

Remote Access Guide for moOde Audio Player

Overview

This guide explains how to remotely access the moOde Audio Player (MoodePi5) using WireGuard VPN. Once connected, you can:

- Access the web interface from anywhere
- SSH into the system for troubleshooting
- Control audio playback remotely

Prerequisites

- A computer (Windows, Mac, or Linux) with internet access
- WireGuard client installed on your device
- The server's public key (provided separately)
- Port 51820/UDP must be open on the router (if behind a firewall)

Part 1: Installing WireGuard Client

Windows

1. Download WireGuard from: <https://www.wireguard.com/install/>
2. Install the application
3. Open WireGuard

Mac

1. Install from Mac App Store: Search "WireGuard"
2. Or download from: <https://www.wireguard.com/install/>
3. Open WireGuard application

Linux

```
# Ubuntu/Debian
sudo apt-get install wireguard wireguard-tools

# Fedora
sudo dnf install wireguard-tools

# Arch
sudo pacman -S wireguard-tools
```

Android/iOS

- Install "WireGuard" from Google Play Store or App Store

Part 2: Setting Up Your Client

Step 1: Generate Your Keys

On Windows/Mac (using WireGuard GUI):

1. Click "Add Tunnel" → "Add Empty Tunnel"
2. WireGuard will automatically generate keys
3. Copy your **Public Key** (you'll need to share this)

On Linux/Command Line:

```
# Generate private key  
wg genkey | tee private.key | wg pubkey > public.key  
  
# View your public key (share this)  
cat public.key
```

Step 2: Share Your Public Key

Send your **Public Key** to the system administrator. They will add you to the server configuration.

Step 3: Receive Your Configuration

Once added, you'll receive a configuration file that looks like this:

```
[Interface]  
PrivateKey = YOUR_PRIVATE_KEY_HERE  
Address = 10.8.0.2/24  
  
[Peer]  
PublicKey = SERVER_PUBLIC_KEY_HERE  
Endpoint = YOUR_SERVER_IP:51820  
AllowedIPs = 10.8.0.1/32  
PersistentKeepalive = 25
```

Important: Replace YOURSERVERIP with the actual server's public IP address or domain name.

Step 4: Import Configuration

Windows/Mac (GUI):

1. Copy the configuration text
2. In WireGuard, click "Add Tunnel" → "Import from file" or paste the config
3. Save the configuration

Linux (Command Line):

```
# Save config to file  
sudo nano /etc/wireguard/wg0.conf  
# Paste the configuration, save and exit  
  
# Set permissions  
sudo chmod 600 /etc/wireguard/wg0.conf
```

Part 3: Connecting

Windows/Mac (GUI)

1. Open WireGuard application
2. Click the toggle switch next to your configuration
3. Status should show "Active" with a green indicator

Linux (Command Line)

```
# Start WireGuard  
sudo wg-quick up wg0  
  
# Check status  
sudo wg show  
  
# Stop WireGuard  
sudo wg-quick down wg0
```

Verify Connection

```
# Ping the server  
ping 10.8.0.1  
  
# Should see responses like:  
# PING 10.8.0.1 (10.8.0.1) 56(84) bytes of data.  
# 64 bytes from 10.8.0.1: icmp_seq=1 ttl=64 time=XX ms
```

Part 4: Accessing the Web Interface

Once connected via WireGuard:

1. **Open your web browser**
2. **Navigate to:** `http://10.8.0.1/`
3. **You should see:** The moOde Audio Player web interface

Note: The web interface may take a few seconds to load. If you see a login screen, try:

- Clearing browser cache (Ctrl+Shift+Delete)
- Using incognito/private mode
- Refreshing the page

Part 5: SSH Access

To SSH into the system for troubleshooting:

```
ssh andre@10.8.0.1
```

Password: 0815

Example:

```
$ ssh andre@10.8.0.1  
andre@10.8.0.1's password: [enter 0815]  
andre@MoodePi5:~$
```

Part 6: Common Problems and Solutions

Problem 1: Cannot Connect to WireGuard Server

Symptoms:

- WireGuard shows "Connecting..." but never connects
- Error: "Handshake did not complete"

Solutions:

1. **Check server is online:**

```
ping YOUR_SERVER_IP
```

2. **Check port 51820 is open:**

- Verify router/firewall allows UDP port 51820
- Test with: `nc -u -v YOUR_SERVER_IP 51820`

3. **Check server WireGuard status:**

- Ask administrator to check: `sudo systemctl status wg-quick@wg0`

4. **Verify configuration:**

- Double-check PublicKey matches server's public key
- Ensure Endpoint IP/domain is correct
- Check AllowedIPs is set correctly

5. **Try different network:**

- Some networks block VPN connections
- Try from mobile hotspot or different WiFi

Problem 2: Connected but Cannot Access Web Interface**Symptoms:**

- WireGuard shows "Active" (green)
- Cannot access `http://10.8.0.1/`
- Browser shows "Connection refused" or timeout

Solutions:

1. **Verify connection:**

```
ping 10.8.0.1
```

If ping fails, WireGuard connection is not working properly.

2. **Check web server is running:**

- Ask administrator to check: `sudo systemctl status nginx`
- Or: `sudo systemctl status lighttpd`

3. **Try different browser:**

- Clear cache and cookies
- Use incognito/private mode
- Try Firefox, Chrome, or Safari

4. **Check firewall:**

- Server firewall might block connections
- Ask administrator to verify firewall rules

5. **Try SSH first:**

```
ssh andre@10.8.0.1
```

If SSH works but web doesn't, it's a web server issue.

Problem 3: SSH Connection Fails**Symptoms:**

- `ssh andre@10.8.0.1` fails
- "Connection refused" or "Connection timed out"

Solutions:

1. **Verify WireGuard is connected:**

```
ping 10.8.0.1
```
 2. **Check SSH is running on server:**
 - Ask administrator: `sudo systemctl status ssh`
 3. **Verify SSH listens on WireGuard interface:**
 - Ask administrator to check: `sudo ss -tlnp | grep 22`
 - Should show: `10.8.0.1:22`
 4. **Check for host key issues:**

```
# Remove old host key
ssh-keygen -R 10.8.0.1

# Try connecting again
ssh -o StrictHostKeyChecking=accept-new andre@10.8.0.1
```
 5. **Verify credentials:**
 - Username: `andre`
 - Password: `0815`
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Problem 4: Slow Connection or High Latency

Symptoms:

- Web interface loads slowly
- High ping times
- Audio streaming is choppy

Solutions:

1. **Check internet speed:**
 - Run speed test on both ends
 - WireGuard adds minimal overhead (~5-10%)
 2. **Check server resources:**
 - Ask administrator: `htop` or `top`
 - High CPU usage can slow things down
 3. **Try different DNS:**

```
# In WireGuard config, add:
DNS = 8.8.8.8
```
 4. **Reduce MTU:**
 - Some networks require lower MTU
 - In WireGuard config, add:

```
[Interface]
MTU = 1280
```
-

Problem 5: Connection Drops Frequently

Symptoms:

- WireGuard disconnects randomly
- Need to reconnect often

Solutions:

1. **Enable PersistentKeepalive:**

```
[Peer]
PersistentKeepalive = 25
```

This sends keepalive packets every 25 seconds.
2. **Check network stability:**
 - Test with: `ping -c 100 10.8.0.1`
 - Look for packet loss

3. **Check server logs:**
 - Ask administrator: `sudo journalctl -u wg-quick@wg0 -n 50`

4. **Update WireGuard:**
 - Ensure both client and server are up to date

Problem 6: Web Interface Shows Login Screen

Symptoms:

- Browser shows "MoodePi5 login" or login form
- Cannot access the player interface

Solutions:

1. **Clear browser cache:**

- Press `Ctrl+Shift+Delete` (Windows/Linux)
- Press `Cmd+Shift+Delete` (Mac)
- Clear "Cached images and files"

2. **Use incognito/private mode:**

- Chrome: `Ctrl+Shift+N` (Windows) or `Cmd+Shift+N` (Mac)
- Firefox: `Ctrl+Shift+P` (Windows) or `Cmd+Shift+P` (Mac)

3. **Try different browser:**

- Firefox, Chrome, Safari, Edge

4. **Check browser console:**

- Press `F12` → Console tab
- Look for JavaScript errors

5. **Try direct URL:**

- `http://10.8.0.1/?nocache=12345`

Problem 7: Audio Not Playing

Symptoms:

- Web interface loads but audio doesn't play
- Play button doesn't work

Solutions:

1. **Check MPD service:**

- Ask administrator: `sudo systemctl status mpd`
- Should show "active (running)"

2. **Check audio device:**

- Ask administrator: `aplay -l`
- Should show HiFiBerry AMP100

3. **Verify audio chain:**

- Ask administrator to run audio fix script
- Or check: `mpc status`

4. **Check volume:**

- In web interface, check volume is not muted
- Try: `mpc volume 20` (via SSH)

Part 7: Useful Commands

Check WireGuard Status

```
# Client side
sudo wg show

# Should show:
# interface: wg0
#   public key: YOUR_PUBLIC_KEY
#   private key: (hidden)
#   listening port: XXXXX
#
# peer: SERVER_PUBLIC_KEY
#   endpoint: SERVER_IP:51820
#   allowed ips: 10.8.0.1/32
#   latest handshake: XX seconds ago
#   transfer: XXX received, XXX sent
```

Test Connection

```
# Ping server
ping 10.8.0.1

# Test web interface
curl http://10.8.0.1/

# Test SSH
ssh -v andre@10.8.0.1
```

Restart WireGuard

```
# Linux
sudo wg-quick down wg0
sudo wg-quick up wg0

# Windows/Mac: Use GUI toggle
```

Part 8: Security Notes

1. ****Keep your private key secure:****
 - Never share your private key
 - Only share your public key
2. ****Use strong passwords:****
 - SSH password should be changed from default
 - Consider using SSH keys instead of passwords
3. ****Keep WireGuard updated:****
 - Regularly update WireGuard client
 - Server will be updated by administrator
4. ****Monitor connections:****
 - Check `sudo wg show` regularly
 - Report suspicious activity

Part 9: Getting Help

If you encounter problems not covered here:

1. **Check server status:**

- Ask administrator to verify server is online
- Check: `sudo systemctl status wg-quick@wg0`

2. **Collect information:**

```
# WireGuard status  
sudo wg show  
  
# Connection test  
ping 10.8.0.1  
  
# Web interface test  
curl -v http://10.8.0.1/
```

3. **Contact administrator:**

- Provide error messages
- Include output from commands above
- Describe what you were trying to do

Quick Reference

Service	Address	Port	Notes
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WireGuard Server	10.8.0.1	51820/UDP	VPN endpoint
Web Interface	http://10.8.0.1/	80/HTTP	moOde player UI
SSH	andre@10.8.0.1	22/TCP	Remote shell access

SSH Credentials:

- Username: `andre`
- Password: `0815`

WireGuard Network:

- Server IP: `10.8.0.1`
- Client IP: `10.8.0.2` (or assigned by admin)

Appendix: Server Information

Server Details:

- Hostname: MoodePi5
- OS: Debian GNU/Linux 13
- moOde Version: 10.0.1
- Audio Device: HiFiBerry AMP100

Network:

- Local IP: 192.168.2.3
- VPN IP: 10.8.0.1
- WireGuard Port: 51820/UDP

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For technical support, contact the system administrator