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***THIRTYSOMETHING***

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## **DIY-NAS**

About my DIY-NAS

ThirtySomething

16.03.2024

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## Change history

Version	Date	Description	Name
1.0.0	02.04.2022	<ul style="list-style-type: none"> <li>Start with description</li> </ul>	ThirtySomething
1.0.1	16.04.2022	<ul style="list-style-type: none"> <li>Rename section WOL to Autoshutdown</li> <li>Fill section Autoshutdown with content</li> </ul>	ThirtySomething
1.0.2	16.04.2022	<ul style="list-style-type: none"> <li>Split file DIY-NAS-Content into separate files</li> </ul>	ThirtySomething
1.0.3	21.04.2022	<ul style="list-style-type: none"> <li>Update to latest template version</li> <li>Add section about used ports</li> <li>Add svnExport.sh as appendix</li> </ul>	ThirtySomething
1.0.4	23.04.2022	<ul style="list-style-type: none"> <li>Add documentation about Syncting docker container</li> </ul>	ThirtySomething
1.0.5	25.04.2022	<ul style="list-style-type: none"> <li>Split section OMV plugins into files</li> <li>Add description of PhotoPrism</li> </ul>	ThirtySomething
1.0.6	28.04.2022	<ul style="list-style-type: none"> <li>Add list of containers from old document</li> </ul>	ThirtySomething
1.0.7	30.04.2022	<ul style="list-style-type: none"> <li>Use latest template version</li> <li>Add section about Pi-hole</li> </ul>	ThirtySomething
1.0.8	11.05.2022	<ul style="list-style-type: none"> <li>Use latest template version</li> <li>Add copyright hint to the images</li> </ul>	ThirtySomething
1.0.9	19.05.2022	<ul style="list-style-type: none"> <li>Add description of Watchtower</li> </ul>	ThirtySomething
1.0.10	21.05.2022	<ul style="list-style-type: none"> <li>Add description of MariaDB and phpMyAdmin</li> <li>Switch SCM-Manager from manual to docker-compose.yaml</li> <li>Switch syncting from manual to docker-compose.yaml</li> <li>Add description of Mosquitto</li> </ul>	ThirtySomething
1.0.11	26.05.2022	<ul style="list-style-type: none"> <li>Add description of AIO docker compose file</li> <li>Add description of Gerbera</li> </ul>	ThirtySomething
1.0.12	27.05.2022	<ul style="list-style-type: none"> <li>Remove description of Gerbera</li> <li>Add basic description of Nextcloud</li> </ul>	ThirtySomething
1.0.13	28.05.2022	<ul style="list-style-type: none"> <li>Fix some minor errors</li> <li>Add links to components</li> </ul>	ThirtySomething
1.0.14	03.06.2022	<ul style="list-style-type: none"> <li>Add section monitoring</li> </ul>	ThirtySomething
1.0.15	14.07.2022	<ul style="list-style-type: none"> <li>Used correct image for SCM-Manager</li> </ul>	ThirtySomething
1.0.16	10.09.2022	<ul style="list-style-type: none"> <li>Add monitoring using cAdvisor</li> </ul>	ThirtySomething
1.0.17	07.02.2022	<ul style="list-style-type: none"> <li>Replace monitoring with dockprom</li> <li>Added chapter about ZFS</li> <li>Removed docker AIO</li> </ul>	ThirtySomething
1.0.18	07.02.2022	<ul style="list-style-type: none"> <li>Change order of OMV plugins</li> <li>Add chapter about rsync</li> </ul>	ThirtySomething
1.0.19	25.03.2023	<ul style="list-style-type: none"> <li>Re-installation</li> </ul>	ThirtySomething
1.0.20	25.06.2023	<ul style="list-style-type: none"> <li>Re-installation with OMV 6.4</li> </ul>	ThirtySomething
1.0.21	16.03.2024	<ul style="list-style-type: none"> <li>Documentation of the OMV 6.49 installation before update</li> <li>More meaningful shorts for glossary</li> <li>Re-organize document to structure of <a href="#">OMV</a></li> <li>Remove appendix</li> </ul>	ThirtySomething

**Table 1:** Change history

# 1 The hardware

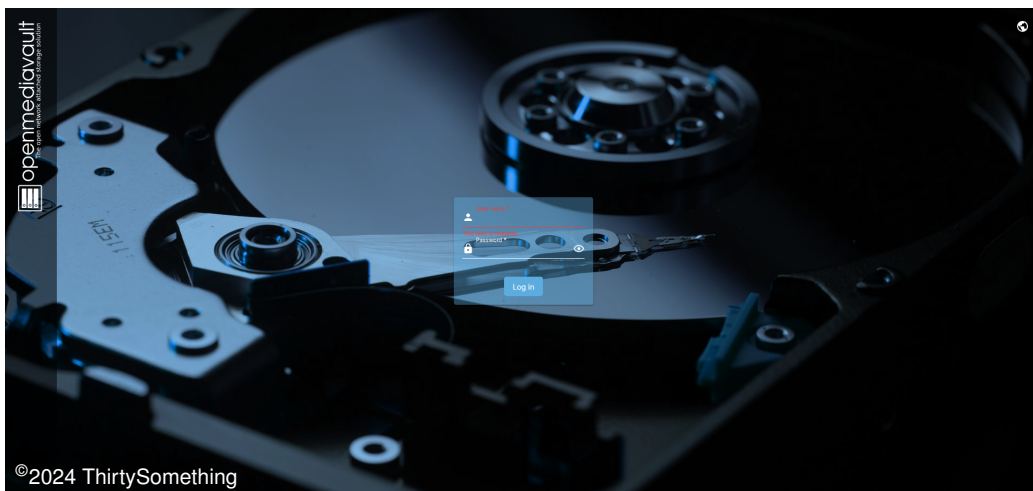
The [NAS](#) will run on the following hardware:

- [32GB G.Skill RipJaws V black DDR4-3200 DIMM Dual Kit](#)
- [250GB Samsung 970 Evo Plus M.2 2280](#)
- [400 Watt be quiet! Pure Power 11 CM Modular 80+ Gold](#)
- [Black Fractal Design Node 304 cube without power supply](#)
- [4x 4000GB WD Red Plus WD40EFZX 128MB 3.5"](#)
- [ASRock H610M-ITX/AC mITX Intel H610 DDR4 S1700](#)
- [Intel Core I3-12100 tray](#)
- [Noctua NH-L9i-17xx topblow cooler](#)

## 2 The software installation

### 2.1 The operating system

The basic installation of [OMV](#) works without any problems. This is known from debian. Additional [Volker Theile](#), the founder of the [OMV](#) project, and his team have done a very good job. Thank you guys!



**Figure 1:** The OMV login page

## 3 System

### 3.1 Workbench

In the workbench you can setup the port of the web ui, SSL and you can configure a certificate to use.

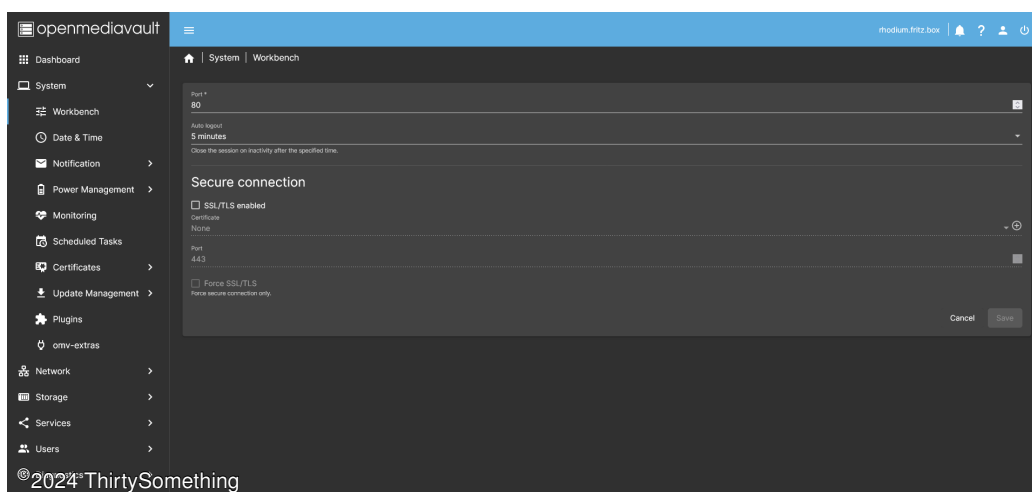


Figure 2: OMV workbench

### 3.2 Date/Time

Here the timezone is defined. In case you want to use NPT, the desired server is configured here also.



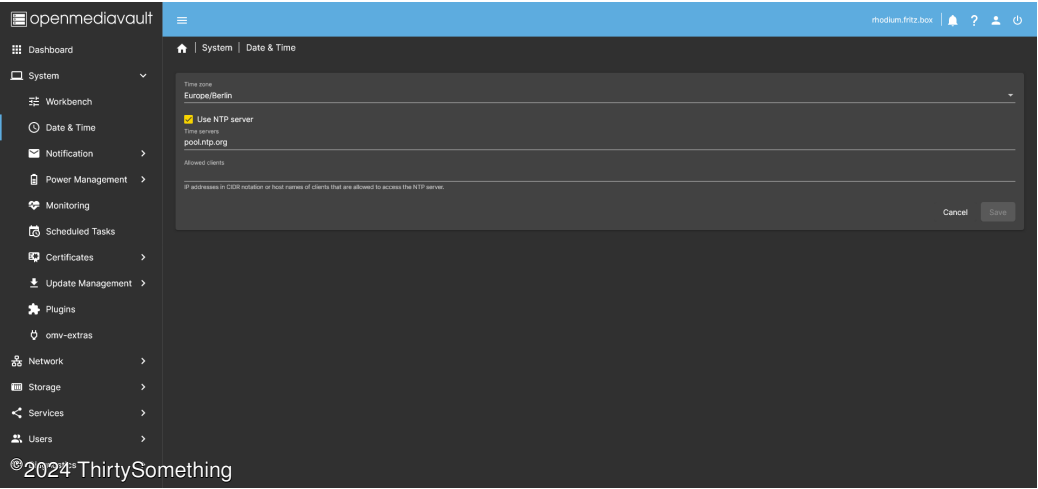


Figure 3: The date/time settings

### 3.3 Notification

#### 3.3.1 Notification settings

To setup some notifications for the administrator.

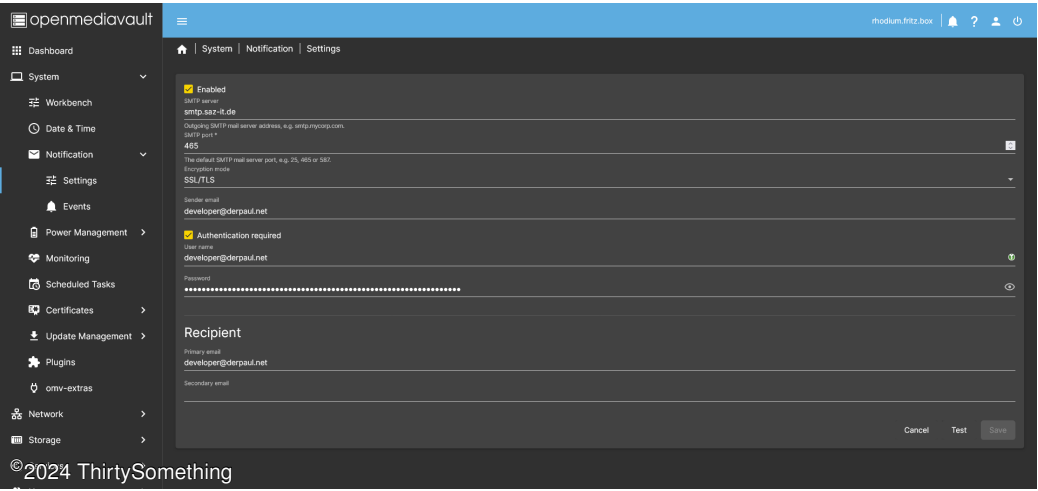
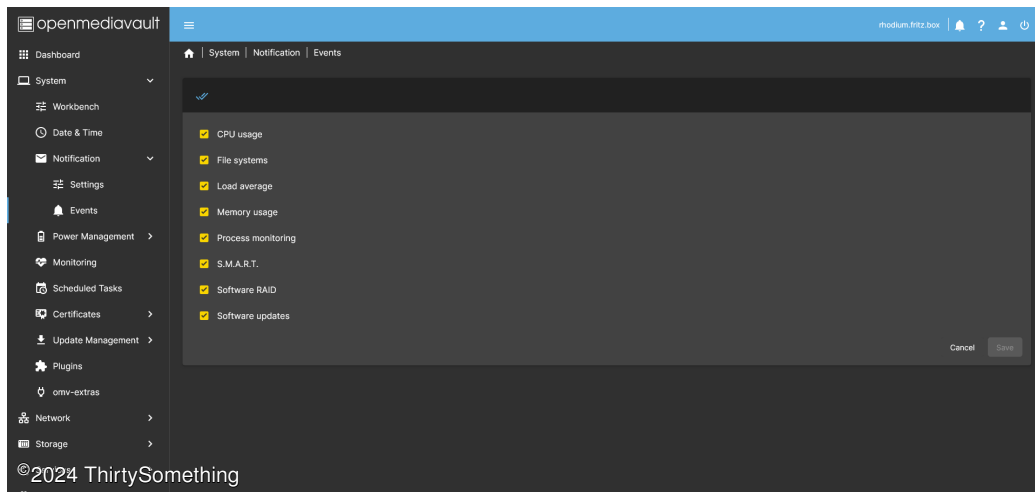


Figure 4: Notification settings

#### 3.3.2 Notification events

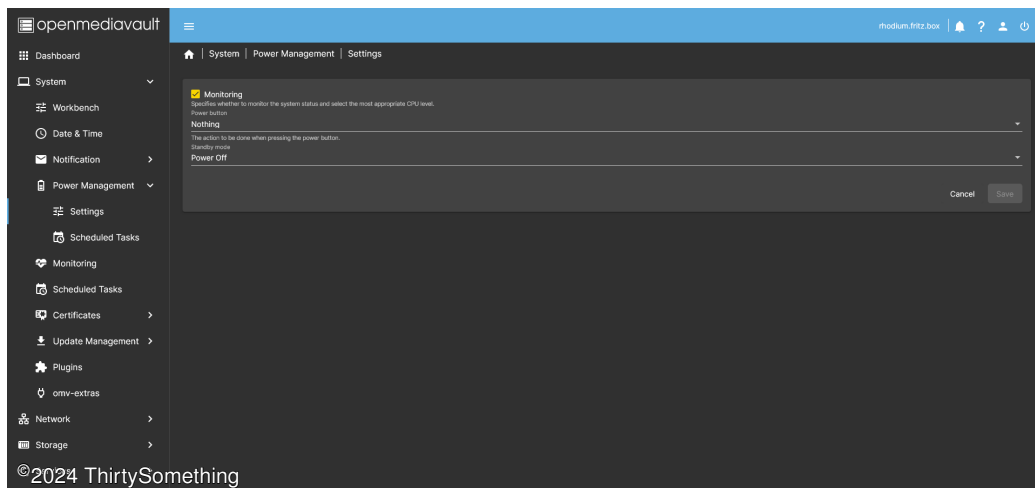
The possible events for notifications.

**Figure 5:** Notification events

## 3.4 Power management

### 3.4.1 Power management settings

Enable power management and define the behaviour when pressing the power button.

**Figure 6:** Power management settings

### 3.4.2 Power management tasks

Additional configure some tasks – here are no tasks defined.

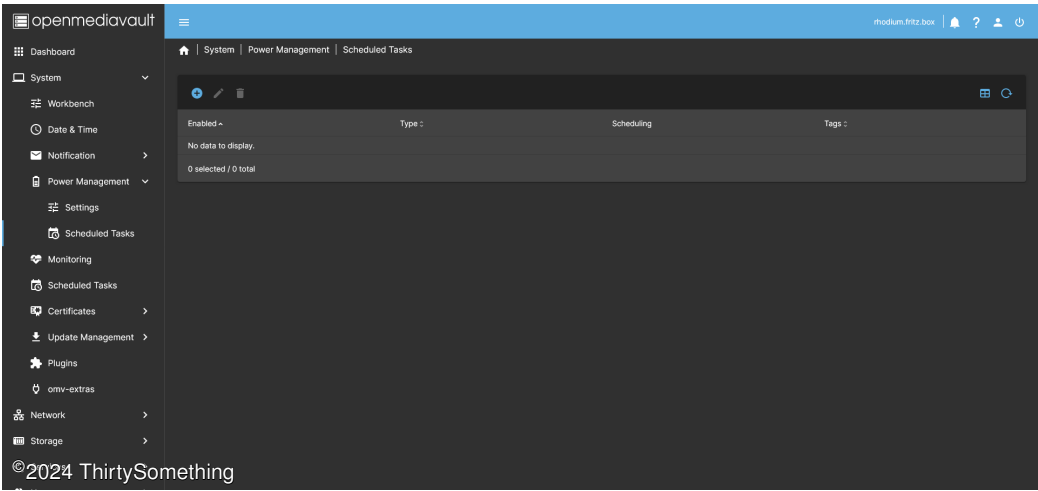


Figure 7: Power management scheduled tasks

3.5 Monitoring

Enable/disable statistical information about the system.

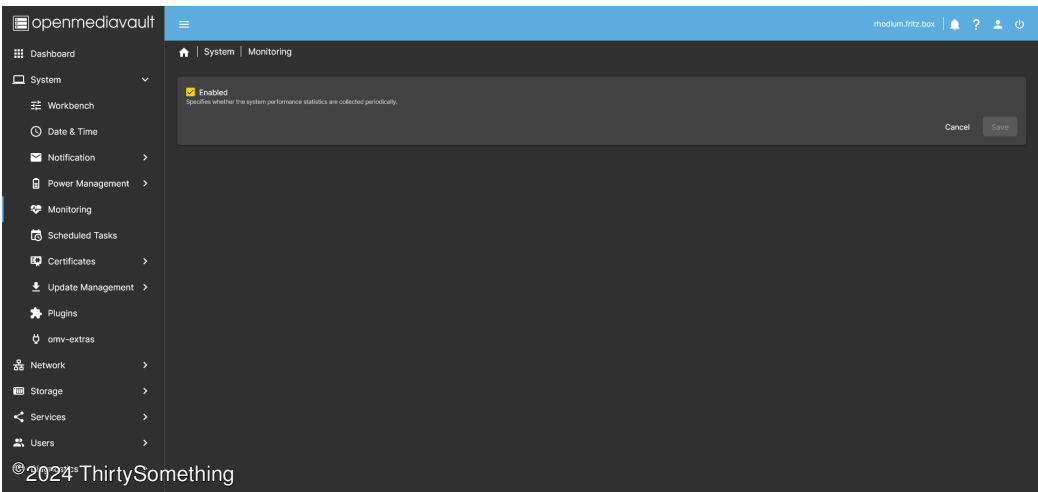


Figure 8: Monitoring

3.6 Scheduled tasks

Planned tasks are located here.

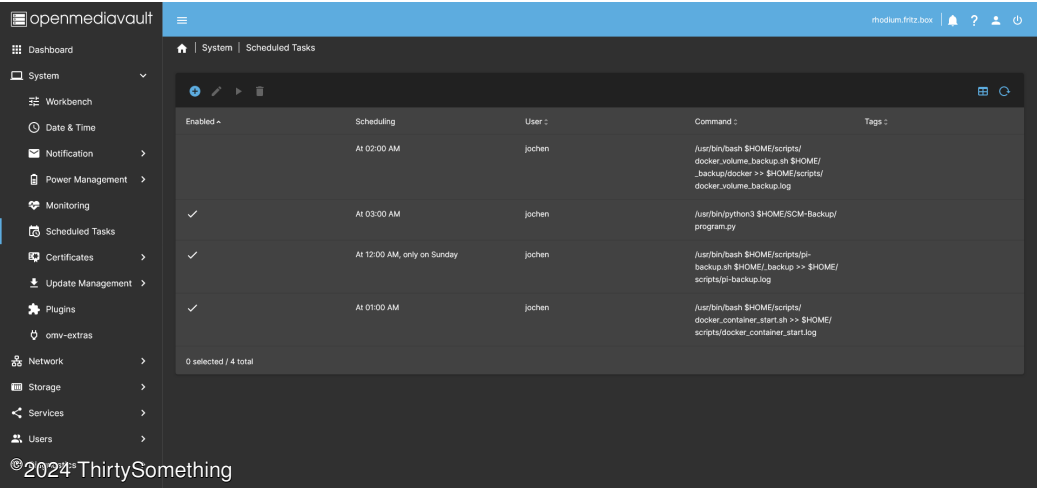


Figure 9: Scheduled tasks overview

3.6.1 Docker volume backup

This script is used to create an archive of each docker volume. The script can be found [here](#).

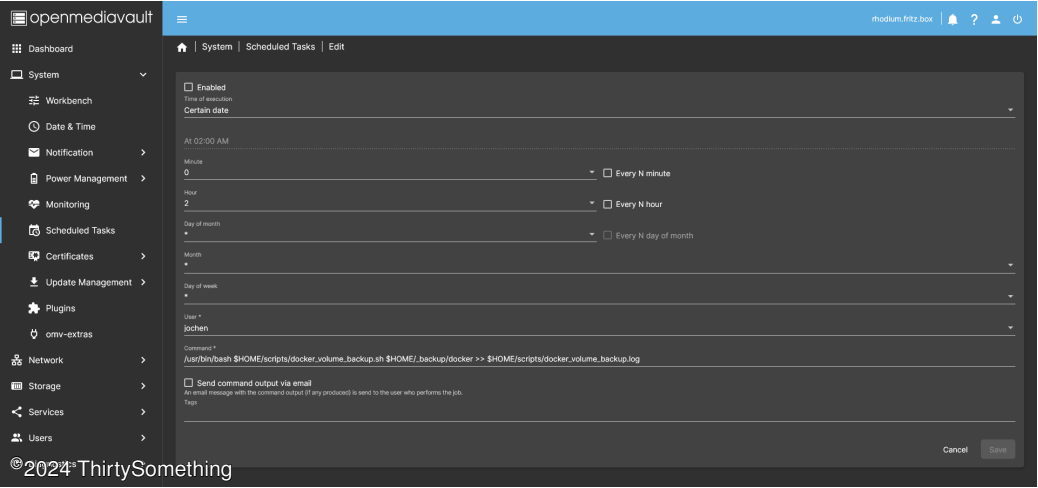


Figure 10: Docker volume backup

3.6.2 SCM-Manager backup

This script is used to backup my development repositories. The script can be found [here](#).

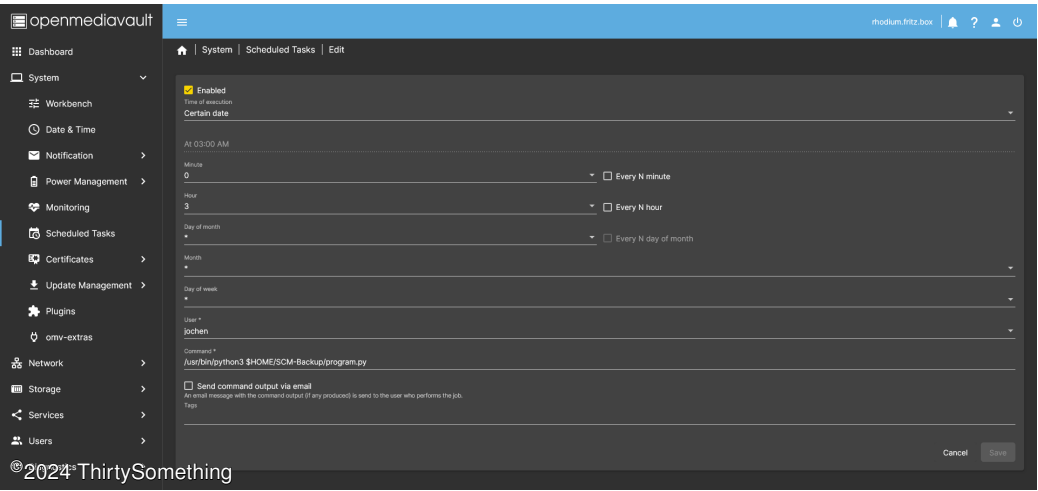


Figure 11: SCM-Manager backup

3.6.3 Pi-Hole backup

This script is used to create a backup of my [Pi-Hole](#) system. The script can be found [here](#).

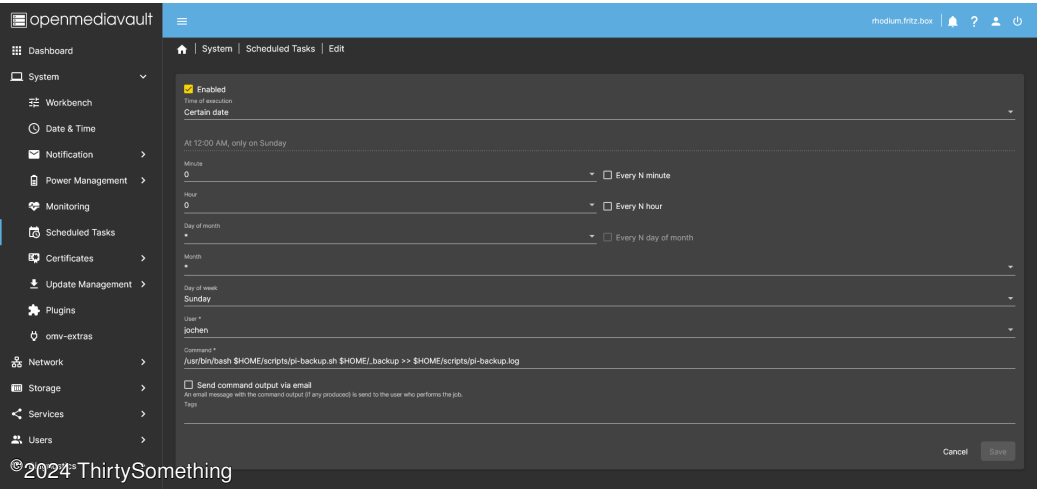


Figure 12: Pi-Hole backup

3.6.4 Docker Container start

This script is used to start not running docker containers. The script can be found [here](#).

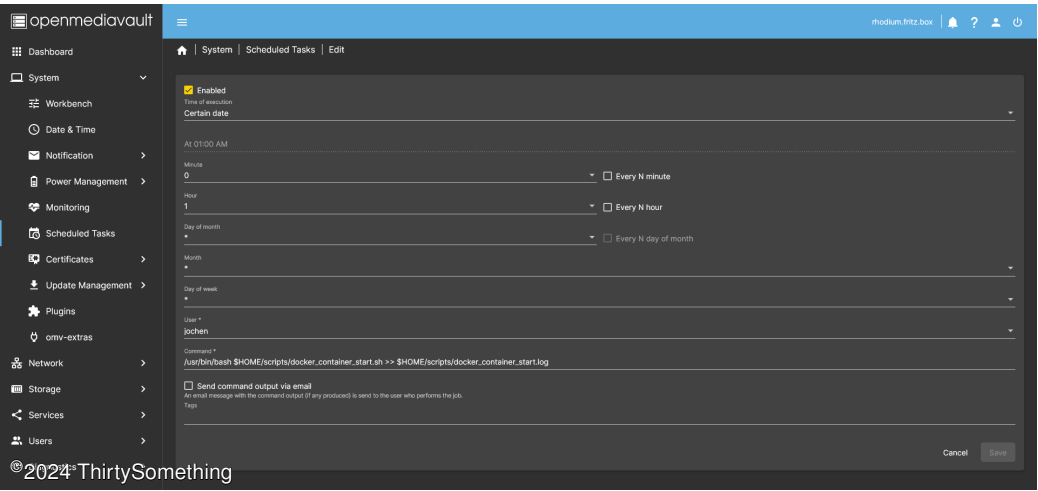


Figure 13: Docker container start

### 3.7 Certificates

To configure/deal with certificates, this is the right place.

#### 3.7.1 SSH Certificates

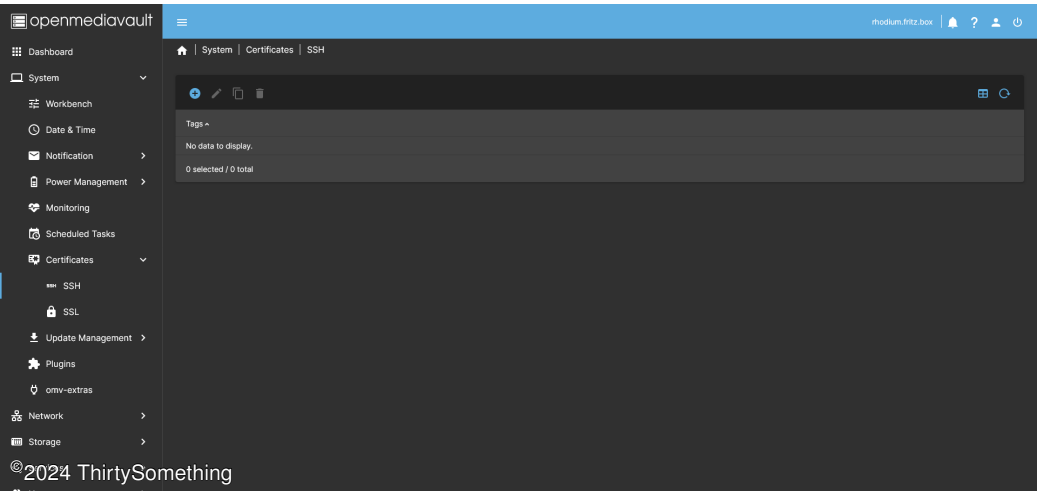


Figure 14: SSH certificates

## 3.7.2 SSL Certificates

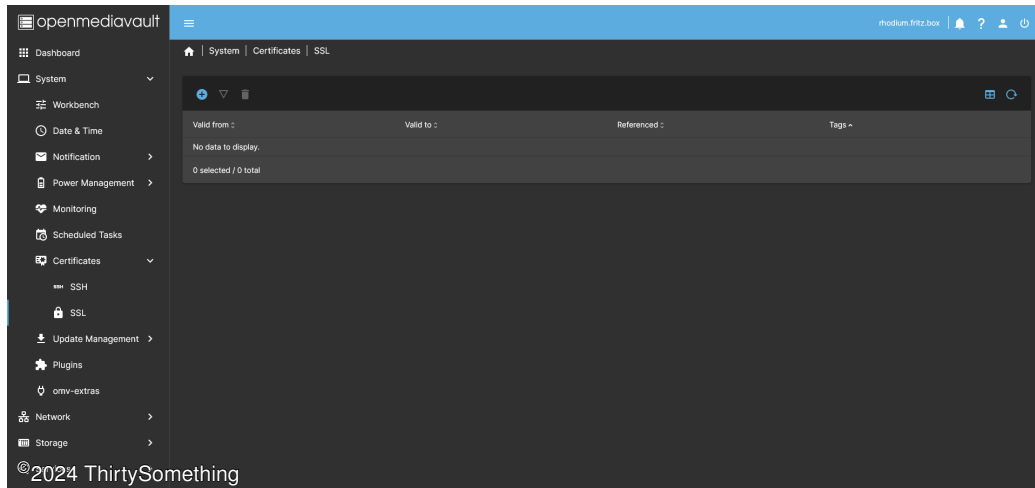


Figure 15: SSL certificates

## 3.8 Update management

### 3.8.1 Possible updates

Here a list of possible system updates are shown.

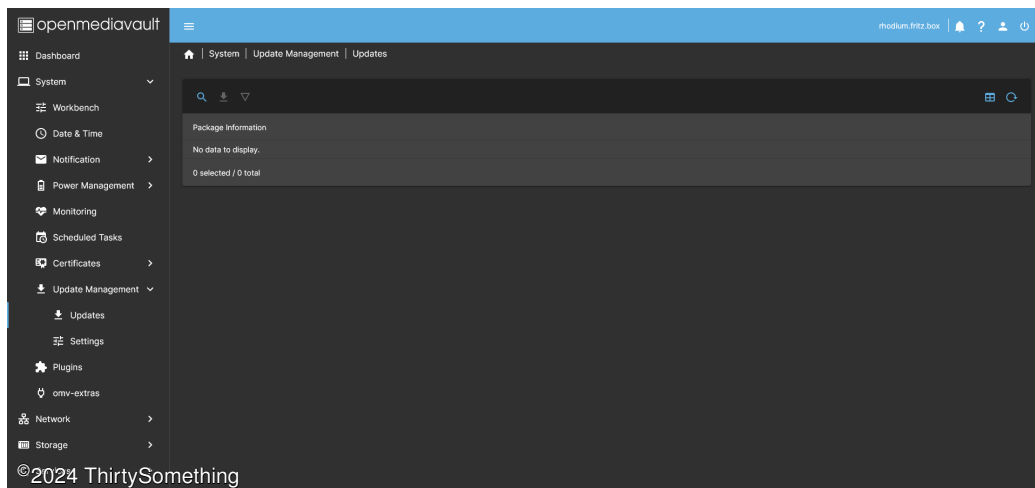


Figure 16: List of possible updates

### 3.8.2 Update management settings

To configure the system updates see here.

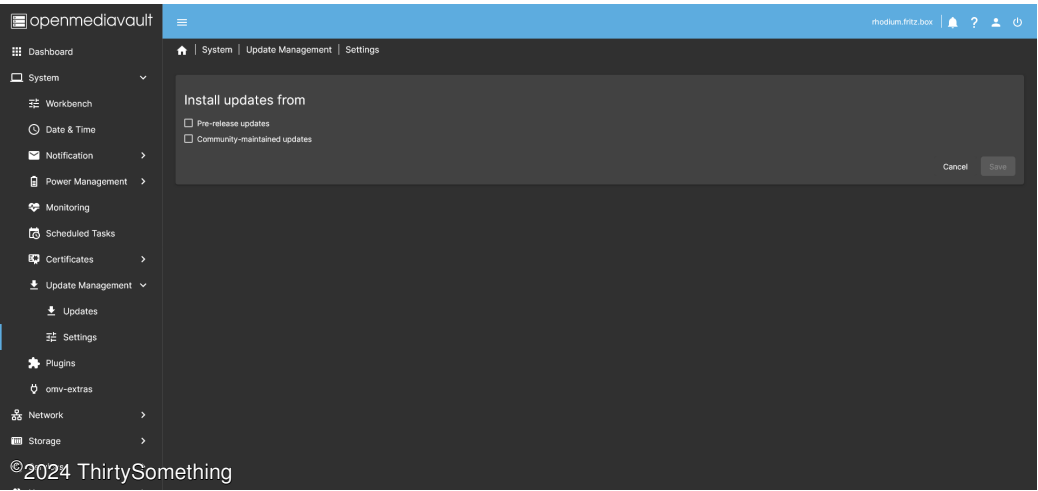


Figure 17: Update settings

3.9 Plugins

Here a list of selected plugins are shown. There are more plugins available.

3.9.1 ClamAV

To protect the data I want to use an antivirus program. As open source solution there is [ClamAV](#) available – and also as plugin for [OMV](#).

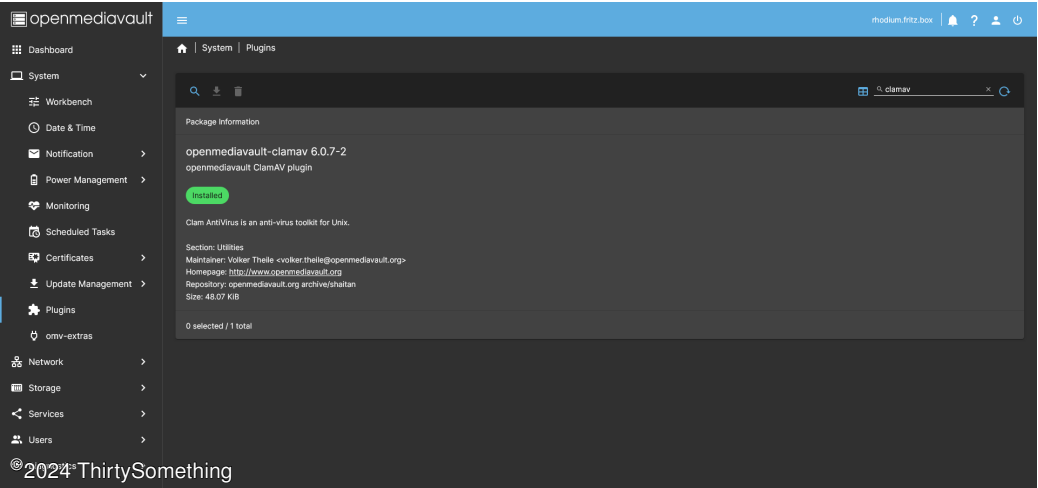


Figure 18: ClamAV plugin



For the setup, see the [Antivirus](#) section.

### 3.9.2 Docker compose

This plugin is required to enable [Docker](#) for [OMV](#).

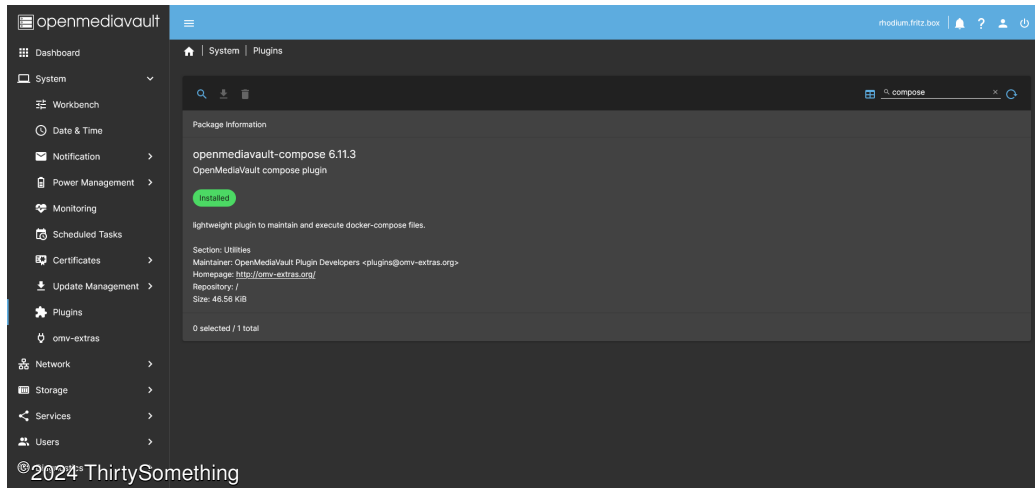


Figure 19: Compose plugin

### 3.9.3 CPU temperature

This plugin gives some information about the CPU temperature.

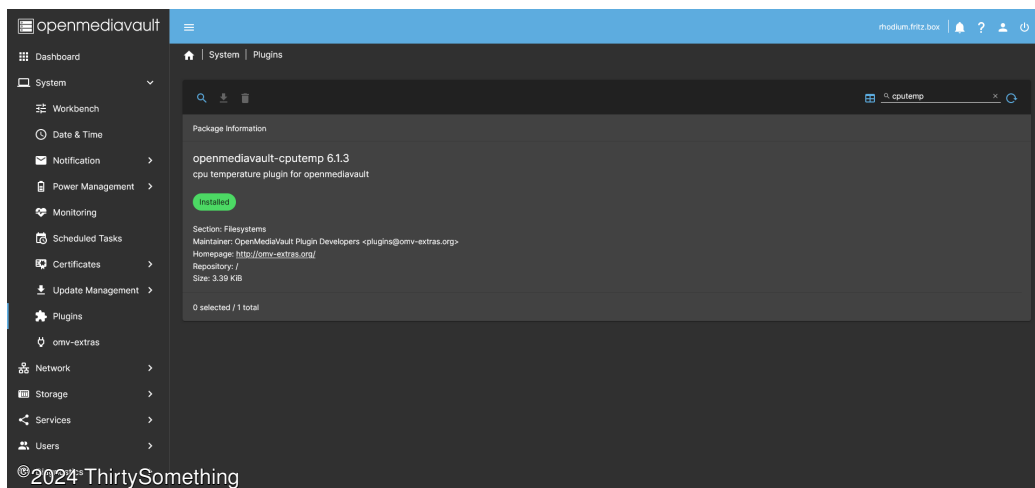


Figure 20: CpuTemp plugin

### 3.9.4 Diskstats

To collect statistical information about the disks I've installed this plugin.

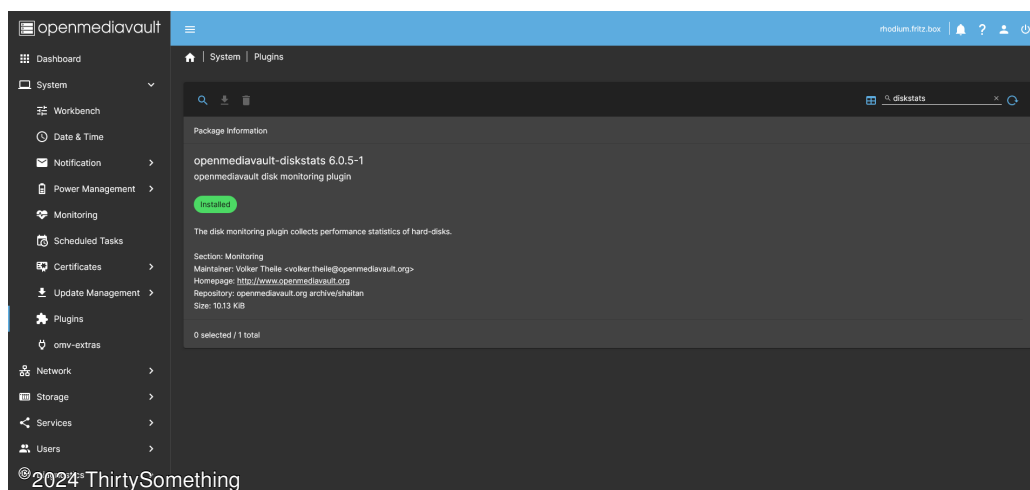


Figure 21: Diskstats plugin

### 3.9.5 OMV extras

This must be installed as first. If not, other plugins are not available. The [OMV extras](#) are not available in the default plugin list. The way to go to install them is described [here](#). Login as user `root` using SSH and enter the following command:

```
wget -O - - https://github.com/OpenMediaVault-Plugin-Developers/packages/raw/master/install | bash
```

Figure 22: The OMV extras installation

Using this plugin enables at least the [Docker](#) installation to enhance the capabilities of the [NAS](#).

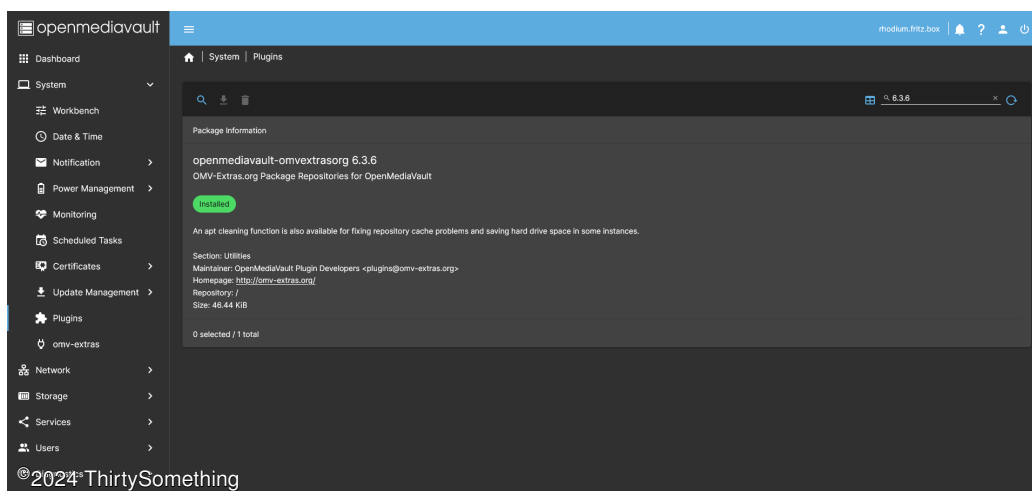


Figure 23: OMV extras plugin

### 3.9.6 Remote mount

To mount my [Synology DS411Slim](#) to my [Node304](#) and then to share it.

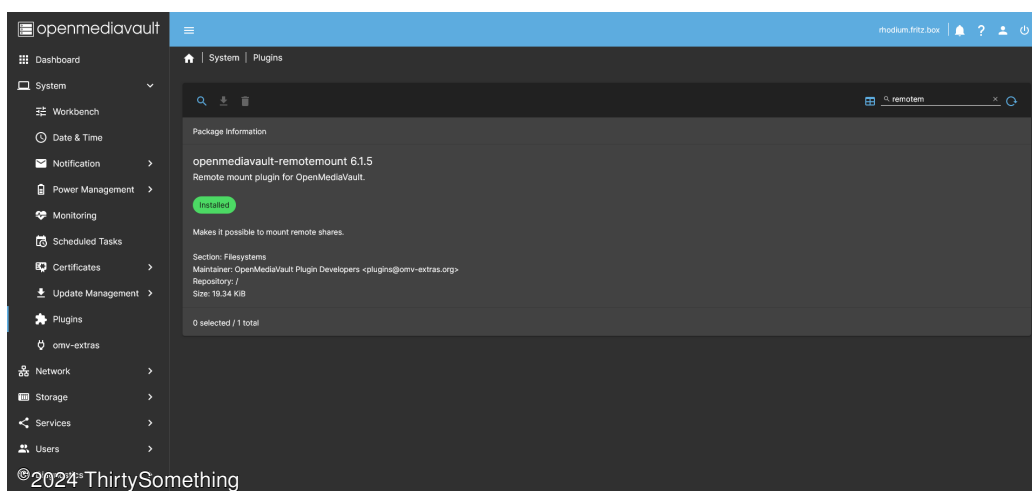


Figure 24: Remote mount plugin

## 3.10 OMV Extras

There is not much to configure here:

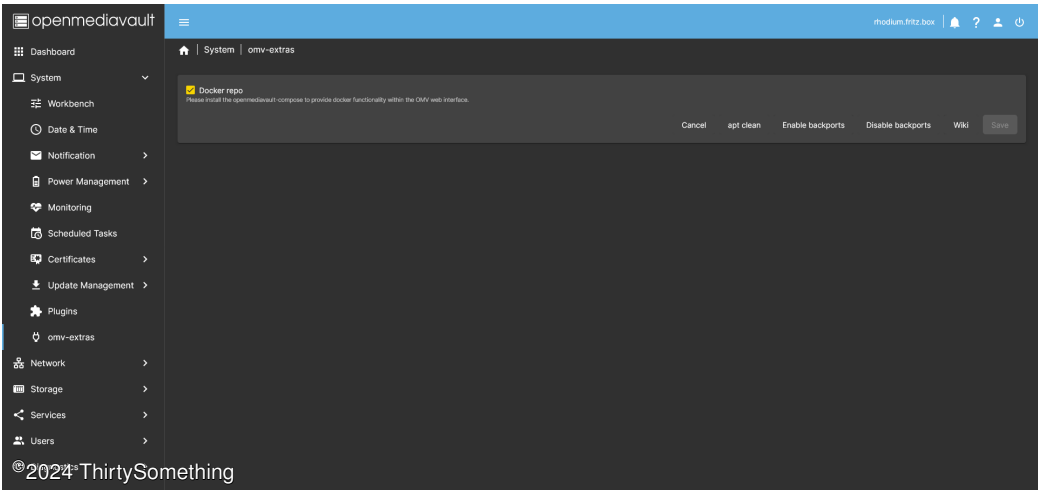


Figure 25: Setup OMV extras

# 4 Network

## 4.1 General

To set the hostname of the system and the network domain.

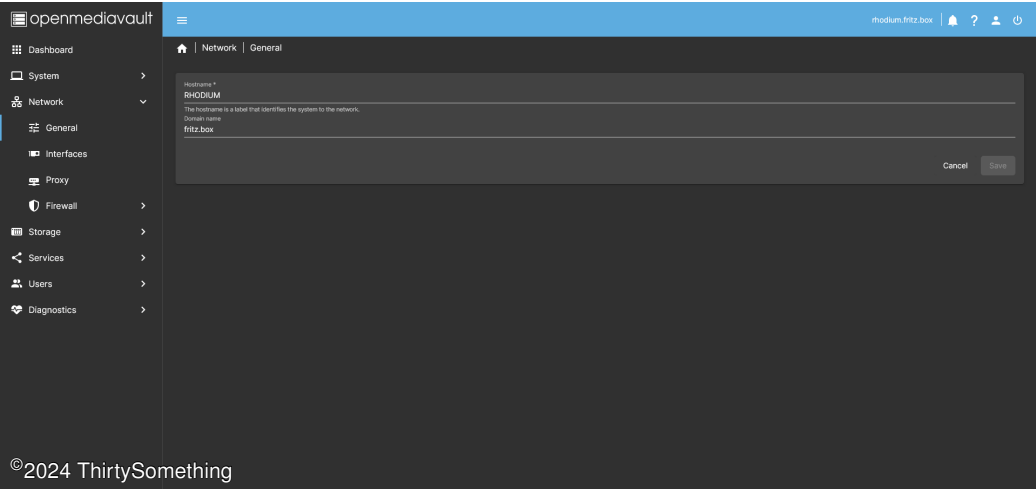


Figure 26: General network settings

## 4.2 Interfaces

Common network settings like DHCP or static IP, IPv4 or IPv6, WOL and so on...

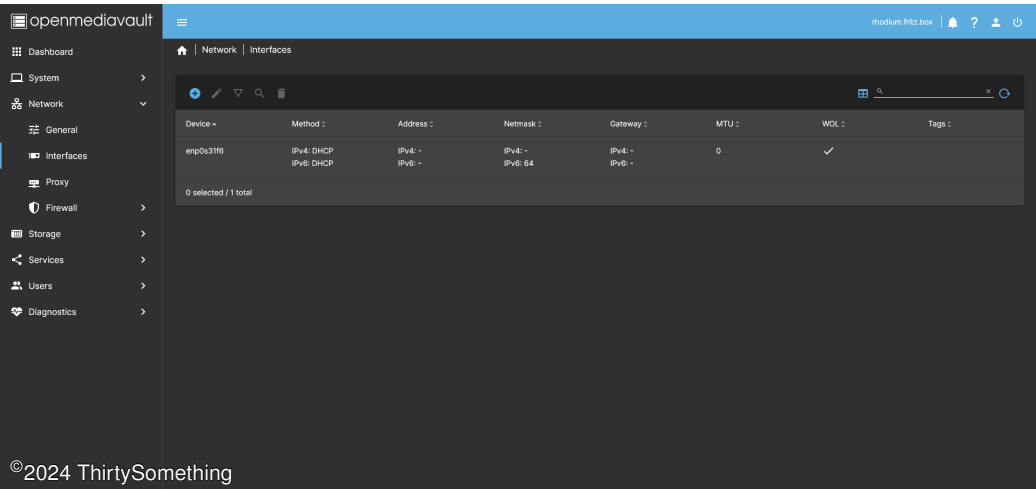


Figure 27: Network interface settings

## 4.3 Proxy

For various protocols there are some proxy settings available:

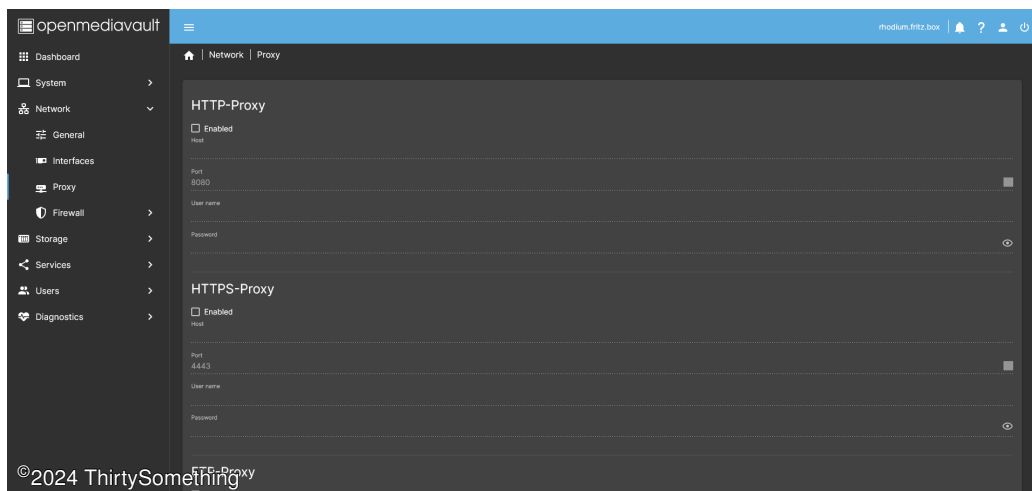


Figure 28: Proxy settings 1

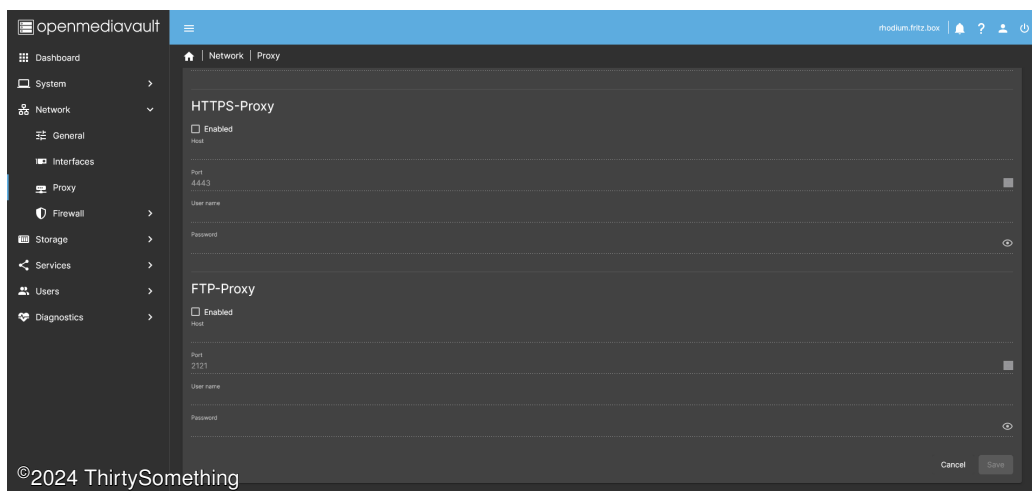


Figure 29: Proxy settings 2

## 4.4 Firewall

You can use [OMV](#) also as a firewall.

4.4.1 Firewall IPv4

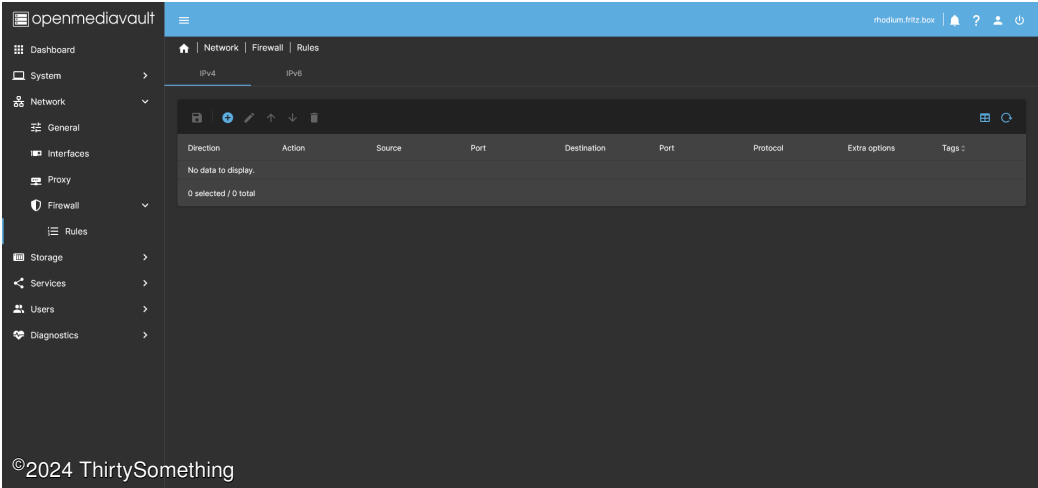


Figure 30: IPv4 Firewall settings

4.4.2 Firewall IPv6

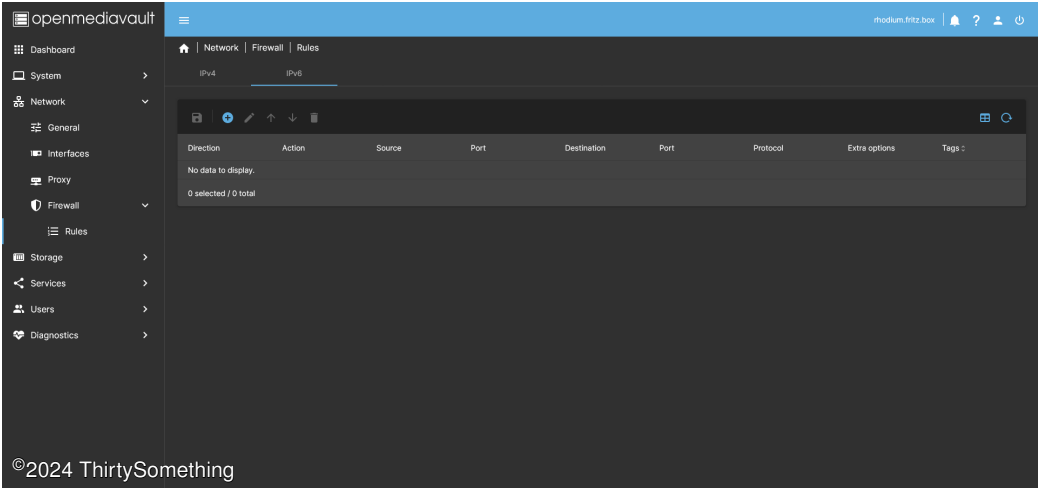


Figure 31: IPv6 Firewall settings

## 5 Storage

### 5.1 Disks

Overview about the physical disks of the system.

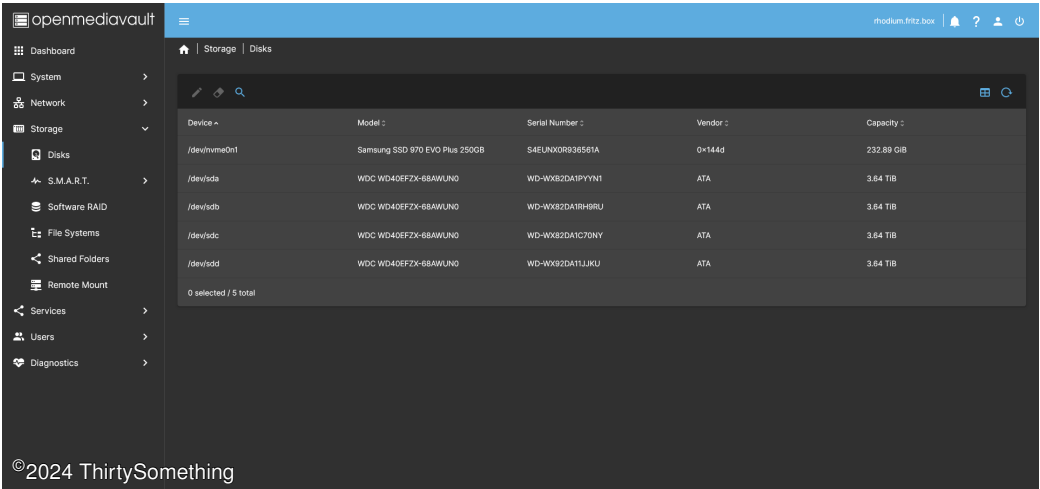


Figure 32: Physical disks

### 5.2 S.M.A.R.T.

To enable drive monitoring with [S.M.A.R.T.](#) features.



5.2.1 S.M.A.R.T. settings

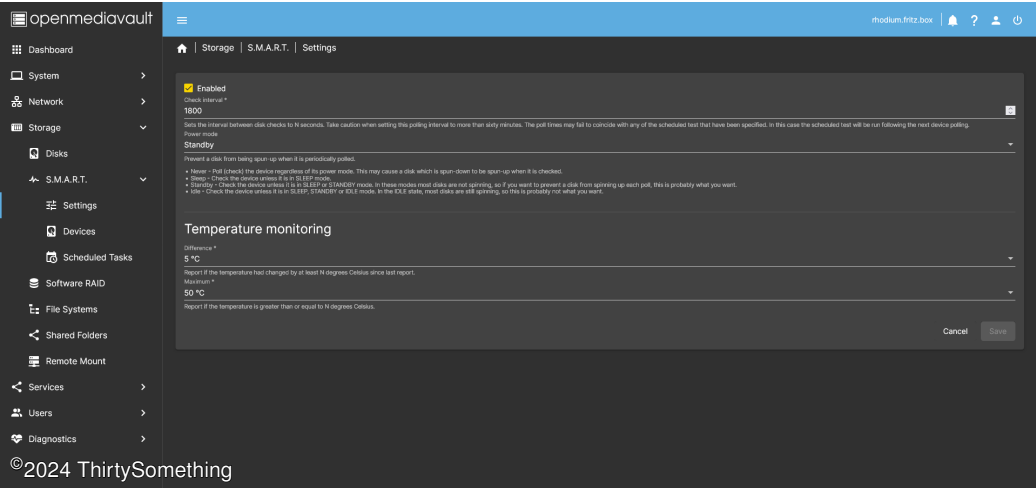


Figure 33: S.M.A.R.T. settings

5.2.2 S.M.A.R.T. devices

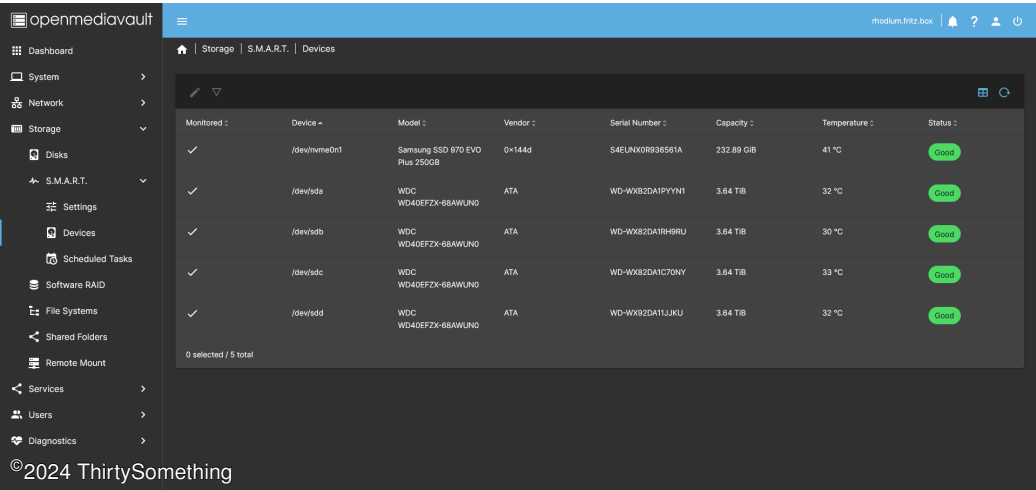


Figure 34: S.M.A.R.T. drives

5.2.3 S.M.A.R.T. tasks

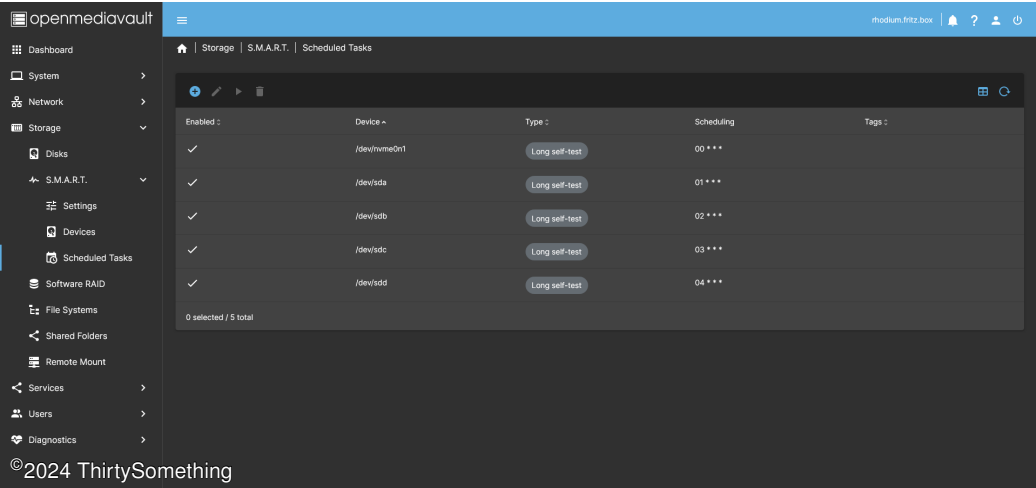


Figure 35: S.M.A.R.T. tasks

5.3 Software RAID

Configuration of a software RAID.

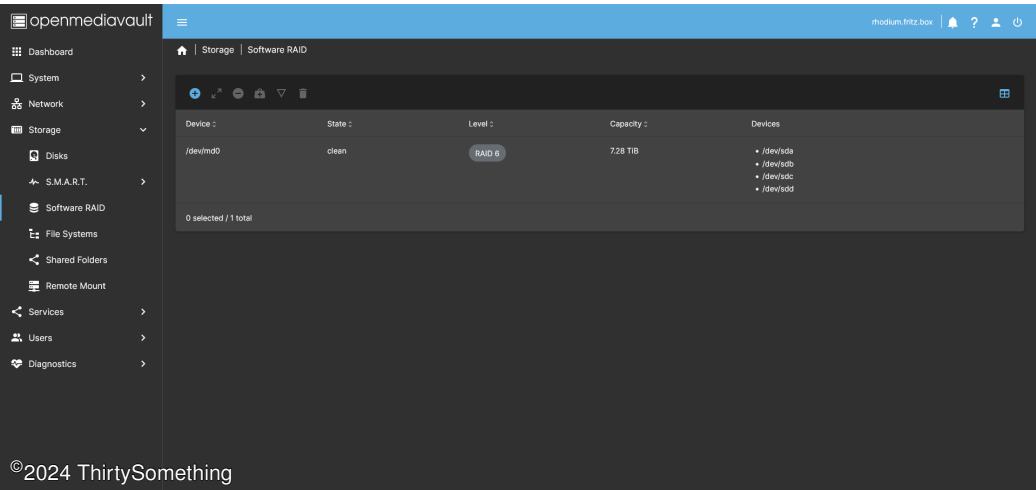


Figure 36: Software RAID

5.4 File Systems

Configuration of file systems.

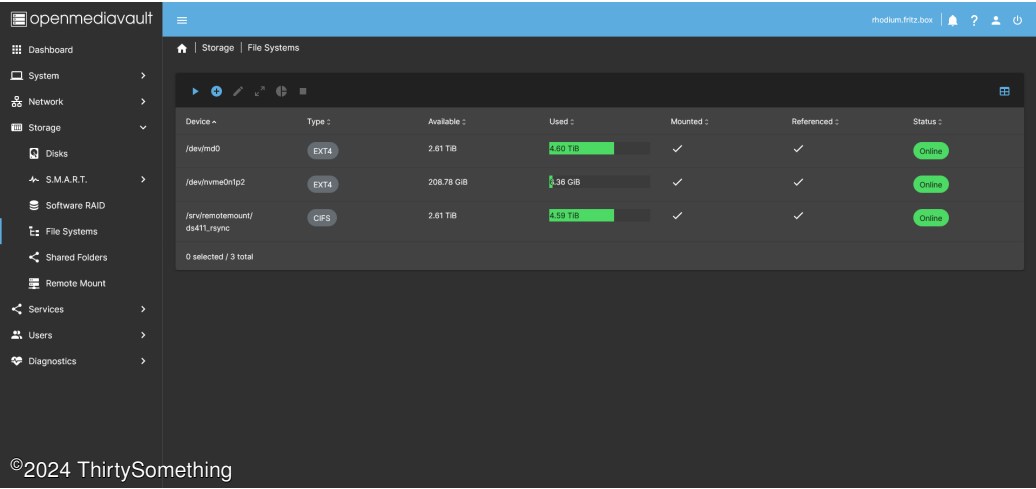


Figure 37: File Systems

5.5 Shared Folders

Configuration of shared folders.

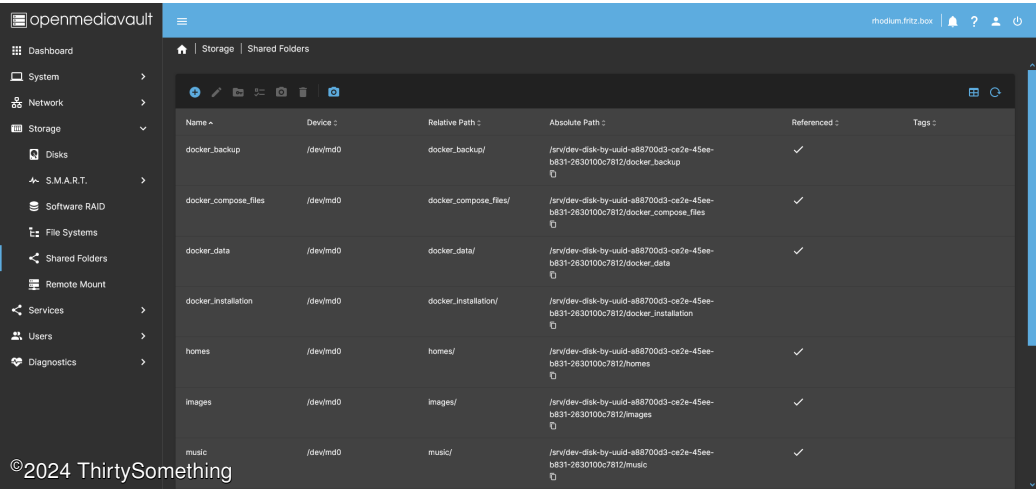


Figure 38: Shared folders 1

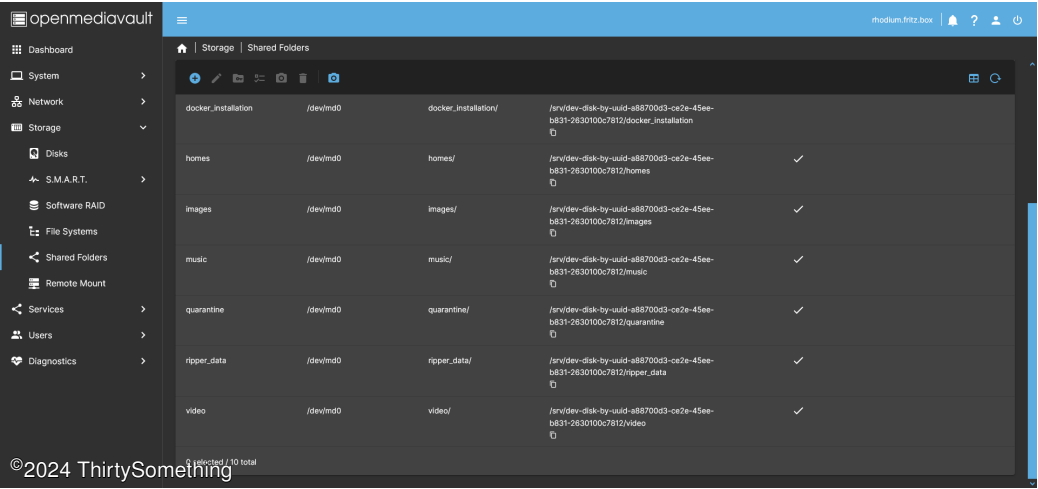


Figure 39: Shared folders 2

5.6 Remote Mount

If the plugin [Remote mount](#) is not installed, this feature is not available.

5.6.1 List of remote mounts

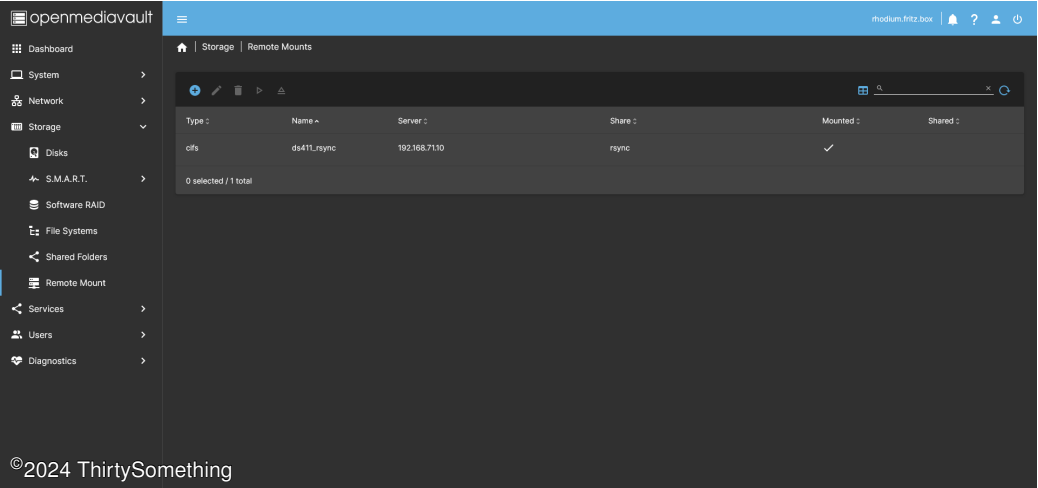


Figure 40: List of remote mounts

5.6.2 Remote mount to old NAS

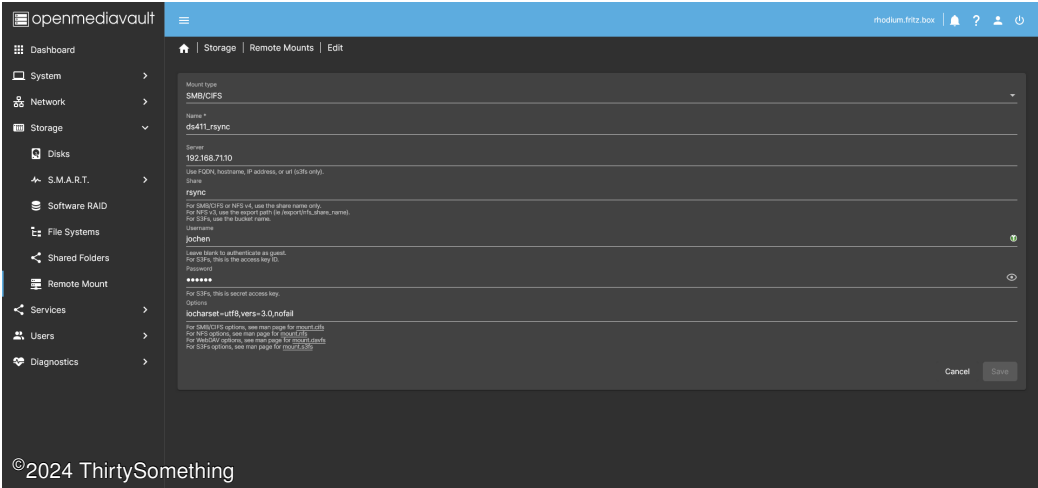


Figure 41: Remote mount to old NAS

## 6 Services

### 6.1 Antivirus

The antivirus software requires the plugin [ClamAV](#). Without this plugin this feature is not available.

#### 6.1.1 Antivirus setup

In the setup we use the previously defined quarantine folder.

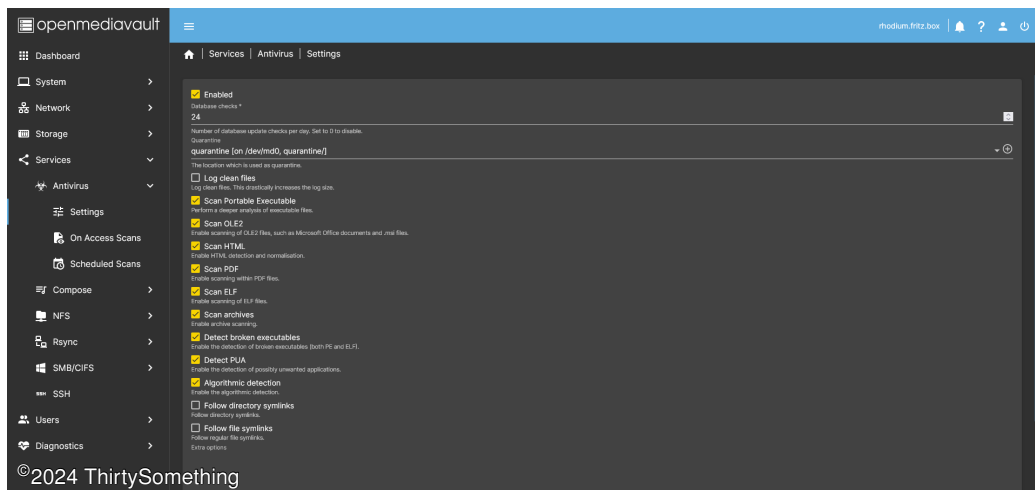


Figure 42: The antivirus settings

#### 6.1.2 Antivirus on access scans

I enabled a scan on access for specific folders.

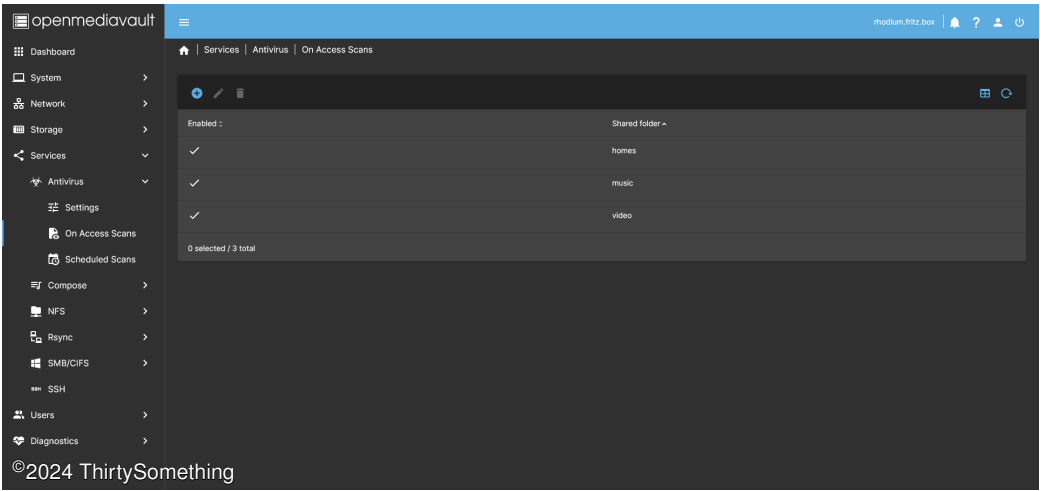


Figure 43: The antivirus on access scan

6.1.3 Antivirus scheduled scans

Also I’ve enabled a scheduled scan for these folders, too.

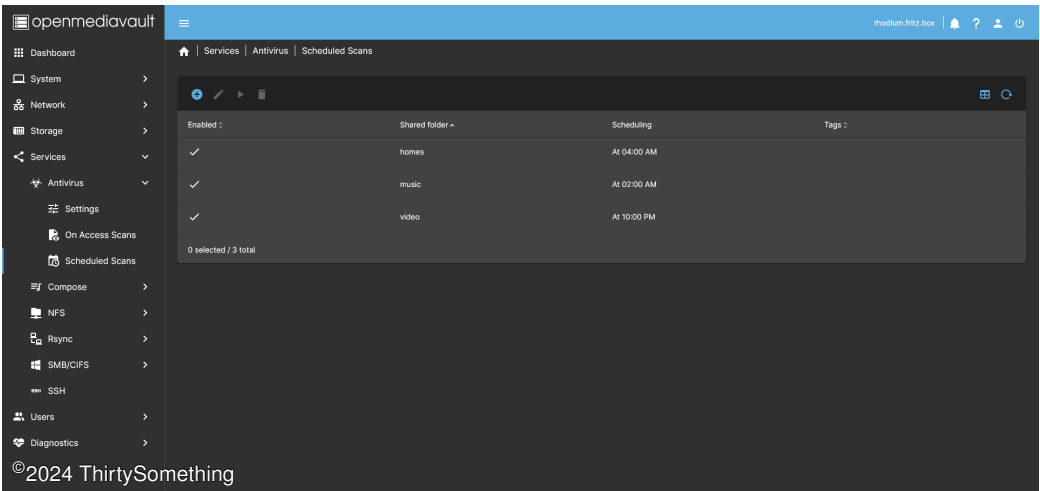


Figure 44: The antivirus scheduled scan

6.2 Compose

To use the compose feature, the plugin [Docker compose](#) is required. Without this plugin this feature is not available. At least this is some kind of frontend to [Docker](#).

6.2.1 Settings

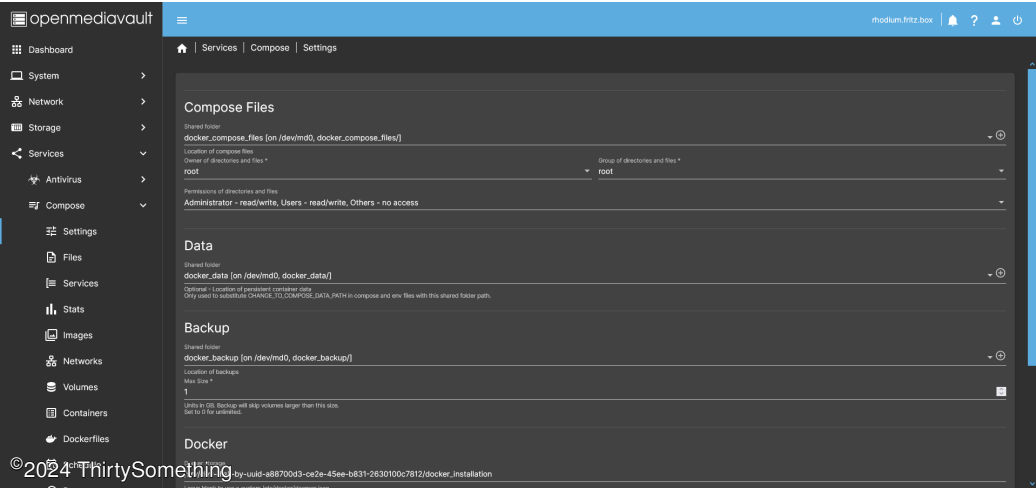


Figure 45: Compose settings 1

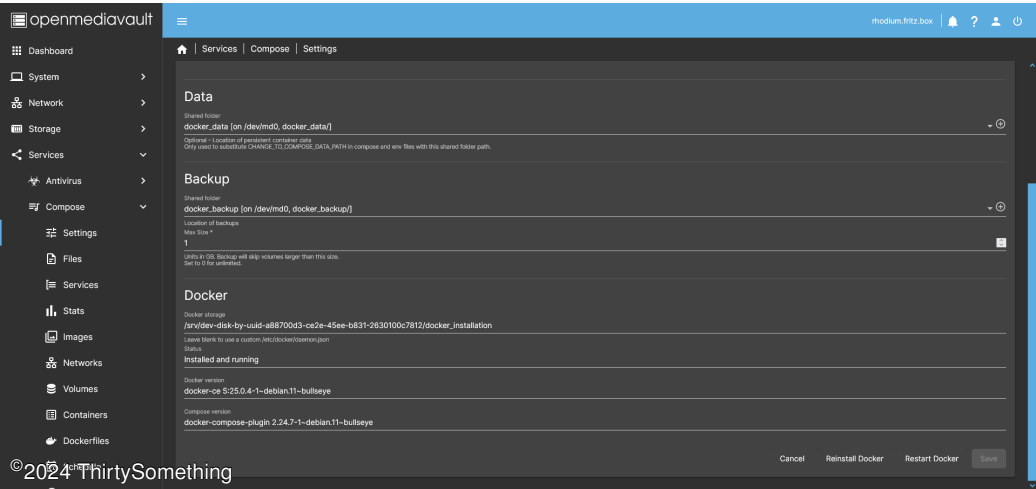


Figure 46: Compose settings 2



6.2.2 Files

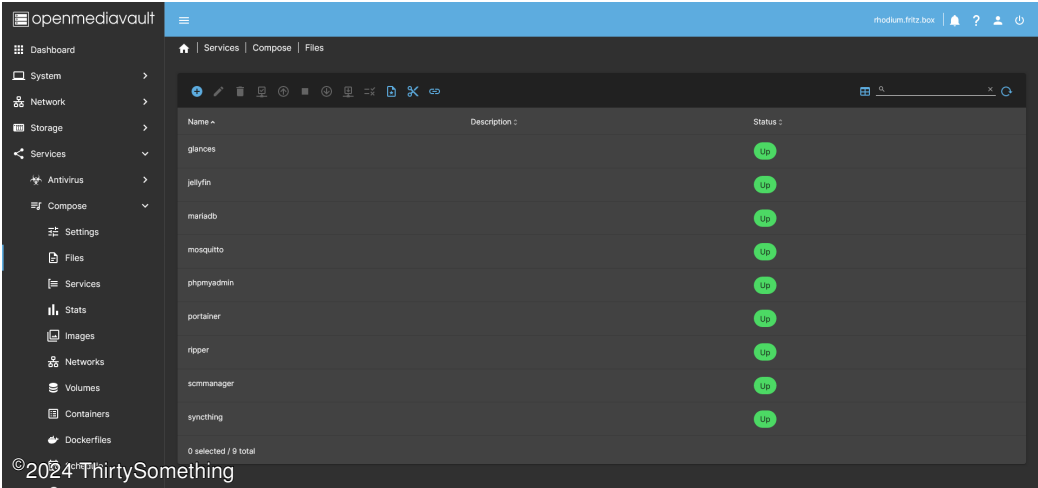


Figure 47: Compose files

6.2.3 Services

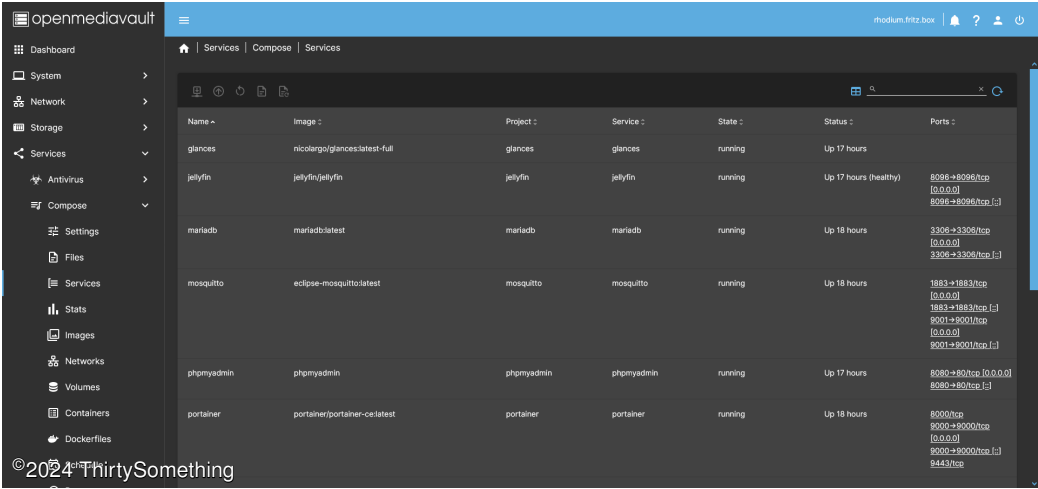


Figure 48: Compose services 1

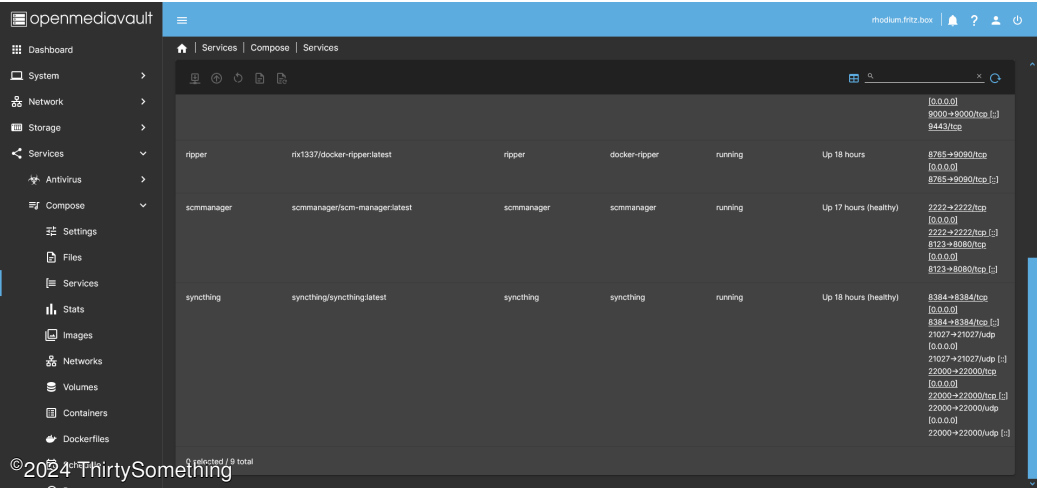


Figure 49: Compose services 2

6.2.4 Stats

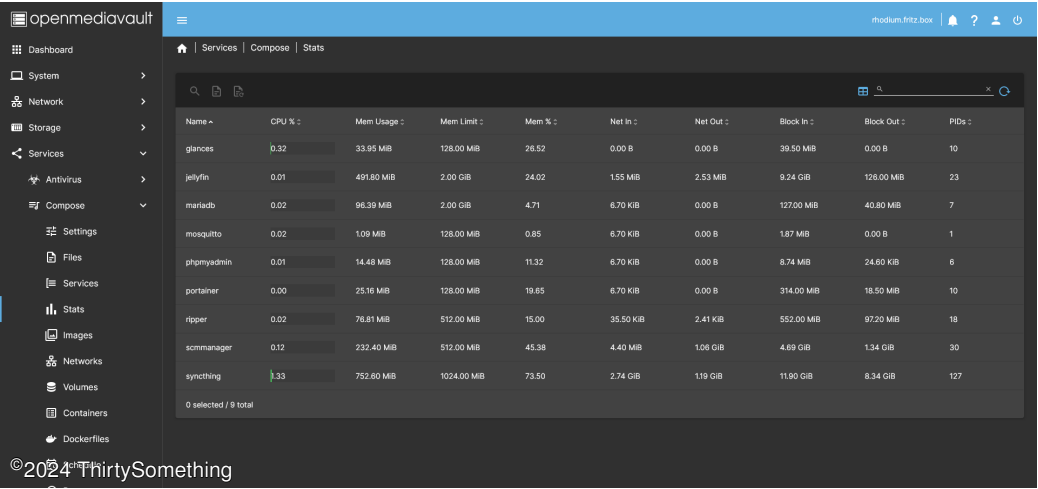


Figure 50: Docker stats

6.2.5 Images

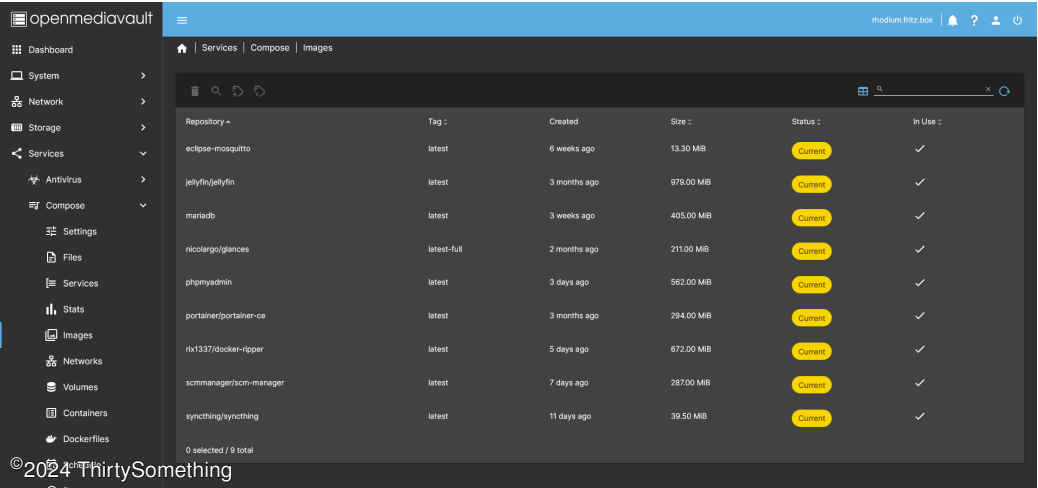


Figure 51: Docker images

6.2.6 Networks

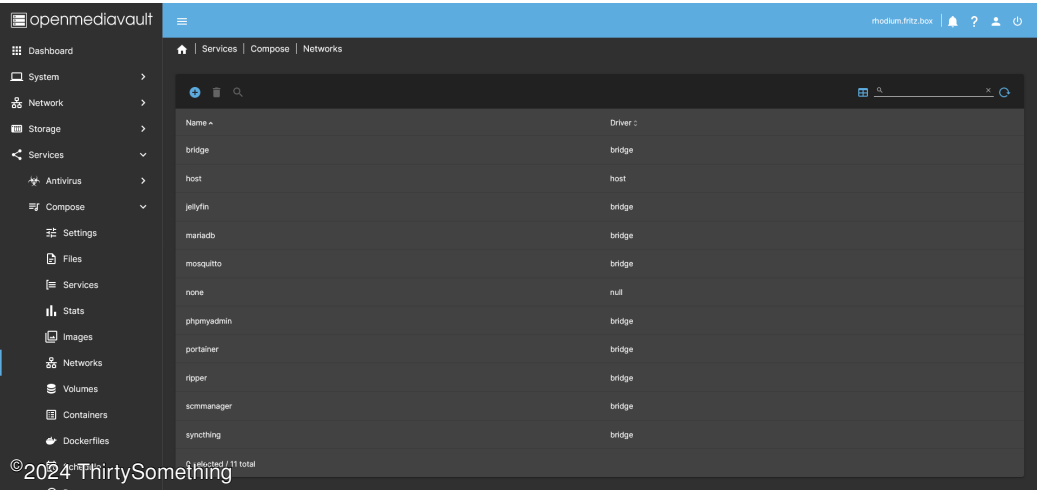


Figure 52: Docker networks

6.2.7 Volumes

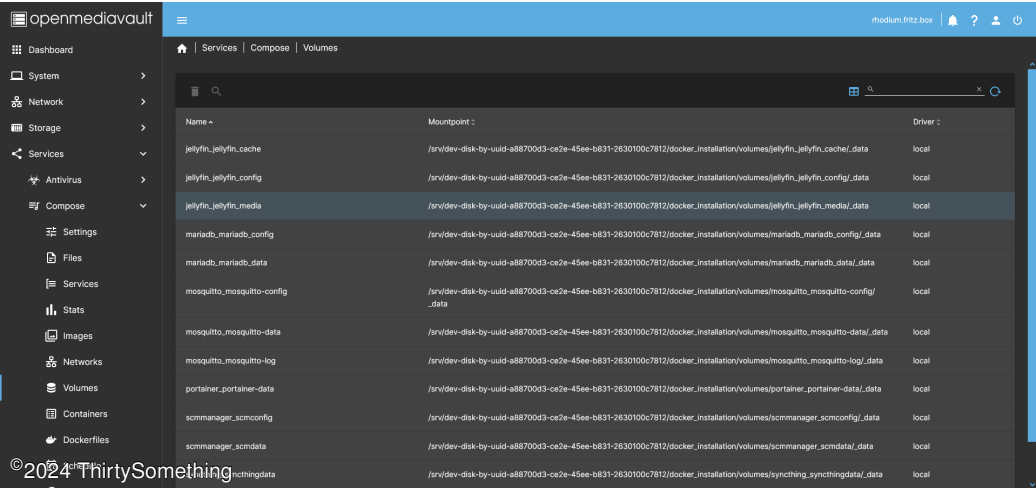


Figure 53: Docker volumes

6.2.8 Containers

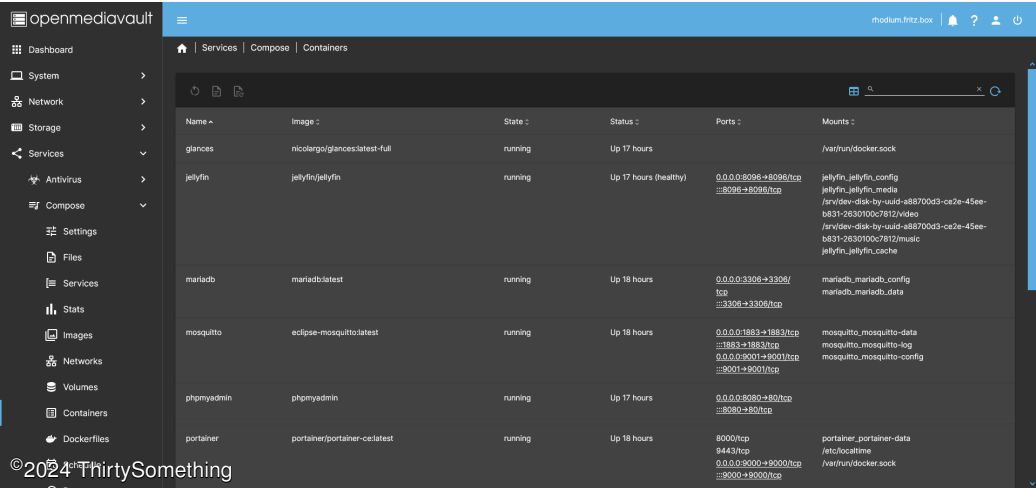


Figure 54: Docker containers 1

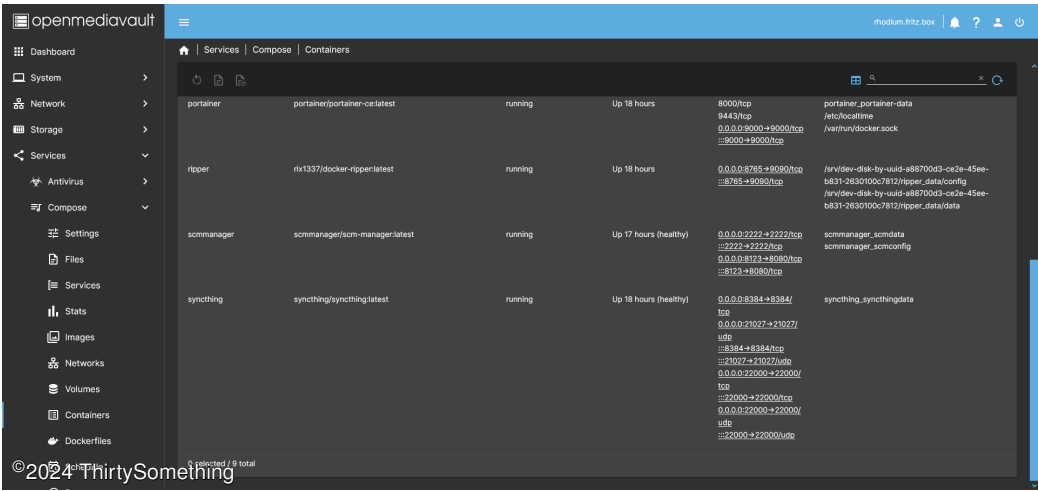


Figure 55: Docker containers 2

6.2.9 Dockerfiles

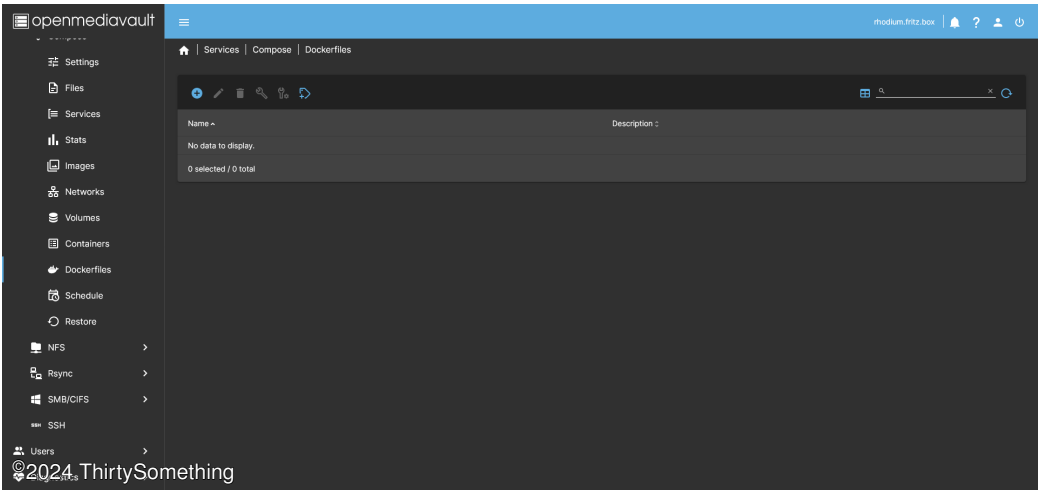


Figure 56: Dockerfiles

6.2.10 Schedule

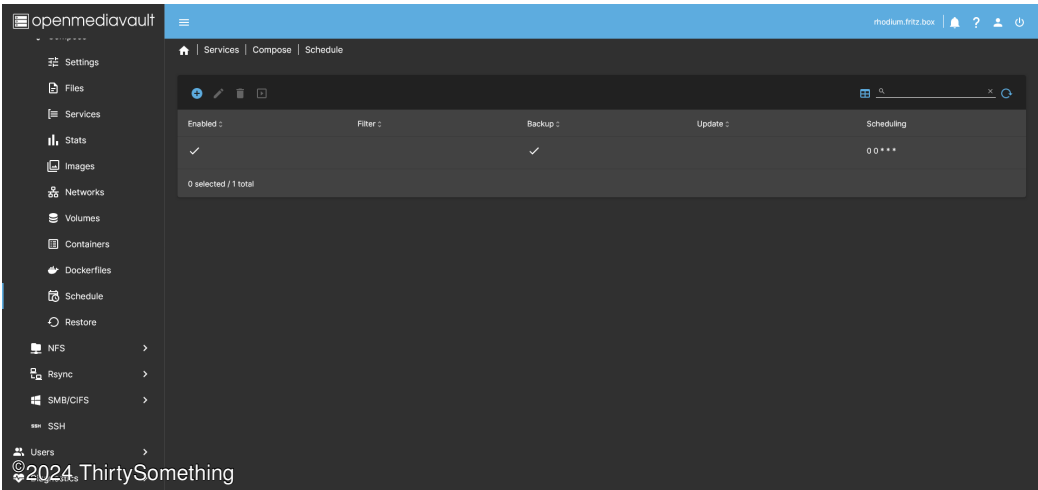


Figure 57: Schedule

6.2.11 Restore

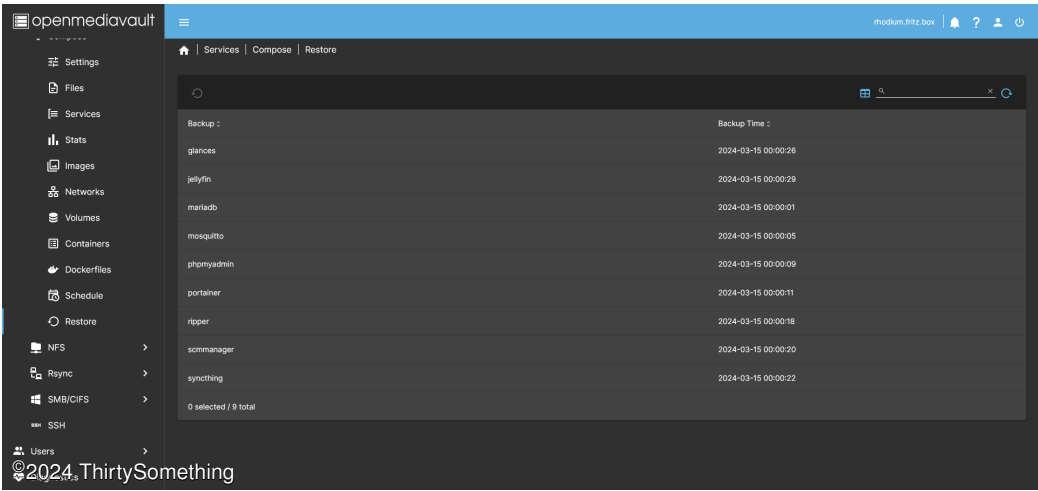


Figure 58: Restore

6.3 NFS

NFS is, compared to SMB/CIFS, much faster. Unfortunately I haven't understood up to know how to deal with permissions to gain access to the shares. So I don't use it.

### 6.3.1 NFS settings

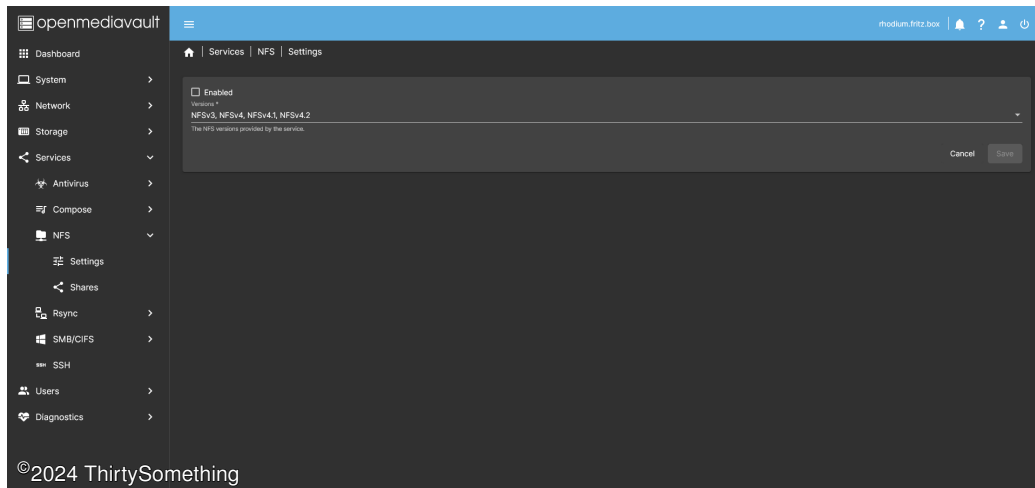


Figure 59: NFS settings

### 6.3.2 NFS shares

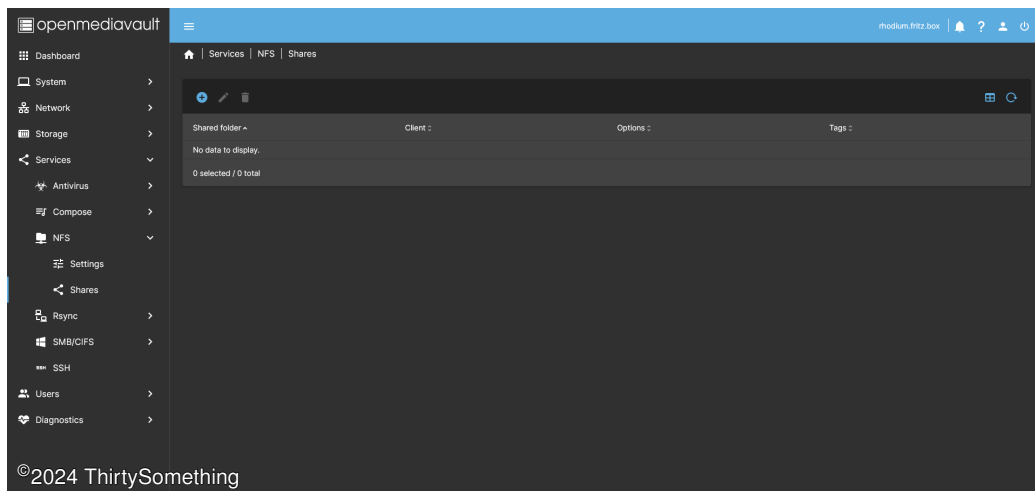


Figure 60: NFS shares

## 6.4 rsync

On Linux it's usual to use [rsync](#) to synchronize data between different locations. [OMV](#) offers a [rsync](#) service – it's not a plugin in the usual meaning. There are many different scenarios possible – I'll describe two of them.

The first one is the sync in the direction of the [Node304](#) to the [Synology DS411Slim](#), also known as rsync push:

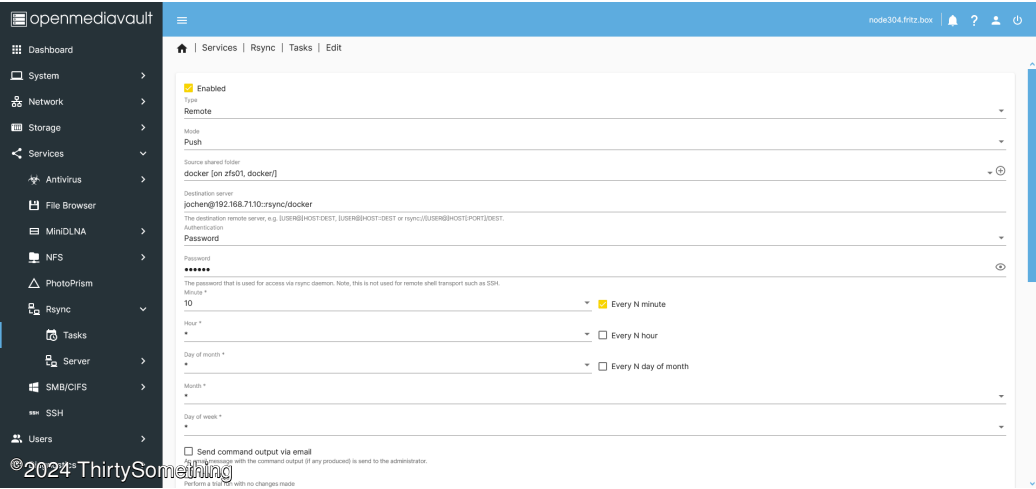


Figure 61: rsync push 1

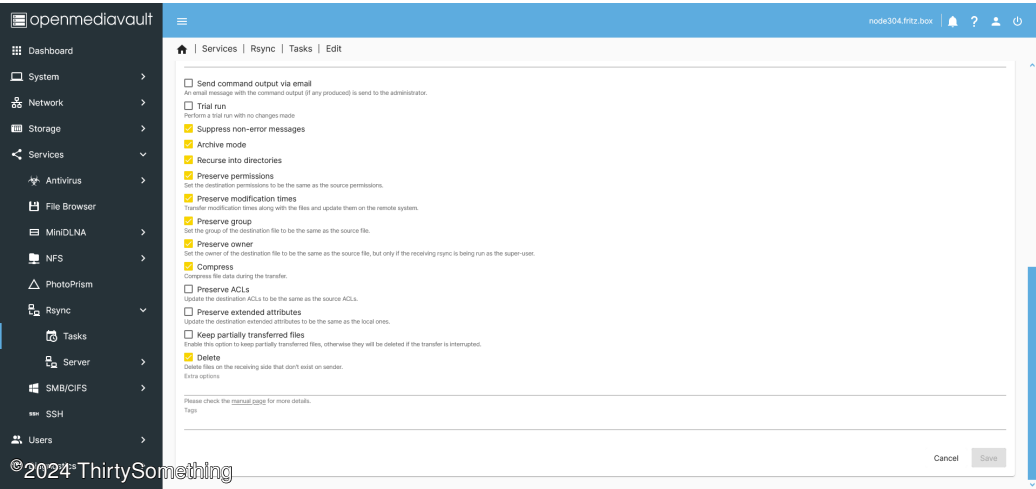


Figure 62: rsync push 2

The second one is the sync in the direction of the [Synology DS411Slim](#) to the [Node304](#), also known as rsync pull:



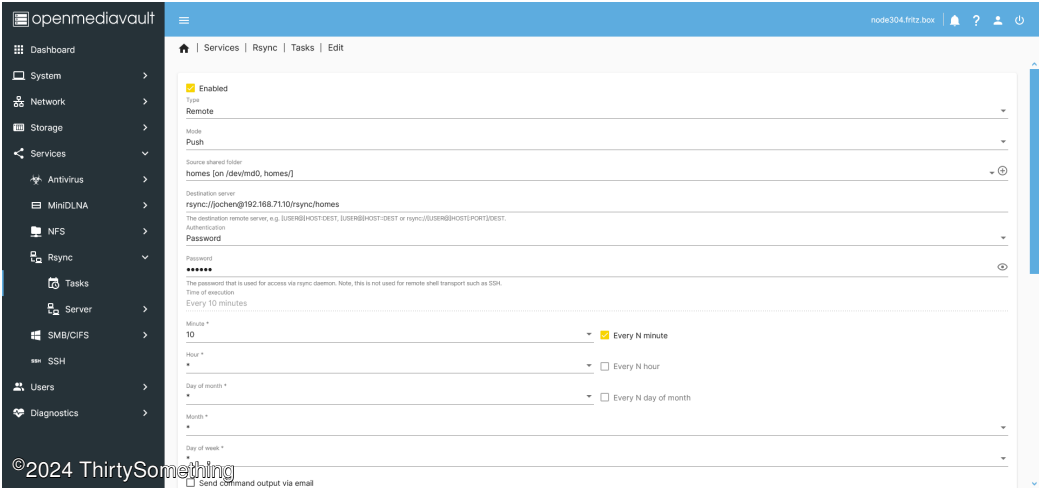


Figure 63: rsync pull 1

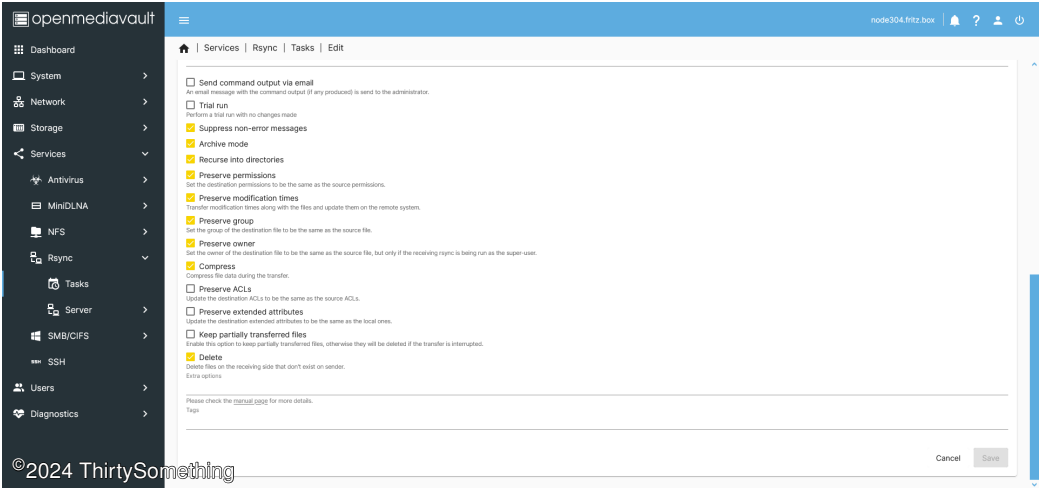


Figure 64: rsync pull 2

I've used both methods to backup/restore my data using the [Synology DS411Slim](#) while setting up the [Node304](#).

6.4.1 rsync task overview

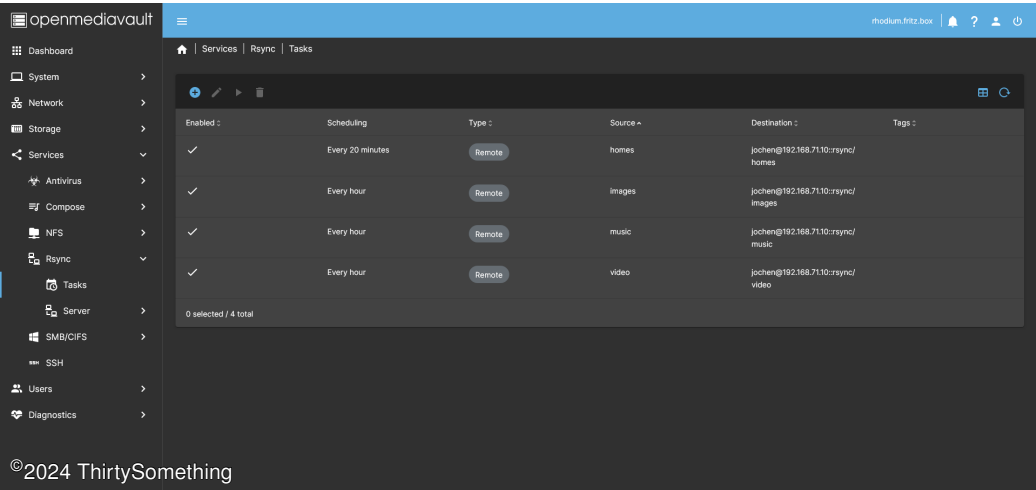


Figure 65: rsync task overview

6.4.2 rsync homes

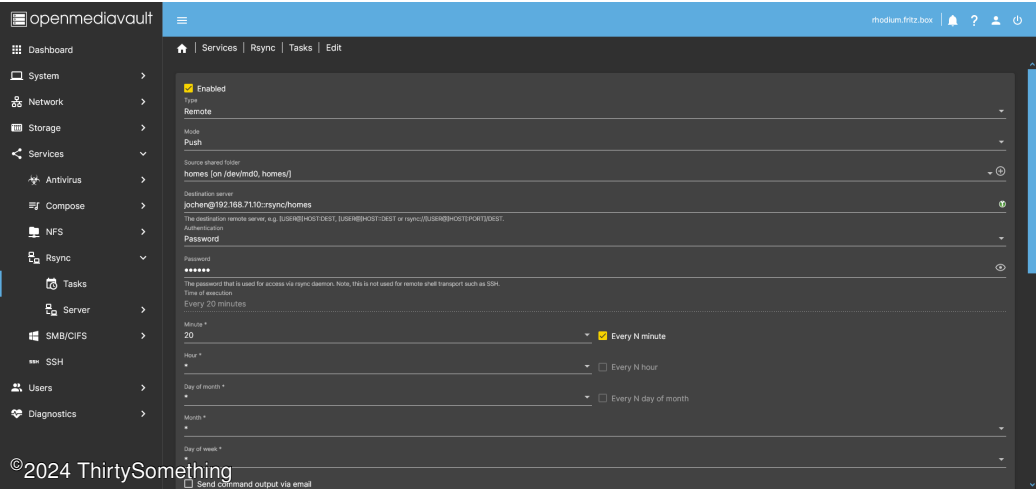


Figure 66: rsync homes 1

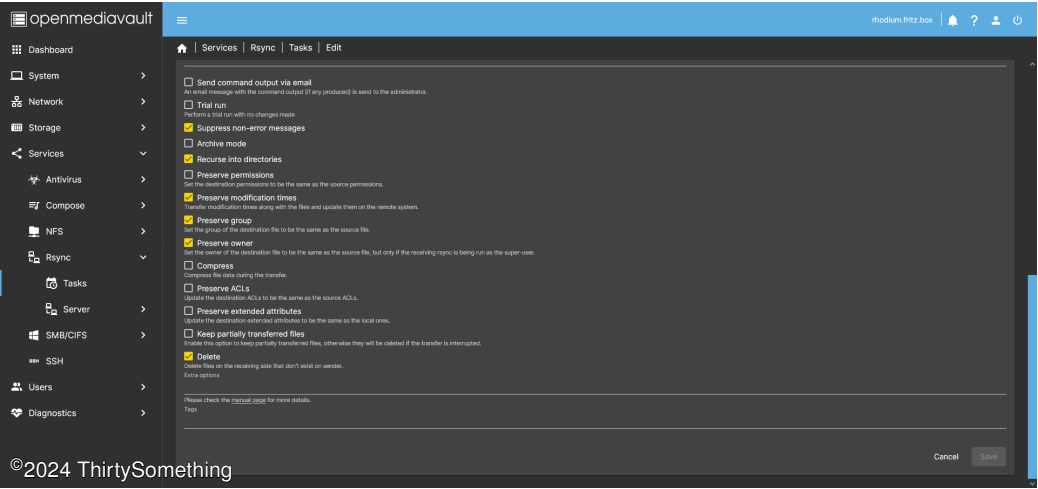


Figure 67: rsync homes 2

6.4.3 rsync images

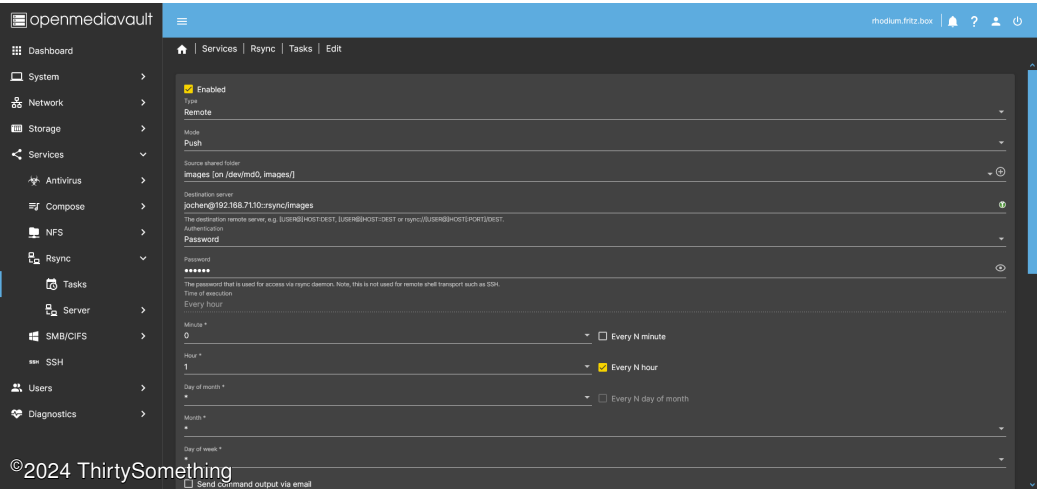


Figure 68: rsync images 1

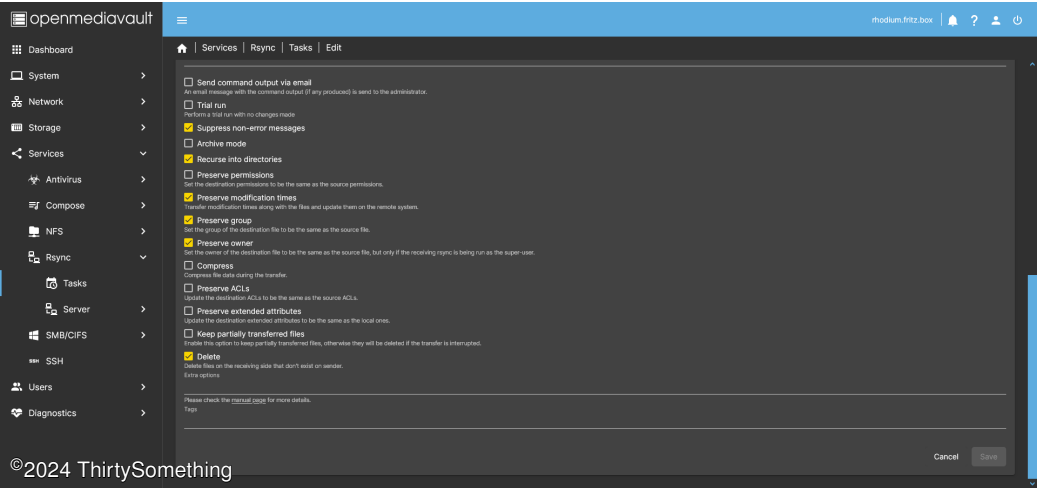


Figure 69: rsync images 2

6.4.4 rsync music

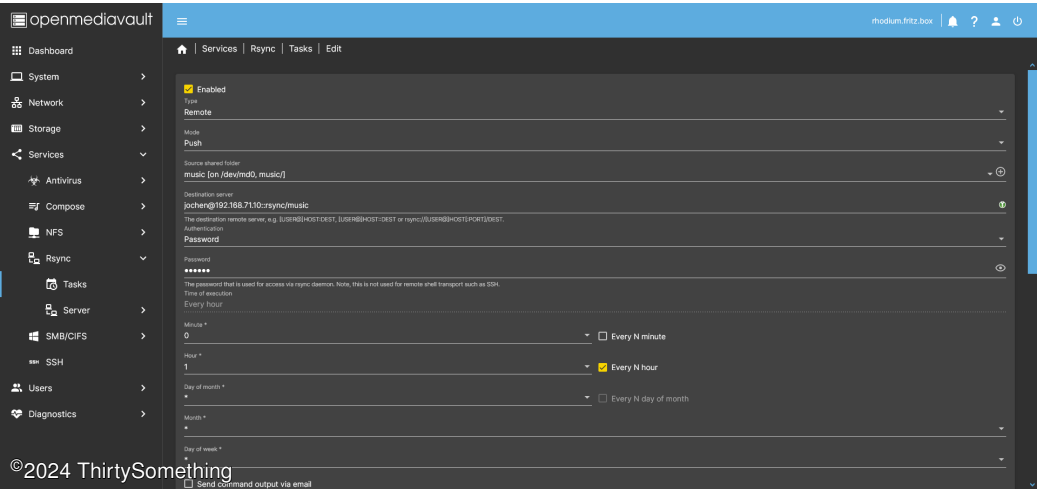


Figure 70: rsync music 1

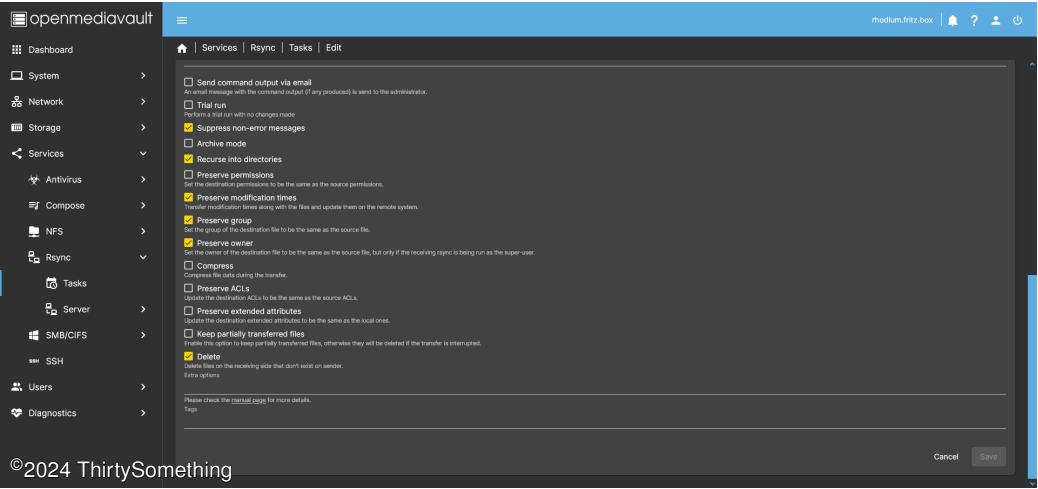


Figure 71: rsync music 2

6.4.5 rsync video

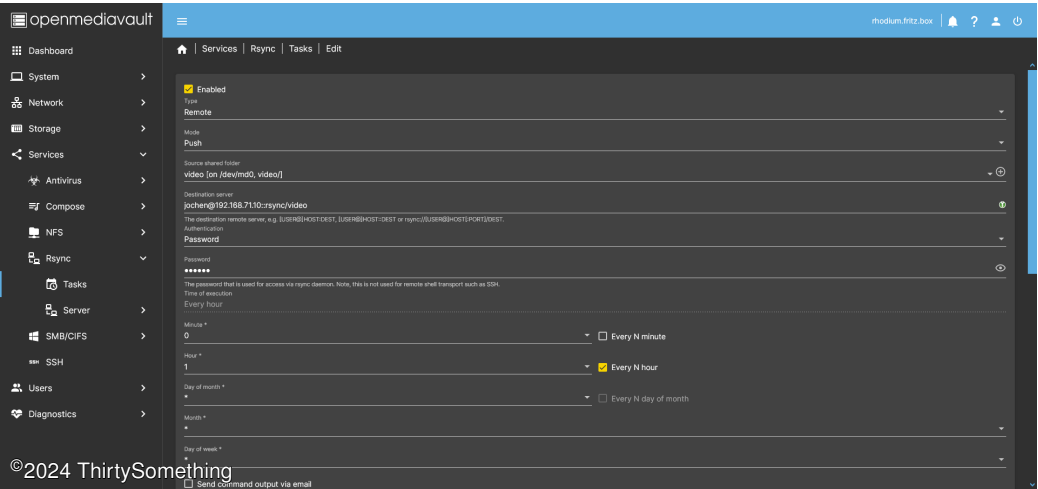


Figure 72: rsync video 1

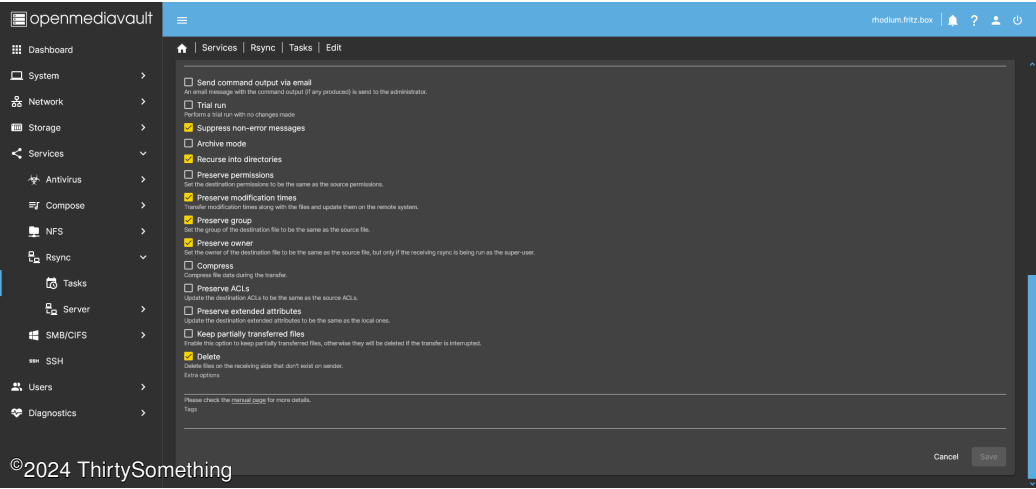


Figure 73: rsync video 2

6.4.6 rsync server settings

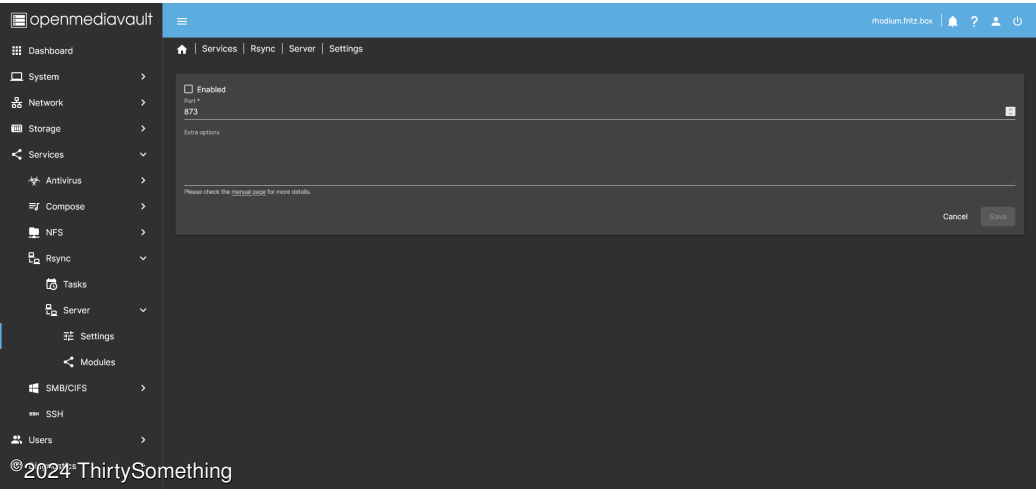


Figure 74: rsync server settings

6.4.7 rsync server modules

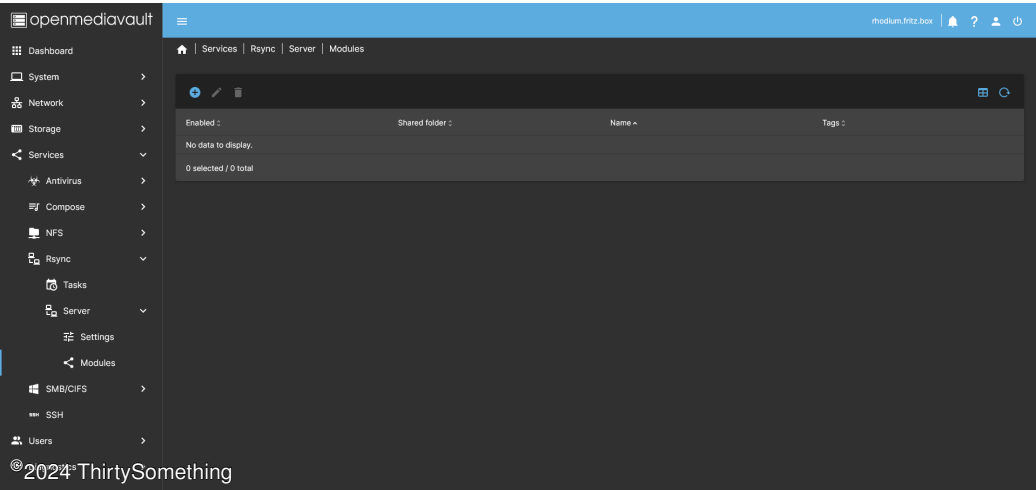


Figure 75: rsync server modules

6.5 SMB/CIFS

SMB/CIFS is a network communication protocol. This is the common protocol used in the Windows world.

6.6 SMB/CIFS settings

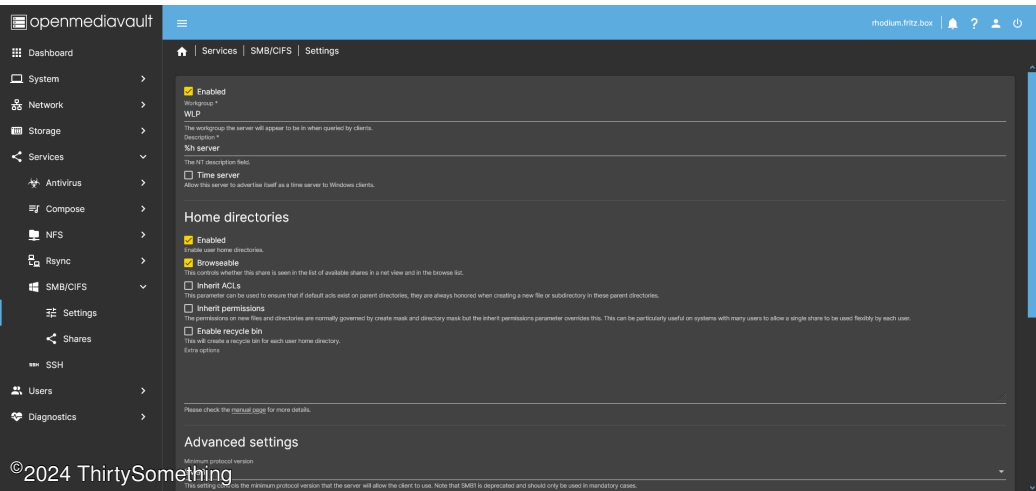


Figure 76: SMB/CIFS settings

6.7 SMB/CIFS shares

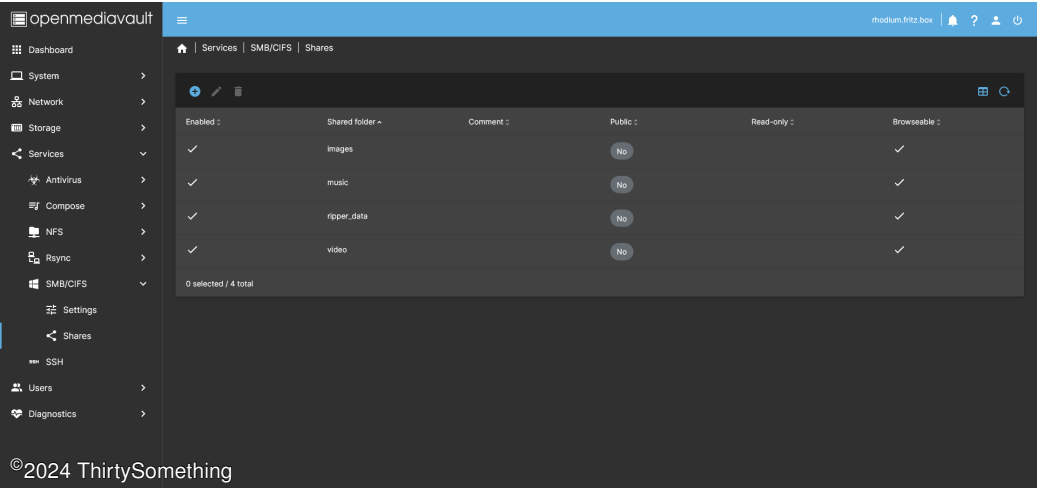


Figure 77: SMB/CIFS shares

6.8 Share images

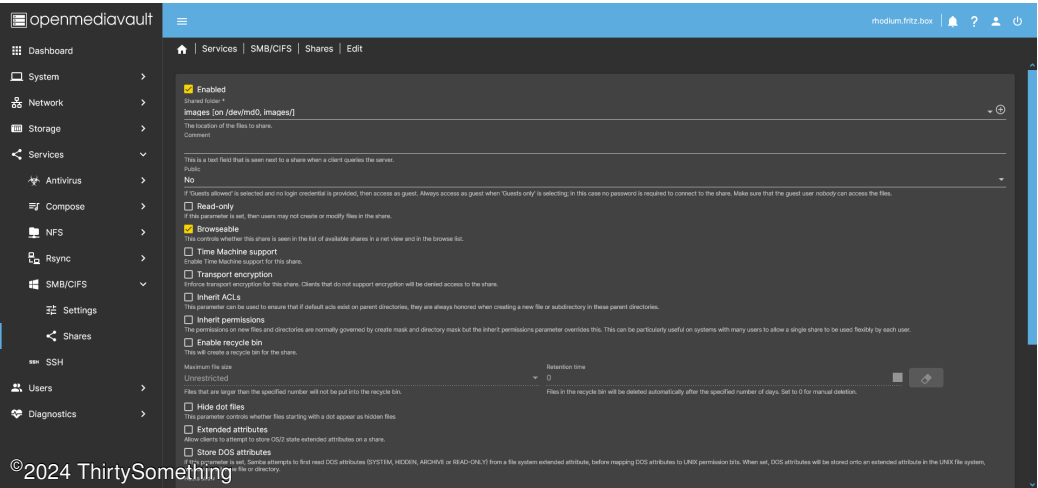


Figure 78: Share images 1



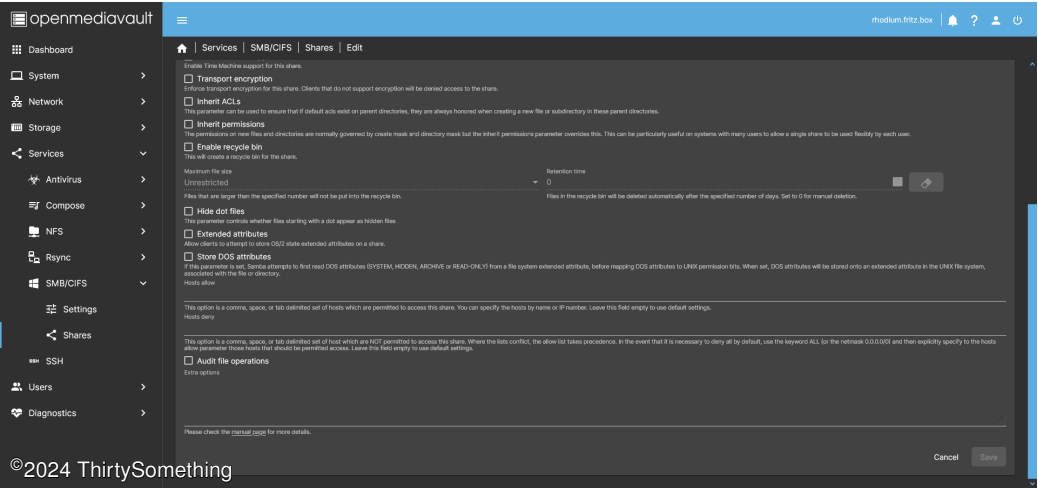


Figure 79: Share images 2

## 6.9 Share music

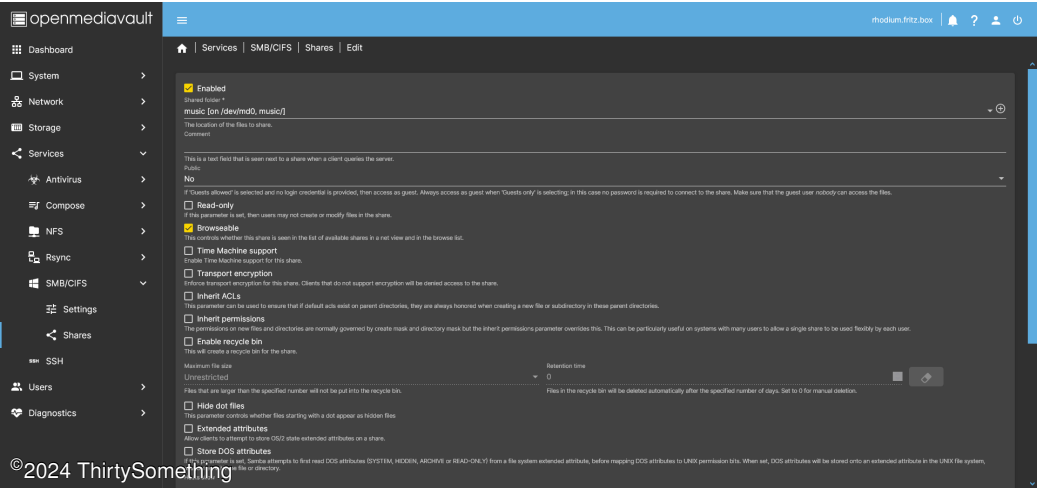


Figure 80: Share music 1

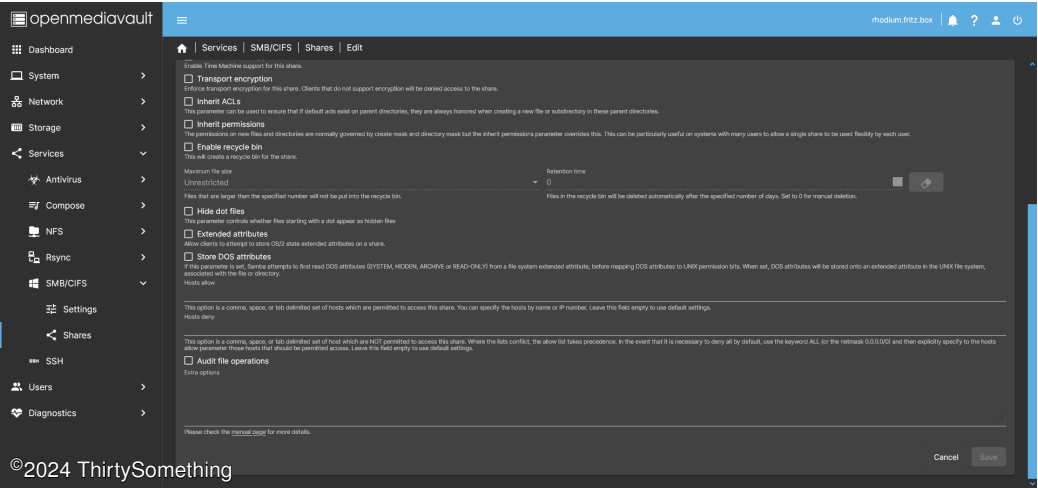


Figure 81: Share music 2

## 6.10 Share ripper\_data

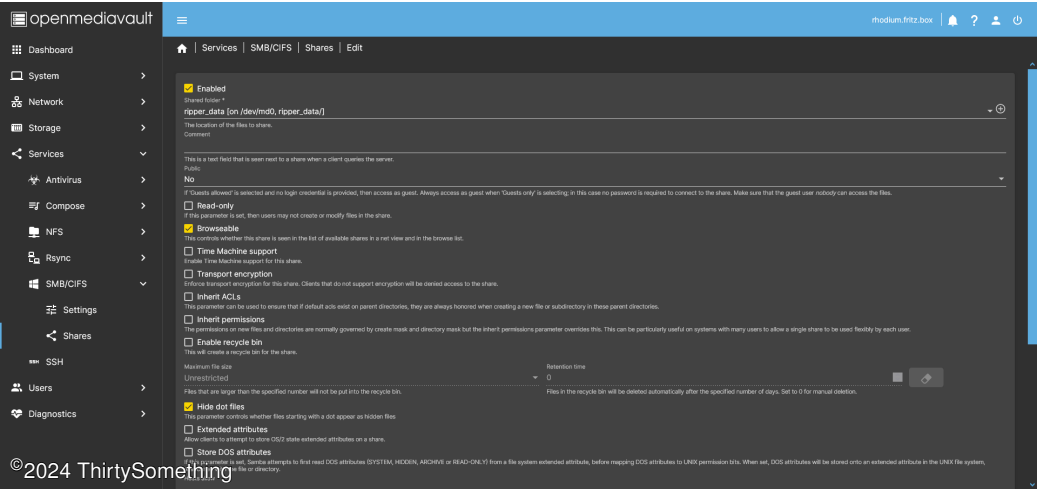


Figure 82: Share ripper\_data 1

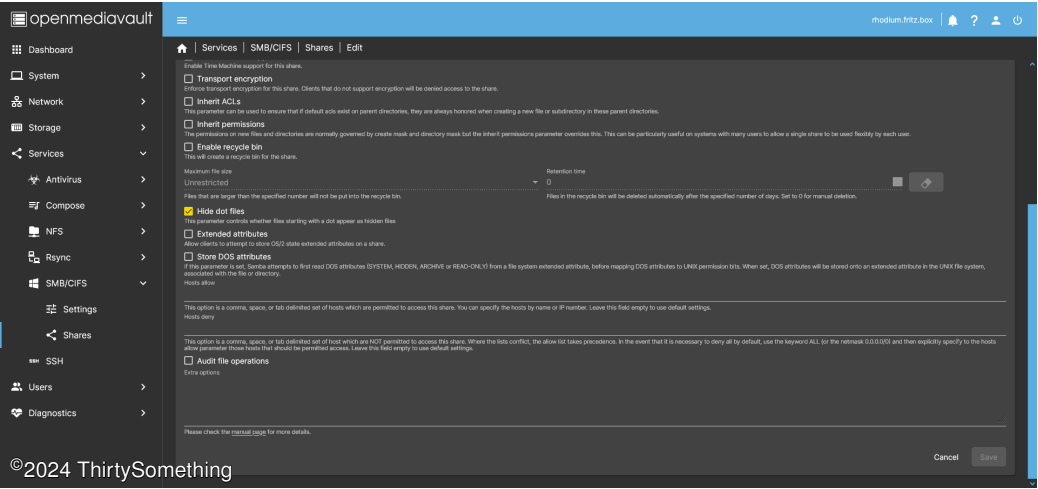


Figure 83: Share ripper\_data 2

6.11 Share video

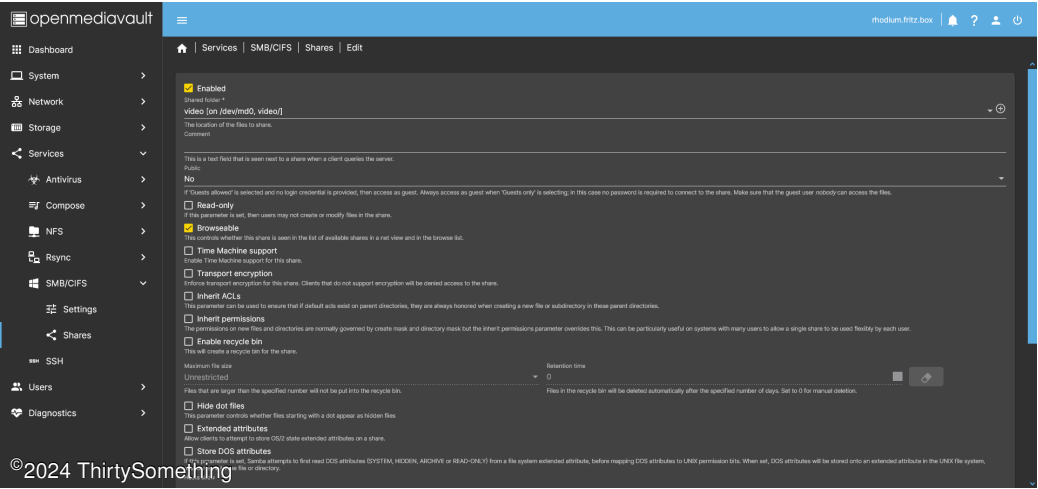


Figure 84: Share video 1

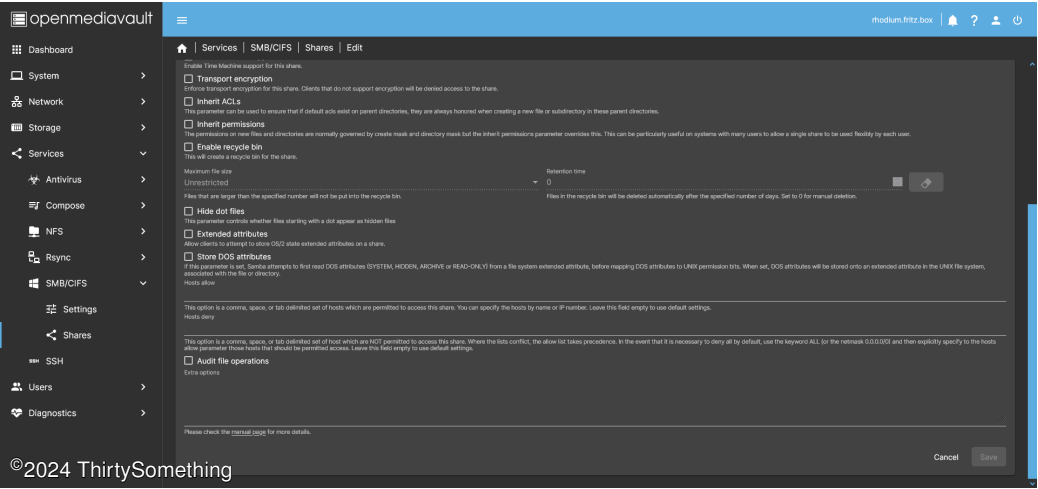


Figure 85: Share video 2

6.12 SSH

This are the possible SSH settings.

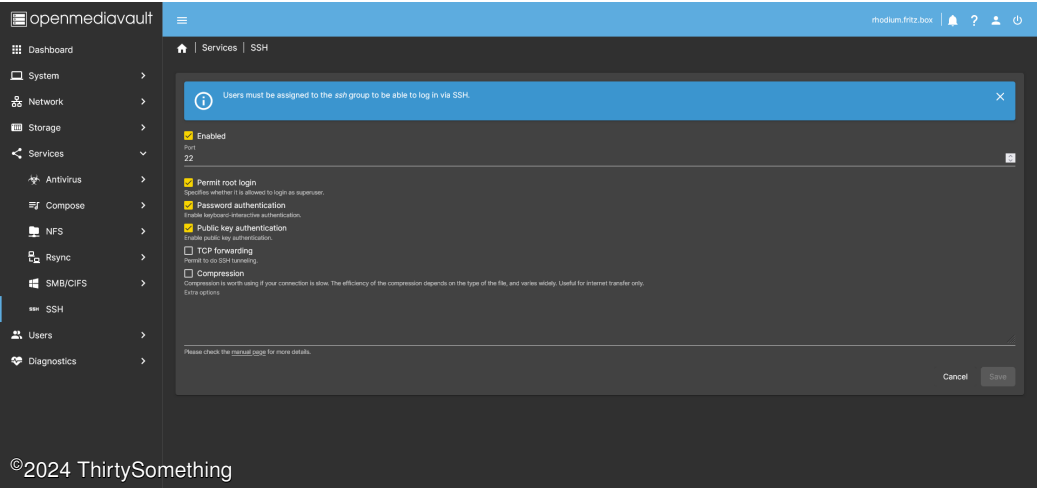


Figure 86: ssh configuration

# 7 Users

## 7.1 Settings

If you want the users to have a home share, enable this here and select the previously defined share.

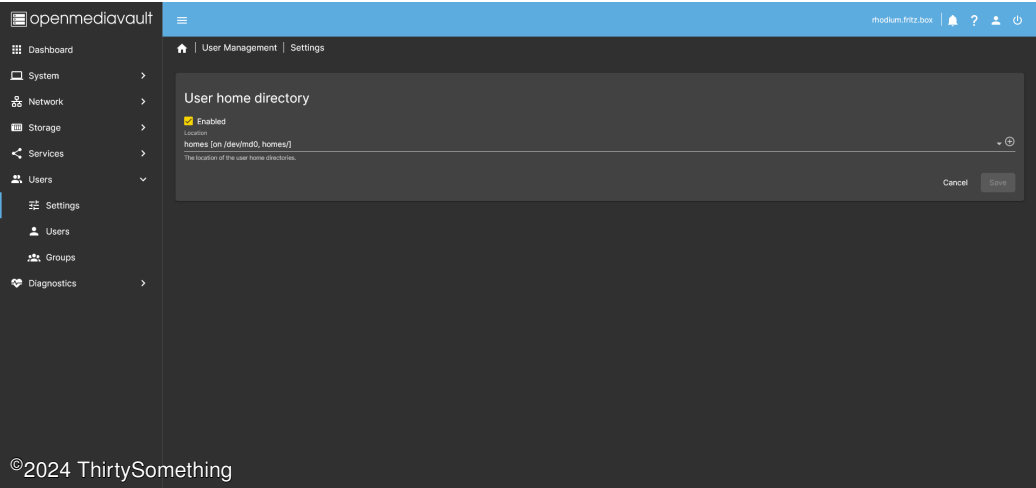


Figure 87: Users settings

## 7.2 Users

This is an overview about the created users.

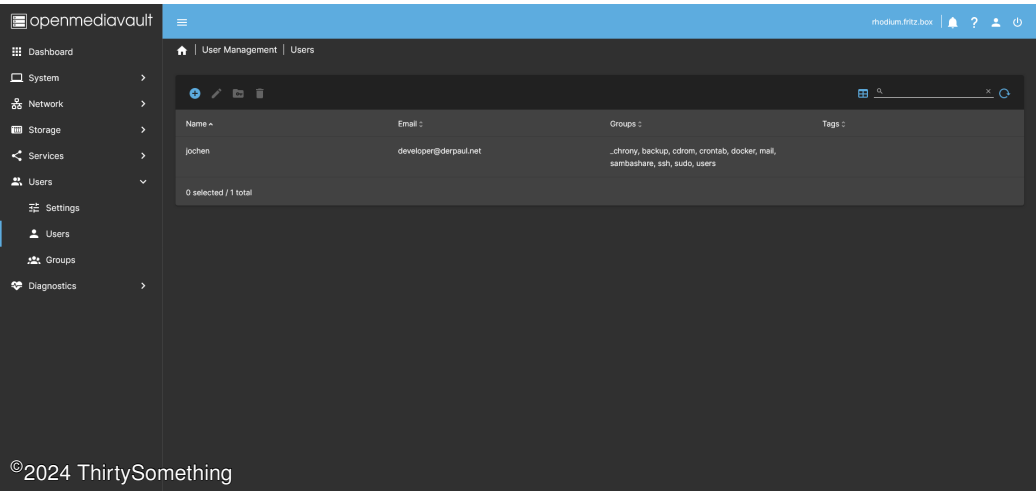
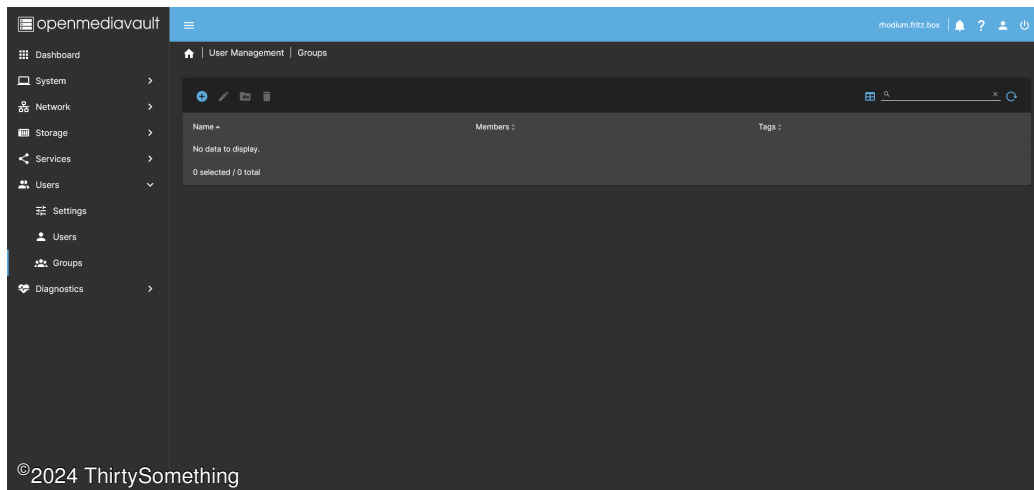


Figure 88: Users overview

## 7.3 Groups

This is an overview about the created user groups – for me as single user this is not of interest.



**Figure 89:** User groups

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## Glossary

**ClamAV** [ClamAV](#), an open source antivirus software [15](#)

**Docker** [Container based virtualization](#) [16](#), [17](#), [30](#)

**NAS** [Network Attached Storage](#) [5](#), [17](#), [V](#)

**Node304** The new [NAS](#) system [18](#), [39](#), [40](#)

**OMV** [Open Media Vault](#), a [NAS](#) operating system [4](#), [6](#), [15](#), [16](#), [21](#), [38](#), [V](#)

**OMV extras** [Open Media Vault Extras](#), value added plugins to [OMV](#) [17](#)

**RAID** [RAID](#), redundant array of independent disks [25](#)

**rsync** [rsync](#), fast incremental file transfer [38](#)

**Synology DS411Slim** The old [NAS](#) system [18](#), [39](#), [40](#)

**WOL** [Wake On LAN](#), starts computer by specific network signal [20](#)