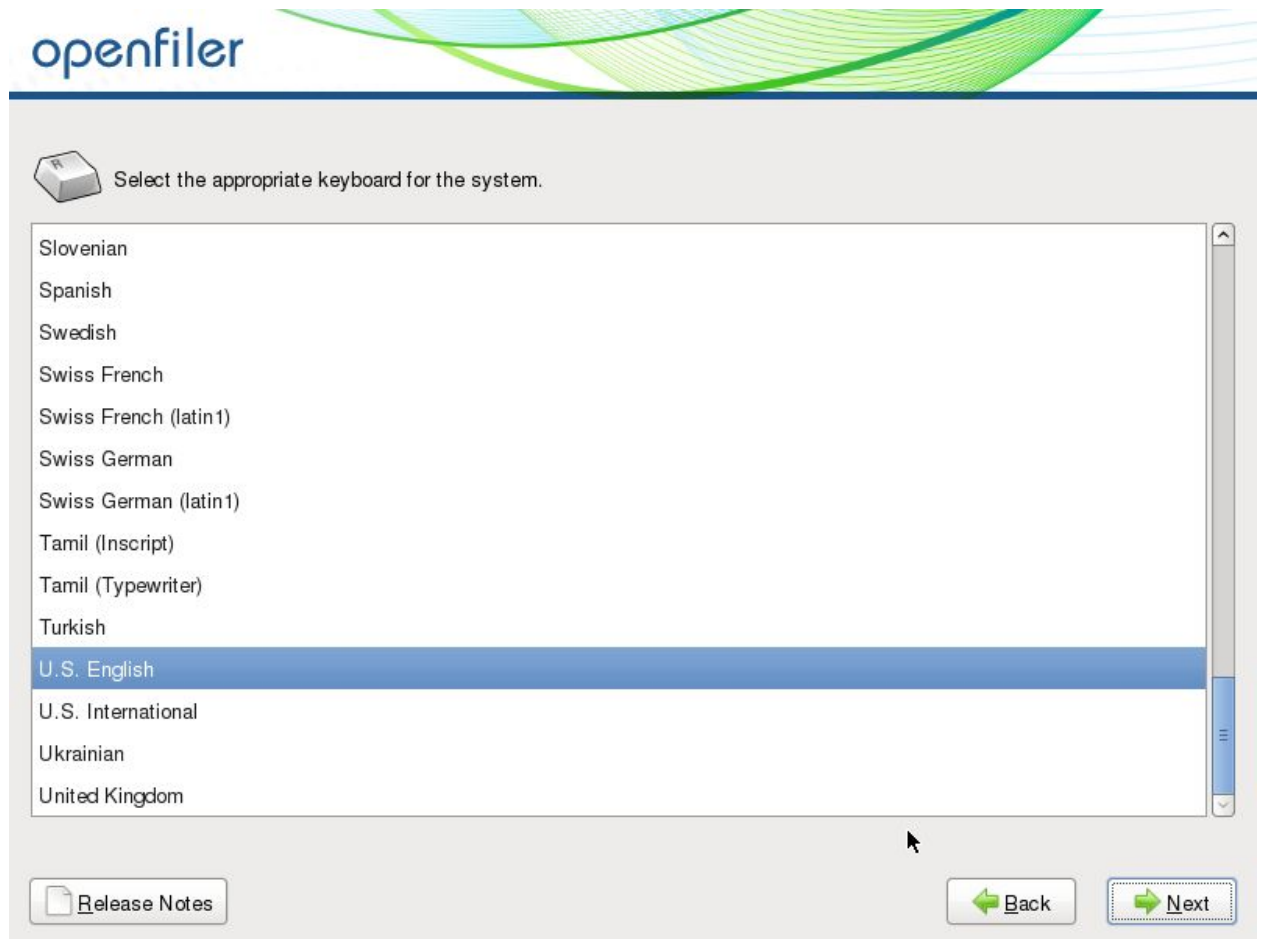
- 1) Open VMWare and create a custom virtual machine with the following specifications
 - Guest OS set as FreeBSD 11
 - 2 GB RAM
 - 2 HDD (1 60 GB (C:\) 1 (size depends on storage needs) (SCSI))
 - 2 CPU with 1 core each
 - LSI Logic
 - Network setting depends on what type of environment (if managing from host leave settings at NAT. If managing from another virtual machine configure it within that subnet and set the VM's NIC to the appropriate VMNet)
- 2) Attach the OpenFiler ISO to the virtual machine and power on the virtual machine
- 3) Push enter when prompted



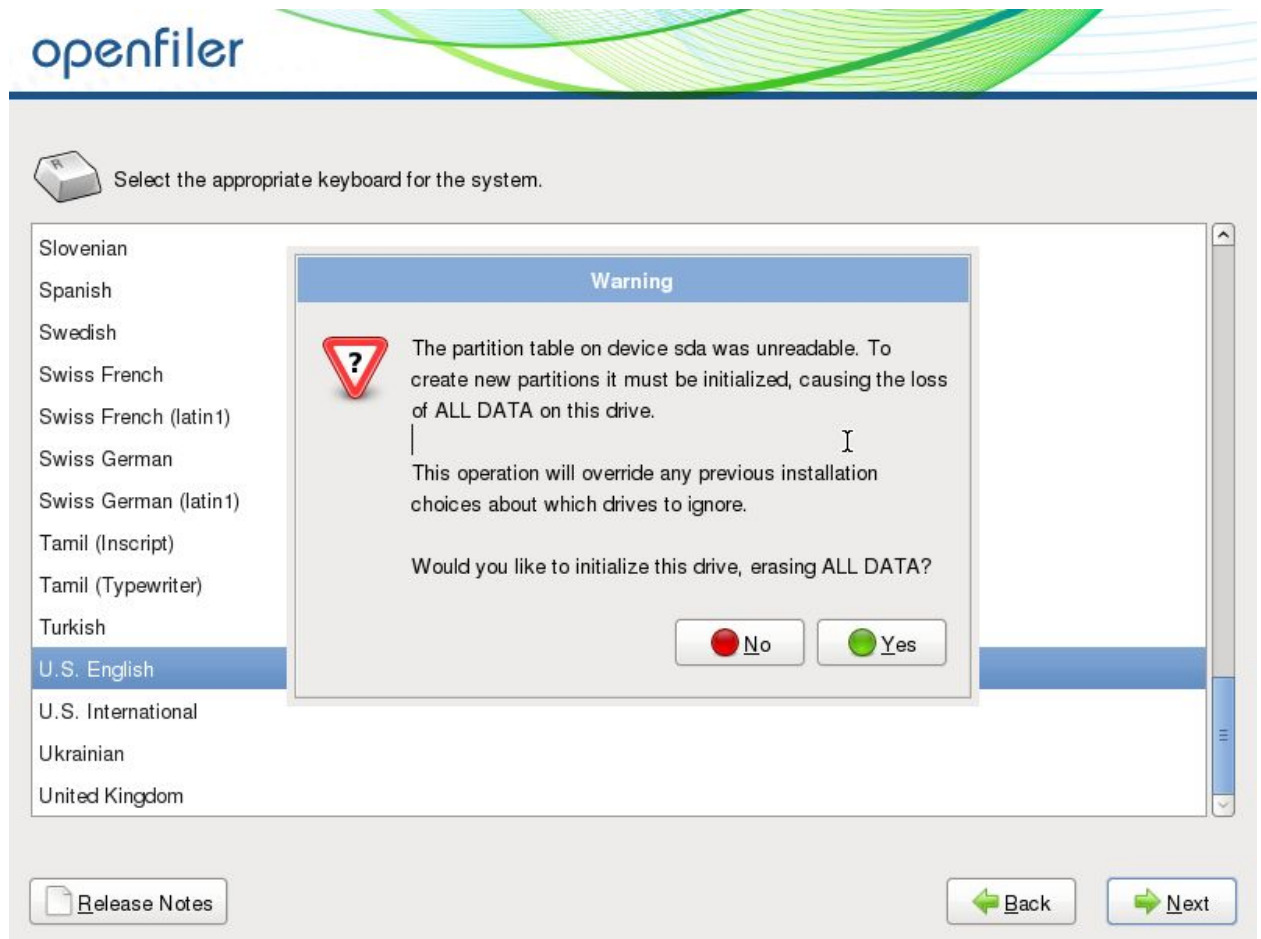
4) Click next




5) Select language (in this case US English)



6) Click yes when prompted



7) Deselect sdb (this will be the storage drive) click next



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 this installation.

<input checked="" type="checkbox"/>	sda	61436 MB	VMware, VMware Virtual S
<input type="checkbox"/>	sdb	61436 MB	VMware, VMware Virtual S

+ Advanced storage configuration

What drive would you like to boot this installation from?


sda 61436 MB VMware, VMware Virtual S

☐ Review and modify partitioning layout

[Release Notes](#)

[< Back](#) [Next >](#)

8) Click next



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

<input checked="" type="checkbox"/>	sda	61436 MB
<input type="checkbox"/>	sdb	61436 MB


+ Advanced storage

What drive would you like

sda 61436 MB VMw


☐ Review and modify partitioning layout



Warning

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


/dev/sda |

Are you sure you want to do this?

 Release Notes

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9) Click edit



Network Devices

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

[Edit](#)

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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- 10) Select manual configuration and set the IP address and subnet mask within the range of your desired network

openfiler

Edit Interface

Network Device: Advanced Micro Devices [AMD] 79c970 [PCnet32 LANCE]
Hardware address: 00:0C:29:35:87:EB

Active on Boot ☒

Enable IPv4 support ☒
☐ Dynamic IP configuration (DHCP)
☒ Manual configuration
IP Address: 192.168.202.191 / Prefix (Netmask): 24


Enable IPv6 support ☐
☒ Automatic neighbor discovery
☐ Dynamic IP configuration (DHCPv6)
☐ Manual configuration
IP Address: / Prefix:

Hostname
Set the hostname
☒ automatically
☐ manually

Miscellaneous Settings
Gateway:
Primary DNS:
Secondary DNS:

Buttons: Cancel, OK, Back, Next, Release Notes

11) Set the Default Gateway and DNS



Network Devices

Active on Boot	Device	IPv4/Netmask	IPv6/Prefix
<input checked="" type="checkbox"/>	eth0	192.168.202.191/24	Disabled

[Edit](#)

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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12) Set Time Zone

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](#)

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The image shows a web-based time zone selection interface. At the top is the 'openfiler' logo. Below it, a prompt asks the user to select the nearest city. A world map is displayed with numerous yellow dots representing cities. A red dot indicates the selected city, New York. Below the map, the text 'Selected city: New York, America (Eastern Time)' is shown. A dropdown menu currently displays 'America/New York'. There is a checked checkbox for 'System clock uses UTC'. At the bottom left is a link for 'Release Notes'. At the bottom right are 'Back' and 'Next' navigation buttons with green arrows.


13) Set the root password





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

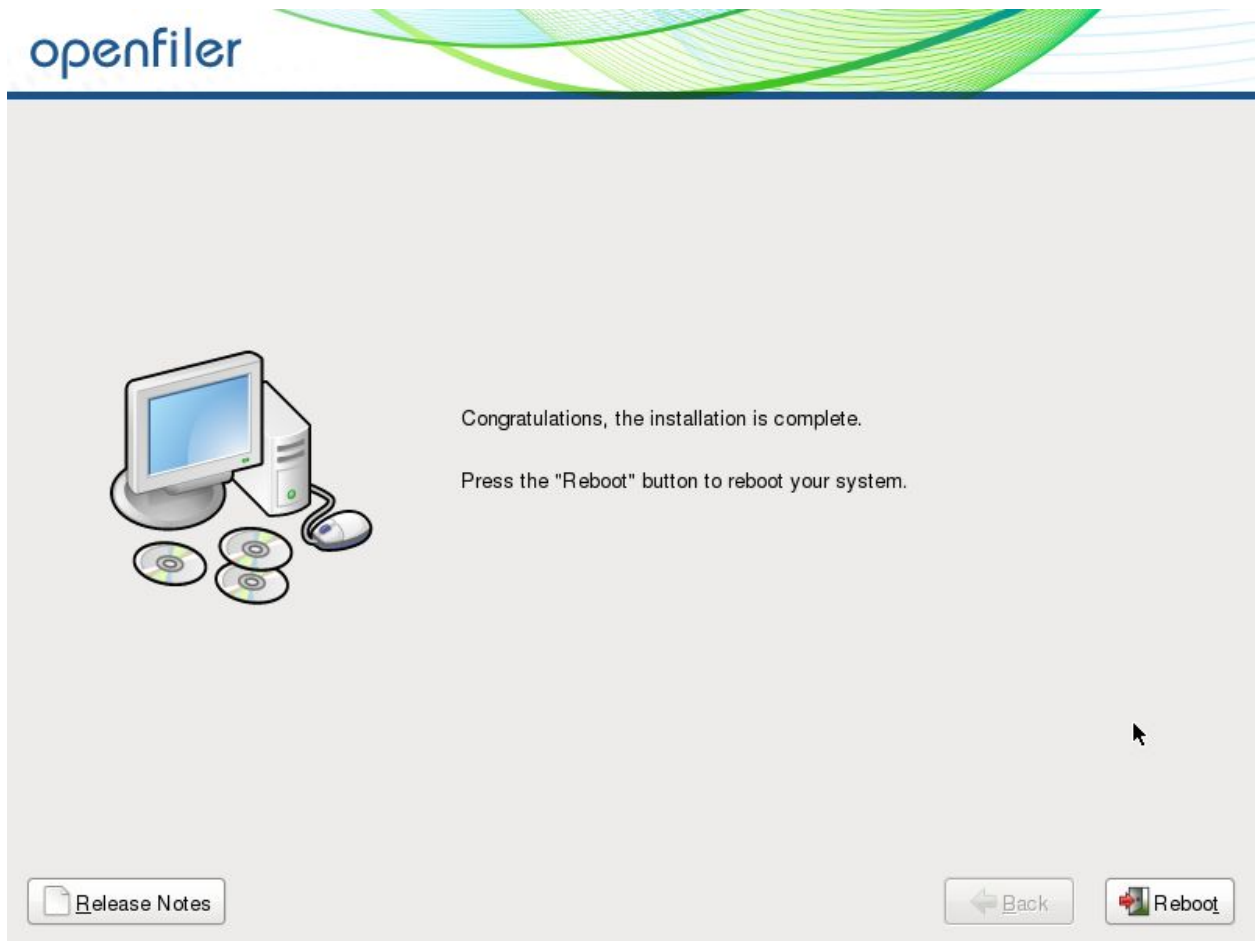
Root Password:

Confirm:

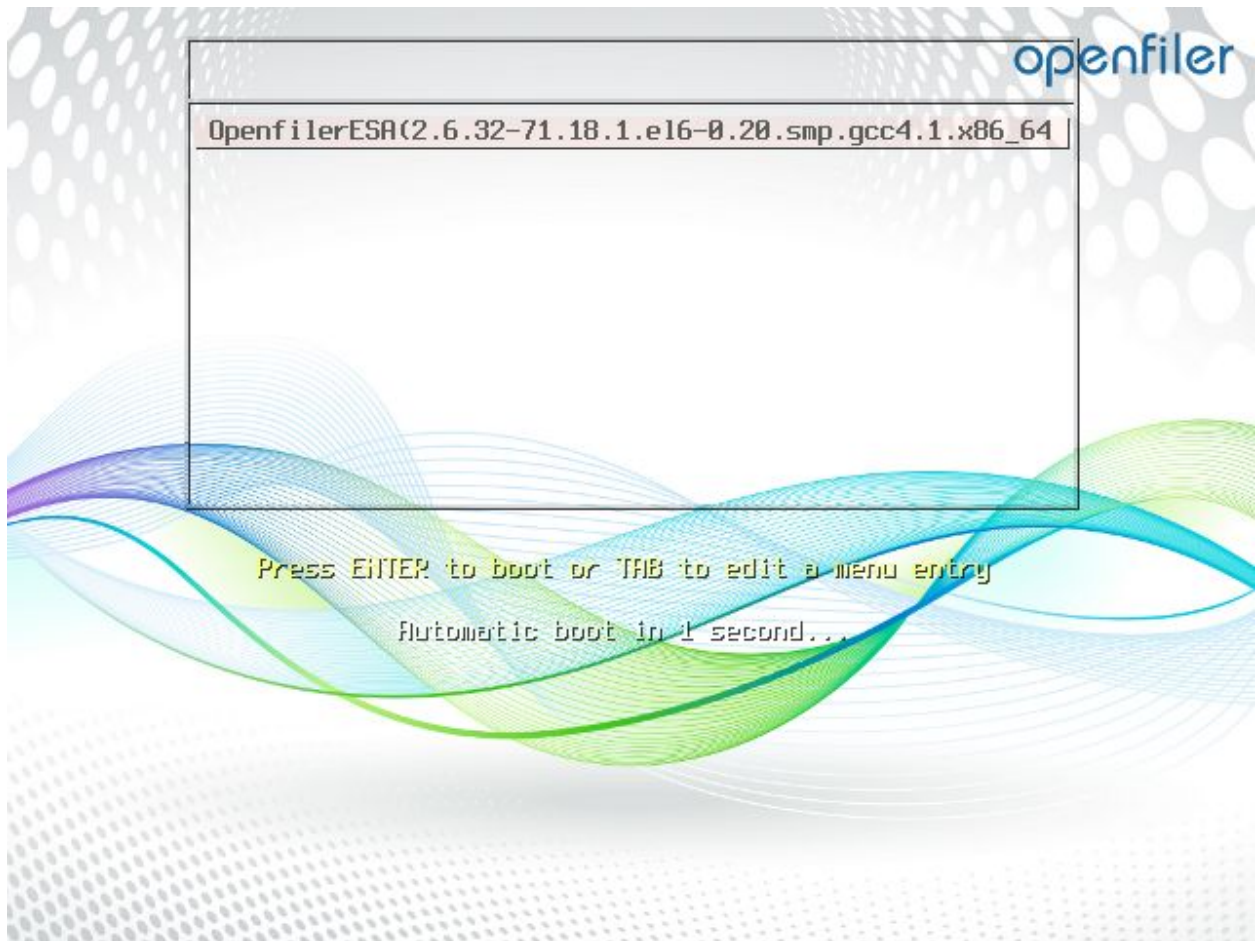
 Release Notes

 Back  Next

14) Click reboot



15) Press enter



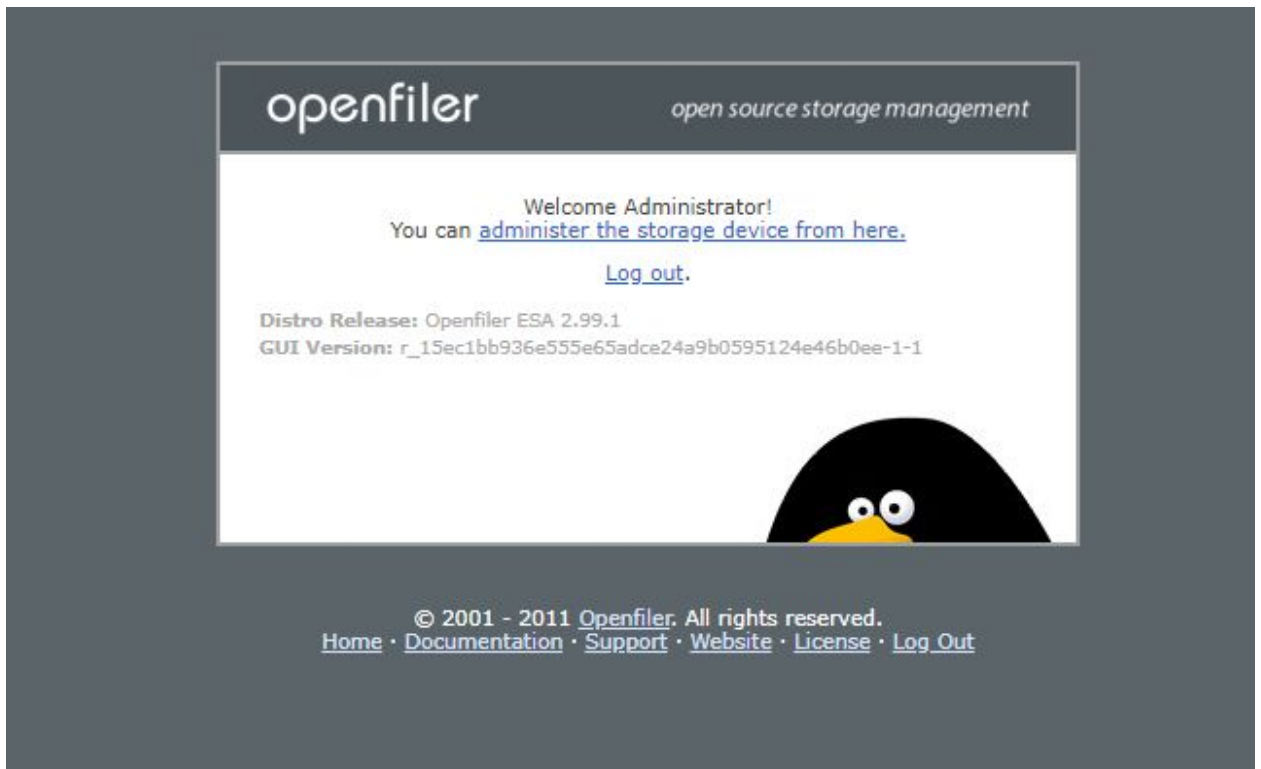
16) On controlling host/virtual machine open a web browser and type in the search bar the <https://ip address of the OpenFiler Server followed by a :446>

17) On warning page click proceed to web page (not recommended/unsafe)

18) Enter openfiler as the username and password as the password



19) Click “administer the storage device from here”



20) Click system

The screenshot shows the Openfiler web interface with the 'System' tab selected. The main content area displays 'System Information: localhost.localdomain (192.168.202.191)'. It is divided into three sections: System Vital, Network Usage, and Hardware Information.

System Vital

Canonical Hostname	localhost.localdomain
Listening IP	192.168.202.191
Kernel Version	2.6.32-71.18.1.el6-0.20.smp.gcc4.1.x86_64 (SMP)
Distro Name	Openfiler NAS/SAN
Uptime	5 minutes
Current Users	0
Load Averages	0.05 0.02 0.00

Network Usage

Device	Received	Sent	Err/Drop
lo	0.55 KB	0.55 KB	0/0
eth0	192.31 KB	582.86 KB	0/0

Hardware Information

Processors: 1
Model: Intel(R) Core(TM) i7-8700 CPU @ 3.20GHz
CPU Speed: 3.19 GHz
Cache Size: 12.00 MB
System Bogomips: 6384.01

PCI Devices

- Bridge: Intel Corporation 82371AB/EB/MB PIIX4 ACPI
- Ethernet controller: Advanced Micro Devices [AMD] 79c970 [PCnet32 LANCE]
- Host bridge: Intel Corporation 440BX/ZX/DX - 82443BX/ZX/DX Host bridge
- IDE interface: Intel Corporation 82371AB/EB/MB PIIX4 IDE
- ISA bridge: Intel Corporation 82371AB/EB/MB PIIX4 ISA
- Multimedia audio controller: Ensoniq ES1371 [AudioPCI-97]
- PCI bridge: Intel Corporation 440BX/ZX/DX - 82443BX/ZX/DX AGP bridge
- (32x) PCI bridge: VMware PCI Express Root Port
- PCI bridge: VMware PCI bridge
- SCSI storage controller: LSI Logic / Symbios Logic 53c1030 PCI-X Fusion-MPT Dual Ultra320 SCSI
- System peripheral: VMware Virtual Machine Communication Interface
- USB Controller: VMware Device 0774
- USB Controller: VMware USB EHCI Controller
- VGA compatible controller: VMware SVGA II Adapter

IDE Devices: none

SCSI Devices

- NECVMWar VMware IDE CDR10 (CD-ROM)
- VMware, VMware Virtual S (Direct-Access)
- VMware, VMware Virtual S (Direct-Access)

USB Devices

- Linux Foundation 2.0 root hub
- VMware, Inc.
- VMware, Inc. Virtual USB Hub
- Linux Foundation 1.1 root hub

System section

- System Overview
- iSCSI Targets
- FC Targets

Support resources

- Report bug
- Get support
- Forums
- Admin Guide

21) Under Network Access Configuration set the name, IP address and subnet mask to the appropriate subnet, and type to share. Click update

The screenshot shows the Openfiler web interface with the 'System' tab selected. The main content area displays 'Network Configuration'. It is divided into three sections: Network Configuration, Network Interface Configuration, and Network Access Configuration.

Network Configuration

Hostname: localhost.localdomain
Primary DNS: 192.168.202.2
Secondary DNS:
Gateway: 192.168.202.2
[Update](#) [Cancel](#)

Network Interface Configuration

Interface	Boot Protocol	IP Address	Network Mask	Speed	MTU	Link	Edit
eth0	Static	192.168.202.191	255.255.255.0	1500	Yes	Configure	

[Create bonded interface](#)

Network Access Configuration

Delete	Name	Network/Host	Netmask	Type
New	ESXi	192.168.202.1	255.255.255.0	Share

[Update](#)

System section

- Network Setup
- Clock Setup
- UPS Management
- Shutdown/Reboot
- Notification
- System Update
- Backup/Restore
- Secure Console

Support resources

- Report bug
- Get support
- Forums
- Admin Guide

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22) Click Volumes > Block Devices > select the disk with no partitions (storage device)

openfiler 18:09:28 up 8 min, 0 users, load average: 0.05, 0.02, 0.00 Log Out | Status | Update | Shutdown

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

Block Device Management

Edit Disk	Type	Description	Size	Label type	Partitions
/dev/sdb	SCSI	VMware, VMware Virtual S	60.00 GB	mdos	3 (used)
/dev/sdb	SCSI	VMware, VMware Virtual S	60.00 GB	mdos	0 (used)

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Volumes section

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

Support resources

- Report bug
- Get support
- Forums
- Admin Guide

23) Set partition type to Physical Volume > click create

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

Edit partitions in /dev/sdb (7832 cylinders with "msdos" label)

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

Free (100%)

[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	1	7832	60.00 GB

Mode	Partition Type	Starting cylinder	Ending cylinder	Size	Create	Reset
Primary	Physical volume	1	7832	60 GB	Create	Reset

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Volumes section

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

Support resources

- Report bug
- Get support
- Forums
- Admin Guide

24) Click volume group > select the physical volume created in step 23 > click Add Volume Group

The screenshot shows the Openfiler web interface. At the top, the 'openfiler' logo is on the left, and system status '18:12:01 up 11 min, 0 users, load average: 0.17, 0.05, 0.01' is on the right. A navigation bar contains links for Status, System, Volumes, Cluster, Quota, Shares, Services, and Accounts. The main content area is titled 'Volume Group Management' and includes a table with columns: Volume Group Name, Size, Allocated, Free, Members, Add physical storage, and Delete VG. Below this is a section 'Create a new volume group' with a form. The form has a text input for 'Volume group name (no spaces)', a 'Select physical volumes to add' section with a list containing '/dev/sdb1' (57.22 GB), and an 'Add volume group' button. A right sidebar contains 'Volumes section' with links to Manage Volumes, Volume Groups, Block Devices, Add Volume, iSCSI Targets, and Software RAID, and 'Support resources' with links to Report bug, Get support, Forums, and Admin Guide. The footer contains copyright information and links to Home, Documentation, Support, Website, License, and Log Out.

25) Click add volume

This screenshot shows the same Openfiler interface as the previous one, but with an error message displayed in the 'Create a new volume group' section. The error message, indicated by a red warning icon, states: 'No existing physical volumes were found, or all existing physical volumes are used. You can create new physical volumes.' The 'Volume Group Management' table is still visible above the form. The rest of the interface, including the navigation bar, sidebar, and footer, remains the same.

26) Set Volume Name, Required Space (as needed) and File System to Block (iSCSI, FC, etc.) click create (note: if it doesn't create, restart the server)

Select Volume Group

Please select a volume group to create a volume in.

esxiChange

Block storage statistics for volume group "esxi"

Total Space	Used Space	Free Space
59965440 bytes (58560 MB)	0 bytes (0 MB)	59965440 bytes (58560 MB)

Free (100%)

Create a volume in "esxi"

Volume Name ("no spaces". Valid characters [a-z,A-Z,0-9]):

Esxi

Volume Description:

Required Space (MB):

58560

Filesystem / Volume type:

block (iSCSI,FC,etc)

Create

The screen should look like this afterwards

StatusSystemVolumesClusterQuotaSharesServicesAccounts

Select Volume Group

Please select a volume group to display.

esxiChange

Volumes in volume group "esxi" (58560 MB)

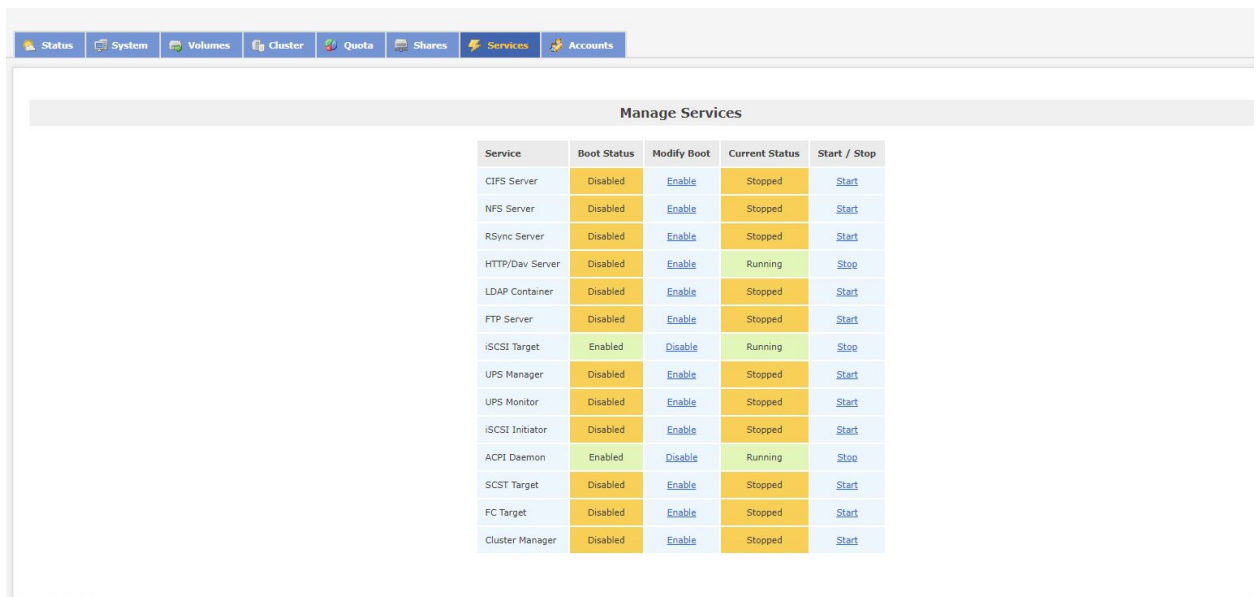
test (100%)

Volume name	Volume description	Volume size	File system type	File system size	FS used space	FS free space	Delete	Properties	Snapshots
test	test	58560 MB	iSCSI	Not applicable	Not applicable	Not applicable	Delete	Edit	Create

0 MB allocated to snapshots

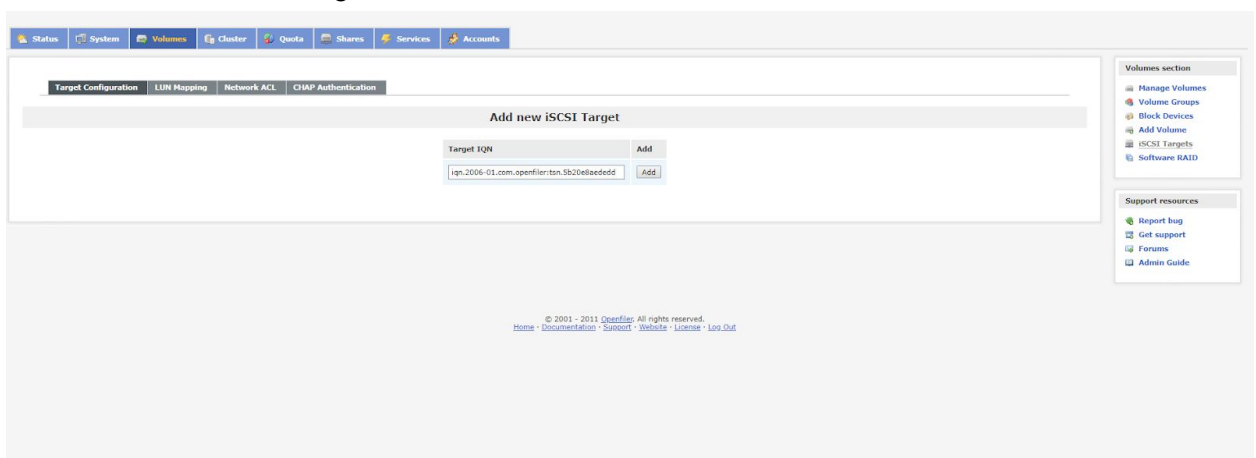
0 MB of free space left

27) Click services and enable and start iSCSI target



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	Enabled	Disable	Running	Stop
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

28) Click volumes > iSCSI targets > click Add



Target Configuration | LUN Mapping | Network ACL | CHAP Authentication

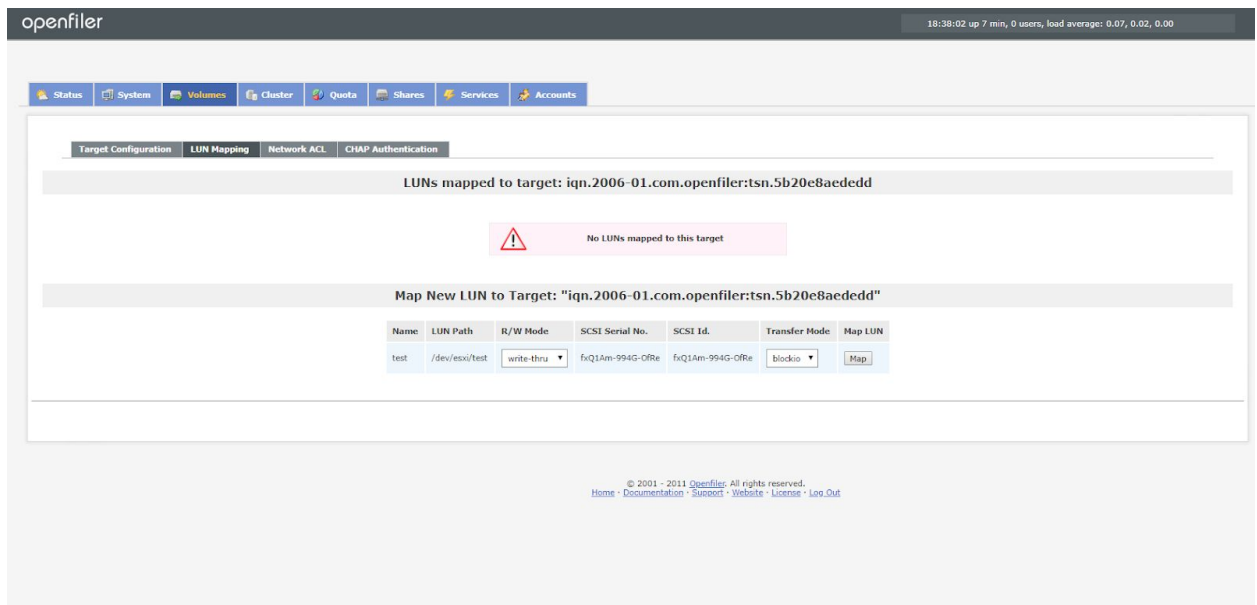
Add new iSCSI Target

Target IQN	Add
iqn.2006-01.com.openfiler:tn.Sb20d8aedd	Add

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Note: remember the target IQN, this will be needed for attaching OpenFiler as an iSCSI target

29) Click LUN mapping > accept defaults > click Map

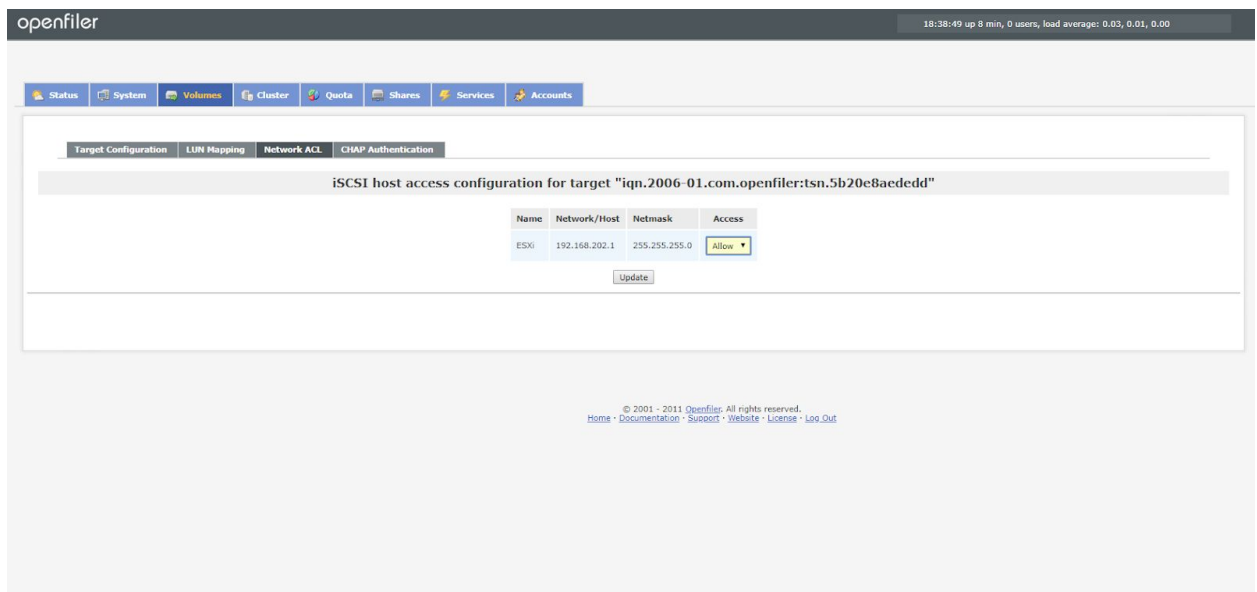


The screenshot shows the Openfiler web interface with the 'LUN Mapping' tab selected. The top navigation bar includes Status, System, Volumes, Cluster, Quota, Shares, Services, and Accounts. The main content area has sub-tabs for Target Configuration, LUN Mapping, Network ACL, and CHAP Authentication. A message states 'LUNs mapped to target: iqn.2006-01.com.openfiler:tsn.5b20e8aeddd'. Below this, a warning icon and text indicate 'No LUNs mapped to this target'. A section titled 'Map New LUN to Target: "iqn.2006-01.com.openfiler:tsn.5b20e8aeddd"' contains a table for mapping LUNs.

Name	LUN Path	R/W Mode	SCSI Serial No.	SCSI Id.	Transfer Mode	Map LUN
test	/dev/esxi/test	write-thru	fsQ1Am-994G-OfRe	fsQ1Am-994G-OfRe	blockio	<input type="button" value="Map"/>

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30) Click Network ACL > set Access to Allow > Click Update



The screenshot shows the Openfiler web interface with the 'Network ACL' tab selected. The top navigation bar is the same as in the previous screenshot. The main content area has sub-tabs for Target Configuration, LUN Mapping, Network ACL, and CHAP Authentication. A message states 'iSCSI host access configuration for target "iqn.2006-01.com.openfiler:tsn.5b20e8aeddd"'. Below this, a table for network access configuration is shown.

Name	Network/Host	Netmask	Access
ESXi	192.168.202.1	255.255.255.0	Allow

Below the table is an 'Update' button. 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.

References

<http://techhead.co/how-to-configure-openfiler-v23-iscsi-storage-for-use-with-vmware-esx/>

<https://www.thegeekdiary.com/vcs-cluster-6-0-lab-using-vmware-workstation-installing-openfiler/>