PRODUCT MANUAL



G SPEED[™]eS PRO

High-Performance RAID Solutions for HD/2K Production



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Safety Precautions

G-SPEED eS Pro's warranty may be void as a result of the failure to respect the precautions listed here. If you detect a problem with your drive, please contact our **Technical Support department.**

If the product is returned with damage caused by improper handling, the warranty will be void and liability will rest with the user. Please read our **Limited Warranty**.

- **Servicing:** Your drive contains no user-serviceable parts. If it appears to be malfunctioning, have it inspected by a qualified Technical Support representative.
- **Moisture:** Place the device away from moisture or liquids. To reduce the risk of damage, do not expose this drive to rain or moisture. Do not use it in damp or wet conditions. Never place objects containing liquids on the drive as they may spill into its openings.
- **Ventilation:** Place the device in a vented area. The drive should never be placed near or over a radiator or heat source.
- **Temperature:** Do not expose this drive to temperatures outside the range of 5°C to 35°C (41°F to 95°F); or to operational humidity beyond 5-80%, non-condensing, or non-operating humidity beyond 10-90%, non-condensing. Avoid placing your drive near a source of heat, or exposing it to sunlight (even through a window), or in an environment that is too cold or humid.
- **Physical Damage:** Do not place heavy objects on the drive. Never use excessive force on your drive.



Backup Your Data

The disk drive contained in your G-SPEED eS Pro device is a delicate electronic instrument and is susceptible to damage due to excessive physical shock. Under no circumstances will G-Technology be held liable for the recovery or restoration of lost data. Any loss, corruption or destruction of data while using a G-Technology drive is the sole responsibility of the user.

Make Two Backups

To help prevent the loss of your data, we highly recommend that you keep TWO copies of your data in separate storage locations. When in RAID 1, 5 or 6 (Protected mode), G-SPEED eS Pro will safeguard your data from hard drive failure. However, if any file system corruption occurs, the data contained on G-SPEED eS Pro may be affected.

For critical data, it is recommended to keep one copy on G-SPEED eS Pro and a second copy on another storage device.

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Introduction

Thank you for purchasing G-SPEED eS Pro from G-Technology.

Specifically designed for professional content creation applications, G-SPEED eS Pro features a high-speed mini-SAS interface. The storage system provides RAID 0, 1, 5, 6 and JBOD functionality when used in conjunction with the ATTO ExpressSAS R680 PCIe mini-SAS RAID controller.

Two G-SPEED eS Pro units can be attached to the ATTO R680 RAID controller for incredible performance.



What's in the Box

The following items are included in the box:

• G-SPEED eS Pro storage system

G SPEED^{^m}*eS* **PRO**

- 4 removable SATA drive modules (installed in unit)
- (2) disk module keys
- 2-meter mini-SAS cable
- AC Power cable
- Quickstart Guide

Optional purchase: ATTO R680 PCIe x8 RAID controller

If any items are missing, please contact G-Technology at support@g-technology.com or call (888) 426-5214.

Download the latest G-SPEED eS Pro manual and ATTO software at: www.g-technology.com/support/gspeed_es_pro/

System Requirements

G-SPEED eS Pro and the ATTO R680 RAID controller support the following Operating Systems. The drive is set up at the factory for use with Mac OS[®] X systems, and formatted as 'HFS+'.

- Mac OS 10.5 or higher
- Windows XP, Vista or Windows 7

NOTE: The ATTO ConfigTool makes it possible to create RAID groups up to 16TB that are compatible with Windows XP. For more information, please refer to the chapter **Using ATTO R680 RAID Controller**.







Overview of the Drive

G-SPEED eS Pro ships from the factory configured in RAID 0 for use with the ATTO R680 RAID controller. The RAID controller also supports RAID 1, 5, 6 and JBOD configurations. If you wish to change the RAID mode, please refer to **Change the RAID Mode**. For an explanation of supported RAID levels, please refer to **RAID Levels Explained**.



Overview of the Controller

The ATTO R680 RAID controller connects your G-SPEED eS Pro to a Mac or Windows workstation, and also provides RAID 0, 1, 5, 6 and JBOD functionality.



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Using Your Drive

Drive LED Operation

Under normal operation, each G-SPEED eS Pro drive module has an LED that glows blue indicating a connection to the RAID controller. The LED will flash brighter when the drive is being accessed.



Warning LED and Alarms

The G-SPEED eS Pro enclosure is equipped with an audible alarm that sounds when:

- The internal temperature of the G-SPEED eS Pro enclosure exceeds a temperature of 60° centigrade, and/or
- The main cooling fan fails, or the RPM of the fan slows to a state where the fan can no longer adequately cool the system.

To silence the alarm, push the Mute button located on the back of the G-SPEED eS Pro, as shown at right.

In addition to the audible alarm, the Temperature/Fan Warning LED located on the front bezel of G-SPEED eS Pro will illuminate.



If you hear an audible alarm and see the RED warning LED on the front of G-SPEED eS Pro, stop using G-SPEED eS Pro and contact **G-Technology support**.



Disconnect the Drive

It is not recommended to disconnect G-SPEED eS Pro while your system is running. First power off your system, and when it is completely powered down, turn off the G-SPEED eS Pro. It is then safe to unplug the drive from your system.

Windows Use

G-SPEED eS Pro is set up at the factory for use with the ATTO R680 RAID controller and formatted for Mac OS X systems. The ATTO controller is also compatible with Windows systems, and G-SPEED eS Pro can be reformatted to work with Windows as well.

Please refer to the ATTO R680 RAID controller documentation for instructions on installing for Windows OS. You can find a link to download the documentation here: www.g-technology.com/support/gspeed_es_pro/

NOTE: The ATTO ConfigTool makes it possible to create RAID groups up to 16TB that are compatible with Windows XP. For more information, please refer to the chapter Using ATTO R680 RAID Controller.



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Download ATTO RAID Software

To use the ATTO R680 RAID controller, you first need to install drivers and software on your system. Visit www.g-technology.com/support/gspeed_es_pro/

Here you will find a special link to the ATTO website where you can download G-Technology approved drivers and software. You will also find the latest verison of this manual and easy configuration scripts for quickly setting up your G-SPEED eS Pro with the ATTO controller.

From the G-Technology page* on the ATTO website, please download the following items:

- Driver for your system
- ConfigTool utility
- ATTO R680 User Guide (optional)

*The software listed on the ATTO/G-Technology page has been tested and approved for use with G-SPEED eS Pro. Software listed on the standard download page on the ATTO website may not be compatible with G-SPFFD eS Pro.

Install ATTO Driver & ConfigTool

G-SPEED eS Pro comes pre-configured for use with the ATTO R680 RAID controller. The drive is set up in RAID 0 and formatted for Mac OS X. Connecting G-SPEED eS Pro to your Mac Pro and configuring your system takes just a few steps as outlined below. (Windows users, please refer to the ATTO R680 User Guide.)

- 1. Locate the driver and ConfigTool downloaded from the ATTO/G-Technology page and install the driver, then ConfigTool.
- 2. The ATTO ConfigTool can notify you if problems occur with the G-SPEED eS Pro. If you would like to use this feature, select 'Full Installation'.
- 3. Shut down your system.







Install ATTO Controller

It is simple to install the ATTO controller, as explained below. Keep in mind that ATTO ExpressSAS Host Adapters contain components that are sensitive to electrostatic discharge (ESD). Please follow standard methods to avoid ESD.

- 1. For maximum performance, install the ATTO R680 RAID controller in your MacPro in SLOT 2 (x16 slot closest to video card).
- 2. Secure the ATTO controller in place.

NOTE: If you are using a video capture card such as AJA Kona[™] or Blackmagic Decklink[™], follow their recommendations for slot usage.

Attach eS Pro to ATTO Controller

Attaching G-SPEED eS Pro to the ATTO R680 RAID controller takes a few easy steps.

- 1. Shut down your system.
- 2. Attach one end of the supplied mini-SAS cable to the mini-SAS port located on the back of G-SPEED eS Pro.
- 3. Attach the other end of the mini-SAS cable to Port A (leftmost port) on the ATTO controller, as shown at right.
- 4. Attach the power cord to the back of G-SPEED eS Pro and connect the other end to AC power.
- 5. Power on the G-SPEED eS Pro and power on the system. G-SPEED eS Pro will mount on the desktop.

NOTE: G-SPEED eS Pro is shipped from the factory in RAID 0 mode for best performance. The ATTO controller also supports RAID 1, 5, 6, 10 and JBOD modes. Refer to **Change the RAID Mode** if you want to change the RAID mode. See **RAID Levels Explained** for information on the features of supported RAID modes.







Double-click the application file to launch, and follow the prompts.

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YOUR DATA BEFORE CONTINUING.

You can add an additonal G-SPEED eS Pro as either a stand-alone volume, or combine it with another unit to create a very fast 8-drive RAID array.

Combine with another G-SPEED eS Pro:

Add Second G-SPEED eS Pro Unit

In order to combine two G-SPEED eS Pros, both units will need to be reconfigured, deleting all data on the drives. If you currently have a G-SPEED eS Pro and you wish to add a second unit to increase capacity and performance, be sure to BACK UP Port A

To add as a stand-alone volume, simply repeat the steps in the **previous section**, attaching the new unit to Port B. Both G-SPEED eS Pro units will mount on the

Using the ATTO RAID Controller

- 1. Plug the second unit into Port B on the ATTO controller.
- 2. Power on G-SPEED eS Pro.
- 3. Now you need to configure the two units. Continue to the section Configure Two RAID Units for instructions.

Uninstall ATTO Driver & ConfigTool

The Uninstall application is located in the Applications/

ATTO ConfigTool/Uninstall folder.

G SPEED^mes PRO

Add as a stand alone volume:

desktop.







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RAID Configuration Scripts for Mac

G-Technology provides RAID Configuration Scripts so you can quickly configure/reconfigure the RAID mode of G-SPEED eS Pro. Download the scripts from www.g-technology.com/support/gspeed_es_pro/.

These scripts will configure ALL G-SPEED eS Pro enclosures attached to the RAID controller, using ALL drives in the new RAID group. Disconnect any G-SPEED eS Pro enclosure that you do not want to reconfigure.



WARNING: THESE SCRIPTS WILL COMPLETELY ERASE THE DATA ON YOUR DRIVE(S) WHILE RECONFIGURING THE RAID MODE AND WILL REQUIRE THE DRIVE TO BE FORMATTED USING DISK UTILITY.

To change the RAID mode, do the following steps. There is no Undo function, so use the scripts very carefully!

- 1. Make sure you have backed up the data on all G-SPEED eS Pro enclosures connected before continuing. This process will erase ALL DATA on ALL DRIVES.
- 2. Unmount G-SPEED eS Pro by dragging the icon to the trash. (Keyboard shortcut: Command+E.)
- 3. Double-click the command file that matches the RAID mode to which you would like to reconfigure the G-SPEED eS Pro(s). You will need to be logged into an account with Administrator privileges.
- 4. A terminal window will automatically open and execute the command file. G-SPEED eS Pro will begin to initialize if RAID 5 or RAID 6 was selected. This process takes approxomately 45 min per TB. RAID 0 does not require initialization and the new volume will be immediately available for system format.
- 5. When the configuration process is complete, you will need to format the G-SPEED eS Pro using Disk Utility. See Initialize Drive for Mac for instructions.

Use the ATTO ConfigTool

The ATTO ConfigTool application is used to configure the many parameters of the ATTO R680 RAID controller. You w find ConfigTool in the Applications/ATTO ConfigTool folde

- 1. Double-click to launch the application.
- 2. The screen shown below will appear. Double-click 'localhost'.
- 3. Enter the System Administrator username and password when prompted.

ATTO Configuration Tool

4. Click on 'ExpressSAS R680'.

Device Listing
▼ hosts
🔻 📃 localhost
ExpressSAS R680

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/ill	-	N	ame			
er.	¥ į	A	тто	ConfigTo	lool	

LIO Contra Loc uninstall

InstallScript.iap_xml

Applications







5. Select the RAID tab to display the currently attached drives and RAID groups.



The following sections will explain how to **Change the RAID Mode** of G-SPEED eS Pro, and how to **Configure Two RAID Units** for maximum performance. You can also see **RAID Configuration Scripts for Mac** for easy reconfiguring of G-SPEED eS Pro.

Please refer to the separate ATTO documentation for more information on the many additional features of the ConfigTool.

Change the RAID Mode

The G-SPEED eS Pro/ATTO R680 RAID controller combination is configured at the factory in RAID 0 mode. RAID 1, 5, 6, 10 and JBOD modes are available and the ATTO ConfigTool is used to change the mode of operation.

NOTE: There are Mac OS X RAID configuration scripts available that will quickly reconfigure your G-SPEED eS Pro units in RAID 0, RAID 5 or RAID 6. See **RAID Configuration Scripts for Mac** for more information.

Steps to Change from RAID 0 to RAID 5

- 1. Unmount G-SPEED eS Pro by dragging the icon to the trash. (Keyboard shortcut: Command+E.)
- 2. Launch the ATTO ConfigTool as explained in the previous section, Use the ATTO Config-Tool.
- 3. Select the RAID tab, and in the lower pane, right-click on the G-SPEED eS Pro RAID group. From the dropdown menu, select 'Delete Group'.

	on Tool		
Basic Info Flash	RAID RAID CU Tas	ks Adva	enced
Drives: 4 Faulte	d. 0 Raid Groups: 1	Hot Spar	es: 0
	Attached Drives		
Name Vendor	Address	Maage	Capacity
HUA723030ALA640 Hitachi	\$0.01:08:60:00:52:c8:6c	GSPeSPtol	L) 2.73 TB
HUA723030ALA640 Hitachi	50:01:08:60:00:52:c8:6c	GSPeSPto	2) 2.73 TB
HUA723030ALA640 HItachi	10:01:08:60:00:52:08:64	GSPeSPto (3) 2.73 18
	The second		
Name Level CSNeSPyo KAIDO	Capacity Members New Group Expand Capacity	Status XN XE	Rebuild None
Name Level G945910 RAIDO	Capacity Members New Group Expand Capacity Migrate RAID Level. Defet: Croup	Status XN XE XM	Rebuild Nones
Nane Lavel Gillosho RAIDO	Capacity Members New Group Expand Capacity Migrate RAID Level. Collett Group Basic Recovery Cancel Rebuild AutoMap	Status XN XE XM CO XA	Rebuild
Nane Lavel GRSSHo RAIDO	Capacity Members A New Group, Capacity, Migrate RAID Level. Capacity Croup Media Scan Rebuild Group Basic Recovery Cancel Rebuild AutoMap Schedule	Status XN XE XM XM XM XM XA	Rebuild

4. The following dialog box will appear, alerting that you about to delete the RAID group. Click 'Yes' to continue.

WARNING: THIS WILL DELETE ALL DATA STORED ON G-SPEED eS Pro!



5. Click on the RAID Management menu item and select 'Create Group> Customized'. (Keyboard shortcut: Command + N.)

ATTO Configuration Tool	RAID Management Help	p.		10	.0
	Ercate Group Expand Capacity Migrate RAID Level X Delete Group	KE MM M (II)	DVRAID setup	N Create a new RAID Group	
	Media Scan Rebuild Group	-36			20
	Conesi Madia Scan		ATTO Configur	ration Tool	
Devic	AutoMan	OXA	Basic Info Fla	ash RAID RAID CU	Tasks Advanced
▼ hos	Properties	-unn			
	New Hot Spare	0 X N	Drives: 4 Fa	ulted: 0 Raid Groups: 0	Hot Spares: 0
	A HUMA DOUGHNA	12010		Attached Drives	
	@ Schedule		Tame Vendor	Address	Unage Capacity
	 Eccate Performance Monitor S.M.A.R.T. + S.M.A.R.T. Status K Scan Report Drive View 	*	UA723030ALA640 Hitachi UA723030ALA640 Hitachi UA723030ALA640 Hitachi UA723030ALA640 Hitachi UA723030ALA640 Hitachi	50 01 08 60 00 52 c8 6 50 01 08 60 00 52 c8 6 50 01 08 60 00 52 c8 6 50 01 08 60 00 52 c8 6	ic 2,73 TB id 2,73 T6 ie 2,73 T6 7,73 T0 7,73 T0
	O Pafrach				
			None Lord	- Hot Span	e June Rebell
			Name Level	Capacity Members	Status Rebuild

Configuring G-SPEED eS Pro

- 6. The 'Create New RAID Group' panel will open in ConfigTool. Make the following choices, then click the 'Next' button.
 - A. Name: Enter a name for the RAID group (like GTECHR5)B. Level: Select RAID 5
 - C. Interleave: Select 512KB
 - D. Initialize: Select Advanced

7. Select all the drives listed in the top pane of the window, and drag them to the bottom pane. Then click 'Next'.

	ATTO	Configuration	1 Tool					
	Basic Inf	fo Flash	RAID	RAID CL	Tas	ks A	dvanced]
	Drives: 4	Faulted	0	Raid Group	s: 0	Hot Sp	nares: O	
			Atta	ched Drives	1			
Name HUA723	030414640	Vendor	Addres:	s 08-60-00-52	e8.6e	Usage		Capacity 2,73,71
@ HUA723	030ALA640	Hitachi	50.01.0	08 60 00 52	c8 6d			2.73 T
€ HUA723	030ALA640	Hitachi	50.01	08-60-00:52	c8 6e			2.73 TI
HUA723	030ALA640	Hitachi	50.01	08 60 00 52	c8.6f			2.73 11
				- 10				
eate new ect option	RAID Group s to configure) e the new RA	ID Grou	ıр.				1
eate new ect option	RAID Group s to configure ECHRS	e the new RA	ID Grou	ip. erleave:	512	KB	Init	tialize D
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eate new lect option (ame: GT evel 8	RAID Group s to configure ECHRS AIDS	e the new RAI	ID Grou Int Mir	ip. erleave:	5121	кв :	Ini e C	iialize D Advanced) Express

			and the second s			in a comment
Name	Contraction of the second	Vendor	Address	-	Usage	Capacity
HUA72303	0ALA640	Hitachi	50:01:08:60:00	\$2 c8.6c		2.73
🛢 HUA72303	OALA640	Hitachi	50 01 08 60 00	52 c8 6d		273
HUA72303	0ALA640	Hitachi	50:01:0	52 c8 6e		2,73
HUA72303	OALA640	Hitachi	50.011	52:c8:6f		-2.73
				4		
-				/		
reate new RA	ND Grout	,				
reate new RA	ND Group that will b	9 e included	into the table belo			
reate new RA rag the drives t	ND Group that will b	o e included ndor	into the table belo	ow. Cae	acity	Constitu
reate new RA rag the drives t Name HUA723030	ND Group that will b Ve ALA640 Hit	9 e included ndor tachi	into the table belo	ом. Сар 2.00.5	acity 2.73	TB Capacity
reate new RA rag the drives t Name ⊖ HUA723030 ⊖ HUA723030	ND Group that will b Ve ALA640 HI ALA640 HI	9 e included wdor tachi tachi	Address 50:01:08:66 50:01:08:66	хw. Сар 2:00:5	acity 2.73 2.73	TE Capacity TE 8.187 TB
Name ← HUA723030 ← HUA723030 ← HUA723030	ND Group that will b ALA640 HI ALA640 HI ALA640 HI	9 e included ndor tachi tachi tachi	Address 50:01:08:66 50:01:08:66 50:01:08:66	w. 200:5 200:5 200:5	acëy 2.73 2.73 2.73	TB Capacity TB 8.187 TB TB
Name HUA723030 HUA723030 HUA723030 HUA723030 HUA723030	ALD Group that will b ve ALA640 Hit ALA640 Hit ALA640 Hit ALA640 Hit	9 e included ndor tachi tachi tachi tachi	into the table belo Address 50:01:08:64 50:01:08:64 50:01:08:64 50:01:08:64	ww. Cae 0.00:5 0.00:5 0.00:5 0.00:5 0.00:5	acey 2.73 2.73 2.73 2.73 2.73	TB Capacity TB 8.187 TB TB Remove



- 8. The 'Create New RAID Group' pane will display the configuration options. Make the following choices, then click the 'Next' button.
 - E. Sector Size: Select 512 bytes F. SpeedRead: Select Adaptive
 - G. Rebuild Priority: Same
 - H. Auto Rebuild: Selected
- 9. Confirm the RAID Group configuration and click 'Yes'.

\varTheta 🔿 🔿 Confi	irm Operation
Create new RAI	D Group 🖌
Would you like to	o create this RAID Group?
Name:	CSPeSPro
Level:	RAIDS
Interleave:	512 KB
Mirror Count:	0
Initialization:	Advanced
Drive Count:	4
Capacity:	8.187 TB
Sector Size:	512 bytes
Options:	SpeedRead (Adaptive)
	Same Rebuild Priority
RAID Partitions	:: Single
	No Yes

10. The RAID Group will begin to initialize. This process takes approxomately 45 min per TB.

Sector Size:	512 bytes	SpeedRead	Rebuild Priority	G
G		O Always	O High	
		 Adaptive 	🕑 Same	Auto-Rebuild
		O Never	O Low	H

Basic In	ifo Flas	h RAID R	AID CLI Ta:	sks Advanced	0
Drives:					
	4 Fault	ted 0 Raid	Groups: 1	Hot Spares: ()
		Attached	Drives		
Name	Vendor	Address		Usage	Capacity
HUA723030ALA640	Hitachi	50.01:08.60	0:00:52:68.66	GSPeSPro (1)	Z.73 TB
HUA723030ALA640	Hitachi	50:01:08:60	0:00:52:c8:6d	GSPeSPro (2)	2.73 TB
HUA723030ALA640	Hitachi	50:01:08:60	0:00:52:c8:6e	GSPeSPro (3)	2.73 TE
HUA723030ALA640	Hitachi	50:01:08:60	0:00:52:c8:6f	GSPeSPro (4)	2.73 TB
	6		· Min Color	1	
		C cicops	r not spares	<i>с</i>	
Name Les	rel :	Capacity	Members	Status	Rebuild
	Name HUA723030ALA640 HUA723030ALA640 HUA723030ALA640 HUA723030ALA640	Name Vendor HUA723030AL6640 Hitachi HUA723030AL6640 Hitachi HUA723030AL6640 Hitachi HUA723030AL6640 Hitachi	Attached Name Vendor Address HUA723030AL6640 Hitachi 50:01:08:60 HUA723030AL6640 Hitachi 50:01:08:60 HUA723030AL6640 Hitachi 50:01:08:60 HUA723030AL6640 Hitachi 50:01:08:60	Name Vender Address HUA723030ALA640 Hitachi 50:01:08:60:00:52:68:6c HUA723030ALA640 Hitachi 50:01:08:60:00:52:68:6c HUA723030ALA640 Hitachi 50:01:08:60:00:52:68:6c HUA723030ALA640 Hitachi 50:01:08:60:00:52:c8:6c HUA723030ALA640 Hitachi 50:01:08:60:00:52:c8:6c	Name Vender Address Usage HUA723030ALA6640 Hitachi 50:01:08:60:00:52:e8:6c GSPESPro (1) HUA723030ALA640 Hitachi 50:01:08:60:00:52:e8:6c GSPESPro (1) HUA723030ALA640 Hitachi 50:01:08:60:00:52:e8:6c GSPESPro (3) HUA723030ALA640 Hitachi 50:01:08:60:00:52:e8:6c GSPESPro (3) HUA723030ALA640 Hitachi 50:01:08:60:00:52:e8:6c GSPESPro (4)

- 11. Right-click on the RAID group in the lower panel. From the dropdown menu, select 'Properties'.
- 12. In the popup window that opens, select a Prefetch value of 2 and check Auto-Rebuild.



- 13. Click 'Accept' to close the window.
- 14. The RAID initialization process will continue and when complete, the RAID Group (Volume) will need to be formatted using Disk Utility. See Initialize Drive for Mac for instructions.

Configure Two RAID Units

Combining two G-SPEED eS Pros on the ATTO RAID Controller can produce incredible performance. In order to combine two units, both units will need to be reconfigured, which deletes all data on the drives. If you currently have one G-SPEED eS Pro and you wish to add a second unit, be sure to **BACK UP YOUR DATA BEFORE CONTINUING**.

NOTE: There are Mac OS X RAID configuration scripts available that will quickly reconfigure your G-SPEED eS Pro units in RAID 0, RAID 5 or RAID 6. See **RAID Configuration Scripts for Mac** for more information.

Steps to Configure the Units

- 1. Unmount G-SPEED eS Pro by dragging the icon to the trash. (Keyboard shortcut: Command+E.)
- 2. Launch the ATTO ConfigTool as explained in the previous section, Use the ATTO ConfigTool.
- 3. Select the RAID tab, and in the lower pane, select both RAID groups. Rightclick and from the dropdown menu, select 'Delete Groups'.

	_	ATT	O Conf	guration	Tool							_
		Basic	Info	Flash	RAID	RAID CL	J Ta	sks	Advanc	ed		
		Drives	8	Faulted	0	Raid Group	ps: 2	Hot	Spares	0		
					Atta	ched Drives						
Nam	e	9213	Vendor		Add	fress	Usa	99		Capacity		
ALTH		OALA.	Hitachi		50.	01 08 60 00	G10	оны			1.4	L TR
HUA	22202	CALA	Hitachi		50.	01 05 60 00		CHRO			-14	- 11
HELL	22202	DALA	All Parts					CHERO				
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G	iantuk <u>Internet</u> Internet	0	levti RAX RAX	(() Ca 20	Groups spacity 7/7	Memb 28 TE	Spares	Statu	New (Expan Migra Delet Delet Rebui Basic	Rebuild Group nd Capa te RAID Cloup the selec Id Group Recover	City Level Sed RA	D Gri
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omplets	arne III (81) III (81)	o oj	v RAID I	Group GT	Groups packy 7/ 7/ 7/	* Hot Memb 28.118 28.118	Spares 4	Stati	New C Expan Migra Delet Basic Cano Auto Schec Scan	Rebuild Group nd Capa te RAID c the select d Group Recover el Opera Map Jule e mance Report	city_ Level Stad RAI P Y	D Gri

4. The following dialog box will appear, alerting that you about to delete the RAID group. Click YES to continue.

WARNING: THIS WILL DELETE ALL DATA STORED ON G-SPEED eS Pro DRIVES!



5. Click on the RAID Management menu item and select 'Create Group> Customized'. (Keyboard shortcut: Command + N.)

A REAL PROPERTY AND A REAL	Create Croup		DUD NO.						
	Expand Capacity	ЖE	Custom	zed a	Create	a new RAID Group			
800	Migrate RAID Level	. 30M	ATTO	Configurati	on Tool				
Device Lic	Madia Scan		Basic In	fo Flash	RAID	RAID CLI Ta	sks Advance	d .	
v houts v 🗐 k	Rebuild Group Basic Recovery Cancel Operation	жs	Drives: 4	E Faulte	d 0 Ra	iid Groups: 0	Hot Spares	0	
	AutoMap	0 XA			Attach	ed Drives			
	Properties			Vendor	Address		Usape	Capacity	1
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	@ Schedule		23030ALA640 23030ALA640	Hitachi Hitachi	50:01:08	60:00:52:c8:6f 60:00:52:c8:68		2.73 1	8
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	 5.M.A.R.T. Status Scan Report Drive View 	5.M.A.R.T. Status Scan Report Drive View		F	Groups	+ Hot Spares			
	O Refresh	MR	me Lev	el	Capacity	Members	Status	Rebuild	

Configuring G-SPEED eS Pro

- 6. The 'Create New RAID Group' panel will open in ConfigTool. Make the following choices, then click the 'Next' button.
 - A. Name: Enter a name for the RAID group (like GTECHR5)
 - B. Level: Select RAID 5 (or RAID 0, or RAID 6 if desired)
 - C. Interleave: Select 512KB
 - D. Initialize: Select Advanced

7. Select all the drives listed in the top pane of the window, and drag them to the bottom pane. Then click 'Next'.

		inguistrium	001		_		- 19
	Basic Info	Flash	RAID	RAID CLI	Task	s Advan	ced
	Drives: 4	Faulted:	O R	aid Group	s: 0	Hot Spares	: 0
			Attach	ed Drives			
Name	i Av	ndor A	Sdress)(Jiage	Capacity
HUA7230.	30ALA640 Hi	tachi 50	0.01:08	60:00:52	c8:6c		2.73 TB
@ HUA7230	30ALA640 Hi	tachi 50	0:01:08	60:00:52	c8:6d		2.73 TB
HUA7230	30ALA640 H	tachi 50	0:01:08	60:00:52	c8:6e		2.73 TB
HUA7230	30ALA640 H	tachi 50	0:01:08	60:00:52	c8:6f		2.73 TB
HUA7230	30ALA640 Hi	tachi 50	0:01:08	60:00:52	c8:68		2.73 TB
@ HUA7230	30ALA640 Hi	tachi 50	01:08	60:00:52	c8:69		2.73 TB
HUA7230	30ALA640 Hi	tachi S(01:08:	60:00:52:	c8:6a		2.73 TB
							the state of the s
⊕ HUA7230	30ALA640 HI	tachi 50	01:08	60:00:52	c8:6b		2.73 18
• HUA7230	AID Group	tachi S(0:01:08	60:00:52	c8:6b		2.73 18
reate new R	AID Group	tachi 50	0:01:08	60:00:52	c8.6b		2.73 16
reate new R elect options to Name GTE	AID Group to configure th	tachi 50	Group.	60.00.52	c8.6b		Initialize
reate new R elect options to Name: GTER	AID Group to configure th	ie new RAID	Group.	60.00.52	<8.6b		Initialize D Modvanced
e HUA7230 reate new R elect options I Name GTE Level RA	AID Group to configure th CHRS	ie new RAID	Group. Inter	leave.	<8.6b 512 KI		Initialize D Advanced

Name	Vend	or Address		Usage	Capacity
HUA7230304	ALA640 Hitar	N 50 01 08 60 0	0 52 x8 64		2711
HUA723030J	NA640 Hittar	N 50.01-08-60-0	0.52 68 64		2,73 1
HUA7230304	ALAS40 Hitac	N 50 01 08 60:0	0.52 c8 6e		2.73 T
HUA7230304	ALAG40 Hitac	N 50.01.08.60.0	0.52 c8.61		2,73 1
HUA723030/	ALA640 Hitac	50 01 08 60 0	0.52.c8.68		2.73 7
HUA723030/	LAG40 Hitac	50.01.08.60.0	0:52 c8:69		2.73 T
HUA723030J	ALA640 Hitac	N \$0.01.08.60:0	0:52:68:65		2.73 1
HUA723030/	LAS40 Hitac	N \$0.01.08.60.0	0.52:c8:6b		2.73 1
eate new RAIL ag the drives th	O Group at will be inclu	ided into N	Ļ		1
eate new RAII ag the drives the	O Group at will be inclu	ided into	Cape	city	
eate new RAII ag the drives the Name 9 HUA723030AL	O Group at will be inclu Vendor A6 Hitachi	ded into	Capa	city 2,73 TI	Capacity
eate new RAII ag the drives the Name 9 HUA723030AL 9 HUA723030AL	Croup at will be inclu Vendor A6. Hitachi A6. Hitachi	ded into 1 [Addi 50:01] 50:01.086	Cape 0.00	city 2.73 TI 2.75 TI	Capacity 19.103 TB
Pate new RAII	Vendor A6. Hitachi A6. Hitachi A6. Hitachi	Addi 50:01: 50:01:08:6	Capa 000 0.00 0.00	city 2.73 Ti 2.75 Ti 2.75 Ti	Capacity 19.103 TB
eate new RAII ag the drives th Name 9 HUA723030AL 9 HUA723030AL 9 HUA723030AL	Vendor Vendor A6. Hitachi A6. Hitachi A6. Hitachi	ded into 50.01.08.6 50.01.08.6 50.01.08.6 50.01.08.6	Capa 00: 0:00: 0:00: 0:00:	city 2.73 TI 2.73 TI 2.73 TI 2.73 TI	Capacity 19.103 TB Remove
eate new RAII ag the drives th HUA723030AL HUA723030AL HUA723030AL HUA723030AL HUA723030AL	Vendor At will be inclu Vendor A6. Hitachi A6. Hitachi A6. Hitachi A6. Hitachi	ded into 1 50 01 50 01 086 50 01 086 50 01 086 50 01 086	Cape 000: 0.00: 0.00: 0.00:	city 2.73 TI 2.75 TI 2.75 TI 2.75 TI 2.75 TI	Capacity 19.103 TB Remove
eate new RAII ag the drives the 9 HUA723030AL 9 HUA723030AL 9 HUA723030AL 9 HUA723030AL 9 HUA723030AL	A Group at will be inclu Vendor A6. Hitachi A6. Hitachi A6. Hitachi A6. Hitachi A6. Hitachi	ded into 1 50.01.086 50.01.086 50.01.086 50.01.086 50.01.086 50.01.086	Cape 0.00 0.00 0.00 0.00 0.00	city 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti	Capacity 19.103 TB Remove
eate new RAII ag the drives the HUA723030AL 9 HUA723030AL 9 HUA723030AL 9 HUA723030AL 9 HUA723030AL 9 HUA723030AL	Vendor A6. Hitachi A6. Hitachi A6. Hitachi A6. Hitachi A6. Hitachi A6. Hitachi A6. Hitachi A6. Hitachi	ded into 1 50:01: 50:01:08:6 50:01:08:6 50:01:08:6 50:01:08:6 50:01:08:6 50:01:08:6	Cape 0.00. 0.00. 0.00. 0.00. 0.00. 0.00.	city 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti	Capacity 19.103 TB Remove
eate new RAIL ag the drives the hUA723030AL HUA723030AL HUA723030AL HUA723030AL HUA723030AL HUA723030AL	Vendor kt will be inclu Vendor A6. Hitachi A6. Hitachi A6. Hitachi A6. Hitachi A6. Hitachi A6. Hitachi A6. Hitachi	ded into 1 50 01 50 01 086 50 01 086 50 01 086 50 01 086 50 01 086 50 01 086	Cap+ 000 0.00 0.00 0.00 0.00 0.00 0.00	city 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti 2.73 Ti	Capacity 19.103 TB Remove
eate new RAII ag the drives the HIA723030AL HIA723030AL HIA723030AL HIA723030AL HIA723030AL HIA723030AL	Vendor Ab. Hrachi Ab. Hrachi Ab. Hrachi Ab. Hrachi Ab. Hrachi Ab. Hrachi Ab. Hrachi Ab. Hrachi	ded into 50 01 50 01 086 50 01 086 50 01 086 50 01 086 50 01 086 50 01 086	Cape 0.00: 0.00: 0.00: 0.00: 0.00: 0.00:	city 2.73 Ti 2.75 Ti 2.75 Ti 2.75 Ti 2.73 Ti 2.73 Ti 2.73 Ti	Capacity 19.103 TB Remove



- 8. The 'Create New RAID Group' pane will display the configuration options. Make the following choices, then click the 'Next' button.
 - E. Sector Size: Select 512 bytes F. SpeedRead: Select Adaptive
 - G. Rebuild Priority: Same
 - H. Auto Rebuild: Selected
- 9. Confirm the RAID Group configuration and click 'Yes'.

\varTheta 🔿 🔿 Confi	rm Operation
Create new RAII	D Group 🖊 🍟
Would you like to	create this RAID Group?
Name:	GSPeSPro
Level:	RAIDS
Interleave:	512 KB
Mirror Count:	0
Initialization:	Advanced
Drive Count:	8
Capacity:	19.103 TB
Sector Size:	512 bytes
Options:	Auto-Rebuild
	SpeedRead (Adaptive)
	Same Rebuild Priority
RAID Partitions	Single
	No Yes

10. The RAID Group will begin to initialize. This process takes approxomately 45 min per TB.

Sector Size:	512 bytes	SpeedRead	Rebuild Priority	G
G	(and the second se	O Always	O High	
		 Adaptive 	🕒 Same	Auto-Rebuild
		O Never	O Low	H

	ATTO	Configurat	tion Tool				
	Basic In	fo Flas	h RAID	RAID CLI	Tasks /	Advanced	
	Drives: 8	Fault	ted: 0 F	taid Groups:	1 Hot S	pares: 0	
			Attack	ned Drives			
Name		Vendor	Address		Usage	Ca	pacity
. HUA72303	DALA640	Hitachi	50:01:08	60.00 52 c	8:6c GSPeS	Pro (1)	2.73 TI
HUA72303	0ALA640	Hitachi	50:01:08	60:00 SZ:c	8:6d GSPeS	Pro (2)	2.73 TI
HUA72303	OALA640	Hitachi	50:01:08	60:00:52:c	8:6e GSPeS	Pro (3)	2.73 TI
12 HUA72303	IOALA640	Hitachi	50:01:08	60:00 52 c	8:6f GSPeS	Pro (4)	2.73 TI
. HUA72303	DALA640	Hitachi	50:01:08	60:00 52 c	8:68 GSPeS	Pro (5)	2.73 TI
岸 HUA72303	OALA640	Hitachi	\$0.01.08	60.00 S2.c	8:69 GSPeS	Pro (6)	2.73 TI
HUA72303	0ALA640	Hitachi	50:01:08	5.60.00 52 c	8:6a GSPeS	Pro (7)	2.73 TI
·두 HUA72303	OALA640	HRachi	50:01:08	60:00:52:c	8:6b GSPeS	Pro (8)	2.73 1
			Groups	🕈 Hot Sp	ares		
	1 mm	el	Capacity	Members	Status	Reb	uid
Name	LC4					-	

- 11. Right-click on the RAID group in the lower panel. From the dropdown menu, select 'Properties'.
- 12. In the popup window that opens, select a Prefetch value of 2 and check Auto-Rebuild.



- 13. Click 'Accept' to close the window.
- 14. The RAID initialization process will continue and when complete, the RAID Group (Volume) will need to be formatted using Disk Utility. See Initialize Drive for Mac for instructions.

Set Up Alert Notifications

The ATTO ConfigTool can notify you when events occur on the RAID system. Open the ConfigTool and select 'localhost' in the left bar. The screen below will appear.

	ATTO Configuration Tool
Device Listing	Basic Info Notifications SNMP
Posts ► The seculities	Basic Alerts Audible: Critical System Log. Critical
	Logging Location: /var/log/attotech Events: All Size Limit 000: 0 (Browse)
	Email Server Address: mail.yourserver.com Username: username Sender Address: unuilivourserver.com Password:
	Enable SSL Port: 25
	recipient@theirserver.com
	None 1

The ConfigTool has four types of Alerts: Audbile Alert, Visual Alert, System Log and By Email. You can set the Event threshold for each Alert type and for different email addresses. To enable email notification, enter your server information and up to three recipient addresses.

Events are categorized in two ways. 'Critical' indicates a serious problem has occurred and the System Administrator should perform corrective action. 'Warning' indicates events that are less serious but still warrant notification.

	None	
Audible:	Critical	
	Warning	1
	All	

Maintenance for your Drive

Replace a Failed Disk Drive	p.33
Initialize Drive for Mac	p.36
• Restore the Drive Icon	p.39
· Reformat with Partitions	p.41





Replace a Failed Disk Drive

The ATTO R680 RAID controller continually monitors the health of each of the disk drives in G-SPEED eS Pro. In the event of a disk failure, you will be notified based on the notifications settings you entered in **Set Up Alert Notifications**. The ATTO ConfigTool service will report the failed drive and help you locate its physical position in the G-SPEED eS Pro enclosure.



Mute the Alarm

If you have set up 'audible alarms', the ATTO RAID controller will beep when a drive has failed, or other critical event has occurred. To mute the audible alarm, click on the Alert icon in the System Notification area of your desktop. Select 'Mute Audible Alert'.



Note About Drive Failure

If the G-SPEED eS Pro was configured in RAID 1 or RAID 5 mode, a drive failure does not necessarily result in data loss. However, the array is now in a degraded and unprotected state; the failed drive should be replaced as soon as possible to avoid data loss.

If G-SPEED eS Pro was configured in RAID 6 mode, up to two drives can fail with no loss of data. Replace any failed drive as soon as possible.

Follow the steps on the next page to identify and replace a failed drive.

- 1. Launch the ATTO ConfigTool. You will find the ConfigTool in the Applications/ATTO ConfigTool folder on your computer.
- 2. Double click on 'localhost', click on 'ExpressSAS R680', and login to the application.

G SPEED^{^m}*eS* **PRO**

Name	Vendor	Address	Usage	Capacity
HUA722020A	ALA Hitachi	50:01:08:60:	00: GTECHR0 (1)	1.82 TB
HUA722020A	ALA Hitachi	50:01:08:60:	00: GTECHR0 (2)	1.82 TB
HUA722020A	ALA Hitachi	50:01:08:60:	00: GTECHR0 (3)	1.82 TB
HUA722020A	ALA Hitachi	50:01:08:60:	00: GTECHR0 (4)	1.82 TB
🔅 HDS722020A	LA Hitachi	50:01:08:60:	00: GTECHR0 (5)	1.82 TB
HDS722020A	LA Hitachi	50:01:08:60:	00: GTECHR0 (6)	1.82 TB
HDS722020A	LA Hitachi	50:01:08:60:	00: GTECHR0 (7)	1.82 TB
HDS722020A	LA Hitachi	50:01:08:60:	00: GTECHR0 (8)	1.82 TB

3. Select the 'RAID' tab and the top pane should show a screen similar to the one show below. In our example, the failed drive is the entry with the orange indicator next to its name.

	_	Name	Vendor	Addre	s s	Usage	Capacity	
	۲	HUA722020ALA	Hitachi	50:01	:08:60:00:	GTECHR0 (1)		1.82 TB
/	0	HUA722020ALA	Hitachi	50:01	:08:60:00:	GTECHR0 (2)		1.82 TB
(۲	HUA722020ALA	Hitachi	50:01	:08:60:00:	GTECHR0 (3)		1.82 TB
~	۵	HUA722020ALA	Hitachi	50:01	:08:60:00:	GTECHR0 (4)		1.82 TB
	۲		Hitachi	50:01	:08:60:00:	GTECHR0 (5)		1.82 TB
	0	🖅 🖉 Locate 🛝		50:01	:08:60:00:	GTECHR0 (6)		1.82 TB
	0	Enclosure	Hitachi 🕨	50:01	:08:60:00:	GTECHR0 (7)		1.82 TB
	Θ	Performan	c Identify the	selected drive(s) by blinking t	the activity LED	(s) of the drive(s)	1.82 TB
		+ S.M.A.R.T.	Status					
		🔎 Media Scar	1					
L .		🖊 Scan Repo	rt		°			
		Properties		Groups	🕂 Hot Sp	ares		
		View	evel 🕨 🕨	Capacity	Members	Status	Rebuild	

4. Right-click on the failed drive and select 'locate'.



Maintenance for Your Drive

steps below.

REMOVING THE WRONG DRIVE CAN RESULT IN THE LOSS OF THE ARRAY AND ALL OF THE CONTENT STORED ON G-SPEED ES PRO.

5. The failed drive's LED will begin to blink in the G-SPEED eS Pro enclosure, making it easy to identify which drive needs to be replaced. Be certain to remove the correct drive, as removing the wrong drive could cause data loss.

G SPEED^{^m}*eS* **PRO**

Drive Activity LED

NOTE: It is possible the failed drive will be completely offline. In this case, the drive's Activity LED will be completely turned off, indicating the failed drive.

- 6. Remove the failed drive by inserting the provided key into the Lock hole and sliding the drive out of the enclosure.
- 7. Replace the failed drive with a new disk module and secure in place. Once the drive has spun up to speed, the ConfigTool will indicate that the array is rebuilding. The rebuild time is approximately 1 hour per TB.

Once the rebuild is complete, G-SPEED eS Pro is back to normal, protecting your valuable data once again.

NOTE: Replacement and/or extra G-SPEED eS Pro disk modules are available for purchase online at: www.g-technology.com/Products/g-speed-es-pro.cfm



Initialize Drive for Mac

G-SPEED eS Pro was factory-formatted for use or 'initialized' for Mac OS X. You can reinitialize if you¹d like to quickly erase the contents of the drive, or if you reconfigure the RAID mode. Here are the steps.

- 1. First, open the Disk Utility Program. This application is located on your hard drive under Applications/Utilities/Disk Utility. The window below will appear. Your G-SPEED eS Pro will be displayed in the left-hand column.
- 2. Select the G-SPEED eS Pro by clicking its drive icon in the left-side column. Information about the drive will be displayed at the bottom of the window.
- 3. Select the Erase tab to view the formatting options. Select 'Mac OS Extended' on the Format menu and enter 'G-SPEED eS Pro' for the name.



4. Click the Erase button in the lower right corner of the window. A dialog box will appear asking if you want to erase the G-SPEED eS Pro partition.



WARNING: THIS NEXT STEP WILL ERASE ALL DATA ON YOUR DRIVE.

5. Click on the Erase button to continue. A Progress bar in the lower right corner of the window will show the progress of the disk's reformatting.





6. After the drive is reinitialized, you should automatically see the Time Machine dialog box. Click the 'Don't Use' button if you do not want to use G-SPEED eS Pro as a Time Machine backup target.

9	Do you want to use "G Machine? Time Machine keeps an up- keeps a spare copy of evry can revisit your Mac as it ap	-SPEED eS Pro" to back up with Time to-date copy of everything on your Mac. It not only file, it remembers how your system looked, so you peared in the past.
?	Decide Later	Don't Use Use as Backup Disk

7. Quit the Disk Utility Program. After reinitializing the drive, the custom icon for G-SPEED eS Pro has been erased. You can optionally restore this icon with the steps on the **following page**.



Restore the Drive Icon

If the G-SPEED eS Pro drive icon was erased during the reinitializing process (see **previous section**), you can restore the icon with the following easy steps.

NOTE: This Process is not required for the operation of G-SPEED eS Pro. However, it will make your drive's appearance on the computer desktop look nicer and more accurate.

- 1. To get the G-Technology icon package, go to www.g-technology.com/support and navigate to your Product. There will be a link to download the icons.
- 2. Once downloaded, double-click the Zip file to open. Next, double-click the DMG file to open the G-Technology Icons package.
- 3. Click to select the drive icon for G-SPEED eS Pro in the package window. Press Command+C to copy the icon. *(below)*





- 4. Select the G-SPEED eS Pro icon on your desktop and press Command+I. This opens its Get Info window. *(below left)*
- 5. Select the default icon in the Get Info window. (below left)
- 6. Press Command+V to paste the G-SPEED eS Pro custom icon into the Get Info window. (*below right*)



The icon for your G-SPEED eS Pro has been restored and you can close the Get Info window. Your drive is now fully ready for use!

Reformat with Partitions

'Partitioning' a hard drive is the Process of dividing a hard drive into separate, discrete sections called 'volumes'. Each volume works like a separate disk. You can create up to 16 different partitions on a hard drive in OS X and each partition can be a different size and format.

With hard drives getting bigger, it is useful to partition your hard drive so sections of its space can be used for different purposes. For instance, segment user data from backup data, set up a multi-boot environment with different Operating Systems or create a dedicated capture scratch disk for programs like Final Cut Pro[™].

The following steps will guide you through this simple process of partitioning your drive. *In this example, we will partition a 500 GB G-DRIVE mini connected via FireWire. The steps will be identical for your drive, only the name may be different.*

 First, open the Disk Utility Program. This application is located on your hard drive under Applications/Utilities/Disk Utility. The window below will appear. Your G-Technology drive will be displayed in the left-hand column.



4. Select the number of partitions you would like from the Volume Scheme menu. Below, we have selected '2 Partitions' to create two partitions.

RAID

Restore

0 0	HGST 🗢
Verify Info Burn Moun	Eject Enable Journaling New Image Convert Resize Image Log
 232.9 GB ST325.Media disk0s3 465.8 GB HGST G-SPEED eS Pro PIONEER DVD-RW DVR 	First Aid Erase Partition RAID Restore Volume Scheme: Volume Information ✓ Current Partition 1 Partition Name: G-SPEED eS Pro 7 Partitions Format: Mac OS Extenc 3 Partitions Format: Mac OS Extenc 4 Partitions Size: 465.44 5 Partitions For erase and partition the selected disk, choose a volu options for each volume, and click Apply. To resize th selected disk, drag the dividers between them and click 10 Partitions This volume will not be erased. 12 Partitions Size: 465.4 GB 13 Partitions This volume will not be erased. 15 Partitions Size: 465.4 GB 16 Partitions Formations 16 Partitions Formation the selected disk 16 Partitions Formation the selected disk<

3. Click on the Partition button in the main window.

icon – by clicking it in the left-side column.

Erase

Partition

2. Select the FireWire or USB icon – not the G-Technology drive





First Aid

- 5. Click on the first partition in the Volume Scheme area. Your partition will be highlighted by a blue bounding box.
 - In the Name field, type a name for the partition.
 - From the Format menu, choose your desired disk format. If you will use your drive primarily on Mac OSX, it is recommended to use Mac OS Extended or Mac OS Extended (Journaled).
 - In the Size field, type in a size for the partition. Alternately, you can drag the bar in between each partition to quickly change the size.
- 6. Repeat this Process for each partition you have created.
- 7. Click the Apply button in the lower right corner of the window. A dialog box will appear asking if you want to erase the G-Technology drive partition.

WARNING: THIS NEXT STEP WILL ERASE ALL DATA ON YOUR DRIVE.

	First Aid Erase Partition RAID	Restore
Volume Scheme:	Volume Information	
2 Partitions	Name: My Medi	Partition Disk
	Format: Mac OS E	Partitioning this disk will permanently erase all the data from the disk.
	Size: 300.00	G-SPEED eS Pro"
My Media	To partition the sele Then click Apply.	The following volumes will be added: "My Media" "My Backup"
	A new volume will b Size: 300 GB	Are you sure you wish to partition the disk "HGST"?
My Backup		Cancel Partition
+ - Optio	ns) (R	evert Apply



8. Click on the Partition button to continue. A Progress bar in the lower right corner of the window will show you the Progress of the disk's reformatting.



- 9. When partitioning is complete, the multiple partitions will be displayed in the left-hand panel of Disk Utility.
- 10. Quit the Disk Utility Program. After reinitializing the drive, the custom icon for the G-Technology drive has been erased. You can optionally restore this icon to each partition with the steps on **this page**.
- 11. The multiple partitions of the G-Technology drive will be displayed on the desktop. Your drive is now setup with two or more partitions and ready for use.





Appendix

. RAID Levels Explained p.46



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Appendix

RAID Levels Explained

RAID	Description	Advantage	Disadvantage	Ideal For
0	Disk striping	Offers the highest performance and a useable storage capacity of 100% of total available storage capacity	No fault tolerance - failure of one drive in the array results in complete data loss	Content creation applications requiring highest storage capacity
1	Mirroring	Maximum level of data protection as identical data is written to multiple drives	Useable storage space is 50% of total available capacity	Applications in which data security is paramount
5	Disk striping with distributed parity	High read performance, medium write performance with data protection in case of a drive failure.	Useable storage capacity equals total capacity of all drives in the array less the capacity of one drive. Disk failure results in drop in performance	Content creation applications requiring data protection
6	Disk striping with dual distributed parity	High read performance, medium write performance with data protection in case of up to two drive failures.	Useable storage capacity equals total capacity of all drives in the array less the capacity of two drives. Disk failure results in drop in performance	Content creation applications requiring data protection
JBOD	Just-a-bunch- of-disks	Each drive can be accessed as an individual volume. Useable storage capacity is 100% of total available storage.	No fault tolerance	Audio applications

Support & Warranty

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· Limited Warranty	p.49
· Copyright	. p.51





Technical Support

Thank you for purchasing G-SPEED eS Pro. If you have any comments or questions about this manual or the Product, please let us know!

G-Technology appreciates and values its customers, striving to give you the finest service and support. If you encounter any difficulties while installing or using G-SPEED eS Pro, please contact G-Technology Technical Support via one of the following ways:

Telephone: (888) 426-5214 Fax: (408) 717-9007 E-mail: support@g-technology.com Internet: www.g-technology.com/support

Helpful information for support

When contacting Technical Support, it's best to be in front of your computer and have the following information available:

- Your G-SPEED eS Pro serial number (on bottom of unit)
- Operating System and version
- Computer brand and model
- List of other devices attached to your computer



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What will HGST do?

HGST will replace the drive with a functionally equivalent replacement product, transportation prepaid. HGST may replace your product with a product that was previously used, repaired and tested to meet HGST specifications. You receive tile to the replaced product at delivery to carrier at HGST shipping point. You are responsible for importation of the replaced product, if applicable. HGST will not return the original drive to consumers; therefore, the consumer is responsible for moving data to another media before returning. Data Recovery is not covered under this warranty and is not part of the warranty returns process. HGST warrants that the replaced products are covered for the remainder of the original product warranty or 90 days, whichever is greater.

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