

Automating the Collection of Audio WAV files using the Mac OS

Data Capture for the HamSCI Eclipse and Frequency Measurement Festivals

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April, 2022

Basis and Purpose

What are we collecting and Why

- Various HamSCI investigations use recordings of radio reception as their source data
- Often, the data needs to be collected at regular intervals, ie hourly
- Apple's Mac OS does not have any native applications which fill the need
- Various scripting tools - AppleScript, Automator, even JavaScript, have long learning curves
- A lost cost (or even 'free') GUI based solution is desirable - and presented here

Solution: An app called *Audio Hijack*

Created and provided Rogue Amoeba (<https://www.rogueamoeba.com>)

- Audio Hijack is a professional-grade audio recording tool.
- It easily records data from USB audio devices such as sound card modems or radios with built-in audio to USB functionality
- A full license can be purchased through the Rogue Amoeba website
- A demonstration (aka ‘free’) version (which allows for a maximum of 10 continuous minutes of recording) is available for download from the Rogue Amoeba website
- The HamSCI Spring 2022 Sunrise Festival is used in the following slides to demonstrate the setup and automation process

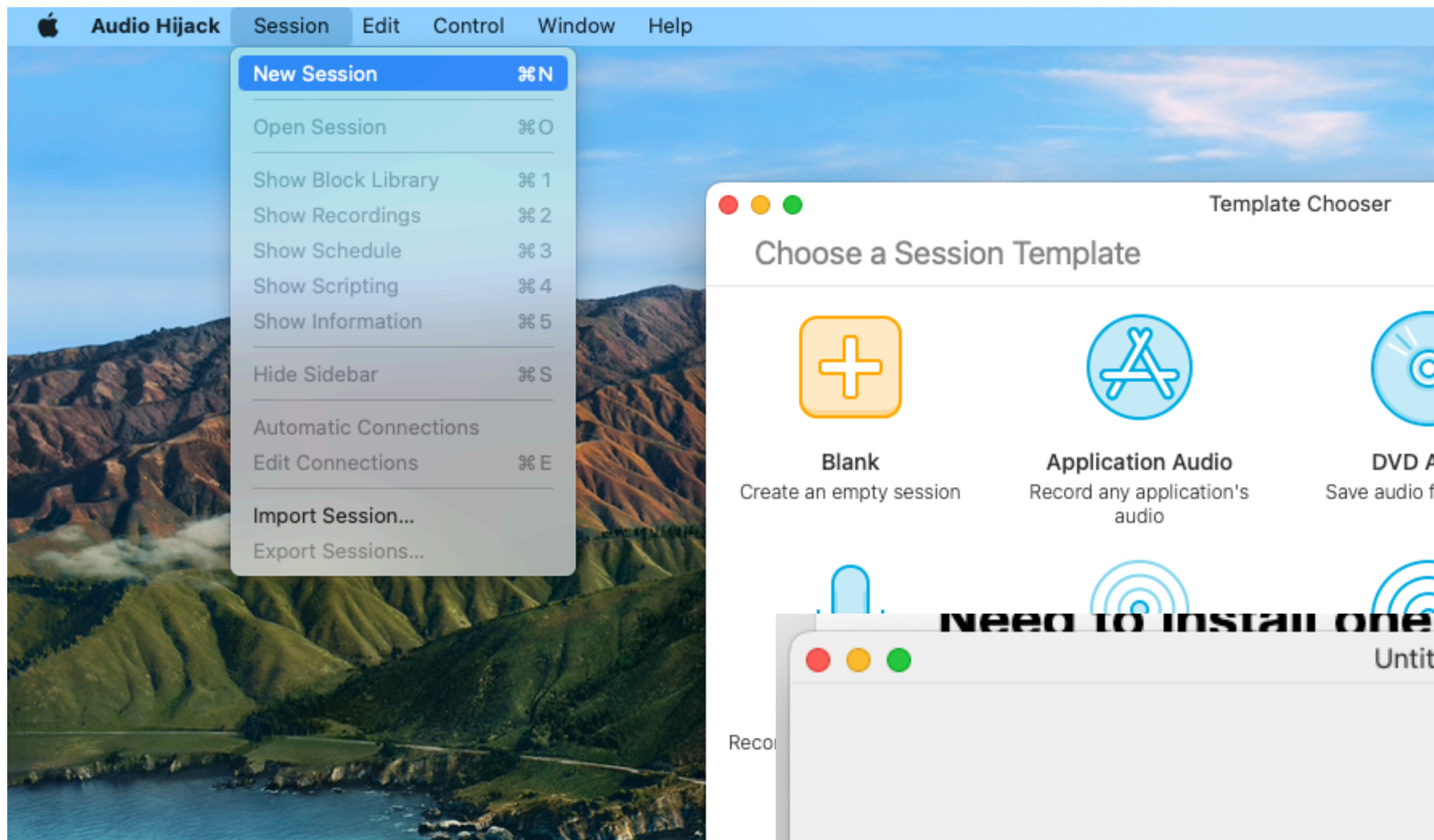
Installing Audio Hijack and ACE, Part I

Setting up the software (this assumes user familiarity with loading software on their Apple Mac, especially concepts such as managing security settings, choosing audio sources, locating and naming files, etc.)

- rogueamoeba.com provides a well written User Manual under their Support menu
- Go to rogueamoeba.com, choose the Audio Hijack product, and then 'Download'
- Locate the AudioHijak app on your Mac, open it
- Follow the detailed instructions from Rogue Amoeba regarding System Preferences, Security & Privacy setting. There are only a few steps - all should be familiar to Mac owners with reasonable technical ability
- Next, Audio Hijack will step you through the procedures to load ACE, the Audio Capture Engine backend. Again, very simple, only a few mouse clicks
- Almost there...

Installing Audio Hijack and ACE, Part II

Need to install one more component of Audio Hijack: The Scheduler

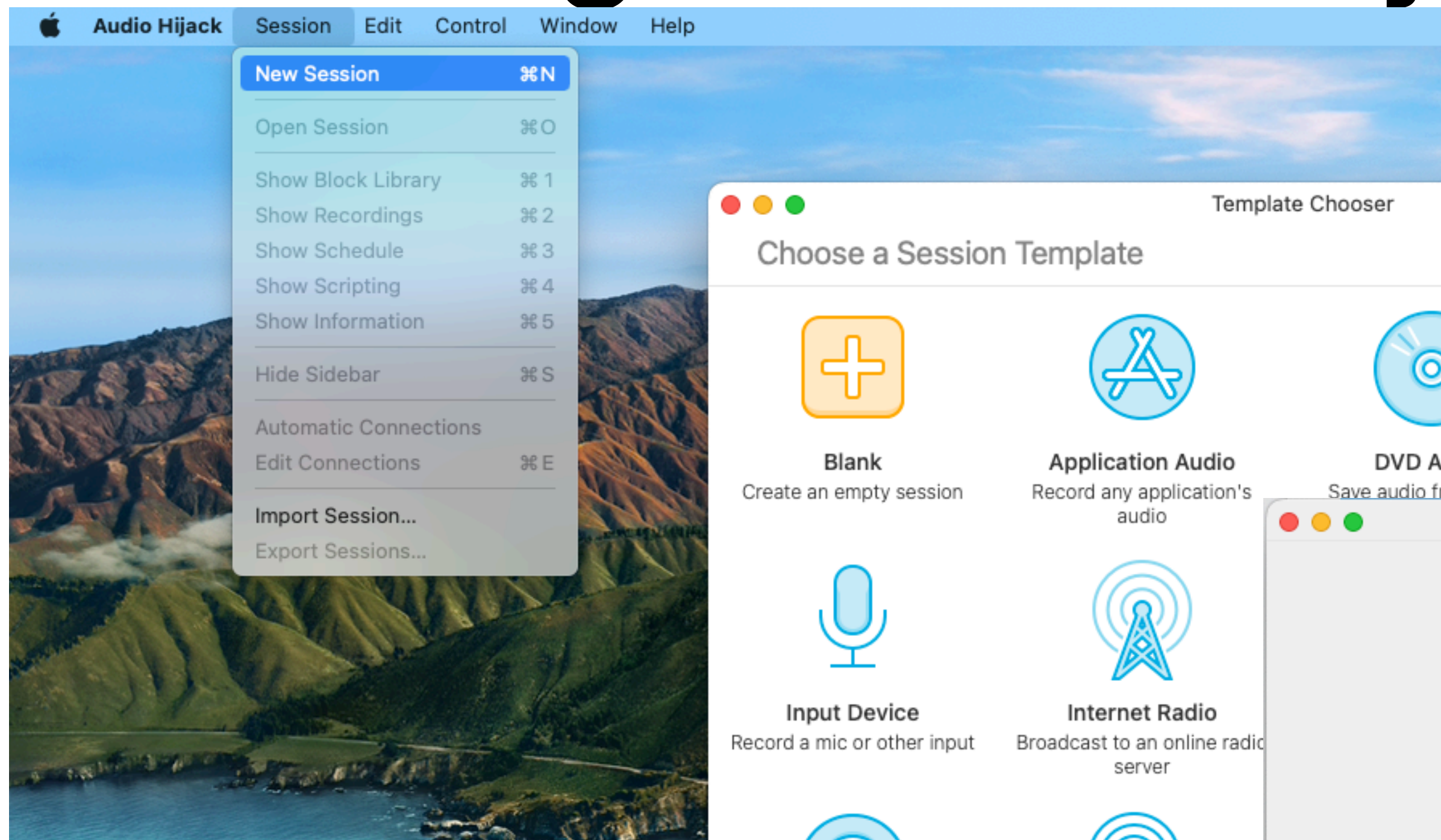


The first time you try to 'Schedule' in Audio Hijack, the program will step you through the process to install the Scheduler (very easy). This is how you get there:

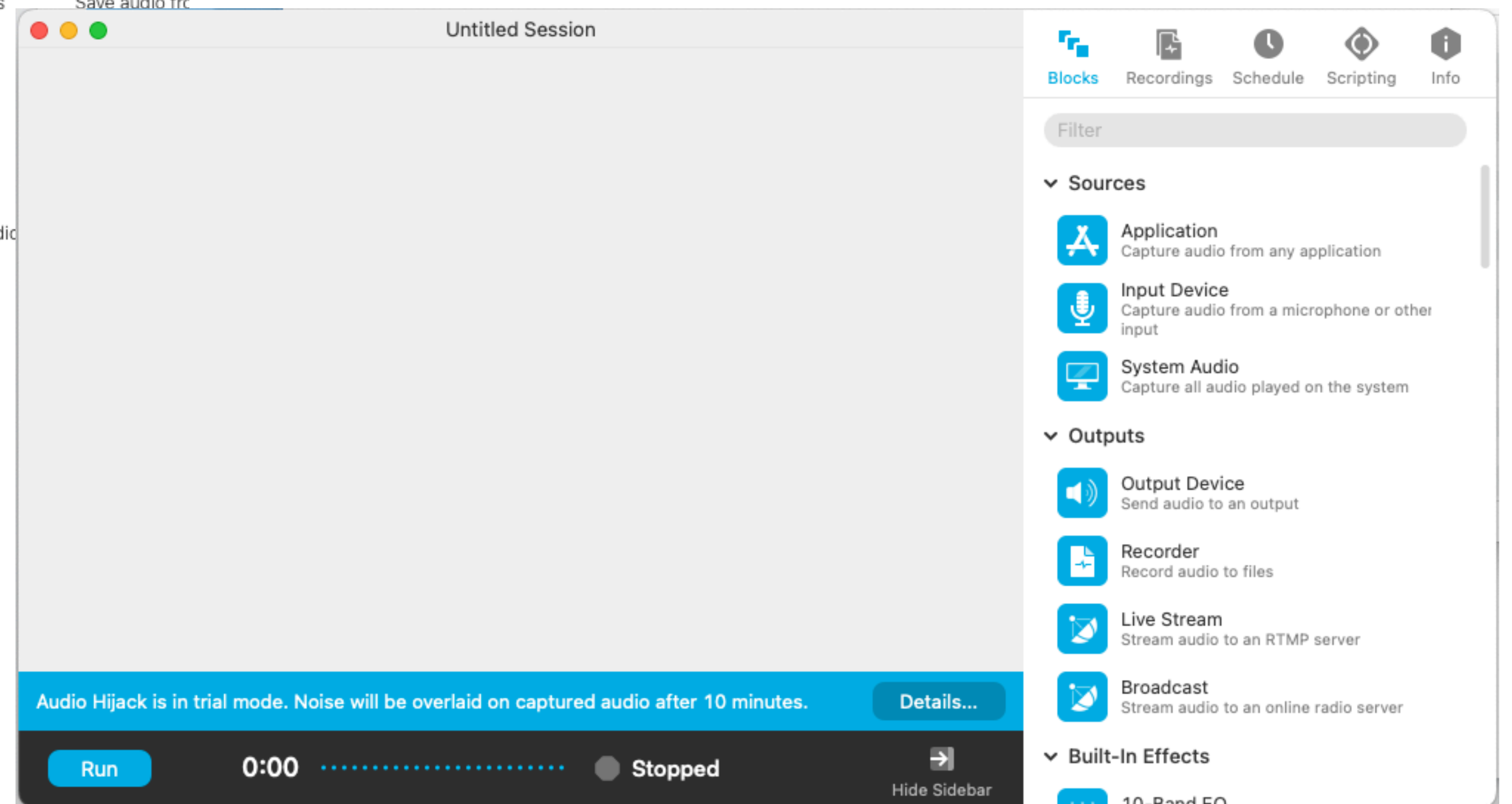
- 1) Start a new Session
- 2) Choose Blank (Create an empty session)
- 3) Choose Schedule
- 4) Follow prompts



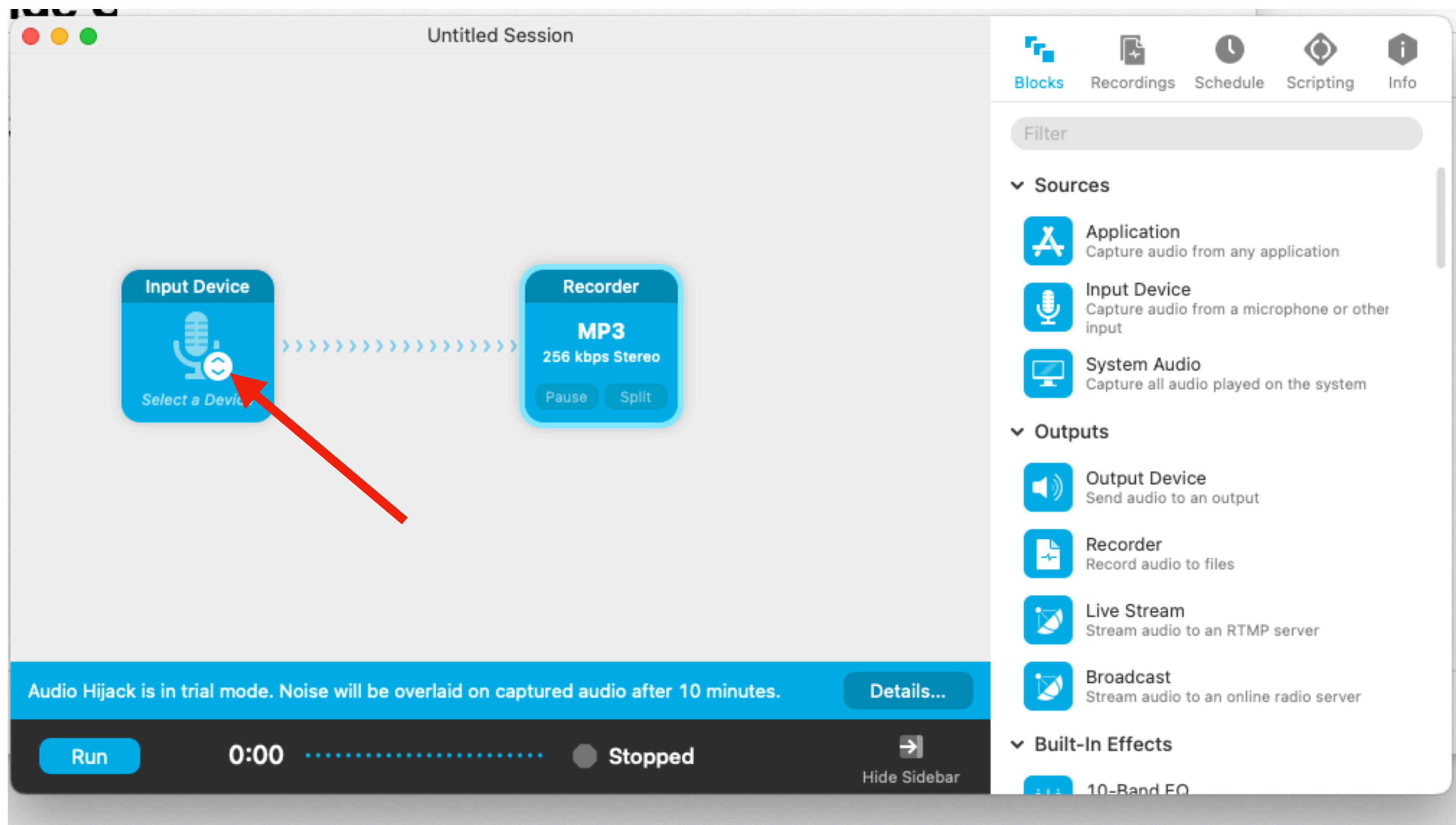
Creating an Audio Hijack Session I



- 1) Start a new Session
- 2) Choose Blank (Create an empty session)
- 3) See sample Untitled Session below



Creating an Audio Hijack Session II



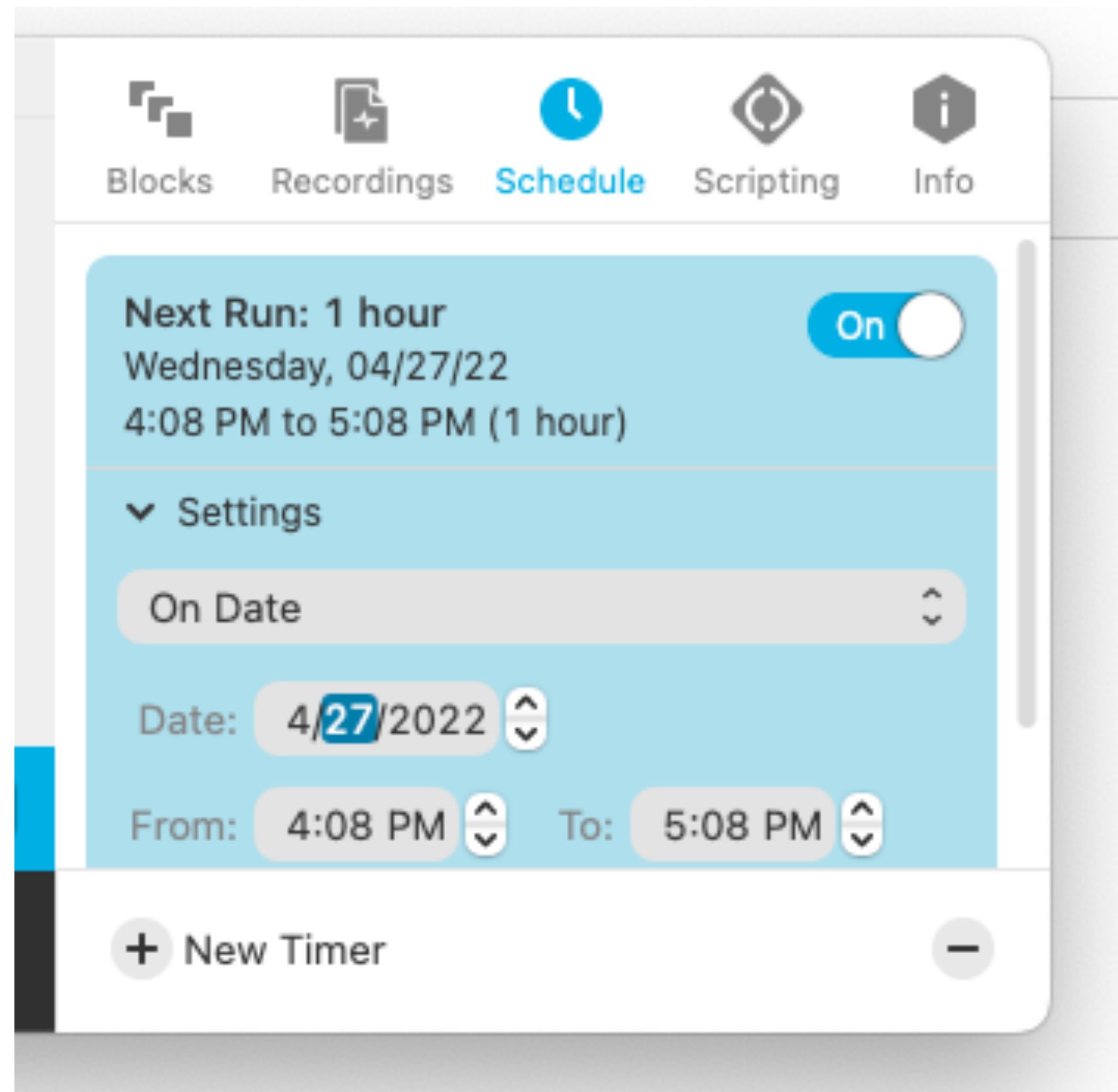
1) Drag an Input Device into the session, and, on the device's icon, **select a Source** (usually, USB CODEC)

2) Drag over the Recorder

3) Hit Schedule

Setting up the Scheduler

Choose the settings: On Date, Date, Time From, Time To



Note that you can create multiple timers (+ New Timer)

At the chosen time(s)...

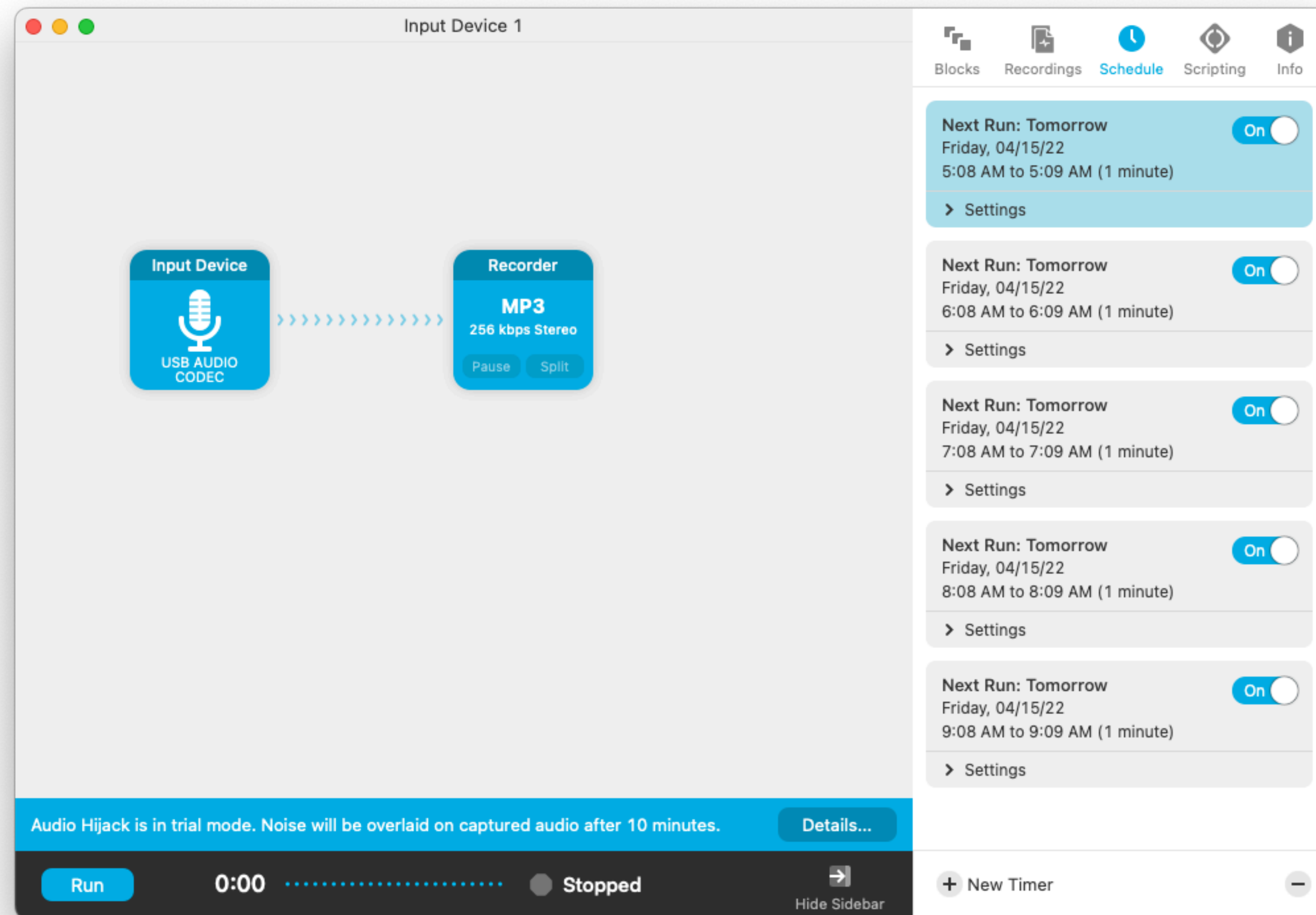
Audio Hijack will record the designated source to a file.

You might have to search around a bit on your hard drive to find the recorded MP3 files. Start here:

Mac HD > Users > Username > Music > Audio Hijack

Completed Setup

Note that times match my Mac's clock (local time), not UTC



HamSCI Procedures

What is needed, how it is named

Read carefully the data collection details on the HamSCI website. There you will find important information such as:

- 1) File formats accepted (often, WAV and IQ files) (see next slide)
- 2) File naming conventions (very important)
- 3) Upload location - a website, a Google Drive, Dropbox, etc.

Best of luck, have fun, and enjoy contributing to a scientific endeavor!

Converting from MP3 to WAV format

If the HamSCI researchers request WAV files, not MP3s...

- Option 1: Download a 3rd party format converter app
- Option 2***: Use an online converter (<https://anyconv.com/mp3-to-wav-converter/>)
- Option 3: Import the MP3 files into your music library with Apple's native Music app, then use the Convert | Create WAV menu path in Music - this is can be onerous, not recommended unless you have a lot of files to convert

***Option 2 is quick and easy for a reasonably small number of files