
SeaTools for Windows User Guide

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Rev. 26-March-2009



SeaTools for Windows



Welcome to Seagate's *SeaTools for Windows* software!

SeaTools for Windows is available in several languages (German, Spanish, French, Italian, English, Portuguese, Japanese, Chinese Simplified and Chinese Traditional). Go the Help menu to select a language.

This file and a PDF version are located in the folder chosen for installation (usually under C:\Program Files\Seagate\SeaTools for Windows\SeaTools for Windows.rtf) and are available for printing.

This User Guide contains important information about SeaTools. Please read this entire file before using this software.

SeaTools for Windows is a comprehensive, easy-to-use diagnostic tool that helps you quickly determine the condition of the disc drive in your external hard drive, desktop or notebook computer. It includes several tests that will examine the physical media on your Seagate or Maxtor disc drive and any non-Seagate disc drive. *SeaTools for Windows* should run on both internal and external hard drives.

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1. Why Use SeaTools?

After testing, a large percentage of the drives returned to Seagate for warranty replacement are perfectly good drives with "No Problem Found" (NPF). Returning a drive for warranty service means system downtime and inconvenience for you in packing and returning your drive product. Before you send in a drive, it is in your best interest to determine if a replacement drive is really necessary. This hard disc diagnostic utility will help you make that determination and possibly save you time and money and preserve your data.

Some typical reasons for No Problem Found are:

- * File System Corruption
- * Driver Corruption
- * Broken Master Boot Record
- * Virus and Trojan Attack
- * Spyware, Adware and Keystroke loggers
- * Hardware Conflicts

The Seagate SeaTools software is simple to use. The following instructions will help you get the most out of this new software tool.

2. Using SeaTools for Windows

A. Prepare the System

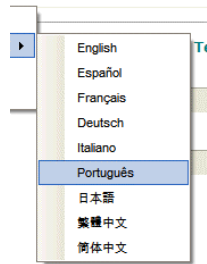
You should close all other applications before running a hard disc diagnostic. The main reason for this is to keep the drive focused on SeaTools as much as possible. Otherwise, Windows will continue to give the disc drive commands to access data for the needs of the other applications. When that happens, SeaTools will temporarily suspend its current progress while the drive is busy. This is harmless to the drive and a routine condition of use; however, it causes the SeaTools tests to take much longer time to complete.

External drives that connect to the system through USB, 1394 Firewire or eSATA do not have the same background activity as the Internal drive. Internal drives are identified as SATA (serial ATA), PATA (parallel ATA or IDE), SAS (serial attached SCSI) or SCSI. Most desktop and notebook systems have one SATA or PATA internal drive.

Power management controls may need to be suspended while doing very long tests. A complete drive scan may take a few hours to complete. The drive is working on its own at these times and the system may decide it should go into Stand By or Hibernate modes. Windows XP and Vista Control Panel Power Options have a setting "Turn off hard disks" and should be set to "Never" during the test.

Notebook systems should not run the long tests using just battery power. These tests are disc intensive and will draw more current than a typical usage profile. Be sure to attach the AC adapter to ensure adequate power during the tests.

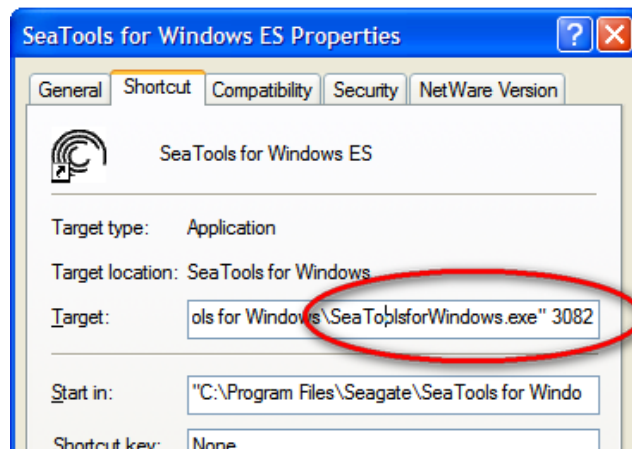
To change language, go the Help pull down menu and select Language.



B. Setting the start up language preference

The software should automatically detect the starting language based on your regional settings. You can set the start up language manually to any of the supported languages. To do this, go the launch icon properties and select shortcut tab. The "Target:" field should have the path and application name already defined. Just add a space and one of the language ID's below to change the default starting language.

Language ID's:	
English (US)	1033
German	1031
French	1036
Italian (Italy)	1040
Spanish (Spain)	3082
Portuguese (Brazil)	1046
Chinese (Simplified)	2052
Chinese (Traditional)	1028
Japanese	1041



"C:\Program Files\Seagate\SeaTools for Windows\SeaToolsforWindows.exe" 3082
//will start SeaTools in Spanish

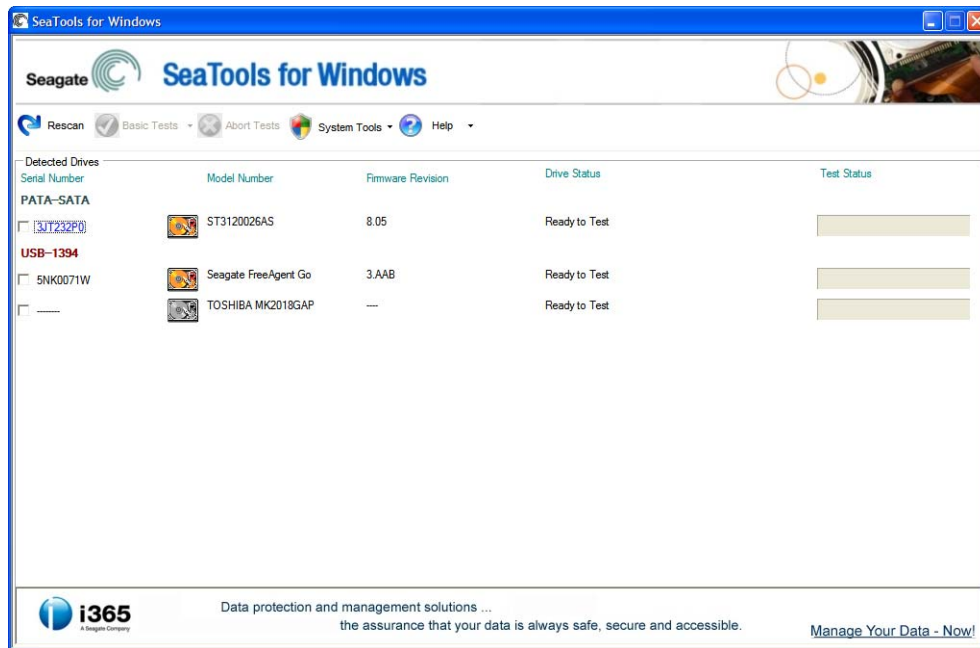
C. Select the Drives to Test

After SeaTools loads, the screen will list the different storage devices in your system. Select the drive you would like to test by making a check mark in the box next to the drive information. This screen also displays information about the drives such as the Model Number and Serial Number. Seagate internal drive model numbers begin with the letters "ST". Maxtor model numbers begin with the word Maxtor. External drives may show a descriptive name like "FreeAgent" under the model number column. Seagate serial

numbers are alpha numeric and eight characters long. Seagate and Maxtor drives models are given a gold drive icon. Non-Seagate drives have a silver drive icon. The blue serial number indicates the boot device.

You may select more than one drive at a time. Multiple drives will test simultaneously. You may also start tests on other drives after other tests are running.

Be sure to choose the correct drive!



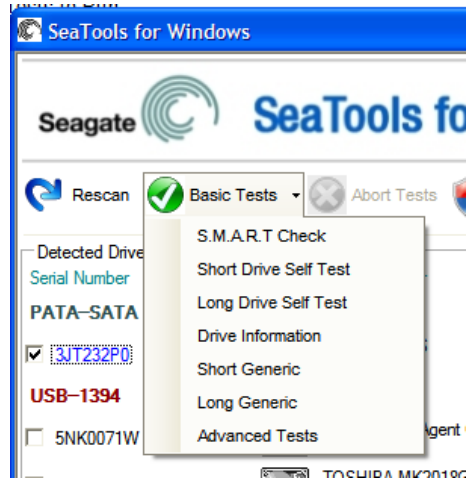
D. Select the Tests to Run

A menu of the possible diagnostic tests is shown. With the exception of Long Generic which offers the option to repair sectors on USB external drives, all other **Basic Tests** are data safe, read only tests. Select the tests that you would like to perform. The test will begin immediately.

These tests include:

- SMART Check
- Short Drive Self Test 20 to 90 seconds long
- Long Drive Self Test may take up to 4 hours, progress in 10% increments
- Drive Information can be saved to the Log file
- Short Generic three-part test
- Long Generic progress in 1% increments, sector repair option for USB external
- Advanced Tests see section 3 below

The software will report "Test Unavailable" if the required level of support is missing. For example, Short Drive Self Test may not run on all external USB storage devices.



When you launch the "Short Drive Self Test" (DST) most drives will run a thorough diagnostic routine that is built in to the hard drive's firmware. DST is completely data safe.

The "Short Drive Self Test" is adequate for most situations. Consider running the long Generic or long DST test, which reads each sector on the drive if you need a more comprehensive test.

The long tests will take time to complete. Because the long tests read every sector on the drive, the amount of time required will depend on the speed and capacity of the disc drive. The highest capacity drives often take 2 to 4 hours to complete. You can abort the test at any time without harming the drive, although the drive will not be fully tested if the test is aborted.

During the "Long Drive Self Test" progress is reported in 10% increments only. On large drives, 10% progress may take as much as 15 minutes. The apparent lack of activity often gives the impression that the drive or software has stopped responding. Please do not abort the Long Drive Self Test unless an adequate length of time has elapsed to complete the first 10%. Unfortunately, this 10% granularity is an industry standard.

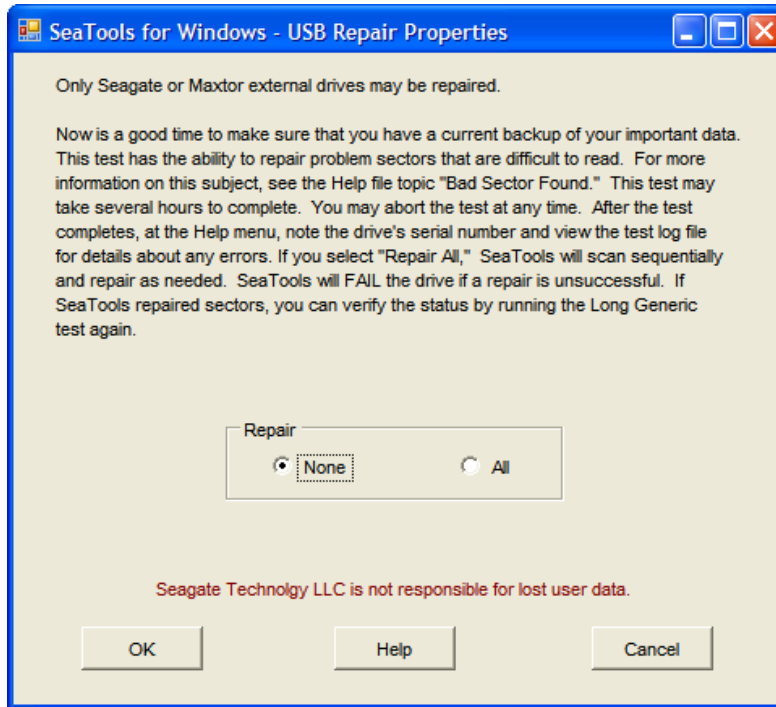
"Short Generic" will run on internal and external drives. It has three segments: outer scan, inner scan and random read.

"Long Generic" will run on internal and external drives. It scans the entire drive, from beginning to end. This test may take several hours to complete. You may abort the test at any time. The test will fail and end if a bad sector is detected on an internal drive.

In the case of USB external drives, the "Long Generic" test has the option to Repair sectors. For more information on this subject, see the topic below "Bad Sector Found" in section 4. If you choose Repair None, the "Long Generic" test will scan the entire drive and simply list any unreadable sectors in the log file.

Data is stored in sectors and each sector has 512 bytes. The "Long Generic" test with USB sector Repair enabled will only repair individual sectors as needed. When a 512-byte sector is unreadable, any data that might have been in that sector is already lost. When a drive has a large amount of free space, odds are in favor of an unreadable sector being empty and not in use. If you choose Repair All, the "Long Generic" test will scan the entire drive after pressing the F8 key and attempt to repair unreadable sectors. If a sector cannot be repaired, then the test will fail and end. See the log file for a listing of any unreadable sectors.

Disclaimer: Seagate Technology, LLC is not responsible for lost user data.



E. Aborting the Diagnostics

The SeaTools performs a data-safe test of the selected hard disc drive or device for possible malfunctions. Long tests may be aborted at any time. Select the "Abort Tests" icon from the menu bar.

F. Summary of Results and Viewing the Logs


After running a diagnostic test, a log file for each drive tested will be saved to the SeaTools for Windows folder under Program Files/Seagate. To view these logs, take note of the serial number of the drive then select the Help pull down menu and choose View Log File.

The following test results may apply: - Passed - Failed - Aborted

Drive Status	Test Status
Short Generic - Pass	
Short Generic - FAIL	
Outer Scan	

More often than not, *SeaTools for Windows* will test with a **PASS** status. The fact that the drive is capable of booting into Windows demonstrates that the disc drive is reasonably healthy. *SeaTools for Windows* is a useful testing tool to eliminate the hard disc drive as the source or physical cause of some

system problem. A drive can be perfectly healthy but be holding corrupted data. If this is the case, then the data needs to be repaired, re-installed or re-saved.

Model Number	Firmware Revision	Drive Status
 ST91608234S	3.A4B	Short DST - FAIL

When testing internal drives and Short DST fails, consider running SeaTools for DOS. It has the ability to repair problem sectors. SeaTools for DOS does not support USB or other external drives at this time.

IMPORTANT: If bad sectors (LBAs) are detected during the Short Drive Self Test (DST), then the diagnostic will halt with a **FAIL** status.

If you are testing an internal PATA (IDE) or SATA disc drive, in this case, we recommend that you run the Long Test in the bootable version, ***SeaTools for DOS***, which has the ability to **repair** sectors in most cases. A copy of the bootable CD ISO image file for *SeaTools for DOS* was copied as part of this software and is available here:

C:\Program Files\Seagate\SeaTools for Windows\SeaToolsDOS207EURO.iso for European languages, or SeaToolsDOS207APAC.iso for Asian languages. For information about how to burn a CD ISO image file, see our web page <http://seagate.custkb.com/seagate/crm/selfservice/search.jsp?DocId=200871>

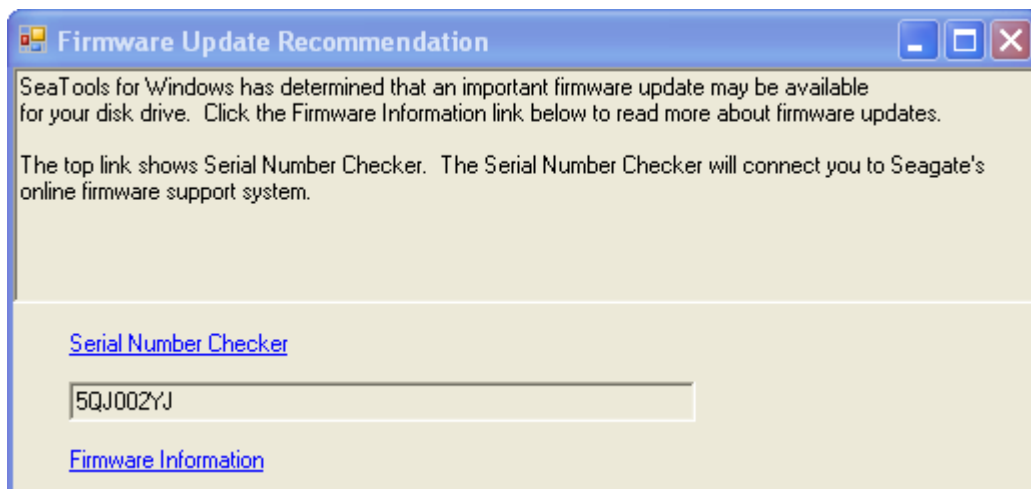
If you are testing an external USB disc drive, we recommend that you run the Long Generic test in this application which offers the option to **repair** sectors on USB drives.

If *SeaTools for Windows* software indicates a **FAIL** test status and you have attempted to repair sectors as described above, then you should consider checking the warranty status of your device. You can check the warranty status for Seagate and Maxtor products at the Seagate website. You will need to write down the serial number for the drive you intend to check. The Seagate Warranty pages begin here: http://www.seagate.com/www/en-us/support/warranty_&_returns_assistance/

G. Miscellaneous Features

FDE Password Back and Restore: (Help Menu, FDE Utilities) Full Disk Encryption drives depend on passwords. This feature is only available if an FDE drive is detected in the system. It will display a screen to collect your input of the drive's password and answers to various challenge questions. The password back up file is saved to the hard drive with a .PWB file name extension. You should save another copy of the file on an external backup storage device or media. The Restore option will require the exact answers to the challenge questions to display your original password.

Firmware Update Recommendation: Occasionally, Seagate will recommend firmware updates for specific models of disk drives. If *SeaTools for Windows* detects a model and firmware revision that should have a firmware update, it will display the following screen:

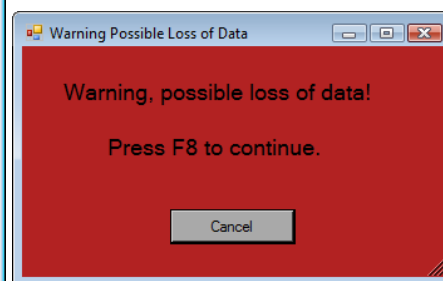
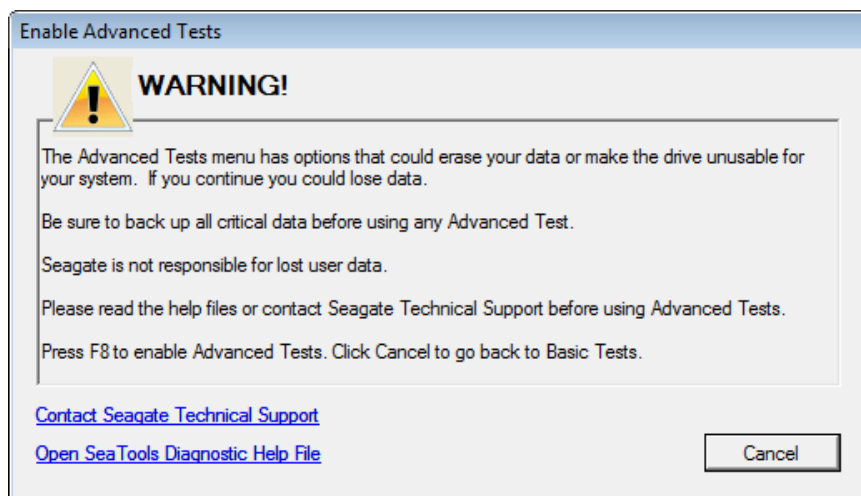


Use the online Serial Number Checker connection to find out if your drive is specifically recommended for a firmware update.

3. Advanced Tests

SeaTools for Windows supports different types of disc drives. These include different interfaces (SATA, PATA, USB, 1394, eSATA, SAS, SCSI and limited Fibre Channel), and different systems (desktop, external drives and some servers). SAS and SCSI drives are primarily used in network servers and they have additional support requirements that are available under the Advanced Tests tab. These options are of no use to desktop systems or external drives. These options are potentially or outright data destructive to SCSI and SAS drives. Only expert system operators should be using Advanced Tests. RAID controllers are usually not supported in *SeaTools for Windows*. RAID management software isolates the individual drives from direct access.

Disclaimer: Seagate Technology, LLC is not responsible for lost user data.



These advanced tests include:

- Download Firmware (SCSI, SAS and Fibre Channel only)
- Format (default format, 512 byte block size)



Concerning SAS and SCSI download firmware - The firmware files will be either .LOD or .SEA file types. These files must be copied to the STXENG folder under the SeaTools for Windows folder. (Hint: In Vista, be sure copy the files in using Administrator rights or the files may not be visible.)

4. Bad Sector Found

IMPORTANT: Please read and carefully consider all of the following information about your "Bad Sector Found" options.

A bad sector is a small 512-byte area on the disc drive that is reporting errors and cannot be accessed properly. New bad sectors, sometimes called grown defects, are often caused by some kind of physical damage. If a file or folder uses this sector, then the file is already incomplete or corrupt because the bytes are not readable.

**** NOTE **** The following information applies only to Seagate Technology or Maxtor brand disc drives:

When SeaTools discovers a bad sector through reading, it displays a count of the bad sectors.

Sectors are often not in use. If a sector is in use, then that file is incomplete or corrupt. When a bad sector happens to align with a folder or directory listing structure, then the links to files and sub-folders it manages may be broken.

You should carefully consider the importance of your data. While the sector is currently unreadable, if the file or folder is important to you then you may need professional recovery services to possibly reclaim the data. In this case, select NONE to scan without trying to repair sectors on the drive.

If you have decided that the file or folder is replaceable, already backed up or just not important to you, then you can tell SeaTools to attempt to attempt to repair the sector.

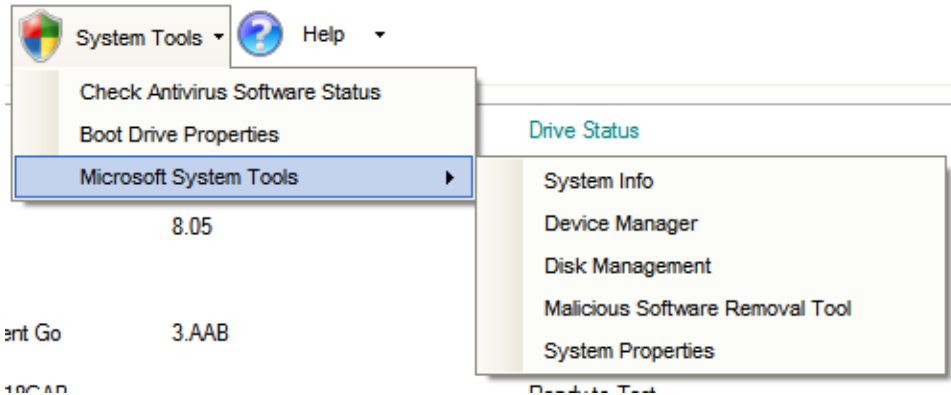
By design, modern disc drives maintain spare sectors for reallocation purposes. Usually, sectors become difficult to read long before they become impossible to read. In this situation the actual data bytes in the sector are preserved and transferred to the new spare during a sector reallocation. Similarly, when a disc drive writes data and encounters a problem, the drive firmware retires the problem sector and activates a replacement before giving successful write status.

If you give permission to attempt to repair a bad sector, then SeaTools will attempt to write a 512-byte pattern of zeros to that single error sector. Usually, this action will assist the disc drive firmware in managing the problem by retiring the problem sector and activating a spare in its place.

Note: Seagate Technology is not responsible for lost user data.

5. System Tools Shortcuts

Many times a disc drive will be healthy and pass SeaTools for Windows and the system is not operating correctly. While troubleshooting the problem, you may need to access various Microsoft tools, such as Device Manager. SeaTools for Windows offers convenient shortcuts to a few of the Microsoft System Tools commonly used in troubleshooting. Seagate does not support Microsoft System Tools.



6. Serial Numbers, Model Numbers, Part Numbers and Warranty

You can check the Warranty status of your Seagate product online here:

http://support.seagate.com/customer/warranty_validation.jsp

The online form requires the product Serial Number and the Model OR Part Number. The Serial and Model Numbers are usually displayed on the *SeaTools for Windows* main screen. Occasionally, SeaTools is unable to read the numbers due to system or component incompatibility, or due to product failure.

You can also find this information and the Part Number printed on the top label of a bare disc drive or on the external drive enclosure. Seagate Serial Numbers are S/N: with 8 alphanumeric digits. Model Numbers begin with the letters ST for bare drives or may have a name such as FreeAgent for external drives. Part Numbers are 6 alphanumeric digits, a dash -, and 3 numeric digits. P/N: 1A2345-678

The online Warranty Checker may indicate that your Seagate product warranty is classified as an OEM component. This means that the disc drive was sold to a computer manufacturer who used the drive as a part in the assembly of their computer system. In this case, the manufacture of the system is responsible for all disc drive warranty and technical support.

7. Troubleshooting

IF YOU CALL

- If you call to report problems please provide as much information as possible. If you can, please provide the following details:

When does the problem occur? On the boot up of the diagnostic operating system? During the hard disc drive tests? After exiting SeaTools?

- Can the problem be recreated? If so, please outline the steps necessary to recreate it.
 - What is your system configuration? List the details about your system as tested. Such as:
 - Make, model, processor and system memory
 - Hard disc drives (internal and external) connected to the system, including make, model, size, and type
 - Make and model of hard disc drive controllers
 - Make and model of the video adapter
 - Additional adapter cards, including sound and multimedia
 - Peripherals attached (mouse, tape backup, printer, etc).
-

8. Known Limitations and Issues

- Long and Short Drive Self Test (DST) may not respond to Abort Tests command button on some systems. The Short test is never more than 90 seconds and will quickly finish. The Long test, however, could take several hours. A simple Windows Shut Down and Restart will cause the drive to abandon the Long DST test .
- SeaTools may not find or access hard disc drives when CMOS is set to "none" for those drives.
- *SeaTools for Windows* cannot find a drive that is completely non- functional. No make, model or error codes are available. If the drive is under warranty, you can contact your system supplier.
- SeaTools may not detect individual drives attached to RAID controllers.
- Windows Vista incorporates new levels of security control and authentication. Depending on your security settings, you may need to run *SeaTools for Windows* as an Administrator.
- The ARIALUNI.TTF font is required to view Asian languages.

Check <http://www.seagate.com> often for new and updated versions of *SeaTools for Windows* software as well as updates to the "Frequently Asked Questions" (FAQ's) list. Seagate will continue to add new features, functions and capabilities to this software.

9. System Requirements

- 32-bit Windows 2K SP4 or greater, 64-bit Windows XP or greater
 - Microsoft .NET Framework v2.0 Available for download (approximately 23 MB) from www.microsoft.com. Search the site for .NET 2.0 or go directly here: <http://www.microsoft.com/downloads/details.aspx?familyid=0856EACB-4362-4B0D-8EDD-AAB15C5E04F5&displaylang=en>
 - Microsoft Visual C++ 2005 Redistributable (included with SeaTools for Windows Setup)
 - VGA 1024x768 or higher graphics capability
 - The ARIALUNI.TTF font is required to view Asian languages.
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10. Revision History

v1.1.0.3	09-Mar-2007	Initial public release <i>SeaTools for Windows</i> .
v1.1.0.7	12-Apr-2007	First Multi-language public release <i>SeaTools for Windows</i> .
v1.1.0.15	17-Sep-2007	Additional SATA chipset support. New languages (Chinese and Japanese).
v1.1.0.18	06-May-2008	Button states consistent with tasks. Cache size, Power On Hours and temperature shown in Identify info. Short Generic Test now simulates Drive Self Test (DST). USB Identify info on supported chipsets. Compatible with Windows XP 64-bit and

Vista 64-bit. Aborts more responsive. Language translation fixes. Start up language can be set from command line. New compatibility fixes for nVidia chipsets and Intel Turbo Cache.

- v1.1.0.19 08-Jun-2008 SAS and SCSI support for Inquiry, Firmware Download and Format.
- v1.1.0.20 03-Sep-2008 eSATA drive information, SCSI DST Abort. Link to Seagate Services added.
- v1.1.0.21 01-Oct-2008 USB unit serial numbers as printed on the Seagate external drive case. These serial numbers are the ones needed for warranty exchange. Fixed timing delay where the display progress bar fell behind actual test progress.
- v1.1.1.0 10-Dec-2008 Added System Tools menu. Added USB sector repair on Seagate and Maxtor USB external drives.
- v1.2.0.0 26-Mar-2009 Added Password backup for FDE drives. Added firmware checks for Barracuda 7200.11 and Barracuda ES.2 SATA model drives; will report if a firmware update is necessary.



11. Seagate Technology Support Services

Seagate Technology Support Services

Online Services

Internet

www.seagate.com for information about Seagate products and services. Worldwide support is available 24 hours daily by e-mail for your questions.

Technical Support:

http://www.seagate.com/www/en-us/about/contact_us
or email to DiscSupport@Seagate.com

SEAGATE SERVICE CENTERS

Presales Support

Our Presales Support staff can help you determine which Seagate products are best suited for your specific application or computer system, as well as drive availability and compatibility.

Technical Support

If you need help installing your drive, consult your system's documentation or contact the dealer's support services department for assistance specific to your system. Seagate technical support is also available to assist you online at support.seagate.com or through one of our call centers. Have your system configuration information and your drive's "ST" model number available.

SeaTDD (+1-405-324-3655) is a telecommunications device for the deaf (TDD). You can send questions or comments 24 hours daily and exchange messages with a technical support specialist during normal business hours for the technical support call center in your region.

CUSTOMER SERVICE OPERATIONS

Warranty Service

Seagate offers worldwide customer support for Seagate drives. Seagate distributors, OEMs and other direct customers should contact their Seagate service center representative for warranty-related issues. Resellers or end users of drive products should contact their place of purchase or one of the Seagate warranty service centers for assistance. Have your drive's "ST" model number and serial number available.

Data Recovery Services

Seagate offers data recovery services for all formats and all brands of storage media. Our Data Recovery Services labs are currently located in North America and Europe. To get a free quick quote or speak with a case management representative, call 1-800-475-0143. Additional information, including an online request form and data loss prevention resources, is available at <http://services.seagate.com/index.aspx>.

USA/Canada/Latin America Support Services

Americas 1-800-SEAGATE +1-405-324-4700 +1-405-324-3339

Worldwide Support Services

For the most current list of telephone numbers please see the Contact Us section on www.seagate.com.

Contact Information Rev 8.1, 10-Jan-2006

SeaTools for Windows is a product of Seagate, a leading provider of technology and products enabling people to store, access, and manage information. Seagate is committed to providing best-in-class products to help people get their information when, where and how they want it.

The Company is recognized as the world's largest manufacturer of disc drives, magnetic discs and read-write heads. Founded in 1979, Seagate can be found around the globe and on the World Wide Web at www.seagate.com.

12. Product Return Procedure

Service by Seagate

A. Seagate Disc Return Procedure

- B. Shipping and Handling Information - Packaging Instructions
- C. Seagate Approved Packaging
- D. Limited Warranty
- E. Service Warranty Terms

A. Seagate Disc Drive Return Procedure

Seagate offers comprehensive worldwide customer support for all Seagate disc drives both online and through our regional Seagate Customer Service Centers and Authorized Service Providers (see "Seagate Technology Support Services" section, above). Drive return procedures can vary by geographical location and are subject to current International Trade Regulations.

1. Before you return a disc for warranty service, verify whether a replacement drive is necessary to solve the problem you are experiencing. If so, contact your place of purchase; if they have an exchange policy, it may be your most convenient solution.
2. Read the appropriate Seagate Warranty Statement for new or replacement products (see "Service Warranty Terms" section, below).
3. Know your Seagate product model number and serial number. See the label on the top of the drive.
4. Verify the warranty status of the drive you wish to return. If the product is still under warranty, obtain an RMA (step 5). If the warranty is expired, contact a local service facility, a Seagate Service Center Representative, or an Authorized Service Provider. If Seagate records indicate that the warranty is expired and you believe this is incorrect, contact your place of purchase or a Seagate Service Center Representative.
5. Obtain an RMA. To obtain an RMA online, use the Warranty Validation application at www.seagate.com/support. It will lead you into the RMA request application. To obtain an RMA by phone or fax, contact an Authorized Service Center (see "Seagate Technology Support Services" section above).
6. Obtain a "ship to" address. Service Centers are located throughout the world. The ship to address of the facility nearest you will be included with the RMA.
7. Package and return the drive. **IMPROPER PACKAGING WILL VOID THE WARRANTY.** Be sure to read the Shipping and Handling Information (below). Your original drive will **NOT** be returned to you, so be sure to backup any data you wish to keep and return only the bare drive. If you are unable to retrieve needed data, you may want to consider data recovery services.

Once Seagate Technology receives your drive for service, Seagate will ship you a replacement drive. You may check the status of your replacement drive RMA shipment online or by contacting a Seagate Service Center Representative to obtain that information.

B. Shipping and Handling Information - Packaging Instructions

1. When you return a drive for replacement, all data and software will be lost. The replacement drive will be low-level formatted. If you need the data on the drive and do not have a backup copy, you may want to consider data recovery services before shipping the drive to Seagate for replacement.
2. Remove all accessories or spare parts and return only the bare drive! Accessories include, but are not limited to, side rails, manuals, removable media, cables, mounting brackets, face plates, and controller cards. Accessories will not be returned.

3. Enclose the drive in an anti-static container. If packaging more than one drive, use a separate bag for each drive.
4. Secure the drive in Seagate approved packaging. Use 2-inch thick foam rubber in a corrugated box. Multiple drives in a single box should be packaged with foam rubber between each drive. Do NOT use foam packing pellets, bubble wrap, or newspaper. (See Seagate Approved Packaging section, below.)
5. Write the RMA number on the outside of each box.
6. A shipping address will be given to you along with the RMA number. Ship the drive to the address provided using the carrier of your choice. You should choose a carrier with the ability to trace the shipment. Seagate Technology will not be responsible for shipments for which the carrier cannot provide proof of delivery.

C. Seagate Approved Packaging

Shipping a drive in an unapproved container voids the warranty. Any product returned to Seagate must be properly packaged in the original box or a Seagate-approved container to prevent physical and electrical damage while in transit. FAILURE TO PROPERLY PACKAGE THE DRIVE WILL VOID THE WARRANTY.

What is Seagate Approved Packaging?

We recommend you ship your drive in its original box and packing materials, which you should always keep for storing and shipping purposes. If you do not have your original packaging materials, use 2-inch thick foam rubber in a corrugated box. Multiple drives in a single box should be packaged with foam rubber between each drive. Do NOT use foam packing pellets, bubble wrap, or newspaper.

Where can I get Seagate Approved Packaging?

Seagate does not separately sell packaging materials. While Seagate does not endorse any one third party vendor, companies that provide packaging materials can be found at:

Western Industries - For additional information, see <https://www.wicokc.com/orderform/seagate.html>

SiongBee - For additional information, see <https://www.siongbec.com/sgorder.nsf>

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D. Limited Drive Warranty ("Products")

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Revised 04-06-2007

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