



Integrity™

Test the stability of virtually all
rewritable storage devices and interfaces

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

If you received this software with the purchase of a drive subsystem and you require technical support, Intech has made special arrangements with your drive manufacturer to support this software directly via their technical support department. For customers who have purchased this software product as stand-alone, Intech provides technical information and other late-breaking information via its web site at <http://www.SpeedTools.com>.

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Using the Integrity™ Utility

About Integrity

The Integrity utility is designed to detect problems associated with disk firmware, signal stability and the overall data transferring reliability of various storage devices and the busses to which they are connected. Over the years, the Integrity utility became an essential testing tool during the development of driver and utility products which Intech created for MacOS versions prior to MacOS X. Now we have brought Integrity to MacOS X to help you detect problems that you may have with your MacOS X data storage devices.



Figure 1. The Integrity Utility Window

The Integrity utility is a totally different kind of disk testing utility compared to those which scan the storage media of a device looking for bad sectors. Integrity specifically tests for data becoming corrupted when transferred to and from your disk. Because the Integrity utility creates discrete, rotating data patterns, the data being retrieved can be accurately compared against the data that was previously sent.

An Integrity test effectively reproduces the environment and steps that the Finder and other applications use to save data to and retrieve data from your disk device(s). In other words, it completely tests the reliability of everything involved with a data transfer process including various functions of the MacOS itself, an application's ability to save and retrieve data through the MacOS, the disk device driver, the bus that the disk device is connected to, the disk device data cable, the firmware of the disk device and the disk device cache with each test iteration.

Using Integrity

To use the Integrity utility, the test volume must have write permission and have at least 1MB free contiguous disk space available. You can test any mounted volume which meets this criteria, including RAM disks or remotely mounted network volumes. The Integrity test is not destructive to any existing data and may be run in the background if desired. However, testing on low speed devices may result in poor responsiveness from your computer while the test is running.

To test a disk volume, drag its desktop icon onto the Integrity main window or alternatively, select the test volume using the "Selected Volume" popup menu in the main window and click the "Start" button. The "Start" button will change to a "Pause" button and the test will begin. You may quit or pause a test at anytime. Clicking the "Start" button after pausing will resume the test from where the test last left off.

Once an Integrity test has been initiated, it will continue to test indefinitely until either the "Pause" or "Quit" buttons has been clicked. As a result, the following warning can be extremely important depending on the selected device and should be read and followed carefully.



Warning: We DO NOT recommend extensive testing with devices which may have a limitation on the total number of times you can write to the media, such as certain types of "phase-change" based devices and CD/DVD desktop-based writable devices. If you are in doubt, contact the manufacturer of your drive product and verify that there is no significant limit to the number of times you can write to your device. Because hard disk devices have no real write count limitation, this warning does not apply to them.

Describing the Integrity Window

Selected Volume Menu:

This menu allows you choose a volume for testing. Alternatively, you may drag a volume icon from the Desktop on to the Integrity window. Volumes listed in this popup menu, which are gray and unselectable, are volumes which are either write protected or do not have enough contiguous disk space available for a test.

Test Size Menu:

The selection in this menu represents the size of the file to be created and used for the reading and writing tests. Test sizes from 1MB to 10MB are available for you to specify. For most people, a 1MB size is usually sufficient to detect any problems. However, larger sizes are available for those who wish to test data transfers that better simulate data transfers used by some commercial multimedia applications.

Test Status:

Hex Byte Pattern: a small sample of the created data pattern which is currently being written and read back during a test iteration.

Data Transferred: This field represents the combined amount of data which is written to the media and read back in from the media. It is displayed in Megabytes (MB).

Test Time: The Test Time display will monitor the exact amount of testing time that has elapsed during a single test session.

Test Cycles: This field is incremented once every time the Hex pattern restarts with zeros (effectively every 256 patterns).

Compare Errors: This field represents each instance that the returning data did not match the test pattern data which was originally sent.



Note: For all devices, Intech believes that one compare error is too many. However, the final decision about errors is ultimately yours.

Additionally, if the a system crashes or lockup occurs while using the Integrity utility, this should be considered a serious configuration and/or hardware error.

Process View:

This feature displays the active test portion of each test pattern iteration (i.e. preparing the data, writing the data, reading the data and comparing the data). This feature may be turned off if desired. To turn off the feature, click the disclosure triangle just left of the Process View title.

Describing the Integrity Pull-Down Menus:

The Integrity Application Menu:

The Integrity Application Menu, located at the top-left of your monitor, provides three main selectable items:



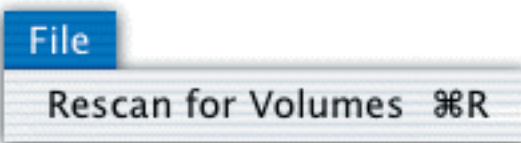
About Integrity™ - Selecting this menu item will provide copyright and version information about the Integrity utility.

Preferences - This menu item provides the ability to set the CPU usage for tests taking place both in the foreground and background. Reducing either of the provided CPU settings will allow other applications that may be running to gain more CPU cycles and should reduce sluggishness that you may notice while using them.

Quit - This menu item will immediately quit the Integrity utility, even if a test is in process.

The File Menu:

The File Menu provides one item, the Rescan for Volumes function.



Rescan for Volumes - This menu item is used to rebuild the Selected Volume popup menu if, for example, you inserted a removable media cartridge after you started the Integrity utility.

Integrity Usage Recommendations:

- For devices connected to a SCSI bus or ATA bus, Intech recommends at least 2 hours of continuous testing to feel reasonably secure about the data transferring process. However, at your earliest opportunity, testing overnight or for a weekend duration is preferable.
- If you add a new SCSI drive, you should also test every other SCSI hard drive which is connected to the same SCSI bus as well. This is because adding a new device can affect the signal quality for every other device which share the bus.
- If you add a new ATA drive to form a Master/Slave disk drive pair, you should test both Master and Slave devices. If possible, for maximum effectiveness, make a duplicate of the Integrity test utility.
- For USB and FireWire devices, we recommend a minimum of 24 hours of continuous testing. A full weekend is highly recommended as errors in these drive configurations tend to be more difficult to detect.



Disclaimer: Although Intech believes that the Integrity utility can be very effective at detecting data signal and other various disk communication problems, Intech cannot not guarantee that the Integrity utility will be able to detect them all.

Integrity System Requirements:

- Integrity can test any mounted disk volume which has write ability and 5MB of free contiguous disk space (minimum).
- 10 MB of available RAM (minimum). Larger test sizes will require more RAM.
- Integrity is compatible with MacOS X 10.2.0 or later.