

# Tech Notes

## Promise RAID

03/05/2008

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**Purpose:** To increase familiarity with the Promise RAID systems in both Windows Based and DOS based software, including the correct method for rebuilding arrays, correcting drive errors, and additional RAID 1 concepts.

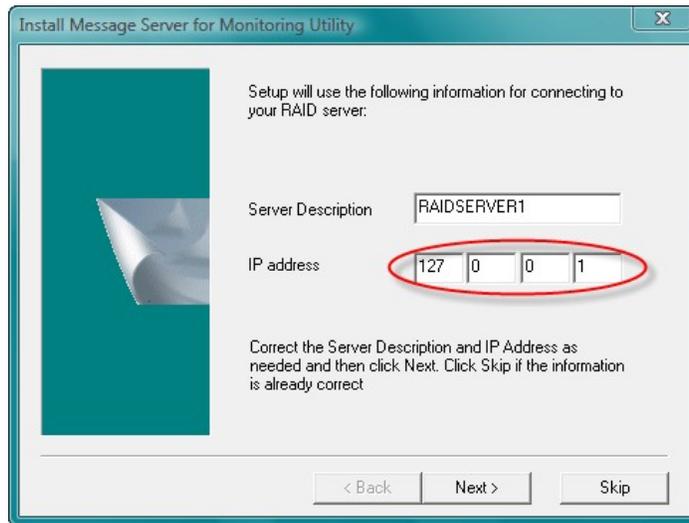
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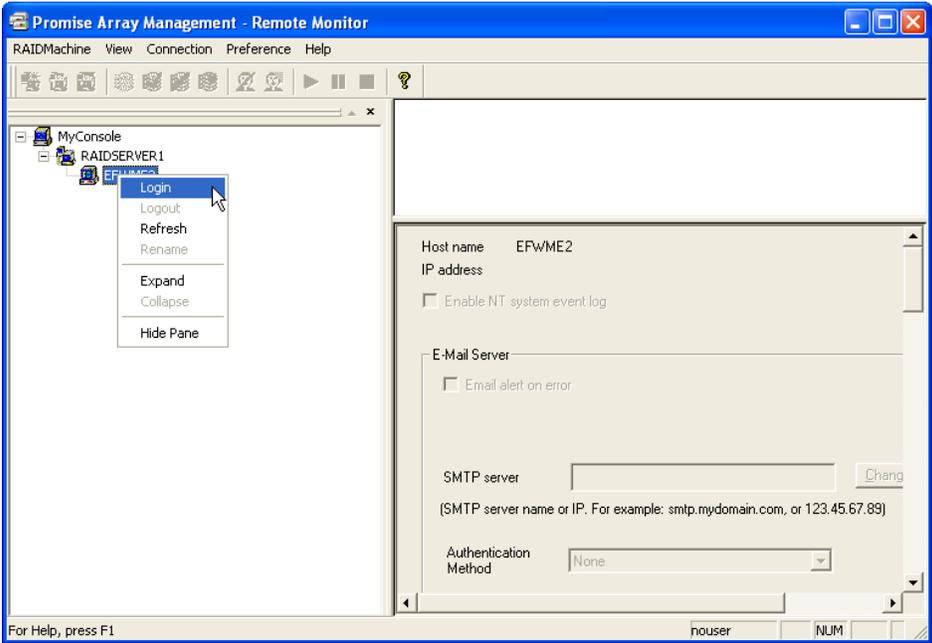
**1) Promise Windows Based Software** – Promise has a number of different managers available depending on your RAID card. They range from networked multi-computer management systems to web-based management for a single computer. If you choose to use this software, the default login is *admin*, and the default password is *admin*. Although able to manage an entire network, the Remote Array Management program also is compatible with most Promise cards, so it is also the version that is featured in this document. For additional support with the web version of the software, please contact DR DAS. A link to a downloadable install file is provided in the [Additional Notes](#) below.

- Upon installing the Remote Array Management Software, you will be prompted to first designate an IP address and setup a password (see screen shows below). The default server name is acceptable, and the IP address should remain 127.0.0.1 as it indicates the local machine. This document is designed to reflect a local install, and does not support network installation. The recommended user name is *drdas* and the recommended password is *drdas*. This will enable us to support your computer if it is necessary to send in for maintenance.

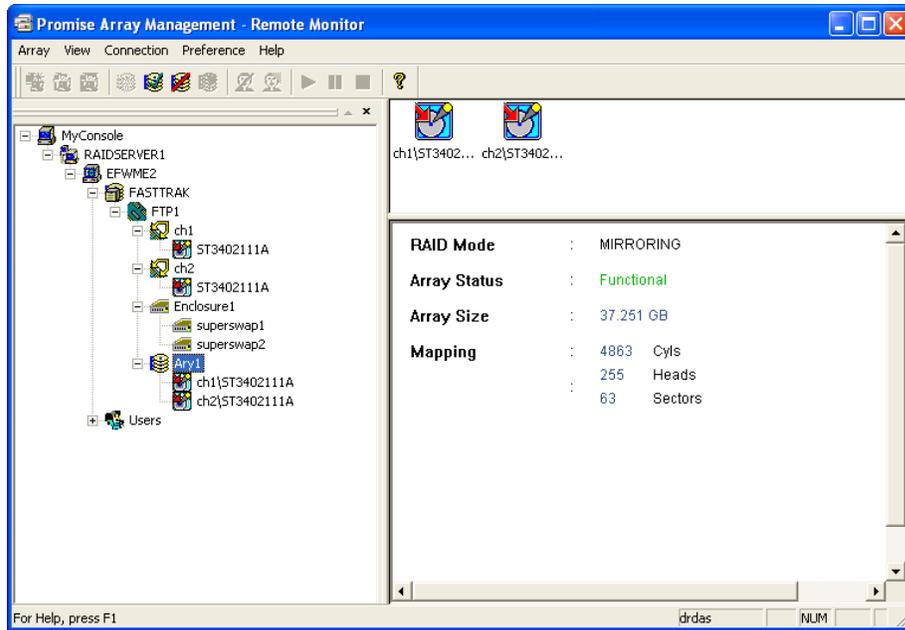




- The Remote Array Management software is a fully featured Array Management program. In it you will find all the functions necessary to Rebuild, Delete, Define, and otherwise maintain and monitor your array. Prior to accessing your array, you will be required to login to the software by right clicking on the local PC and selecting login from the pop-up menu (see image below).



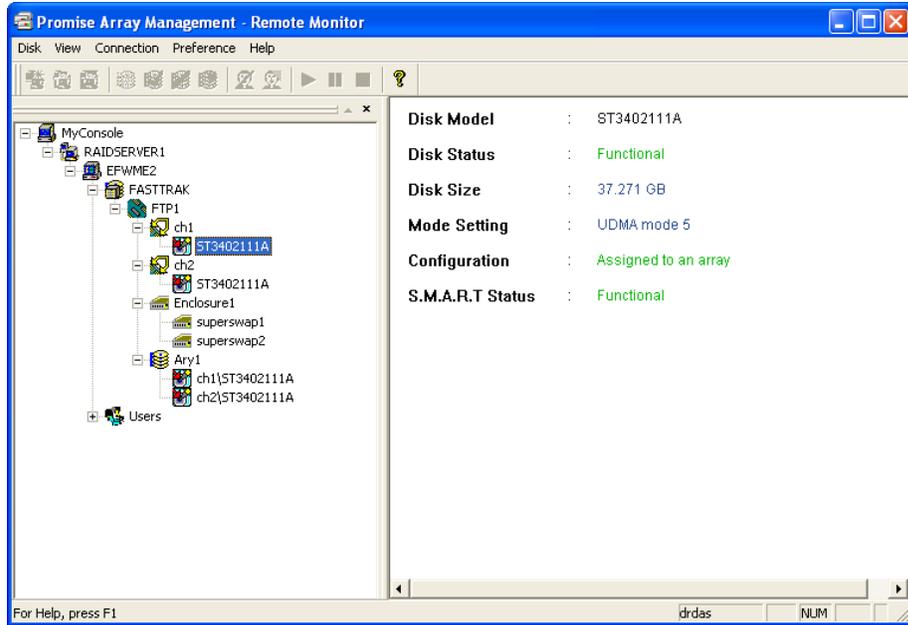
- Once logged in you will find your array card indicated, expanding this by click the + symbol, you will see a screen similar to the following:



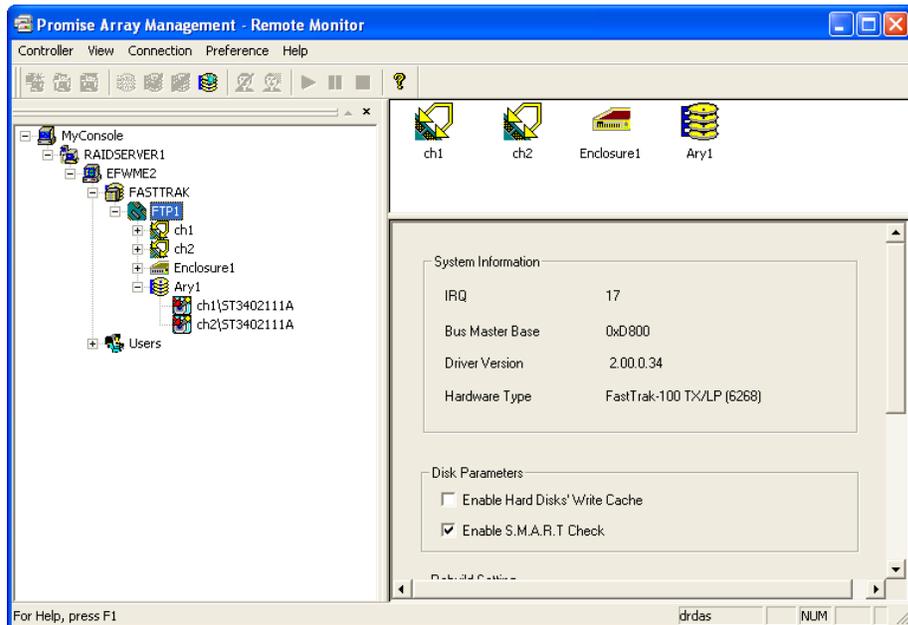
This indicates that on the FASTTRAK (FTP1) there is a first channel (ch1) and a second channel (ch2) that each has a drive with the same model number (ST3402111A). It shows that there are enclosures (Enclosure1) known as superswap1 and superswap2. Finally there is a RAID array managed by this card (Ary1) that is comprised of two drives (ch1\ST3402111A and ch2\ST3402111A).

In the above screen shot, the user has selected Ary1 by clicking once, displaying a summary window. Note that the size and RAID mode (mirroring) are displayed. Also you will see an Array Status. If there is a notation that this is critical, it does not mean that a drive has failed, or that data on the drive is permanently lost. It does mean that a rebuild is required (see process by clicking here). There is a small chance that there is permanent damage, and that the unit will need to be shipped for servicing.

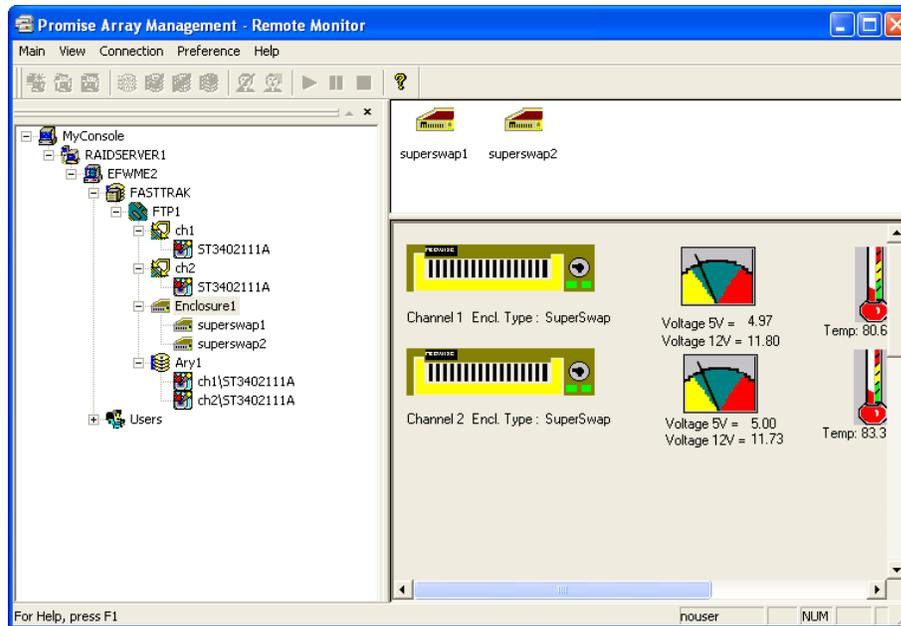
- There are a number of other informative screens in the Remote Array Management software. Each is displayed and briefly described below.



By selecting a drive, you will be shown an informative screen noting important drive and array information (above).



By selecting your PCI RAID Controller (in this case FTP1), you will find a number of options. Please note that the defaults are recommended (above).



By selecting the enclosures, a graphic display is shown which indicates status lights, voltage, temperature, and fan speed (not visible in image).

**2) Promise BIOS Based Software** – Although there is a selection of various Windows software, the Console software can neither be chosen from a list nor deleted from your system. To access this software you need to be physically present at the machine (making management via the console impossible for those remotely connecting to their various machines). To access the console you must reboot the system, and when prompted you will need to press **Ctrl-F** to access this menu. The prompt is brief and will require strict attention to the boot process. You can enter this key combination multiple time beginning when you see the text appearing on the monitor.

Because of the nature of the BIOS software, we cannot capture screen shots so we have described the screens. Please note that the simple representations are not to be taken as authoritative representations of what you will see on your system. Also please note that the mouse will not yet be loaded, and all commands are keyboard based, some of these keyboard commands may not be consistent with your intuition, so please be certain to look at the key guide at the bottom of each new screen.

After pressing **Ctrl-F** you will have the following six options:

1. Auto Setup
2. View Drives
3. Define Array
4. Delete Array
5. Rebuild Array
6. Controller

You will notice that, where the Windows is based on the concept of monitoring the array, the BIOS software is focused on performing actions on the array. *Auto Setup* is essentially a small program that runs similar to a Windows Wizard and enabled you to

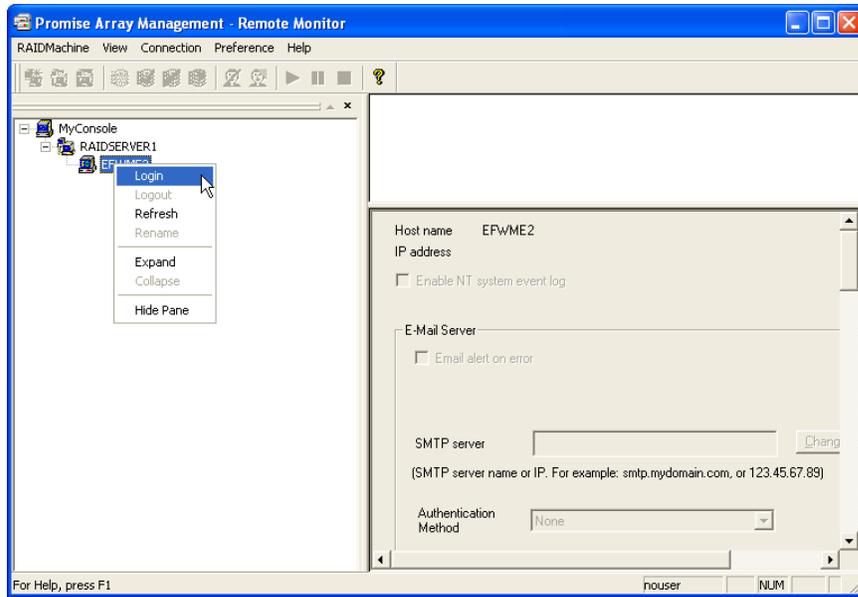
set up an array. `View Drives` simply allows you to see the drives connected to your Promise PCI RAID Controller. `Define Array` will present drives that are attached and available for designation as a component in an array, and will allow you to add them to arrays. You can also set the bootable array in this interface. `Delete Array` will allow you to remove any ties between drives in an array, it should not delete previously saved data from either drive. `Rebuild Array` permits you to fix an array in critical status.

`Controller` contains an important option, and several less important options (depending on the version). Here you will find a command named `Halt on Error` that should be *disabled*. If this command is enabled and an array goes into critical status, your computer will not automatically reboot Windows and will pause until released by a keystroke performed on site. Such behavior is not desired in a 24x7 monitoring system.

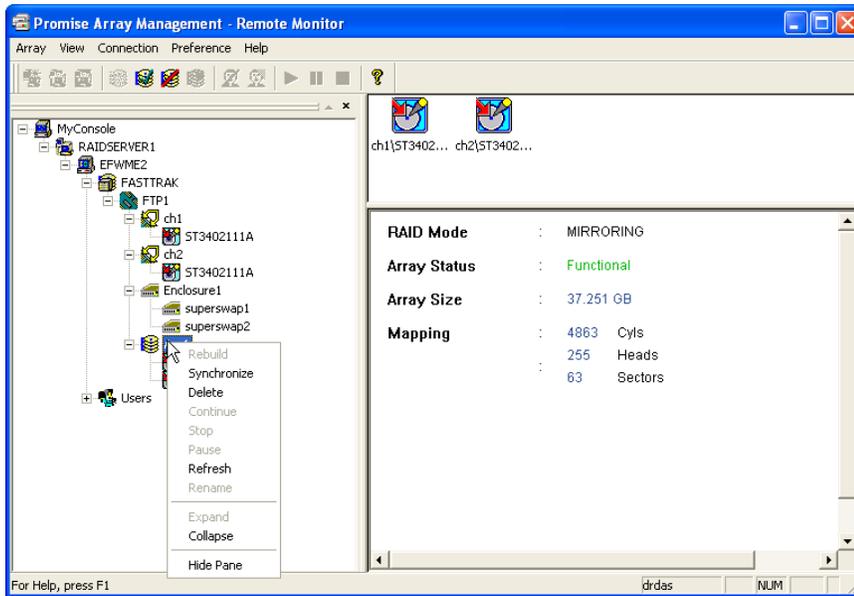
**3) Rebuilding an Array in Windows** – The following is a step-by-step procedure for rebuilding your array. This assumes your system has booted to windows on one drive of the array.

Step 1: In Windows, open the Remote Array Monitor Utility.

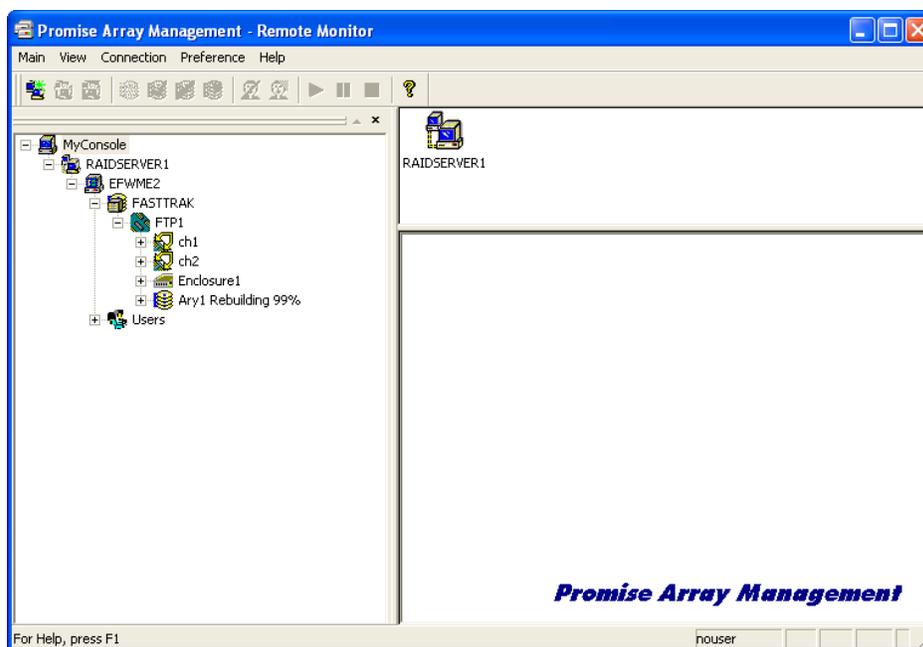
Step 2: Login to your computer's array (see below). Right Click on the computer name and select "Login" from the pop-up menu.



Step 3: Expand (by clicking the + symbols) the tree completely, and right click on the array. In the menu that appears you will see an option to "Rebuild". If the drive is critical, this option will be black. The array cannot be rebuilt if the status is Functional (see below for an array that cannot be rebuilt).



Step 4: Allow your array to rebuild (see below). When complete, your array should report as functional.



**4) Rebuilding an Array in BIOS** – Following is a step-by-step procedure for rebuilding your array.

- Step 1: When your computer reboots be prepared and enter Ctrl-F when prompted (hold down the Ctrl key and press F at the same time.)
- Step 2: Select Rebuild Array from the BIOS menu (usually number 5).
- Step 3: Select the array to rebuild (it will most likely be the only array). The process can take 30 minutes or more.
- Step 4: Allow the array to complete the rebuild process and reboot the computer. You should no longer receive a critical error notation.

**5) Remounting and Replacing a Drive in the SuperSwap 1000** – If you have persistent difficulties with a drive, you may need to replace the physical drive. This requires only a small level of technical experience, a Philips (Crosshead) screwdriver, and a replacement drive. There are two types of drives available on the market, the SuperSwap 1000 normally accepts an IDE drive (rear view shown below), however, there are some editions known to have SATA interfaces. Your drive must have the same connectors. It is generally considered best to have an identical drive, but any drive equal in size or larger should work. **If you use a drive that already has data, there is a potential for complete data loss on your EnvidasFW system, only use a brand new, unused drive (in most cases, it is not recommended to insert a drive from another machine using SuperSwap 1000, as noted this could result in a severe loss of data).**

Note: You may also use these instructions to re-secure a drive that you suspect has a loose connection. *DR DAS highly recommends verifying the connection with this method prior to installing a new drive.* Using canned air, you may also

blow components with gentle bursts to dislodge dust buildup that may be preventing a firm connection.

Step 1: Unlock the chassis, and remove the enclosure carefully.

Step 2: You will find a thumb tab on the top right side of the enclosure near the face of the unit, press this and slide the top away from the face to expose the drive.

Step 3: You will need to remove four Philips screws that hold the drive in place, two on each side.

Step 4: Remove the drive from the enclosure gently. Now you will be able to identify the type of drive by looking at its connectors.



IDE Drive



SATA Drive

Step 5: When you have located a replacement drive, insert into the enclosure and fix in place with screws.

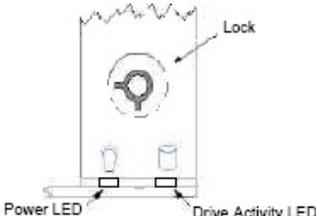
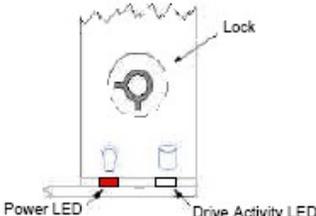
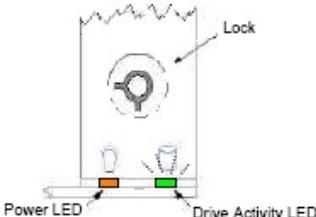
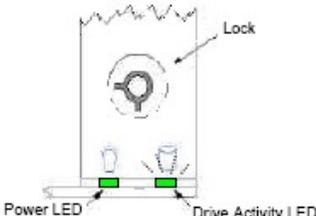
Step 6: Replace top, make sure that the hole in the top lines up with the latch on the enclosure and locks into place.

Step 7: Gently insert enclosure until firmly in place and lock the drive.

Step 8: If using the identical model number, you must rebuild the array in the BIOS as noted above. If you have a different drive, you must enter the BIOS, define an array consisting of the two drives now installed, and allow it to build itself.

**6) Status Lights on the SuperSwap 1000**– The SuperSwap 1000 has two lights on the front of its enclosure. The light on the left indicates both power and array status, and

is the light that you will be most concerned about. The light on the right indicates drive activity. The table below explains the key interpretations of the lights.

Visual Indicators	Light Behavior	Description
 <p>The diagram shows a drive enclosure with a 'Lock' indicator at the top. Below it are two LEDs: 'Power LED' on the left and 'Drive Activity LED' on the right. Both LEDs are unlit.</p>	<p>Neither light is on.</p>	<p>There is no power to the drive.</p>
 <p>The diagram shows a drive enclosure with a 'Lock' indicator at the top. Below it are two LEDs: 'Power LED' on the left and 'Drive Activity LED' on the right. The Power LED is lit red, and the Drive Activity LED is unlit.</p>	<p>Power LED is Red, Activity LED is off.</p>	<p>The array has detected a bad drive.</p>
 <p>The diagram shows a drive enclosure with a 'Lock' indicator at the top. Below it are two LEDs: 'Power LED' on the left and 'Drive Activity LED' on the right. The Power LED is lit orange, and the Drive Activity LED is lit green with a dashed outline indicating it is blinking.</p>	<p>Power LED is orange, Activity LED is blinking green.</p>	<p>The array controller has detected inconsistent data and is rebuilding your array.</p>
 <p>The diagram shows a drive enclosure with a 'Lock' indicator at the top. Below it are two LEDs: 'Power LED' on the left and 'Drive Activity LED' on the right. Both LEDs are lit green with dashed outlines indicating they are blinking.</p>	<p>Power LED is green, Activity LED is blinking.</p>	<p>This is the normal status indication. The two drives need not be blinking in unison, however they should be relatively active (both calmly blinking, or feverishly blinking).</p>

## 7) Additional Notes

- The installation of the Windows management software is on the FTP site <ftp://212.150.51.218> in the Promise RAID Software folder. This document is also located there. If you need login information, please contact DR DAS, LTD.
- To install the Windows software, extract the downloaded zip to a folder. Once complete, there will be a folder titled "Disk 1." Double click or Open PAMSetup.exe from within this folder to begin the installation.
- The Windows software also provides a synchronization utility. It is available as an icon in the toolbar after you select an array.
- Please remember that a drive will most likely not be "bad" if it the array becomes critical, rather it was interrupted during data entry (by a power outage, power surge, or any number of other acts that would interrupt the data writing process). In a case like this, a fair majority of cases, a rebuild is all that is necessary to get the array "back on track." If, after a rebuild is attempted, the array still reports a critical status, please contact DR DAS for further support.
- If there is an instance where Windows is damaged along with the array, a reinstallation of all software may be necessary. The reinstallation of windows requires two 3.5" boot disks (images of which is also available on the FTP site). After you insert the Windows setup CD and as you begin the setup process, you will need to pay close attention for Windows Setup to ask you to indicate that you have additional RAID drivers by pressing F6. This note will appear at the bottom of the screen. Windows will prompt you to insert the disk, and the rest of the process so should go as normal.