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# Use high-impedance headphones with MacBook Air, MacBook Pro, or Mac Studio

2–3 minutes

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You can connect high-impedance headphones directly to Mac laptops introduced in 2021 or later or Mac Studio.

The 3.5 mm headphone jack on Mac laptops introduced in 2021 or later and Mac Studio features DC load detection and adaptive voltage output. Your Mac can detect the impedance of the connected device and will adapt its output for low- and high-impedance headphones, as well as for line-level audio devices.

When you connect headphones with an impedance of less than 150 ohms, the headphone jack provides up to 1.25 volts RMS. For headphones with an impedance of 150 to 1k ohms, the headphone jack delivers 3 volts RMS. This may remove the need for an external headphone amplifier.

With impedance detection, adaptive voltage output, and [a built-in digital-to-analog converter](#) that supports sample rates of up to 96 kHz, you can enjoy high-fidelity, full-resolution audio directly from the headphone jack on your Mac.

## Compatible Mac computers

These Mac computers support high-impedance headphones with the built-in headphone jack:

- MacBook Air (M2, 2022)
- MacBook Pro (13-inch, M2, 2022)
- MacBook Pro (14-inch, 2021)
- MacBook Pro (16-inch, 2021)
- Mac Studio (2022)

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