CREATE ARRAYS AND VIRTUAL DISKS

Use LaCie RAID Manager to create one or more volumes to run with your preferred application.

CREATING AN ARRAY

Your LaCie enclosure must have unassigned hard drives (physical disks) to create a new array. If necessary, you can delete an existing array to make hard drives available for a new array (see <u>Delete Arrays and Virtual Disks</u> for instructions). Since all data will be permanently removed, make certain to back up the existing array before deleting it.

You must know the RAID level that best suits your needs before creating the array. Understanding RAID will help you choose the appropriate number of hard drives for the new array. See <u>Discover LaCie RAID Manager Storage</u> <u>Management</u> for details on RAID.

Follow the instructions below to create a new array:

- 1. Select **Adapter** in the list of Storage pane.
- 2. Roll over the Operation tab and choose **Create Array**. *Note on Quick Create:* Selecting **Quick Create** skips the steps below while choosing the optimal RAID level for the amount of disks in the array. *Quick Create* allows you to build an array based on performance or protection.

| S | torage | | 6 | Property | Operation | | | | | | |
|---------|-----------------------|------------------------------|----------|------------------|---|--|--------------------------------|----------|--|--|--|
| 🚱 Stora | ge Managem | ent | | | Create Array | | Power-off Identify Mute Modify | Restore) | | | |
| Device | Adapter 0 | ř. | Fi | Firmware Versic | Quick Create | | 2.0.3.1042 | 1 | | | |
| | Array (| : (Three Disks) | в | Boot Loader Vei | Update | | 2.0.0.0021 | | | | |
| | - RoVir | tual Disk 0: (RAID 5) | D | Driver Version | Backup | | 1.0.3.0012 | | | | |
| 8 | Physical De | vices vsical Disk: port 0 | 0 | Chip Revision ID | | | 83 | | | | |
| U | Phy | sical Disk: port 1 | V | lendor ID | | | 1C19 | | | | |
| | Phy | sical Disk: port 2 | s | Sub Vendor ID | | | 1C19 | | | | |
| | Ph | sical Disk: port 3 | | Device ID | | | 1 | | | | |
| | Physical Disk: port 5 | | | Sub Device ID | | | 1 | | | | |
| | - Phy Phy Phy | vsical Disk: port 6 | P | Port Count | | | 8 | | | | |
| Manag | ement | | м | Max PCIe Speed | | | 5Gb/s | | | | |
| | Account Ma | anagement | C | Current PCIe Sp | eed | | 5Gb/s | | | | |
| | BGA Sched | ule Setting | м | Max PCIe Link | | | 8X | | | | |
| - | - | | C | Current PCIe Lin | k | | 4X | | | | |
| Even | t Logs() | 20~239/Total Ev | ents:239 | 9) | Save Clear | | ۵ | 000 | | | |
| | Adapter | Class | 1 | Time | | | Description | | | | |
| | 0 | Array Event | 04/30/2 | 2014 14:52 | Array 1 is deleted | | | | | | |
| | 0 | VD Event | 04/30/3 | 2014 14:52 | Virtual Disk 1 is deleted | | | | | | |
| 0 | 0 VD Event 04/3 | | 04/30/3 | 2014 14:51 | 1 Background initialization on virtual disk 0 is 60% done | | | | | | |
| () | 0 VD Event 04/3 | | 04/30/2 | 2014 12:07 | Fast initialization on Virtual Disk 1 completed | | | | | | |

3. Add hard drives on the Create New Array page. To select a hard drive, click on its icon. A check mark appears next to a selected hard drive.

| | _ | | _ | <i>x</i> | | _ | | | _ | | | | |
|---------|--|-----------------------|------|----------------------|------------------------|------------------------|------------------------|------------------------|---|---------------|-----------|--------|--------|
| S | orage | | | Property | Operation | | | | | | | | |
| 🌛 Stora | ge Managen | nent | | Create New A | rray | | | | | | | | |
| Device | Adapter 0 | | | ۲ | ۲ | <i></i> | <i>~</i> | <i></i> | 1 | | | | |
| ė | Array | 0: (Three Disks) | | 3,726.0 GB | 3,726.0 GB | 3,726.0 GB | 3,726.0 GB | 3,726.0 GB | | | | | |
| | - BVi | tual Disk 0: (RAID 5) | | (3,725.9 GB) ID:4 | (3,725.9 GB) ID : 5 | (3,725.9 GB) ID : 6 | (3,725.9 GB) ID : 7 | (3,725.9 GB) ID : 8 | | | | | |
| 8 | Physical D | evices | | | | | | | | | | | |
| | - SPh | ysical Disk: port 0 | | | | | | | | | | | |
| | - SPh | ysical Disk: port 1 | | | | | | | | | | | |
| | Physical Disk: port 2 Physical Disk: port 3 | | | | | | | | | | | | |
| | Physical Disk: port 3 Physical Disk: port 4 | | | | | | | | | | | | |
| | Physical Disk: port 4 | | | | | | | | | | | | |
| | Physical Disk: port 5 | | | | | | | | | | | | |
| | - Ph | vsical Disk: port 6 | | | | | | | | | | | |
| Manag | ement | yarcar blak, porc / | _ | | | | | | | | | | |
| | Account M | anagement | | RAID Level: | RAID 1 | • | | | | Stripe Size : | 256K ÷ | | |
| | Email Noti | fy Setting | | Disk Cache: | Enable | • | | | | Name : | New_Array | | |
| | BGA Schee | dule Setting | | | | | | | | | | | |
| | - | | | | | | | | | | | Submit | Cancel |
| AT. | | | _ | | | | | | | | | | |
| Even | Event Logs(220~239/Total Events:239 | | 239) | Save | Clear | | | | | | Q | 000 | |
| | Adapter | Class | | Time | | | | | | Description | | | |
| Δ | 0 | Array Event | 04/ | 30/2014 14:52 | Array 1 is del | eted | | | | | | | |
| | 0 | VD Event | 04/ | 30/2014 14:52 | Virtual Disk 1 | is deleted | | | | | | | |
| 0 | 0 | VD Event | 04/ | 30/2014 14:51 | Background in | nitialization on | virtual disk 0 is | 60% done | | | | | |
| • | 0 | VD Event | 04/ | 30/2014 12:07 | Fast initializat | tion on Virtual F | isk 1 completer | 1 | | | | | |

4. Once you have selected the hard drives, click on the pull-down menu for **RAID Level**. Choose a RAID level that is compatible with the amount of hard drives that you selected. For example, you can choose RAID 5 with three or more hard drives. RAID 1 is only available with two hard drives.



5. Click on the pull-down menu for **Stripe Size**. See the explanation below for help with choosing the optimal stripe size.

| _ | _ | | | | | | _ | _ | _ | | _ | |
|---------|---|-----------------------|----------|-----------|---|------------------|-------------------|------------|---|---------------|-----------|---------------|
| St | orage | | Pr | roperty | Operation | | | | | | | |
| Storag | e Managem | ent | Cre | ate New A | rray | | | | | | | |
| -Device | | | | ۵ 🖘 | ۵ 📣 | - | - | | | | | |
| e-« | Adapter 0 | | | SATA | SATA | SATA | SATA | SATA | | | | |
| e | Array (| 0: (Three Disks) | 3 | ,726.0 GB | 3,726.0 GB | 3,726.0 GB | 3,726.0 GB | 3,726.0 GB | | | | |
| | - CoVir | tual Disk 0: (RAID 5) | | ID : 4 | ID : 5 | ID : 6 | ID : 7 | ID : 8 | | | | |
| É | Physical D | evices | | | | | | | | | | |
| | - SPh | ysical Disk: port 0 | | | | | | | | | | |
| | - SPh | ysical Disk: port 1 | | | | | | | | | | |
| | - Sph | ysical Disk: port 2 | | | | | | | | | | |
| | Physical Disk: port 3 Physical Disk: port 4 | | | | | | | | | | | |
| | Physical Disk: port 4 Physical Disk: port 5 | | | | | | | | | | | |
| | Physical Disk: port 5 | | | | | | | | | | | |
| | Ph | vsical Disk: port 7 | | | | | | | | | 64K | |
| Manao | ement | ,, | | 128K | | | | | | | 128K | |
| | Account M | anagement | RAI | ID Level: | RAID 0 | • | | | | Stripe Size : | ✓ 256K | |
| | Email Notif | fy Setting | Disk | k Cache: | Enable | • | | | | Name : | New_Array | |
| | BGA Schee | fule Setting | | | | | | | | | | |
| | | | | | | | | | | | | Submit Cancel |
| Event | Event Logs(220~239/Total Events:239) | | | Save | Clear | | | | | | 0000 | |
| | Adapter Class | | Tin | ne | | | | | | Description | | |
| | 0 | Array Event | 04/30/20 | 14 14:52 | Array 1 is del | eted | | | | | | |
| | 0 | VD Event | 04/30/20 | 14 14:52 | Virtual Disk 1 | is deleted | | | | | | |
| Ō | 0 VD Event 04/3 | | 04/30/20 | 14 14:51 | Background in | nitialization on | virtual disk 0 is | 50% done | | | | |
| ã | 0 VD Event 04/2 | | 04/30/20 | 14 12:07 | Fast initialization on Virtual Disk 1 completed | | | | | | | |

6. Click on the pull-down menu for **Disk Cache**. Choose **Enable** (performance) or **Disable** (data protection). See the explanation below for help with choosing the optimal disk cache.

| - | | _ | (Dee | | 60.000 | \ | _ | _ | |
|----------|-------------------------------------|-----------------------|------------|----------|------------------|------------------|---------------------|-------------|----------------------|
| 3 | torage | | Pro | perty | Operation | | | | |
| Stora | ige Managem | ient | Creat | te New A | rray | | | | |
| E_Devic | e | | | 20 | ۲ | <i></i> | <i></i> | <i></i> | |
| <u> </u> | Adapter 0 | | | SATA | SATA | SATA | SATA | SATA | |
| Ę | Array (| 0: (Three Disks) | 3,7 | 26.0 GB | 3,726.0 GB | 3,726.0 GB | 3,726.0 GB | 3,726.0 GB | |
| | - CoVir | tual Disk 0: (RAID 5) | (4,7 | ID : 4 | ID : 5 | ID : 6 | ID : 7 | ID : 8 | |
| É | Physical D | evices | | | | | | | |
| | - SPh | ysical Disk: port 0 | | | | | | | |
| | - Phy | ysical Disk: port 1 | | | | | | | |
| | - SPh | ysical Disk: port 2 | 1 | | | | | | |
| | - Ph | ysical Disk: port 3 | 1 | | | | | | |
| | - Phy | ysical Disk: port 4 | | | | | | | |
| | Physical Disk: port 5 | | | | | | | | |
| | Physical Disk: port 6 | | | | | | | | |
| | - Phy | ysical Disk: port 7 | | | | | | | |
| -Manag | gement | | RAID | Level: | RAID 0 | | | | Stripe Size : 256K + |
| -9 | Account M | anagement | | | | | | | |
| - 8 | Email Notif | fy Setting | Disk | Cache: | Disable | | | | Name : New_Array |
| | BGA Schee | fule Setting | | | | _ | | | |
| | | | | | | | | | Submit Cancel |
| Even | vent Logs(220~239/Total Events:239) | | | Save | Clear | | | 0000 | |
| | Adapter Class Time | | e | 1 | | | | Description | |
| | 0 | Array Event | 04/30/2014 | 4 14:52 | Array 1 is dele | ted | | | |
| | 0 | VD Event | 04/30/2014 | 4 14:52 | Virtual Disk 1 | is deleted | | | |
| | 0 VD Event 04/ | | 04/30/2014 | 4 14:51 | Background in | itialization on | virtual disk 0 is (| 50% done | |
| l õ | 0 | VD Event | 04/30/2014 | 4 12:07 | East initializat | ion on Virtual I | Disk 1 completed | | |
| | | and a second | | • | - CRAS OF DRIVEN | | and a controllered | | |

7. Enter a name for the array in the **Name** field.

| | | _ | 6 | 26 | | _ | _ | | | | |
|--------|--|-----------------|----------------|---|---|--|---|----------------------|--|--|--|
| S | storage | | Propert | Y / Operation | A | | | | | | |
| Store | age Manager | nent | Create No | ew Array | | | | | | | |
| Devic | Advances Anny O: (Three Disks) Anny O: (Three Disks) | | | SATA 3.75.0.05 3.72.0.05 3.725.9 GB 1.0 : 5 | SATA 3,726.0 GB (3,725.9 GB) ID : 6 | SATA 3,728.0 GB (3,725.9 GB) 1D : 7 | SATA SATA 3,725.0 GB (3,725.9 GB) ID : 8 | | | | |
| - Mana | gement | | 0.010 | | • | | | | | | |
| | Account M | anagement | RAID Leve | RAID 0 | - | | | Stripe Size : 256K = | | | |
| -8 | Email Noti | fy Setting | Disk Cache | Enable | \$ | | | Name : Two Disks | | | |
| | BGA Schee | Jule Setting | | | | | | | | | |
| | | | | | | | | Submit Cancel | | | |
| Even | nt Logs(| 220~239/Total E | (ents:239) | Save | Clear | | | 0000 | | | |
| | Adapter Class | | | | | | | Description | | | |
| | A 0 Array Event 04 | | 04/30/2014 14: | 52 Array 1 is del | eted | | | | | | |
| | A 0 VD Event 04, | | 04/30/2014 14: | 52 Virtual Disk 1 | is deleted | | | | | | |
| 0 | 0 VD Event 04 | | | 1 Background initialization on virtual disk 0 is 60% done | | | | | | | |
| () | 0 | VD Event | 04/30/2014 12: | 07 East initializa | Fast initialization on Virtual Disk 1 completed | | | | | | |

- 8. Choose **Submit** at the bottom of the screen. If the selected RAID level does not support the selected combination of drives, the submit button remains grey.
- A new array link appears in your left navigation panel, displaying the new array properties.

| St | orage | | | Property | Create VD Operation | | | | | |
|-----------|----------------------------------|--|--------|--------------------|---|--------------------|--|--|--|--|
| Storag | ge Managem | ent | 1 | | | (Modify) (Restore) | | | | |
| -Device | | | - 11 | Disk array 1 curre | ent storage allocation: | assigned free | | | | |
| ē-@ | Adapter 0 | | - 11 | | | | | | | |
| B | Array | 0: (Three Disks) | - 11 | | | | | | | |
| 1 1 | Carl Vie | tual Disk 0: (RAID 5) | - 11 | | | | | | | |
| | Physical D | evices | - 11 | ID | | 1 | | | | |
| | Ph | ysical Disk: port 0 | - 11 | Name | | Two Disks | | | | |
| | Ph | ysical Disk: port 1 ysical Disk: port 2 | | Disk Write Cach | k Write Cache | | | | | |
| | Physical Disk: port 3 RAID Level | | | | | RAID 0 | | | | |
| | Physical Disk: port 4 Status | | | Status | | Functional | | | | |
| | Ph | ysical Disk: port 6 | - 11 | Total Size | | 7,451.9 GB | | | | |
| | Ph | ysical Disk: port 7 | - 11 | Background Act | vity State | None | | | | |
| E_Manag | ement Account M | anagement | - 11 | Disk Block Size | | 512 B | | | | |
| | Email Noti | fy Setting | | Stripe Size | | 256 К | | | | |
| | BGA Schee | fule Setting | | | | | | | | |
| AT. | | | | | | 0000 | | | | |
| Even | t Logs(| 221~240/Total Ev | vents: | 240) | Save Clear | 0000 | | | | |
| - | Adapter | Class | - | Time | | Description | | | | |
| 0 | 0 | Array Event | 04/ | 30/2014 14:57 | Array 1 is created | | | | | |
| A | 0 | Array Event | 04/ | 30/2014 14:52 | Array 1 is deleted | | | | | |
| | 0 | VD Event | 04/ | 30/2014 14:52 | Virtual Disk 1 is deleted | | | | | |
| <u>()</u> | 0 | VD Event | 04/ | 30/2014 14:51 | Background initialization on virtual disk 0 is 60% done | | | | | |

You can now create a virtual disk to use as storage volumes.

Creating an array notes

Stripe size

Stripe size specifies the size of single data block on the virtual disk. Available stripe sizes are 64K, 128K, and 256K. Support for different stripe sizes can vary.

The larger the stripe size, the longer it takes for the RAID controller to read from and write to data blocks on the physical disks. For best read/write performance, a larger stripe size is recommended for applications requiring large data transfers, such as audio, video, and graphics. A smaller stripe size enhances read/write performance for applications with content much smaller in size, such as emails and documents.

Disk cache

Caching data optimizes your LaCie product for best write performance. Write data is stored temporarily in DDR cache memory and flushed to the hard disk at the appropriate time. This means that transfer speeds can be faster since your computer retrieves data directly from the cache rather than searching on the hard drives. However, in the event of power failure, there is a serious risk of losing data integrity if the transfer of data from the DDR cache to the hard disk is not completed.

When data caching is disabled, all data is accessed from the hard drives. This option is recommended when data protection is critical to your workflow. While access to data is not as fast when disk caching is disabled, transfer rates remain quite high due to the use of a hardware RAID controller and Thunderbolt 2 technology.

CREATING A VIRTUAL DISK

Virtual disks act as storage volumes for your computer. Following the creation of the virtual disk, use Disk Utility to create a single partition or, divide the virtual disk into multiple partitions. For optimal performance, it is recommended that you reduce the number of partitions and always format using HFS+ (Journaled). To review the number of supported partitions and partition size for your operating system, see <u>Mac OS X: Mac OS</u> <u>Extended format (HFS Plus) volume and file limits</u>.

1. Select the array in the Storage pane and choose the tab **Create VD**.

| St | orage | | | Property | Create VD Operation | | | | | |
|-----------|--|-----------------------|--------|-------------------|---|--------------------|--|--|--|--|
| 🚺 Storag | je Managem | ent | 10 | | | (Modify) (Restore) | | | | |
| - Device | | | - 11 | Disk array 1 curr | ent storage allocation: | assigned free | | | | |
| e-@ | Adapter 0 | | - 11 | | | | | | | |
| B | Array |): (Three Disks) | - 11 | | | | | | | |
| | Vir | tual Disk 0: (RAID 5) | - 11 | | | | | | | |
| | Physical De | evices | - 1 | ID | | 1 | | | | |
| | Physical Disk: port 0 Name Physical Disk: port 1 | | | | | Two Disks | | | | |
| | Physical Disk: port 1 Disk Write C Physical Disk: port 2 | | | | e | ● ON ○ OFF | | | | |
| | Physical Disk: port 3 RAID Level | | | | | RAID 0 | | | | |
| | Phy | vsical Disk: port 4 | - 1 | Status | | Functional | | | | |
| | Phy | vsical Disk: port 6 | - 1 | Total Size | | 7,451.9 GB | | | | |
| | Phy | ysical Disk: port 7 | - 1 | Background Act | ivity State | None | | | | |
| - Manag | ement Account Mi | anagement | - 1 | Disk Block Size | | 512 B | | | | |
| | Email Notif | y Setting | - 11 | Stripe Size | | 256 K | | | | |
| | BGA Sched | lule Settino | | | | | | | | |
| Event | Logs(| 221~240/Total Ev | vents: | 240) | Save Clear | 0000 | | | | |
| | Adapter | Class | | Time | | Description | | | | |
| | 0 | Array Event | 04/ | 30/2014 14:57 | Array 1 is created | | | | | |
| | 0 | Array Event | 04/ | 30/2014 14:52 | Array 1 is deleted | | | | | |
| | 0 | VD Event | 04/ | 30/2014 14:52 | Virtual Disk 1 is deleted | | | | | |
| <u>()</u> | 0 | VD Event | 04/ | 30/2014 14:51 | Background initialization on virtual disk 0 is 60% done | | | | | |

2. The Create Virtual Disk window presents options for the virtual disk. Click on the **Cache Mode** pull-down menu to choose **On** (performance) or **Off** (protection). See the explanation below for help with choosing the optimal cache mode.

| St | orage | | | Property | Create VD Operation | | | | | | |
|----------|---|-----------------------|---------|--------------------|--|-----------------|-------------|---------------------|-----------|------------|-------------|
| Storag | e Managem | ent | | Create Virtual | Disk (Please select free slot for crea | ition) | | | | | |
| Device | | | | Disk array 1 curre | ent storage allocation: | | | | assigne | d free | Selected |
| ė | Adapter 0 | | | 11111111 | | | | | | | |
| ė- | Array (|): (Three Disks) | | | | | | | | | |
| | - RoVir | tual Disk 0: (RAID 5) | | | | | | | | | |
| | Array 1 | l: (Two Disks) | | | | | | | | | |
| ė- | Physical De | evices | | Name : | New_VD | | | RAID Size : | 7451.9 GB | | |
| | - SPh | ysical Disk: port 0 | | Cache Mode : | ✓ On(Performance) | | | Stripe Size : | 256K ¢ | | |
| | - Sph | ysical Disk: port 1 | | | Off(Reliable) | | | | | | |
| | - SPh | ysical Disk: port 2 | | 2 Initialize . | resembenzetion | | | Gigabyte Rounding : | 1G ‡ | | |
| | - SPh | ysical Disk: port 3 | | RAID Level: | RAID 0 | | | | | | |
| | - SPhr | ysical Disk: port 4 | | | | | | | | | |
| | - Phy | vsical Disk: port 5 | | | | | | | | | |
| | - I have been a second | ysical Disk: port 6 | | | | | | | | | |
| Manage | - OP | ysical Disk: port / | - 1 | | | | | | | | |
| E_Hanage | amenic | | | | | | | | | | |
| - 21 | Empil Notif | anagement | | | | | | | | | |
| | BCA School | y Secong | | | | | | | | Contractor | (constant) |
| | rook sched | are second | | 1 | | | | | | Submit | Cancel |
| Event | Loger | 21 - 240 /Total E | unante: | 240) | Save Clear | | | | | (3 | 000 |
| Lvein | Logs | 221~240/ Total E | venus. | 240) | Citation Citation | | | | | | |
| | Adapter | Class | - | Time | | | Description | | | | |
| 0 | 0 | Array Event | 04 | /30/2014 14:57 | Array 1 is created | | | | | | |
| Δ | 0 | Array Event | 04 | /30/2014 14:52 | Array 1 is deleted | | | | | | |
| | 0 | VD Event | 04 | /30/2014 14:52 | Virtual Disk 1 is deleted | | | | | | |
| (î) | 0 | VD Event | 04 | /30/2014 14:51 | Background initialization on virtual dis | k 0 is 60% done | | | | | |

3. Click on the Initialize pull-down menu to choose No Initialization, Fast Initialization, Foreground Initialization, or Background Initialization. Options can vary based upon the level of RAID. The screenshot example has only two options since it is a RAID 0 array. See the explanation below for help with choosing the initialization.

| S | torage | | Property | Create VD Operation | | | | | |
|----------|---|-----------------------|------------------|---|-------------|---|-----------|--------|------------|
| Stora | ge Managem | ent | Create Virtua | Disk (Please select free slot for creation) | | | | | |
| - Device | | | Disk array 1 cur | ent storage allocation: | | | assigned | free | 🔀 selected |
| | Adapter 0 | | 10000000 | | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | |
| ė | Array (| : (Three Disks) | | | | | | | |
| | Vir | tual Disk 0: (RAID 5) | | | | | | | |
| | Array | I: (Two Disks) | | | | | | | |
| | Physical D | rvices | Name : | New_VD | | RAID Size : | 7451.9 GB | | |
| | Physical Disk: port 0 Cache M | | Cache Mode : | On(Performance) + | | Stripe Size : | 256K ÷ | | |
| | Physical Disk: port 1 Physical Disk: port 2 Initialize : | | | No Initialization | | all the answer and the second | | | |
| | Physical Disk: port 2 Initialize : | | · Initialize : | ✓ Fast Initialization | | Gigabyte Rounding : | 1G ÷ | | |
| | - Ph | ysical Disk: port 3 | RAID Level: | RAID 0 | | | | | |
| | Physical Disk: port 4 | | | | | | | | |
| | - Ph | ysical Disk: port 5 | | | | | | | |
| | - Ph | ysical Disk: port 6 | | | | | | | |
| | - Ph | ysical Disk: port 7 | | | | | | | |
| E_Manag | ement | | | | | | | | |
| - 8 | Account M | anagement | | | | | | | |
| | Email Noti | y Setting | | | | | | (| |
| 1 100 | BGA Schee | lule Setting | | | | | | Submit | Cancel |
| AT. | | | | | | | | 0 | A (2) (2) |
| Even | ent Logs(221~240/Total Events:240) | | vents:240) | Save Clear | | | | 9 | 000 |
| | Adapter | Class | Time | | Description | | | | |
| 0 | 0 | Array Event | 04/30/2014 14:57 | Array 1 is created | | | | | 0 |
| | 0 | Array Event | 04/30/2014 14:52 | Array 1 is deleted | | | | | |
| | 0 | VD Event | 04/30/2014 14:52 | Virtual Disk 1 is deleted | | | | | |
| ā | 0 | VD Event | 04/30/2014 14:51 | Background initialization on virtual disk 0 is 60% do | ine | | | | |

4. Click on the **Stripe Size** pull-down menu to choose **64**, **128K**, or **256K**. See the explanation below for help with choosing the stripe size.

| St | torage | | | Property | Create VD Operation | | | | | | |
|----------|-------------|-----------------------|--------|-------------------|---|-------------|---------------------|--------|----------|--------|------------|
| 💑 Storag | ge Managem | ent | 1 | Create Virtual | Disk (Please select free slot for creation) | | | | | | |
| Device | | | - 11 | Disk array 1 curr | int storage allocation: | | | | assigned | free | 💋 selected |
| ė-@ | Adapter 0 | | - 11 | 11111111 | | | | | | ////// | 11/1/1 |
| 6 | Array 0 | : (Three Disks) | - 11 | | | | | | | | |
| | - CoVin | tual Disk 0: (RAID 5) | - 11 | | | | | | | | ////// |
| 8 | Array 1 | : (Two Disks) | - 11 | | | | | | | | |
| | Physical De | rvices | - 11 | Name : | New_VD | | RAID Size : | 64K GE | | | |
| | - SPhy | vsical Disk: port 0 | - 11 | Cache Mode : | On(Performance) ÷ | ✓ 256K | | | | | |
| | Phy | vsical Disk: port 1 | | | | | | | | | |
| | - Phy | vsical Disk: port 2 | | Initialize : | Fast Initialization ÷ | | Gigabyte Rounding : | 1G ÷ | | | |
| | - SPhy | vsical Disk: port 3 | - 11 | RAID Level: | RAID 0 | | | | | | |
| | - Phy | sical Disk: port 4 | - 11 | | | | | | | | |
| | - Phy | vsical Disk: port 5 | - 11 | | | | | | | | |
| | - Phy | vsical Disk: port 6 | - 11 | | | | | | | | |
| Magaza | ement | vsical bisk: port / | - 11 | | | | | | | | |
| | Account Ma | nanement | - 11 | | | | | | | | |
| | Email Notif | v Setting | - 11 | | | | | | | | |
| | BGA Sched | ule Setting | | | | | | | (C) | (time | Cancel |
| | | | | 1 | | | | | Jui | | Cancer |
| Event | t Logs() | 21~240/Total E | vents: | 240) | (Save) (Clear) | | | | | ٢ | 000 |
| | Adapter | Class | | Time | | Description | | | | | |
| 0 | 0 | Array Event | 04/ | 30/2014 14:57 | Array 1 is created | | | | | | 0 |
| A | 0 | Array Event | 04/ | 30/2014 14:52 | Array 1 is deleted | | | | | | |
| | 0 | VD Event | 04/ | 30/2014 14:52 | Virtual Disk 1 is deleted | | | | | | |
| | 0 | VD Event | 04/ | 30/2014 14:51 | Background initialization on virtual disk 0 is 60 | 1% done | | | | | |

5. Click on the **Gigabyte Rounding** pull-down menu to choose **None**, **1G**, or **10G**. See the explanation below for help with choosing the gigabyte rounding.

| | _ | | | | |
|---------|---|-----------------------|---|---|----------------------|
| S | torage | | Property | Create VD Operation | |
| Stora | ge Managem | ent | Create Virtu | al Disk (Please select free slot for creation) | |
| Device | | | Disk array 1 cu | rrent storage allocation: | ed 🔲 free 😕 selected |
| ė-« | Adapter 0 | | 1////////////////////////////////////// | | 11111111111111111 |
| ė | Array 0 | : (Three Disks) | | | |
| | - CVirt | tual Disk 0: (RAID 5) | | | |
| | Array 1 | I: (Two Disks) | | | |
| | Physical De | evices | Name : | New_VD RAID Size : 7451.9 GB | |
| | - SPhy | ysical Disk: port 0 | Cache Mode : | On(Performance) ÷ Stripe Size : 256K ÷ | |
| | - SPhy | ysical Disk: port 1 | | None | |
| | Physical Disk: port 2 Initialize : Physical Disk: port 2 | | Initialize : | Fast Initialization Cigabyte Rounding : V 1G | |
| | Phy | ysical Disk: port 3 | RAID Level: | RAID 0 10G | |
| | - SPhy | vsical Disk: port 4 | | | |
| | - Phy | vsical Disk: port 5 | | | |
| | - Phy | vsical Disk: port 6 | | | |
| | - Phy | vsical Disk: port 7 | | | |
| E_Manag | ement | | | | |
| -9 | Account Ma | anagement | | | |
| -8 | Email Notif | y Setting | | | |
| | BGA Sched | ule Setting | | | Submit Cancel |
| AT. | | | | | |
| Even | t Logs(2 | 221~240/Total Ex | /ents:240) | Save Clear | 0000 |
| | Adapter | Class | Time | Description | |
| 0 | 0 | Array Event | 04/30/2014 14:57 | Array 1 is created | |
| | 0 | Array Event | 04/30/2014 14:52 | Array 1 is deleted | |
| | 0 | VD Event | 04/30/2014 14:52 | Virtual Disk 1 is deleted | |
| | 0 | VD Event | 04/30/2014 14:51 | Background initialization on virtual disk 0 is 60% done | |

6. Choose **Submit**. LaCie RAID Manager creates the virtual disk and displays the Property tab for the new virtual disk. You can rename the virtual disk by entering a name in the field and selecting **Modify**.

| St | orage | | _ | Property | Operation | | | | | |
|--------|-------------------------------------|--|---------------|---|---|-------------------------------------|--|---------------|----------|-----------|
| Storag | e Managerr | ent | in l | | | | | | (Modify) | (Restore) |
| Device | | | - 11 | ID | | 1 | | | | |
| E-@ | Adapter 0 | | - 11 | Name | | Alexa MD | | | | |
| B- | Array | (Three Disks) | - 11 | Name | | New_VD | | | | |
| | Array | (Two Diske) | - 11 | Cache Setting | | On(Performance) | | Off(Reliable) | | |
| | | tual Disk 1: (New_VD) | 1 11 | Write Cache Status | | On | | | | |
| | Physical Devices RA | | RAID Level | | RAID 0 | | | | | |
| | Physical Disk: port 0 Status | | | Status | | Functional | | | | |
| | Physical Disk: port 2 | | Size | | 7,451.9 GB | | | | | |
| | Physical Disk: port 3 | | Member Count | | 2 | | | | | |
| | Ph | vsical Disk: port 4 vsical Disk: port 5 | - 11 | Stripe Size | | 256 K | | | | |
| | Ph | sical Disk: port 6 | - 11 | | | | | | | |
| | Ph | sical Disk: port 7 | - 11 | | | | | | | |
| Manage | ement | | | | | | | | | |
| - 23 | Account M | anagement | | | | | | | | |
| | Email Noti | v Setona | | 1 | | | | | | |
| Event | vent Logs(224~243/Total Events:243) | | 243) | Save Clear | | | | ۵ | 000 | |
| | Adapter Class Time | | | | Description | | | | | |
| 0 | 0 VD Event 04/30/2014 15:36 | | 30/2014 15:36 | Fast initialization on Virtual Disk 1 completed | | | | | | |
| 0 | 0 | VD Event | 04/ | 30/2014 15:36 | Fast initialization on Virtual Disk 1 started | | | | | |
| 0 | 0 | VD Event | 04/ | 30/2014 15:36 | Virtual Disk 1 is created | | | | | |
| - | | | | | | | | | | |

7. Following the creation of the virtual disk, a message appears indicating that it is not readable. Choose **Initialize** to format the virtual disk for Mac.

| The disk you inserted was not readable by this computer. |
|--|
| Initialize Ignore Eject |

8. The operating system launches Disk Utility. While Disk Utility can display a number of partitions, you can identify your virtual disk since it maintains the number used in LaCie RAID Manager. In this example, the new virtual disk in LaCie RAID Manager is 1. Click on your new virtual disk on the left.

| LACIE Raid VD 1 Media | |
|---|--|
| Enable Journaling New Image Convert Resize Image | union W206 Log |
| First Aid Erase Partition RAID Restore If Repair Disk is unavailable, click Verify Disk. If the disk needs repairs, you for repairing the disk from the Recovery HD. If you have a permissions problem with a file installed by the OS X installer Permissions. If you have a permissions problem with a file installed by the OS X installer If show details Verify Disk Permissions Repair Disk Permissions | e u'll be given instructions r, click Repair Disk Clear History Verify Disk Repair Disk |
| VD 1 Media Total Capacity : 8 TB (8001405583360 Bytes) Write Status : Read/Write S.M.A.R.T. Status : Not Supported cal Unit 0 Partition Map Scheme : Unformatted | |
| | LACIE Raid VD 1 Media Wew Image Convert Resize Image First Aid Erase Partition RAID Restored If Repair Disk is unavailable, click Verify Disk. If the disk needs repairs, you for repairing the disk from the Recovery HD. If you have a permissions problem with a file installed by the OS X installer Permissions. Show details Verify Disk Permissions Repair Disk Permissions VD 1 Media Total Capacity : 8 TB (8001405583360 Bytes) Write Status : Read/Write S.M.A.R.T. Status : Not Supported cal Unit 0 Partition Map Scheme : Unformatted |

9. Choose the Erase tab to quickly create a single partition or, as seen in the screenshot, the Partition tab for

additional options regarding partitions on the desktop. **Note:** Your operating system supports large volume sizes, allowing you to limit the number of partitions on your desktop.

| 1 TB WDC WD1001FALS-40 | Fire | st Aid Erase R | artition RAID Restore | |
|----------------------------|-------------------------|------------------------------|--|------------|
| 8 TB LACIE Raid VD 0 Media | Partition Layout: | Partition I | nformation | |
| LaCie RAID 5 | Current Destriction | Name: | | |
| 4 TB ATA ST4000NM0033-9 | 2 Partitions | Format: | Mac OS Extended (Journaled) | ۵) |
| 8 TB LACIE Raid VD 1 Media | 3 Partitions | Size: | Rutes | |
| 4 TB ATA ST4000NM0033-9 | 5 Partitions | Size. | bytes | |
| 4 TB ATA ST4000NM0033-9 | 6 Partitions | To erase an | nd partition the selected disk, choose a la | ayout from |
| SuperDrive | 7 Partitions | the Partitio partition, a | on Layout pop-up menu, set options for (and click Apply. | each |
| - | 9 Partitions | ,, | | |
| | 10 Partitions | | | |
| | 11 Partitions | | | |
| | 13 Partitions | | | |
| | 14 Partitions | | | |
| | 15 Partitions | | | |
| | 10 Partitions | _ | | |
| | | | | |
| | + - Options | s | Revert | Apply |

10. Enter a name for each partition and select its format using the **Format** pull-down menu. Choose **Apply** to create the partitions. You can choose the partition in the Partition Layout section and enter a name in the applicable field. **Note:** It is highly recommended that partitions are formatted Mac OS Extended (Journaled) for optimal performance. Choosing other formats will impact transfer rates.



Creating a virtual disk notes

Cache mode

Caching data optimizes your LaCie product for best write performance. Write data is stored temporarily in DDR cache memory and flushed to the hard disk at the appropriate time. This means that transfer speeds can be faster since your computer retrieves data directly from the cache rather than searching on the hard drives. However, in the event of power failure, there is a serious risk of losing data integrity if the transfer of data from the DDR cache to the hard disk is not completed.

When data caching is off, all data is accessed from the hard drives. This option is recommended when data protection is critical to your workflow. While access to data is not as fast when disk caching is disabled, transfer rates remain quite high due to the use of a hardware RAID controller and Thunderbolt 2 technology.

Initialize

To help prevent errors handling data, it is recommended that you perform an initialization. During the initialize process, mirror or parity data is checked and updated to ensure consistency of data on the physical disks constituting the virtual disk. Available initialization options during the creation of a virtual disk include:

- **No initialization:** The data check is skipped. This option is not recommended as you can encounter data errors.
- **Fast initialization:** Fast initialization is a destructive process that erases all data on the virtual disk including the Master Boot Records (MBR) on all physical disks. This is a good option if you wish to perform a cursory consistency check before starting a project. However, it is not a full initialization that performs a thorough consistency check on the hard drives. See <u>Check the Virtual Disk for Errors</u> for further information.
- **Foreground initialization:** This option is similar to a fast initialization since the MBR for all the physical disks are erased. Therefore, it is also a destructive process. Since it performs a thorough consistency check, this option can take many hours to several days based upon the total capacity of the virtual disk. As its name indicates, a foreground initialization runs in the foreground and can take a good amount of processing power which will affect performance. Choose foreground initialization if you do not anticipate starting high-end video or graphic projects within the week.
- **Background initialization:** This option is a thorough, non-destructive consistency check of the physical disks. Since it runs in the background, the demand on the processor is reduced when compare with a foreground initialization. However, performance can be impacted, especially when working on high-end video or graphic projects. A background initialization can take many hours to several days based upon the total capacity of the virtual disk.

Gigabyte rounding

Gigabyte rounding is applicable to RAID levels using mirroring, such as RAID 1 and RAID 10. It defines the flexibility in size for spare drives used to rebuild degraded virtual disks and arrays. Available options for gigabyte rounding are:

- None
- 1G
- **1**0G

For example, a 120.5 GB physical disk and a 115.7 GB physical disk can create a 115.7 GB RAID 1 virtual disk. If Gigabyte Rounding is set to 1G, then the RAID controller floors the size of the physical disks to the nearest lower GB size. The 120.5 GB and 115.7 GB disks are treated as 120 GB and 115 GB physical disks, resulting in a 115 GB RAID 1 virtual disk. If the 115.7 GB physical disk fails, the virtual disk can be rebuilt with a spare drive sized between 115GB and 115.7 GB, providing flexibility in size up to 0.7 GB. If 10G is select, the rounding would go to the nearest lower 10GB size, which is 110. This would allow the spare to range between 110GB and 115.7GB.

Stripe size

Stripe size specifies the size of single data block on the virtual disk. Available stripe sizes are 64K, 128K, and 256K. Support for different stripe sizes can vary.

The larger the stripe size, the longer it takes for the RAID controller to read from and write to data blocks on the physical disks. For best read/write performance, a larger stripe size is recommended for applications requiring large data transfers, such as audio, video, and graphics. A smaller stripe size enhances read/write performance for applications with content much smaller in size, such as emails and documents.

Data security

Any loss, corruption, or destruction of data while using a LaCie hard drive or a LaCie hard drive system is the sole responsibility of the user, and under no circumstances will LaCie be held liable for the recovery or restoration of this data. To help prevent the loss of your data, LaCie highly recommends that you keep TWO copies of your data: one copy on your LaCie storage device; and, a second copy on one of the following:

- Direct-attached storage (DAS)
- A NAS
- Some form of removable storage or archival media

Important Info: 1GB = 1,000,000,000 bytes. 1TB = 1,000,000,000,000 bytes. Once formatted, the actual available storage capacity varies depending upon the operating environment (typically 10-15% less).