IPv6

Advantages

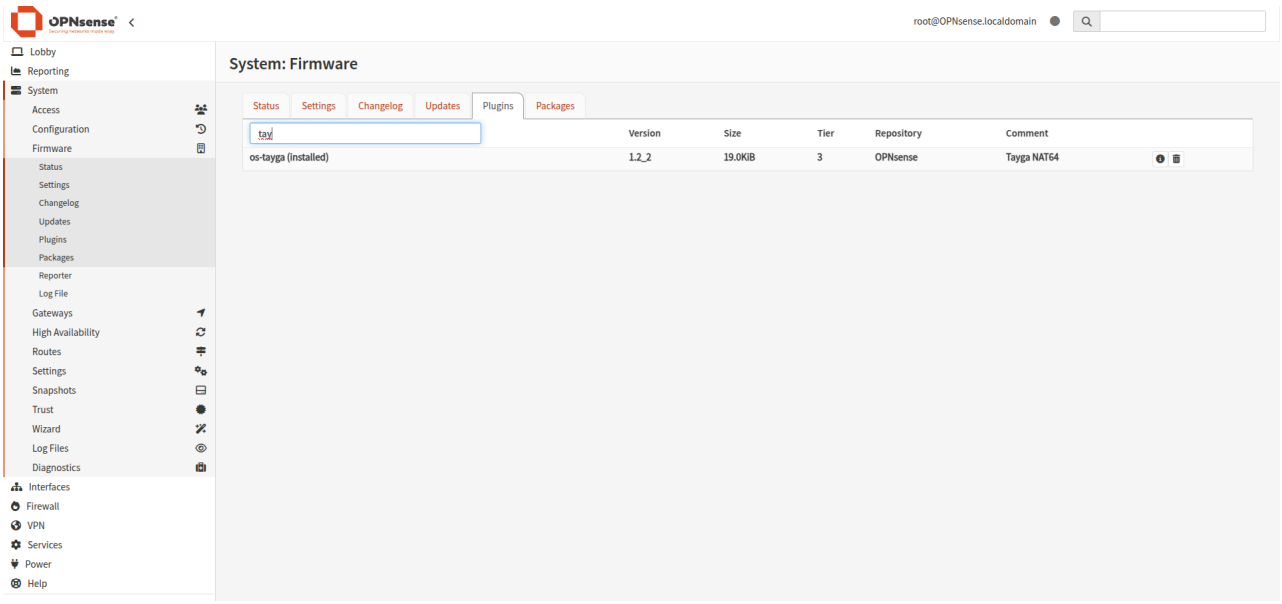
- Way more addresses than IPv4 2^32 vs 2^128
- Built in IPSec encryption capability

Generic Steps to creating IPv6 netowrk

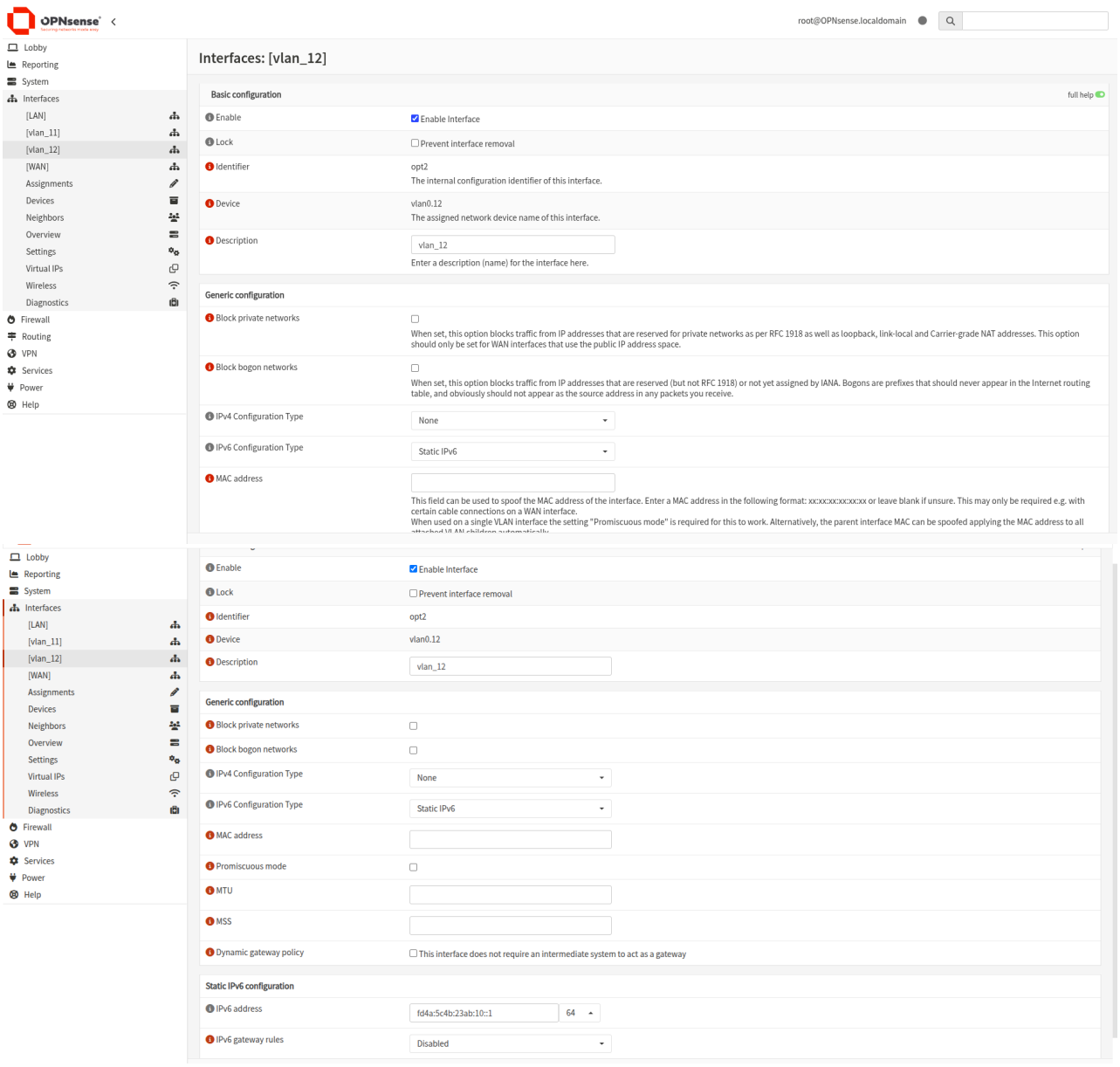
- Prefix delegation: Ask your ISP to give you a IPv6 CIDR
- Configure router: Add an interface that assumes the IPv6 address, something like:
- Configure router to respond to Router Solicitation (RC) or Configure DHCPv6 so that devices that connects to the network can have IPv6 address.
- Firewall configuration.

Opnsense Configuration

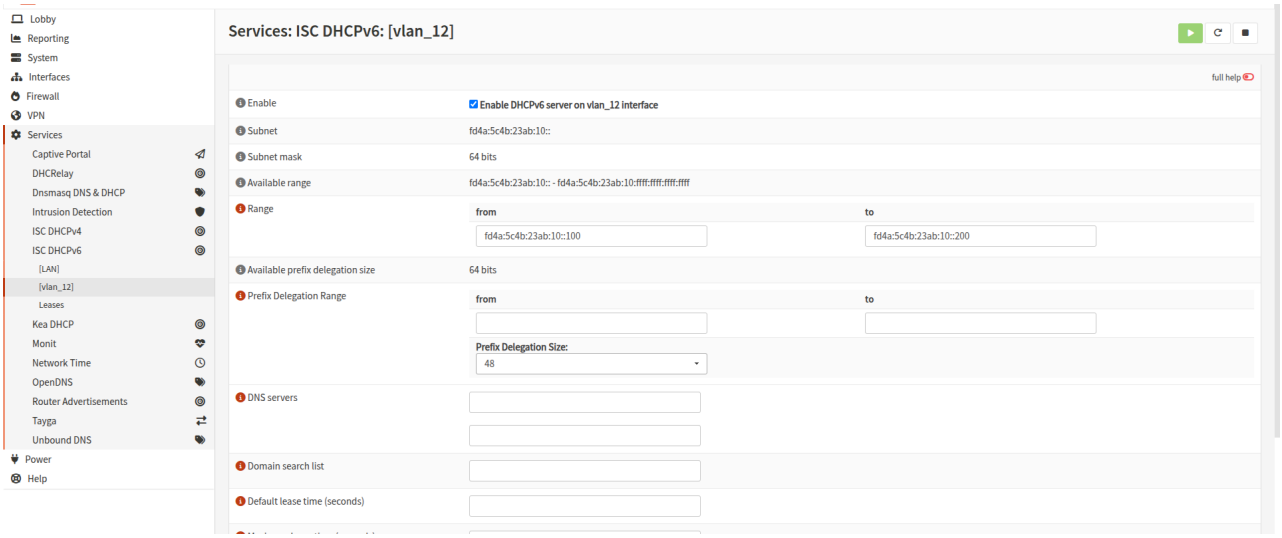
Install tayga plugin



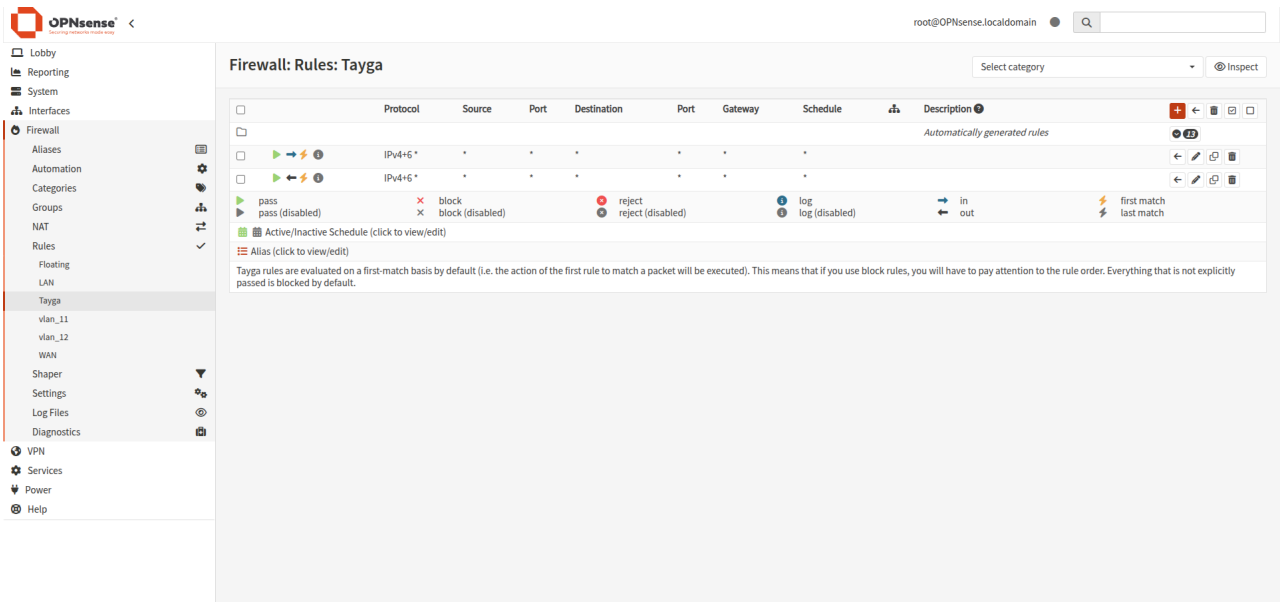
Vlan IPv6 configuration



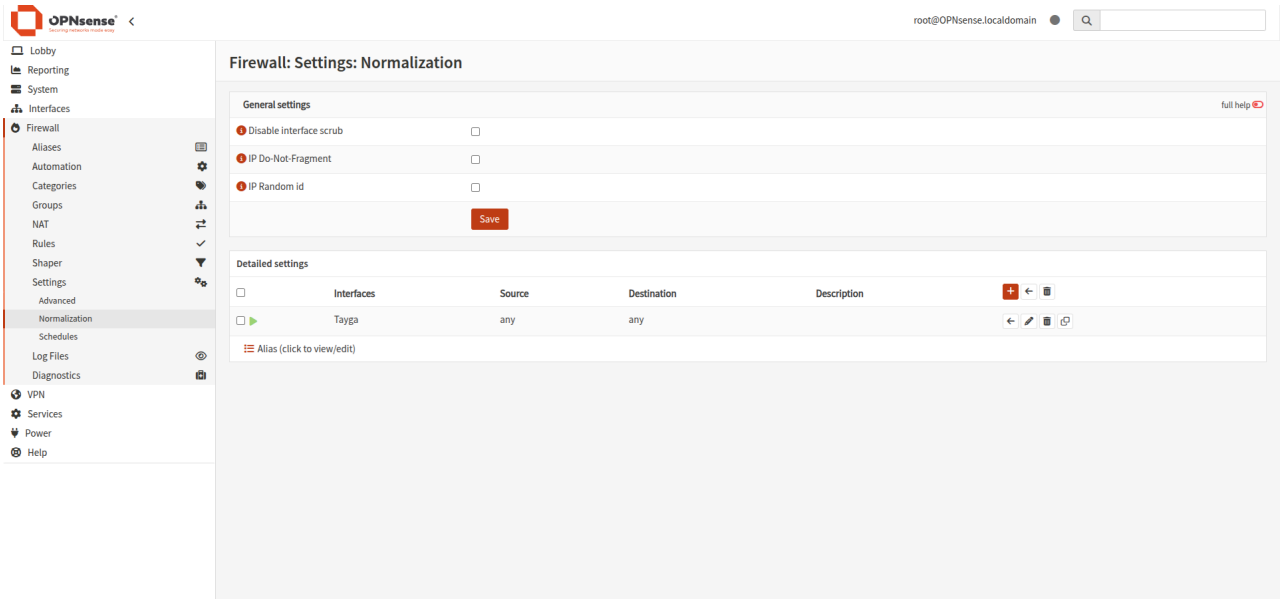
DHCPv6 configuration



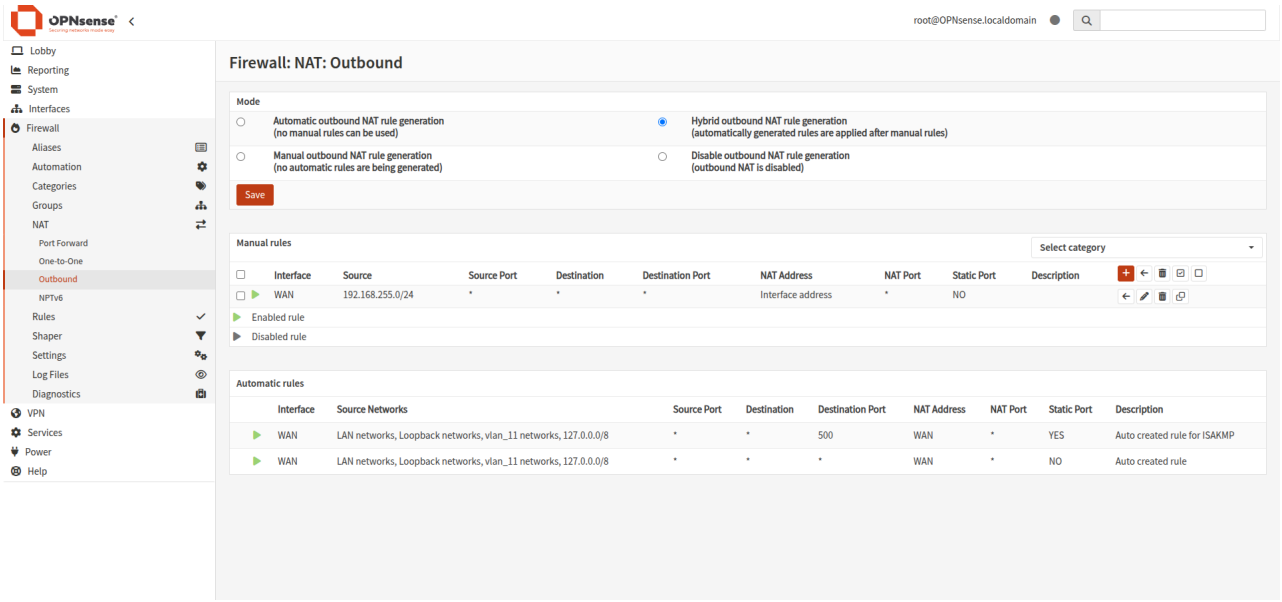
Firewall rules for Tayga



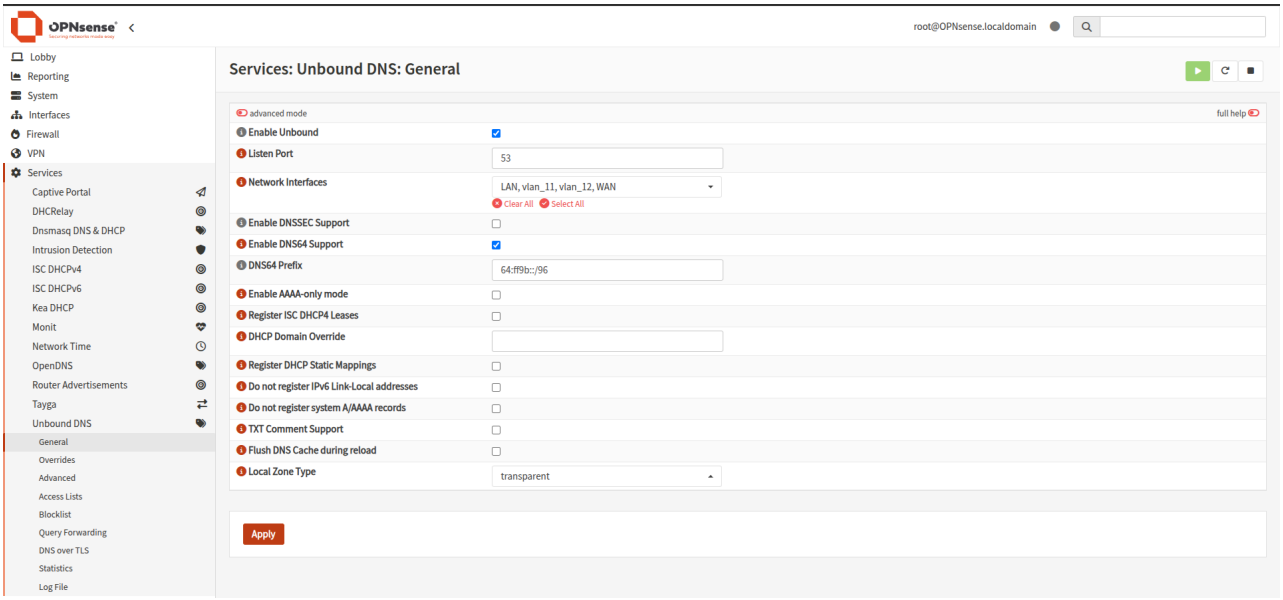
Normalization rule



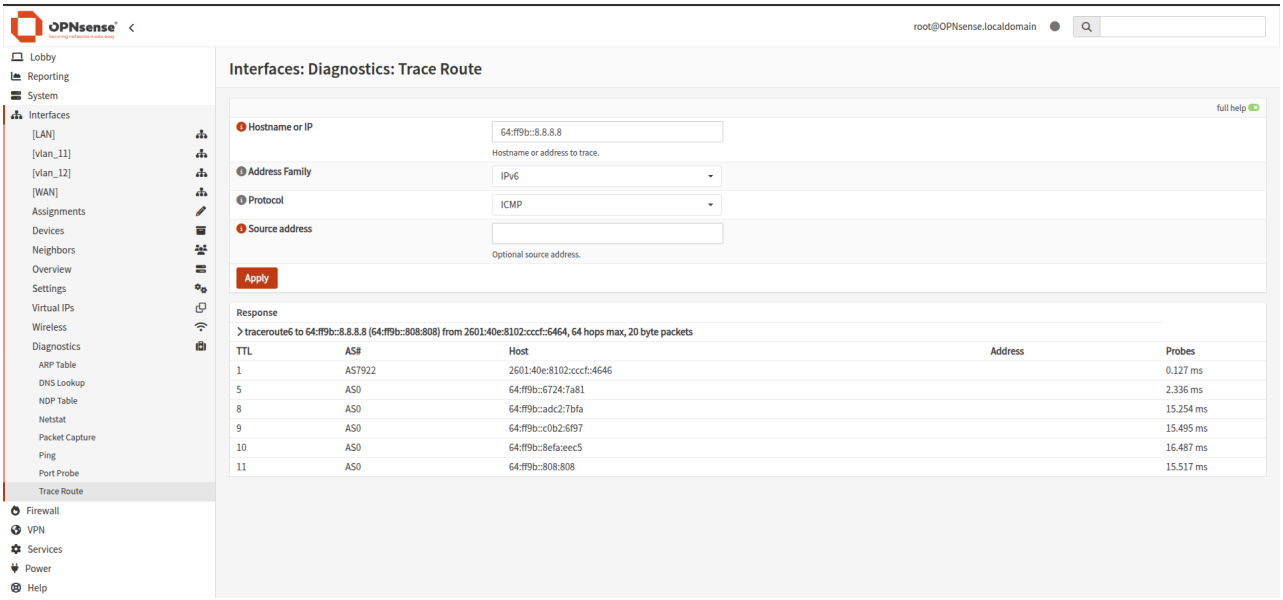
NAT outbound rule



DNS64:



Test:



At this point, you'll be able to access the IPv4 internet. But if you don't have the IPv6 delegation from your ISP and if the application you're trying to reach already has IPv6 address it won't be synthesized by dns64 and try to route it as it is. Since there is no upstream IPv6 route, the request will fail.

To solve this, you need to synthesize all the dns record to NAT64 well-known prefix even if they have real AAAA record. To do so, ssh into opensense:

```
1 vi /usr/local/etc/unbound.opnsense.d/dns64.conf
```

dns64.conf:

```
server:
    module-config: "dns64 validator iterator"
    dns64-prefix: 64:ff9b::/96
    dns64-synthall: yes
    dns64-ignore-aaaa: yes

```

Restart the unbound DNS.