

TEMPO™ SATA PRO EXPRESSCARD|34

eSATA Host Controller for ExpressCard Slot

User's Guide for Tempo SATA Pro ExpressCard/34

You Should Have

The following items should be included in your product package:

- One Tempo SATA Pro ExpressCard/34 adapter
- One software and documentation CD



Support Note: The software on the included Installer CD may not be the latest version available. Before installing this product, check the version number of the software on the CD and what's available at www.sonnettech.com/support/kb/kb.php. Download and install the newer version, if available.

The following items are required (sold separately):

- One or two Serial ATA drive enclosures (with drives)
- One or two external Serial ATA (eSATA) data cables

System Requirements

Tempo SATA Pro ExpressCard/34 requires the following in order to operate in your system:

- ExpressCard/34 or ExpressCard/54 slot
- Mac OS® X Version 10.4 or later, or Windows® 7, Windows Vista®, or Windows XP with SP2 installed*



WARNING: Before using the Tempo SATA Pro ExpressCard/34 card with your computer, you **MUST** run the driver installation software. Otherwise, the card will not work in your system.



* Creating RAID volumes under Windows requires dynamic disk storage, a formatting option available with Windows 7 Professional, Enterprise or Ultimate (32- and 64-bit versions), Windows Vista Enterprise or Ultimate (32- and 64-bit versions), or Windows XP Professional (32- and 64-bit versions). In order to create RAID volumes larger than 2TB, you must do one of the following: Span (link together in a virtual chain) the volumes, and then format them as NTFS. -OR- Use GPT formatting. Note that drives and volumes with GPT formatting are not visible to any version of Windows XP Professional, nor to the 32-bit version of Windows Server 2003 SP1.



Remember to register your product online at <http://registration.sonnettech.com> to be informed of future upgrades and product releases.

Software updates and links are available from the Sonnet web site at www.sonnettech.com. • Online support form available at <http://supportform.sonnettech.com>. Sonnet Technologies Customer Service hours are Mon.-Fri., 7 a.m.-4 p.m. Pacific Time • Customer Service Phone: 1-949-472-2772 • E-mail: support@sonnettech.com Sonnet Technologies, Inc., Irvine, California USA • Tel: 1-949-587-3500 Fax: 1-949-457-6349

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Installation Preparation

Prior to connecting any drive enclosures and inserting the Tempo SATA Pro ExpressCard/34 into your computer, familiarize yourself with the parts. We also recommend that you read the section in your computer's user manual that addresses ExpressCard use.

1. **Figure 1** shows the Tempo card's drive activity LEDs and eSATA ports. Data cables with eSATA connectors are required for use with the Tempo card and most drive enclosures. Bare SATA drives and some older drive enclosures use SATA I connectors; use of these devices with the Tempo card requires the use of cables with a SATA I connector on one end.

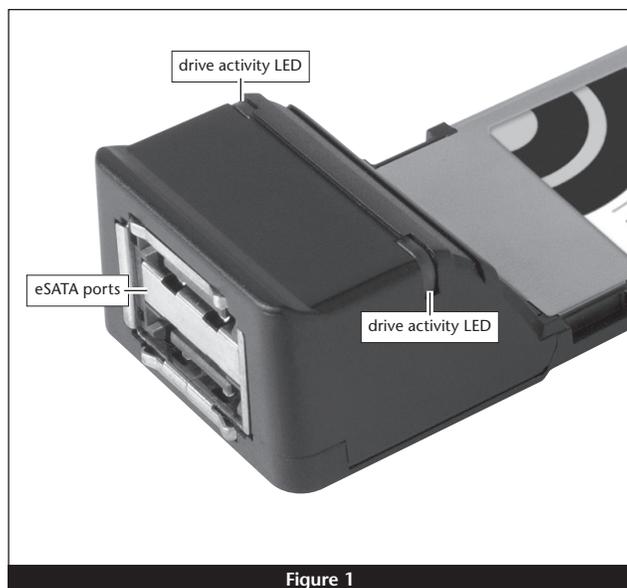


Figure 1

2. **Figure 2** shows both eSATA and SATA I connectors.

Software Installation Steps for Mac OS X Users

Windows users—please skip to page 3. Mac OS X users—before using the Tempo SATA Pro ExpressCard/34 card with your computer, you must run the driver installation software.

1. Insert the included CD into the computer's optical drive.
2. Double-click the Sonnet Tempo SATA Installer icon, and then double-click the Tempo SATA Pro Installer x.x.x.pkg file to launch the installer; when the *Welcome to the Tempo SATA Pro for Mac Pro and MacBook Pro Installer* window appears, click Continue.
3. When the *Important Information* window appears, click Continue.
4. When the *Software License Agreement* window appears, read the license, click Continue, and then click Agree.
5. When the *Select a Destination* window appears, accept the default destination or choose a new destination, and then click Continue.
6. When asked for a password, enter your password, and then click OK.
7. While the driver is installed, a progress bar appears. When the *Installation Completed Successfully* screen appears, click Restart; you may format drives attached to the Tempo card after your system finishes restarting. Skip to page 4 for detailed information.

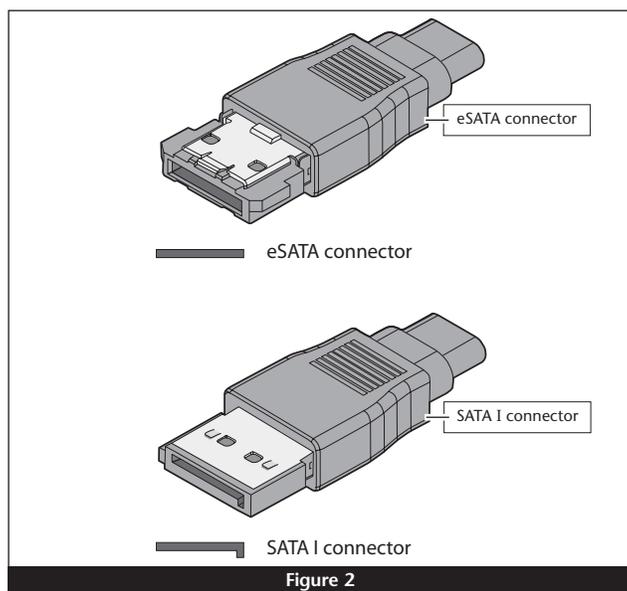


Figure 2

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Software Installation Steps for Windows 7 Users

1. Insert the Tempo card into your computer's ExpressCard slot and then turn on your computer and log in; during startup, a *Installing Device Driver Software* pop-up will appear, followed by a message that the device driver software was successfully installed. Close the message.
2. Click Start > Control Panel.
3. In the *Control Panel* window, double-click Device Manager. If you have not disabled User Account Control (UAC), a UAC window will appear; click Continue.
4. When the *Device Manager* window appears, click the + next to storage controllers to expand the list. Right-click "Sonnet Tempo Gen 2 PCI Express Adapter" and select Update Driver Software.
5. When the *Update Driver Software* window appears, insert the Tempo SATA Host Controller Software CD into your computer's optical drive, and then click "Browse my computer for driver software".
6. When the next window appears, click Browse.
7. When the *Browse for Folder* window appears, click "Computer" to expand the list, then click the icon for the optical drive containing the software CD, and then click OK.
8. Back in the *Browse for driver software* window, click Next; the driver software will be installed.
9. When the *Windows has successfully updated your driver software* window appears, click close; you may now format drives attached to the Tempo card. Skip to page 7 for drive formatting information.

Software Installation Steps for Windows Vista Users

1. Insert the Tempo card into your computer's ExpressCard slot and then turn on the computer; during startup, a *Installing Device Driver Software* pop-up will appear, followed by a message that the device driver software was *not* successfully installed. Close the message.
2. Click Start > Control Panel.
3. In the *Control Panel* window, double-click Device Manager. If you have not disabled User Account Control (UAC), a UAC window will appear; click Continue.
4. When the *Device Manager* window appears, click on the + next to IDE ATA/ATAPI controllers to expand the list. Right-click "Standard Dual Channel PCI IDE Controller" and select Update Driver Software.
5. When the *Update Driver Software* window appears, insert the Tempo SATA Host Adapter Software CD into your computer's optical drive, and then click "Browse my computer for driver software".
6. When the next window appears, click "Let me pick from a list of device drivers on my computer", and then click Next.
7. When the next window appears, select the Sonnet card and then click Have Disk; a new window will appear.
8. In the Locate File window, select the software CD from the "Look in" drop-down menu, then click the Windows folder, click the x32 folder (or x64 if you are using a 64-bit version of Windows), and then double-click the MVSATA file.
9. Back in the *Install From Disk* window, click OK.
10. Back in the *Select the device driver* window, click Next; the driver software will be installed. (If a window appears stating that the Tempo software has not passed Windows Logo testing, click Continue Anyway.)
11. When the *Windows has successfully updated your driver software* window appears, click close; you may now format drives attached to the Tempo card. Skip to page 7 for drive formatting information.



Support Note: After its driver software has been updated, Tempo SATA Pro ExpressCard/34 will be listed as a Storage Controller in the *Device Manager* window under Windows Vista.

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Software Installation Steps for Windows XP Users

1. Insert the Tempo card into your computer's ExpressCard slot and then turn on the computer; during startup, a *New Hardware Found* pop-up may briefly appear (with Standard Dual Channel PCI IDE Controller listed as the new hardware type), followed by a message that the device driver software was *not* successfully installed. Close the message.
2. Click Start > Control Panel. When the *Control Panel* window appears, double-click the System icon. (If the System icon isn't visible, click the Switch to Classic View link to make it appear.)
3. When the *System Properties* window appears, click the Hardware tab, and then click Device Manager.
4. When the *Device Manager* window appears, click on the + next to IDE ATA/ATAPI controllers to expand the list. Right-click "Standard Dual Channel PCI IDE Controller" and select Update Driver.
5. When the Welcome to the *Hardware Update Wizard* window appears, click "No, not this time", and then click next.
6. When the *Hardware Update Wizard* window appears, select "Install from a list or specific location (Advanced)", and then click Next.
7. When the next window appears, click "Don't search. I will choose the driver to install", and then click Next.
8. When the next window appears, click Have Disk; a new window will appear. Insert the Tempo SATA Host Adapter Software CD into your computer's optical drive, and then click Browse; a new window will appear.
9. In the Locate File window, select the software CD from the "Look in" drop-down menu, then double-click the Windows folder, double-click the x32 folder (or x64 if you are using a 64-bit version of Windows), and then double-click the MVSATA.inf file.
10. Back in the *Install From Disk* window, click OK.
11. Back in the *Hardware Update Wizard* window, the Sonnet card will now appear as "Sonnet Tempo SATAII PRO E34 PCI Express Adapter". Click Next; the software will be installed. (If a window appears stating that the Tempo software has not passed Windows Logo testing, click Continue Anyway.)
12. When the next window appears, click Finish; you may now format drives attached to the Tempo card. Skip to page 7 for drive formatting information.



Support Note: After its driver software has been updated, Tempo SATA Pro ExpressCard/34 will be listed as a SCSI and RAID Controller in the *Device Manager* window under Windows XP.

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Mac OS X Drive Formatting—RAID Sets

This section describes the process of formatting (initializing) multiple hard drives connected to Tempo SATA Pro ExpressCard/34 using Disk Utility under Mac OS X Version 10.5; the process is nearly identical under Mac OS X Versions 10.6 and 10.4. If you choose to do so, you may format your drives using SoftRAID 3.1 or later; refer to that product's documentation for instructions.



Support Note: Depending on how you set it up, a drive enclosure with a built-in hardware RAID controller, like Sonnet's Fusion D400QR5, may not present its drives separately to the operating system. For instance, if you choose a RAID 0 or RAID 5 configuration, only one "drive" will appear in Disk Utility. If this is the case, skip to "Mac OS X Drive Formatting—Individual Drives" on the next page for drive formatting instructions.

1. Turn on your storage system, and then turn on your computer. During startup, one or more messages referring to unreadable volumes will be displayed; click Initialize... to launch Disk Utility. After Disk Utility launches, click the Initialize button in each remaining message window.
2. If it is not already open, launch Disk Utility (**Figure 3**). Note that all drives attached to the Tempo card may be identified in the information window by their custom icon with the Sonnet S logo.



Support Notes: The remaining steps in this section describe the creation of a RAID 0 (striped) set. If you intend to create a RAID 1 (mirrored) or RAID 10 (striped/mirrored) set, the procedure is similar to the remaining steps. Please refer to Disk Utility help for further information.

All hard drives connected to the Tempo card will be described by Disk Utility as having an internal connection.

3. Select one of the drives you want to format in a RAID set by clicking the drive symbol or the "name" of the drive; a set of tabs will appear in the right pane. Click the RAID tab, select all the drives you will use to create your striped RAID set, and then drag them into the disk field (**Figure 4**). Be careful NOT to accidentally drag in a drive you don't want included in the RAID.
4. From the drop-down menus, select the volume format and the RAID scheme (Striped RAID Set), and then type in the name for your RAID volume (**Figure 4**).
5. Click the Options button. From the drop down menu, select a RAID block size (**Figure 5**). If you are working with video, selecting the largest block size will help improve performance. If you are working with many smaller files (databases, etc.) a smaller block size will work well. Click OK.
6. Click Create. When the *Creating RAID* window appears, click the Create button; all of the selected drives will be formatted and the RAID volume created. Close Disk Utility; your drives are now ready for use and your installation is complete.

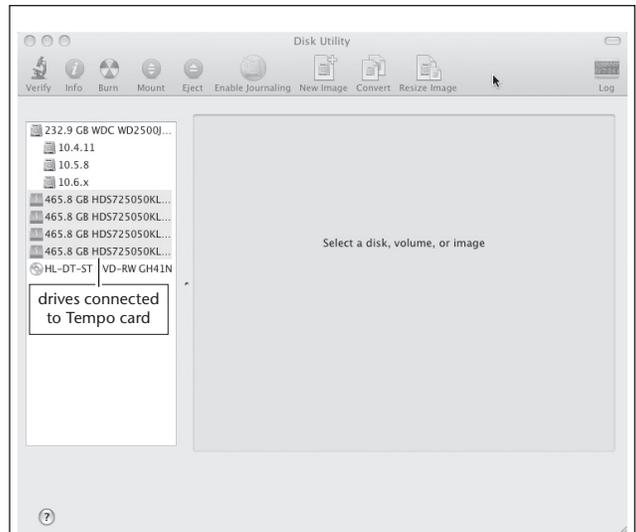


Figure 3

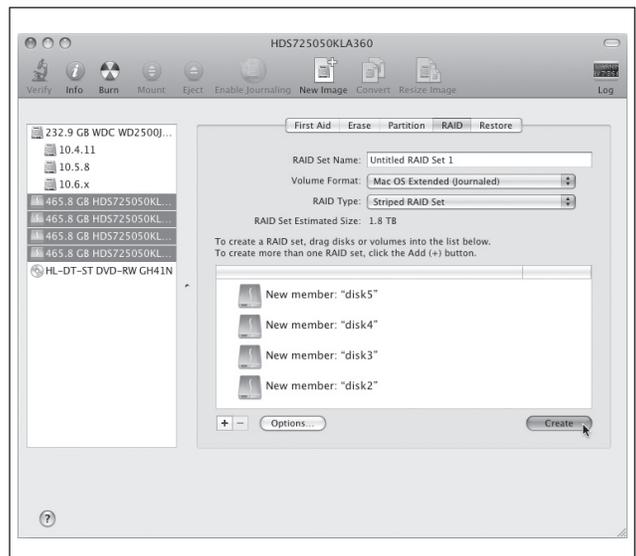


Figure 4

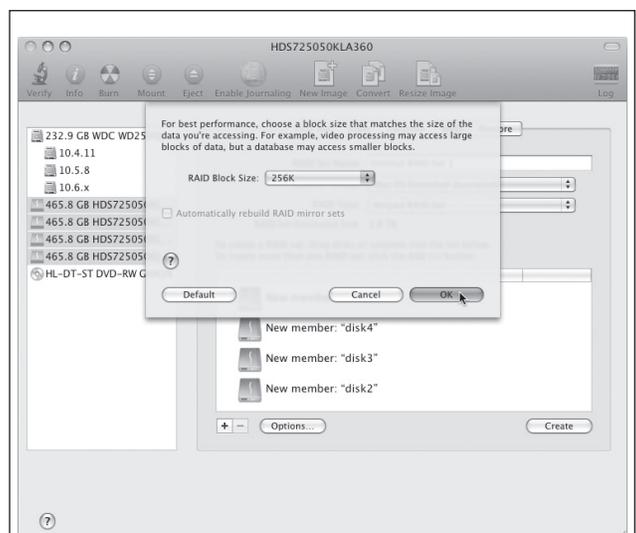


Figure 5

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Mac OS X Drive Formatting—Individual Drives (Not in a RAID Set)

This section describes the process of formatting (initializing) individual hard drives connected to Tempo SATA Pro ExpressCard/34 using Disk Utility under Mac OS X Version 10.5; the process is nearly identical under Mac OS X Versions 10.6 and 10.4. If you intend to create a Mac OS-formatted RAID set with the drives attached to the Tempo card, go back to “Mac OS X Drive Formatting—RAID Sets” on the previous page.

1. Turn on your storage system, and then turn on your computer. During startup, one or more messages referring to unreadable volumes will be displayed; click Initialize... to launch Disk Utility. After Disk Utility launches, click the Initialize button in each remaining message window.
2. If it is not already open, launch Disk Utility (Figure 6). Note that all drives attached to the Tempo card may be identified in the information window by their custom icon with the Sonnet S logo.
3. Select one of the drives you want to format by clicking the drive symbol or the “name” of the drive; a set of tabs will appear in the right pane. Click the Partition tab, and then click on the drop down menu beneath “Volume Scheme:” to select a number of partitions for the volume; you may optionally choose to partition each drive to create two or more smaller “virtual” drives (Figure 7).
4. Click to highlight a partition, and then type a name in the Name field; repeat for each partition (Figure 7). After formatting, each partition will appear in the Finder window as a drive.
5. Click Apply (Figure 7).
6. When the *Partition Disk* window appears, click the Partition button (Figure 8). If necessary, repeat steps 3–5 to partition any other drives connected to the Tempo card. When partitioning and formatting are complete, close the Disk Utility application; you can now use your drive(s).

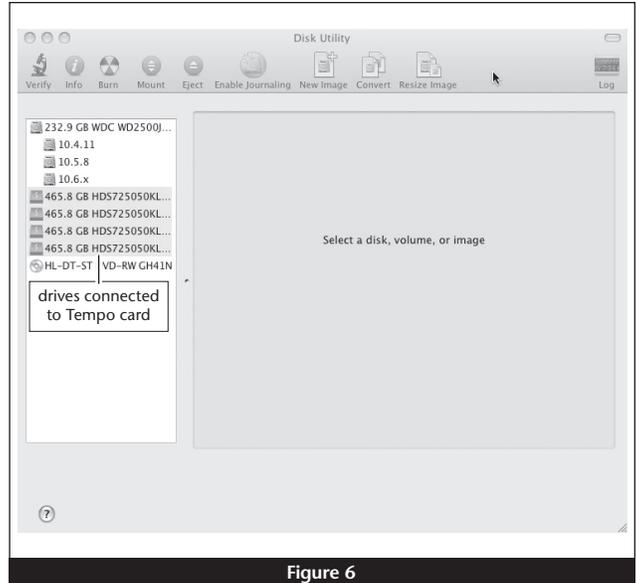


Figure 6

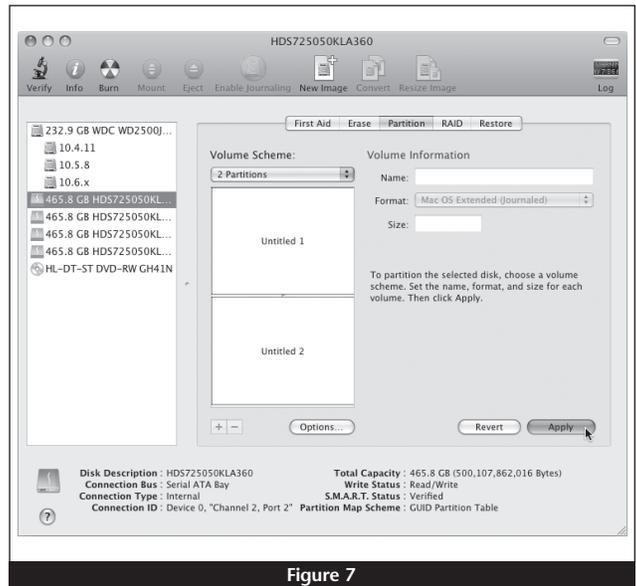


Figure 7

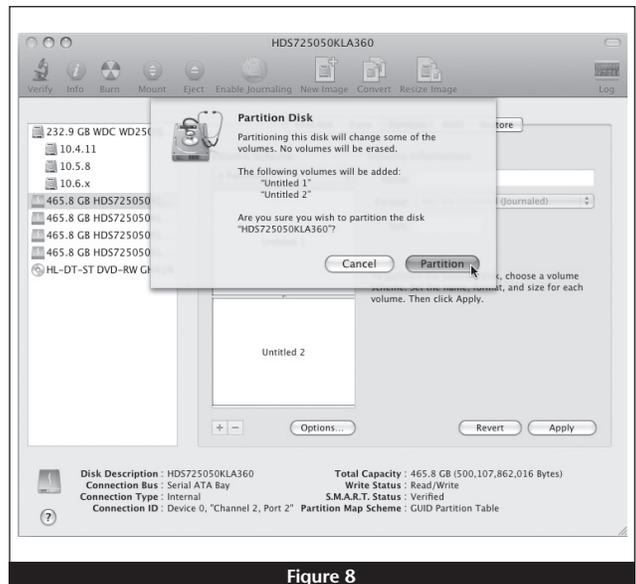


Figure 8

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Windows Drive Formatting

If you intend to format drives connected to the Tempo SATA Pro ExpressCard/34 using Windows drive formatting tools, you may find much more information by using "format volume" as the search item in Windows Help. The procedure listed below describes the process of formatting and configuring drives under Windows Vista; steps for formatting under Windows 7 and XP Professional are very similar.



Support Note: Hard drives originally formatted for use with Intel-based Mac computers using the GUID partition table cannot be formatted using the following instructions as is, and must be reformatted first using your computer's Command Prompt application. Follow the instructions listed on <http://tomch.com/wp/?p=50> before following the steps below.

1. Turn on your storage system, start Windows, log in, and then click Start > Control Panel.
2. In the *Control Panel* window, double-click Administrative Tools. If you are using Windows Vista or Windows 7 and have not disabled User Account Control (UAC), a UAC window will appear; click Continue.
3. In the *Administrative Tools* window, double-click Computer Management.
4. In the *Computer Management* window, click Disk Management under Storage to launch the Disk Management application.
5. If an *Initialize Disk* window appears or if disks are described as not initialized, select a partition style for the attached drive(s), and then click OK; the drive will be initialized (Figure 9). Repeat as necessary with other drives attached to the Tempo card.
6. Right-click the field next to the name field of one of the attached drives and select the formatting type you wish to use for it. Repeat as necessary with other drives attached to the Tempo card (Figure 10).
7. Depending on the formatting type you chose, a New Partition Wizard may appear; follow the onscreen instructions to complete formatting of the drive(s). Once the drives are finished being formatted, they are ready to use.

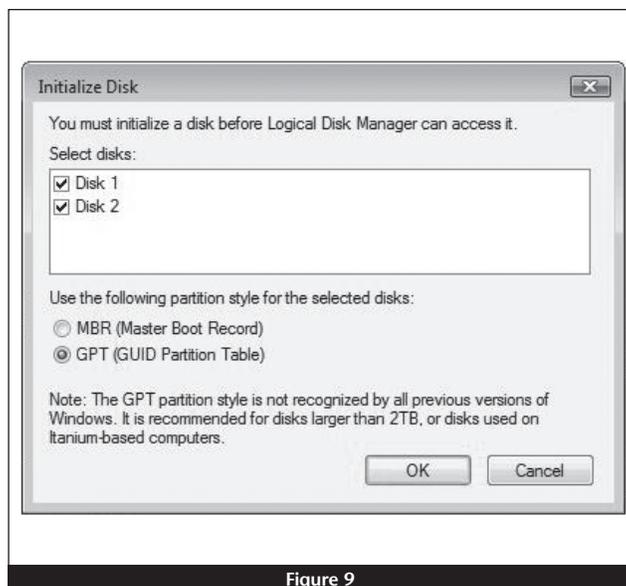


Figure 9

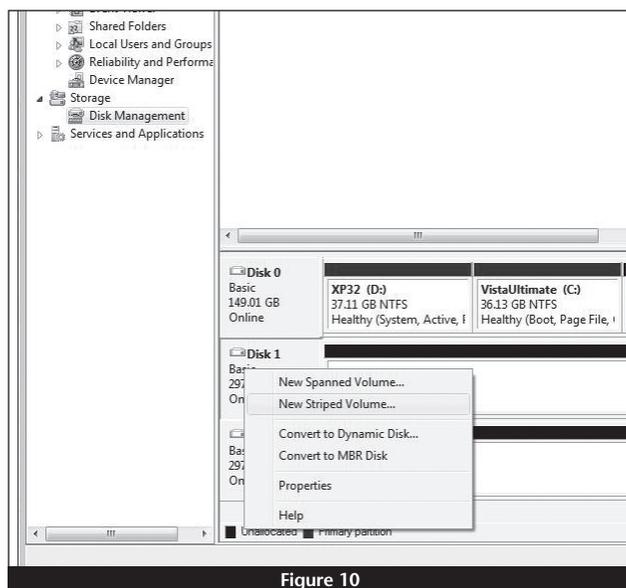


Figure 10

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Using the Tempo SATA Pro ExpressCard/34—Mac OS X Users

- Always connect SATA cables to the Tempo SATA Pro ExpressCard/34 adapter before inserting it into your computer's ExpressCard slot.
- Before removing the Tempo card from the computer, or disconnecting cables from the Tempo card or attached drives, eject (unmount) any mounted drive or volume by dragging its icon to the Eject icon in the Dock, or clicking its Eject button in a Finder window; otherwise, data on the connected drives may be corrupted. Once all drives are unmounted, the Tempo card may be pushed in to be ejected and removed.
- Drives connected to the Tempo SATA Pro ExpressCard/34 will be identified as SCSI drives, regardless of their actual interface; this is normal and is a function of the driver implementation.
- When there are no drives mounted and the Tempo card is plugged into your computer, you may turn it off by clicking on its icon in the menu bar and selecting Power off Card from the drop-down menu.
- When drive enclosures with port multipliers are connected to Tempo SATA Pro ExpressCard/34, you can identify individual drives within those enclosures in Disk Utility (Figure 11, top). In the Connection ID field, "Channel" indicates the channel (as well as the connector) on the Tempo card, while "Port" identifies the drive in the enclosure.
- When drive enclosures without port multipliers are connected, a simple drive-to-card signal path exists. In the Connection ID field in Disk Utility, "Channel" indicates the channel (as well as the connector) on the Tempo card and the drive in the enclosure (Figure 11, bottom).

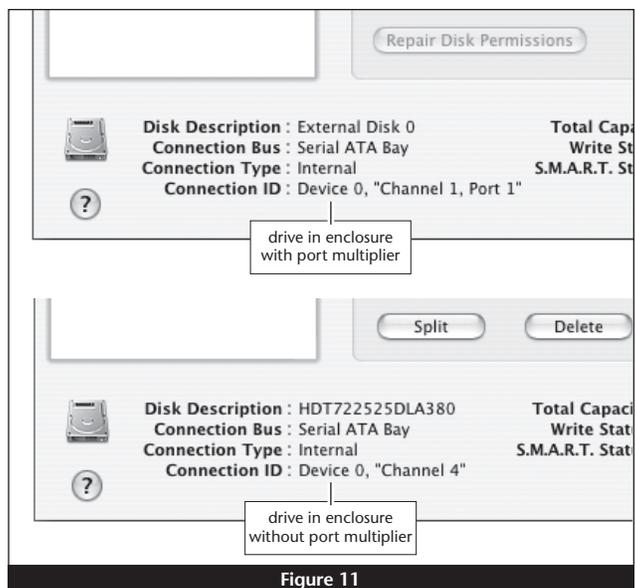


Figure 11

Using the Tempo SATA Pro ExpressCard/34—Windows Users

Listed here is some general information about using the Tempo card:

- Always connect SATA cables to the Tempo SATA Pro ExpressCard/34 adapter before inserting it into your computer's ExpressCard slot.
- Before removing the Tempo card from the computer, or disconnecting cables from the Tempo card or attached drives, move the cursor over the icons in the taskbar until "Safely Remove Hardware" appears, click the icon, and then click the "Safe to Remove Sonnet Tempo SATAII PRO E34 PCI Express Adapter" message. Once "Safe to Remove Hardware" appears, you may remove the Tempo card.