

HighPoint X4 with SAF-TE Enclosure Management

A primer to setting up SAF-TE



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Introduction to HighPoint X4

The HighPoint X4 Multi-lane 4 bay external storage enclosure delivers scalability and flexibility to the midrange storage market by utilizing external Multi-lane Infiniband connector with the cost advantages of SATA hard drives. The Multi-lane connector and shielded cabling can deliver up to 3Gb/s to each SATA drive with no performance loss. The Infiniband connection provides a high communication bandwidth capability along with its industry proven technology. The single cable connection makes the HighPoint X4 a convenient external plug-and-play SATA storage solution.

The X4 is an ideal solution for applications that require bandwidth, greater fault tolerance, additional availability, and easy scalability. Each HighPoint X4 can support up to 4 SATA I or SATA II hard drives. As storage needs grow advanced RAID features such as Online Capacity Expansion and Online RAID Level Migration can be utilized with the X4 to ensure continuous data accessibility and expansion.

When combined with a high performing RAID controller the X4 storage capabilities and fault tolerance capabilities to ensure that data is always accessible and available 24 x 7. Monitoring internal functions of the HighPoint X4 (temperature, activity LED, fan speed) is also capable with monitoring software tools provided from the RAID controller card.

“The HighPoint X4 represents a major step towards simplifying external SATA storage configurations for every customer type. HighPoint now provides customers with an external SATA drive solution that requires only a single cable”.

HighPoint X4 Features

- External Infiniband connection with supported SATA host adapter
- Supports up to 4 (SATA I or SATA II) hard drives
- Hot Swappable drive trays
- Key Lock power management for data security and protection
- SAF-TE Enclosure management for monitoring and managing internal functions
- Hard drive activity indicator
- Failed hard drive LED indicator
- Alarm notification for failed drives
- Dedicated cooling fan for ventilation
- Enhanced EMI shielding in drive trays and drive enclosure
- Aluminum drive trays dissipating hard drive heat
- Power Mac G5 support



HighPoint X4 and Multi-lane Infiniband cable



Introduction to SAF-TE

The SAF-TE specification defines a set of SCSI commands for setting drive status information, including status for RAID arrays, into the HighPoint X4 disk drive array enclosure. The specification also defines commands for managing hot-swap drive slots and returning environmental health information for a drive enclosure.

The status commands are typically used by the enclosure manufacturer to assert lights or other indicators that provide information to the user about the state of the drives in the array. This can include status such as 'rebuilding', 'fault', and 'hot spare'. The SAF-TE status setting commands are typically issued either by an intelligent disk controller such as the HighPoint RocketRAID 2224, or by software, e.g. the HighPoint RAID Management software, running under the operating system. Other parties on the SCSI bus may elect to access the status information as a means of determining the state of the physical drives in the array.

In addition, SAF-TE commands can be used to report certain environmental information about the enclosure, such as temperature, voltage, power supply, and fan health.

Setting up SAF-TE with HighPoint X4 and RJ-11 cable

To utilize the SAF-TE monitoring feature of the HighPoint X4 requires the use of an RJ-11 cable. The RJ-11 cable and Multi-lane Infiniband cable are bundled with the HighPoint X4 storage enclosure.



Rear view of HighPoint X4



RJ-11 Cable



HighPoint RocketRAID 2224

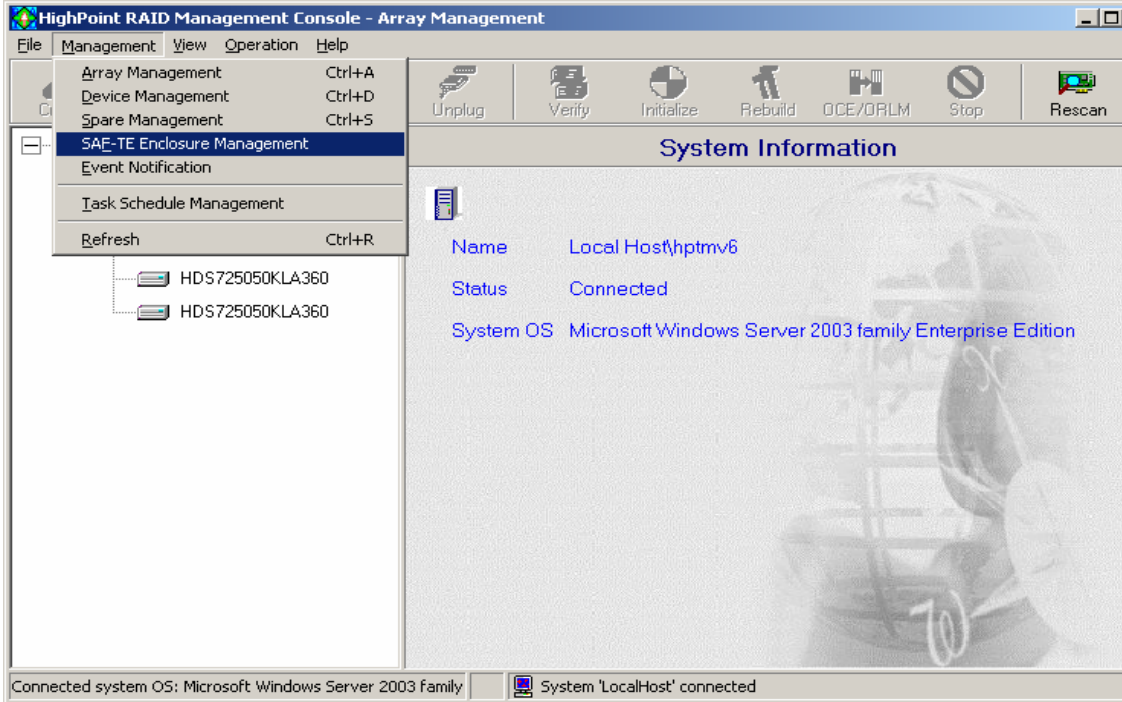
One end of the RJ-11 cable will have to be inserted into the HighPoint X4 and the other end will need to be inserted into the HighPoint RocketRAID 2224 SATA II RAID Controller.



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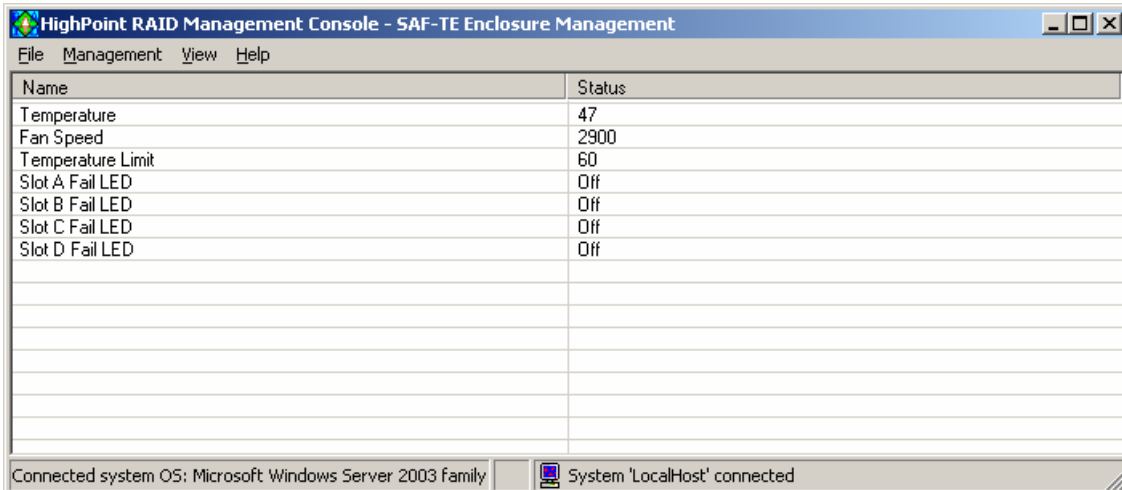
Installing RAID Management Utility

To realize the benefits of the HighPoint X4 SAF-TE feature requires the installation of the HighPoint RAID Management GUI utility. Once the HighPoint RAID management GUI is installed you will need to invoke the SAF-TE management tab.



HighPoint RAID Management GUI for SAF-TE Enclosure Management

Next the RAID Management GUI will report SAF-TE information from the HighPoint X4 drive enclosure.



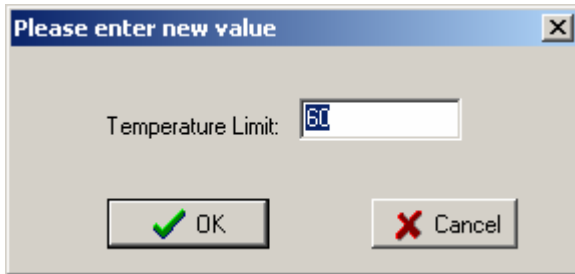
SAF-TE Information Properties from HighPoint X4



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Adjustable Temperature Limit Setting

A beneficial feature in the HighPoint RAID Management GUI allows for adjustable temperature limit settings inside the HighPoint X4.



Adjustable Temperature Limit Setting

By allowing users to adjust the temperature limit inside the HighPoint X4 user will have more flexibility in setting up conditions to report temperature limit thresholds.