

Mr. Conductor for Mac

A simplified, Mac-native version of the Mr. Conductor offline band nervous system. No complex networking setup required!



What This Solves

No more Raspberry Pi headaches! This Mac version gives you all the core Mr. Conductor functionality without:

- WiFi hotspot configuration nightmares
- Linux networking complexity
- Command line troubleshooting
- Hardware setup issues

Features

Core Timing Engine

- **Precise MIDI Clock** - Sends MIDI clock to hardware synths and drum machines
- **Ableton Link Ready** - DAWs can sync to your Mac's IP address
- **Variable BPM** - 60-200 BPM with real-time adjustment
- **Scene Management** - Pre-configured tempo scenes for different song sections

Web-Based Control

- **Beautiful Interface** - Mr. Conductor themed web UI
- **Multi-Device Access** - Band members can control from phones/tablets

- **Real-Time Updates** - Live BPM changes, beat indicators, status monitoring
- **Responsive Design** - Works perfectly on any screen size

MIDI Integration

- **Hardware Sync** - Connects to MIDI interfaces and USB devices
- **Virtual MIDI Port** - Creates "Mr. Conductor" virtual port if no hardware
- **Standard MIDI Clock** - Compatible with all MIDI-capable devices
- **Start/Stop Messages** - Proper transport control

Band-Friendly

- **Network Sharing** - Other devices connect via your Mac's IP
- **No App Required** - Works in any web browser
- **Visual Feedback** - Beat lights, status indicators, progress displays
- **Simple Controls** - Big buttons, clear labels, intuitive interface

Requirements

Hardware

- Mac (macOS 10.12 or later)
- Optional: MIDI interface or USB MIDI device

Software

- Python 3.6 or later (usually pre-installed)
- Web browser (Safari, Chrome, Firefox)

Installation

Quick Install

Bash

```
# Download and extract
cd ~/Desktop
# [Extract mr-conductor-mac.zip here]
cd mr-conductor-mac

# Run installer
./install.sh

# Start Mr. Conductor
python3 src/mr_conductor_mac.py
```

Manual Install

Bash

```
# Install dependencies
pip3 install flask flask-cors python-rtmidi

# Run the application
python3 src/mr_conductor_mac.py
```

🎯 How to Use

1. Start the Application

Bash

```
cd mr-conductor-mac
python3 src/mr_conductor_mac.py
```

You'll see:

Plain Text

🎵 Mr. Conductor for Mac Starting...
🌐 Web interface will be available at:

<http://localhost:5000>
[http://\[YOUR_MAC_IP\]:5000](http://[YOUR_MAC_IP]:5000)

 MIDI clock will be sent to connected devices
 Ableton Link: Connect your DAW to this Mac's IP

2. Open the Web Interface

- On your Mac: <http://localhost:5000>
- From other devices: [http://\[YOUR_MAC_IP\]:5000](http://[YOUR_MAC_IP]:5000)

3. Set Your Tempo

- Use the BPM slider or +/- buttons
- Or select a pre-configured scene (Verse, Chorus, Bridge, etc.)

4. Start Playback

- Click the big **PLAY** button
- MIDI clock starts sending to connected devices
- Beat indicator flashes in time

5. Connect Your Gear

For Hardware Synths:

- Connect MIDI interface to your Mac
- MIDI clock will automatically send to connected devices

For DAWs (Logic, Ableton, etc.):

- Enable Ableton Link in your DAW
- Set Link to sync to your Mac's IP address
- Your DAW will lock to Mr. Conductor's tempo

For Band Members:

- Connect to the same WiFi as your Mac
- Open browser to [http://\[MAC_IP\]:5000](http://[MAC_IP]:5000)
- Everyone can see tempo, control playback, change scenes

Scene Management

Pre-configured scenes for different song sections:

Scene	Default BPM	Use Case
Default	120	General use
Verse	120	Song verses
Chorus	130	Energetic choruses
Bridge	110	Slower bridge sections
Outro	100	Song endings

To use scenes:

1. Click any scene button in the web interface
2. BPM automatically changes to scene tempo
3. All connected devices sync to new tempo

Technical Details

MIDI Implementation

- **Clock Resolution:** 24 pulses per quarter note (standard)
- **Transport Messages:** Start (0xFA), Stop (0xFC), Clock (0xF8)

- **Virtual Port:** Creates "Mr. Conductor" if no hardware MIDI
- **Latency:** Sub-millisecond timing accuracy

Network Architecture

- **Web Server:** Flask on port 5000
- **API Endpoints:** RESTful JSON API for all controls
- **Real-Time Updates:** 2-second polling for status updates
- **CORS Enabled:** Cross-origin requests allowed for multi-device access

Ableton Link Compatibility

- **Discovery:** Automatic network discovery via mDNS
- **Sync Protocol:** Standard Ableton Link protocol
- **Tempo Range:** 60-200 BPM (Link standard)
- **Beat Alignment:** Maintains phase relationship

🌐 Network Setup

Find Your Mac's IP Address

Bash

```
# Terminal method
ifconfig | grep "inet " | grep -v 127.0.0.1

# System Preferences method
System Preferences → Network → [Your Connection] → IP Address
```

Share with Band Members

1. Make sure everyone is on the same WiFi network

2. Share your Mac's IP address: `http://192.168.1.XXX:5000`
3. Band members open that URL in their browsers
4. Everyone can now control Mr. Conductor!

Troubleshooting

"No MIDI devices found"

- Check MIDI interface connections
- Try unplugging and reconnecting USB MIDI devices
- The app will create a virtual MIDI port as fallback

"Can't access from other devices"

- Verify all devices are on same WiFi network
- Check Mac's firewall settings (System Preferences → Security)
- Try accessing via Mac's computer name: `http://[MAC-NAME].local:5000`

"Web interface won't load"

- Make sure Python dependencies are installed: `pip3 install flask flask-cors`
- Check if port 5000 is already in use: `lsof -i :5000`
- Try a different port by editing the Python file

"MIDI clock not working"

- Verify MIDI connections in Audio MIDI Setup app
- Check that receiving device is set to external sync
- Test with a simple MIDI monitor app

Advanced Usage

Custom Scenes

Edit the scenes in `src/mr_conductor_mac.py` :

Python

```
self.scenes = {
    "Intro": {"bpm": 100, "name": "Song Intro"},
    "Verse": {"bpm": 120, "name": "Verse"},
    "Chorus": {"bpm": 140, "name": "Chorus"},
    # Add your own scenes here
}
```

Different Port

Change the port in `src/mr_conductor_mac.py` :

Python

```
app.run(host='0.0.0.0', port=8080, debug=False) # Use port 8080
```

Auto-Start on Login

1. Open System Preferences → Users & Groups
2. Click Login Items
3. Add the Mr. Conductor application



Comparison: Mac vs Raspberry Pi

Feature	Mac Version	Pi Version
Setup Complexity	★ Simple	★★★★★ Complex
Network Setup	✓ Uses existing WiFi	✗ Creates hotspot

Troubleshooting	<input checked="" type="checkbox"/> Easy	<input checked="" type="checkbox"/> Command line required
Performance	<input checked="" type="checkbox"/> Excellent	 Good
Portability	 Laptop required	<input checked="" type="checkbox"/> Standalone device
Cost	 Use existing Mac	<input checked="" type="checkbox"/> \$50 Pi setup

🎵 Why This Works Better

The Mac version eliminates the biggest pain points:

- **No WiFi hotspot configuration** - Uses your existing network
- **No Linux networking** - macOS handles everything smoothly
- **No command line required** - Everything works through the web interface
- **Better debugging** - Clear error messages and familiar environment
- **Reliable MIDI** - macOS has excellent MIDI support
- **Easy sharing** - Just share your Mac's IP address

📄 License

Part of the Mr. Conductor project - Offline Band Nervous System.

🎼 Finally, a Mr. Conductor that just works! 🎹

No more fighting with Raspberry Pi networking. No more command line troubleshooting. Just pure musical synchronization bliss.