

Overview

Creating a Neural Capture on Nano Cortex is fast and easy. The whole process lasts about five minutes and is carried out entirely on-device. This means that there is no need to connect to a computer, the internet, or the Cortex Cloud app.

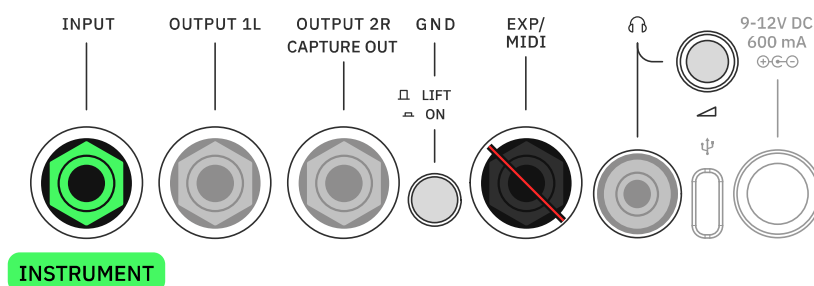
However, the specific steps for creating Neural Captures will vary slightly depending on the type of hardware you're working with. In the upcoming sections of this guide, we will cover the steps for creating Neural Captures of:

- A drive pedal
- An amp+cab or combo amp
- An amp head with no speaker

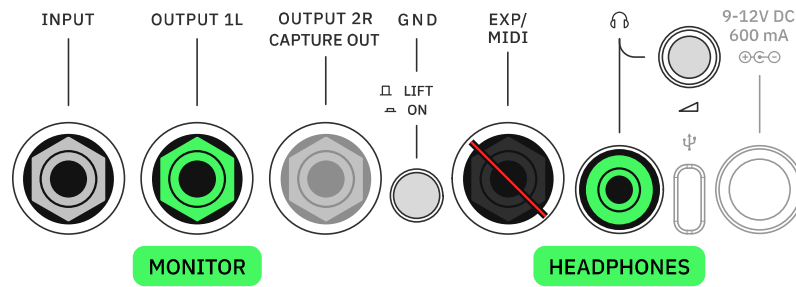
Initial setup

Connecting your instrument and monitoring devices

Before beginning the Capture process, you will need to connect your instrument and monitoring devices to Nano Cortex.



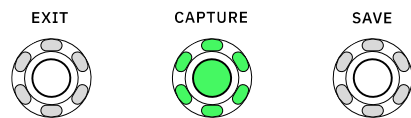
Step 1: Plug your guitar/bass to **INPUT 1** using a standard 1/4" instrument cable.



Step 2: Connect your headphones to **HP OUTPUT** and/or a studio monitor to **OUTPUT 1L**.

Turn on Capture Mode

After connecting your instrument and monitoring device(s) to Nano Cortex, turn on Capture Mode.



Step 1: Press **CAPTURE** to turn on Capture Mode. When in Capture Mode, the CAPTURE LED ring will stay on.

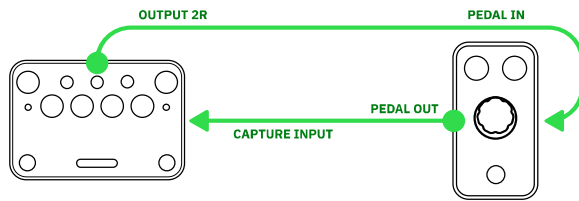
Note: Press **EXIT** to return to Performance Mode.

Capturing a drive pedal

You can create Neural Captures of overdrive, distortion, and fuzz pedals. By doing this, you can use the Nano Cortex as a compact device that can store up to 256 incredibly accurate digital replicas of your favorite drive pedals. The setup process is straightforward and can be done very quickly.

Instructions for creating a Neural Capture of a drive pedal

A. Initial setup



Step 1: Connect your drive pedal to Nano Cortex

- Connect **OUTPUT 2R (CAPTURE OUT)** on the Nano Cortex to the input of your drive pedal.
- Connect the output of the drive pedal back to the **CAPTURE INPUT** on the Nano Cortex.

Step 2: Connect your monitoring device(s)

- If you haven't already, connect your headphones to **HP OUTPUT** and/or a studio monitor to **OUTPUT 1L** to monitor your Capture.

Step 3: Connect your instrument to Nano Cortex

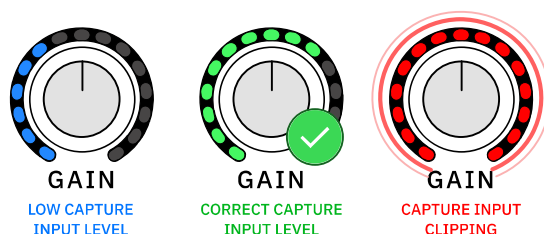
- If you haven't already, plug your guitar/bass to **INPUT 1** using a standard 1/4" instrument cable.

Step 4: Turn on Capture Mode

- If you haven't already, press **CAPTURE** to turn on Capture Mode. When in Capture Mode, the **CAPTURE LED** ring will stay on.

B. Set CAPTURE INPUT levels

Optimizing the **CAPTURE INPUT** level is very important for creating an accurate Neural Capture. Follow these steps to adjust and optimize the **CAPTURE INPUT** level.

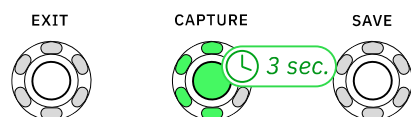


Step 1: Adjust the **CAPTURE INPUT** level with the **GAIN** knob

- Strum your instrument while watching the **GAIN** knob meter.
- Adjust the **GAIN** knob to set the input level. If the signal level remains too low after adjusting the **GAIN** knob, you can engage the **BOOST** switch to increase the input gain by +26dB:
 - **Green:** Indicates a healthy level
 - **Blue:** Indicates the level is too low. Increase the **GAIN** or turn on the **BOOST** switch to increase the input gain by +26dB and compensate for the low level.
 - **Red:** Indicates clipping, meaning the signal is too strong. Turn off the **BOOST** switch or reduce the output level of the target device until the signal level is correct (Green LEDs).

Important: Ensure the **GAIN** knob is set to its minimum position (0%) before engaging the **BOOST** switch.

C. Start the Capture



Step 1: Start the Capture process

- Once the **CAPTURE INPUT** level has been set to a healthy level, press and hold the **CAPTURE** button for 3 seconds to start the capture process.

Step 2: Wait for the Capture to complete

- Nano Cortex will run through a series of test tones and measurements. This process typically takes about 5 minutes. During this time, Nano Cortex is analyzing the

response of your drive pedal and training a neural network to replicate its sound.

- **Important:** During the capture process, avoid adjusting your setup to ensure an accurate capture.

D. Test and save your Neural Capture



Step 1: A/B test your Capture

- After the Capture process is complete, use **Footswitch I** to toggle between the captured sound and the original drive pedal. The LED will light up green for the Capture and will be off for the original.
- When auditioning your recently created Neural Capture, turn **Footswitch II** clockwise or counterclockwise to navigate **IR Slots**. The LEDs will light up according to the slot selected.
 - **Tip:** You can bypass the IR Loader by navigating to the last position, where the LEDs are not lit. This is especially recommended when auditioning a Capture that includes a speaker cabinet.
- When testing your Capture, you can press **Footswitch II** to bypass Nano Cortex.

Step 2: Save your Neural Capture

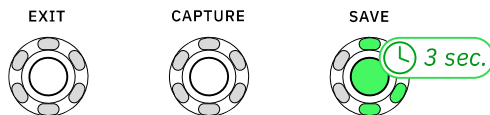
- Press the **SAVE** button to begin storing your Capture. The **BANK** and **Capture Slots** LEDs will start blinking, indicating that you can now select a slot for storage.

Step 3: Select a Capture Slot to save your Capture:

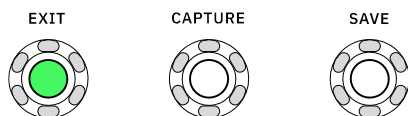
- Cycle through the banks and choose a Capture Slot:
 - Press the **BANK** button to cycle through the banks. Each bank contains multiple slots where you can store your Capture.
 - Turn **Footswitch I** clockwise or counterclockwise to navigate through the available Capture slots within the selected bank.
- **Tip:** If you want to save your Capture without assigning it to a specific slot, navigate to the position where all the LEDs are lit. This corresponds to the **User Library**, where you can store the Capture for later use.

Step 4: Confirm and Save:

- Once you've selected your desired bank and slot, press and hold the **SAVE** button for 3 seconds to confirm and store your Neural Capture.



Step 5: Return to calibration settings or Performance Mode:



- After saving your Capture, press **EXIT** to return to the calibration settings if you wish to start a new Capture process.
- Press **EXIT** again to return to Performance Mode and start playing with your newly created Capture.

Capturing an amp+cab or combo amp

You can create Neural Captures of an amp and cab setup, or

a combo amp, to create incredibly accurate digital replicas of your favorite amplifier and speaker combinations.

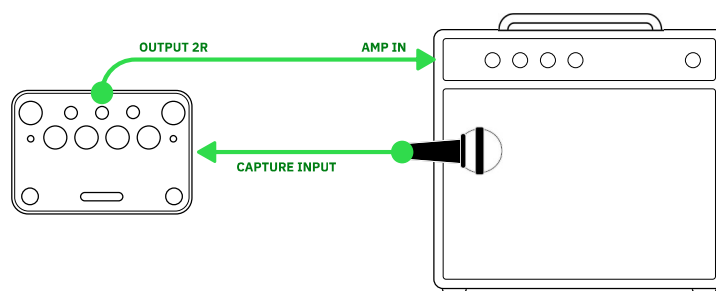
When capturing an amp+cab or combo amp with Nano Cortex, you'll need to use a microphone to capture the sound. The type of microphone you're using and its placement relative to the cabinet will significantly affect the captured tone. Neural Capture is a snapshot of your entire setup, including the microphone and its position, so careful mic placement is essential.

Common microphones used for capturing amp and cab setups include the Shure® SM57, Sennheiser® e609, and Royer® R-121.

Note: Nano Cortex's **CAPTURE INPUT** supports dynamic microphones directly. If you're using a condenser microphone, you'll need an external preamp to power it.

Instructions for creating a Neural Capture of an amp+cab or combo amp

A. Initial setup



Step 1: Connect your amp+cab or amp combo to Nano Cortex

- Connect **OUTPUT 2R (CAPTURE OUT)** on Nano Cortex to the input of your amp using a standard 1/4" instrument cable.

Step 2: Position your microphone and connect it to Nano Cortex

- Position your microphone in front of the speaker cabinet and connect it to Nano Cortex's **CAPTURE INPUT**.
- Begin by setting the microphone at a 90-degree angle to the speaker cone, pointing directly towards the center of it. Position it around one inch away from the speaker grill. If the speaker cone is not visible through the grill material of the cab, shine a flashlight onto it to help find its position.
 - Moving the mic toward the outer edge reduces midrange and upper-mids.
 - Closer placement increases bass response and focus.
 - Positioning the mic at a 45-degree angle (off-axis) warms the tone and reduces highs, while an on-axis position brightens the tone.
 - **Note:** There are no fixed rules for microphone placement. Trust your ears and experiment with different positions until you find the tone you're looking for.

Step 3: Connect your monitoring device(s)

- If you haven't already, connect your headphones to **HP OUTPUT** and/or a studio monitor to **OUTPUT 1L** to monitor your Capture.

Step 4: Connect your instrument to Nano Cortex

- If you haven't already, plug your guitar/bass to **INPUT 1** using a standard 1/4" instrument cable.

Step 5: Turn on Capture Mode

- If you haven't already, press **CAPTURE** to turn on Capture Mode. When in Capture Mode, the **CAPTURE**

LED ring will stay on.

B. Set the **CAPTURE INPUT** levels

Optimizing the **CAPTURE INPUT** level is very important for creating an accurate Neural Capture. Follow these steps to adjust and optimize the **CAPTURE INPUT** level.

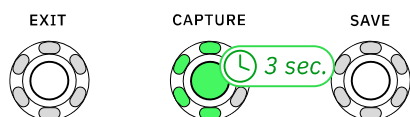


Step 1: Adjust the **CAPTURE INPUT** level with the **GAIN** knob

- Strum your instrument while watching the **GAIN** knob meter.
- Adjust the **GAIN** knob to set the input level. If the signal level remains too low after adjusting the **GAIN** knob, you can engage the **BOOST** switch to increase the input gain by +26dB:
 - **Green:** Indicates a healthy level
 - **Blue:** Indicates the level is too low. Increase the **GAIN** or turn on the **BOOST** switch to increase the input gain by +26dB and compensate for the low level.
 - **Red:** Indicates clipping, meaning the signal is too strong. Turn off the **BOOST** switch or reduce the output level of the target device until the signal level is correct (Green LEDs).

Important: Ensure the **GAIN** knob is set to its minimum position (0%) before engaging the **BOOST** switch.

C. Start the Capture



Step 1: Start the Capture process

- Once the **CAPTURE INPUT** level has been set to a healthy level, press and hold the **CAPTURE** button for 3 seconds to start the capture process.

Step 2: Wait for the Capture to complete

- Nano Cortex will run through a series of test tones and measurements. This process typically takes about 5 minutes. During this time, Nano Cortex is analyzing the response of your drive pedal and training a neural network to replicate its sound.
- **Important:** During the capture process, avoid adjusting your setup to ensure an accurate capture.

D. Test and save your Neural Capture



Step 1: A/B test your Capture

- After the Capture process is complete, use **Footswitch I** to toggle between the captured sound and the original amp and cab. The LED will light up green for the Capture and will be off for the original.
- When auditioning your recently created Neural Capture, turn **Footswitch II** clockwise or counterclockwise to navigate **IR Slots**. The LEDs will light up according to the slot selected.
 - **Tip:** You can bypass the IR Loader by navigating

to the last position, where the LEDs are not lit. This is especially recommended when auditioning a Capture that includes a speaker cabinet.

- When testing your Capture, you can press **Footswitch II** to bypass Nano Cortex.

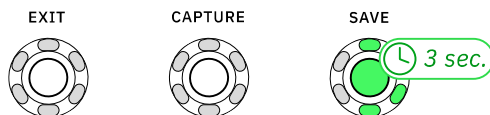
Step 2: Save your Neural Capture

- Press the **SAVE** button to begin storing your Capture. The **BANK** and **Capture Slots** LEDs will start blinking, indicating that you can now select a slot for storage.

Step 3: Select a Capture Slot to save your Capture:

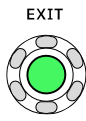
- Cycle through the banks and choose a Capture Slot:
 - Press the **BANK** button to cycle through the banks. Each bank contains multiple slots where you can store your Capture.
 - Turn **Footswitch I** clockwise or counterclockwise to navigate through the available Capture slots within the selected bank.
- **Tip:** If you want to save your Capture without assigning it to a specific slot, navigate to the position where all the LEDs are lit. This corresponds to the **User Library**, where you can store the Capture for later use.

Step 4: Confirm and Save:



- Once you've selected your desired bank and slot, press and hold the **SAVE** button for 3 seconds to confirm and store your Neural Capture.

Step 5: Return to calibration settings or Performance Mode:



- After saving your Capture, press **EXIT** to return to the calibration settings if you wish to start a new Capture process.
- Press **EXIT** again to return to Performance Mode and start playing with your newly created Capture.

Capturing an amp head without a cab

You can create Neural Captures of amp heads to digitally preserve and recreate the unique tone of your favorite amplifiers. Your Captures can then be paired with the built-in IR Loader on your Nano Cortex to simulate the sound of a full amp and cab setup.

Creating Neural Captures of amp heads is particularly useful for getting a consistent, portable, and versatile tone that you can take anywhere.

Important: When capturing an amp head without a cab, you'll need to use a reactive load box to safely manage the amp's output. **Connecting the speaker output of a tube amplifier to Nano Cortex without a reactive load box could damage both devices.**

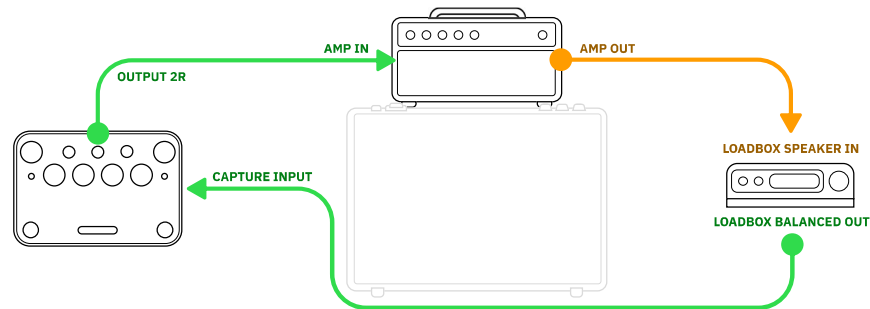
Common reactive load boxes for capturing amp heads include the Two Notes® Torpedo Captor, Suhr® Reactive Load IR, Fryette® Power Station, Universal Audio® OX Amp Top Box, and Radial® Headload Prodigy.

Note: If your amp has a D.I. out, you can connect to that provided your amplifier is still connected to a cabinet.

Instructions for creating a

Neural Capture of an amp head without a cab

A. Initial setup



Step 1: Connect your amp head to Nano Cortex

- Connecting your amp head to Nano Cortex with a reactive load box
 - Connect **OUTPUT 2R (CAPTURE OUT)** on the Nano Cortex to the input of your amp using a standard 1/4" instrument cable.
 - Connect the amp's **speaker output** to the **speaker input** of your **reactive load box**
 - Connect your **reactive load box's balanced output** to the Nano Cortex's **CAPTURE INPUT**.

Or

- Connecting your amp head to Nano Cortex using the D.I. out of your amp head
 - Connect **OUTPUT 2R (CAPTURE OUT)** on the Nano Cortex to the input of your amp using a standard 1/4" instrument cable.
 - Connect the amp's **D.I. output** to the Nano Cortex's **CAPTURE INPUT**.
 - **Important:** Ensure your amp head is still connected to a cabinet to avoid damaging

your equipment.

Step 2: Connect your monitoring device(s)

- If you haven't already, connect your headphones to **HP OUTPUT** and/or a studio monitor to **OUTPUT 1L** to monitor your Capture.

Step 3: Connect your instrument to Nano Cortex

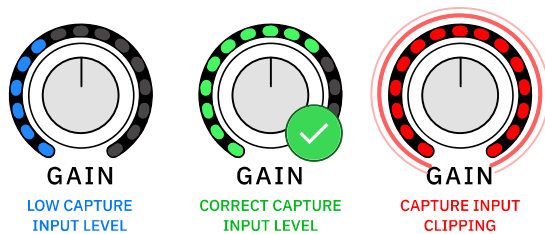
- If you haven't already, plug your guitar/bass to **INPUT 1** using an instrument cable.

Step 4: Turn on Capture Mode

- If you haven't already, press **CAPTURE** to turn on Capture Mode. When in Capture Mode, the **CAPTURE LED** ring will stay on.

B. Set the **CAPTURE INPUT** levels

Optimizing the **CAPTURE INPUT** level is very important for creating an accurate Neural Capture. Follow these steps to adjust and optimize the **CAPTURE INPUT** level.



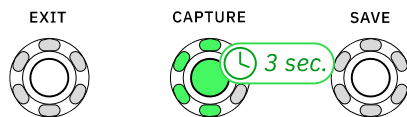
Step 1: Adjust the **CAPTURE INPUT** level with the **GAIN** knob

- Strum your instrument while watching the **GAIN** knob meter.
- Adjust the **GAIN** knob to set the input level. If the signal level remains too low after adjusting the **GAIN** knob, you can engage the **BOOST** switch to increase the input gain by +26dB:

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Important: Ensure the **GAIN** knob is set to its minimum position (0%) before engaging the **BOOST** switch.

C. Start the Capture



Step 1: Start the Capture process

- Once the **CAPTURE INPUT** level has been set to a healthy level, press and hold the **CAPTURE** button for 3 seconds to start the capture process.

Step 2: Wait for the Capture to complete

- Nano Cortex will run through a series of test tones and measurements. This process typically takes about 5 minutes. During this time, Nano Cortex is analyzing the response of your drive pedal and training a neural network to replicate its sound.
- **Important:** During the capture process, avoid adjusting your setup to ensure an accurate capture.

D. Test and save your Neural Capture



Step 1: A/B test your Capture

- After the Capture process is complete, use **Footswitch I** to toggle between the captured sound and the original head. The LED will light up green for the Capture and will be off for the original.
- When auditioning your recently created Neural Capture, turn **Footswitch II** clockwise or counterclockwise to navigate **IR Slots**. The LEDs will light up according to the slot selected.
 - **Tip:** You can bypass the IR Loader by navigating to the last position, where the LEDs are not lit. This is especially recommended when auditioning a Capture that includes a speaker cabinet.
- When testing your Capture, you can press **Footswitch II** to bypass Nano Cortex.

Step 2: Save your Neural Capture

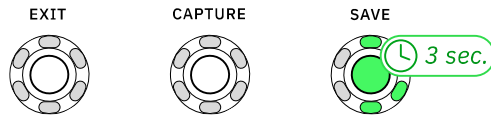
- Press the **SAVE** button to begin storing your Capture. The **BANK** and **Capture Slots** LEDs will start blinking, indicating that you can now select a slot for storage.

Step 3: Select a Capture Slot to save your Capture:

- Cycle through the banks and choose a Capture Slot:
 - Press the **BANK** button to cycle through the banks. Each bank contains multiple slots where you can store your Capture.
 - Turn **Footswitch I** clockwise or counterclockwise to navigate through the available Capture slots within the selected bank.

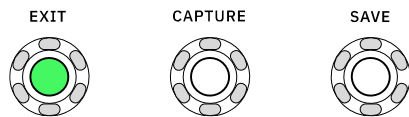
- **Tip:** If you want to save your Capture without assigning it to a specific slot, navigate to the position where all the LEDs are lit. This corresponds to the **User Library**, where you can store the Capture for later use.

Step 4: Confirm and Save:



- Once you've selected your desired bank and slot, press and hold the **SAVE** button for 3 seconds to confirm and store your Neural Capture.

Step 5: Return to calibration settings or Performance Mode:



- After saving your Capture, press **EXIT** to return to the calibration settings if you wish to start a new Capture process.
- Press **EXIT** again to return to Performance Mode and start playing with your newly created Capture.

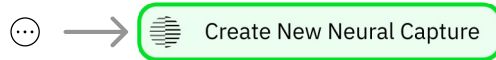
Creating a Neural Capture with the Cortex Cloud App

While you can create a Neural Capture directly on your Nano Cortex, using the Cortex Cloud app provides a more guided and user-friendly experience, making the process easier from start to finish.

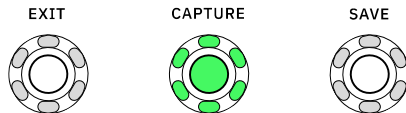
For detailed instructions on setting up the Cortex Cloud app, read our guide on [pairing your Nano Cortex with the Cortex Cloud app](#) and [using the app](#).

How to create a Neural Capture using the Cortex Cloud app

Step 1: Open the Neural Capture tool in the Cortex Cloud App:



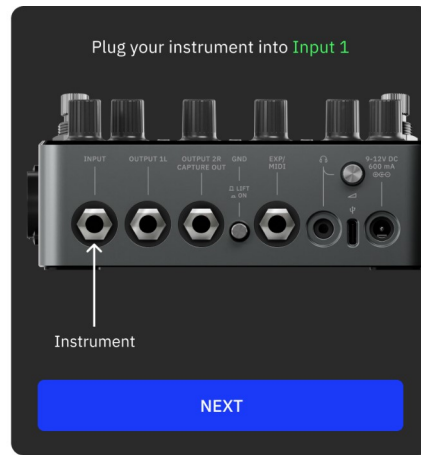
- Tap the contextual menu button at the top-right corner of the app.
- Select '**Create New Neural Capture**'. This will bring you to the '**Connection Diagram**' screen, where you'll see a visual guide for connecting your gear.



Note: Alternatively, press the **CAPTURE** button on your Nano Cortex while the Cortex Cloud app is open. The app will skip the '**Connection Diagram**' screen and open the '**Calibration Settings**' screen.

Step 2: Follow the connection diagram:

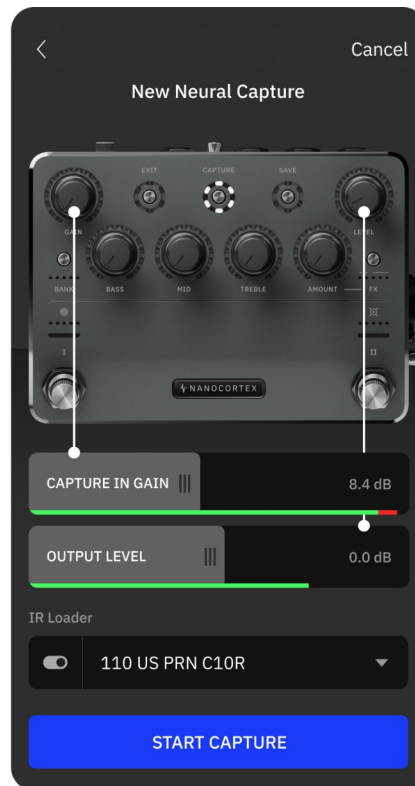
The Cortex Cloud app will display a connection diagram showing how to connect your gear, whether it's a drive pedal, a mic'd up cabinet, or an amp head connected via a reactive load box.



- Follow the on-screen instructions and connect your gear according to the diagram.
- After setting up your connections, tap **NEXT** to proceed.
- **Tip:** If you're already familiar with the setup process, you can tap **SKIP** to move directly to the '**Calibration Settings**' screen.

Step 3: Adjust the calibration settings and begin the Capture process:

In the '**Calibration Settings**' screen, you'll fine-tune your setup to ensure optimal Capture quality.



- **CAPTURE IN GAIN:** Drag the slider to adjust the **CAPTURE INPUT** gain, up to a maximum of +24dB.
- **OUTPUT LEVEL:** Use the slider to control the overall output volume of the Nano Cortex, affecting both **OUTPUT 1L** and your headphones.
- **IR Loader:** Tap to toggle the IR Loader on or off, or to change IRs.

Once your settings are dialed in, tap **START CAPTURE** to begin the capture process.

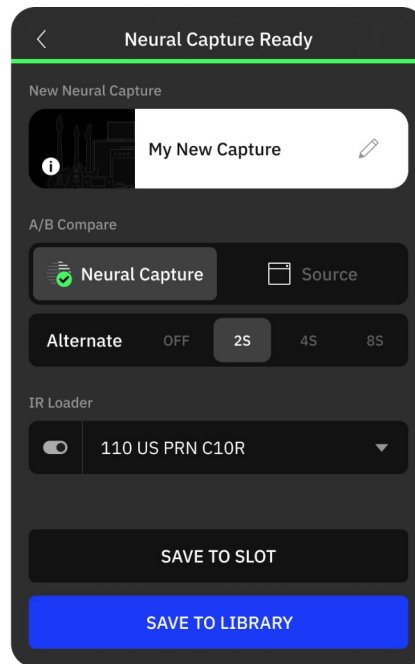
Step 4: Capture process and adding metadata to your Capture:

During the Capture process, Nano Cortex will analyze your gear by measuring latency and recording signals used for creating the Capture. During this process you can add metadata to your Capture.

- **Add Metadata:** During the Capture process, you can add metadata to your Neural Capture, such as Name,

Type, Description, and Preferred Instrument.

- **Tap NEXT:** Once the capture is complete, tap **NEXT** to proceed to the **'Testing'** screen.



Step 5: Test and save your Neural Capture:

In the **'Testing'** screen, you can compare the captured sound with the original signal.

- **A/B Compare:** Use the monitoring switch to toggle between the target device's signal and the Neural Capture you created. You can also set it to switch automatically every 2, 4, or 8 seconds.
- **IR Loader:** Tap to toggle the IR Loader on or off, or to change IRs.
- **Save your Capture:** Tap **SAVE TO SLOT** to store your Neural Capture in a specific slot, or choose **SAVE TO LIBRARY** to store it in your library for later use.

Once your Neural Capture is saved, tap **DONE** to exit Capture Mode, or select **CREATE ANOTHER CAPTURE** to

return to the **‘Calibration Settings’** screen.

Next Steps

By capturing your amplifiers, cabinets, and drive pedals, you can now carry those tones with you, wherever you go, all within your Nano Cortex.

The process of creating Neural Captures is remarkably quick, easy, and straightforward. With just a few simple steps, you can accurately replicate the unique sound of your equipment and have it ready to use at any time.

For more information on how to share your Neural Captures and explore the vast library of Captures created by others, be sure to read our guide on [using the Cortex Cloud app](#). The Cortex Cloud allows you to download Neural Captures from users all around the world, giving you access to a limitless array of tones to try out.

If you have any questions or need assistance, our support team is always here to help. You can contact us by emailing support@neuraldsp.com.

Guides for getting started with Nano Cortex

- [Nano Cortex quick start guide](#)
- [Connecting your gear to Nano Cortex](#)
- [Bluetooth pairing guide for Nano Cortex](#)
- [Using the Cortex Cloud app with Nano Cortex](#)

- **How to create a Neural Capture on Nano Cortex**
- [Creating and managing presets on Nano Cortex](#)
- [Using Nano Cortex as an audio interface](#)
- [Reamping on Nano Cortex](#)
- [Updating your Nano Cortex](#)
- [Using MIDI on Nano Cortex](#)
- [Nano Cortex DAW templates](#)