PFSense

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Security

Security

Setting up DNS over TLS on pfSense

Source: https://medium.com/@davetempleton/setting-up-dns-over-tls-on-pfsense-bd96912c2416

DNS is a protocol woefully in need of confidentiality and integrity checks. The traditional service running over port 53 can be trivially eavesdropped upon to see what hosts you're visiting, and it's routinely intercepted and its responses altered for domains without DNSSEC (which is most domains). Many VPN clients do not by default route DNS queries over their tunnel, and thus so-called "DNS leaks" allow for hostname resolutions to disclose the nature of tunneled traffic.

There are two competing standards: DNS over TLS, and DNS over HTTPS. DNS over TLS is what pfSense most easily supports using its built-in resolver Unbound. Here's what I've done to set up DNS over TLS on pfSense 2.4.4p3.

Choosing your DNS servers

pfSense's implementation of DNS over TLS only allows connections to upstream resolvers on port 853. If you'd like to test if your resolver of choice allows connections on this port, you can run the following Nmap command:

```
nmap -Pn -sT -p 853 1.2.3.4
```

Where 1.2.3.4 is the server. You're looking for a state of "open" and not "closed" or "filtered." I use the following Google and Cloudflare servers which support DNS over TLS on port 853:

- 8.8.8.8
- 1.1.1.1
- 8.8.4.4
- 1.0.0.1

Feel free to add IPv6 addresses as well if that works on your ISP. You should edit your list of DNS servers in **System > General Setup** before continuing, as all listed servers *must* support DNS over TLS on port 853.

Setting up the DNS Resolver service

pfSense offers two competing DNS services: DNS Forwarder (dnsmasq) and DNS Resolver (Unbound). You *must* use the DNS Resolver, and the DNS Forwarder must be disabled. If you're using the DNS Forwarder currently, you must transition over to the DNS Resolver service; this would include manually copying over any Host Overrides and Domain Overrides if you have any. If you're excepting any domains from DNS rebinding protection, you'd use the following syntax in the DNS Resolver under Custom Options:

```
server:
private-domain: "example.com"
private-domain: "example.org"
```

with as many "private-domain" lines as you need. You must disable the DNS Forwarder service before you enable the DNS Resolver service, as only one service at a time can listen on port 53.

Here are some settings you should make sure you set in **Services > DNS Resolver**:

1. For Network Interfaces, shift-click to select multiple interfaces you'd like to offer DNS services on. Do not use the default of all interfaces, as you do not want to offer DNS services to the internet.
2. Outgoing Network Interfaces should be "WAN" or whatever interface(s) you use for your ISPs.
3. DNSSEC, DNS Query Forwarding, and "Use SSL/TLS for outgoing DNS Queries to Forwarding Servers" should all be enabled.
4. On the Advanced tab, I recommend enabling Prefetch Support, Prefetch DNS Key Support, and Harden DNSSEC Data.

Once enabled, make sure DNS services work on your LAN clients.

Blocking outbound DNS from LAN clients

It would be smart at this point to block outgoing connections on port 53, to make sure all services are using encrypted DNS. To do this, go to **Firewall > Rules > Floating** and click Add. Use the following settings:

- Action: Reject (or Block)
- Quick: enabled
- Interface: WAN or whatever interface(s) you use for your ISPs
- Direction: out
- Address Family: IPv4 + IPv6
- Protocol: TCP/UDP
- Source: invert match, This Firewall
  (note: previous directions here said “any,” however that prevented the DNS Resolver service from restarting correctly)
- Destination: any
- Destination Port: 53

If you want to disable LAN clients from using DNS over TLS directly, perhaps so you can log all resolutions, you can block them from using port 853 as well. Unfortunately, a single floating rule wouldn’t work here, as blocking port 853 in this manner would also prevent the DNS Resolver service from working. You’d have to create a rule for each LAN/VLAN interface. These rule would look similar to the floating rule above, except:

- Destination: invert match, This Firewall (or “any” if you’ll never enable the DNS over TLS serving features of the DNS Resolver, which are off by default)
- Destination Port Range: 853

You’d be wise at this point to test resolution on LAN clients to make sure things work. You can also verify that LAN clients cannot access outbound DNS services by running the following Nmap command as root:

```
sudo nmap -Pn -sT -sU -p 53,853 8.8.8.8
```

No states should say “open” (a state of “open|filtered” is okay).

Redirecting outbound port 53 traffic

At it’s set up now, any client trying to reach an outside DNS server over port 53 will fail. Some software and devices might have been hard-coded to use these services for a variety of benign, lazy, or malicious reasons; if you’d like for them not to fail, these queries can be re-directed to your DNS Resolver service. Go to **Firewall > NAT > Port Forward** and click Add. Use the following settings:

- Interface: LAN (you’ll need to make duplicate rules for each LAN/VLAN interface)
- Protocol: TCP/UDP
- Destination: invert match, This Firewall

- Destination port range: DNS
- Redirect target IP: 127.0.0.1
- Redirect target port: DNS
- NAT reflection: Disable

You can now test that LAN clients think this port is open on outside IPs:

```
sudo nmap -Pn -sT -sU -p 53 1.2.3.4
dig @1.2.3.4 example.com +short
```

Nmap should show a state of “open” for all non-local, non-bogon IPs, and Dig should quickly return an IP.

What protections have we gained?

What we’ve done here will greatly increase the reliability of your DNS resolutions by keeping them from being modified, and we’ve stopped the possibility of DNS leaks for any VPN clients.

What we haven’t done is stop clients from using insecure protocols like HTTP. The browser extension/addon HTTPS Everywhere with its “Encrypt All Sites Eligible” mode enabled can greatly help here; I’ve been using this for years, and there are fewer sites without HTTPS support than you might expect. For sites that don’t support HTTPS, you can individually allow them, or you can keep a Tor Browser window open and browse HTTP sites in there. In practice, the links I click that most commonly don’t support HTTPS are the “Unsubscribe” links in commercial email.

I should also note here that, even with encrypted DNS and HTTPS web traffic, eavesdroppers can typically still know what hostname you’re visiting because of Server Name Indication, which allows multiple websites to be hosted on the same web server. Even if your connection doesn’t use SNI, if the destination server serves only one website, an eavesdropper would likely know what website you’re loading (by knowing the destination IP). For privacy in all of these scenarios, you’d want to tunnel your connections past an eavesdropper using, for example, a VPN or Tor.

We also haven’t stopped LAN clients from using outside DNS services that either run over non-standard ports, use DNS over HTTPS, or use other encrypted/obfuscated protocols.

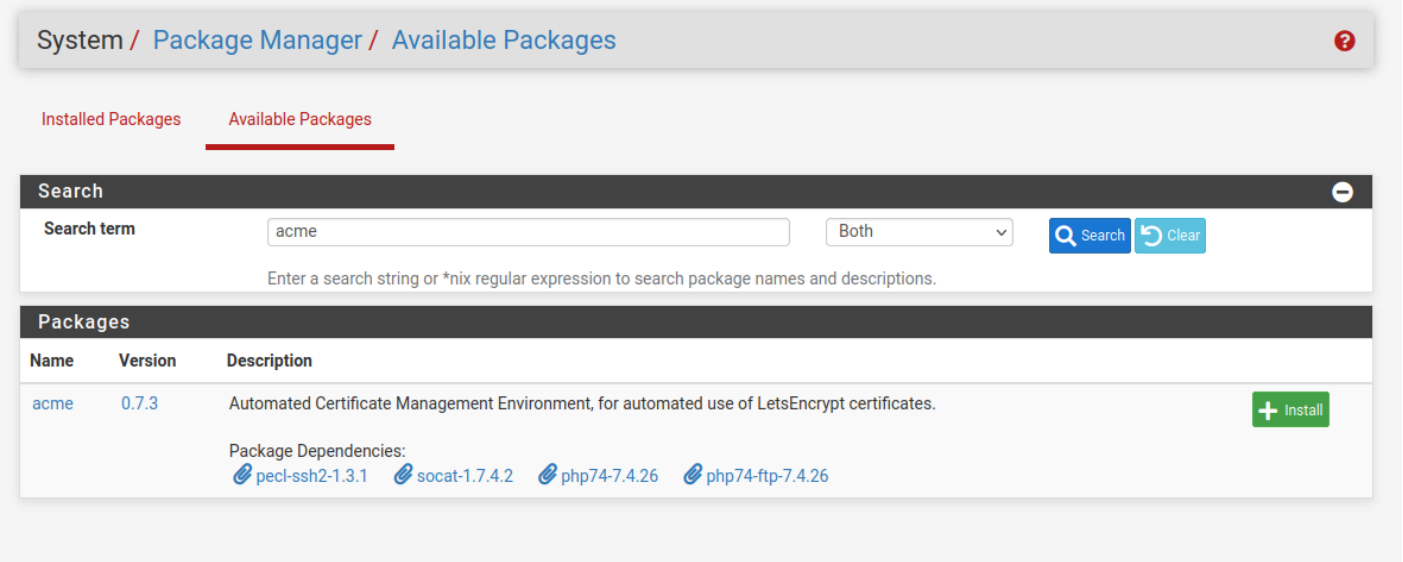
Security

Acme Certificates with letsencrypt and cloudflare

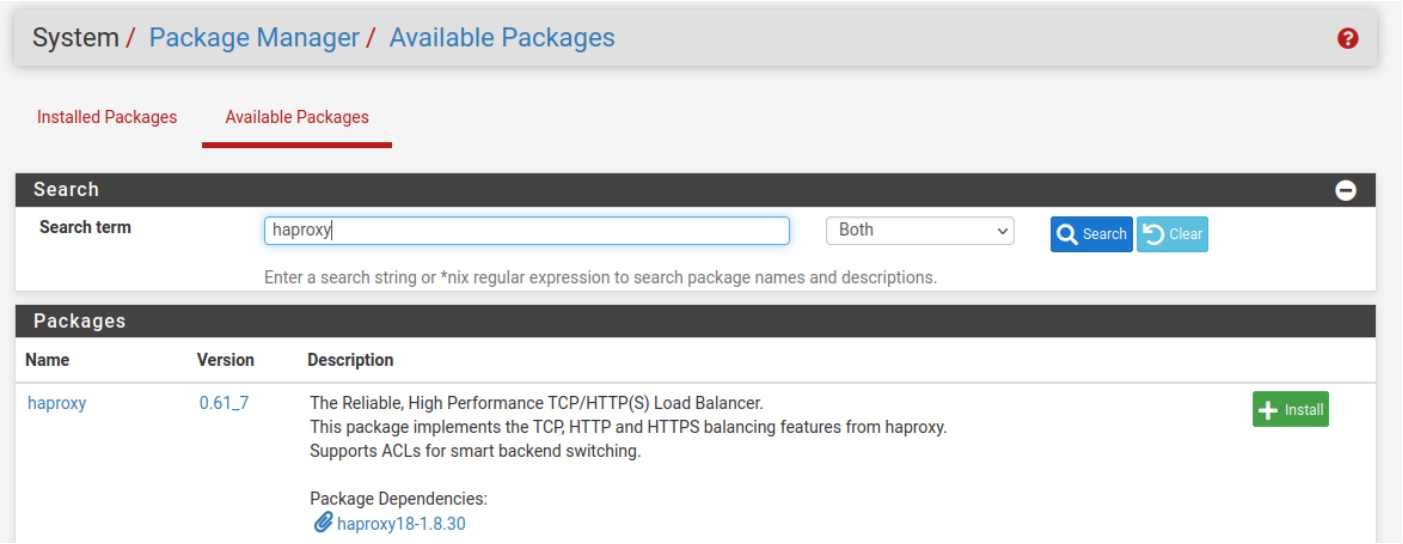
This is to install and configure Acme certs with Letsencrypt as well as deploying HA Proxy for access to our internal services and add SSL services, we're using cloudflare for our cert verification.

On PFsense navigate to system/package manager/available packages

Search for acme and click install then on confirm



do the same for haproxy and install then click on confirm.

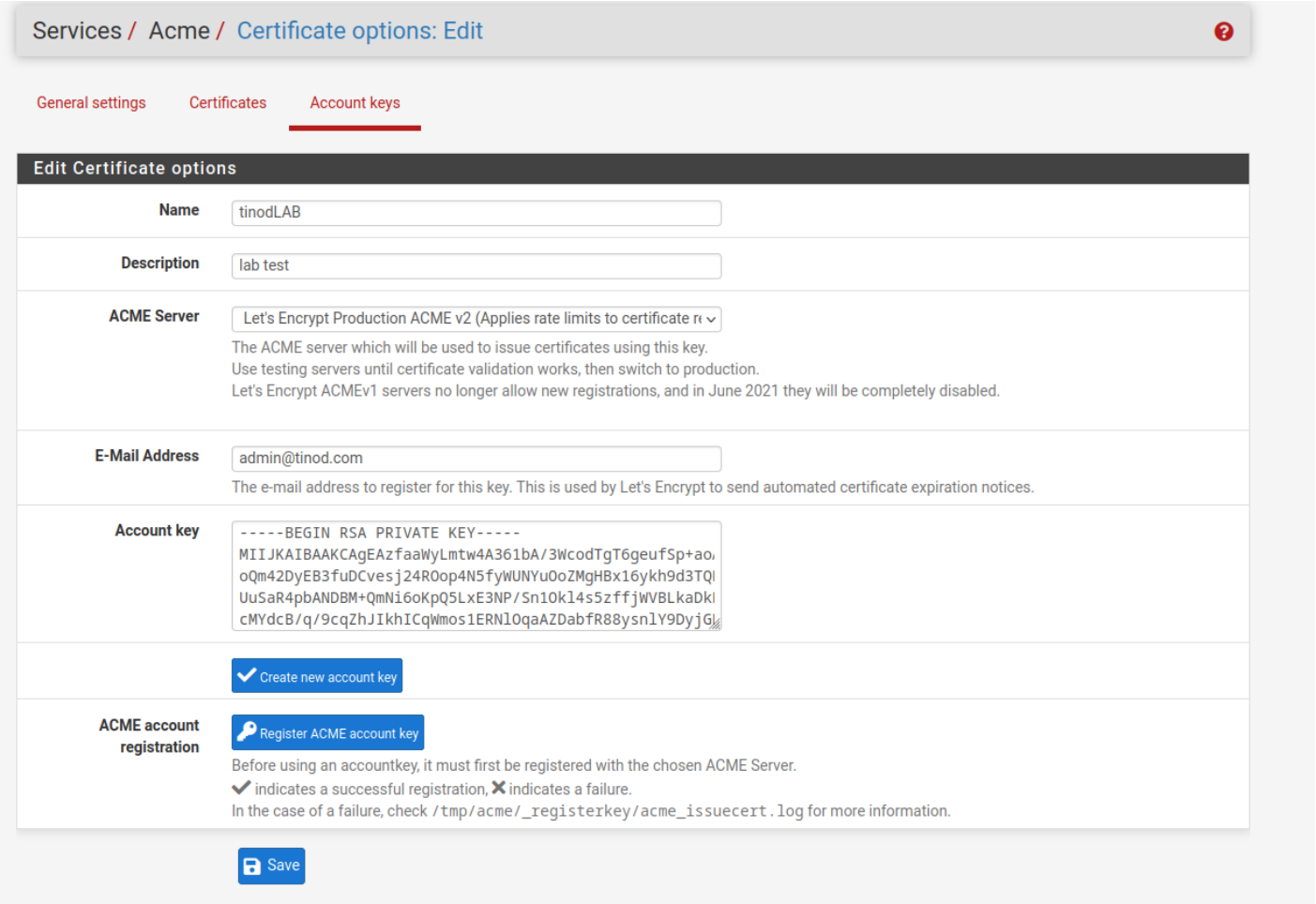


> if you are installing this via the wan interface access, make sure you go back and disable packet filter as doing the installation will re enable, go to the shell and type pfctl -d to disable and gain access via WAN interface

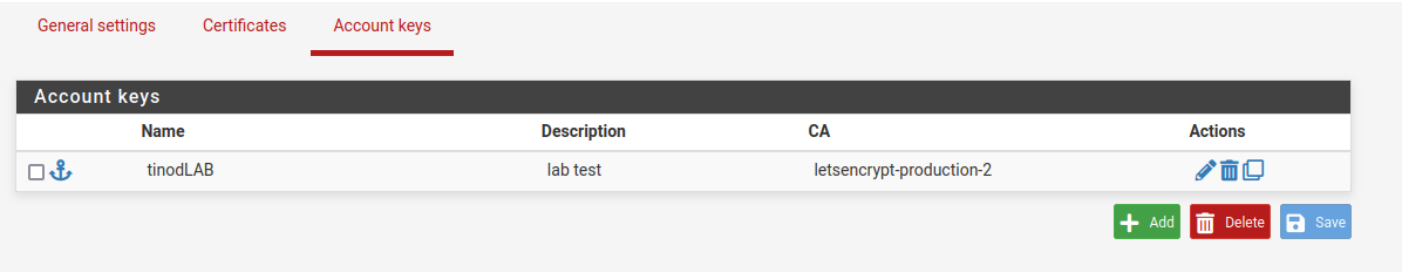
Navigate to Services/Acme

go to Account keys and click add, fill out the information below, for ACME Server you can use production or test, its the same

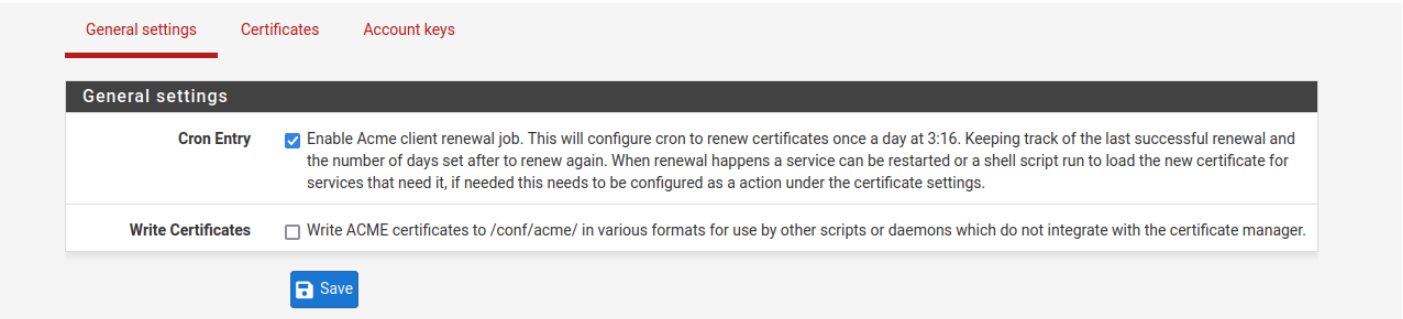
click on create new account key then register acme account key, after you are done click save



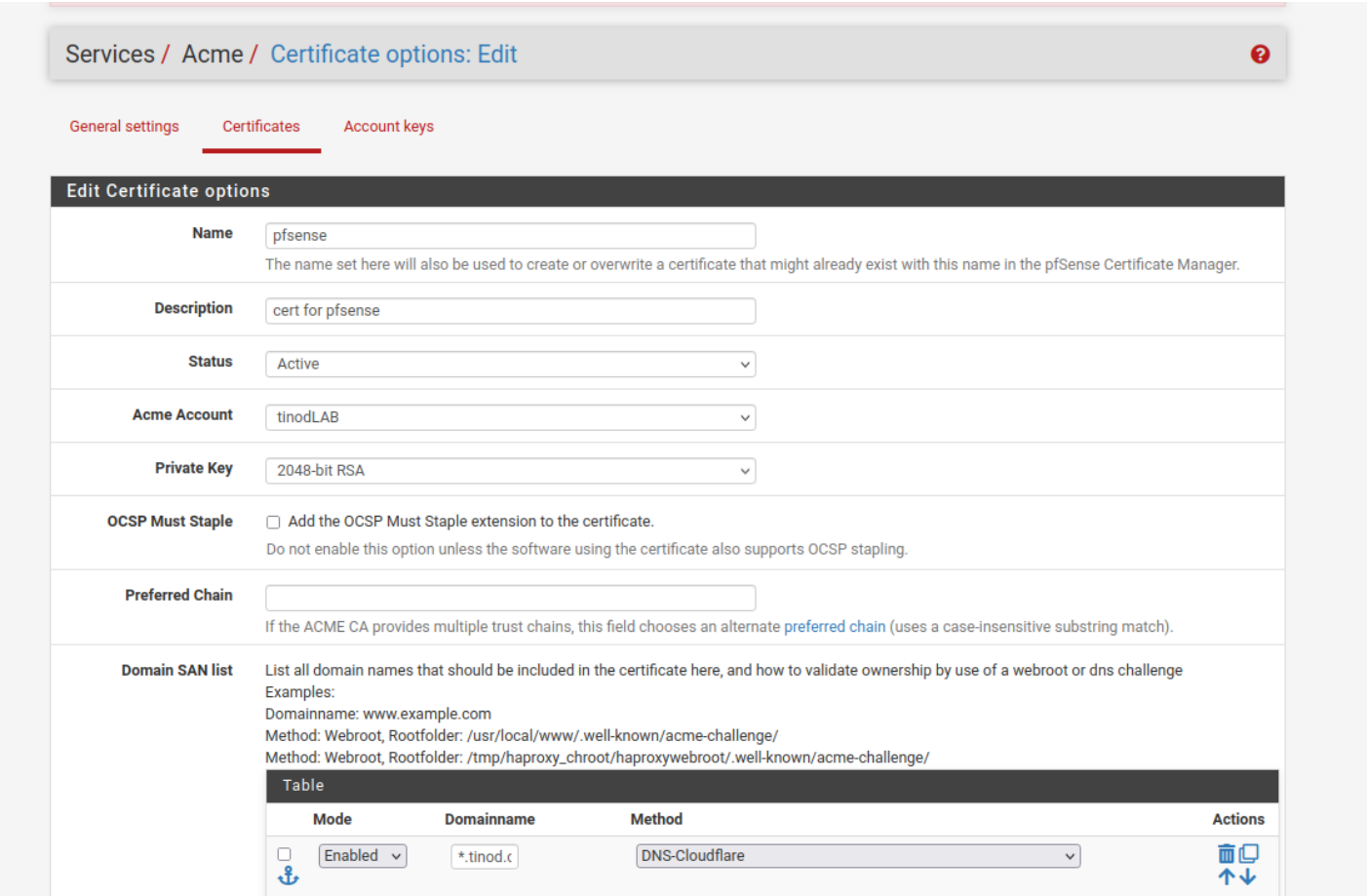
you have now your account key.



Navigate to General Settings and select Enable Acmee client renewal jojb to auto renew your certificates.

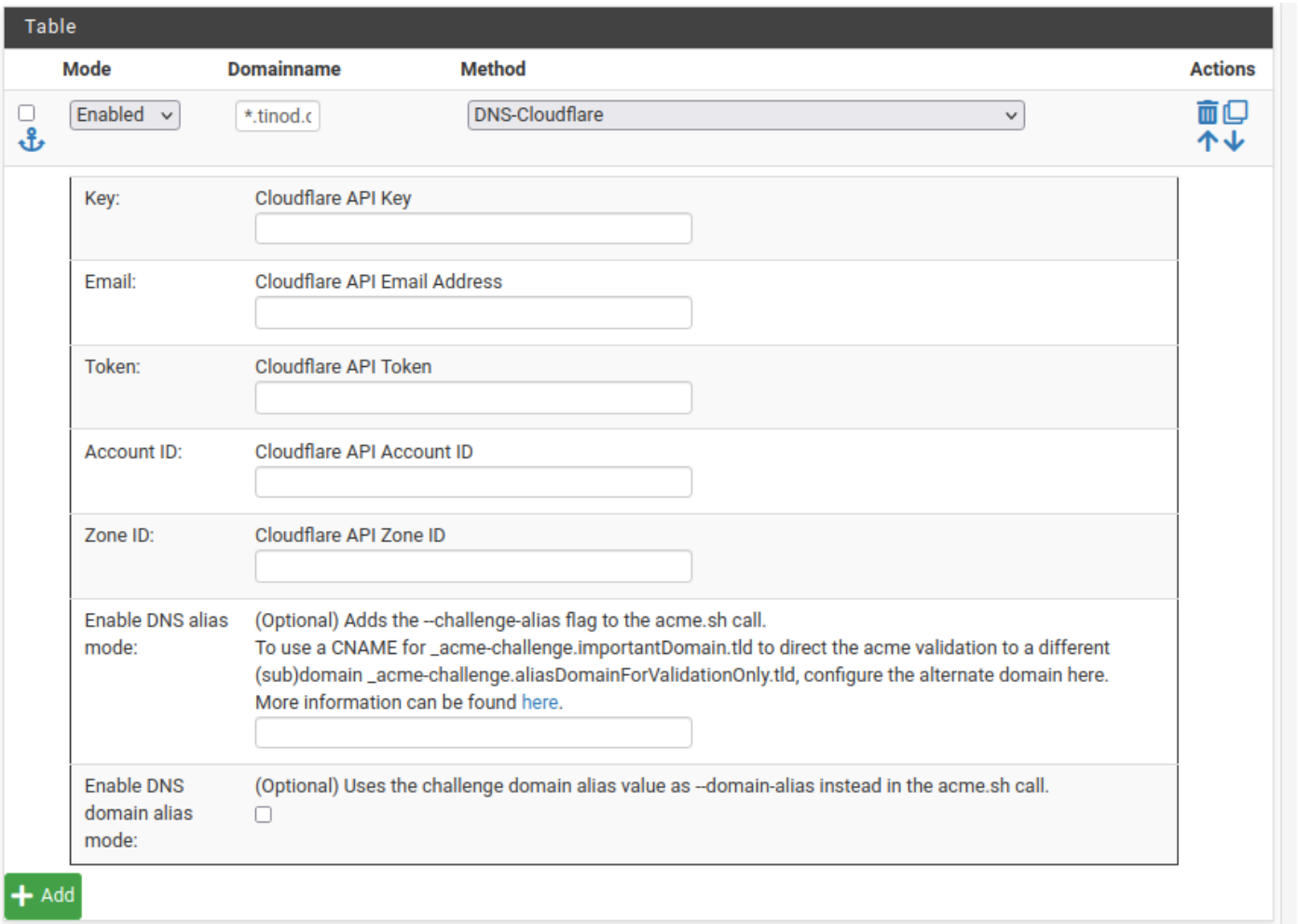


now you can create your first certificate, navigate to certificates and click add, we're using cloudflare



For this lab we're using a wildcard certificate, for our domain we will do *.tinod.com

you need to get your key, token, accound ID and Zone ID from cloudflare



click add and your cert will be ready and it will renew automatically

Administration

Enable WAN access

To enable wan access go into ssh and run the following command

pfctl - d

to enable protection

pfctl -e

Administration

Update PFSense CLI

Run a backup

cp /usr/local/share/pfSense/pkg/repos/pfSense-repo.abi /usr/local/share/pfSense/pkg/repos/pfSense-repo.abi.backup

23.05-RELEASE][admin@pfsense.htf.com.mx]/root: pkg-static -d update

Troubleshooting

Troubleshooting

Disk Full

Discover PFSense disk is full, discovered snort log files not clearing up, manually run script to clear logs

Enter an option: 8

```
[23.05-RELEASE][admin@pfsense.htf.com.mx]/root: du -Pshx /*
4.5K    /COPYRIGHT
892K    /bin
365M    /boot
2.4M    /cf
512B    /conf
9.5K    /conf.default
4.0K    /dev
4.5K    /entropy
4.1M    /etc
512B    /home
 10M    /lib
113K    /libexec
512B    /media
512B    /mnt
512B    /net
1.0K    /pfSense
512B    /proc
 17M    /rescue
131M    /root
3.0M    /sbin
178K    /tmp
995M    /usr
 15M    /var
[23.05-RELEASE][admin@pfsense.htf.com.mx]/root: cd /var
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var: ls
account  audit    backups  crash    db       empty    games    lib      mail     preserve rwho     tmp
 yp
at       authpf   cache    cron     dhcpd    etc      heimdal  log      msgs     run      spool    unbound
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var: du -Pshx /var/log*
 47G    /var/log
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var: du -Pshx /var/*
512B    /var/account
```

```
1.5K    /var/at
1.5K    /var/audit
512B    /var/authpf
8.2M    /var/backups
 66K    /var/cache
1.0K    /var/crash
1.0K    /var/cron
 15M    /var/db
3.0M    /var/dhcpd
512B    /var/empty
102K    /var/etc
512B    /var/games
512B    /var/heimdal
1.0K    /var/lib
 47G    /var/log
 12K    /var/mail
512B    /var/msgs
512B    /var/preserve
135K    /var/run
512B    /var/rwho
 12K    /var/spool
 13K    /var/tmp
3.4M    /var/unbound
512B    /var/yp
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var: du -Pshx /var/log*
 47G    /var/log
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var: cd /var/log
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log: ls
auth.log        filter.log      lighttpd        openvpn.log     ppp.log         system.log      wireless.log
bsdinstall_log  gateways.log    mount.today     pf.today        resolver.log    userlog
dhcpd.log       haproxy.log     nginx           pf.yesterday    routing.log     utx.lastlogin
dmesg.boot      ipsec.log       nginx.log       pfblockerng     routing.log.0   utx.log
dmesg.today     l2tps.log       ntp             poes.log        setuid.today    vpn.log
dmesg.yesterday lastlog         ntpd.log        portalauth.log  snort           watchdogd.log
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log: ls -la
total 300
drwxr-xr-x   7 root     wheel        39 Oct 10 20:18 .
drwxr-xr-x  27 root     wheel        27 May 22 09:57 ..
-rw-------   1 root     wheel    484415 Oct 10 20:15 auth.log
-rw-r--r--   1 root     wheel     56964 Jan  9  2023 bsdinstall_log
-rw-------   1 root     wheel         0 Oct 10 20:18 dhcpd.log
-rw-r--r--   1 root     wheel     12145 Oct 10 17:28 dmesg.boot
-rw-------   1 root     wheel     22577 Jun 14 02:01 dmesg.today
-rw-------   1 root     wheel     18863 Jun 13 02:01 dmesg.yesterday
-rw-------   1 root     wheel         0 Oct 10 20:18 filter.log
-rw-------   1 root     wheel         0 Oct 10 20:18 gateways.log
-rw-------   1 root     wheel         0 Mar 28  2023 haproxy.log
```

```
-rw-------   1 root     wheel         0 Oct 10 20:18 ipsec.log
-rw-------   1 root     wheel         0 Oct 10 20:18 l2tps.log
-rw-r--r--   1 root     wheel         0 Mar 19  2023 lastlog
drwx------   2 www      www           2 Feb 17  2023 lighttpd
-rw-------   1 root     wheel       971 Mar 20  2023 mount.today
drwxr-xr-x   2 root     wheel         3 Jan  9  2023 nginx
-rw-------   1 root     wheel         0 Oct 10 20:18 nginx.log
drwxr-xr-x   2 root     wheel         2 Jan  9  2023 ntp
-rw-------   1 root     wheel         0 Oct 10 20:18 ntpd.log
-rw-------   1 root     wheel         0 Oct 10 20:18 openvpn.log
-rw-------   1 root     wheel       628 Jun 14 02:01 pf.today
-rw-------   1 root     wheel       461 Jun 13 02:01 pf.yesterday
drwxr-xr-x   2 unbound  unbound      13 Oct 10 19:09 pfblockerng
-rw-------   1 root     wheel         0 Oct 10 20:18 poes.log
-rw-------   1 root     wheel         0 Oct 10 20:18 portalauth.log
-rw-------   1 root     wheel         0 Oct 10 20:18 ppp.log
-rw-------   1 root     wheel         0 Oct 10 20:18 resolver.log
-rw-------   1 root     wheel     70759 Oct 10 20:11 routing.log
-rw-------   1 root     wheel    511905 Sep 27 18:26 routing.log.0
-rw-------   1 root     wheel      2340 Mar 20  2023 setuid.today
drwxr-xr-x   4 root     wheel         6 Jul 17 00:45 snort
-rw-------   1 root     wheel         0 Oct 10 20:18 system.log
-rw-------   1 root     wheel     25523 Oct 10 17:28 userlog
-rw-r--r--   1 root     wheel       394 Oct 10 20:15 utx.lastlogin
-rw-------   1 root     wheel      4022 Oct 10 20:15 utx.log
-rw-------   1 root     wheel         0 Oct 10 20:18 vpn.log
-rw-------   1 root     wheel         0 Oct 10 17:28 watchdogd.log
-rw-------   1 root     wheel         0 Oct 10 20:18 wireless.log
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log: du -hi
du: invalid option -- i
usage: du [-Aclnx] [-H | -L | -P] [-g | -h | -k | -m] [-a | -s | -d depth] [-B blocksize] [-I mask] [-t
threshold] [file ...]
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log: du -h *
113K    auth.log
 13K    bsdinstall_log
512B    dhcpd.log
8.5K    dmesg.boot
8.5K    dmesg.today
8.5K    dmesg.yesterday
512B    filter.log
512B    gateways.log
512B    haproxy.log
512B    ipsec.log
512B    l2tps.log
512B    lastlog
512B    lighttpd
4.5K    mount.today
```

```
1.0K    nginx
512B    nginx.log
512B    ntp
512B    ntpd.log
512B    openvpn.log
4.5K    pf.today
4.5K    pf.yesterday
2.0M    pfblockerng
512B    poes.log
512B    portalauth.log
512B    ppp.log
512B    resolver.log
8.5K    routing.log
 69K    routing.log.0
4.5K    setuid.today
 47G    snort/snort_igc317124
 43M    snort/snort_igc138051
 47G    snort
512B    system.log
4.5K    userlog
512B    utx.lastlogin
4.5K    utx.log
512B    vpn.log
512B    watchdogd.log
512B    wireless.log
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log: ls
auth.log        filter.log      lighttpd        openvpn.log     ppp.log         system.log      wireless.log
bsdinstall_log  gateways.log    mount.today     pf.today        resolver.log    userlog
dhcpd.log       haproxy.log     nginx           pf.yesterday    routing.log     utx.lastlogin
dmesg.boot      ipsec.log       nginx.log       pfblockerng     routing.log.0   utx.log
dmesg.today     l2tps.log       ntp             poes.log        setuid.today    vpn.log
dmesg.yesterday lastlog         ntpd.log        portalauth.log  snort           watchdogd.log
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log: cd snort/
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log/snort: ls
HOMENETWORK_disabled_preproc_rules.log snort_igc317124
snort_igc138051                        snort_rules_update.log
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log/snort: du -h *
512B    HOMENETWORK_disabled_preproc_rules.log
 43M    snort_igc138051
 47G    snort_igc317124
4.5K    snort_rules_update.log
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log/snort: du -h
 47G    ./snort_igc317124
 43M    ./snort_igc138051
 47G    .
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log/snort: df -h
Filesystem                      Size    Used   Avail Capacity  Mounted on
```

```
pfSense/ROOT/default             1.5G    1.5G    6.1M   100%    /
devfs                           1.0K    1.0K     0B   100%    /dev
pfSense/tmp                     6.5M    384K    6.1M    6%    /tmp
pfSense/var                      21M     15M    6.1M   71%    /var
pfSense                         6.2M     96K    6.1M    2%    /pfSense
pfSense/home                     6.2M     96K    6.1M    2%    /home
pfSense/var/log                  47G     47G    6.1M   100%    /var/log
pfSense/var/db                   21M     15M    6.1M   72%    /var/db
pfSense/var/tmp                  6.2M    104K    6.1M    2%    /var/tmp
pfSense/var/cache                6.2M    104K    6.1M    2%    /var/cache
pfSense/reservation              5.6G     96K    5.6G    0%    /pfSense/reservation
pfSense/ROOT/default/cf           8.6M    2.5M    6.1M   29%    /cf
pfSense/ROOT/default/var_cache_pkg    18M     12M    6.1M   65%    /var/cache/pkg
pfSense/ROOT/default/var_db_pkg      13M    6.9M    6.1M   53%    /var/db/pkg
tmpfs                           4.0M    148K    3.9M    4%    /var/run
/lib                           1.5G    1.5G    6.1M   100%    /var/unbound/lib
devfs                           1.0K    1.0K     0B   100%    /var/unbound/dev
/var/log/pfblockerng             47G     47G    6.1M   100%    /var/unbound/var/log/pfblockerng
/usr/local/share/GeoIP           1.5G    1.5G    6.1M   100%    /var/unbound/usr/local/share/GeoIP
/usr/local/bin                  1.5G    1.5G    6.1M   100%    /var/unbound/usr/local/bin
/usr/local/lib                  1.5G    1.5G    6.1M   100%    /var/unbound/usr/local/lib
devfs                           1.0K    1.0K     0B   100%    /var/dhcpd/dev
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log/snort: cat /etc/cron
cron.d/  crontab
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log/snort: cat /etc/crontab
#
# pfSense specific crontab entries
# Created: October 10, 2023, 8:11 pm
#
SHELL=/bin/sh
PATH=/sbin:/bin:/usr/sbin:/usr/bin:/usr/local/sbin:/usr/local/bin

*/1     *       *       *       *       root    /usr/sbin/newsyslog
1       3       *       *       *       root    /etc/rc.periodic daily
15      4       *       *       6       root    /etc/rc.periodic weekly
30      5       1       *       *       root    /etc/rc.periodic monthly
1,31    0-5     *       *       *       root    /usr/bin/nice -n20 adjkerntz -a
1       3       1       *       *       root    /usr/bin/nice -n20 /etc/rc.update_bogons.sh
1       1       *       *       *       root    /usr/bin/nice -n20 /etc/rc.dyndns.update
*/60    *       *       *       *       root    /usr/bin/nice -n20 /usr/local/sbin/expiretable -v -t 3600 virusprot
30      12      *       *       *       root    /usr/bin/nice -n20 /etc/rc.update_urltables
1       0       *       *       *       root    /usr/bin/nice -n20 /etc/rc.update_pkg_metadata
16      3       *       *       *       root    /usr/local/pkg/acme/acme_command.sh "renewall" |
/usr/bin/logger -t ACME 2>&1
*/5     *       *       *       *       root    /usr/bin/nice -n20 /usr/local/bin/php -f
/usr/local/pkg/snort/snort_check_cron_misc.inc
52      3       */1     *       *       root    /usr/bin/nice -n20 /usr/local/bin/php -f
```

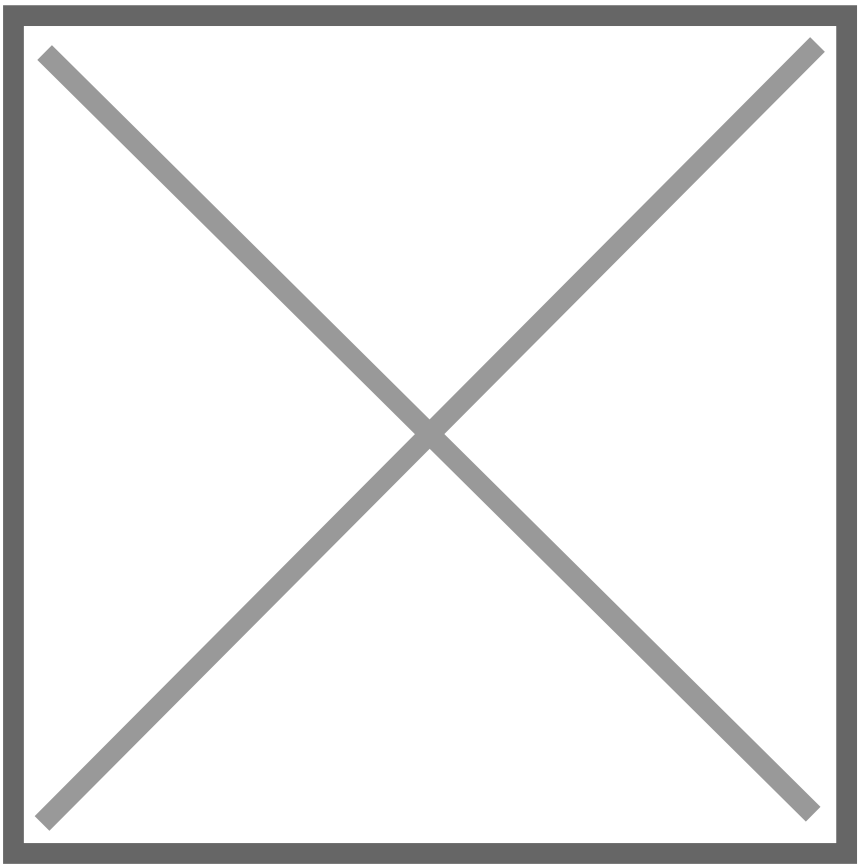
```
/usr/local/pkg/snort/snort_check_for_rule_updates.php
0       8       *       *       5       root    /usr/local/bin/php /usr/local/www/pfblockerng/pfblockerng.php
dcc >> /var/log/pfblockerng/extras.log 2>&1
0       *       *       *       *       root    /usr/local/bin/php /usr/local/www/pfblockerng/pfblockerng.php
cron >> /var/log/pfblockerng/pfblockerng.log 2>&1
#
# DO NOT EDIT THIS FILE MANUALLY!
# Use the cron package or create files in /etc/cron.d/.
#

[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log/snort: cat /etc/crontab
#
# pfSense specific crontab entries
# Created: October 10, 2023, 8:11 pm
#
SHELL=/bin/sh
PATH=/sbin:/bin:/usr/sbin:/usr/bin:/usr/local/sbin:/usr/local/bin

*/1     *       *       *       *       root    /usr/sbin/newsyslog
1       3       *       *       *       root    /etc/rc.periodic daily
15      4       *       *       6       root    /etc/rc.periodic weekly
30      5       1       *       *       root    /etc/rc.periodic monthly
1,31    0-5     *       *       *       root    /usr/bin/nice -n20 adjkerntz -a
1       3       1       *       *       root    /usr/bin/nice -n20 /etc/rc.update_bogons.sh
1       1       *       *       *       root    /usr/bin/nice -n20 /etc/rc.dyndns.update
*/60    *       *       *       *       root    /usr/bin/nice -n20 /usr/local/sbin/expiretable -v -t 3600 virusprot
30      12      *       *       *       root    /usr/bin/nice -n20 /etc/rc.update_urltables
1       0       *       *       *       root    /usr/bin/nice -n20 /etc/rc.update_pkg_metadata
16      3       *       *       *       root    /usr/local/pkg/acme/acme_command.sh "renewall" |
/usr/bin/logger -t ACME 2>&1
*/5     *       *       *       *       root    /usr/bin/nice -n20 /usr/local/bin/php -f
/usr/local/pkg/snort/snort_check_cron_misc.inc
52      3       */1     *       *       root    /usr/bin/nice -n20 /usr/local/bin/php -f
/usr/local/pkg/snort/snort_check_for_rule_updates.php
0       8       *       *       5       root    /usr/local/bin/php /usr/local/www/pfblockerng/pfblockerng.php
dcc >> /var/log/pfblockerng/extras.log 2>&1
0       *       *       *       *       root    /usr/local/bin/php /usr/local/www/pfblockerng/pfblockerng.php
cron >> /var/log/pfblockerng/pfblockerng.log 2>&1
#
# DO NOT EDIT THIS FILE MANUALLY!
# Use the cron package or create files in /etc/cron.d/.
#

[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log/snort: php -f
/usr/local/pkg/snort/snort_check_cron_misc.inc
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log/snort: df -h
Filesystem                      Size    Used   Avail Capacity  Mounted on
```

```
pfSense/ROOT/default              42G    1.5G    41G    4%    /
devfs                            1.0K    1.0K     0B   100%    /dev
pfSense/tmp                       41G    384K    41G    0%    /tmp
pfSense/var                       41G     15M    41G    0%    /var
pfSense                           41G     96K    41G    0%    /pfSense
pfSense/home                      41G     96K    41G    0%    /home
pfSense/var/log                   47G    6.5G    41G   14%    /var/log
pfSense/var/db                    41G     15M    41G    0%    /var/db
pfSense/var/tmp                   41G    104K    41G    0%    /var/tmp
pfSense/var/cache                 41G    104K    41G    0%    /var/cache
pfSense/reservation               46G     96K    46G    0%    /pfSense/reservation
pfSense/ROOT/default/cf           41G    2.5M    41G    0%    /cf
pfSense/ROOT/default/var_cache_pkg    41G     12M    41G    0%    /var/cache/pkg
pfSense/ROOT/default/var_db_pkg       41G    6.9M    41G    0%    /var/db/pkg
tmpfs                            4.0M    148K    3.9M    4%    /var/run
/lib                              42G    1.5G    41G    4%    /var/unbound/lib
devfs                            1.0K    1.0K     0B   100%    /var/unbound/dev
/var/log/pfblockerng              47G    6.5G    41G   14%    /var/unbound/var/log/pfblockerng
/usr/local/share/GeoIP            42G    1.5G    41G    4%    /var/unbound/usr/local/share/GeoIP
/usr/local/bin                    42G    1.5G    41G    4%    /var/unbound/usr/local/bin
/usr/local/lib                    42G    1.5G    41G    4%    /var/unbound/usr/local/lib
devfs                            1.0K    1.0K     0B   100%    /var/dhcpd/dev
[23.05-RELEASE][admin@pfsense.htf.com.mx]/var/log/snort:
```

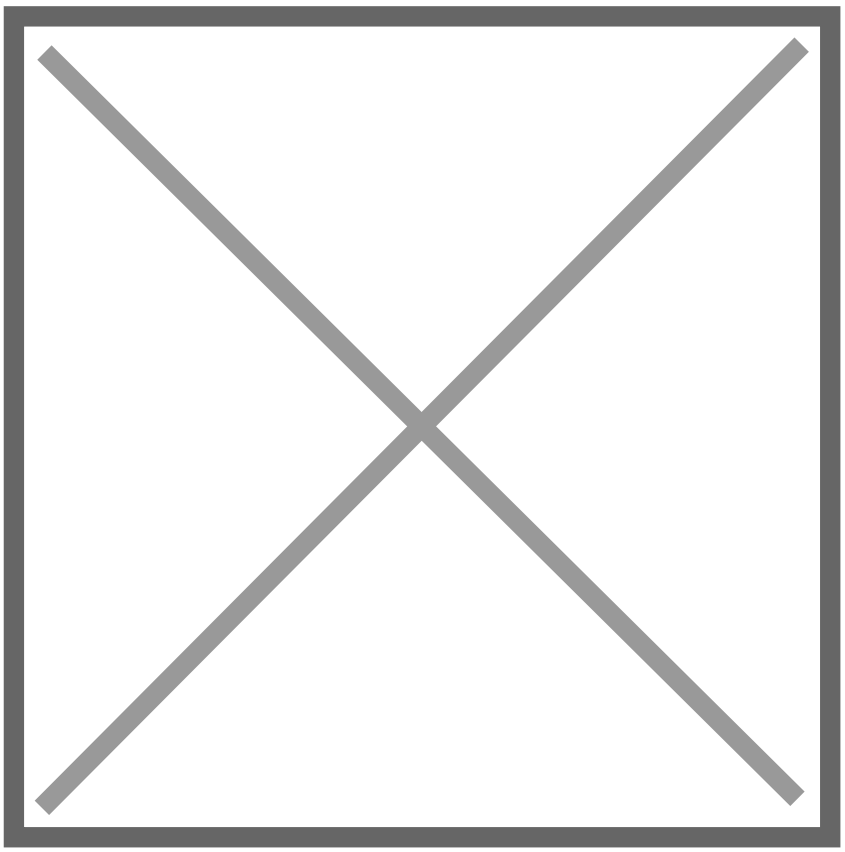
Wireshark

Wireshark is an open-source packet analyzer which is widely used for network troubleshooting and traffic analysis.

You can download it from the official website https://www.wireshark.org/#download



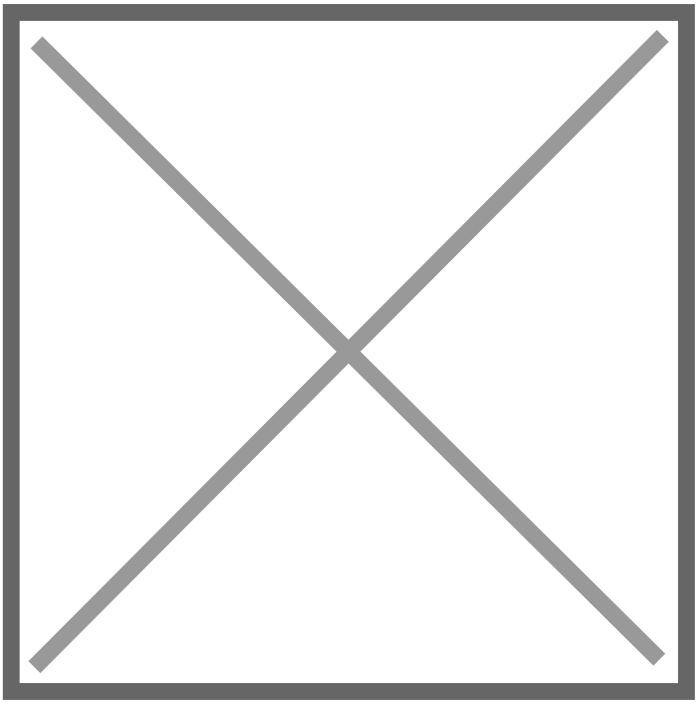
With Wireshark you can capture traffic on any of your available interfaces, you must be clear on what interface your traffic is working on.



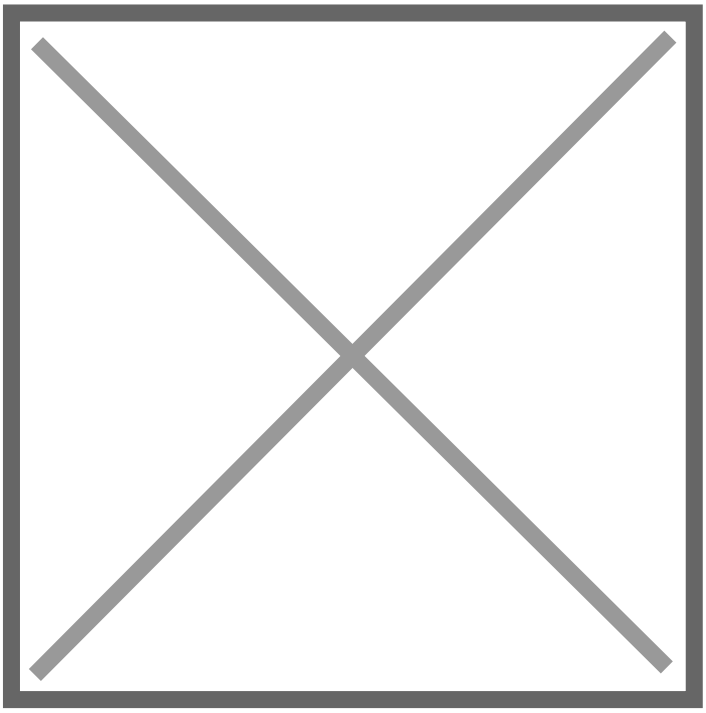
Its really recommended to apply filters to narrow down to show only the packets you are interested in.

Filters can work based on transport or application protocol, source or destination IP addresses, source or destination port, etc.

Its highly recommended that you set the view that you feel more comfortable, for example, I personally like to see the Source and Destination Port on the captures, this is easily modified right clicking on the column name and choose **Column Preferences**

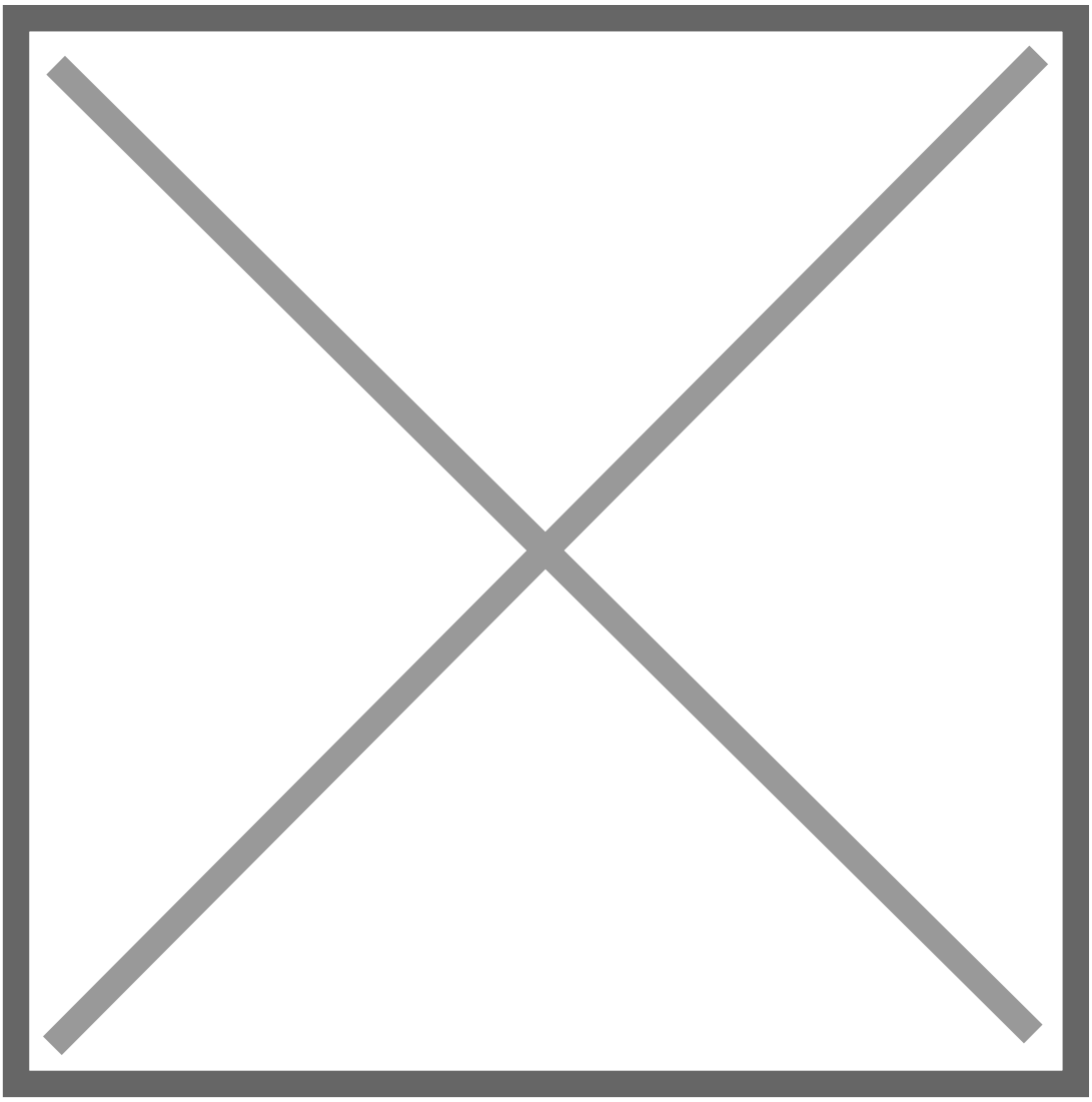


On Title set up the name you want to use to identify the column in the top and select the type to Destination port and Source port.

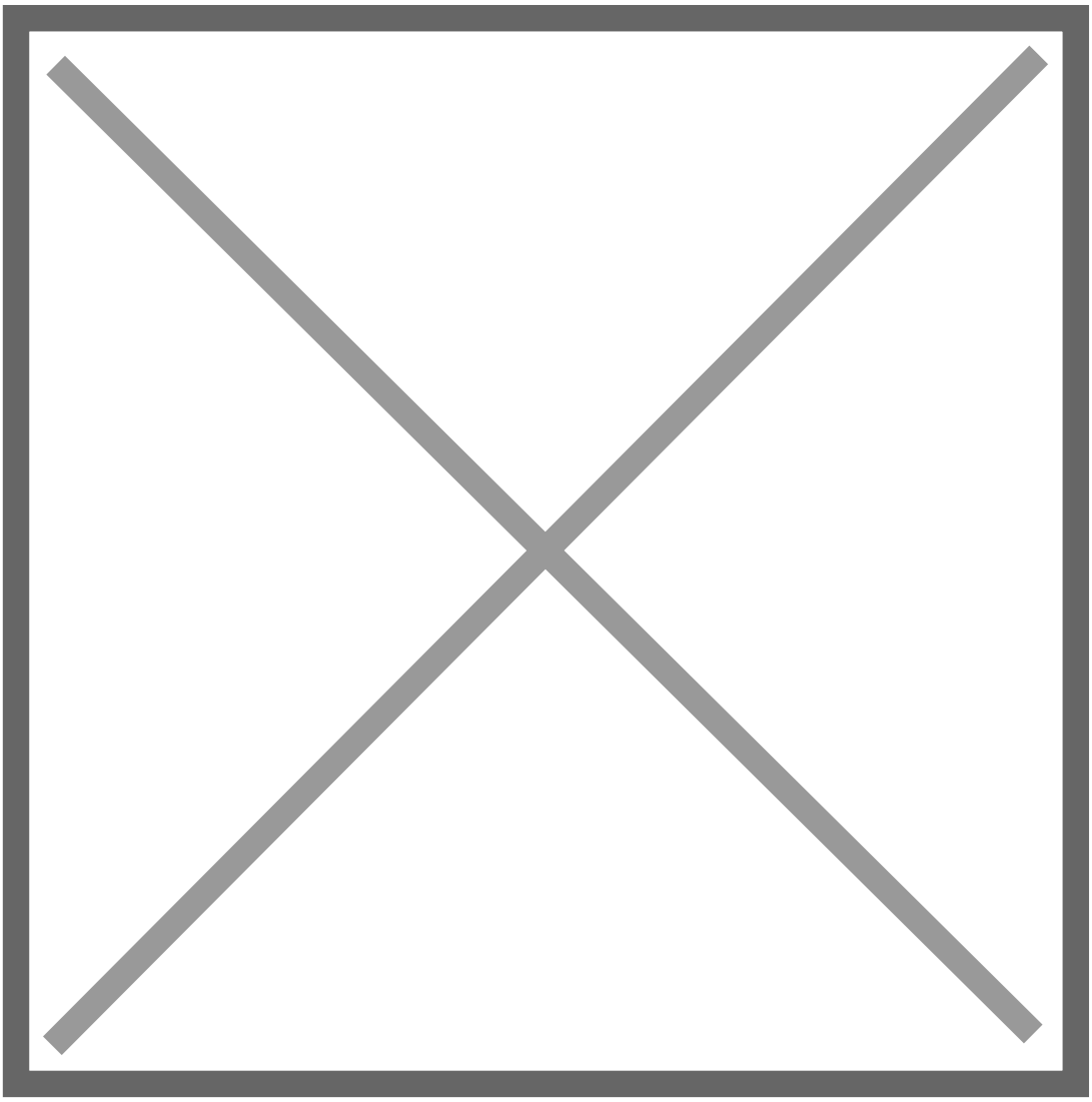


Other setting is also removing the Packet bytes in the bottom.

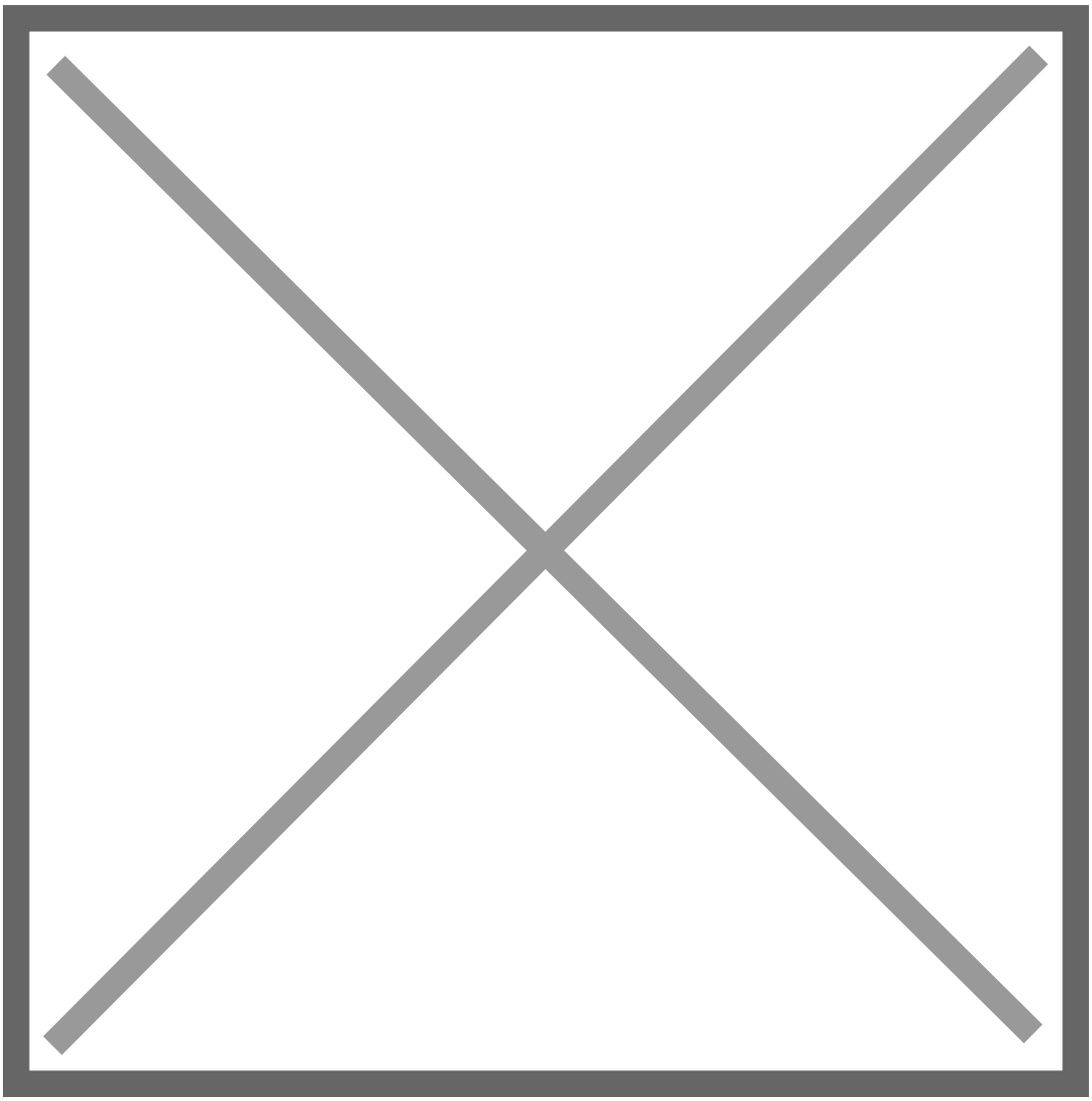
The filter toolbar lets you quickly edit and apply filters



Filters can be combined and applied on the traffic for example:



Any error in the syntax of the filter will turn the background of the toolbar to red:



When saving your traffic you could choose to save only the traffic you filtered, you can use the option **Export Specified Packets** and select the **Displayed** option