System

How to administer core system services such as networking, storage, monitoring, etc.

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audit

Kernel Parameters:

```
audit=1 audit_backlog_limit=8192
```

This prevents the message

```
kauditd: hold queue overflow
```

crypttab

This configuration allows us to automatically unlock but not mount external drives. For example:

```
/etc/crypttab
diskn          UUID=<path to disk by /dev/disk/by-uuid>    /etc/keyfiles/<keyfile name>
luks,nofail
```

This configuration will use the keyfile /etc/keyfiles/keyfile to /dev/disk/by-uuid/id and create a device node for that disk at /dev/mapper/diskn for mounting in fstab.

> Do not directly mount the disk

Docker Firewall Configuration

Source: Firewalld Strict Docker Filtering

Preparation

Required parts:

Install firewalld and activate service:

```
pacman -Syu firewalld
systemctl enable --now firewalld.service
```

Disable any other firewall services.

Disable iptables for docker by adding or changing `/etc/docker/daemon.json` by adding the following config options:

```
{
  "iptables": false
}
```

After changing this config file, restart the Docker daemon to apply the previous change:

```
systemctl restart docker.service
```

> As a result of the previous steps, only allowed ports on firewalld are accessible from the outside. However containers are now unable to connect outbound to the internet.

firewalld Configuration

Allow internet access for Docker containers

We need to allow masquerading to allow traffic from the Docker zone to the internet:

```
# Running this command allows your containers to reach out to the internet
firewall-cmd --permanent --zone=home --add-masquerade
```

```
# Since we used the --permanent flag, we need to reload the firewall for the changes to take
effect
firewall-cmd --reload
```

> Docker creates a zone in firewalld specifically for its bridge network interfaces for each container network along with the docker0 interface.

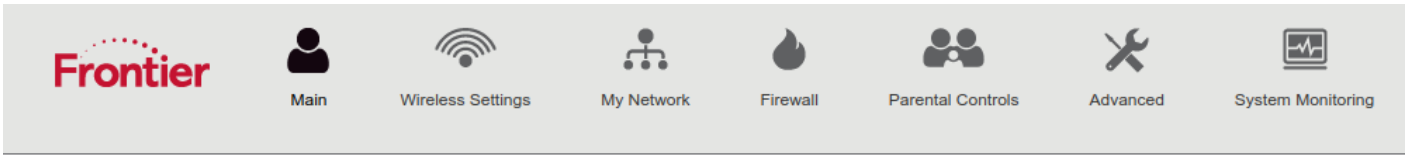
To fix networking for containers that are not connected to a docker network, add your network interface connected to the network to the masqueraded zone.

FiOS Router

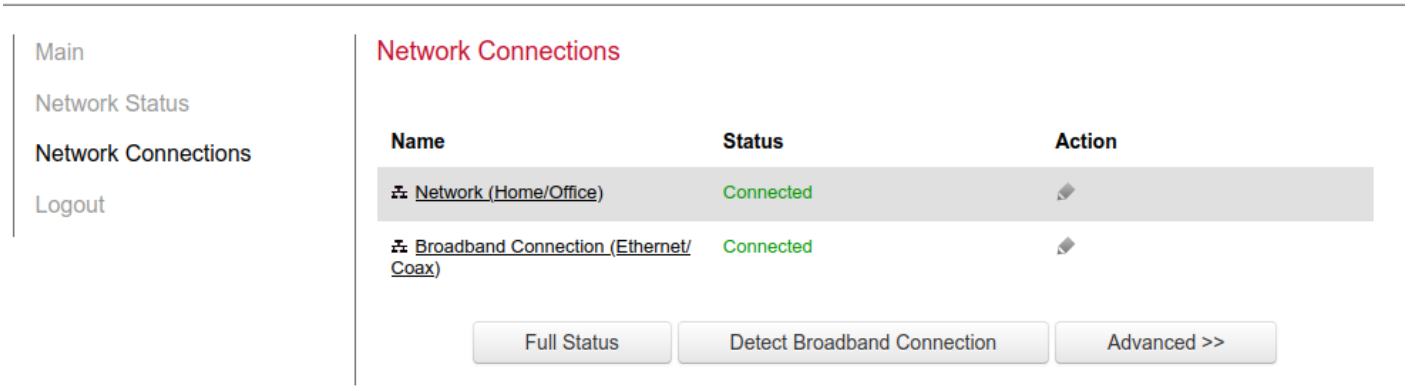
Set Router to Bridge Mode

Login to router administration interface

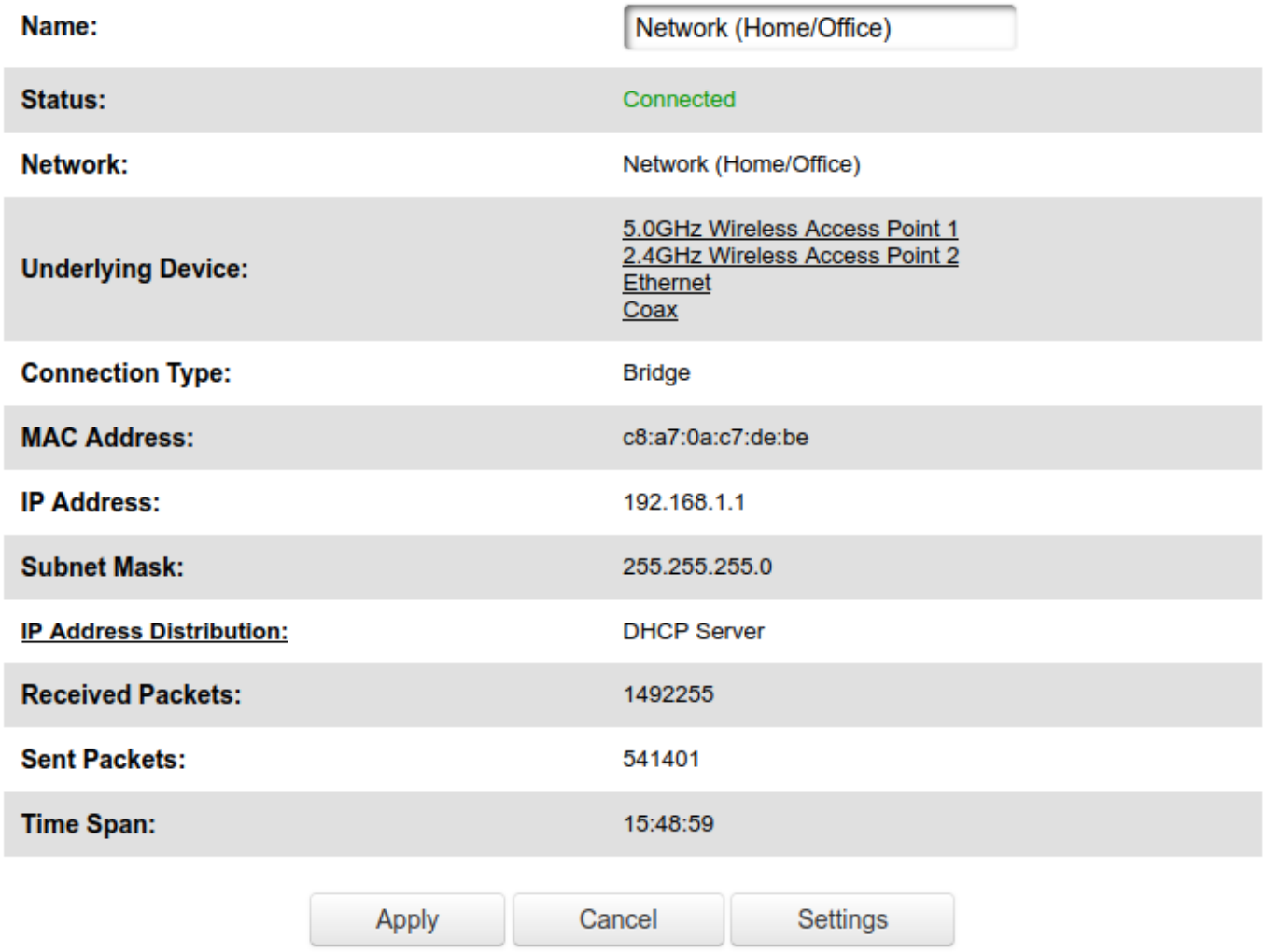
Select "My Network" on the top bar



Select "Network Connections" > "Advanced"



Select edit icon for "Network (Home/Office)", then click "Settings" on the bottom right



Check the box for bridge mode under the "Bridge" section

> If you set up another router and it detects that the ISP modem/router is still active, it will use the 10.0.0.0/16 network rather than the 192.168.0.0/24 network

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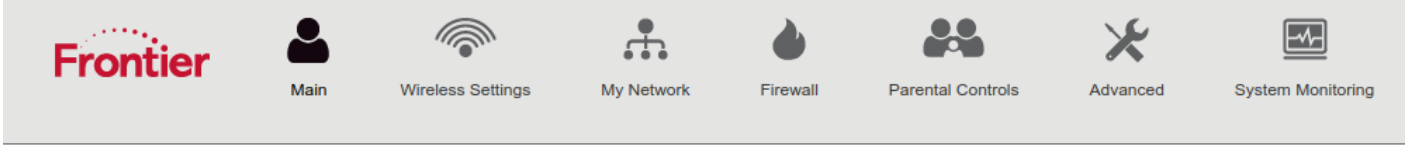
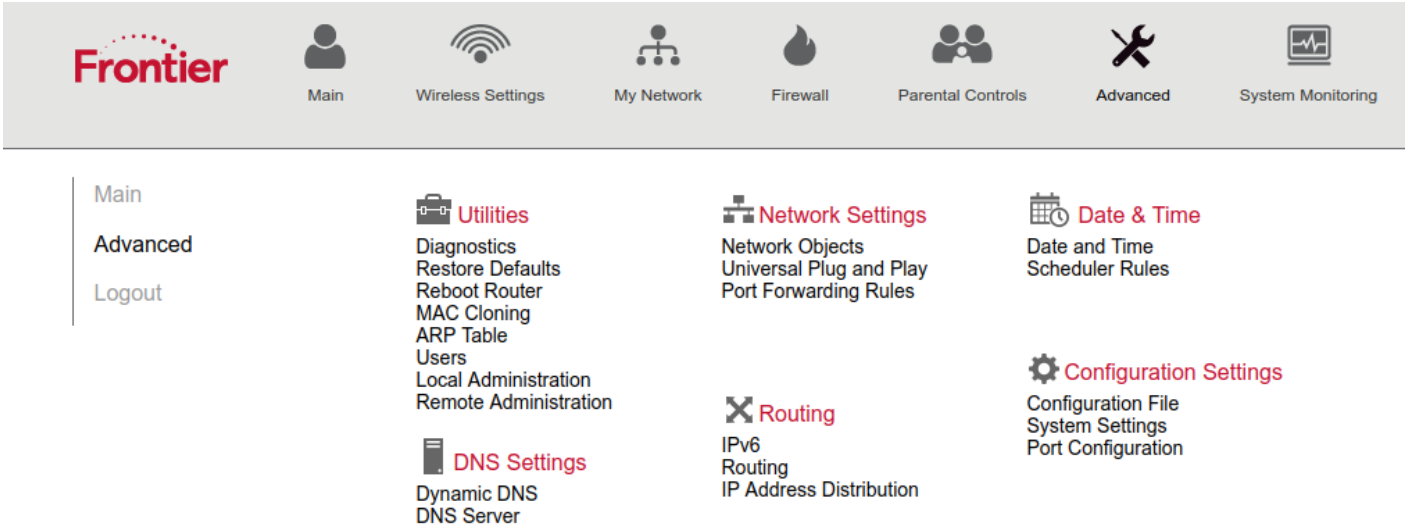
Configure IP Allocation

Login to router administration interface

Select "Advanced" on the top bar, then select "Yes"



Under "Routing", select "IP Address Distribution"



Select "Connection List" on the bottom

Edit a specific host's IP allocation

Grafana Alloy

How to get WAL stats for alloy:

```
alloy tools prometheus.remote_write wal-stats /var/lib/private/alloy/data-alloy/prometheus.remote_write.default/wal
```

Intel NIC Configuration

Wireless Configuration

```
# iwlwifi.conf
# Enable antenna aggregation
options iwlwifi 11n_disable=8
```

lm-sensors

Label	Value
CPUTIN	Motherboard's CPU temp sensor
SYSTIN	Motherboard temp sensor
AUXTIN	Aux temp sensors, usually for PSU

LUKS

https://wiki.archlinux.org/title/Dm-crypt/Specialties#Disable_workqueue_for_increased_solid_state_drive_(SSD)_performance

traefik

Docker Label Configuration

Base Labels

This is the minimum set of labels you need to expose a container to traefik:

```
labels:
  traefik.enable: true
  traefik.http.routers.<service_name>.entrypoints: <ep1>, <ep2>
  traefik.http.routers.<service_name>.rule: Host(`host1`, `host2`)
  traefik.http.routers.<service_name>.tls: true
  traefik.http.routers.<service_name>.tls.certresolver: <cert_resolver>
```

Middleware configuration

To configure a middleware for a particular service, add the following label:

```
traefik.http.routers.<service_name>.middlewares: middlware@provider
```

Accessing on a non-default port

If a container exposes multiple ports or a non-default port:

```
traefik.http.services.<service_name>.loadbalancer.server.port: <port_num>
```

Networking

To expose only containers on a certain network to traefik, you must specify the providers.docker.network option as so:

```
providers:
  docker:
    endpoint:
        exposedByDefault: false # Require label in docker-compose file for each container
        network: <net_name>
```

```
        watch: true
```

> If traefik itself is running in a docker container, you must place it on the same network as the containers you want to expose.

TLS

Basic TLS configuration that enables resolvers for both single-domain and wildcard Let's Encrypt certificates, as well as staging certificates:

```
# ========== TLS Configuration ==========
tls:
  # Disable TLS version 1.0 and 1.1
    options:
    default:
      minVersion: VersionTLS12
      sniStrict: true

  certificatesResolvers:
    staging:
      acme:
        email: "email@email.com"
        storage: /etc/traefik/certs/acme.json
        caServer: "https://acme-staging-v02.api.letsencrypt.org/directory"
        tlsChallenge: {}

    production:
      acme:
        email: "email@email.com"
        storage: /etc/traefik/certs/acme.json
        caServer: "https://acme-v02.api.letsencrypt.org/directory"
        tlsChallenge: {}
```

> Wildcard certificates can only be obtained with the DNS-01 challenge. Therefore a resolver that uses these must have dnsChallenge configured accordingly.

Tailscale

When running traefik in a docker container, ensure that it has access to the tailscale socket to be able to issue TLS certificates through tailscale

Users/Groups

krypton

User	Group	Type (login/system)	Purpose
restic	backup	system	Run the restic-rest-server
www-srv	www	system	Run web-accessible services
-	timemachine		
traefik	traefik	system	Run the t
	syncthing		
	paperless		
	docker		
	users		
	wheel		

oxygen
