



# Urgent Field Update

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**Topic: Drive Hang after Power Cycle**

**Date: 1/16/09**

Products: Barracuda 7200.11, Barracuda ES.2 (SATA), DiamondMax 22, FreeAgent Desk, Maxtor OneTouch 4, SV35.3, SV35.4

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The content on this page was distributed to blog sites and specific press and analysts on Friday, January 16<sup>th</sup>.

## Customer Update

Seagate has isolated a potential firmware issue in certain products, including some Barracuda 7200.11 hard drives and related drive families based on their product platform\*, manufactured through December 2008. In some circumstances, the data on the hard drives may become inaccessible to the user when the host system is powered on. Retail products potentially affected include the Seagate FreeAgent® Desk and Maxtor OneTouch® 4 storage solutions.

As part of our commitment to customer satisfaction, we are offering a free firmware upgrade to those with affected products. To determine whether your product is affected, please visit the Seagate Support web site at

<http://seagate.custkb.com/seagate/crm/selfservice/search.jsp?DocId=207931>.

Support is also available through **Seagate's call center: 1-800-SEAGATE (1 800 732-4283)**

Customers can expedite assistance by sending an email to Seagate ([discsupport@seagate.com](mailto:discsupport@seagate.com)). Please include the following disk drive information: model number, serial number and current firmware revision. We will respond, promptly, to your email request with appropriate instructions.

For a list of international telephone numbers to Seagate Support and alternative methods of contact, please access [http://www.seagate.com/www/en-us/about/contact\\_us/](http://www.seagate.com/www/en-us/about/contact_us/)

\*There is no safety issue with these products.

## For Immediate Release

Contact your Seagate representative for additional information



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## Description

An issue exists that may cause some Seagate hard drives to become inoperable immediately after a power-on operation. Once this condition has occurred, the drive cannot be restored to normal operation without intervention from Seagate. Data on the drive will be unaffected and can be accessed once normal drive operation has been restored. This is caused by a firmware issue associated with a specific aspect of Seagate's manufacturing test process.

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## Root Cause

This condition is caused by a firmware bug that allows the drive's "event log" pointer to be set to an invalid location. This condition is detected by the drive during power up, and the drive goes in to failsafe mode to prevent inadvertent corruption to or loss of user data. As a result, once the failure has occurred user data becomes inaccessible.

During power up, if the Event Log counter is at entry 320, or a multiple of  $(320 + x \cdot 256)$ , and if a particular data fill pattern (dependent on the type of tester used during the drive manufacturing test process) had been present in the reserved-area system tracks when the drive's reserved-area file system was created during manufacturing (note this is not the Operating System's file system, but is instead an area reserved outside the drive's logical block address space that is used for drive operating data structures and storage), firmware will incorrectly allow the Event Log pointer to increment past the end of the Event Log data structure. This error is detected and results in an "Assert Failure", which causes the drive to hang as a failsafe measure. When the drive enters failsafe further updates to the counter become impossible and the condition will persist through all subsequent power cycles.

The problem can only occur if a power cycle initialization occurs when the Event Log is at 320 or some multiple of 256 thereafter. Once a drive is in this state, an end user will not be able to resolve/recover existing failed drives. Recovery of failed drive requires Seagate technical intervention. However, the problem can be prevented by updating drive firmware to a newer version and/or by keeping the drive powered on until a newer firmware version is available.

Note that in order for a drive to be susceptible to this issue, it must have both the firmware revision that contains the issue, have been tested through the specific manufacturing process, and be power cycled.

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## Corrective Action

Seagate has implemented a containment action in to ensure that all manufacturing test processes write a "benign" data fill pattern that does not trigger the error condition. This change is already a permanent part of the test process. All drives with a date of manufacture January 12, 2009 and later are not affected by this issue as they have been manufactured with this corrected test process. In addition, Seagate is releasing updated firmware that will make a drive immune to this failure regardless of the date of manufacture.

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## Recommendation

Seagate strongly encourages customers to update all effected drives to the latest available firmware as soon as possible. If a firmware update cannot be performed, Seagate recommends that drive power cycling be minimized or avoided outright if at all possible, until such time as a FW update can be performed.

If you have already experienced a problem and have a drive exhibiting this failure, please contact your appropriate Seagate representative for support in recovering your data - Seagate will be providing data recovery services at no charge to users impacted by this problem.

Seagate will also work with larger install-base customers to expedite a remedy to minimize any disruption to you or your business.

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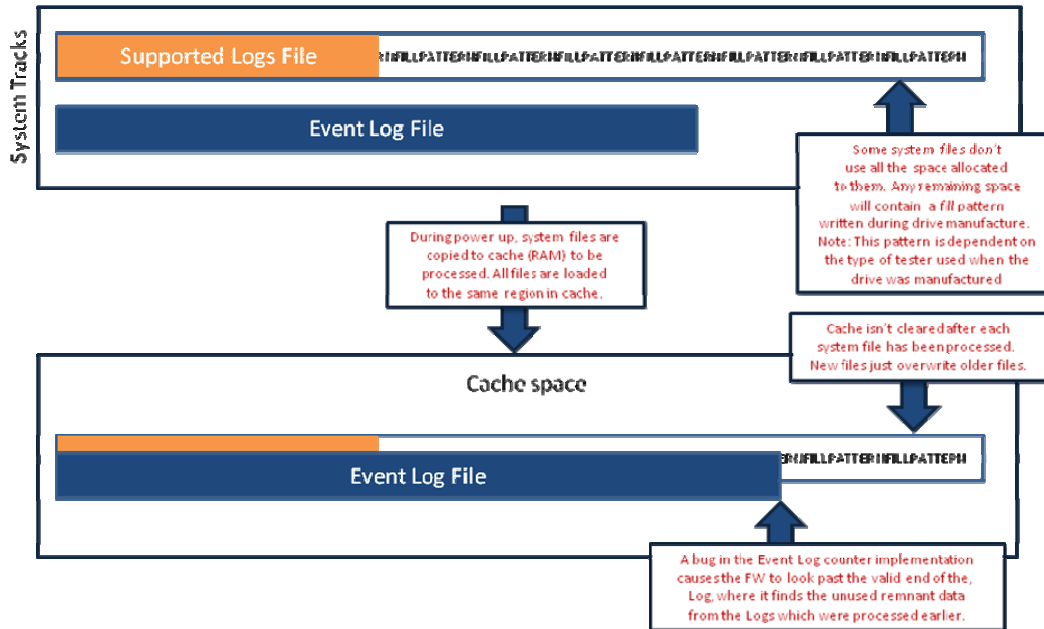
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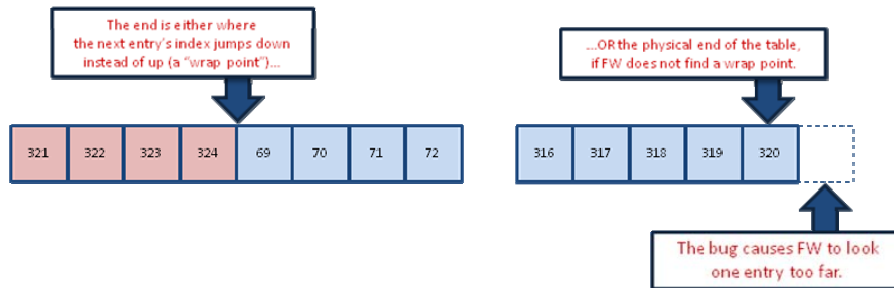
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**System files are created during manufacturing, and written to the media.**



**The Event Log is a circular log. New entries overwrite old entries. On power up, FW looks for the most recent entry.**



**The bug doesn't cause a failure when the erroneously referenced data looks like a valid wrap point. As a result, drives with "right" remnant pattern will work correctly in spite of the bug.**



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## FAQ

**Q: What Seagate drives are affected by this “drive hang after power cycle” issue?**

A: The following product types may be affected by this problem: Barracuda 7200.11, Barracuda ES.2 (SATA), DiamondMax 22, FreeAgent Desk, Maxtor OneTouch 4, Pipeline HD, Pipeline HD Pro, SV35.3, and SV35.4. While only some percentage of the drives will be susceptible to this issue, Seagate recommends that all drives in these families be updated to the latest firmware!

**Q: What should I do if I think I have a Seagate drive affected by this issue?**

A: Since only some drives have this problem, there is a high likelihood your drive is working and will continue to work perfectly. However, Seagate recommends that all drives in the effected families be updated to the latest firmware as soon as possible. Seagate realizes this recommendation may present challenges for some customers, particularly those with large distributed installed bases. Seagate will work with customers to correct this problem, but requests customers take the following initial actions depending on what type of customer they are:

- For channel integrator or system builder - please contact the distributor where you purchased your drive
- For distributors – please contact your Seagate sales or technical representative
- For OEMs - please work with your Seagate sales or technical representative.
- For individual end-users - contact Seagate Technical Support via web, phone or email. <http://seagate.custkb.com/seagate/crm/selfservice/search.jsp?DocId=207931> or 1-800-SEAGATE (1 800 732-4283), or [discsupport@seagate.com](mailto:discsupport@seagate.com). If emailing, please include the following disk drive information: model number, serial number and current firmware revision.

**Q. If my drives are always on, could I see this issue?**

A. No, this can only occur after a power cycle, however Seagate still recommends that you upgrade your firmware due to unforeseen power events such as power loss.

**Q: How will Seagate help me if I lost data on this drive?**

A. There is no data loss in this situation. The data still resides on the drive but it is inaccessible to the end user. If you are unable to access your data due to this issue, Seagate will provide free data recovery services. Seagate will work with you to expedite a remedy to minimize any disruption to you or your business.

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**Q. Does this affect all drives manufactured through January 2008?**

A. No, this only affects products that were manufactured through a specific test process in combination with a specific firmware issue.

**Q. Why has it taken so long for Seagate to find this issue on Barracuda ES.2 and SV35?**

A. In typical Nearline and Surveillance operating environments drives are not power cycled and so are not as likely to experience this issue.

**Q. Does this affect the Barracuda ES.2 SAS drive?**

A. No, the SATA and SAS drives have different firmware

**Q. How will my RAID-set be affected?**

A. If the error occurs, the drive will drop offline after a power cycle. The RAID will go into the defined host specific recovery actions, which will result in the RAID operating in either a degraded mode or initiating a rebuild if a hot spare is available. If you are unsure how your host will respond to a dropped drive and have not yet experienced this issue, avoid unnecessary power cycles and refer to your manufacturer support site for appropriate instructions.

**Q. Is there a way to upgrade the firmware to my drives if in a large RAID-set, or do I need to take the solution offline?**

A; The ability to upgrade firmware in a RAID array is system dependant. Refer to your system manufacturer support site for appropriate instructions.

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