

Download the virtual box:

<https://www.virtualbox.org/wiki/Downloads/>

Download the pfsense ISO:

<https://www.pfsense.org/download/>

Here the steps of create the Network birdge on virtual machine.

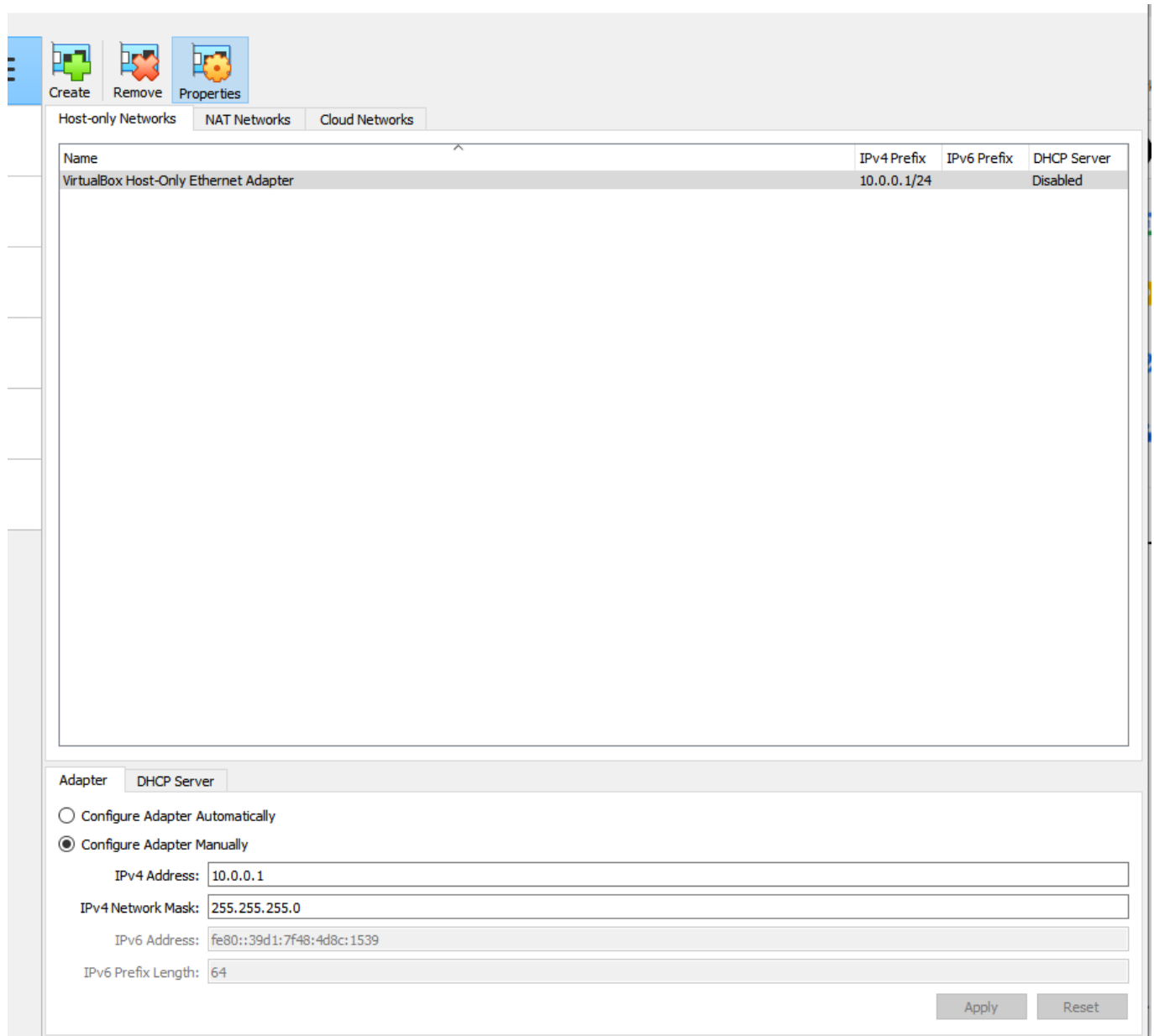
1). Open the virtual box

2). Click on Tools.

3). Now, click on Host only Networks

IPv4: 10.0.0.1/24

Network Mask: 255.255.255.0



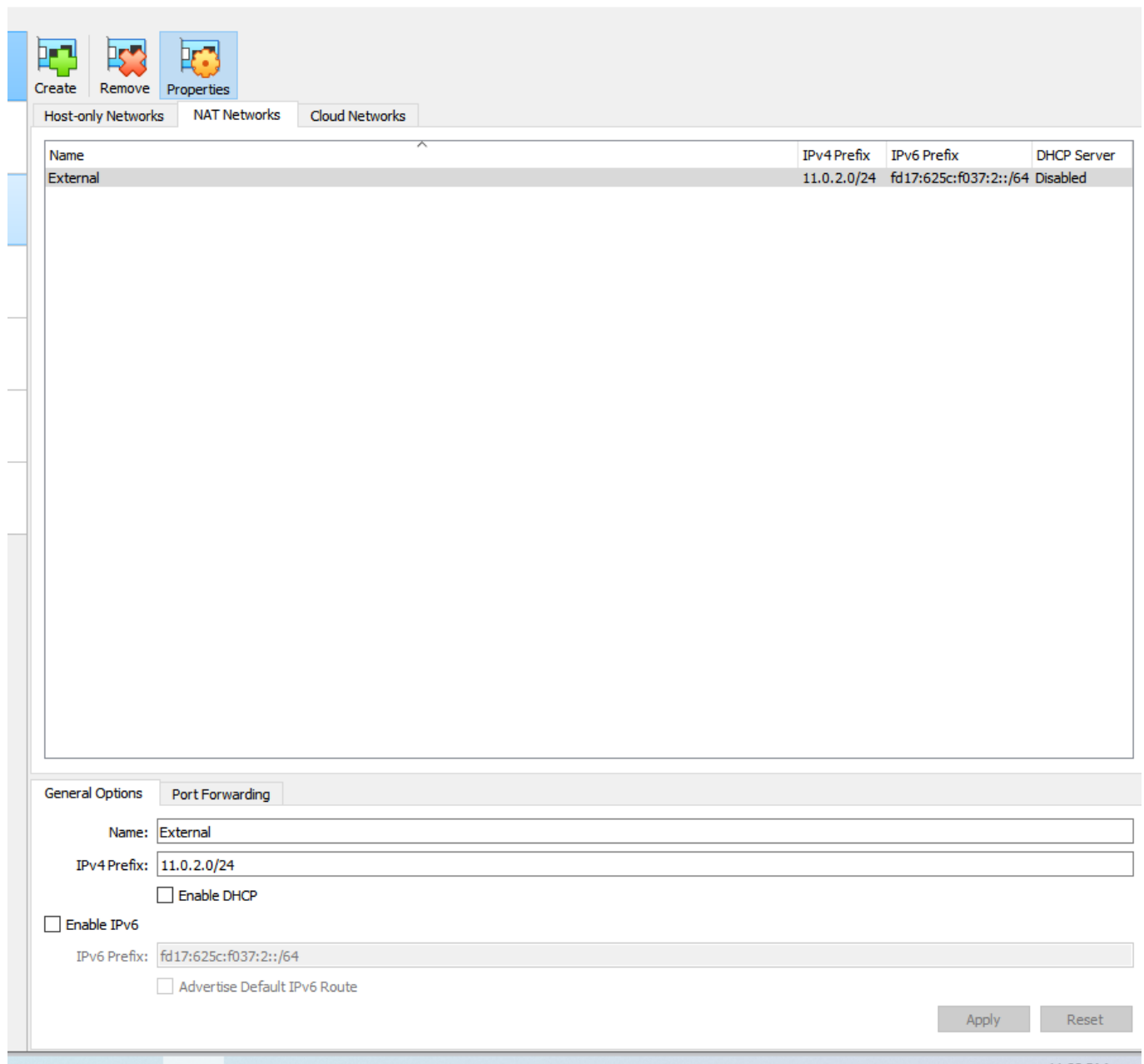
4). Click on Apply.

5). Now, click on NAT Networks.

Name: External

IPv4: 11.0.2.1/24

Disable DHCP



6). Click on Apply.

Now, Here the steps for setup pfSense firewall on virtual box.

1). Open VirtualBox.

2). Click on the 'New' button.

3). Now, write the name of the machine as 'firewall'.

4). Select the pfSense ISO.

5). Choose the type as 'BSD'.

6). Select version 'OpenBSD (64-bit)'.

7). Click on the next button.

8). Now, allocate the base memory and CPU in the hardware settings.

9). Click on the next button.

10). Select the virtual hard disk.

11). Click on the next button.

12). Finally, click on the Finish button.

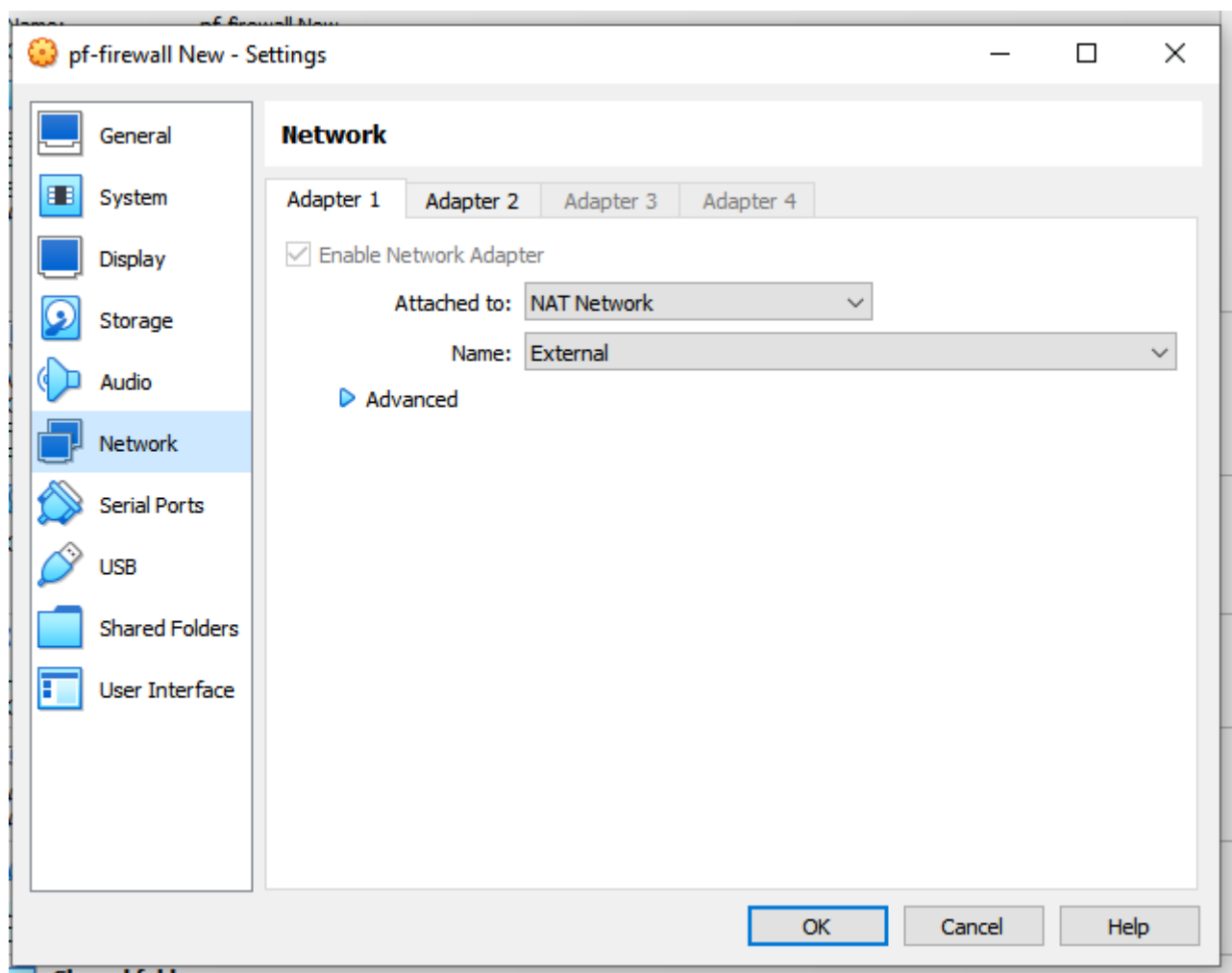
Now, select Network for pfSense firewall setup.

1). Click on the settings of the firewall machine.

2). Click on Network.

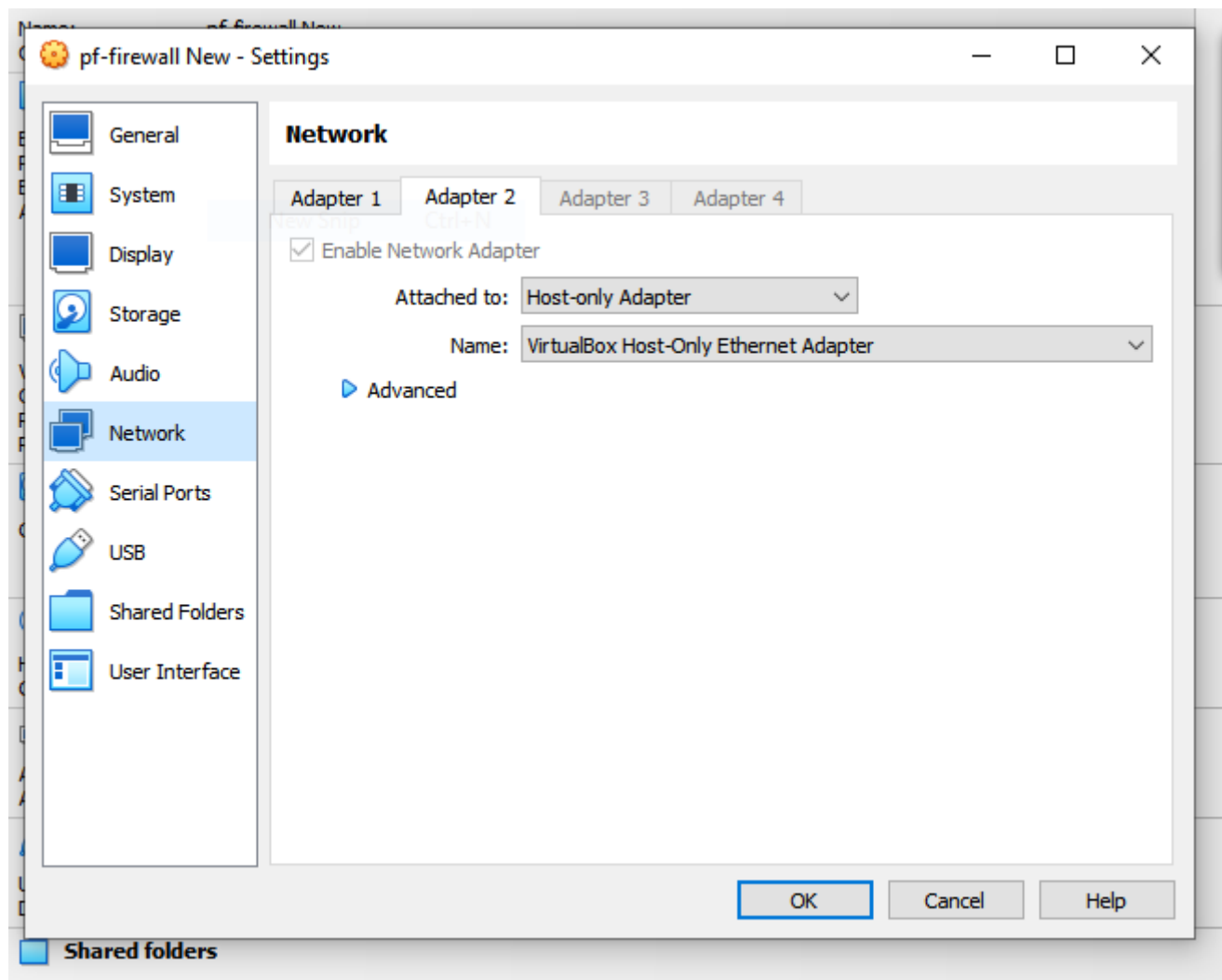
3). Now, click on Adapter 1.

4). Enable Network Adapter and select NAT Network (WAN).



5). Then, click on Adapter 2.

6). Enable Host-only Adapter and select

7). VirtualBox Host-Only Ethernet Adapter (LAN).**8). Click on the OK button.**

. Here the steps of LAN network on pfsense.

1). Screen of pfsense.

```
php-fpm[360]: /index.php: Successful login for user 'admin' from: 10.0.0.1 (Local Database)

FreeBSD/amd64 (pfSense.home.arp) (ttyv0)

VirtualBox Virtual Machine - Netgate Device ID: bf2207daf9004c2b16b7

*** Welcome to pfSense 2.7.0-RELEASE (amd64) on pfSense ***

WAN (wan)      -> em0      -> v4: 11.0.2.5/24
LAN (lan)      -> em1      -> v4: 10.0.0.3/24

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: █
```

2). Now, select option 2

```
Enter an option: 2

Available interfaces:

1 - WAN (em0 - static)
2 - LAN (em1 - static)

Enter the number of the interface you wish to configure: █
```

3). Now, select option 2 for LAN

4). Then, LAN interface via DHCP: N

5). Then, Enter the LAN address: 10.0.0.3

6). Then, Select the subnet: 24

7). Then, enter the LAN gateway:

```
Enter an option: 2

Available interfaces:

1 - WAN (em0 - static)
2 - LAN (em1 - static)

Enter the number of the interface you wish to configure: 2

Configure IPv4 address LAN interface via DHCP? (y/n) n

Enter the new LAN IPv4 address. Press <ENTER> for none:
> 10.0.0.3

Subnet masks are entered as bit counts (as in CIDR notation) in pfSense.
e.g. 255.255.255.0 = 24
     255.255.0.0   = 16
     255.0.0.0     = 8

Enter the new LAN IPv4 subnet bit count (1 to 32):
> 24

For a WAN, enter the new LAN IPv4 upstream gateway address.
For a LAN, press <ENTER> for none:
> 
```

8). Now, gateway set as default: N

9). Now, IPv6 address: N

10). Now, Enable the DHCP server on LAN: Y

11). Now, Enter the start address of the IPv4 client. address range: 10.0.0.11

12). Now, Enter the end address of the IPv4 client address range: 10.0.0.50

```
For a WAN, enter the new LAN IPv4 upstream gateway address.
For a LAN, press <ENTER> for none:
>

Configure IPv6 address LAN interface via DHCP6? (y/n) n

Enter the new LAN IPv6 address. Press <ENTER> for none:
>

Do you want to enable the DHCP server on LAN? (y/n) y
Enter the start address of the IPv4 client address range: 10.0.0.11
Enter the end address of the IPv4 client address range: 10.0.0.50
Disabling IPv6 DHCPD...

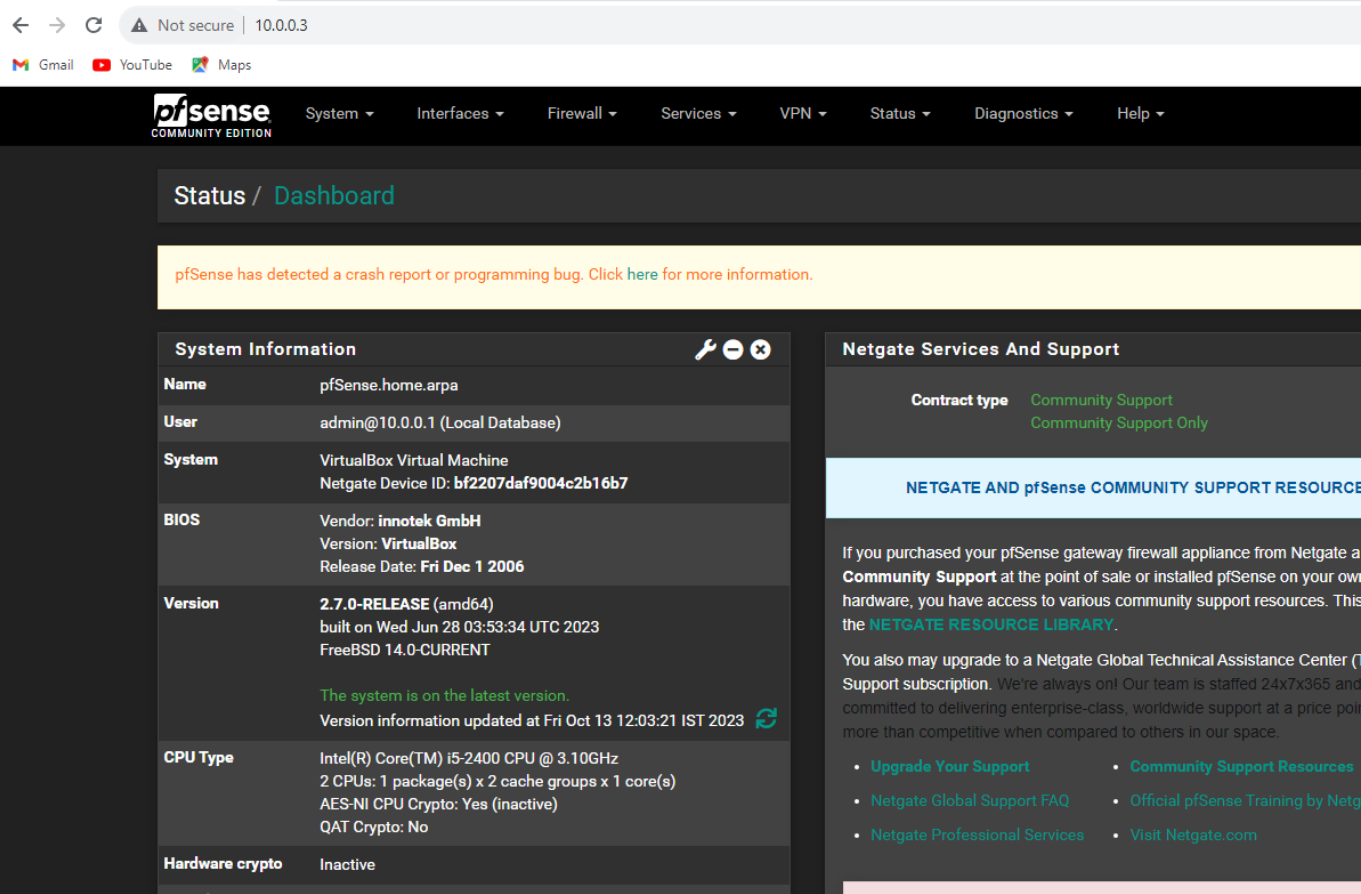
Please wait while the changes are saved to LAN...
Reloading filter...
Reloading routing configuration...
DHCPD...

The IPv4 LAN address has been set to 10.0.0.3/24
You can now access the webConfigurator by opening the following URL in your web
browser:

    http://10.0.0.3/

Press <ENTER> to continue. 
```

Now, Access the dasbord of pfSenace on browsers IP: 10.0.0.3



Here the steps of WAN network on pfsense

- 1). Now, select option 2
- 2). Now, select option 1 for WAN
- 3). Then, WAN interface via DHCP: N
- 4). Then, Enter the WAN address: 11.0.2.5
- 5). Then, Select the subnet: 24
- 6). Then, enter the WAN gateway: 11.0.2.1


```
Enter an option: 2

Available interfaces:

1 - WAN (em0 - static)
2 - LAN (em1 - static)

Enter the number of the interface you wish to configure: 1

Configure IPv4 address WAN interface via DHCP? (y/n) n

Enter the new WAN IPv4 address. Press <ENTER> for none:
> 11.0.2.5

Subnet masks are entered as bit counts (as in CIDR notation) in pfSense.
e.g. 255.255.255.0 = 24
    255.255.0.0   = 16
    255.0.0.0     = 8

Enter the new WAN IPv4 subnet bit count (1 to 32):
> 24

For a WAN, enter the new WAN IPv4 upstream gateway address.
For a LAN, press <ENTER> for none:
> 11.0.2.1
```

7). Now, gateway set as default: N

8). Now, IPv6 address: N

9). Now, Enable the DHCP server on WAN: N

```
Should this gateway be set as the default gateway? (y/n) n

Configure IPv6 address WAN interface via DHCP6? (y/n) n

Enter the new WAN IPv6 address. Press <ENTER> for none:
>

Do you want to enable the DHCP server on WAN? (y/n) n
Disabling IPv4 DHCPD...
Disabling IPv6 DHCPD...

Please wait while the changes are saved to WAN...
Reloading filter...
Reloading routing configuration...
DHCPD...

The IPv4 WAN address has been set to 11.0.2.5/24

Press <ENTER> to continue.
```

Now, let's check the Internet working on pfsense.

ping google.com

```
[2.7.0-RELEASE][root@pfSense.home.arpal/root: ping google.com
PING google.com (142.250.194.238): 56 data bytes
64 bytes from 142.250.194.238: icmp_seq=0 ttl=111 time=38.367 ms
64 bytes from 142.250.194.238: icmp_seq=1 ttl=111 time=37.110 ms
64 bytes from 142.250.194.238: icmp_seq=2 ttl=111 time=37.169 ms
64 bytes from 142.250.194.238: icmp_seq=3 ttl=111 time=37.001 ms
64 bytes from 142.250.194.238: icmp_seq=4 ttl=111 time=37.302 ms
64 bytes from 142.250.194.238: icmp_seq=5 ttl=111 time=37.302 ms
64 bytes from 142.250.194.238: icmp_seq=6 ttl=111 time=37.443 ms
64 bytes from 142.250.194.238: icmp_seq=7 ttl=111 time=36.800 ms
64 bytes from 142.250.194.238: icmp_seq=8 ttl=111 time=38.436 ms
64 bytes from 142.250.194.238: icmp_seq=9 ttl=111 time=37.079 ms
64 bytes from 142.250.194.238: icmp_seq=10 ttl=111 time=37.243 ms
^C
--- google.com ping statistics ---
11 packets transmitted, 11 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 36.800/37.387/38.436/0.506 ms
[2.7.0-RELEASE][root@pfSense.home.arpal/root: ]
```