

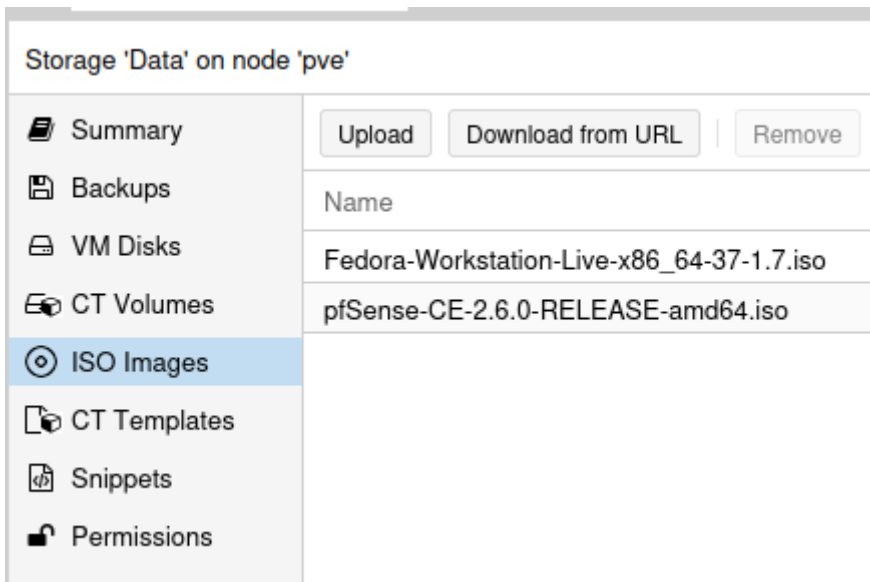
# PFsense on Proxmox

This is a short guide to install PFSense on Proxmox as VM

Download PFSense CE from <https://www.pfsense.org/download/>

Upload or download iso to Proxmox

Navigate to your storage drive ,click on ISO Images, upload or download from URL



The screenshot shows the Proxmox storage management interface for a storage pool named 'Data' on a node named 'pve'. The 'ISO Images' section is selected in the left-hand navigation menu. The main area displays a table of ISO images with the following entries:

Name
Fedora-Workstation-Live-x86_64-37-1.7.iso
pfSense-CE-2.6.0-RELEASE-amd64.iso

At the top of the interface, there are buttons for 'Upload', 'Download from URL', and 'Remove'.

**Upload** ⊗

File:

File name:

File size: 731.91 MiB

MIME type: application/x-cd-image

Hash algorithm:  ▾

Checksum:

on Proxmox create new VM, for this LAB we will keep all settings default

**Create: Virtual Machine** ⊗

**General** OS System Disks CPU Memory Network Confirm

Node:  ▾ Resource Pool:  ▾

VM ID:  ⬆ ⬇ ⬆

Name:

---

Start at boot:

Start/Shutdown order:

Startup delay:

Shutdown timeout:

Advanced

## Create: Virtual Machine



General **OS** System Disks CPU Memory Network Confirm

Use CD/DVD disc image file (iso)

Storage: **Data** ▾

ISO image: **}-CE-2.6.0-RELEASE-amd64.iso** ▾

Use physical CD/DVD Drive

Do not use any media

Guest OS:

Type: **Linux** ▾

Version: **5.x - 2.6 Kernel** ▾

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## Create: Virtual Machine



General OS **System** Disks CPU Memory Network Confirm

Graphic card: **Default** ▾

Machine: **Default (i440fx)** ▾

Firmware

BIOS: **Default (SeaBIOS)** ▾

SCSI Controller: **VirtIO SCSI single** ▾

Qemu Agent:

Add TPM:

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# Create: Virtual Machine



General OS System **Disks** CPU Memory Network Confirm

scsi0

**Disk** Bandwidth

Bus/Device:	SCSI	0	Cache:	Default (No cache)
SCSI Controller:	VirtIO SCSI single		Discard:	<input type="checkbox"/>
Storage:	Data		IO thread:	<input checked="" type="checkbox"/>
Disk size (GiB):	32			
Format:	QEMU image format			

SSD emulation:	<input type="checkbox"/>	Backup:	<input checked="" type="checkbox"/>
Read-only:	<input type="checkbox"/>	Skip replication:	<input type="checkbox"/>
		Async IO:	Default (io_uring)

Add

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# Create: Virtual Machine



General OS System Disks **CPU** Memory Network Confirm

Sockets:  Type:   
Cores:  Total cores: **1**

VCPUs:  CPU units:   
CPU limit:  Enable NUMA:   
CPU Affinity:

### Extra CPU Flags:

Default	- <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> +	md-clear	Required to let the guest OS know if MDS is mitigated correctly
Default	- <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> +	pcid	Meltdown fix cost reduction on Westmere, Sandy-, and IvyBridge Intel CPUs
Default	- <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> +	spec-ctrl	Allows improved Spectre mitigation with Intel CPUs
Default	- <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> +	ssbd	Protection for "Speculative Store Bypass" for Intel models
Default	- <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> +	ibpb	Allows improved Spectre mitigation with AMD CPUs

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## Create: Virtual Machine



General

OS

System

Disks

CPU

Memory

Network

Confirm

Memory (MiB):

Minimum memory (MiB):

Shares:

Ballooning Device:

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## Create: Virtual Machine



General OS System Disks CPU Memory **Network** Confirm

No network device

Bridge:

Model:

VLAN Tag:

MAC address:

Firewall:

Disconnect:

Rate limit (MB/s):

MTU:

Multiqueue:

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## Create: Virtual Machine


[General](#)[OS](#)[System](#)[Disks](#)[CPU](#)[Memory](#)[Network](#)[Confirm](#)

Key ↑	Value
cores	1
ide2	Data:iso/pfSense-CE-2.6.0-RELEASE-amd64.iso,media=cdrom
memory	2048
name	Pfsense
net0	virtio,bridge=vibr0,firewall=1
nodename	pve
numa	0
ostype	l26
scsi0	Data:32,format=qcow2,iothread=on
scsihw	virtio-scsi-single
sockets	1
vmid	500

 Start after createdAdvanced [Back](#)[Finish](#)


After its finish you can go to your virtual machine, navigate to hardware to add as many network interface you need, for our LAB we only need 2 one for WAN (Default nic) and one for LAN (to segment networks on our proxmox LAB).

Virtual Machine 500 (VM 500) on node 'pve' No Tags 


 Add <input type="button" value="Remove"/> <input type="button" value="Edit"/> <input type="button" value="Disk Action"/> <input type="button" value="Revert"/>	
Memory	2.00 GiB
Processors	1 (1 sockets, 1 cores)
BIOS	Default (SeaBIOS)
Display	Default
Machine	Default (i440fx)
SCSI Controller	VirtIO SCSI single
CD/DVD Drive (ide2)	Data:iso/pfSense-CE-2.6.0-RELEASE-amd64.iso,media=cdrom,size=749476K
Hard Disk (scsi0)	Data:500/vm-500-disk-0.qcow2,iotthread=1,size=32G
Network Device (net0)	virtio=26:ED:69:C6:48:54,bridge=vibr0,firewall=1

For our LAB we are adding vibr1 (previously assigned on Proxmox pve/network/create linux bridge) our physical server has 3 physical NICs for testing.

we are also using vlan 20 for testing purposes, you can proceed without a vlan if not needed, click add.

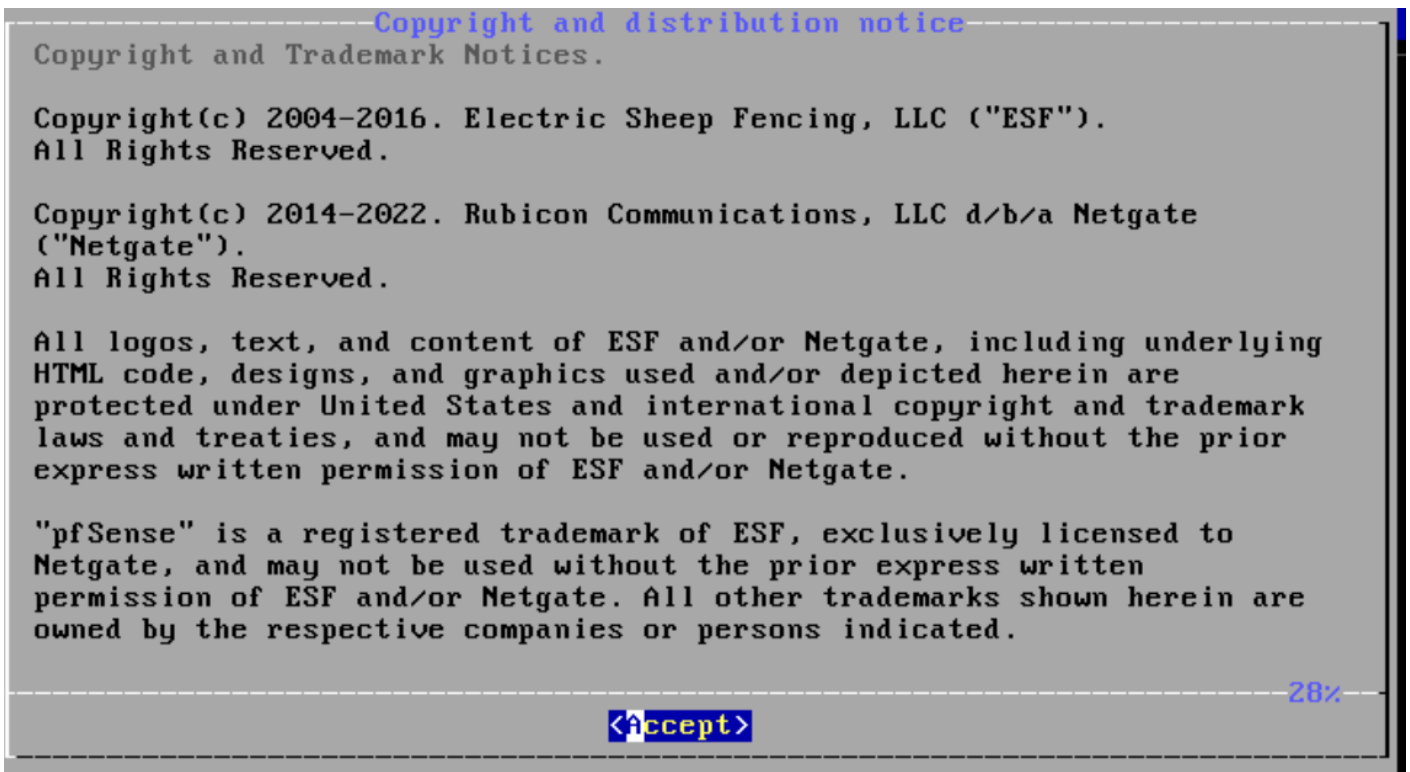
**Add: Network Device** 

Bridge:	<input type="text" value="vibr1"/>	Model:	<input type="text" value="VirtIO (paravirtualized)"/>
VLAN Tag:	<input type="text" value="20"/>	MAC address:	<input type="text" value="auto"/>
Firewall:	<input checked="" type="checkbox"/>		
<hr/>			
Disconnect:	<input type="checkbox"/>	Rate limit (MB/s):	<input type="text" value="unlimited"/>
MTU:	<input type="text" value="1500 (1 = bridge MTU)"/>	Multiqueue:	<input type="text"/>

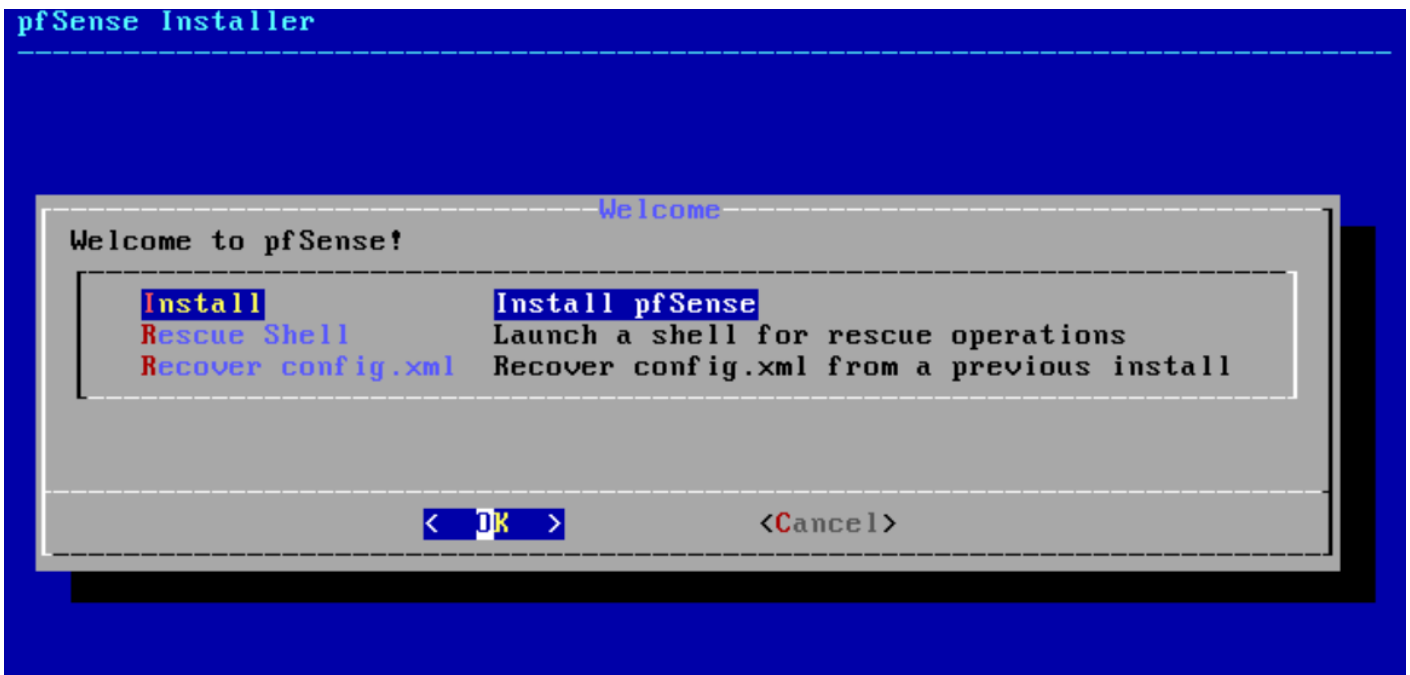
 Help
Advanced 
Add

Now we are ready to turn on VM go to console and navigate thru the wizard.

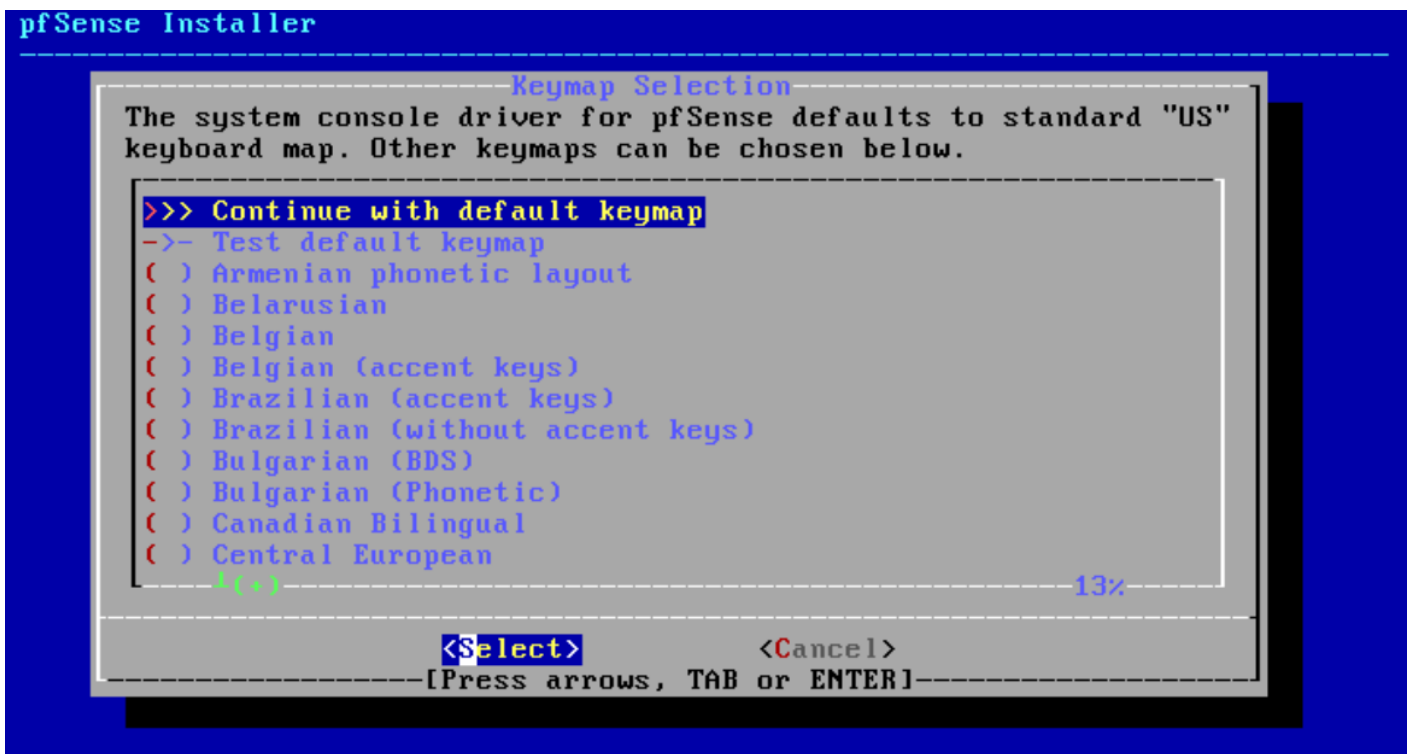
Click on Accept



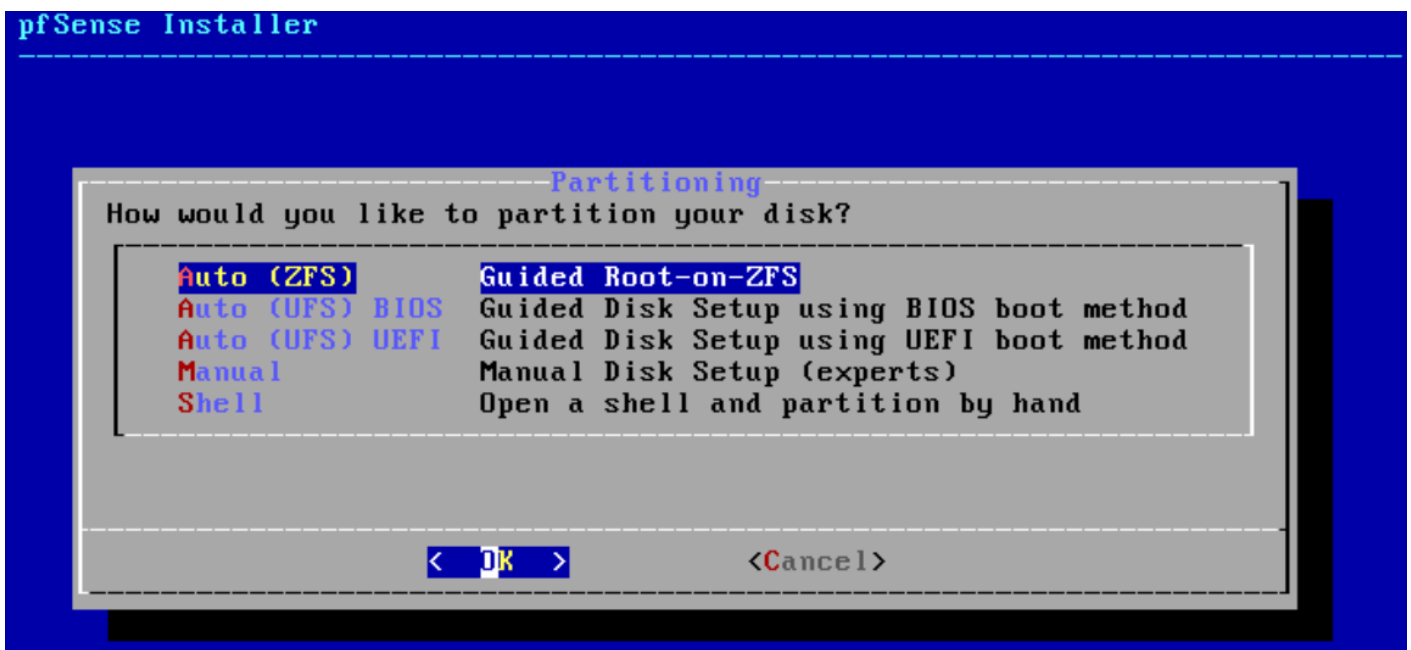
Select Install and ok



Default Keymap unless you need to select a different keyboard map



We will use an ZFS partition for this LAB as is virtual, if you are installing on a physical device you can use manual to specify your partition type



Proceed with Installation

## pfSense Installer

ZFS Configuration

Configure Options:

>>> Install	Proceed with Installation
T Pool Type/Disks:	stripe: 0 disks
- Rescan Devices	*
- Disk Info	*
N Pool Name	pfSense
4 Force 4K Sectors?	YES
E Encrypt Disks?	NO
P Partition Scheme	GPT (BIOS)
S Swap Size	1g
M Mirror Swap?	NO
W Encrypt Swap?	NO

<Select>                      <Cancel>

Create ZFS boot pool with displayed options

We will select Stripe as this is a virtual machine, no need for mirror zfs type, if you are installing this on a physical machine and would like to have raid type partition make sure to select mirror

## pfSense Installer

ZFS Configuration

Select Virtual Device type:

<b>stripe</b>	<b>Stripe - No Redundancy</b>
mirror	Mirror - n-Way Mirroring
raid10	RAID 1+0 - n x 2-Way Mirrors
raidz1	RAID-Z1 - Single Redundant RAID
raidz2	RAID-Z2 - Double Redundant RAID
raidz3	RAID-Z3 - Triple Redundant RAID

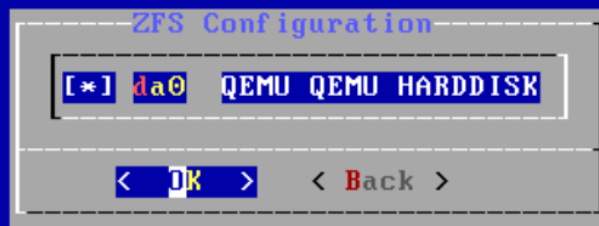
< OK >                      <Cancel>

[Press arrows, TAB or ENTER]

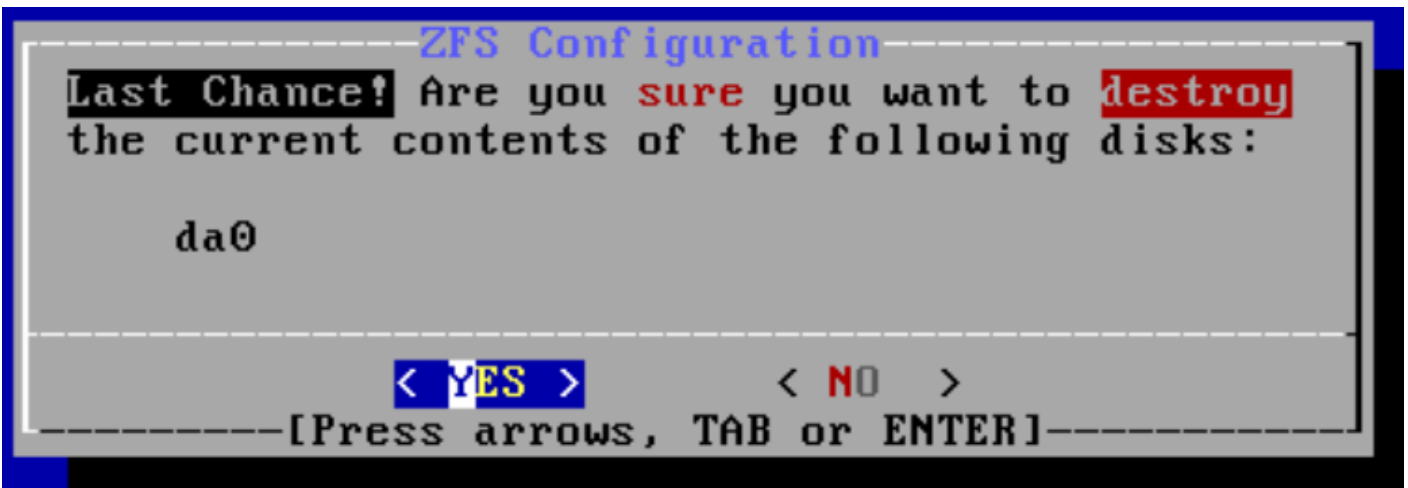
[1+ Disks] Striping provides maximum storage but no redundancy

Confirm your configuration and select ok

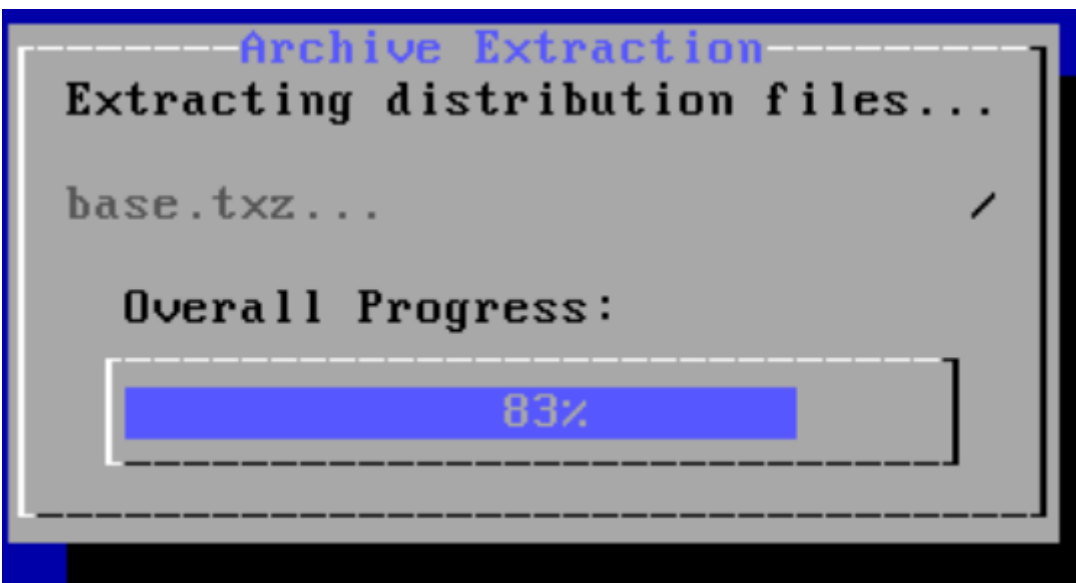
# pfSense Installer



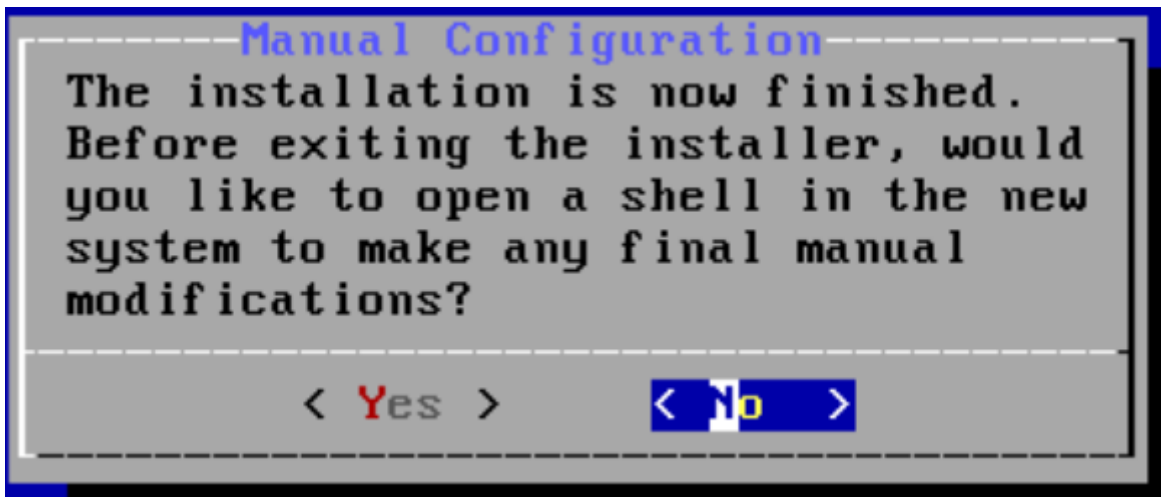
Last chance, make sure you select Yes unless you want to make any modification, select yes and press enter.



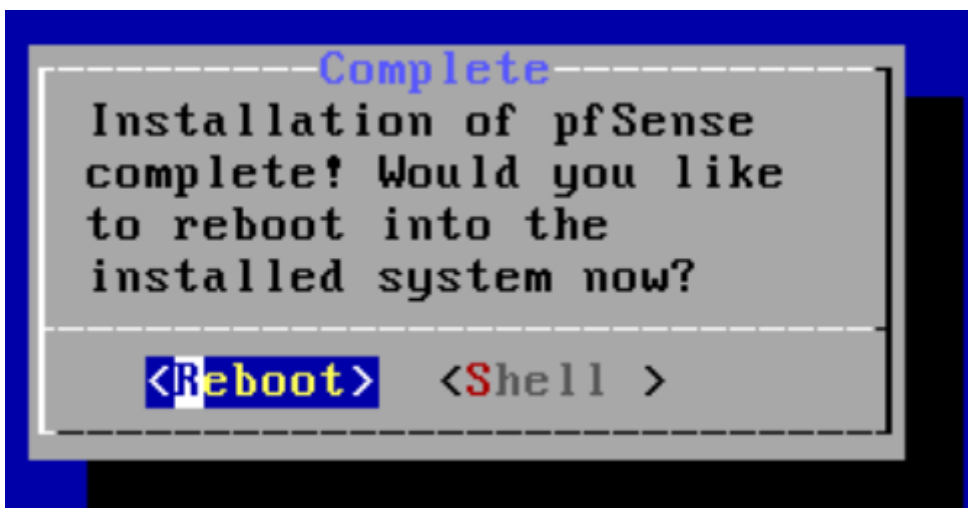
PFsense will begin the installation.



Select no unless you need to go to shell for any configuration, not needed for this lab.



if you navigate to shell you can type exit and then select reboot to complete the installation



After reboot you will be prompt about setting up vlans, select N

```
Features2=0x80202001<SSE3,CX16,xZAPIC,HV>
AMD Features=0x20100800<SYSCALL,NX,LM>
AMD Features2=0x1<LAHF>
Hypervisor: Origin = "KUMKUMKUM"
Done.
.... done.
Initializing..... done.
Starting device manager (devd)...done.
Loading configuration.....done.
Updating configuration...done.

Default interfaces not found -- Running interface assignment option.
vtnet0: link state changed to UP
vtnet1: link state changed to UP

Valid interfaces are:

vtnet0 26:ed:69:c6:48:54 (down) VirtIO Networking Adapter
vtnet1 fa:63:f1:d1:40:5b (down) VirtIO Networking Adapter

Do VLANs need to be set up first?
If VLANs will not be used, or only for optional interfaces, it is typical to
say no here and use the webConfigurator to configure VLANs later, if required.
Should VLANs be set up now [y|n]? █
```

type in your WAN interface or select a for auto-detection, if your interface is not yet connected select your interface manually in our case vtnet0

```
If the names of the interfaces are not known, auto-detection can
be used instead. To use auto-detection, please disconnect all
interfaces before pressing 'a' to begin the process.

Enter the WAN interface name or 'a' for auto-detection
(vtnet0 vtnet1 or a): vtnet0 █
```

vtnet1 for our LAN

```
Enter the LAN interface name or 'a' for auto-detection
NOTE: this enables full Firewalling/NAT mode.
(vtnet1 a or nothing if finished): vtnet1 █
```

Proceed type Y then enter

```
The interfaces will be assigned as follows:
```

```
WAN  -> vtnet0
```

```
LAN  -> vtnet1
```

```
Do you want to proceed [y/n]? █
```

PFsense will initiate the interfaces and configure services

server is ready, in order to logon since we are running pfsense on a virtual machine and we are not directly connected to our LAN interface we need to enable the WAN interface to allow connections by disabling packet filter

select option 8 and enter the following command

```
pfctl -d
```

to enable again enter command

```
pfctl -e
```

```
*** Welcome to pfSense 2.6.0-RELEASE (amd64) on pfSense ***

WAN (wan)      -> vtnet0      -> v4/DHCP4: 192.168.2.6/24
LAN (lan)      -> vtnet1      -> v4: 192.168.1.1/24

0) Logout (SSH only)          9) pfTop
1) Assign Interfaces          10) Filter Logs
2) Set interface(s) IP address 11) Restart webConfigurator
3) Reset webConfigurator password 12) PHP shell + pfSense tools
4) Reset to factory defaults  13) Update from console
5) Reboot system              14) Enable Secure Shell (sshd)
6) Halt system                 15) Restore recent configuration
7) Ping host                   16) Restart PHP-FPM
8) Shell

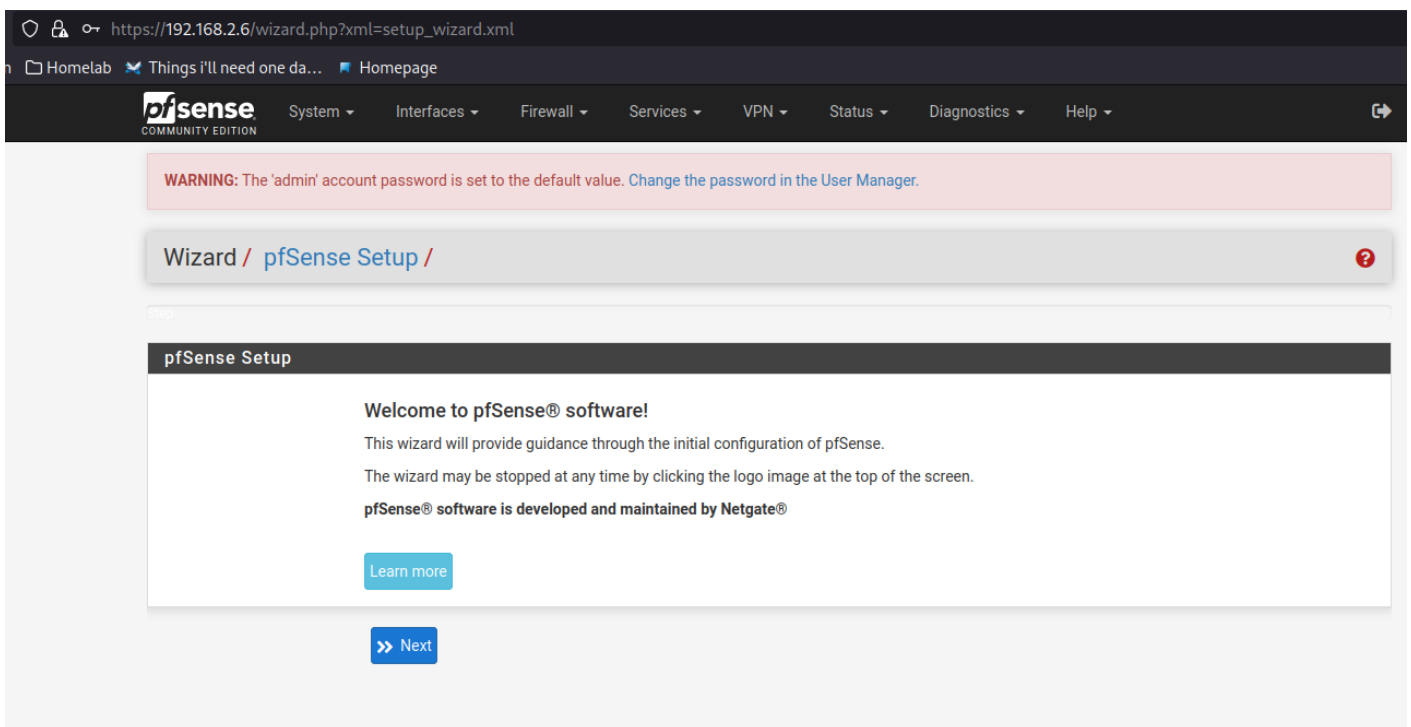
Enter an option: 8

[2.6.0-RELEASE][root@pfSense.home.arpa]/root: pfctl -d
pf disabled
[2.6.0-RELEASE][root@pfSense.home.arpa]/root: █
```

Navigate to your WAN IP <https://192.168.2.6>

default username is admin password is pfsense

change your password.



This is it, that's how you deploy pfsense as a virtual machine on Proxmox

Updated 31 March 2023 17:10:27 by Cesar Gzz