



G-RAID® SHUTTLE 4/8/SSD

Transportable Hardware RAID Storage System

User Manual



ACCESSING SUPPORT

- For online technical support visit sandiskprofessional.com/support
- To speak with technical support visit:
sandisk.com/about/contact/customer-care

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INTRODUCTION

WELCOME

Thank you for purchasing the SanDisk® Professional G-RAID® SHUTTLE, featuring 40 Gb/s Thunderbolt™ 3 and 10 Gb/s USB-C™ interface technology. Specifically designed for professional content creation applications, the G-RAID SHUTTLE storage system provides RAID functionality for both application performance and data protection. RAID 0, 1, 1E, 5, 10, JBOD for SHUTTLE 4, RAID 0, 1, 1E, 5, 6, 10, 50, 60, and JBOD for SHUTTLE 8, and RAID 0, 1, 1E, 5, 10, 50, and JBOD for SSD.

The drive supports Thunderbolt™ 3 technology which enables blazing fast, concurrent data streams, capable of data bandwidth of up to 2800 MB/s** (depending on capacity and host device). This opens up incredible time-saving and multi-stream possibilities for content creation professionals who use bandwidth-intensive 4K, 8K, and VR workflows. With two bidirectional ports, a user can easily daisy chain up to six high-speed Thunderbolt peripheral devices, including external disk drives, video capture devices and external displays. G-RAID SHUTTLE devices support the industry's most demanding professional content creation applications, including Final Cut Pro®, Adobe Premiere® and Avid™ Media Composer.

SAFETY PRECAUTIONS

Your G-RAID SHUTTLE warranty may be voided as a result of failing to respect the precautions listed below. 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). It should also not be exposed to operational humidity beyond 5% to 80% (non-condensing) or non-operating humidity beyond 10% to 90% (non-condensing). Avoid placing your drive near a source of heat, exposing it to sunlight (even through a window), or setting it 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.

HANDLING PRECAUTIONS

SanDisk Professional products are precision instruments and must be handled with care. It may be damaged by rough handling, shock, or vibration. Always observe the following safety precautions:

- Avoid touching the G-RAID SHUTTLE device's connector.
- Do not block any of the enclosure's ventilation slots.
- Always lift the G-RAID SHUTTLE device by its top-handle, using another hand under its base to steady it if needed.
- Do not remove, damage, or cover any device labels.
- Ensure the G-RAID SHUTTLE device does not exceed maximum operating temperature.
- Exercise caution when handling a G-RAID SHUTTLE device as the G-RAID SHUTTLE device may have heated up.

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SETUP

WHAT'S IN THE BOX

The following items are included in the box:

- G-RAID SHUTTLE storage system
- Removeable Enterprise-class drive modules (installed in unit)
- (1) Thunderbolt™ 3 cable (40 Gbps)
- Power Cord
- Quick Start Guide
- 5-year limited warranty

If any items are missing, please contact SanDisk Professional support:

- <https://support-en.sandiskprofessional.com/app>

Download the latest G-RAID SHUTTLE user manual and utilities:

- G-RAID SHUTTLE 4
 - <https://support-en.sandiskprofessional.com/app/products/product-detail/p/2377>
- G-RAID SHUTTLE 8
 - <https://support-en.sandiskprofessional.com/app/products/product-detail/p/2375>
- G-RAID SHUTTLE SSD
 - <https://support-en.sandiskprofessional.com/app/products/product-detail/p/2378>

SYSTEM REQUIREMENTS

G-RAID SHUTTLE supports the following operating

- systems OS 10.15+
- Windows 10+ (via reformat)

For maximum performance, the G-RAID Shuttles come in RAID 5 out of the box and supports RAID 0, 1, 1E, 5, 6, 10, 50, 60, and JBOD to provide a versatile and flexible storage solution.

INSTALLING G-RAID SOFTWARE UTILITY

G-RAID SHUTTLE devices ship preconfigured in RAID 5 and are ready to use out of the box without configuration. However, SanDisk Professional recommends installing the G-RAID Software Utility even if you do not plan to make any changes to device configuration. The applications are useful for monitoring the system and getting firmware updates.

Additionally, the utility is necessary if you plan to change the enclosure's default RAID configuration (RAID 5) or if you will swap out any of the pre-installed hard drives. The G-RAID Software Utility installation package is available on the SanDisk Professional website and can be easily downloaded.

Follow the instructions below to easily install the G-RAID Software Utility:

1. Visit the following page to download the G-RAID Software Utility based on your G-RAID device and operating system:
 - [G-RAID SHUTTLE 4](#)
 - [G-RAID SHUTTLE SSD](#)
 - [G-RAID SHUTTLE 8](#)
2. Mount the virtual drive containing the installation software package.*
*The version number of the .dmg file and .pkg file will change as it is updated.
3. Double-click on the software package to begin the installation. The introduction window explains that software will be installed on your computer. You can review the software license agreement. Once ready, click the **Continue** button to proceed.
4. The software license agreement will appear. Read the statement and click **Continue** to proceed.
5. Click **Agree** if you agree to the terms of the license. To read the license, click **Read License**. Choose **Disagree** if you do not agree with the terms. This will terminate the installation procedure.
6. Click **Install** to begin the installation process.
7. The G-RAID SHUTTLE Software Utility will install in a few moments. Once complete, a message will inform you that the installation was successful. Click **Close** to complete the installation procedure.

The G-RAID Software Utility is now available to help manage your G-RAID SHUTTLE. Use this tool if you need to modify the array configuration, retrieve system information or update the enclosure firmware. The utility tool is also useful for monitoring the storage system status as well as troubleshooting. For more information on using the G-RAID SHUTTLE, including instructions on how to use the Wizard menu or configure a different RAID array configuration, see **Managing the Disk Array** chapter.

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G-RAID SHUTTLE HARDWARE

OVERVIEW

G-RAID SHUTTLE ships from the factory preconfigured in RAID 5. The RAID controller also supports Protected RAID modes. RAID 0, 1, 1E, 5, 6, 10, 50, 60, and JBOD for SHUTTLE 8, RAID 0, 1, 1E, 5, 10, and JBOD for SHUTTLE 4, and RAID 0, 1, 1E, 5, 10, 50, and JBOD for SSD. For an explanation of these RAID levels, see **RAID Levels** in the Support, Chapter 6.

G-RAID SHUTTLE 4 AND G-RAID SHUTTLE SSD

Front Panel (G-RAID SHUTTLE 4)

Refer to the illustration 3.1 below.

1. Removable Disk Drives
2. Drive Module Power/Activity LED
3. LED Indicator

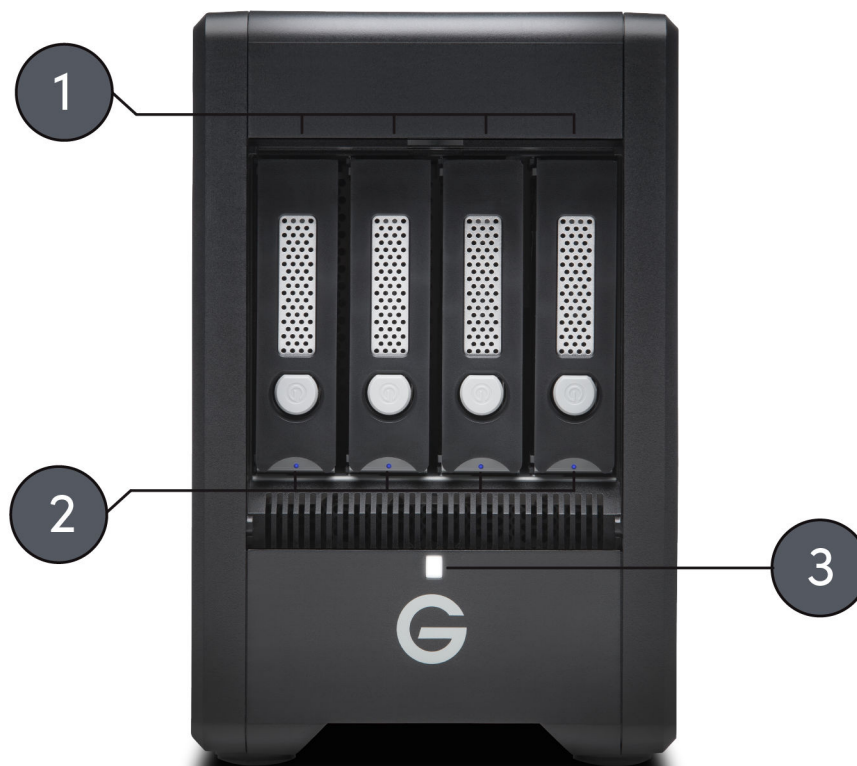


Illustration 3.1

Front Panel (G-RAID SHUTTLE SSD)

Refer to the illustration 3.2 below.

1. Removable Disk Drives
2. Drive Module Power/Activity LED
3. LED Indicator



Illustration 3.2

Rear Panel

Refer to the illustration 3.3 below.

1. Smart Cooling Fans
2. Alarm Mute Button
3. Thunderbolt 3 Ports
4. Power Button
5. Kensington Slot
6. AC Input



Illustration 3.3

G-RAID SHUTTLE 8

Front Panel

Refer to the illustration 3.4 below.

1. Removable Disk Drives
2. Drive Module Power/Activity LED
3. LED Indicator

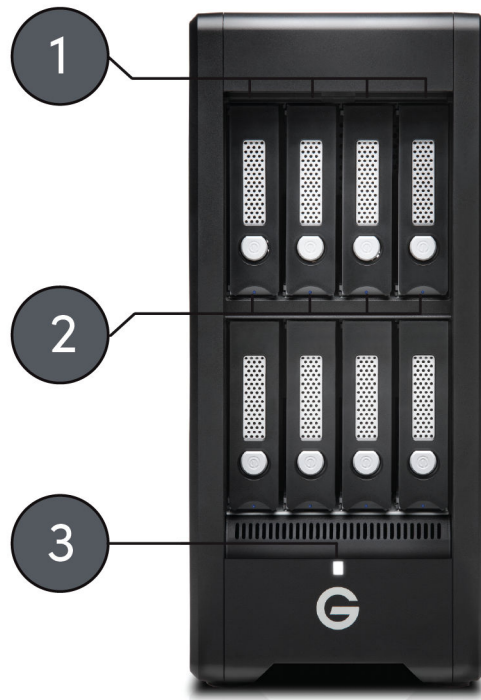


Illustration 3.4

Rear Panel

Refer to the illustration 3.5 below.

1. Smart Cooling Fans
2. Alarm Mute Button
3. Thunderbolt 3 Ports
4. Power Button
5. Kensington Slot
6. AC Input

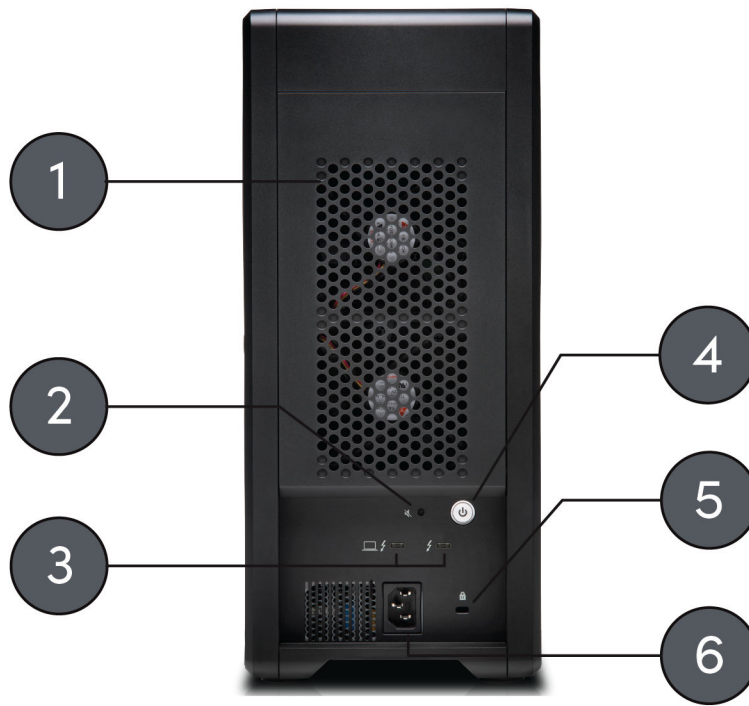


Illustration 3.5

DRIVE ACTIVITY LED

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

WARNING LED AND ALARMS

The G-RAID SHUTTLE enclosures integrate an audible alarm or buzzer that will sound when any of the following conditions exist:

- Internal temperature exceeds a temperature of 60°C.
- Main cooling fan fails
- Fan slows to a state where the fan can no longer adequately cool the system

To silence the alarm, push the Alarm Mute button located on the back of G-RAID SHUTTLE as shown above.

In addition to the audible alarm, the LED located on the front G-RAID SHUTTLE will illuminate red.

If there is an issue with a G-RAID drive module, the LED on the module will glow red indicating a drive or RAID issue. Please launch the G-RAID Software Utility to determine if any user action is required or contact our support team for further troubleshooting.

If you hear an audible alarm and see the red warning LED on G-RAID SHUTTLE front, stop using the enclosure and contact SanDisk Professional support.

DAISY CHAINING, USB-C™ MODE, AND USB POWER DELIVERY

G-RAID SHUTTLES have dual Thunderbolt 3 ports, one for connecting to your computer and the other for daisy chaining up to 5 additional devices – keeping you connected to multiple drives, 4K displays, and more, through a single connection to your computer. To daisy chain multiple Thunderbolt devices to your G-RAID SHUTTLE, follow these steps:

1. Use a Thunderbolt 3 cable to connect one of the Thunderbolt ports on the back of your computer to the Thunderbolt port (marked with a computer icon) on your G-RAID SHUTTLE.
2. Use another Thunderbolt 3 cable to connect the second Thunderbolt port on G-RAID SHUTTLE with one of the Thunderbolt ports on a second device.
3. Use additional Thunderbolt 3 cables to link subsequent storage enclosures or Thunderbolt 3-enabled devices into the daisy chain via available Thunderbolt ports.

USB-C™ Mode

G-RAID SHUTTLE ports also support high speed transfers over USB-C™ (10Gbps).

USB Power Delivery

With support for up to 85 watts of USB Power Delivery through the USB-C™ port, G-RAID SHUTTLE devices can charge your compatible MacBook or MacBook Pro without having to take a separate MacBook charger out of your bag.

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G-RAID SOFTWARE UTILITY

OVERVIEW

The G-RAID Software Utility interface consists of menus and icons, each leading you to a specific function.

MENU BAR

The menu bar consists of the following options:

- **G-RAID Software Utility** – About, Checking for Updates, Preferences, Services, Hide, Quit
- **View** – Show/Hide Toolbar, Customize Toolbar, Devices (G-RAID SHUTTLE units)
- **Dashboard** – Display the Dashboard
- **Storage** – Wizard, Disk Array List, Logical Drive List, Spare Drive List
- **Admin** – System Information, Events, Background Activities, System Updates, Performance Monitor and Restore Factory Defaults
- **Window** – Minimize, Zoom, Close Window, Bring All to Front, G-RAID SHUTTLE unit
- **Help** – Links to Online help and the Support Site

TOOLBAR ICONS

The dashboard displays the following icons on the top toolbar:

- **Dashboard** – Displays the Dashboard and overview
- **Wizard** – Displays the Wizard options for quickly setting up RAID arrays
- **Physical Drive** – Displays the physical drive list, settings and functions
- **Disk Array** – Displays menu for monitoring, managing and creating disk arrays
- **Logical Drive** – Displays the logical drive list, settings and functions
- **System Information** – Displays G-RAID SHUTTLE information and settings
- **Events** – Displays the Event logs
- **Background Activity** – Display or run background tasks

UNLOCKING THE USER INTERFACE

By default, the user interface (UI) is locked to prevent unauthorized changes to your RAID system. When the UI is locked, you cannot create logical drives or change settings on your G-RAID SHUTTLE.

To unlock the UI, do the following:

1. At the lower-left of the G-RAID Software Utility window, click the closed lock icon.

2. The G-RAID Software Utility password dialog box will open. Enter your computer password into the **Password** field, then click **OK**.
3. The closed lock icon will change to an open lock icon.
4. You can now add and delete logical drives, make setting changes, run background activities and update your G-RAID SHUTTLE.

SAVING A SERVICE REPORT

A service report can be useful to technical support for troubleshooting or diagnosing device issues.

To save a service report to your computer, do the following:

1. Click on the **System Information** link.
2. Click on **Save Service Report**.
3. A prompt will ask where you want to save the HTML file containing the service report. Choose a location, then click **Save**.
4. A technical support representative might ask you to email this file for system analysis.

UPDATING FIRMWARE

For optimal controller and system hardware performance, it is a good idea to keep your G-RAID SHUTTLE firmware up to date. Download the latest firmware from the SanDisk Professional support website at <https://support-en.sandiskprofessional.com/> and save the firmware file on your computer. Note that after the update process completes, you will need to restart your computer for the changes to take effect.

To update the controller firmware:

1. From the Admin drop-down menu in the menu bar at the top of your desktop, choose **System Update**.
2. Click on the padlock icon to unlock the menu, then type in the password for your computer when the prompt appears.
3. Click **Choose File** and locate the firmware file you downloaded from the SanDisk Professional support website.
4. Click **Submit**.
5. In the Confirmation box, enter **CONFIRM** in the field provided and click **Confirm**.
6. The process will take several seconds. When complete, you will be prompted to restart your computer. Restart your computer and continue using your G-RAID Shuttle.

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MANAGING THE DISK ARRAY AND LOGICAL DRIVE

CREATING A DISK ARRAY AND LOGICAL DRIVE MANUALLY

A disk array is a method of organizing data across a grouping of hard disks or solid state drives. One or more logical drives can be created on top of a disk array.

A logical drive is what mounts to your computer, which it sees as a single namespace, or as individual drives. The logical drive is where your disk's file format is defined and is also where your system saves the files.

Create a Disk Array

This feature only creates a disk array. You can also use the Wizard to create a disk array with logical and spare drives concurrently.

To create a disk array:

1. From the Dashboard menu, click the **Disk Array** link.
2. Click **Create Disk Array**.
3. Accept the defaults or make changes:
 - Enter an alias in the Alias field with a maximum of 32 characters (letters, numbers and spaces between characters).
 - **Enable Media Patrol** – Uncheck to disable on this array.
 - **Enable PDM** – Uncheck to disable on this array.
4. In the **Select Physical Drives** diagram, click drives to add them to your array. The drive carriers turn blue when you click them. The physical drives' ID numbers will appear in the field below the diagram.
5. When you have finished your settings and choices, click **Submit**.

The new array will appear in the list.

- If you are done creating disk arrays, click **Finish**.
- To create additional disk arrays, click **Create More**.

After you create a disk array, you will need to create a logical drive on it.

Create a Logical Drive

This feature creates a logical drive only. You can also use the Wizard to create a disk array with logical drives and spare drives concurrently. See **Creating a Disk Array and Logical Drive with Wizard**.

To create a logical drive manually:

1. Choose one of the following actions:
 - Click the **Logical Drive** icon.
 - From the Storage menu, choose **Logical Drive**.
2. Click **Create Logical Drive**.
3. Click the radio button of the disk array you want to use, then click **Next**.
4. Accept the defaults or make changes from the following:

- Optional. Enter an alias in the **Alias** field with a maximum of 32 characters (letters, numbers, and spaces).
 - Choose a **RAID level**. The choice of RAID levels will depend in part on the number of physical drives in the disk array.
 - In the Capacity field, accept the default maximum capacity or enter a lesser capacity in MB, GB, or TB. Any remaining capacity will be available for an additional logical drive.
 - Choose a Stripe size: 64KB, 128KB, 256KB, 512KB and 1MB are available.
 - Choose a Sector size: 512KB, 1KB, 2KB and 4KB are available.
 - Choose a Read (cache) Policy: Read Cache, Read Ahead and No Cache are available.
 - Choose a Write (cache) Policy: Write Back and Write Through (Thru) are available.
- The Write Cache is always set to WriteThru when the Read Cache is set to NoCache.
- If you want the G-RAID Software Utility to format your logical drives, leave the **Format** box checked.
5. Click **Add**. The new logical drive will appear on the list at the right. If any capacity remains, you can create an additional logical drive. G-RAID SHUTTLE supports up to 32 logical drives.
 6. When finished, click **Submit**. The new logical drives(s) will appear in the logical drive list.

The new Volume will appear on the desktop.

CREATING A DISK ARRAY AND LOGICAL DRIVE WITH THE WIZARD

The G-RAID Software Utility includes a Wizard to help you set up a disk array, logical drives and spare drives. To open the Wizard, click the Storage menu and choose Wizard. The Wizard dialog box will open and offer three configuration methods: Automatic, Express, or Advanced.

Wizard dialog box

Choose the best method for your needs as per the following table:

Method	User Options	Suggested for users who are
Automatic	None	New to data storage
Express	General parameters	Familiar with data storage
Advanced	Individual parameters	Data storage professionals

Automatic Configuration

To use the Automatic Configuration Wizard:

1. From the Storage menu, choose **Wizard**.
2. Click the **Automatic** button.

The Automatic Configuration dialog box will appear.

Do one of the following actions:

- If you agree with the proposed configuration, click the **Submit** button. The Wizard will create your disk array and logical drive. The Wizard can also create a spare drive.
- If you do NOT agree with the proposed configuration, click the **Cancel** button to return to the original Automatic Configuration menu.

Express Configuration

To use the Express Configuration Wizard:

1. From the Storage menu, choose **Wizard**.
2. Click the **Express** button.

The Express Configuration dialog box will appear.

3. Check the boxes to choose any one or a combination of:
 - **Data Redundancy** – The array remains available if a physical drive fails
 - **Media Capacity** – The greatest possible amount of data capacity
 - **Drive Performance** – The highest possible read/write speed
 - **Spare Drive** – Check box to create a hot spare drive
 - **Number of Logical Drives** – Enter a number of logical drives to create
 - **Application Type** – Choose how the storage will be used
4. In the Number of Logical Drives field, type the number of logical drives you want to make from this disk array.
5. From the **Application Type** drop-down menu, choose an application that best describes your intended use for the logical drives.
6. Click the **Next** button to continue.

The Summary dialog box will appear with information about the disk arrays, logical drives and spare drives you are about to create.

Perform one of the following actions:

- If you accept these parameters, click the **Submit** button.
The Wizard will create your disk array, logical drives, and a spare drive.
- If you do NOT accept these parameters, click the **Back** button, then review and modify your choices.
- Press **Cancel** to dismiss the configuration all together.

ADVANCED CONFIGURATION

This option enables you to specify additional parameters for a new disk array, logical drives and spare drives.

To use the Advanced Configuration Wizard:

1. From the Storage menu, choose **Wizard**.
2. Click the **Advanced** button.

To Create Disk Array screen will display.

Task 1 – Disk Array Creation

To create your disk array:

1. Accept the defaults or make changes to any of the following:
 - Enter an alias in the Alias field, up to a maximum of 32 characters (letters, numbers and spaces between characters).
 - **Media Patrol** – Uncheck to disable on this array.
 - **PDM** – Uncheck to disable on this array.
2. In the Select Physical Drives diagram, click the desired drives to add them to your array. Drive carriers turn blue when you click them. The physical drives' ID numbers appear in the field below the diagram.
3. Click **Next**.

The Create Logical Drive screen will display.

Task 2 – Logical Drive Creation

To create your logical drive:

1. Enter your information and choose your options.
 - Enter a logical drive alias in the field provided.
 - Choose a RAID level from the drop-down menu. Note the max capacity value, then enter a capacity value in the field provided and choose a unit of measure from the drop-down menu.
 - Enter a value for capacity and choose the appropriate size unit of measurement (MB, GB or TB).
 - Choose a Stripe size: 64 KB, 128 KB, 256 KB, 512 KB and 1 MB are available.
 - Choose a Sector size: 512 B, 1 KB, 2 KB, and 4 KB are available.
 - Choose a Read Cache Policy: The choices are Read Cache, Read Ahead (cache), and None.
 - Choose a Write (cache) Policy: The choices are WriteThru and WriteBack. WriteBack requires a ReadCache or Read Ahead/Read Cache Policy.
 - If you want the Utility to format your logical drives, leave the Format box checked.
2. Click Add. The new logical drive will appear on the list at the right. If any capacity remains, you will have the option to create an additional logical drive.
3. Click **Next**.

The Create Spare Drive screen will display.

Task 3 – Spare Drive Creation

To create your spare drive:

1. For each of the following items, accept the default or change the following settings as required:
 - Check the **Revertible** box if you want a revertible spare drive. A revertible spare drive returns to its spare drive assignment after you replace the failed physical drive in the disk array and run the Transition function.
 - **Global** – Allows the spare to be used by any disk array.
 - **Dedicated** – Restricts the drive to only working with the disk array you are now creating.

2. In the **Select Physical Drives** diagram, click a drive to choose it for your spare. The drive carrier will turn blue when you click it. The physical drive's ID number will appear in the field below the diagram.
3. Click **Next**.

The **Summary** screen will display.

Task 4 – Summary

1. Review your choices of disk array, logical drives and spare drive.
 - To make any changes, click **Back** to reach the appropriate screen.
 - To accept, click **Submit**. Creating the disk array, logical drive, and spare drive will take a few moments.
2. In the **Select Physical Drives** diagram, click the desired drives to add them to your array. Drive carriers turn blue when you click them. The physical drives' ID numbers appear in the field below the diagram.
3. Click **Finish** to close.

REBUILDING A DISK ARRAY

When you rebuild a disk array, you actually rebuild data on one or more physical drive from redundant data maintained on other drives. If there is no spare drive of adequate capacity, you must replace the failed drive with an unconfigured physical drive, then perform a Manual Rebuild.

On the carrier with the failed drive, the drive power/ status LED will be red.

Performing A Manual Rebuild

To perform a manual rebuild:

1. Click on the **Background Activities** icon.
2. Mouse-over **Rebuild**, then click **Start**.
3. From the **Source Physical Drive** drop-down menu, choose a **Source** disk array and physical drive. Arrays have an ID number. Physical drives have a sequence number.
4. From the **Target Physical Drive** drop-down menu, choose a **Target** physical drive.
5. In the Confirmation box, type the word "CONFIRM" in the field provided, then click **Confm** . While the disk array is rebuilding:
 - The disk array will show a green check icon and a **Rebuilding** status.
 - Logical drives under the disk array will continue to show a yellow "!" icon and a **Critical, Rebuilding** status.
 - If the buzzer is enabled, your G-RAID SHUTTLE device will emit two quick beeps every five seconds. When the beeps stop, the rebuild is complete.

6

REPLACING A BAD DRIVE

The G-RAID SHUTTLE RAID Controller continually monitors the health of each disk drive in the G-RAID SHUTTLE device. In the event of a disk failure, you will be alerted based on the notification settings you entered in Set Up Alert Notifications. G-RAID SHUTTLE will report the failed drive and help you locate its physical position in the G-RAID SHUTTLE device enclosure.

MUTING THE ALARM

By default, G-RAID SHUTTLE has the audible alarm enabled. If a drive fails or other critical events occur, the alarm will become audible. To mute the audible alarm, you can press the Alarm Mute button on the back of the enclosure or you can launch the G-RAID Software Utility. In the utility under the controller settings, there is a Buzzer section you can use to mute the alarm.

This same area can be used to test the alarm by simply clicking on **Sound**.

NOTE: If your G-RAID SHUTTLE was configured in RAID 1 or RAID 5 mode, a drive failure does not necessarily result in data loss. However, the array will now operate in a degraded and unprotected state. The failed drive should be replaced as soon as possible to avoid data loss.

IDENTIFYING AND REPLACING FAILED A DRIVE

1. Launch the G-RAID Software Utility.
2. Select the **Physical Drive**.
3. The Physical Drive List will show all of the drives and next to its name the status will indicate **Dead**.
4. Right-click on the failed drive and select **Locate**.

WARNING: Make absolutely sure that you remove the correct drive as indicated in the steps below. REMOVING THE WRONG DRIVE CAN RESULT IN LOSS OF THE ARRAY AND ALL CONTENT STORED ON YOUR G-RAID SHUTTLE.

5. The failed drive's LED will begin to blink in the G-RAID SHUTTLE 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.

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

6. Remove the failed drive by pressing the release button and sliding the drive out of the enclosure.
7. Replace the failed drive with a new disk module and secure the module in place. Once the drive is connected, the G-RAID Software Utility will indicate that the array is rebuilding. Rebuild time is approximately two hours per terabyte.

Once the rebuild is complete, G-RAID SHUTTLE will be back to normal, protecting your valuable data with optimal efficiency.

NOTE: Replacement and/or extra G-RAID SHUTTLE HDD and SSD modules are available for purchase online at:

<https://www.westerndigital.com/brand/sandisk-professional>

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SUPPORT

TECHNICAL SUPPORT

Thank you for purchasing the G-RAID SHUTTLE storage system. If you have any comments or questions about this manual or the product, please let us know!

SanDisk Professional appreciates and values its customers. We strive to give you the finest service and support. If you encounter any difficulties while installing or using your G-RAID SHUTTLE, please contact SanDisk Professional Technical Support at: <https://www.westerndigital.com/support/international-phone-numbers>

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-RAID SHUTTLE serial number (on bottom of unit)
- Operating System and version
- Computer model
- List of other devices attached to your computer

COMMON RAID LEVELS

RAID Level	Description	Advantage	Disadvantage	Ideal for
0	Disk striping	Offers the highest performance and a 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 performance and storage capacity
1	Mirroring	Maximum level of data protection: identical data is written to multiple drives	Usable storage space is 50% of total available capacity when using only two drives	Applications in which data security is paramount
5 (Pre-configured)	Disk striping with parity	High read performance, medium write performance with data protection in	Usable storage capacity equals total capacity of all drives in the array less the capacity of one drive	Content creation applications requiring data protection and performance

RAID Level	Description	Advantage	Disadvantage	Ideal for
		case of a drive failure		
10	Built from two or more equal-sized RAID 1 arrays	Mirroring provides data protection, and striping improves performance	Usable storage space is 50% of total available capacity	Content Backup and Content creation applications with data protection
JBOD	Just-a-bunch-of-disks	Each drive can be accessed as an individual volume. Usable storage capacity is 100% of total available storage	No fault tolerance	Audio applications

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IMPORTANT INFORMATION

STOP! IMPORTANT INFORMATION.

READ THE FOLLOWING CAREFULLY BEFORE USING THIS PRODUCT. KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE.

SAFETY INSTRUCTIONS

Additional Safety Instructions:

Keep the SanDisk Professional device away from direct sunlight, moisture, and temperature extremes. Do not bend, flex, or drop your SanDisk Professional device. The user is responsible for complying with all environmental, safety, and other usage specifications.

Keep the SanDisk Professional device away from sinks, drinks, bathtubs, showers, rain, and other sources of moisture. Moisture can cause electric shocks with any electronic device. Do not disassemble, crush, short circuit, or incinerate the SanDisk Professional device as it may cause fire, injury, burns, or other hazards.

Disposal Instructions:

Do not dispose of the SanDisk Professional device with unsorted waste. Improper disposal may be harmful to the environment and human health. Please refer to your local waste authority for information on return and collection systems in your area.

OBTAINING SERVICE

SanDisk Professional values your business and always attempts to provide you the very best of service. Should you encounter any problem, please give us an opportunity to address it before returning this Product. Most technical support questions can be answered through our knowledge base or e-mail support service at <http://www.sandiskprofessional.com/support>.

LIMITED WARRANTY - EXCEPT AUSTRALIA

Warranty Information

This SanDisk Professional device is covered by a 5-year limited warranty (or 5-year warranty in regions not recognizing "limited") from the date of purchase, subject to the applicable warranty terms and conditions, as defined in www.sandisk.com/wug.

How to Make a Warranty Claim

Please go to <https://www.westerndigital.com/support> and select “support” for more information on making a warranty claim (SanDisk Professional Support Page).

If it is determined that your product may be defective, you will receive an RMA and product return instructions. You are responsible for any expenses associated with a claim under SanDisk Professional’s Limited Warranty.

You must send your product in a secure, prepaid package, to the address provided with your RMA number. Proof of purchase is required for all warranty claims.

LIMITED WARRANTY - AUSTRALIA

Warranty Information

SanDisk Professional warrants to the end user, that this product, excluding content and or software supplied with or on the product, will be free from material defects in manufacture, will conform to SanDisk Professional’s published product specifications and be fit for normal use for a period of 5 years from the date of purchase, provided that the product is legally placed on the market.

When making a claim under this Limited Warranty, SanDisk Professional may at its option repair this product or provide you with an equivalent product; and if unable to repair or replace the product, will refund the purchase price. The full terms of SanDisk Professional’s warranty and warranty period are available at: www.sandisk.com/wug.

Warrantor Details

Western Digital Technologies, Inc., 951 SanDisk Drive, Milpitas, CA 95035, U.S.A.

Tel: 1 (800) 275-4932 (US local toll free) or 1 (310) 449-4599 (US)

How to make a warranty claim:

Before you return the product you must first obtain a Return Material Authorization (RMA) number. Please either:

1. Contact SanDisk Professional at 1 800 262 504 (M-F | 9 am – 6 pm New South Wales Time) or email SanDisk Professional (support@sandiskprofessional.com) and provide proof of purchase (showing date and place of purchase and name of the reseller) and product name, type and number; or
2. Contact the dealer from whom you originally purchased the product.

Please go to www.sandiskprofessional.com/support for more information on making a warranty claim (SanDisk Professional Support Page).

If it is determined that your product may be defective, you will receive an RMA number and product return instructions. You are responsible for any expenses associated with a claim under SanDisk Professional’s Limited Warranty. You must send your product in a secure, prepaid package,

to the address provided with your RMA number. Proof of purchase is required for all warranty claims.

Australian consumers only:

Notwithstanding the terms of this Limited Warranty, SanDisk Professional's products come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the products repaired or replaced if the products fail to be of acceptable quality and the failure does not amount to a major failure.

REGULATORY COMPLIANCE

Regulatory Compliance - FCC

FCC CLASS B INFORMATION

NOTE: This device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the device and receiver.
- Connect the device into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the device.

Safety Compliance - US and Canada

Safety Compliance

Approved for US and Canada. CAN/CSA-C22.2 No. 62368-1-14: Audio/Video, Information and Communication Technology Equipment Part 1: Safety Requirements.

Approuvé pour les Etats-Unis et le Canada. CAN/CSA-C22.2 No. 62368-1-14, Sûreté d'équipement de technologie de l'information.

Regulatory Compliance - CE

CE Compliance for Europe

Hereby, Western Digital declares compliance of this equipment to the applicable Council Directives of the European Union, including the EMC Directive (2014/30/EU), the Low Voltage Directive (2014/35/EU) and the RoHS Directive (2011/65/EU) as amended by Directive 2015/863/EU. The full text of the EU declaration of conformity is available at the following internet address: <http://www.wdc.com/products/EUDoC>.

- PO Box 13379, Swords, Co Dublin, Ireland
- PO Box 471, Leatherhead, KT22 2LU, UK

Regulatory Compliance - Austria

CE-Konformität für Europa

Hiermit erklärt Western Digital die Konformität dieses Geräts mit den anwendbaren Richtlinien des Rats der Europäischen Union, einschließlich der Richtlinie 2014/30/EU zur elektromagnetischen Verträglichkeit, der Niederspannungsrichtlinie (2014/35/EU) und der Richtlinie 2011/65/EU zur Beschränkung der Verwendung von gefährlichen Stoffen sowie der Abänderung durch die Richtlinie (EU) 2015/863. Den vollständigen Text der EU-Konformitätserklärung finden Sie unter der folgenden Internetadresse: <http://www.wdc.com/products/EUDoC>.

Geprüfte Sicherheit

Maschinenlärminformations-Verordnung 3. GPSGV: Der höchste Schalldruckpegel beträgt 70 db(A) oder weniger gemäß EN ISO 7779, falls nicht anders gekennzeichnet oder spezifiziert.

Regulatory Compliance - Japan

この装置は、クラスB機器です。この装置は、住宅環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。

添付の電源コードは、本製品専用です。接地接続は必ず、電源プラグを電源につなぐ前に行ってください。また、接地接続を外す場合は、必ず電源プラグを電源から切り離

Regulatory Compliance - Korea

기종별	사용자 안내문
B급 기기 (가정용 정보통신기기)	이 기기는 가정용으로 전자파 적합성 기준을 통과했으므로 주거 지역에서는 물론 모든 지역에서 사용할 수 있습니다.

Regulatory Compliance - Russia

Сведения о нормативно-правовом соответствии для России (EAC)

Уполномоченный представитель производителя в странах Таможенного союза: представительство Western Digital (UK) Limited (Великобритания) в Москве. Россия, 115054, Москва, Валоваэ ул., 35.

На наклейке на изделии указан код, состоящий из 4 цифр, за которыми следует буква. Первые две цифры означают неделю финансового года Western Digital (с 1 июля по 30 июня следующего года), когда было произведено изделие. Следующие два цифры означают финансовый год Western Digital, когда было произведено изделие. Буква означает страну, где оно было произведено: А – Малайзия, В – Таиланд, С – Китай, D – США, H – Венгрия, E – Бразилия.

Настоящее изделие соответствует требованиям технических регламентов Евразийского экономического союза ТР ТС 004/2011, ТР ТС 020/2011, ТР ЕАЭС 037/2016.

Regulatory Compliance - China

有毒有害物质或元素

部件名称	产品中有毒有害物质或元素的名称及含量					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
底盘外壳和镜头	○	○	○	○	○	○
减震器	○	○	○	○	○	○
塑料其它部件	○	○	○	○	○	○
组合电缆/电源	X	○	○	○	○	○
金属部件	X	○	○	○	○	○
固态驱动器/硬盘/电路板组合	X	○	○	○	○	○

本表格依据SJ/T 11364-2014的规定编制。
 ○: 表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。
 X: 表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572规定的限量要求。
 (在此表中, 企业可能需要根据实际情况对标记"X"的项目进行进一步的技术性解释。)

Regulatory Compliance - Taiwan

本裝置通過測試並符合 CNS-13438 (EMC) 和 CNS-14336-1 (Safety) 規範。

台灣 WD 地址：

台北市中山區松江路 223 號 17 樓

WD 產品是精密的儀器，將本產品從包裝中取出以及安裝時必須小心處理。處理不當、遭受撞擊或震動都可能使硬碟機受損。將外接儲存產品從包裝中取出以及安裝時請注意以下防護措施：

請勿摔落或敲擊本硬碟機。

當本裝置在作業期間，請勿移動本硬碟機。

設備名稱：硬式磁碟機 型號 (型式)：SanDisk Professional series

單元	限用物質及其化學符號					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
機箱外皮殼與鏡片	○	○	○	○	○	○
塑料其它部件	○	○	○	○	○	○
橡皮脚墊, 4 片	○	○	○	○	○	○
片金属部件	-	○	○	○	○	○
固態硬碟/硬碟/電路板組合	-	○	○	○	○	○
組合電纜線/電源	-	○	○	○	○	○
備考1. “超出0.1 wt %” 及 “超出0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準 備考2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值 備考3. “-” 係指該項限用物質為排除項目。						

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