How To Add and Use Taggged and Untagged VLANs Trunks on pfSense Router Interfaces

(Complatible and tested with Cisco switches)

Updated May 13, 2018: Configuration can be done completely within the pfSense GUI

Objective:
Using VLANs and Trunking to provide subnet
192.168.10.0 tagged on interfaces em3 & em4
to trunked interfaces on switches.

Requirements:
Available Interfaces
em2 (OPT1), em3 (OPT2), em4 (OPT3)
3 subnets each on it's own router interface to its own switch
192.168.10.0 on em2 (VLAN10)
192.168.20.0 on em3 (VLAN20)
192.168.30.0 on em4 (VLAN30)

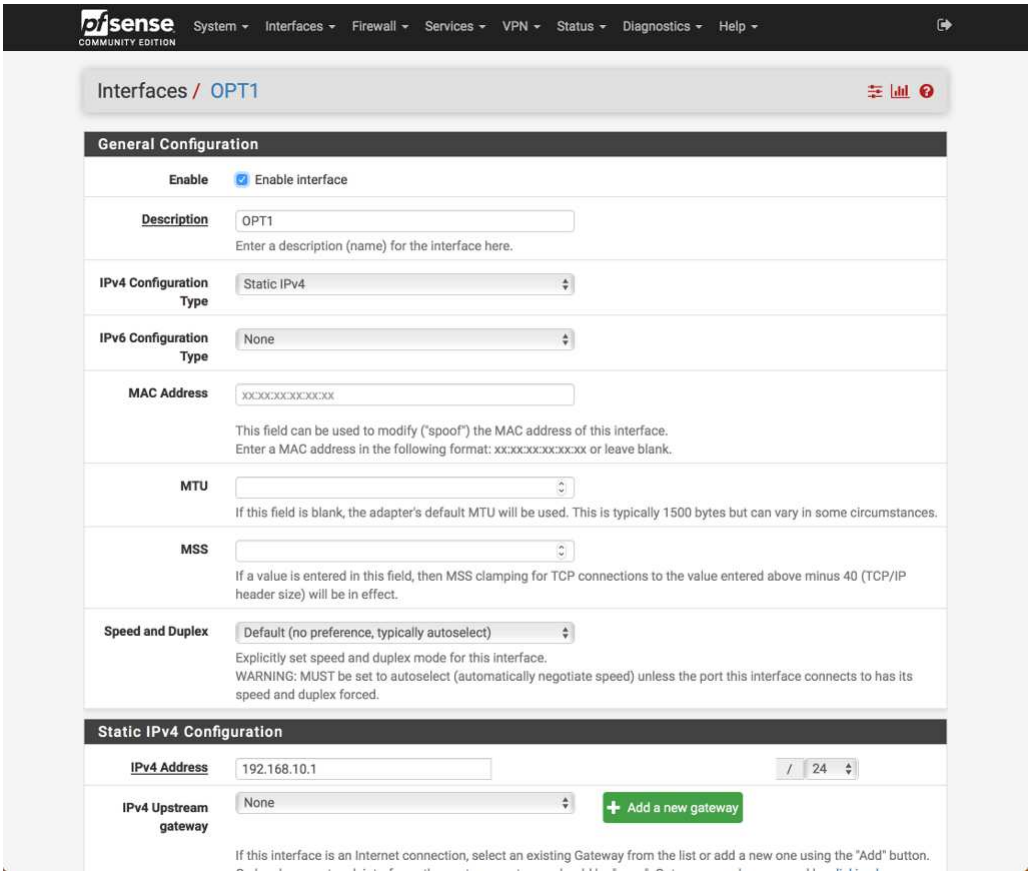
Note:
192.168.10.0 on em2 will be untagged
192.168.10.0 on em3 will be tagged
192.168.10.0 on em4 will be tagged
192.168.20.0 on em3 will be untagged
192.168.30.0 on em4 will be untagged

This was developed on pfSense
2.4.3-RELEASE (amd64)
built on Mon Mar 26 18:02:04 CDT 2018
FreeBSD 11.1-RELEASE-p7

(Click on screenshots to zoom, back buttion to return)

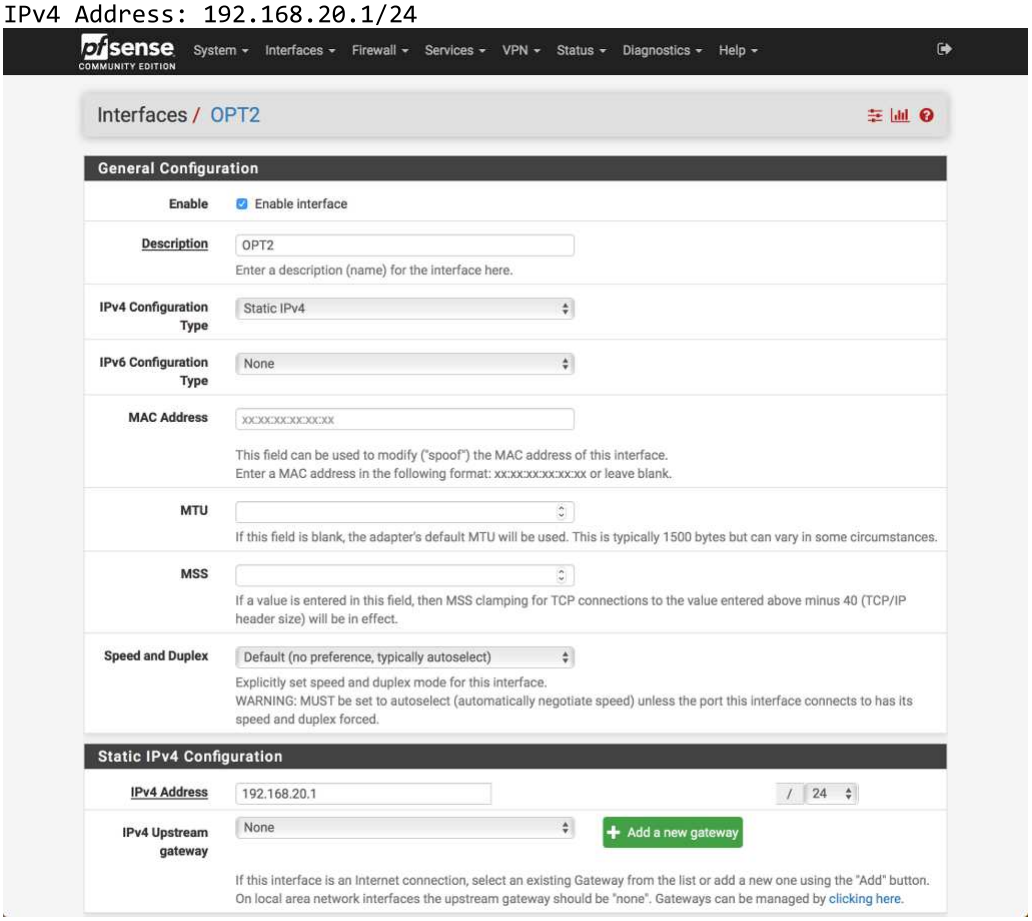
Configure Interfaces via pfSense GUI

Interfaces -> OPT1
Check Enable interface
IPv4 Configuration Type: IPv4
IPv4 Address: 192.168.10.1/24



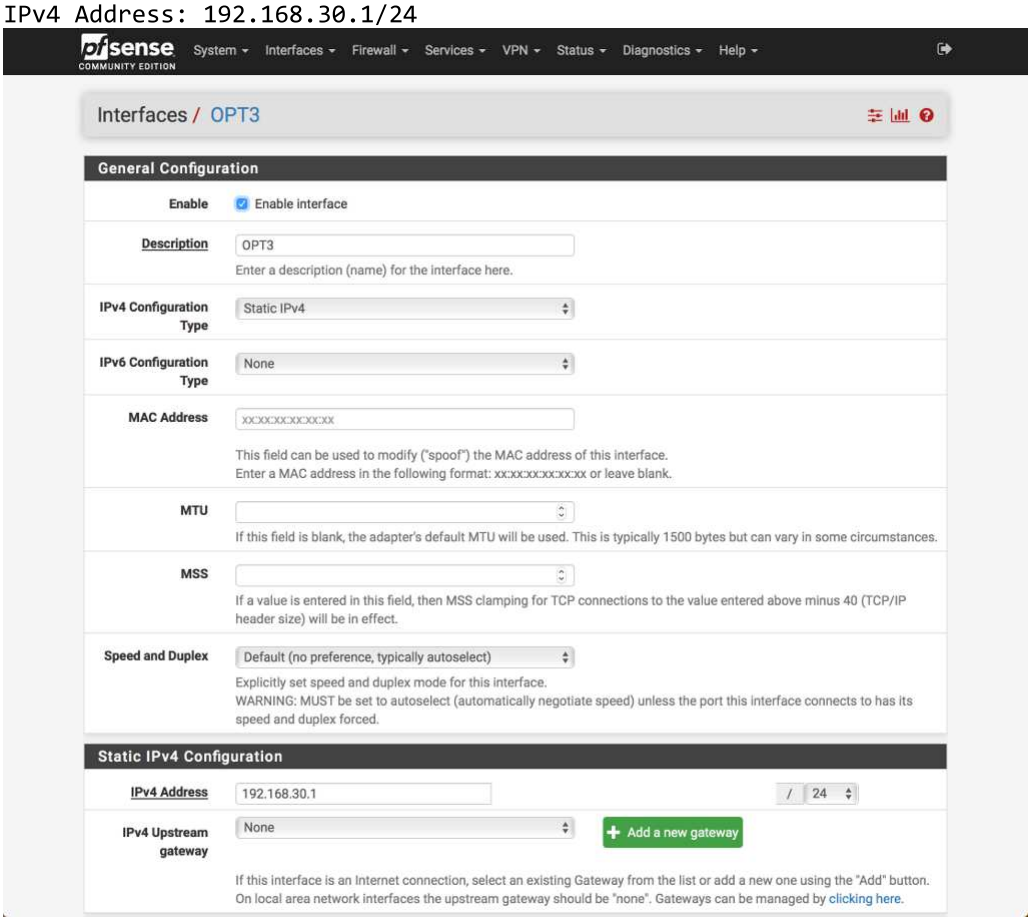
Click Save

Interfaces -> OPT2
Check Enable interface
IPv4 Configuration Type: IPv4
IPv4 Address: 192.168.20.1/24



Click Save

Interfaces -> OPT3
Check Enable interface
IPv4 Configuration Type: IPv4
IPv4 Address: 192.168.30.1/24

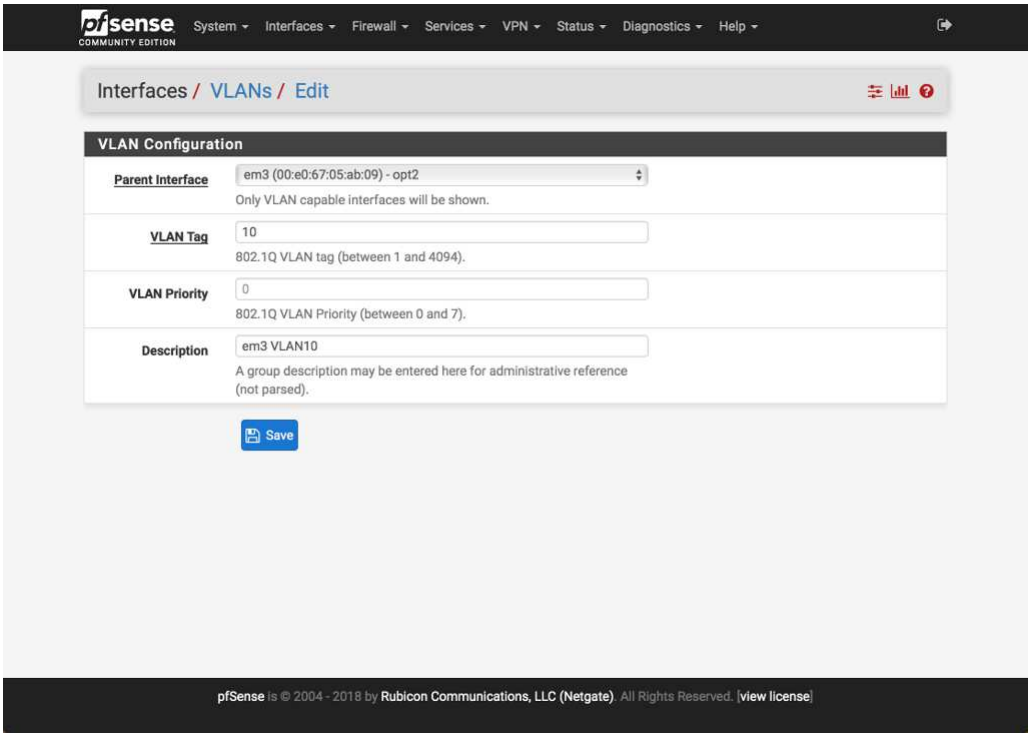


Click Save
Click Apply Changes

Create VLANs via pfSense GUI

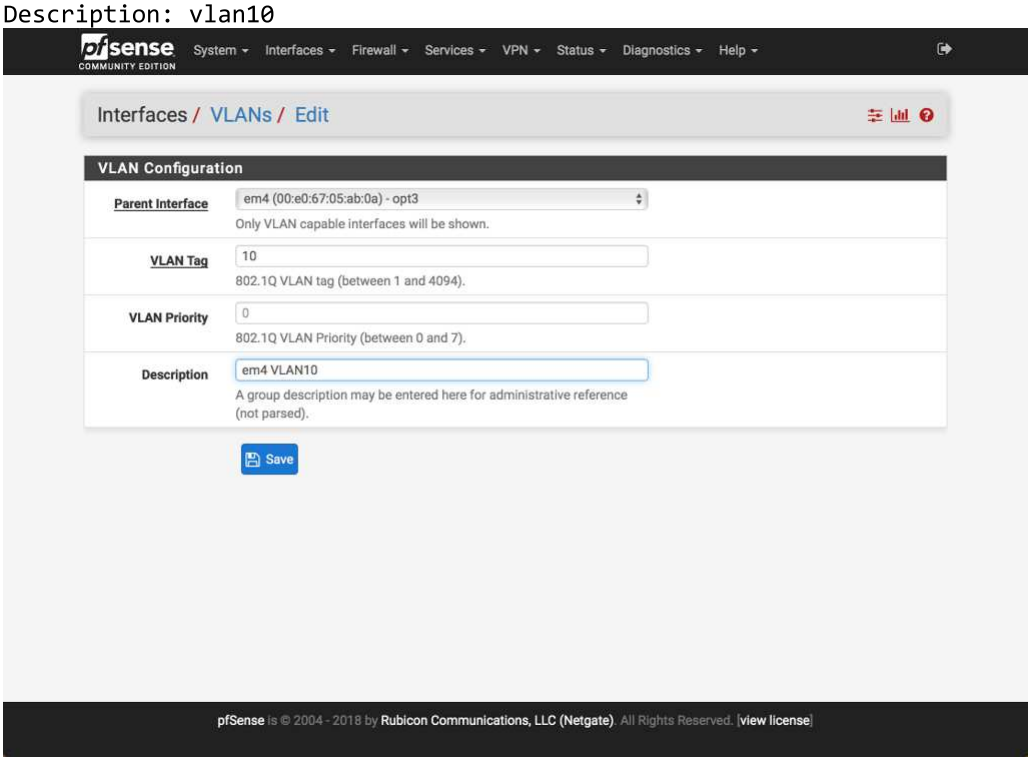
Interfaces -> Interface Assignments -> VLANs

Click Add
Parent Interface: em3
VLAN Tag: 10
VLAN Priority: <leave as is>
Description: vlan10



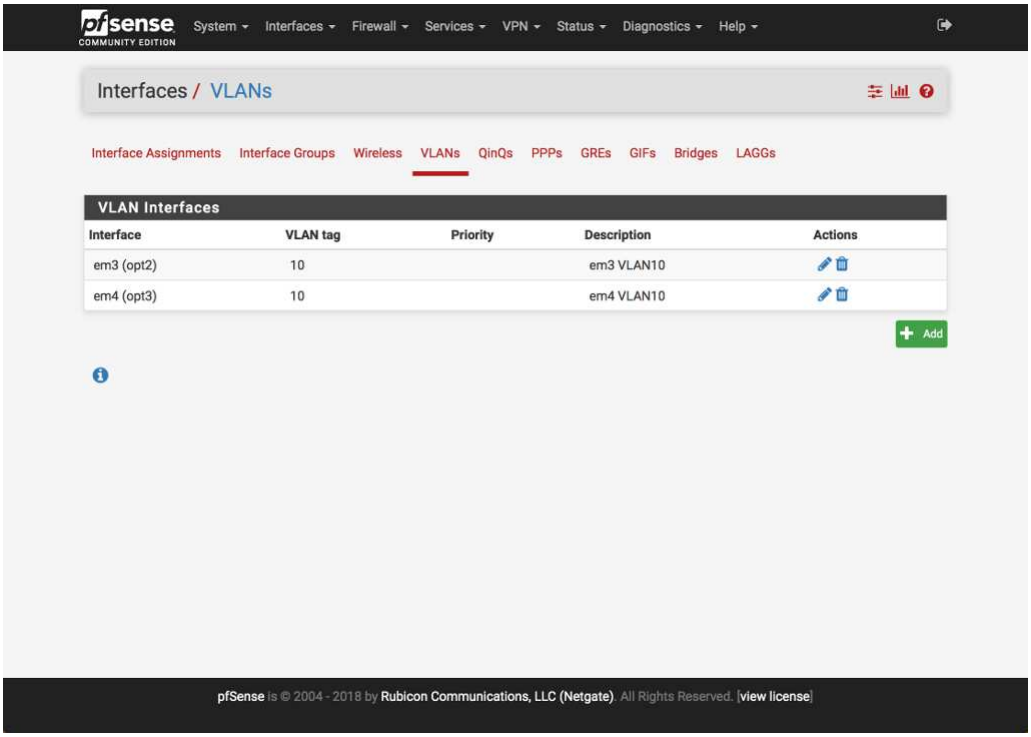
Click Save

Click Add
Parent Interface: em4
VLAN Tag: 10
VLAN Priority: <leave as is>
Description: vlan10

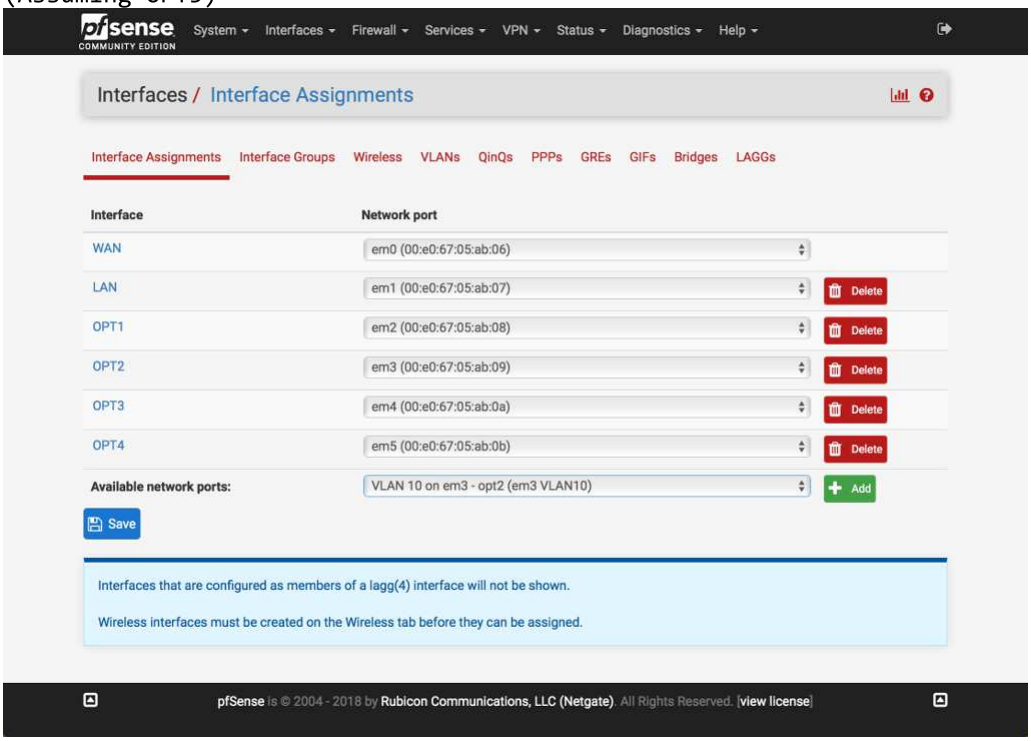


Click Save

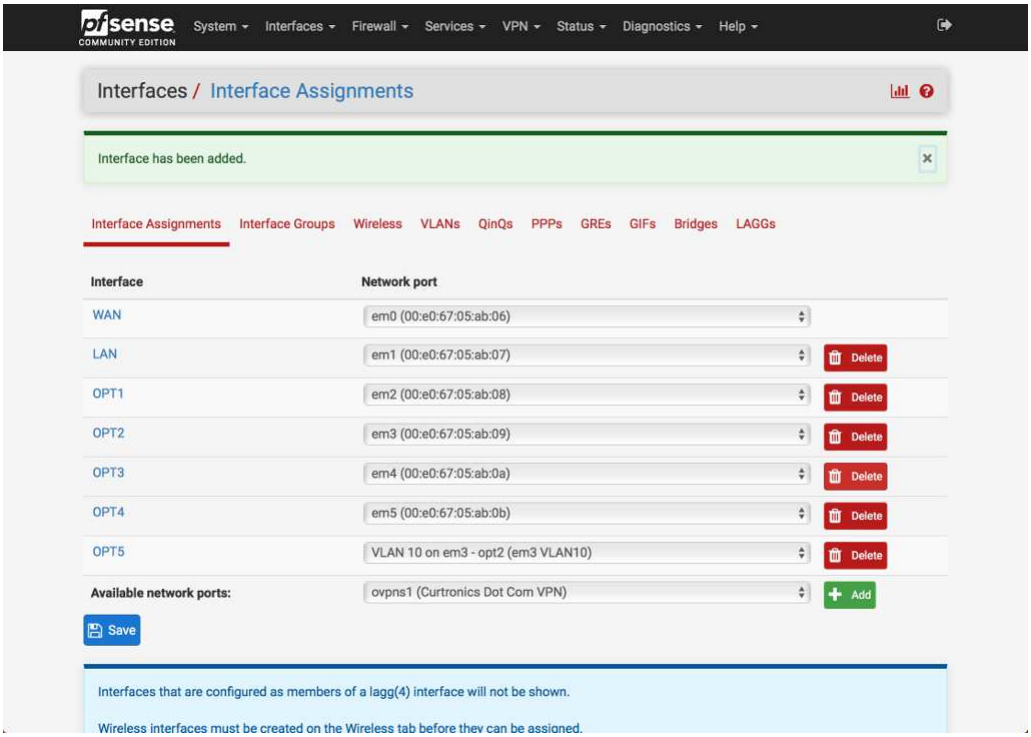
Created VLANs



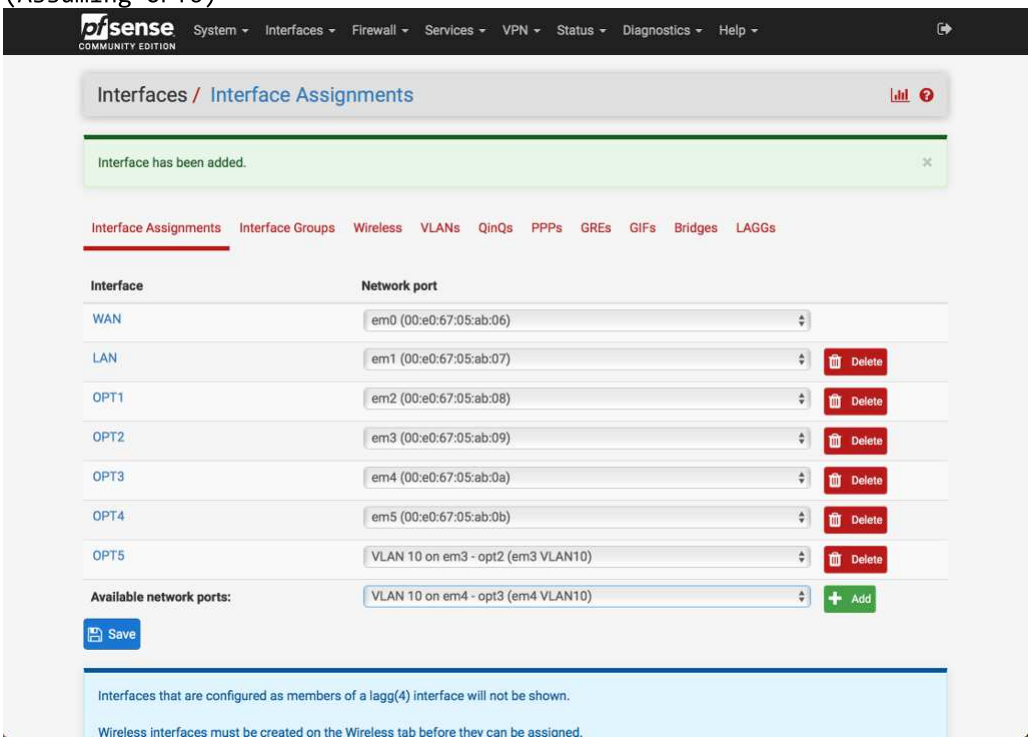
Interfaces -> Interface Assignments
Available network ports: From drop down box choose new em3 VLAN created (Assuming OPT5)



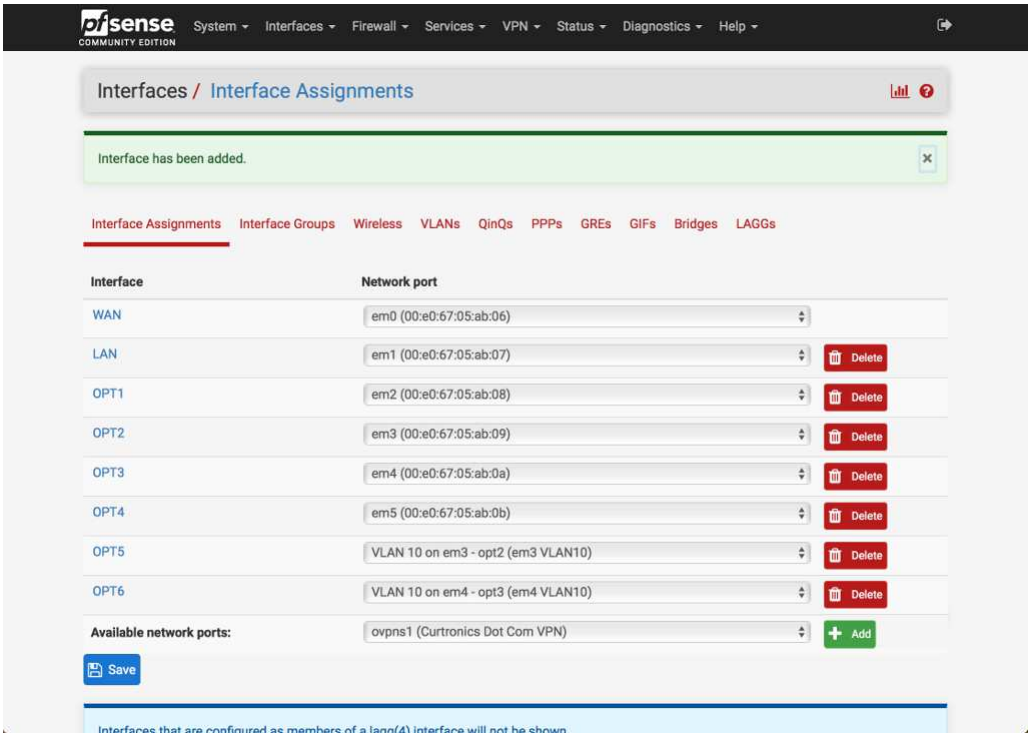
Click Add



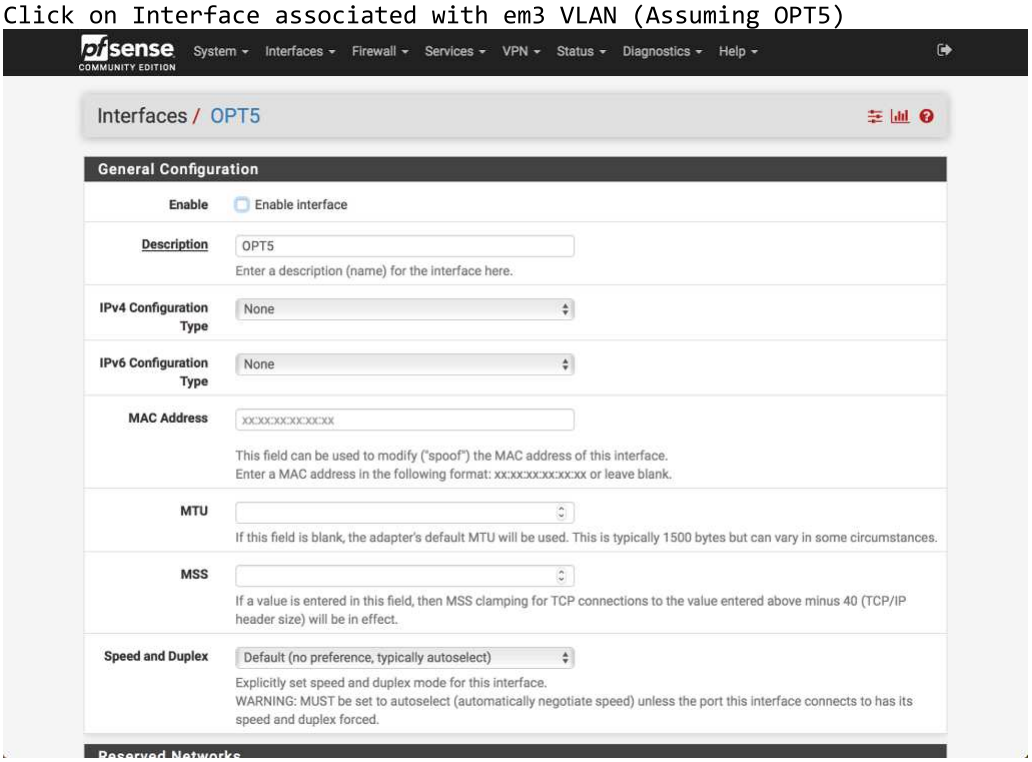
Interfaces -> Interface Assignments
Available network ports: From drop down box choose new em4 VLAN created (Assuming OPT6)



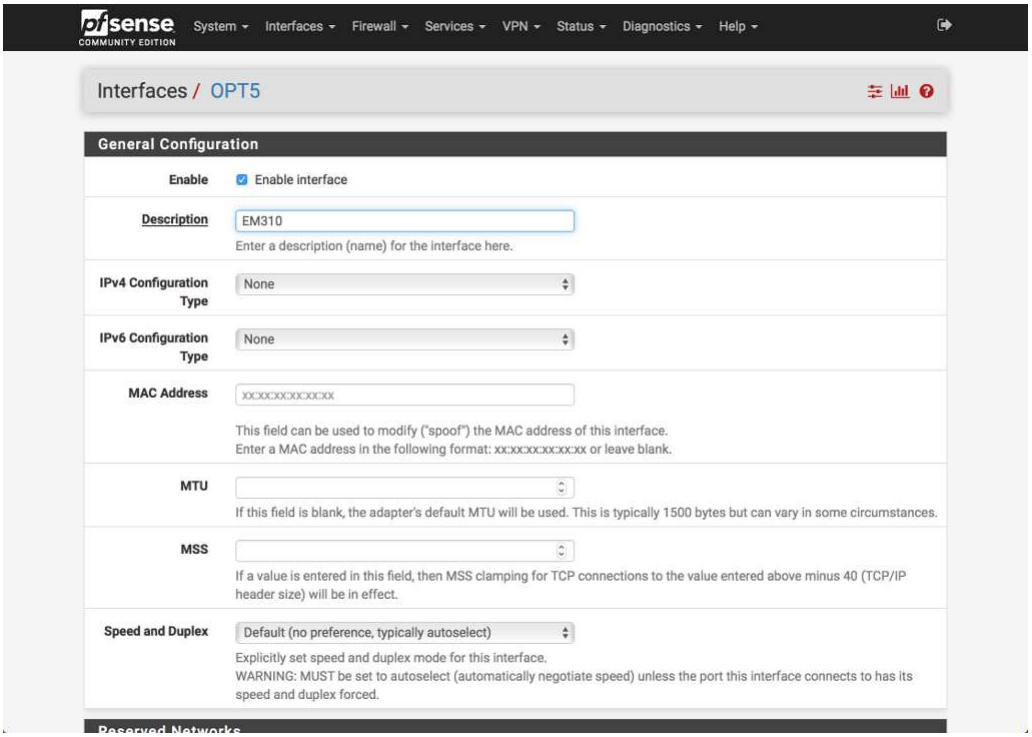
Click Add



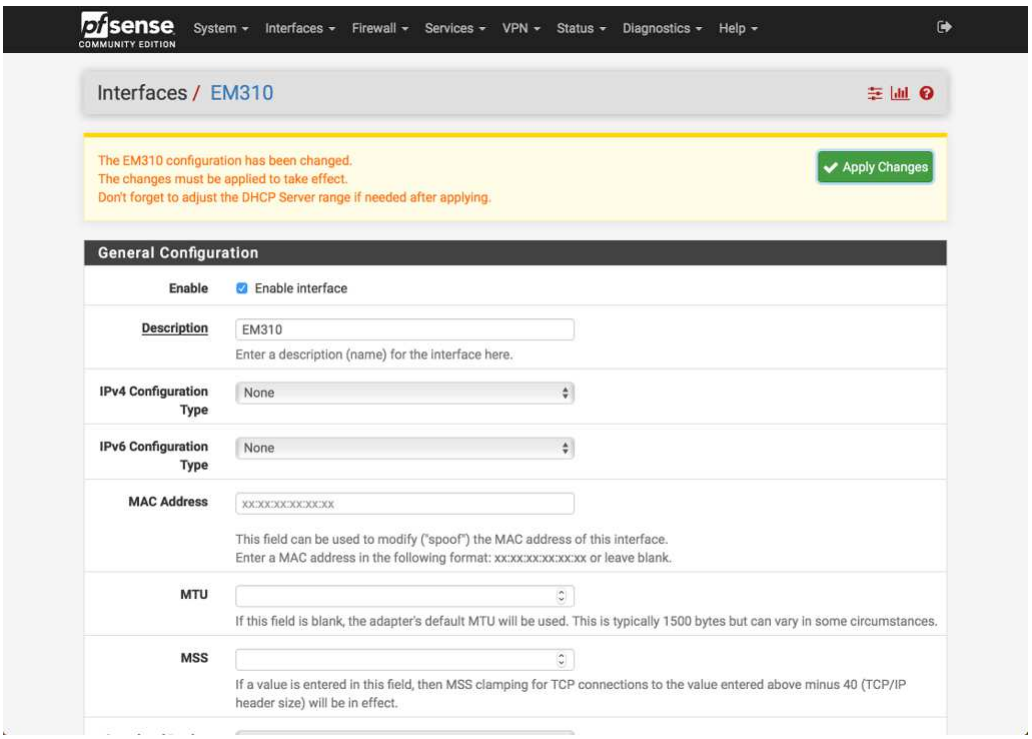
Click on Interface associated with em3 VLAN (Assuming OPT5)



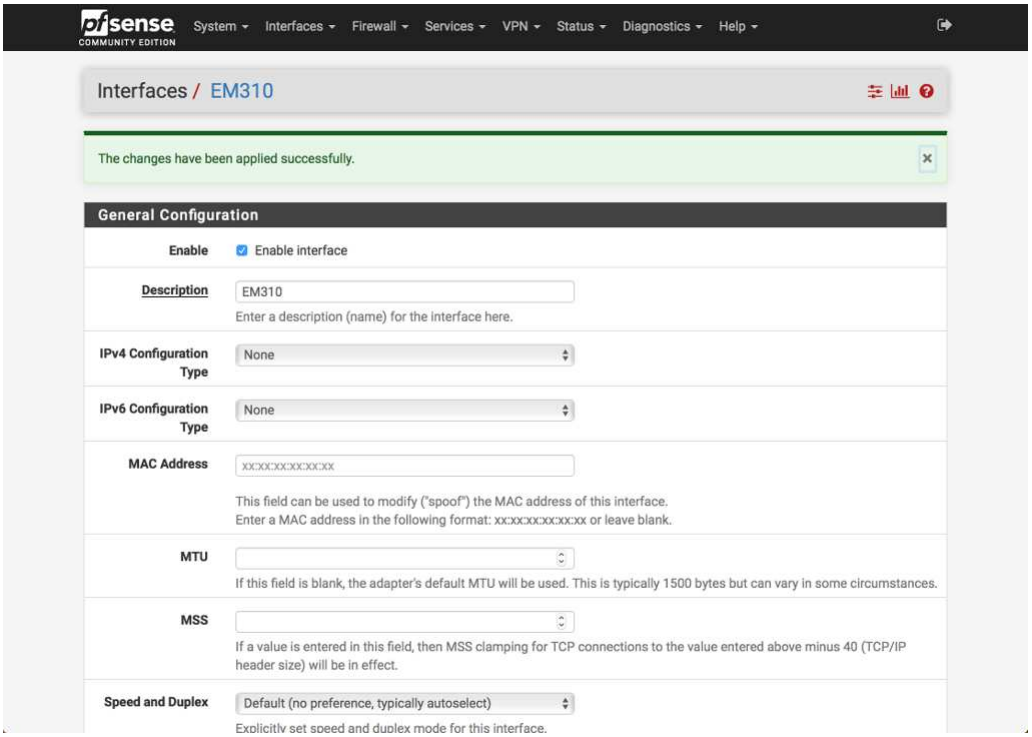
Check Enable interface
Change Description: OPT5 to em310



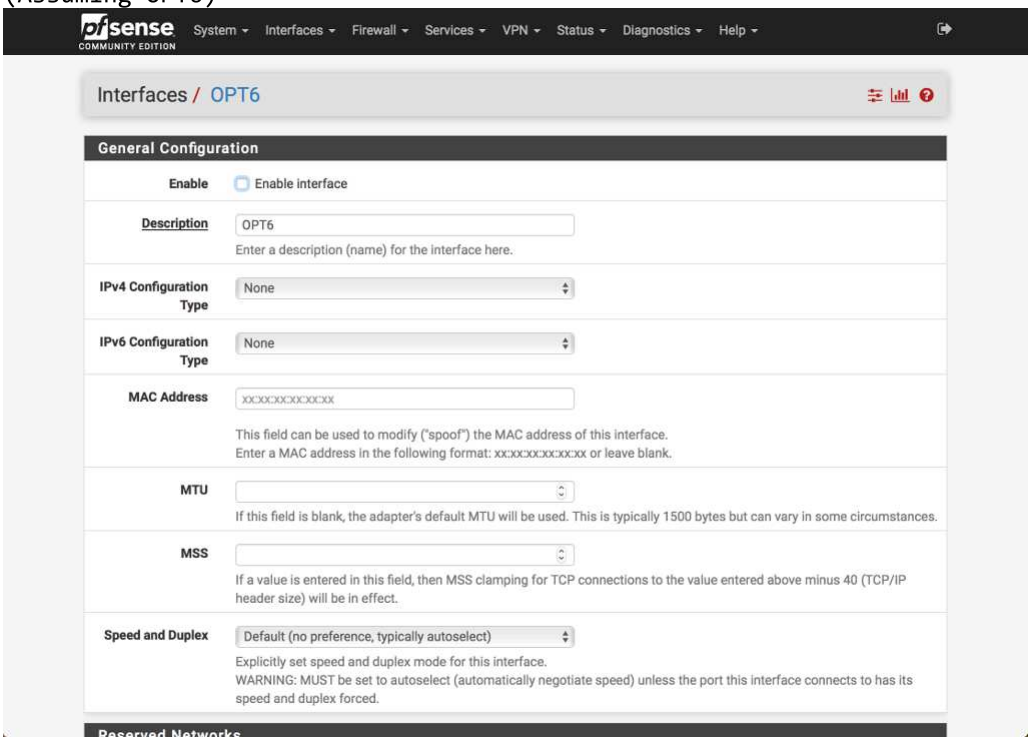
Click Save



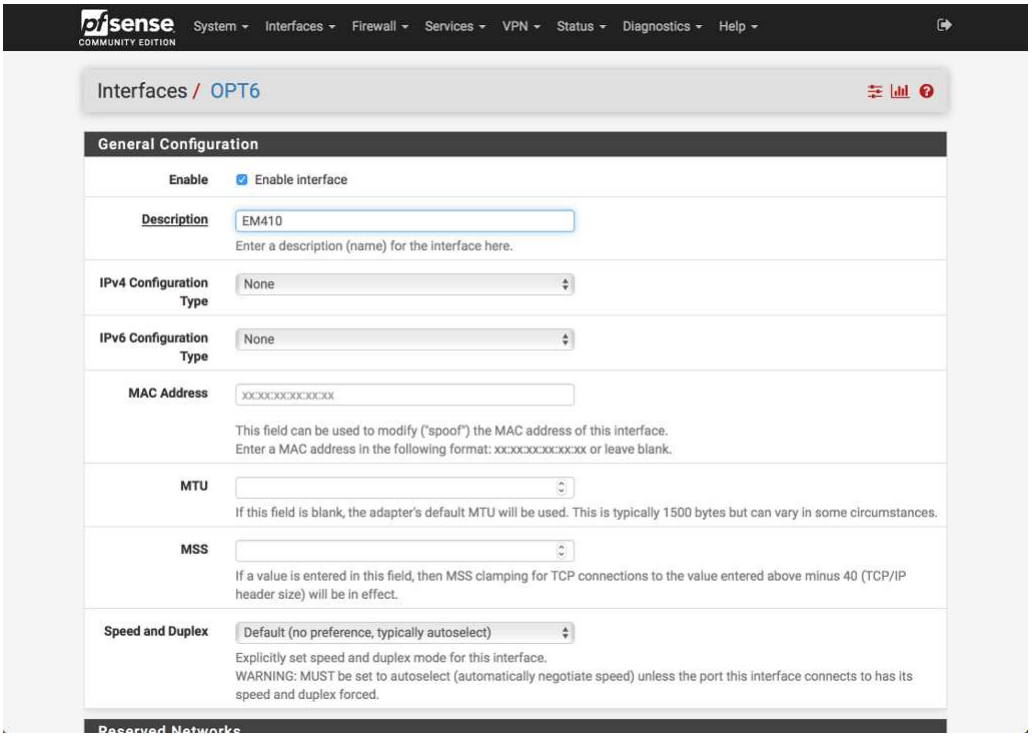
Click Apply Changes



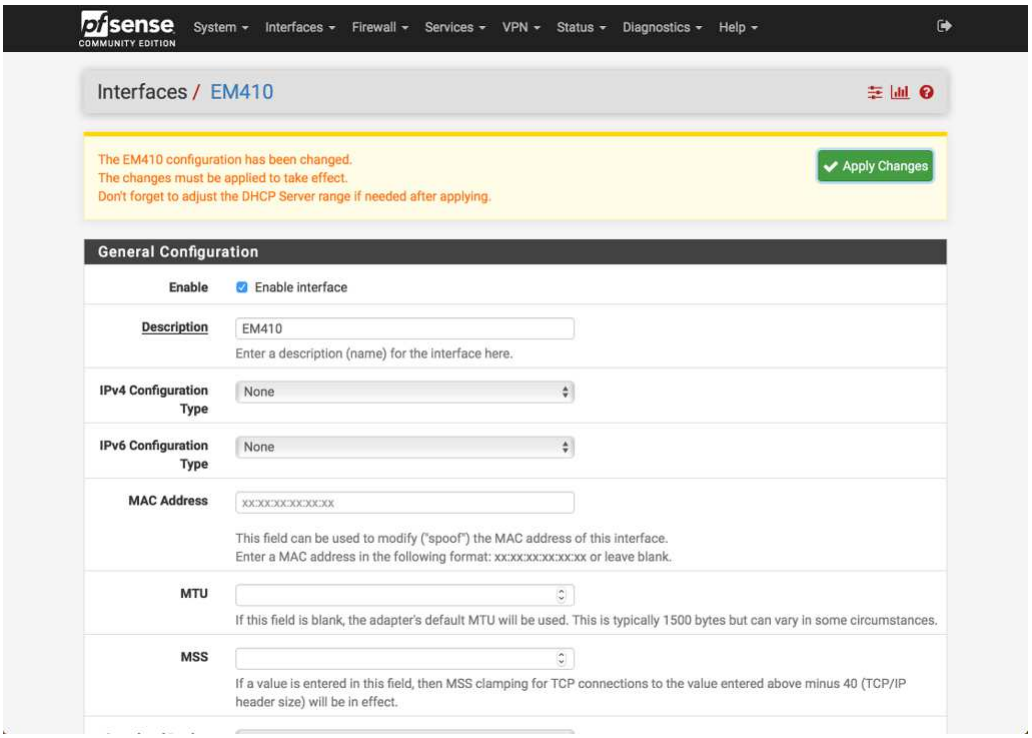
Click on Interface associated with em4 VLAN
(Assuming OPT6)



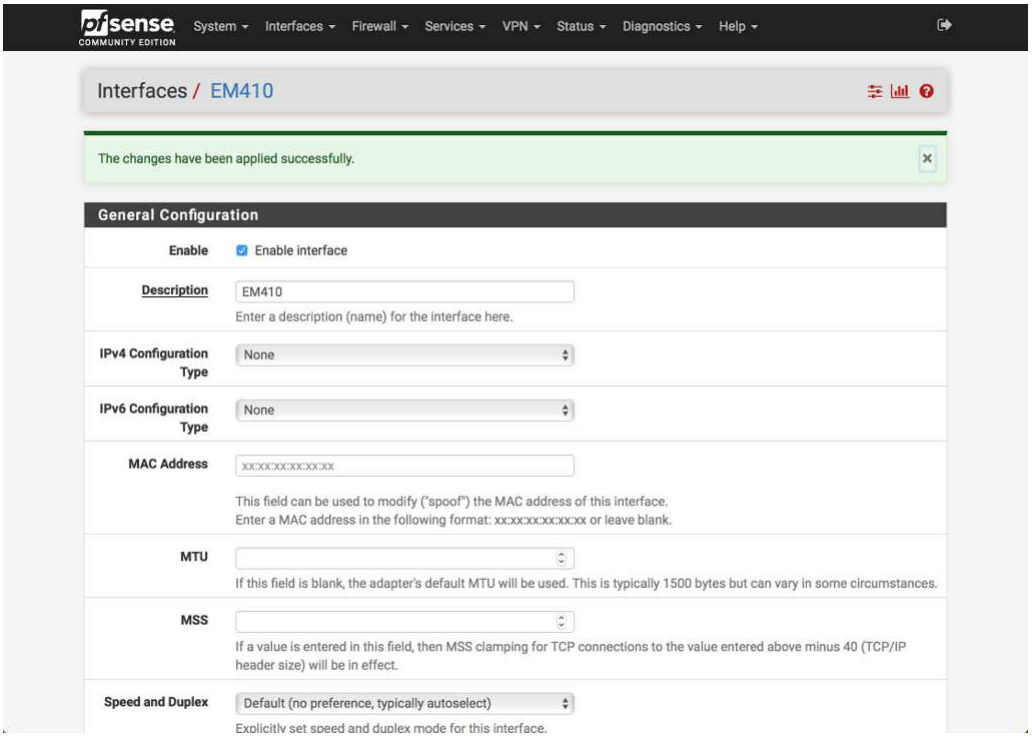
Check Enable interface
Change Description: OPT5 to em410



Click Save

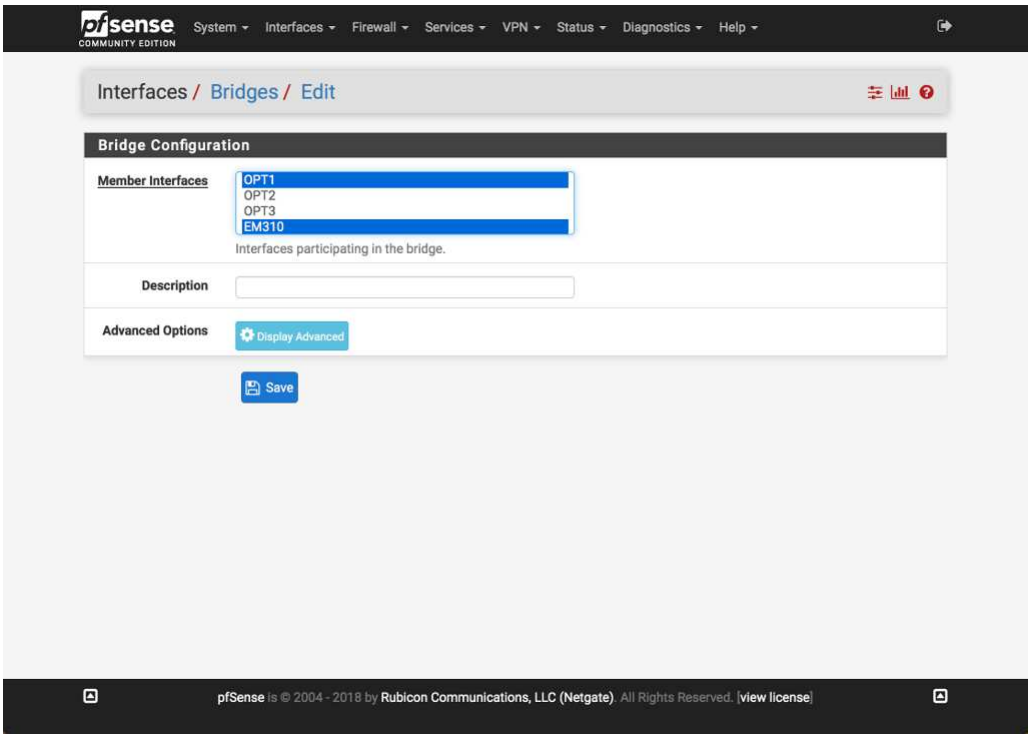


Click Apply Changes



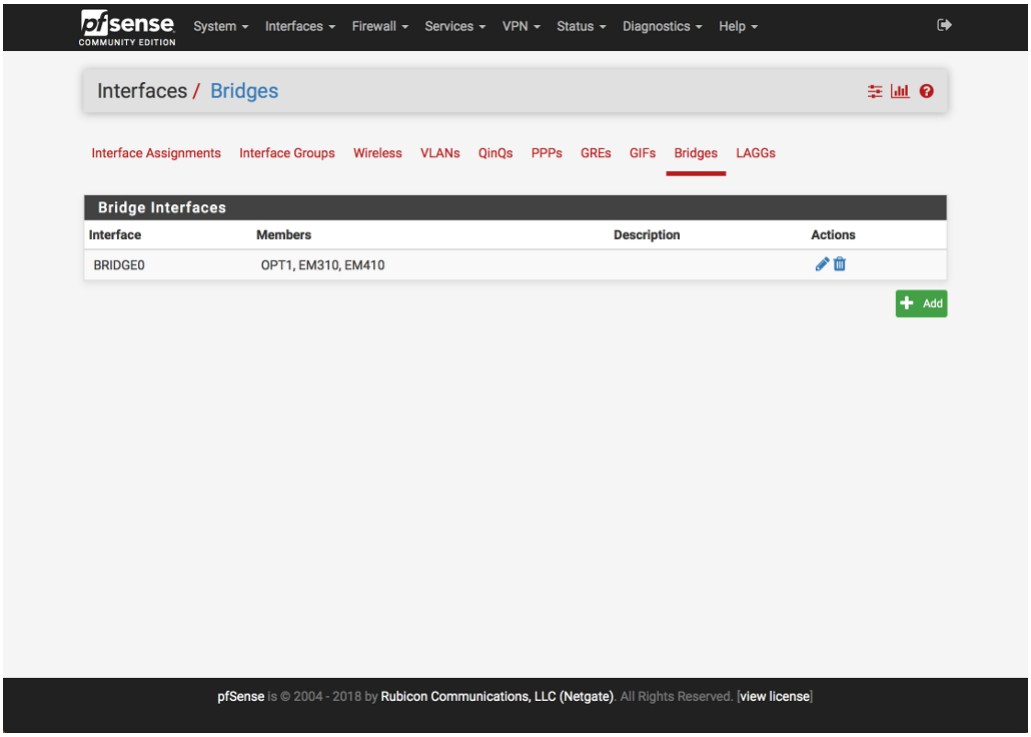
Create Bridge via pfSense GUI

Interfaces -> Interface Assignments -> Bridges
Add

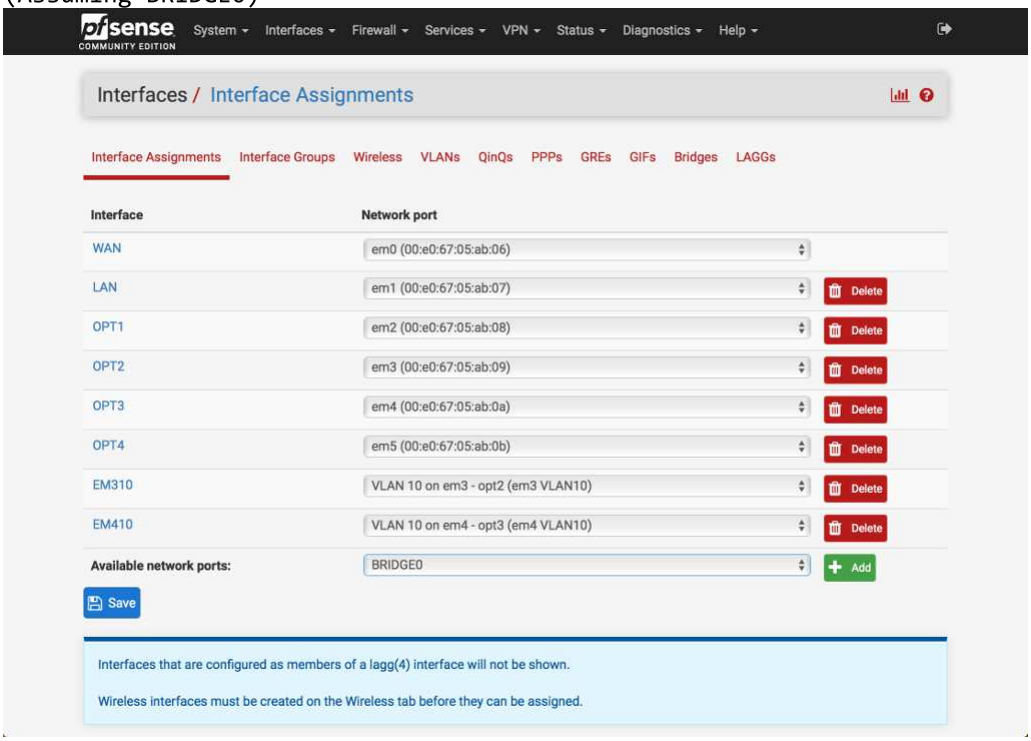


Member Interface: OPT1, em310, em410
Click Save

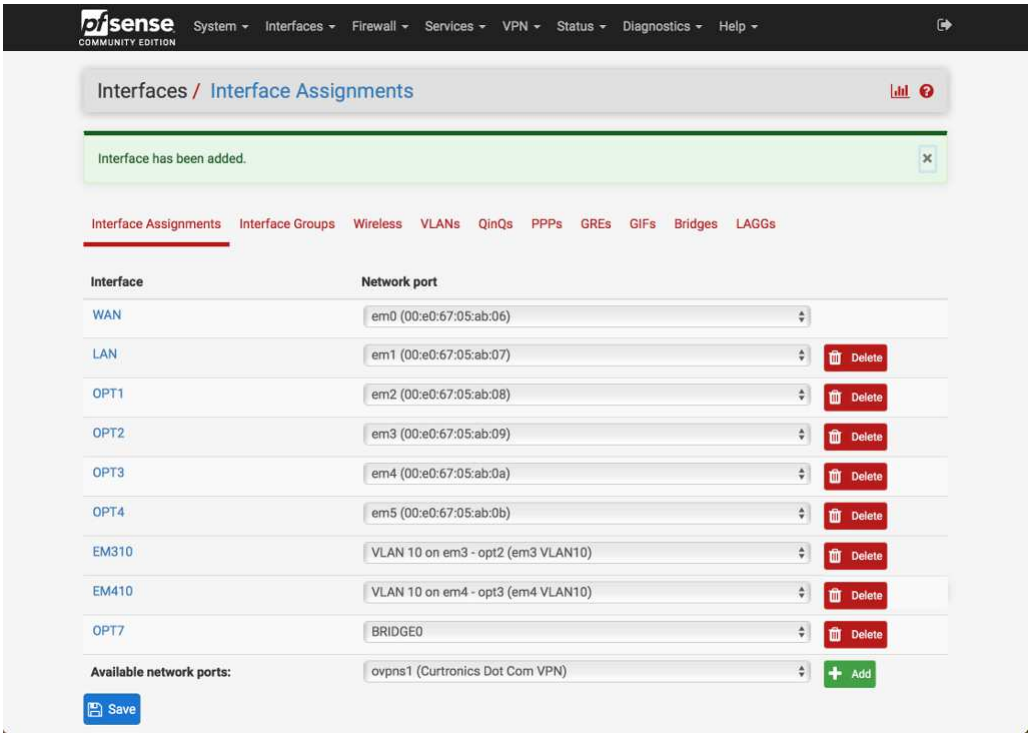
Note name of bridge created



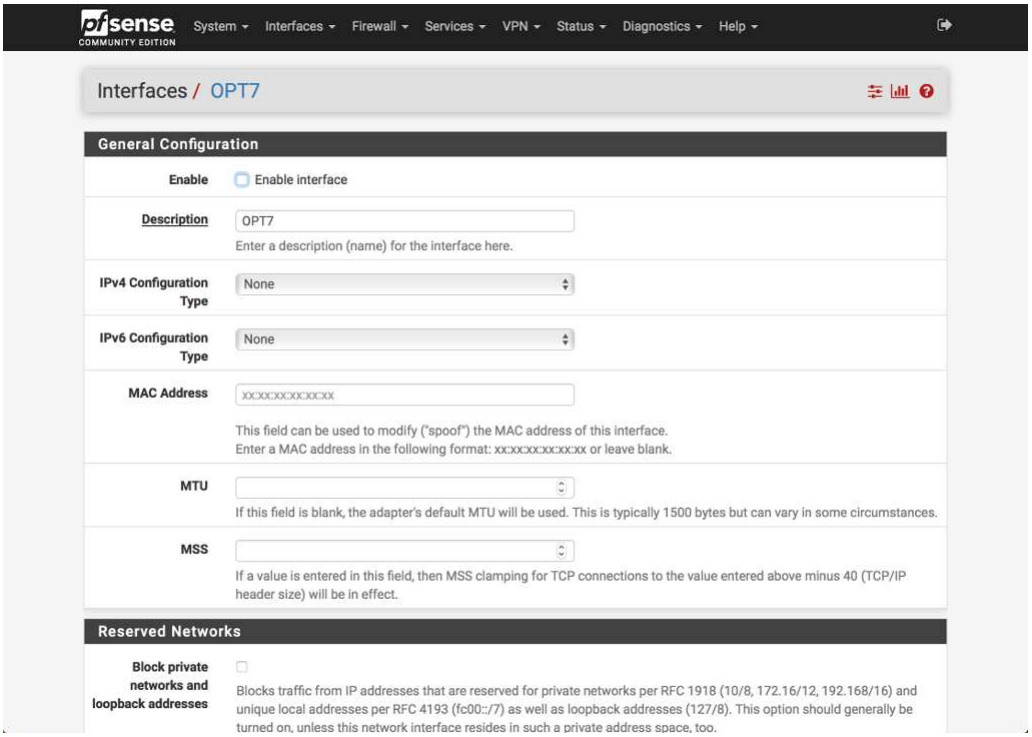
Interfaces -> Interface Assignments
Available network ports: From drop down box choose new bridge created (Assuming BRIDGE0)



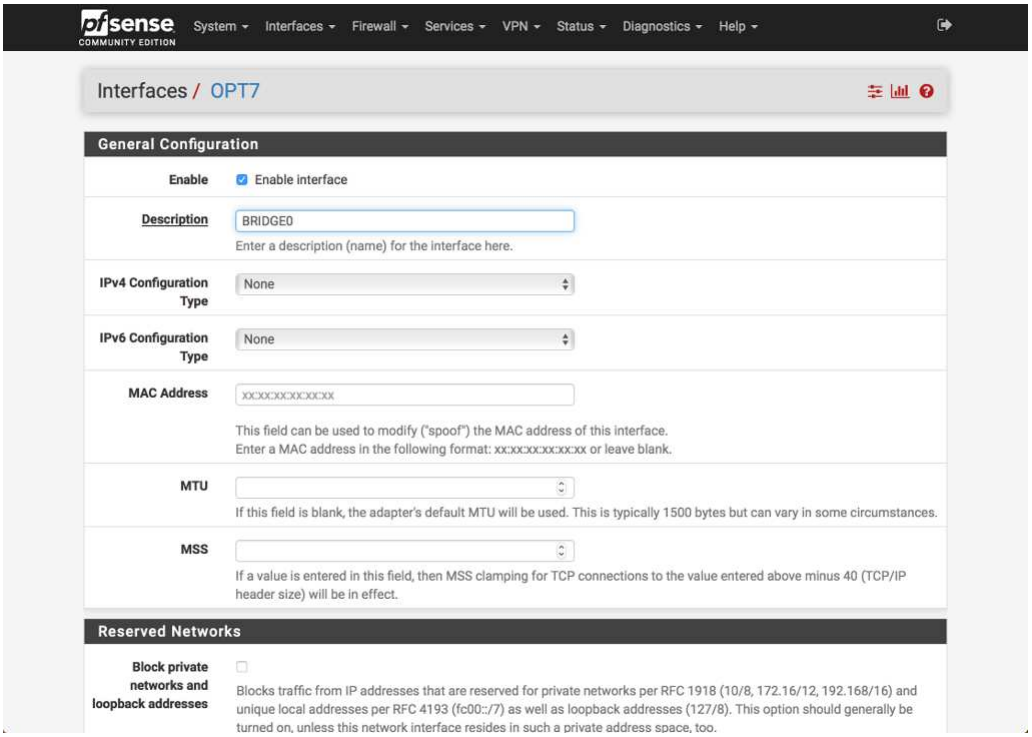
Click Add



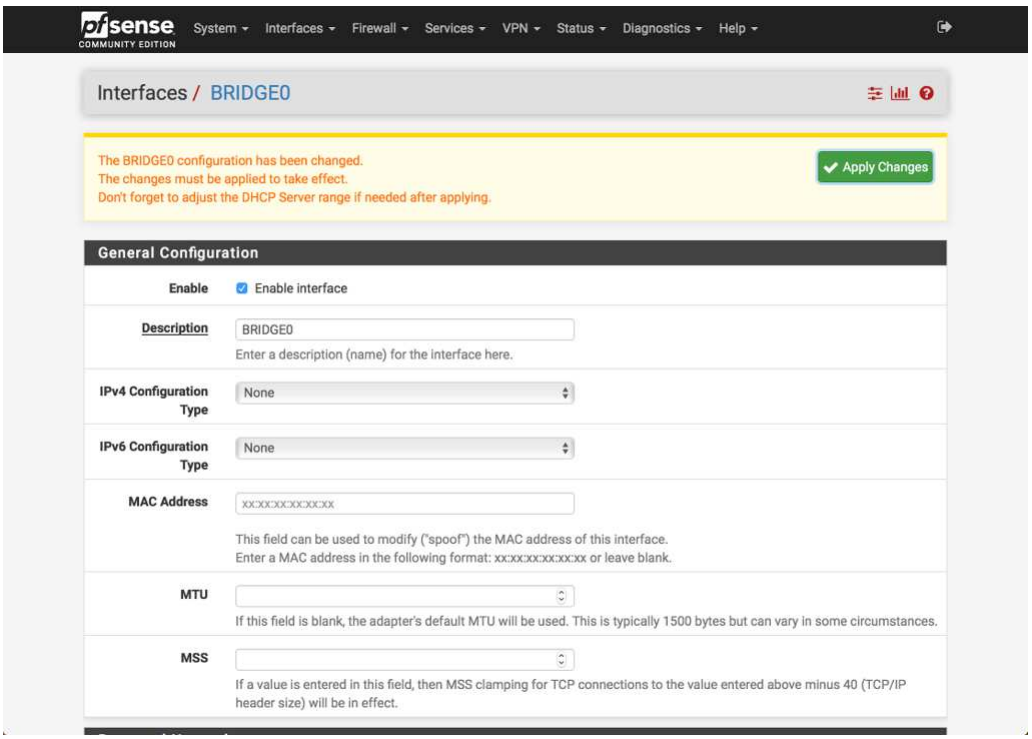
Click on Interface associated with bridge
(Assuming OPT7)



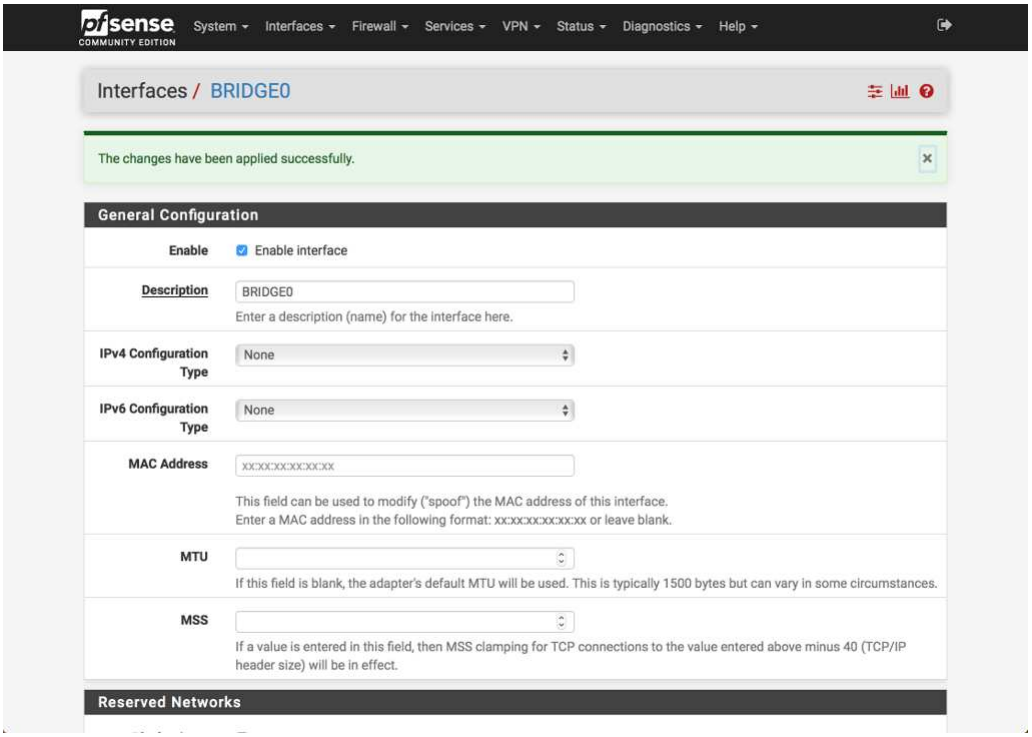
Check Enable interface
Change Description: OPT5 to BRIDGE0



Click Save



Click Apply Changes



VLAN and Bridge setup complete

Add firewall rules for BRIDGE0 via pfSense GUI

Firewall -> Rules
Add
Save
Apply Changes
(As needed)

That's it. Assuming your switches are set up and connected.

Switch interfaces configuration:
switch connected to em2: Access, VLAN10 untagged
switch connected to em3: Trunk, VLAN10 tagged, VLAN20 untagged
switch connected to em4: Trunk, VLAN10 tagged, VLAN30 untagged

These are 3 separate independent switches, do not connected
these 3 interfaces to the same switch or any combiantion of 2
of these interfaces to the same switch.

If anything was missed or there are questions, errors,or
discrepancies please email me at:
pfs (at) curtronics (dot) com