



DeviceTuner™

Modify data transfer attributes of connected FireWire devices to increase system compatibility

Part of the Intech's SpeedTools™ Software
for MacOS™ X

User's Guide



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For One Computer

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Guide Introduction

About This Guide

The instructions and explanations in this guide assume that you understand how to operate your Macintosh computer. You should, for example, know how to choose, select, launch, and drag by using your mouse. In addition, you should also understand how the desktop, windows, dialog boxes, buttons and file/folders work within the Macintosh environment. For more information about these items, please refer to your Macintosh User's Guide.

Conventions Used In This Guide



Note: This symbol calls your attention to important information about the adjacent text. A note will always appear in standard print.



Warning: This symbol calls your attention to procedures in the adjacent text which can cause harm to you, your data or computer system. A warning will always appear in bold print.

User Registration

Please take a moment to register your copy of the SpeedTools™ software on-line via the Intech Software World Wide Web page at <http://www.SpeedTools.com>.

Technical Information

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Using the DeviceTuner™ Utility

About DeviceTuner

DeviceTuner was created specifically to solve the problems of a particular FireWire device's ability to transfer data reliably over a FireWire bus. Being unable to copy files to or from a FireWire hard disk, for example, is a common symptom of a larger problem: less than optimal signal quality on the FireWire bus. This can be caused by a myriad of factors, but regardless of why it happens, DeviceTuner can likely help.

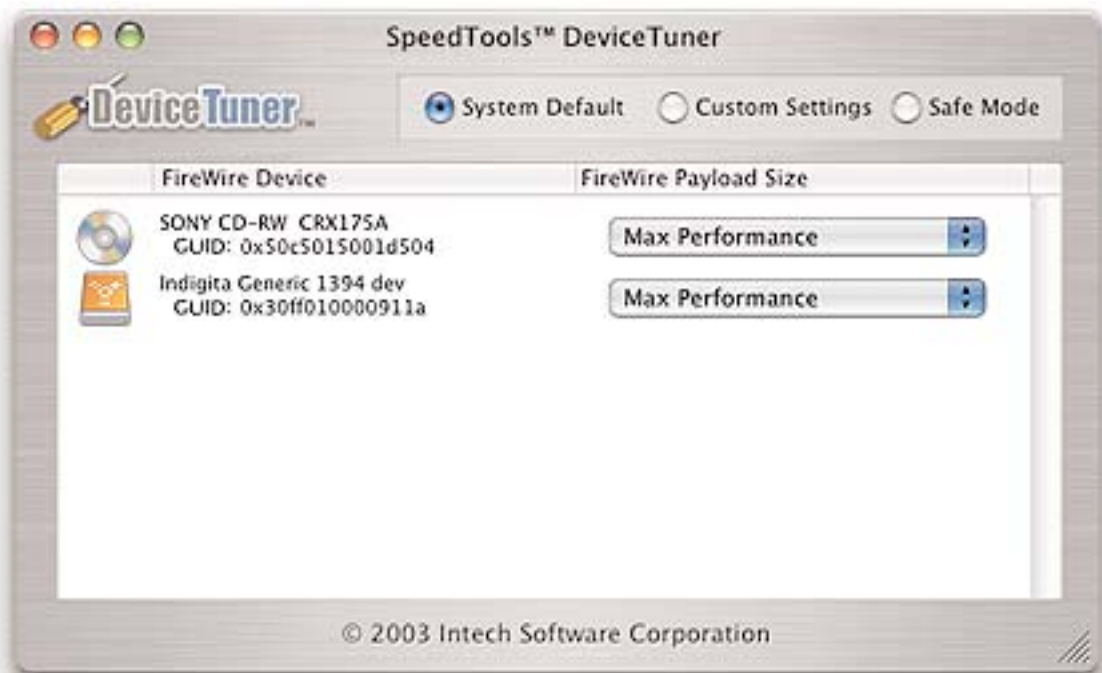


Figure 1. The DeviceTuner Main Window



Note to Hard Disk SpeedTools users: If your FireWire drive was setup for use by HDST under the Classic versions of MacOS and your “Max Packet Size” was reduced using the “Driver Tuning” feature, you will need to use the MacOS X DeviceTuner Utility to reduce your maximum packet size to achieve the same reliability under MacOS X that you relied upon under MacOS 9.

Data is exchanged between FireWire devices in discrete packets of various size. Currently, these packet sizes (called payload) can vary from as little as 4 bytes to as much as 4096 bytes. Most FireWire devices default to anywhere between 1024 to 4096 bytes per packet to achieve maximum speed. This works well for most devices connected to Macintosh computers. However, as more devices get added to a FireWire bus, signal quality can degrade below the threshold that will allow larger data packets to transfer reliably. Furthermore, older Macs (like first generation PCI Power Macs) using older PCI FireWire host adapters seem to also frequently have marginal signal quality which result in data transfer errors with larger packets.

In situations like these, DeviceTuner can make the difference between data transfer errors and perfect data transfer. Device Tuner allows you to restrict the maximum size of a data packet that a given supported device will use. It works by overriding the payload sizes negotiated between the MacOS and the device. Unfortunately, this tactic does not work with all devices, especially early FireWire disk drives.



Note: Be aware that there is always a tradeoff: the lower the packet size, the slower the maximum speed, and visa versa. In a very real sense, Device Tuner does NOT solve the bus's underlying signal quality degradation problem. It just allows you to reduce a device's FireWire bus payload by reducing packet sizes below the levels which manifest data transfer problems.

Using DeviceTuner

If you are experiencing FireWire data transfer problems, unmount and unplug all FireWire devices. Run the MacOS X SpeedTools Utilities installer program, if you haven't already done so. Reboot and launch the DeviceTuner application using the SpeedTools Utility application. For a quick check to verify that your data transfer problems can be solved by reducing the max FireWire payload, click the "Safe Mode" radio button. This will cause all supported devices to use a maximum of 128 byte packets.



Note: The 128 byte packet setting is considered to be a very small packet for a FireWire mass storage device and it will significantly reduce the transfer speed of the device and should therefore be considered a starting point for testing purposes.

Next, plug the troublesome device(s) back into the computer. The device(s) will appear in the window list. If it doesn't say "Unsupported" in the list then the new packet size is now in effect for each supported device. You may quit the Device Tuner application and the settings will always be preserved across replugs and reboots. Next, retest your device(s) to see if the problem goes away.

If the problem is not solved, it is fair say is that reducing the max payload size cannot overcome the problem. The FireWire port on your computer may be damaged, you may have a bad cable, a bad device or multiple devices which do not coexist well on the same bus.

If the problem is solved, Intech recommends you re-run DeviceTuner and select the highest possible max packet sizes on a per device basis that will allow you to transfer data reliably. This will give you the best combination of performance and reliability.

DeviceTuner System Requirements:

- MacOS X 10.2 or later
- Problematic SBP2 Compliant FireWire Device(s)
- A computer restart after initial installation