RAID - TWO-DISK SERVER

A 5big Office/Office+ with two drives offers many options for the user, including the RAID configuration. While it is possible to create Spanned disks or a RAID 0 array, LaCie highly recommends mirroring for optimal protection of your data. RAID 0 can offer some speed advantages but data will not be duplicated across both volumes as with mirroring. Users risk losing data if one of the disks should fail in a RAID 0 array.

SUGGESTED RAID CONFIGURATION FOR TWO DISKS

Volume	Disks and RAID Level	Usage	Notes
Windows	2 Disks Mirror	Windows must run from its own volume. Storing data on the system volume will impact server performance. Page file*	A Mirror requires two drives, making it ideal for the Windows operating system. A Mirror offers redundancy, duplicating each file on the two disks that make up the volume. If one disk should fail, the system data will be available on its mirrored drive. If Disk 0 should fail, it will be possible to recover the system boot disk before restarting the server.
Data	2 Disks Mirror	The Data volume should be used to create Shares and store data.	A Mirror offers redundancy, duplicating each file on the two disks that make up the volume. If one disk should fail, the data may be accessed from the mirrored drive without losing time.

*The page file can be stored on the Windows volume.

Important info: Mirroring provides very good protection if one drive should encounter problems. However, LaCie highly recommends backing up the data stored on your professional server regularly in order to guard against worst case scenarios (i.e. accidental data deletion, malicious programs, viruses, etc.). LaCie professional servers include USB 2.0 and eSATA ports to attach desktop drives for use as backup storage. You can also backup your data to another server on the network.

ADJUSTING THE RAID

Administrators may change RAID configurations to suit the needs of a business or after a server system recovery.

Use Disk Management to view or change RAID configurations in Windows:

- Launch the Dashboard from a Windows workstation on the same network as your LaCie 5big Office/Office+.
 Start > All Programs > Windows Home Server 2011/Windows Storage Server 2008 R2 > Windows
 Home Server 2011 Dashboard/Windows Storage Server 2008 R2 Dashboard
- 2. Select the **Home** tab.

3. Click once on **COMMON TASKS**.

Windows Storage Server 2008 R2 Dashboard	
Home Users Computers Server Folders Add-Ins LaCe	Windows Storage Server 200 Kore
CETTING STARTED TASKS Common Tasks <pcommon p="" tasks<=""> Common Task</pcommon>	0 0 0 2 0 kerver settings Help - Search online help P Community links Web site for help Connect site Newsgroups Extend functionality with Add-ins LaCie Website Technical Briefs Support and Downloads

4. Click once on **Disk Management**.



The first time Disk Management is launched, you may be prompted to initialize your drives using MBR or GPT. For information on MBR and GPT formats, please read <u>MBR, GPT and the 5big Office/Office+ Operating Systems</u>. You can initialize the disks at this step or later in the process.

Initialize Disk	×
You must initialize a disk before Logical Disk Manager can access it.	
Select disks:	
Disk 1]
Use the following partition style for the selected disks:	
 MBR (Master Boot Record) 	
GPT (GUID Partition Table)	
Note: The GPT partition style is not recognized by all previous versions of Windows. It is recommended for disks larger than 2TB, or disks used on Itanium-based computers.	
OK Cancel	

Note: If you do not see Disk Management among the *Common Tasks*, you can add it by clicking **Customize this list**. Check the box next to each task that you wish to include on the *Common Tasks* list then click **OK**.

🖓 Customize the Task List	
Select tasks that appear in the list:	
Add a user account	
V Add a shared folder	
🔽 💏 Reset server password	
🔽 🚍 Disk management	
Vetwork Connections	
M Martings	
Image Printer Settings Image Printer Settings	
OK Cancel	

5BIG OFFICE/OFFICE+ SINGLE DISK DEFAULT CONFIGURATION

A single disk 5big Office/Office+ is shipped with three partitions, System, Windows, and Data. (The System partition takes up 100MB). The screenshot below shows both partitions on a single hard drive, Disk 0. Volume C contains the Windows operating system and volume D is meant to store data. As shipped, volume C takes up 60 GB.

Disk Manageme File Action Vi	ent iew Help	. 0. 5.							
Volume Data (Dr) System Windows (Ct)	Layout Ty Simple Ba Simple Ba Simple Ba	pe File System sic NTFS sic NTFS sic NTFS	Status Capacity Healthy (P 871.41 GB Healthy (S 100 MB Healthy (B 60.00 GB	Free Spa 870.69 GB 72 MB 35.30 GB	% Free Fault To 100 % No 72 % No 59 % No	olerance Overheac 0% 0% 0%			
Disk 0 Basic 931.51 GB Online	System 100 MB NTFS Healthy (System, Ar	Windows (C:) 60.00 GB NTFS Healthy (Boot, Page Fil	111 e, Crash Dump, Primary Part	Data (D:) 871.41 GB NTFS Healthy (Primary	Partition)	•			
Unallocated	Primary partition								

If you have not inserted disks into the 5big enclosure, please see <u>Removing and Installing Disks</u> for instructions.

BOOT ORDER AND CREATING THE SYSTEM MIRROR

All Windows system files are duplicated on each disk in the mirror. To protect your system files and to save important data collected by the operating system, LaCie recommends a RAID 1 configuration for the system and Windows volumes. In case of disk failure, all files will be accessible on the disk paired for the mirror.

Though the bootloader file will be duplicated on both disks, Windows will only boot from Disk 0. Therefore, it is highly recommended that you do not restart the server if Disk 0 experiences problems. Instead, replace Disk 0 (Disk Tray Slot 1) as soon as possible and rebuild the RAID 1 onto the new drive.

CREATING THE SYSTEM MIRROR

- 1. Insert the new disk into Drive Tray Slot 2.
- 2. Go to Disk Management Adjusting the RAID.
- 3. The second disk will appear as *Unallocated*.

Disk Manageme	ent iew Help							-01	
(+ +) 🖬 🛛									
Volume Data (D:) System Windows (C:)	Layout 1 Simple 1 Simple 1 Simple 1	Type Basic Basic Basic	File System NTFS NTFS NTFS	Status Healthy (P Healthy (S Healthy (B	Capacity 871.41 GB 100 MB 60.00 GB	Free Spa 870.69 GB 72 MB 35.30 GB	% Free 100 % 72 % 59 %	Fault Tolerance No No No	Overheac 0% 0% 0%
<	1			III					•
Basic 931.51 GB Online	System 100 MB NTFS Healthy (System, Ad	Windov 60.00 Gl Healthy	vs (C:) 3 NTFS (Boot, Page File	e, Crash Dump,	Primary Part	Data (D:) 871.41 GB NTFS Healthy (Prima	y Partition)		
Disk 1 Unknown 931.51 GB Not Initialized	931.51 GB Unallocated								
Unallocated	Primary partition								

4. Right-click on the **System** volume to select **Add Mirror...**

Basic 931.51 GB Online	System 100 MB NTFS Healthy (System,)	Open Explore Mark Partition at Active	ry Part	Data (D:) 871.41 GB NTFS Healthy (Primary Partition)
GDisk 1 Unknown 931.51 GB Not Initialized	931.51 GB Unallocated	Change Drive Letter and Paths Format Extend Volume		
		Add Mirror Delete Volume Properties		
Unallocated	Primary partition	Help		

5. A prompt will ask you to select a location for the mirror. Choose **Disk 1** and click **Add Mirror**.

......

Add Mirror
Adding a mirror to an existing volume provides data redundancy by maintaining multiple copies of a volume's data on different disks.
Select a location for a mirror of System.
<u>D</u> isks:
Disk 1
Add Mirror Cancel

6. A Disk Management warning will appear. Please click **Yes** to continue.

Disk Mana	igement	83
	The operation you selected will convert the selected basic disk(s) to dynamic disk(s). If you convert the disk(s) to dynamic, you will not be able to start installed operating systems from any volume on the disk(s) (except the current boot volume). Are you sure you want to continue?	
	Yes <u>N</u> o	

CREATING THE WINDOWS MIRROR

- 1. Create the System Mirror before the Windows Mirror.
- 2. Right-click on the Windows volume to select Add Mirror...

Disk 0 Dynamic 931.51 GB Online	System 100 MB NTFS Healthy (System) Windows (C:) 60.00 GB NTFS Healthy (Boot, Page File, Crash Dump)			Open Explore Extend Volume
Dynamic 931.51 GB Online	System 100 MB NTFS Healthy (System)		31.41 GB nallocated	Shrink Volume Add Mirror Change Drive Letter and Paths Format
			Reactivate Volume Delete Volume	
Unallocated Simple volume Mirrored volume				Properties Help

3. A prompt will ask you to select a location for the mirror. Choose **Disk 1** and click **Add Mirror**.

Add Mirror
Adding a mirror to an existing volume provides data redundancy by maintaining multiple copies of a volume's data on different disks.
Select a location for a mirror of C: (Windows).
<u>D</u> isks:
Disk 1
Add Mirror Cancel

4. It may take ten minutes to resync the RAID 1 array.

Disk Manage	ment View Help	e (1)					-0	
Volume Data (D:) System Windows (C:	Layout Simple Mirror) Mirror	Type File System Dynamic NTFS Dynamic NTFS Dynamic NTFS	Status Healthy Healthy (S Resynchin	Capacity 871.41 GB 100 MB 60.00 GB	Free Spa 870.69 GB 72 MB 35.30 GB	% Free 100 % 72 % 59 %	Fault Tolerance No Yes Yes	Overheac 0% 50% 50%
Circle Contraction Contractic Contracti	System 100 MB NTFS Healthy (System)	Windows (C:) 50.00 GB NTFS Resynching : (3%) (Bo	III ot, Page File, Cra	sh Dump)	Data (D:) 871.41 GB NTFS Healthy			,
Disk 1 Dynamic 931.51 GB Online	System 100 MB NTFS Healthy (System)	Windows (C:) 60.00 GB NTFS Resynching : (3%) (Bo	ot, Page File, Cra	sh Dump)	871.41 GB Unallocated			
Unallocated	Simple volume 📕 N	firrored volume						

CREATING THE DATA MIRROR

- 1. Create the System and Windows Mirrors before the Data Mirror. You may create the Data Mirror while System Mirror is resyncing.
- 2. Right-click on the **Data** volume to select **Add Mirror...**

Dynamic 931.51 GB Online Dynamic 931.51 GB Online 031.51 GB Online	System	Windows (C:)	Data (D:)						
	100 MB NTFS Healthy (System)	60.00 GB NTFS Healthy (Boot, Page File, Crash Dump)	871.41 GB NTFS Healthy	Open Explore					
	Swten	Windows (C:) 60.00 GB NTFS Healthy (Boot, Page File, Crash Dump)		Extend Volume					
	100 MB NTFS Healthy (System)		871.41 GB Unallocated	Add Mirror					
				Change Drive Letter and Paths					
				Reactivate Volume					
				Delete Volume					
				Properties					
				Help					
🛛 Unallocated 📕 Simple volume 📕 Mirrored volume									

3. A prompt will ask you to select a location for the mirror. Choose **Disk 1** and click **Add Mirror**.

Add Mirror									
Adding a mirror to an existing volume provides data redundancy by maintaining multiple copies of a volume's data on different disks.									
Select a location for a mirror of D: (Data).									
<u>D</u> isks:									
Disk 1									
Add Mirror Cancel									

4. Due to the size of the Mirrored set, it will take some time to resync the array. However, you can begin working with your LaCie professional server immediately.

🚔 Disk Manageme	ent						- 0 -
File Action Vi	iew Help						
(n n) 👘 🖬	🔟 🖸 X 🖆 📽 🛙	Q 😼					
Volume	Layout Type	File System Status	Capacity Free Spa.	% Free	Fault Tolerance	Overhead	
🖙 Data (D:)	Mirror Dyna	mic NTFS Resynching	871.41 GB 871.26 GB	100 %	Yes	50%	
System	Mirror Dyna Mirror Dyna	mic NTFS Healthy (S Healthy (P	100 MB 72 MB 60 00 GB 25 31 GB	72 %	Yes	50%	
Disk 0 Dynamic 931 51 GB Online	System 100 MB NTF5 Healthy (System)	Windows (C) 60.00 GB NTF5 Healthy (Bock Page File, Crash Dur	wws (C;) Di 38 NTFS 87 V (Boct Page File, Crash Dump) Ra				
Disk 1 Dynamic 931.51 GB Online	System 100 ME NTFS Healthy (Soytem) Healthy (Boot, Page File, Crash Dump)			Data (D:) 87.41 GB NTFS Resynching			
Unallocated	Mirrored volume		 				

Note: Please keep the following in mind as Mirrored and/or RAID 5 volumes resync:

- Rebooting the 5big Office/Office+ while Disk Management is resyncing a Mirrored or RAID 5 volume will not harm the configuration or its data. However, since the process was interrupted, Disk Management will automatically start a new resync at 0% once the 5big Office/Office+ has rebooted.
- Due to the capacity of the RAID 5 volume, rebooting while a resync is in progress could extend the operation for many hours.
- A volume that is in the midst of a resync may be accessed by workstations on the network. Users can perform common actions with the volume(s), such as reading files, writing files, or moving Shared Folders. However, performance will be degraded while Windows is resyncing Mirrored and/or RAID 5 volumes.