

Navidrome Musik-Streaming auf Ubuntu Server



Navidrome Server Software

<https://www.navidrome.org/>

<https://www.navidrome.org/docs/installation/linux/>

<https://github.com/navidrome/navidrome/releases>

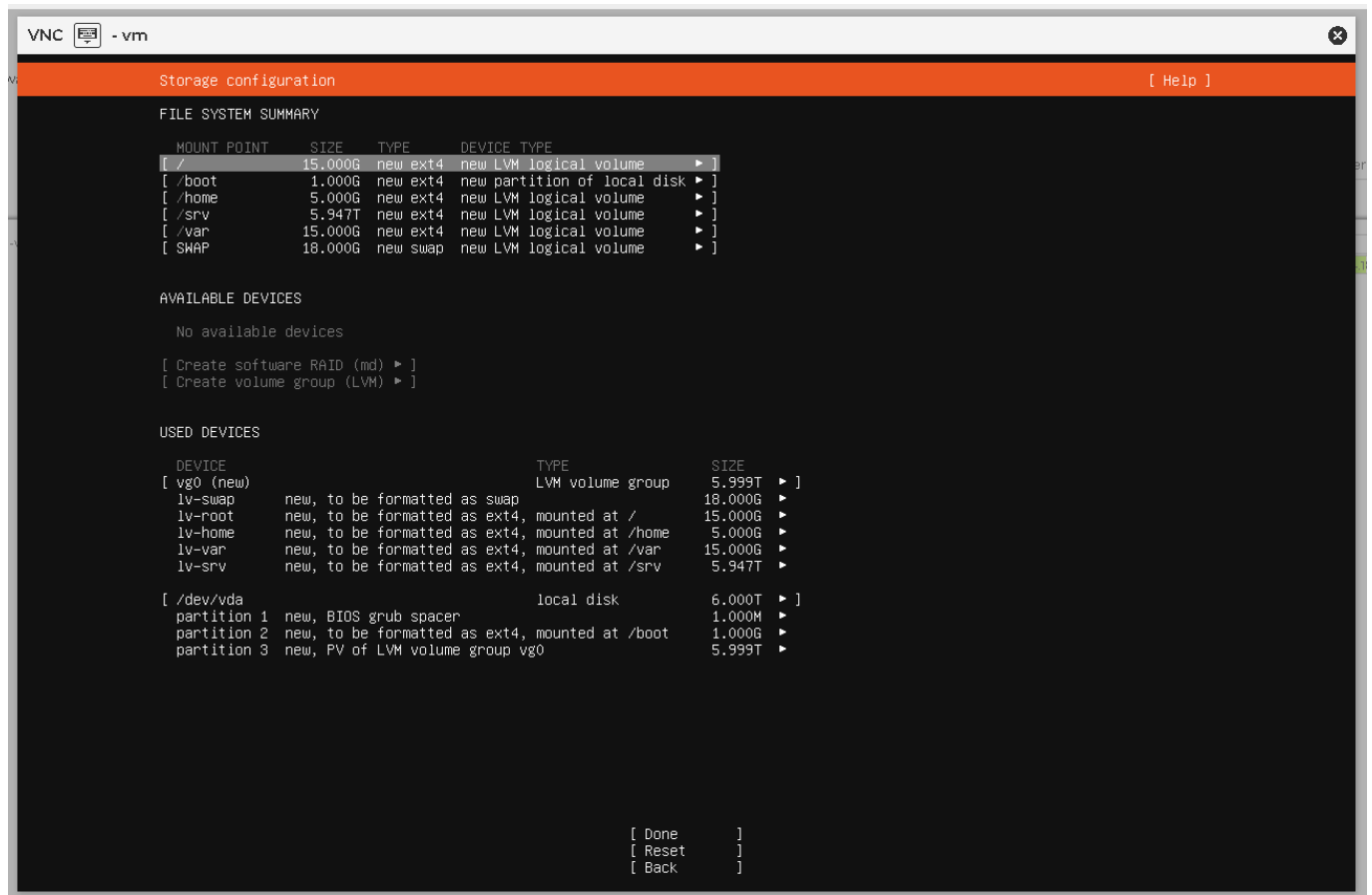
Installation

Volumes und Partitionierung

Um alles unterzubekommen, sollte man sich bereits bei der Installation des Servers Gedanken dazu machen, wie das Partitions- bzw. Festplattenlayout aussehen soll.

Folgende Fragen sind zu berücksichtigen:

- Wo soll die music library liegen? Soll es mehrere geben?
- Wo soll das Arbeitsverzeichnis von Navidrome gespeichert werden? -> Datenbank
- Wohin mit dem Cache der Applikation? -> Transcoding, Bilddaten (cover arts, album arts)



```

/dev/sda1  EFI      /boot/efi  ext4
/dev/sda2  /boot      ext4
/dev/sda3  LVM PV
├─ vg0
│  ├─ lv-swap  swap
│  ├─ lv-root  /
│  ├─ lv-home  /home
│  ├─ lv-var   /var
│  └─ lv-srv   /srv

```

Installation der Anwendung

Service-User anlegen

```
useradd -r -s /usr/sbin/nologin navidrome
```

Anwendung installieren



apt nutzen, um Abhängigkeiten aufzulösen!

```
apt install ./navidrome_0.61.2_linux_amd64.deb
```

Logrotate

[/etc/logrotate.d/navidrome](#)

```
/var/log/navidrome.log
{
    rotate 14
    daily
    missingok
    notifempty
    delaycompress
    compress
    create 640 navidrome navidrome
    postrotate
        if service navidrome status > /dev/null 2>&1; then \
            touch /var/log/navidrome.log; \
            chown navidrome:navidrome /var/log/navidrome.log; \
            service navidrome restart > /dev/null 2>&1; \
        fi;
    endscript
    sharedscripts
}
```

Daten wiederherstellen (bei Migration)

```
rm -rf /var/lib/navidrome
tar -xzf /tmp/navidrome-backup.tar.gz -C /
chown -R navidrome:navidrome /var/lib/navidrome
```

Config erstellen oder übernehmen

<https://www.navidrome.org/docs/usage/configuration/options/>

```
mv navidrome.toml /etc/navidrome/navidrome.toml
chown -R navidrome:navidrome /etc/navidrome/navidrome.toml
```

Verzeichnisse übernehmen / anlegen

```
cat /etc/navidrome/navidrome.toml | grep '\\"/'
```

```
mkdir -p /srv/LOSSLESS_AUDIO
mkdir -p /srv/LOSSY_AUDIO
mkdir -p /srv/PLAYLISTS_NAVIDROME
mkdir -p /srv/BACKUP_NAVIDROME
chown -R navidrome:navidrome /srv/BACKUP_NAVIDROME
```

```
chown -R navidrome:navidrome /srv/PLAYLISTS_NAVIDROME
```

Spezialfall music library

Um die Bibliothek automatisiert auf dem Laufenden halten zu können, lege ich einen weiteren Service-User an und vergebe entsprechende Berechtigungen:

- navidrome -> lesen
- audioadmin -> lesen+schreiben

Gruppen erstellen und berechtigen

```
adduser audioadmin
groupadd losslessaudio
usermod -aG losslessaudio audioadmin
usermod -aG losslessaudio navidrome
```

```
chown -R audioadmin:losslessaudio /srv/LOSSLESS_AUDIO
chmod -R 750 /srv/LOSSLESS_AUDIO
chmod g+s /srv/LOSSLESS_AUDIO
```

Default Berechtigungen setzen

```
apt install acl
setfacl -d -m u::rwX,g::rX,o::--- /srv/LOSSLESS_AUDIO
```

Service-User der Anwendung zuweisen

```
vi /etc/systemd/system/navidrome.service
```

```
[Unit]
Description=Navidrome Music Server and Streamer compatible with
Subsonic/Airsonic
After=remote-fs.target network.target
AssertPathExists=/var/lib/navidrome

[Install]
WantedBy=multi-user.target

[Service]
User=<user>
Group=<group>
Type=simple
ExecStart=/opt/navidrome/navidrome --configfile
"/etc/navidrome/navidrome.toml"
WorkingDirectory=/var/lib/navidrome
```

```
TimeoutStopSec=20
KillMode=process
Restart=on-failure

# See https://www.freedesktop.org/software/systemd/man/systemd.exec.html
DevicePolicy=closed
NoNewPrivileges=yes
PrivateTmp=yes
PrivateUsers=yes
ProtectControlGroups=yes
ProtectKernelModules=yes
ProtectKernelTunables=yes
RestrictAddressFamilies=AF_UNIX AF_INET AF_INET6
RestrictNamespaces=yes
RestrictRealtime=yes
SystemCallFilter=~@clock @debug @module @mount @obsolete @reboot @setuid
@swap
ReadWritePaths=/var/lib/navidrome

# You can uncomment the following line if you're not using the jukebox This
# will prevent navidrome from accessing any real (physical) devices
#PrivateDevices=yes

# You can change the following line to `strict` instead of `full` if you
# don't
# want navidrome to be able to write anything on your filesystem outside of
# /var/lib/navidrome.
ProtectSystem=full

# You can uncomment the following line if you don't have any media in
# /home/*.
# This will prevent navidrome from ever reading/writing anything there.
#ProtectHome=true

# You can customize some Navidrome config options by setting environment
# variables here. Ex:
#Environment=ND_BASEURL="/navidrome"
```

```
systemctl daemon-reload
systemctl start navidrome.service
systemctl status navidrome.service
```

```
systemctl cat navidrome | grep -i user
User=navidrome
WantedBy=multi-user.target
```

Aktualisierung / Update der Server-Applikation

Welche Version läuft?

```
navidrome --version
```

Ist das Backup gelaufen?

Den Link zur aktuellen Version holen und das Release laden:

<https://github.com/navidrome/navidrome/releases>

```
wget -c
https://github.com/navidrome/navidrome/releases/download/v0.60.0/navidrome_0.60.0_linux_amd64.deb
```

```
systemctl stop navidrome
```

```
dpkg -i navidrome_0.60.0_linux_amd64.deb
(Reading database ... 153778 files and directories currently installed.)
Preparing to unpack navidrome_0.60.0_linux_amd64.deb ...
Unpacking navidrome (0.60.0) over (0.59.0) ...
Setting up navidrome (0.60.0) ...
```

```
apt -f install
```

Gibt es Neuerungen, die Änderungen an der Konfiguration mit sich ziehen?

```
vi /etc/navidrome/navidrome.toml
```

Server wieder starten:

```
systemctl start navidrome
```

```
systemctl status navidrome
```

```
● navidrome.service - Your Personal Streaming Service
   Loaded: loaded (/etc/systemd/system/navidrome.service; enabled; preset:
   enabled)
   Active: active (running) since Fri 2026-02-06 20:28:44 CET; 6s ago
     Main PID: 5985 (navidrome)
        Tasks: 14 (limit: 19083)
       Memory: 159.4M (peak: 293.1M)
          CPU: 1.723s
       CGroup: /system.slice/navidrome.service
               └─5985 /usr/bin/navidrome service execute -c
/etc/navidrome/navidrome.toml
```

```
Feb 06 20:28:44 server systemd[1]: Started navidrome.service - Your Personal
Streaming Service.
```

```
Feb 06 20:28:44 server navidrome[5985]:
```

```
Feb 06 20:28:44 server navidrome[5985]: | \ | | ( ) | |
Feb 06 20:28:44 server navidrome[5985]: | \ | | _ _ _ _ _ _ | | _ _ _ _
```

```
Feb 06 20:28:44 server navidrome[5985]: | . ` | / _ \ \ / / | / _ ` | ' _ / _
```

```

\| ' _ \ / _ \
Feb 06 20:28:44 server navidrome[5985]: | | \ | ( _ | \ V / | | ( _ | | | ( _ )
| | | | | | _ /
Feb 06 20:28:44 server navidrome[5985]: \_ | \_ / \_ , _ | \_ / | _ | \_ , _ | |
\_ / | _ | | | | \_ |
Feb 06 20:28:44 server navidrome[5985]:                                     Version:
0.60.0 (0c8f2a55

```

Apache2 als Reverse-Proxy

Installation der Pakete

```

apt update
apt install apache2 libapache2-mod-security2

```

Module im Apache aktivieren:

```

a2enmod proxy proxy_http proxy_wstunnel headers rewrite ssl

```

Dual Stack aktivieren -> /etc/apache2/ports.conf.

```

Listen 80
Listen [::]:80
Listen 443
Listen [::]:443

```

Apache-Version nicht bekannt geben -> /etc/apache2/conf-enabled/security.conf

```

# ServerTokens
# This directive configures what you return as the Server HTTP response
# Header. The default is 'Full' which sends information about the OS-Type
# and compiled in modules.
# Set to one of: Full | OS | Minimal | Minor | Major | Prod
# where Full conveys the most information, and Prod the least.
#ServerTokens Minimal
ServerTokens Prod
#ServerTokens Full

```

ModSecurity-Konfiguration für Apache2 Reverse Proxy vor Navidrome

Ziel der Konfiguration

- Schutz vor typischen Webangriffen (SQLi, XSS, RCE etc.)
- Keine unnötigen False Positives für Navidrome

- API-/Streaming-kompatibel
- Sinnvolles Logging

1. Basis: ModSecurity aktivieren

```
a2enmod security2
systemctl restart apache2
```

Einbindung in Apache unter vi `/etc/apache2/mods-enabled/security2.conf`

[/etc/apache2/mods-enabled/security2.conf](#)

```
<IfModule security2_module>
    # Default Debian dir for modsecurity's persistent data
    SecDataDir /var/cache/modsecurity

    # Include all the *.conf files in /etc/modsecurity.
    # Keeping your local configuration in that directory
    # will allow for an easy upgrade of THIS file and
    # make your life easier
    IncludeOptional /etc/modsecurity/modsecurity.conf
    #IncludeOptional /etc/modsecurity/other-rules.conf
    IncludeOptional /etc/modsecurity/crs/crs-setup.conf
    IncludeOptional /etc/modsecurity/crs/rules/*.conf

    # Include OWASP ModSecurity CRS rules if installed
    # IncludeOptional /usr/share/modsecurity-crs/*.load

    # Defense against CVE-2021-44228
    SecRuleUpdateTargetById 932130 "REQUEST_HEADERS:User-Agent"
    SecRuleUpdateTargetById 932130 "REQUEST_HEADERS:Referer"
</IfModule>
```

2. Hauptkonfiguration

Datei:

```
/etc/modsecurity/modsecurity.conf
```

Wichtige Anpassungen:

```
SecRuleEngine On

# Body handling (wichtig für API!)
SecRequestBodyAccess On
SecResponseBodyAccess Off
```



```
# Limits (Navidrome kann größere Requests haben, z.B. Uploads)
SecRequestBodyLimit 104857600
SecRequestBodyNoFilesLimit 1048576

# JSON Support (sehr wichtig für Navidrome API)
SecRequestBodyProcessor JSON

# Logging
SecAuditEngine RelevantOnly
SecAuditLog /var/log/apache2/modsec_audit.log
SecAuditLogParts ABIJDEFHZ

# Weniger aggressiv bei Streaming
SecResponseBodyMimeType text/plain text/html text/xml application/json

# Encoding
SecDefaultAction "phase:2,log,auditlog,deny,status:403"
```

3. OWASP Core Rule Set (empfohlen)

Installieren:

```
apt install modsecurity-crs
```

Dann aktivieren:

```
cp /usr/share/modsecurity-crs/crs-setup.conf.example /etc/modsecurity/crs-setup.conf
```

Apache Config ergänzen (z. B. in /etc/apache2/mods-enabled/security2.conf):

```
IncludeOptional /etc/modsecurity/crs-setup.conf
IncludeOptional /usr/share/modsecurity-crs/rules/*.conf
```

3a. Option: Core Ruleset von Github (aktueller)

Benötigte Version klonen. In der Kombi Apache2 + Modsec2 unter Ubuntu 24.04 ist die v3.3.5 am sinnvollsten.

```
git clone https://github.com/coreruleset/coreruleset.git owasp-crs
cd owasp-crs
git fetch --tags
git checkout -b v3.3.5 tags/v3.3.5
cp crs-setup.conf.example crs-setup.conf
vi crs-setup.conf
```

Nun kann die crs-setup.conf auf die eigenen Bedürfnisse angepasst werden. Ich ändere am

Default allerdings nichts.

Wichtiger ist es, das Ruleset auch korrekt einzubinden.

```
vi /etc/apache2/mods-enabled/security2.conf
vi /etc/modsecurity/modsecurity.conf
```

4. WICHTIG: Ausnahmen für Navidrome

Navidrome nutzt:

- /rest/* API
- JSON Requests
- Query-Parameter intensiv
- Streaming (Range Requests)

Ohne Anpassung gibt es False Positives.

5. Custom Rules für Navidrome

Neue Datei:

```
/etc/modsecurity/navidrome-exclusions.conf
```

```
# Navidrome API weniger restriktiv behandeln
SecRule REQUEST_URI "@beginsWith /rest/" \
    "id:1000001,phase:1,pass,nolog,ctl:ruleEngine=DetectionOnly"

# JSON API toleranter machen
SecRule REQUEST_HEADERS:Content-Type "application/json" \
    "id:1000002,phase:1,pass,nolog,ctl:requestBodyProcessor=JSON"

# Range Requests erlauben (für Streaming)
SecRule REQUEST_HEADERS:Range ".*" \
    "id:1000003,phase:1,pass,nolog,ctl:ruleRemoveByTag=attack-protocol"

# False positives reduzieren (SQLi / XSS bei API)
SecRule REQUEST_URI "@beginsWith /rest/" \
    "id:1000004,phase:1,pass,nolog,ctl:ruleRemoveByTag=attack-sqli,ctl:ruleRemoveByTag=attack-xss"

# Große Downloads erlauben
SecRule REQUEST_URI "@beginsWith /rest/stream" \
    "id:1000005,phase:1,pass,nolog,ctl:responseBodyAccess=Off"
```

oder

```
# =====
```

```
# Navidrome CRS Minimal Exclusions - Optimiert 2026
# =====

# (1) SQL Injection False Positives
SecRule REQUEST_URI "@beginsWith /rest/" \
    "id:1100001,phase:1,pass,nolog,\
    ctl:ruleRemoveById=942100,\
    ctl:ruleRemoveById=942110,\
    ctl:ruleRemoveById=942150"

# (2) XSS False Positives
SecRule REQUEST_URI "@beginsWith /rest/" \
    "id:1100002,phase:1,pass,nolog,\
    ctl:ruleRemoveById=941100,\
    ctl:ruleRemoveById=941160"

# (3) Protocol Enforcement
SecRule REQUEST_URI "@beginsWith /rest/" \
    "id:1100003,phase:1,pass,nolog,\
    ctl:ruleRemoveById=920230,\
    ctl:ruleRemoveById=920240"

# (4) Streaming (Range Requests)
SecRule REQUEST_URI "@beginsWith /rest/stream" \
    "id:1100004,phase:1,pass,nolog,\
    ctl:ruleRemoveById=920200"

# (5) Typische Parameter entschärfen
SecRule REQUEST_URI "@beginsWith /rest/" \
    "id:1100005,phase:1,pass,nolog,chain"
    SecRule ARGS_NAMES "^(u|t|s|f|c)$" \
        "ctl:ruleRemoveById=942100"

# (6) JSON Requests korrekt parsen
SecRule REQUEST_HEADERS:Content-Type "application/json" \
    "id:1100006,phase:1,pass,nolog,\
    ctl:requestBodyProcessor=JSON"

# (7) CoverArt / Artist Images
SecRule REQUEST_URI "@beginsWith /rest/getCoverArt" \
    "id:1100010,phase:1,pass,nolog,ctl:responseBodyAccess=Off"

SecRule REQUEST_URI "@beginsWith /rest/getCoverArt" \
    "id:1100011,phase:3,pass,nolog,ctl:responseBodyAccess=Off"

SecRule REQUEST_URI "@beginsWith /rest/getCoverArt" \
    "id:1100012,phase:1,pass,nolog,\
    ctl:ruleRemoveById=941100,\
    ctl:ruleRemoveById=920200,\
    ctl:ruleRemoveById=920420,\
    ctl:ruleRemoveById=920430,\
```

```
ctl:ruleRemoveById=933100"
```

```
# (8) Artist API POST/DELETE WebUI
```

```
SecRule REQUEST_URI "@beginsWith /api/artist" \  
  "id:1100013,phase:1,pass,nolog,chain" \  
  SecRule REQUEST_METHOD "@rx ^(POST|DELETE)$" \  
    "ctl:ruleRemoveById=941100"
```

```
# (9) Anomaly Scoring feinjustieren (Warnung vermeiden)
```

```
SecAction "id:1100014,phase:1,pass,nolog,t:none,\  
  setvar:tx.inbound_anomaly_score_threshold=10,\  
  setvar:tx.outbound_anomaly_score_threshold=5,\  
  tag:'navidrome-exclusions'"
```

Einbinden:

```
Include /etc/modsecurity/navidrome-exclusions.conf
```

6. Apache VirtualHost (Reverse Proxy)

Beispiel:

```
<IfModule mod_ssl.c>  
<VirtualHost *:443>  
    ServerName music.example.de  
    ServerAlias music.example.net  
    DocumentRoot /var/www/navidrome/html  
  
    ErrorLog /var/www/navidrome/logs/error.log  
    CustomLog /var/www/navidrome/logs/access.log combined  
  
    ProxyPreserveHost On  
    Protocols http/1.1  
    #ProxyPass "/.well-known/" "!"  
  
    # WebSocket-Unterstützung  
    RewriteEngine On  
    RewriteCond %{HTTP:Upgrade} =websocket [NC]  
    RewriteRule /(.*) ws://127.0.0.1:4533/$1 [P,L]  
  
    # Alles andere Proxy  
    ProxyPass / http://127.0.0.1:4533/ nocanon  
    ProxyPassReverse / http://127.0.0.1:4533/  
  
    RequestHeader set X-Forwarded-Proto "https"  
    RequestHeader set X-Forwarded-Port "443"  
    RequestHeader set X-Forwarded-For "%{REMOTE_ADDR}s"  
    Header always set X-XSS-Protection "1; mode=block"
```

```
    KeepAlive On
    MaxKeepAliveRequests 100
    KeepAliveTimeout 5
    ProxyTimeout 300

    Include /etc/letsencrypt/options-ssl-apache.conf
    Include /etc/modsecurity/navidrome-exclusions.conf
    SSLCertificateFile
/etc/letsencrypt/live/music.example.de/fullchain.pem
    SSLCertificateKeyFile
/etc/letsencrypt/live/music.example.de/privkey.pem
    Header always set Strict-Transport-Security "max-age=31536000"
</VirtualHost>
</IfModule>
```

7. Test & Debug

Logs prüfen:

```
tail -f /var/log/apache2/modsec_audit.log
```

Typische Probleme:

- 403 bei API Calls → Rule greift zu aggressiv
- Streaming bricht → Range Requests blockiert
- Login geht nicht → JSON / POST blockiert

8. Empfohlene Betriebsmodi

Phase	Einstellung
Test	DetectionOnly
Produktion	On + gezielte Exclusions

Datenbank

Tools

```
sudo apt update
sudo apt install sqlite3
```

Kennzahlen

```
sqlite> SELECT COUNT(*) FROM media_file;
89379
sqlite> SELECT COUNT(*) FROM album;
5224
```

```
sqlite> SELECT COUNT(*) FROM media_file;  
89379  
sqlite> SELECT COUNT(*) FROM artist;  
10954
```

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