

# 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

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## 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)

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## 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

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## 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
```

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## 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
```

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## **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

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## **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:~$
```

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## **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

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***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.

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***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
```

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### ***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
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## ***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``
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## ***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)
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## **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
```

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## 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

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## 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

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## Quick Reference

Service	Address	Port	Notes
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)

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## 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*