



Spectra BlackPearl Deep Storage Gateway

**Release Notes and Documentation
Updates**



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Part Number

90990097 Revision D

Revision History

Revision	Date	Description
A	November 2014	Initial release.
B	December 2014	Updated for the BlackPearl 1.0.1 release
C	December 2014	Updated for the BlackPearl 1.0.2 release
D	March 2015	Updated for the BlackPearl 1.1 release

Note: To make sure you have the release notes for the most current version of the BlackPearl software, log into the Spectra Logic Technical Support portal at support.spectralogic.com. The release notes also include updates to the product documentation.

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ABOUT THIS GUIDE

These release notes give you the latest information available about the Spectra® BlackPearl™ Deep Storage Gateway, its software, and firmware. They also serve as an addendum to the published documentation for the gateway.

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Note: To make sure you have the release notes for the most current version of the BlackPearl software, log on to the Spectra Logic Technical Support portal at support.spectralogic.com. The release notes also include updates to the product documentation.

INTENDED AUDIENCE

This guide is intended for data center administrators and operators who maintain and operate file storage systems. The information in this guide assumes a familiarity with computing terminology, RAID technology, SAS connectivity, and Gigabit and 10 Gigabit Ethernet (10 GigE) networking. You also need to be familiar with installing, configuring, and using data file storage and archival software.

RELATED INFORMATION

This section contains information about this document and other documents related to the Spectra BlackPearl gateway.

BlackPearl User Interface Screens

The BlackPearl interface changes as new features are added or other modifications are made between software revisions. Therefore, the screens you see in the BlackPearl user interface may differ from those shown in this guide.

Related Publications

The following documents related to the Spectra BlackPearl gateway are available on the Support Portal website at support.spectrallogic.com, and from the Documentation screen on the BlackPearl user interface.

- The *Spectra BlackPearl User Guide* provides detailed information about configuring, using, and maintaining your BlackPearl gateway.
- The *Spectra BlackPearl DS3 API Reference* provides information on understanding and using the DS3 API.
- The *Spectra BlackPearl Site Preparation Guide* provides important information that you should know before installing a BlackPearl gateway in your storage environment.
- The *Spectra BlackPearl Rack-Mount Installation Guide* provides detailed instructions for installing the BlackPearl gateway in a standard 19-inch rack.
- The *Spectra BlackPearl Network Setup Tips* document provides helpful instructions for troubleshooting common connectivity problems.

The following documents are available after logging into your Support portal account at: support.spectrallogic.com.

- The *Spectra BlackPearl Boot Drive Replacement Guide* provides instructions for replacing a failed boot drive in the gateway.
- The *Spectra BlackPearl Drive Replacement Guide* provides instructions for replacing a failed data drive in the gateway.
- The *Spectra BlackPearl Fan Replacement Guide* provides instructions for replacing a failed fan in the gateway.
- The *Spectra BlackPearl HBA Replacement Guide* provides instructions for replacing a failed HBA in the gateway.
- The *Spectra BlackPearl Power Supply Replacement Guide* provides instructions for replacing a failed power supply in the gateway.

Note: To make sure you have the release notes for the most current version of the Verde software, log into the Spectra Logic Technical Support portal at support.spectrallogic.com. The release notes also include updates to the product documentation.

USER FEEDBACK

Contact us at (800) 833-1132 or send an email to feedback@spectrallogic.com to give us suggestions or feedback on our products and documentation.

TYPOGRAPHICAL CONVENTIONS

This guide uses the following conventions to highlight important information:

Note: Read text marked by “Note” for additional information or suggestions about the current topic.



Important

Read text marked by the “Important” icon for information that will help you complete a procedure or avoid extra steps.



Caution

Read text marked by the “Caution” icon for information you must know to avoid damaging the gateway, the disk drives, or losing data.



WARNING

Read text marked by the “Warning” icon for information you must know to avoid personal injury.

WARNUNG Lesen Sie markierten Text durch die “Warnung”-Symbol für die Informationen, die Sie kennen müssen, um Personenschäden zu vermeiden.

These release notes use an arrow (→) to describe a series of menu selections. For example:

Select **Configuration** → **Network**.

— means —

Select **Configuration**, then select **Network**.

BlackPearl Gateway Software Updates

This section provides instructions to update your BlackPearl gateway, as well as an overview of the features and changes for each released software version.

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UPDATING SOFTWARE

Some problems with the BlackPearl gateway may be fixed by updating the gateway's software. Spectra Logic provides complete support for the most current release of software and one revision back. Customers using previously released software packages are asked to update to the current release as soon as possible.

Note: You must have a current software update key entered in the gateway you want to update. See the *Spectra BlackPearl User Guide* for more information.


If Automated Software Upload is enabled, the gateway sends an email to all users configured to receive Warning or Informational emails (see *Configure Mail Recipients* in your *User Guide*) and posts a system message to the Messages screen. If configured to do so, the gateway also downloads the updated software.

The method used to update the gateway depends on if the Automated Software Upload feature is enabled or not, and if enabled, whether it is configured to download the update software.

- If the update package downloaded automatically, skip to [Install the Update on page 13](#).
- If you were notified that an update is required, but the update did not download automatically, skip to [Download and Stage the Updated Software on page 11](#).
- If you do not know if the gateway needs an update installed, continue with [Check the Current Software Version on page 10](#).

Check the Current Software Version

Use the following steps to determine the current software version running on your BlackPearl gateway.

1. From the menu bar, select **Support**  **Software**. The Software screen displays.
2. The current software version is listed next to **Current Version** in the Software Update pane.

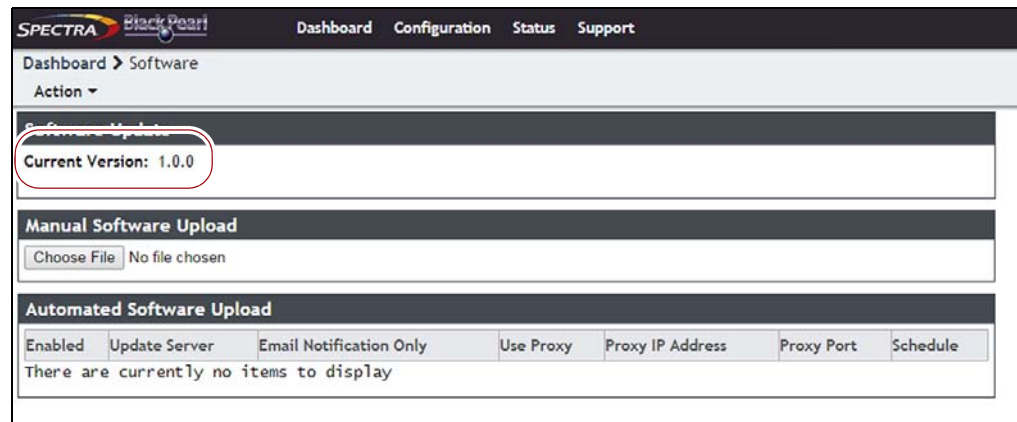



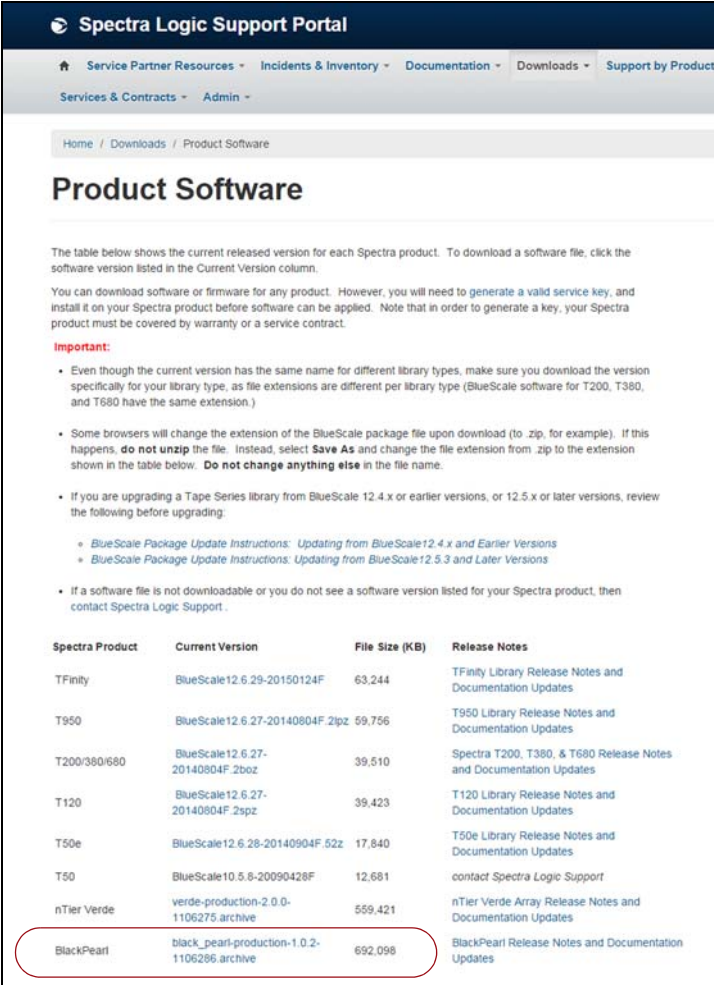
Figure 1 The current BlackPearl software version.

Check the Currently Released Software Version

Follow these steps to check the currently recommended BlackPearl software version:

1. Log into your user account on the Technical Support portal at support.spectrallogic.com.
Note: See the *Spectra BlackPearl User Guide* for information about creating an account and accessing the Technical Support portal.
2. Select **Downloads**  **Product Software**.

- On the Product Software page, locate the BlackPearl gateway in the **Spectra Product** column. The currently released BlackPearl software version is listed in the **Current Version** column.



The screenshot shows the 'Product Software' page on the Spectra Logic Support Portal. It includes a navigation menu, a breadcrumb trail (Home / Downloads / Product Software), and a table of software products. The table has four columns: Spectra Product, Current Version, File Size (KB), and Release Notes. The 'BlackPearl' product is highlighted with a red circle.

Spectra Product	Current Version	File Size (KB)	Release Notes
TFinity	BlueScale12.6.29-20150124F	63,244	TFinity Library Release Notes and Documentation Updates
T950	BlueScale12.6.27-20140804F.2ipz	59,756	T950 Library Release Notes and Documentation Updates
T200/380/680	BlueScale12.6.27-20140804F.2boz	39,510	Spectra T200, T380, & T680 Release Notes and Documentation Updates
T120	BlueScale12.6.27-20140804F.2spz	39,423	T120 Library Release Notes and Documentation Updates
T50e	BlueScale12.6.28-20140904F.52z	17,840	T50e Library Release Notes and Documentation Updates
T50	BlueScale10.5.8-20090428F	12,681	contact Spectra Logic Support
nTier Verde	verde-production-2.0.0-1106275.archive	559,421	nTier Verde Array Release Notes and Documentation Updates
BlackPearl	black_pearl-production-1.0.2-1106285.archive	692,098	BlackPearl Release Notes and Documentation Updates

Figure 2 The Product Software screen.

- Compare the Current Version available for the BlackPearl gateway to the version installed on the gateway.

Download and Stage the Updated Software

Use the instructions in this section to download and stage the updated software for the BlackPearl gateway.

- Log into your account on the Technical Support portal at support.spectralogic.com.

2. Select **Downloads**  **Product Software**. The Product Software Screen displays.

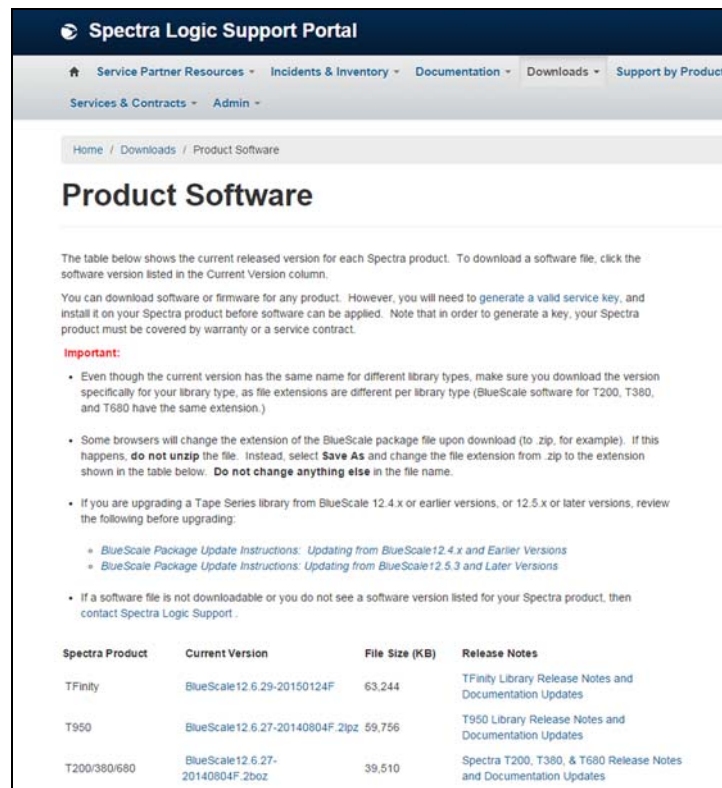



Figure 3 The Product Software screen.

3. Locate the BlackPearl gateway in the **Spectra Product** column. The currently released BlackPearl software version is listed in the **Current Version** column.
4. Click the name of the BlackPearl package. The package begins downloading through your web browser. Do not unzip the downloaded file.
5. From the BlackPearl menu bar, select **Support**  **Software** to display the Software screen. Click **Choose File**. Using your web browser, browse to the location of the update file and select the file to upload. The file is staged to the system.

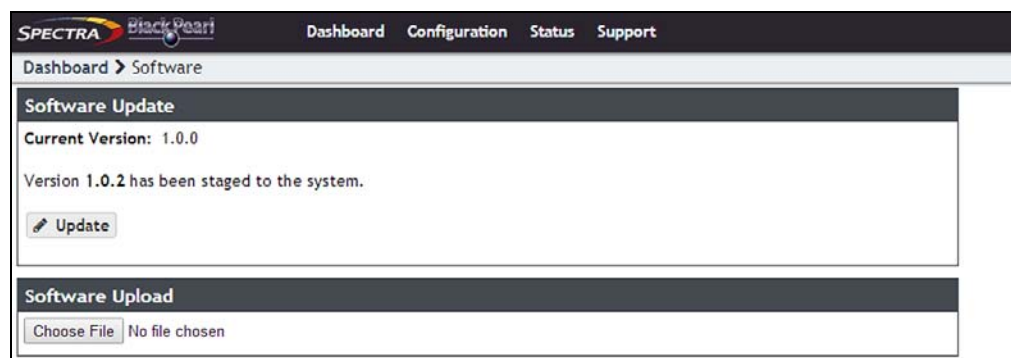


Figure 4 The Software Update screen with a staged software package.

Install the Update


1. Discontinue all file storage operations on the BlackPearl gateway. The gateway automatically reboots as part of the update process.
2. From the menu bar, select **Support**  **Software** to display the Software screen. The Software screen displays with the software upload file staged to the system.



Figure 5 The Software Update screen with a software package staged to the system.

3. Click **Update**. A progress bar shows the progress of the update.

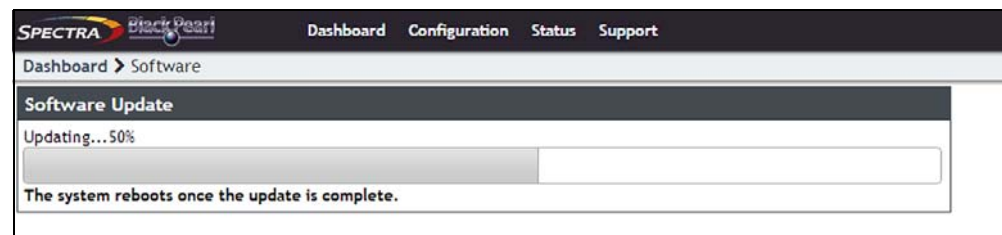


Figure 6 The Software Update screen showing the progress of an update.

4. When the update is complete, the BlackPearl gateway automatically reboots to begin using the latest software.
5. Restart file storage operations.

PACKAGE HISTORY

The following sections list the BlackPearl update packages that are released, and provide information about new features and updates that affect the gateway and its components.

BlackPearl 1.1

Enhancements

Database Backup and Restore The BlackPearl gateway database contains a list of all objects stored on the gateway cache and tape media. Backing up the database allows you to restore the database in the event of database corruption.

Tape Ejection Tape media and the data they contain can be removed from the Spectra tape library by ejecting them through the BlackPearl user interface. Once tapes are ejected from the library, they can be stored off site.

DS3 API Updates Allows for more efficient performance and utilization of network resources.

S3 Multi-Part Upload Support Per the AWS specification, this allows a client to split a given object into parts that are sized based on the client needs, and upload those object parts in parallel. The DS3 API supports all AWS multi-part upload calls except for the Upload Part—Copy call.

Partial Object Recovery Allows the user to specify an offset and length of a given object and get back only that partial object data from the gateway.

Improved Tape Drive Error Handling The gateway will retry reads/writes before marking a tape or tape drive as unusable and will better handle tape drive connectivity issues.

Improved Performance Performance has been improved by better utilizing tape drives and improving prioritization and handling of concurrent jobs.

Resolved Issues

Issue	Resolution
The BlackPearl user interface displays a cryptic error message when attempting to delete a user that is the owner of one or more buckets in the gateway.	The interface now informs you that the buckets assigned to the user must be deleted prior to deleting the user.
The read/write performance for objects less than 5 MB is slow when written to tape.	Various changes were made to improve the performance of small object reads and writes for the case where a critical mass (>10GB) of small objects are put together using a BULK PUT request.

Known Issues

Issue	Workaround
The BlackPearl user interface allows you to attempt to download an object that is not uploaded to the gateway, resulting in a 403 error.	Wait until the file is uploaded to the gateway before attempting to download it.
Log files on the BlackPearl gateway may grow in size such that an ASL file which includes these logs is too large to email.	Download the ASL to your host system, and then upload the ASL to the Spectra Logic FTP site. Contact Spectra Logic Technical Support for assistance (see Contacting Spectra Logic on page 4).
The BlackPearl gateway does not automatically generate system backups after updating to BlackPearl 1.1.	After a software update to BlackPearl 1.1, the system administrator needs to create a database backup schedule in the BlackPearl web interface. See the <i>BlackPearl User Guide</i> for details.
If the tape library experiences a persistent move failure, messages to configured mail recipients may occur at a rate of up to one message per minute.	There is no workaround to this issue. Ignore duplicated error messages.
There are no error messages if the tape library associated with the BlackPearl gateway goes offline.	There is no workaround to this issue.
The DS3 API does not handle multiple HTTP headers of the same type correctly, including attaching multiple pieces of metadata, of the same type, to an object.	There is no workaround to this issue.
Cleaning partitions can be used in conjunction with the gateway, however the gateway will not be able to perform eject/import operations for T50E and T120 libraries with cleaning partitions due to the shared nature of the EE ports.	If you want to use eject and import operations on a BlackPearl gateway configured with a T50e or T120 library, you must configure the library with only one partition and Standard eject mode. This means that you will not be able to have a cleaning partition and you will need to clean tape drives manually.
Columns on all screens in the BlackPearl user interface revert back to a default width when you move to another screen. Also, the user cannot sort the tables based on a selected column.	There is no workaround to this issue.
The Get Object response gives the content-md5 digest twice.	Ignore the second content-md5 value.

BlackPearl 1.0.2

This release resolves an issue that could cause a kernel page fault when writing data to tape media. This release also improves object ID tracking when data is written to tape.

Resolved Issues

Issue	Resolution
Tape media cartridges assigned to a bucket and with less than 1 MB of data written on the tape, display as “Managed Empty” in the BlackPearl web interface.	Tape media assigned to a bucket and with less than 1 MB of data on the tape cartridge now correctly display a state of “Managed.”

Known Issues

Issue	Workaround
If you change the column width on any screen in the BlackPearl web interface, the column widths return to their default size when the page is refreshed.	There is no resolution to this issue.
The read/write performance for objects less than 5 MB when written to tape is slow. Note: This issue is resolved in the BlackPearl 1.1 release.	Performance improvements are expected in the next release.

BlackPearl 1.0.1

This release improves internal diagnostics and logging utilities, as well as improving the communication between the BlackPearl Deep Storage Gateway and the attached tape library.

Resolved Issues

Issue	Resolution
Replacement drives are not automatically added to the tape cache or database when installed.	Replacement drives are now automatically added to the tape cache or database when the drive is installed.
Tape library media can get stuck in the Inspection Pending or Format Pending state and are not used.	Tape media no longer gets stuck in the Inspection Pending or Format Pending state.

BlackPearl 1.0

Description Initial release.

Features

The BlackPearl gateway includes the following features:

BlackPearl User Interface The BlackPearl user interface is used to perform configuration and management tasks on the BlackPearl gateway. It also lets you monitor the gateway hardware and view system messages. The BlackPearl user interface also provides monitoring and control of some aspects of an attached Spectra Logic T-Series tape library.

DS3 Clients Users can leverage a library of existing DS3 clients available through the [Spectra Logic Developer Program](#), or develop their own client. The user moves data through the client to the BlackPearl gateway and then the gateway handles all interaction with the tape library.

DS3 Interface The DS3 interface is a data transport and communication interface that allows software clients to direct and manage "bulk" storage read or write operations of data objects. The first implementation supports bulk object storage operations to tape for accessibility to the lowest cost media option.

Easy Network-Based Administration The BlackPearl gateway can be configured over an Ethernet network using a standard web browser.

Gigabit Ethernet Connectivity Four onboard Gigabit Ethernet (GigE) ports provide Ethernet connectivity for the gateway with one dedicated port used to access the BlackPearl user interface. This port cannot be used for data transfer.

Integration with a Spectra T-Series Library Fibre Channel and SAS HBAs can be installed to provide connectivity to a Spectra Logic T-Series library.

LTFS Format The BlackPearl gateway writes data on tape in the open LTFS format to ensure you are always able to access it.

Mirrored Boot Drives The operating system is hosted on two mirrored drives.

Rack-Mount Hardware The BlackPearl gateway is designed to mount in a standard 4-post, 19-inch rack using just 4U of rack space. Rack-mounting hardware is included with each BlackPearl gateway.


RAID-Protected Data Drives The standard BlackPearl gateway includes two solid-state drives which store the gateway database, and ten spinning disk drives which provide the gateway's caching capacity. Additional drives can be added. The drives are grouped into volumes with double-parity protection and data integrity verification to protect against data corruption.

Redundant Hardware The gateway features N+1 redundant power supplies and data drives that are hot-swappable for uninterrupted operation.

10 Gigabit Ethernet A dual port, 10 Gigabit Ethernet (10 GigE) network interface card is installed to provide high-speed data connections between hosts and the BlackPearl gateway.

Known Issues

Issue	Workaround
<p>The BlackPearl user interface displays a cryptic error message when attempting to delete a user that is the owner of one or more buckets in the gateway.</p> <p>Note: This issue is resolved in the BlackPearl 1.1 release.</p>	<p>To delete the user, you must first delete all buckets that are owned by the user, and then delete the user.</p>
<p>After the initial setup of the gateway, the BlackPearl user interface does not display associated tape drives on the Hardware screen.</p>	<p>Using the tape library touch screen, move any tape cartridge to any available slot in the partition as described in your library's <i>User Guide</i>. After several minutes the BlackPearl Hardware screen correctly displays the tape drives.</p>
<p>If a tape cartridge causes a SCSI Medium Error to occur in the tape library, the BlackPearl gateway stops communicating with the library.</p>	<p>Contact Spectra Logic Technical Support (see Contacting Spectra Logic on page 4).</p>
<p>The S3 Cloudberry browser fails to create a folder object.</p>	<p>There is no workaround for this issue.</p>
<p>After a tape is formatted for use with the BlackPearl gateway, the BlackPearl user interface may show that the newly formatted tape contains a small amount of data.</p>	<p>There is no workaround for this issue. This issue occurs due to the way the LTFS file system reports free space on the tape cartridge. There is no negative operational effect for the tape or the BlackPearl gateway.</p>
<p>When using a Brocade 16 Gig switch, the library tape drives may disappear from the Fibre Channel network and the BlackPearl user interface.</p>	<p>Use the following steps to resolve the issue.</p> <ol style="list-style-type: none"> 1. On the Fibre Channel switch, configure all ports used by the library's tape drives and the BlackPearl gateway to connect only at 4Gb/s link speed. 2. Power-cycle the tape library as described in the library's <i>User Guide</i>. 3. After the library completes its initialization, verify that the connections between the switch and the tape drives are operating at 4Gb/s. 4. Power-cycle the BlackPearl gateway as described in the <i>User Guide</i>.
<p>Downloading an object with a space in the filename through the GUI fails with a 404 error.</p>	<p>Use a DS3 or S3 client to download an object with a space in the filename.</p>

Issue	Workaround
<p>A drive replaced using the <i>Spectra BlackPearl Drive Replacement Guide</i> does not automatically begin rebuilding when installed.</p> <p> CAUTION: Continuing to use the gateway without a full set of disks can degrade performance. If a second disk fails, data in the process of being written to tape, may be lost.</p> <p>Note: This issue is resolved in the BlackPearl 1.0.1 release.</p>	<p>Contact Spectra Logic Technical Support (see Contacting Spectra Logic on page 4) for instructions on replacing a data drive.</p>

User Guide Updates

The *Spectra BlackPearl User Guide* is current as of the BlackPearl 1.1 release.

Site Preparation Guide Updates

The *Spectra BlackPearl Site Preparation Guide* is current as of the release of BlackPearl 1.0.

There are no updates for the BlackPearl 1.1 release.