

About NVRAM and PRAM

Languages English

Learn about your Mac's PRAM or NVRAM, and when and how you might want to reset it.

Your Mac stores certain settings in a special memory area even if it is turned off. On Intel-based Macs, this is stored in memory known as NVRAM; on PowerPC-based Macs, this is stored in memory known as PRAM.

Information stored in NVRAM / PRAM includes:

- Speaker volume
- Screen resolution
- Startup disk selection
- Recent kernel panic information, if any

If you experience issues related to these functions, you may need to reset the NVRAM or PRAM. For example, if your Mac starts up from a startup disk other than the one you've specified in Startup Disk preferences, or if a "question mark" icon appears briefly when your Mac starts up, resetting NVRAM / PRAM may help.

Resetting NVRAM / PRAM

1. Shut down your Mac.
2. Locate the following keys on the keyboard: Command (⌘), Option, P, and R. You will need to hold these keys down simultaneously in step 4.
3. Turn on the computer.
4. Press and hold the Command-Option-P-R keys before the gray screen appears.
5. Hold the keys down until the computer restarts and you hear the startup sound for the second time.
6. Release the keys.

After resetting NVRAM or PRAM, you may need to reconfigure your settings for speaker volume, screen resolution, startup disk selection, and time zone information. If issues persist, your Mac's logic board battery (not a portable Mac's rechargeable battery) may need to be replaced. The logic board battery helps retain NVRAM/PRAM settings when your computer is shut down. You can take your Mac to a Mac Genius or Apple Authorized Service Provider to replace the battery on the logic board.

Resetting NVRAM in Open Firmware

If your computer is Open Firmware-based and you are unable to reset NVRAM as described above, you may alternatively reset the NVRAM and Open Firmware settings using the steps in the Solution section of Message "To continue booting, type 'mac-boot' and press return".

In some cases, an Open Firmware-based computer may not respond to the keyboard commands noted above, and may not allow starting up into Open Firmware by pressing and holding the Command, Option, O, and F keys during startup. If you are unable to get to an Open Firmware prompt (and your Mac supports doing so), try holding the power button held down continuously during start up.

Additional Information

Resetting PMU on PowerBook or iBook computers

Third-party displays

Contents of PRAM on earlier Macs

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Helpful?

Yes

No

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If your Mac starts up as expected, immediately try restarting. If the Safe Boot does not work, or the restart after a successful Safe Boot does not work, go to the next section. Reset the NVRAM / PRAM

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