Spectra BlackPearl Deep Storage Gateway

Release Notes and Documentation Updates

Part Number   90990097 Revision O

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
E	June 2015	Updated for the BlackPearl 1.1.1 release
F	August 2015	Updated for the BlackPearl 1.2 release
G	December 2015	Updated for the BlackPearl 1.2.1 release
H	February 2016	Updated for the BlackPearl 3.0. release
I	March 2016	Updated for the BlackPearl 3.0.1 release
J	June 2016	Updated for the BlackPearl 3.2 release
K	July 2016	Updated for the BlackPearl 3.2.1 release
L	September 2016	Updated for the BlackPearl 3.2.2 release
M	November 2016	Updated for the BlackPearl 3.3 release
N	December 2016	Updated for the BlackPearl 3.4 release
O	December 2016	Updated for the BlackPearl 3.4.1 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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Contents

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.

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.spectralogic.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 S3 API Reference* provides information on understanding and using the Spectra S3 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.spectralogic.com.

- The *Spectra 12- & 36-Drive Chassis Boot Drive Replacement Guide* provides instructions for replacing a failed boot drive in the gateway.

- The *Spectra 12-, 36- & 45-Drive Chassis Drive Replacement Guide* provides instructions for replacing a failed data drive after the gateway is installed.

- The *Spectra 12-, 36- & 45-Drive Chassis Fan Replacement Guide* provides instructions for replacing a failed fan in the gateway.

- The *Spectra 12-, 36- & 45-Drive Chassis Power Supply Replacement Guide* provides instructions for replacing a failed power supply after the gateway is installed.

- The *Spectra 12-Drive Chassis HBA Replacement Guide* and *Spectra 36-Drive Chassis HBA Replacement Guide* provide instructions for replacing a failed HBA in the gateway.

- The *Spectra 96-Drive Chassis Drive Replacement Guide* provides instructions for replacing a failed data drive in the ArcticBlue™ expansion node.

- The *Spectra 96-Drive Chassis Fan Replacement Guide* provides instructions for replacing a failed fan in the ArcticBlue expansion node.

- The *Spectra 96-Drive Chassis Power Supply Replacement Guide* provides instructions for replacing a failed power supply in the ArcticBlue expansion node.

- The *Spectra 96-Drive Chassis I/O Module Replacement Guide* provides instructions for replacing a failed I/O module in the ArcticBlue expansion node.

USER FEEDBACK

Contact us at (800) 833-1132 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 helps 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.

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 17.
- 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 15.
- If you do not know if the gateway needs an update installed, continue with Check the Current Software Version on page 14.

Required Software Update Order

At certain levels of software, before upgrading to the current version, you must first update to a software package between your currently installed version and the latest version. Use the information below to determine your software upgrade order.

Software Version	Upgrade Order
BlackPearl 1.2.0	You must first upgrade to BlackPearl 1.2.1, then upgrade to the latest version.
BlackPearl 1.2.1 or higher	Upgrade directly to the latest version.

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.
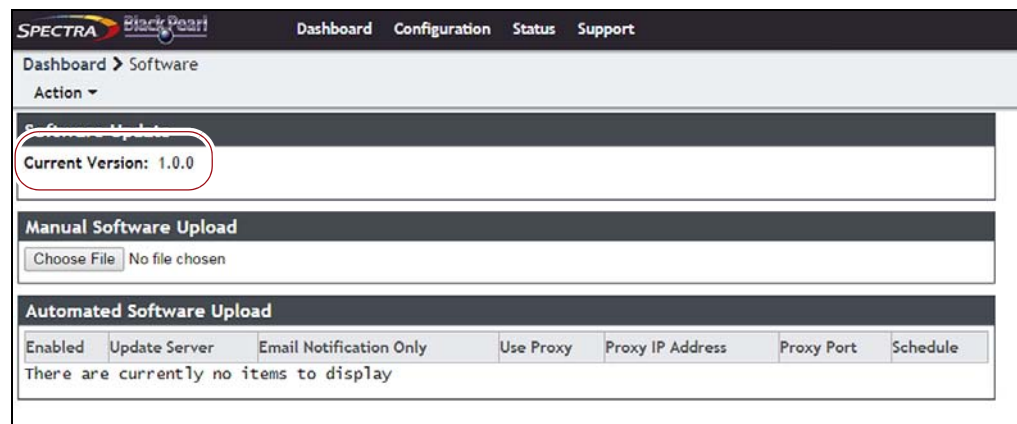
Figure 1 The current BlackPearl software version.

Check the Currently Released Software Version
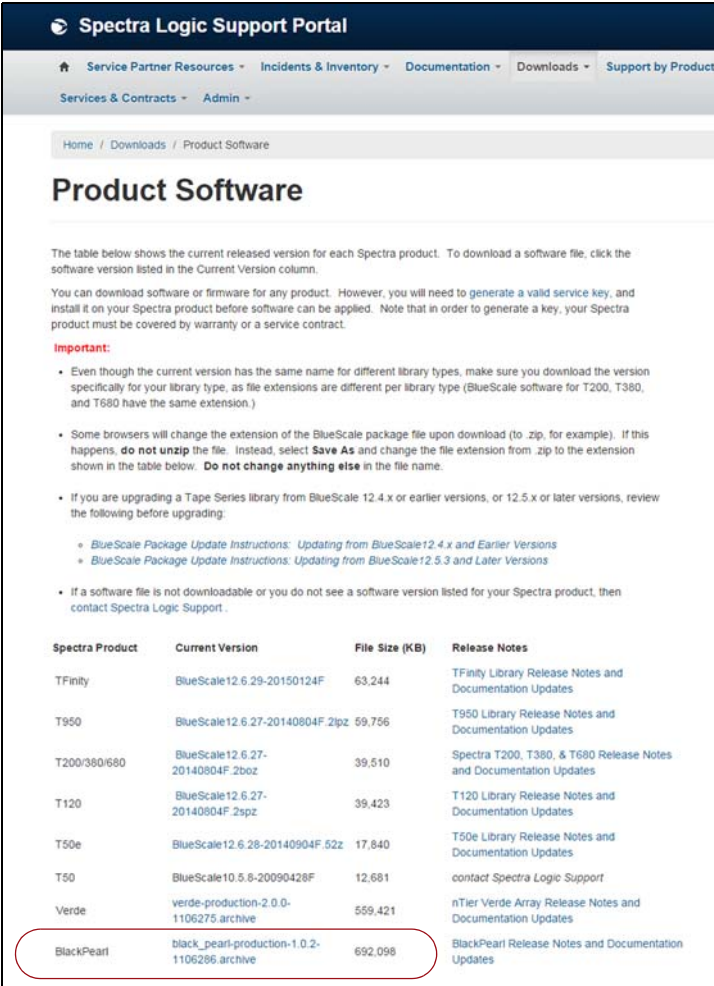
Follow these steps to check the currently recommended BlackPearl software version:

1. Log into your user account on the Technical Support portal at support.spectralogic.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**.

3. 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.

Figure 2 The Product Software screen.

4. 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.

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

2. Select **Downloads ⋯⋮ Product Software**. The Product Software Screen displays.
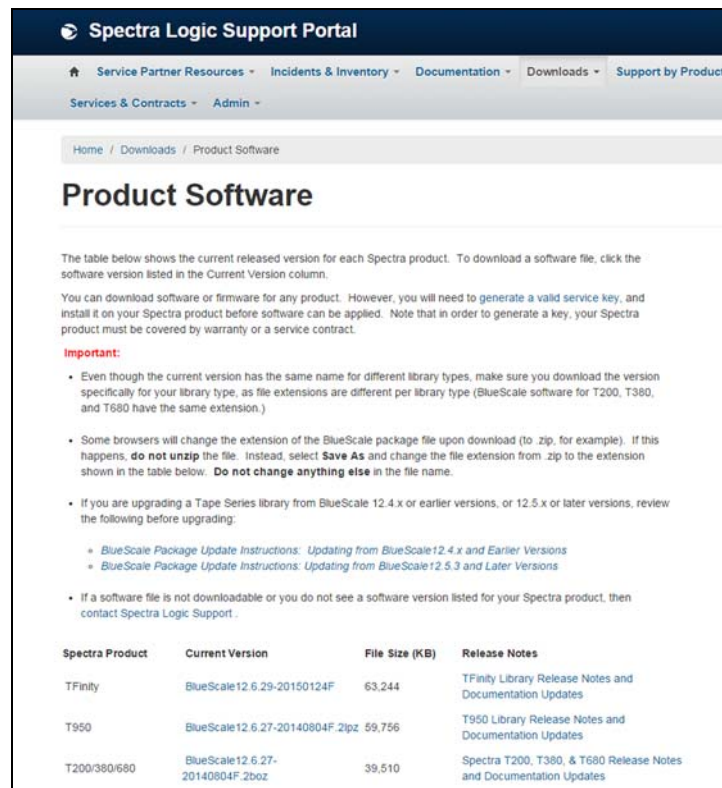
Figure 3　The Product Software screen.

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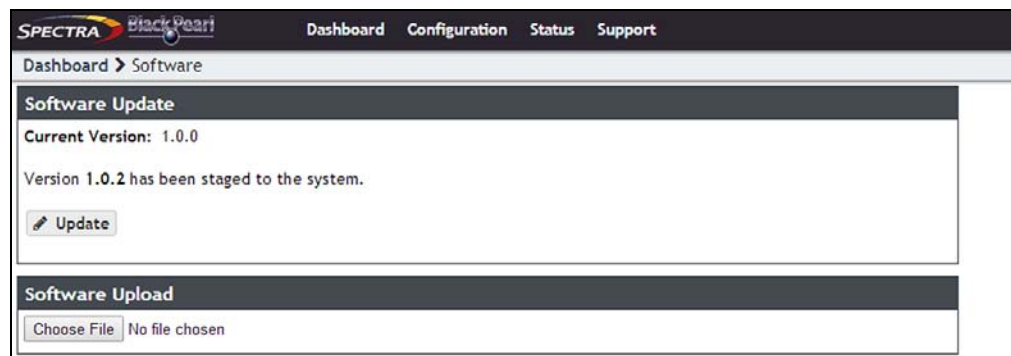
Figure 4　The Software Update screen with a staged software package.

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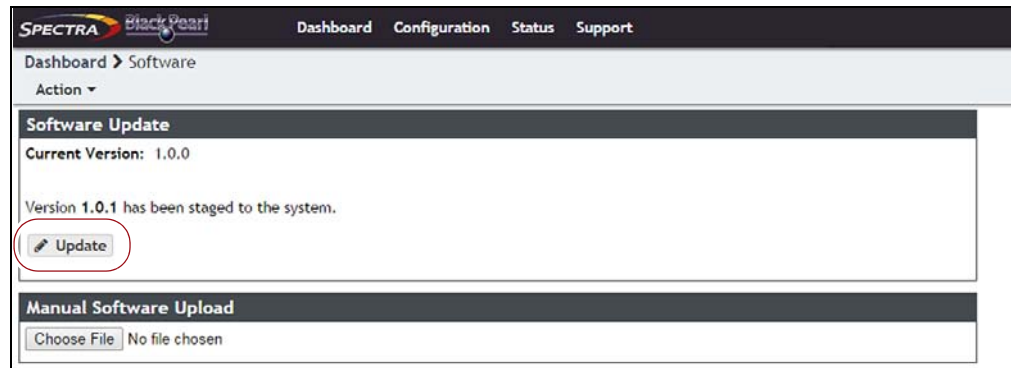
Figure 5 The Software Update screen with a software package staged to the system.

3. Click **Update**. A progress bar shows the progress of the update.
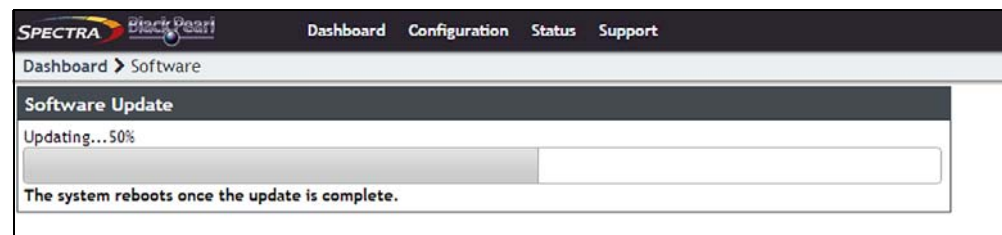
Figure 6 The Software Update screen showing the progress of an update.

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 3.4.1

With this release, replication to Microsoft Azure is now supported. This release also restores data policy response elements that were deleted in BlackPearl 3.4.

BlackPearl 3.4

Enhancements

Cloud-based Replication   The BlackPearl gateway can now replicate data to the Amazon S3 cloud.

> **Note:** The BlackPearl user interface includes screens for configuring replication to the Microsoft Azure cloud. This feature is not currently supported.

Resolved Issues

Issue	Resolution
While restoring data from a gateway to a host computer, if you use the BlackPearl user interface to initiate a download of an object that is queued in the GET job, the file fails to restore through the GET job.	This issue no longer occurs.
When uploading data using multi-part upload, object metadata is not uploaded to the gateway.	Object metadata is now uploaded when using multi-part upload.
When creating an online disk pool, the pool does not immediately display in the BlackPearl user interface.	This issue no longer occurs.
When editing a bucket, if a user changes the data policy of the bucket to one with a conflicting replication rule, the change is incorrectly saved.	It is no longer possible to change a bucket's data policy to a policy with a conflicting replication rule.
When importing a storage pool, the options to verify the data on the pool either before or after import, are ignored.	The gateway now performs the selected verification(s) when importing a storage pool.
When an object with a question mark (?) in the object name is replicated to another gateway, the object name is truncated after the question mark.	This issue no longer occurs.
When either the cache or database on the BlackPearl gateway is nearing maximum capacity, no email is sent to the user to inform them of this condition.	Emails are now sent to the user to inform them of the condition of the cache or database.

Known Issues

Issue	Workaround
If a BlackPearl gateway is powered off for longer than the S3 data path backend auto-activation timeout value, when the gateway powers on, the auto-activation timeout value is cleared, and the data path backend is not activated.	You must start the data path backend manually. Using the BlackPearl user interface: **1.** Select **Configuration ⋯⫶ Services**. **2.** Double-click the S3 service. **3.** Select **Action ⋯⫶ Activate Data Path Backend**.
When verifying data on a storage pool, if the verification encounters an error, the error message is not displayed in the verification results.	When pool verification completes, view the details of the storage pool and inspect the display for any verification errors and messages relating to the error(s).
When replicating a bucket to an S3 target, if the target's configured suffix and prefix are long enough to push the resulting name of the bucket over 63 characters, the replication fails.	When replicating data to the Amazon S3 cloud make sure that when combined, the Cloud Bucket Prefix, Cloud Bucket Suffix, and bucket name do not exceed 63 characters.
When a user creates a bucket on a BlackPearl gateway using a data policy that is configured to replicate deletes on an S3 AWS target, if the bucket name already exists on the S3 AWS target and is owned by another user, attempts to transfer data to the cloud bucket fail, although data is transferred to the local bucket on the BlackPearl gateway. As the data cannot be PUT to the S3 AWS target, the PUT job never completes. Additionally, after this occurs, the bucket cannot be deleted from the local BlackPearl gateway.	Edit the affected bucket's data policy so that it is not configured to replicate deletes. The bucket can now be deleted. Outstanding PUT jobs to the bucket that do not complete need to be manually deleted. If desired, after the bucket is deleted, edit the data policy again to re-enable replicate deletes.

BlackPearl 3.3

Enhancements

40 Gigabit Ethernet This release supports an optional dual port, 40 Gigabit Ethernet (40 GigE) network interface card to provide high-speed data connections between hosts and the BlackPearl gateway.

System Name Restriction This release changes the rule for system names. The gateway now only allows letters, numbers, and the hyphen character (-) in the system name.

Notes:
- If your gateway is using firmware BlackPearl 3.2.2, or earlier, there are no character restrictions on system names. However, Spectra Logic recommends limiting system names to letters, numbers, and hyphens to maintain compatibility with the RFC 1123 standard.

- The gateway does not change previously configured system names using special characters when upgrading to BlackPearl 3.3, or later.

Resolved Issues

Issue	Resolution
Selecting a data policy for the database backup without first configuring a database schedule fails.	This issue no longer occurs.
When creating or editing a data policy, if you **Add** a data persistence rule and then immediately **Remove** it, the gateway creates an incomplete data policy and closes the Data Policy dialog box.	This issue no longer occurs.
When editing a bucket in the BlackPearl user interface to create a bucket ACL rule for a specified user, the gateway may also create a global ACL rule for the user.	This issue no longer occurs.
When you configure two BlackPearl gateways in a bidirectional replication setup and configure them to replicate users, when the S3 Secret Key is updated for a user on one gateway, this change is not replicated to the other gateway.	S3 Secret Key changes now replicate correctly.
If the BlackPearl system name is too long, database backups fail.	The gateway now automatically truncates the system name so that the overall database bucket name is fewer than 63 characters.
Manually refreshing the S3 Jobs screen in the BlackPearl user interfaces causes the listed bucket names to disappear.	This issue no longer occurs.

Issue	Resolution
If a tape is write-protected after the library writes data to it, and the you later delete the data from the BlackPearl gateway, the gateway attempts to format the write-protected tape every 15 minutes.	When a tape cartridge is loaded into a drive, the gateway checks the write protection status and no longer attempts to format a write protected tape.
If a replication job initiates on a source gateway, but the target gateway is powered off for more than 24 hours, the job fails to replicate when the target is made available again.	Replications now complete successfully when power is restored to the target if the target was powered off for more than 24 hours.
Attempting to clear a suspect blob on a tape using the API fails, but reports as successful.	An error message displays when the command to clear suspect blobs fails.
When creating a new storage domain, if you specify a value for **Days to wait before verifying data**, the gateway ignores this value and instead verifies data immediately after writing data to the tape.	Tapes now verify when the specified number of days pass.
When importing tape(s) written by a BlackPearl gateway into a different gateway, an error may occur.	Tapes written by one gateway now correctly import into a second gateway.
You cannot change the data policy of a database backup bucket after creating the bucket.	You are now able to change the data policy of a database backup bucket after creating it.
ArcticBlue expansion nodes can incorrectly indicate a power supply has a status of "critical", when there is no issue with the power supply.	This issue no longer occurs.
If the system boot drives are transferred from one gateway to another, after the new gateway completes the power-on sequence, the previously configured IP addresses for the management and data ports reset to their default values.	Management and data port setting now use the previously configured settings.
If the Replicated System Configuration feature fails to copy the system configuration from the boot drives to a storage pool, an error message displays every 5 minutes.	Error messages now display every 45 minutes.
Changing the data policy of a bucket configured for replication to another data policy with incompatible replication rules is incorrectly allowed.	This action is now correctly prohibited.
A FreeBSD security check runs every night on all mounted file systems. Under certain circumstances, this may consume 100% of the CPU processing power, and slows the system.	This security check is not needed and no longer runs once per day.
The details screen for a storage domain indicates the status of Scheduled Auto Ejects as "No", even when scheduled ejects are configured.	The storage domain details screen now correctly shows the status of Scheduled Auto Ejects.

Issue	Resolution
If a data policy is configured with an Access Control List, the ACL information does not display on the details screen for the data policy.	The data policy details screen now correctly shows ACLs configured for the data policy.
If the front bezel of the gateway fails to establish full connection with the gateway, the gateway may lock up.	This issue no longer occurs.
A software deadlock may occur if a tape drive requests cleaning, but there is a data tape currently in the drive that is needed for an active PUT job.	This issue no longer occurs.

Known Issues

Issue	Workaround
If you set a system name of greater than 63 characters, the resulting display on the Hardware screen forces some elements to display off screen.	Spectra Logic recommends setting a system name with fewer than 63 characters.
When configuring a data connection using DHCP for a 40 GigE network interface card with copper SFPs, an error message displays indicating that the configuration failed.	Ignore the error message. Although a 40 GigE NIC with copper SFPs takes longer to obtain a DHCP address than the gateway expects, the process completes correctly. Wait approximately 20-30 seconds after configuring the NIC to use DHCP, and then manually refresh the web interface. The DHCP address for the NIC displays.

BlackPearl 3.2.2

Enhancements

Logging Support Multiple fixes to the BlackPearl gateway code allow for improved logging.

Tape Media Verification Tape media verification is now available as an on-demand function of the BlackPearl user interface.

Resolved Issues

Issue	Resolution
If an error is detected during a media verification, the error message displayed does not provide sufficient information to resolve the error.	The error message now directs the user to contact Spectra Logic Technical Support for assistance.
Data integrity verification on tape media takes much longer than expected.	The procedure to verify data on tape media has been optimized and completes much faster.
After a second tape inspection, when the BlackPearl gateway writes data at the very end of the tape, the gateway incorrectly attempts to write data past the Programmable Early Warning marker on a tape cartridge. The write operation fails, but the gateway writes an index on the tape. Because of the new index marker, the gateway considers the entire write operation successful when no blobs were actually written to tape.	This no longer occurs.

BlackPearl 3.2.1

Resolved Issues

Issue	Resolution
After upgrading to BlackPearl 3.2.1, database backups succeed but generate a warning because the gateway requires the database backup data policy to be configured with specific options.	Use the following instructions to remedy the issue. **4.** On the Buckets screen (**Configuration ⋯⁖ Buckets**), open the database backup bucket and **Download** the latest backup, as well as any other backups you want to keep. See Download an Object in the *BlackPearl User Guide* **5.** If desired, use the Deep Storage Browser or a Spectra S3 client to copy the database backups to another bucket. **6.** On the Database Backup screen, **Delete** all database backups. **7.** On the Buckets screen, **Delete** the database backup bucket. **8.** Create a new database backup storage domain with Secure Media Allocation enabled. Configure the other options as desired. See Create a Storage Domain in the *BlackPearl User Guide*. **9.** Create a new database backup data policy with Blobbing disabled. Configure the other options as desired. Add the storage domain created in Step 8 as a member of the data policy. See Create a Data Policy in the *BlackPearl User Guide*. **10.** On the Database Backup screen (**Configuration ⋯⁖ Database Backup**), select **Edit Data Policy**, and select the data policy created in Step 9. **11.** Select **Start Immediate Backup**. **Note:** If you ever restore to a database backup made before the above changes were made, you will need to repeat the process described here to enable database backups again.
In some circumstances, when using a data policy configured to use "Keep Latest" object versioning, the BlackPearl returns an error when attempting to GET the latest version of a file.	This issue no longer occurs.
When a BlackPearl gateway is rebooted, the gateway fails to release tape drive reservations and subsequently does not use those drives for data transfer.	Tape drive reservations are released when the gateway is rebooted.

Issue	Resolution
When using a legacy client, such as the Avid plugin, with the BlackPearl gateway, AllocateJobChunk calls made on aggregating jobs fail.	The gateway now processes the job and issues a Warning.
ArcticBlue expansion nodes connected to a 220V power supply may display a critical status due to a hardware event.	The hardware issue is addressed and the event is now reported as an Informational message.
If a disk drive is added to the BlackPearl gateway, the BlackPearl web interface does not display any details for that drive, or attempt to use the drive as a hot spare, until the gateway is rebooted.	Drives added to the BlackPearl gateway are now recognized immediately.

Known Issues

Issue	Workaround
When creating or editing a data policy, if you **Add** a data persistence rule and then immediately **Remove** it, the gateway creates an incomplete data policy and closes the Data Policy dialog box. **Note:** This issue is fixed in BlackPearl 3.3.	Edit or delete the incomplete data policy on the Advanced Bucket Management screen.
The details screen for a storage domain indicates the status of Scheduled Auto Ejects as "No", even when scheduled ejects are configured. **Note:** This issue is fixed in BlackPearl 3.3.	To determine the status of scheduled auto ejects for a storage domain, on the Advanced Bucket Management screen, select the storage domain and select **Action ⋯⋗ Edit**. The Edit Storage Domain dialog box displays showing the status of scheduled auto ejects for the storage domain. Click **Cancel** to close the dialog box.
For Spectra S3 commands that use the EntirelyInCache parameter, after a PUT or GET job completes, is cancelled, becomes inactive, or you are attempting to get information for all jobs, the status of EntirelyInCache always reports as "FALSE", even when the parameter should not be included.	There is no workaround for this issue. The only way to determine the actual value of the parameter is to get the status of the job while it is active.
If you delete all the data from the cache that exists entirely on a write-protected tape, the gateway attempts to reclaim this tape, but fails as the tape is write-protected. This results in an endless loop.	Eject write-protected tapes before deleting all objects contained on the tape from the cache.
When creating a new storage domain, if you specify a value for **Days to wait before verifying data**, the gateway ignores this value and instead verifies data immediately after writing data to the tape. **Note:** This issue is fixed in BlackPearl 3.3.	Tapes are inspected immediately with a priority of "background", which allows the gateway to pause tape inspection when higher priority jobs are processed. To disable tape auto inspection, edit the storage domain and leave the **Days to wait before verifying data** field blank.

BlackPearl 3.2

Enhancements

BlackPearl Replication A BlackPearl gateway can now replicate data sent to it to another BlackPearl gateway for enhanced data security, data availability, and disaster recovery.

Resolved Issues

Issue	Resolution
If the processes running on the BlackPearl gateway fail to shutdown within 90 seconds of the user selecting to reboot or shutdown the gateway, the reboot or shutdown operation is canceled.	This issue no longer occurs.
After initiating an S3 job, the user that created the job is unable to see the job in progress using a GetJobs API call.	Users are now able to see S3 jobs they create.
If a user submits a bulk GET job that requires more than one chunk and uses the IN_ORDER parameter, only the blobs in the first chunk are available for processing.	This issue no longer occurs.
If the BlackPearl gateway generates an email that references a tape cartridge, the barcode of the tape cartridge does not display.	The barcode is now displayed in email messages when a tape cartridge is referenced.
In rare circumstances, it is possible for a user other than the "Spectra" user to own the bucket used for database backups.	This issue no longer occurs.
If the BlackPearl gateway loses power while it is writing data to tape, the affected tape cartridge cannot be imported to a foreign BlackPearl gateway.	This issue no longer occurs.
When ejecting a tape cartridge from a BlackPearl gateway connected to a Spectra T50e tape library, the gateway incorrectly posts that the move to the library Entry/Exit port failed, when the move was successful.	This issue no longer occurs.
When ejecting a tape cartridge from a BlackPearl gateway connected to a Spectra T50e tape library, the tape library can take up to 8 minutes to move the tape to the Entry/Exit port.	Tape ejection speed for a BlackPearl gateway using a T50e library is improved.
Editing the name of a completed Spectra S3 job in the BlackPearl user interface generates an error message.	It is no longer possible to edit a completed job.

Issue	Resolution
VERIFY jobs are not processed if the job queue only contains VERIFY jobs.	VERIFY jobs are now processed correctly when the job queue only contains VERIFY jobs
If you select end-to-end CRC for the data policy to be used for database backups, the backups fail to copy to tape media.	This issue no longer occurs.

Known Issues

Issue	Workaround
When generating a report on the BlackPearl gateway, the report does not contain any information about storage pools.	Use the Advanced Bucket Management screen in the BlackPearl user interface to see the status of storage pools.
A reservation conflict associated with a tape drive causes the BlackPearl gateway to display the tape cartridge associated with the error as a "Serial Number Mismatch".	The wrong error message is displayed for this error. The error should instead read "Tape drive reservation error". There is no serial number mismatch for the affected tape cartridge.
When you configure two BlackPearl gateways in a bi-directional replication setup and configure them to replicate users, when the S3 Secret Key is updated for a user on one gateway, this change is not replicated to the other gateway. **Note:** This issue is fixed in BlackPearl 3.3.	You must manually change the S3 Secret Key for the user on both gateways.
After upgrading to BlackPearl 3.2, database backups fail because the gateway requires the backup data policy to be configured with specific options.	**Note:** The workaround for this issue was updated with the BlackPearl 3.2.1 release. Please see the BlackPearl 3.2.1 Resolved Issues on page 24 for an updated workaround.

BlackPearl 3.0.1

Enhancements

Logging Support Multiple fixes to the BlackPearl gateway code allow for improved logging in many cases.

Resolved Issues

Issue	Resolution
If there are multiple blobs per object and some of the blobs are written to tape before the object is written to cache, the creation date may not be written for all of the blobs. This causes tapes to display a Blob Read Failure on the tape Management screen, and causes failures during a verification job of the affected data.	This issue no longer occurs.
A user can run a verify job on a tape cartridge with a state of BlackPearl_Foreign.	Verify jobs can only be run on tapes with a state of Normal.
When importing a tape that contains an object that spans multiple tapes, the import fails if the BlackPearl gateway does not detect an HTTP checksum or creation date for the object on tape, because that information is contained on a different tape that is not yet imported.	The HTTP checksum and object creation date are now optional fields when importing tapes.
Manual changes to core files on the BlackPearl gateway may cause the gateway to ignore new versions of the changed files during an Automated Software Upgrade.	This issue no longer occurs.
Under certain circumstances, during a Verify job, if all the attributes to be verified are optional and not written to tape, then the Verify job incorrectly reports that the files on tape have no attributes.	This issue no longer occurs.
When an object spans multiple tapes but not all tapes containing the object are imported, a verify job of the object fails.	This issue no longer occurs.

Known Issues

Issue	Workaround
The MIB file downloaded from the SNMP service screen applies to the Spectra Verde array, not the BlackPearl gateway.	Contact Spectra Logic Technical Support (see Contacting Spectra Logic on page 7).

BlackPearl 3.0

Note: The BlackPearl software revision number has jumped from version 1.2.1 to version 3.0. There were no interim releases between the two versions.

Enhancements

Advanced Bucket Management Advanced Bucket Management allows the user to configure storage domains and set data policies and data persistence rules for each bucket, which greatly expands the usability options available to users. See the *Spectra BlackPearl User Guide* for more information on Advanced Bucket Management.

ArcticBlue Expansion Node Availability The ArcticBlue expansion node accommodates up to 96 shingled magnetic recording (SMR) disk drives. Up to eight ArcticBlue expansion nodes can be connected to a BlackPearl 4U gateway, which allows the gateway to use the ArcticBlue expansion nodes as storage domain targets. Up to two ArcticBlue expansion nodes can be connected to a BlackPearl 2U gateway.

Disk-Based Storage Disk partitions are collections of one or more storage pools, which are configured on either ArcticBlue expansion nodes, or BlackPearl expansion nodes, connected to the BlackPearl gateway. Disk partitions are specified in storage domains as storage targets. There are two types of disk partitions; nearline storage, which is provided by an ArcticBlue expansion node, and online storage, which is provided by a BlackPearl expansion node.

Error Message Improvements A number of error messages were enhanced to provide better information when an error occurs.

LTO-7 Support The BlackPearl gateway now supports tape libraries configured with LTO-7 drives.

Security Updates The BlackPearl gateway's FreeBSD operating system includes all security updates as of February 11th, 2016. For a complete list of the security updates, see the Knowledge Base article "FreeBSD Security Updates in BlackPearl".

Resolved Issues

Issue	Resolution
The BlackPearl user interface may fail to display the amount of data transferred to tape for jobs that have a status of "Completed".	The BlackPearl user interface now correctly shows the amount of data written to tape for completed jobs.
When using a Spectra S3 client, if you specify the checksum for a PUT job as "CRC", the BlackPearl gateway incorrectly issues an HTTP 500 error.	This issue no longer occurs.

Issue	Resolution
On new installations, the management port is not configured with the default IP address of 10.0.0.2 and instead reports that no cable is plugged into the port, even when a cable is installed.	This issue no longer occurs.
On the Tape Management screen, the Last Modified and Last Accessed fields use different time stamp formats.	The fields now use the same time stamp format.
If a tape library connected to a BlackPearl gateway is power-cycled while there are tape cartridge(s) in the tape drive(s), the BlackPearl gateway database becomes out of sync with the tape library database, and any tape drives that contained tape cartridges when the library was rebooted are set to an Error state in the BlackPearl user interface.	This issue no longer occurs.
The BlackPearl user interface reports that "Performance is not available" when **Tape Drives** is selected on the Performance screen.	The BlackPearl user interface now displays the performance of tape drives.
The BlackPearl gateway occasionally displays tape partitions with blank Name and Serial Number fields.	This issue no longer occurs.
The BlackPearl gateway incorrectly reports an RPM value for the solid state drives installed in the gateway.	The RPM field was removed for solid state drives.
When a tape library connected to the BlackPearl gateway experiences a move failure due to a tape library robotics problem, the BlackPearl gateway emails a warning message about the move failure once per minute.	Only one message is emailed warning of a move failure.
A user configured on the BlackPearl gateway is able to cancel the in-progress jobs of another user, despite not being granted permission by the user initiating the job.	Users must now be granted job permission on a per bucket basis to be able to cancel an in-progress job.
Spectra Logic library based 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.	The BlackPearl gateway now allows cleaning tapes to be placed in the single data partition present in T50e and T120 libraries, and the gateway performs drive cleanings when needed.
Log files on the BlackPearl gateway may grow in size such that an ASL file which includes these logs is too large to email.	This issue no longer occurs.

Issue	Resolution
When a storage domain is configured with the Capacity option, under certain circumstances, the BlackPearl gateway may fail to use a tape for a PUT job when there are multiple tapes available, but no single tape with enough space for the entire job.	This issue no longer occurs.
When the gateway cache is saturated with data, writes to tape may stall for 30-45 minutes while the gateway reclaims cache space.	The gateway now performs cache reclamation as a background process which no longer disrupts moving data from cache to tape.
On the Buckets screen in the BlackPearl user interface, the filter function does not correctly filter results.	This issue no longer occurs.
When processing a Get Object request, the gateway displays the MD5 checksum information twice.	This issue no longer occurs.
During an import of a BlackPearl_Foreign tape, if the tape drive experiences an error reading the tape, it continuously generates drive dump files.	The drive now generates a maximum of 6 tape drive dump files when an error is detected.
If two parameters of the same item have the same definition (for example, if the name and serial number for a partition are the same), an error occurs when searching for the item using that definition.	This issue no longer occurs.

Known Issues

Issue	Workaround
If a tape storage partition is configured in capacity mode, during a PUT job the BlackPearl gateway may incorrectly determine there is more free space available on a tape than what is actually available. The PUT job fails.	Try the PUT job again.
When upgrading BlackPearl software, the system fails to send "upgrade succeeded" emails to configured mail recipients.	Check the **Software** page to confirm the upgrade was successful.
Drives in an ArcticBlue expansion node regularly power down when not in use. If the BlackPearl gateway is rebooted when the ArcticBlue drives are in this state, an error message is generated for each drive in the chassis stating that the drive needs to be replaced.	Ignore the warning messages after a BlackPearl gateway reboot.

Issue	Workaround
Due to a timing issue, after creating an online storage pool the new pool does not appear in the list of available storage pools when creating a new disk partition.	Wait a few moments after creating an online storage pool before assigning it to a new disk partition.
If you configure an automatic database backup schedule with a data policy configured to copy the backup to nearline storage pools, an error message is incorrectly generated stating that the database backup cannot be copied to the nearline storage pool.	Ignore the message. The database backup copied successfully to the nearline storage pool.
If you use Amazon S3 PUT commands to transfer data to a tape cartridge formatted to use LTFS, when the data is copied to tape it results in several thousand checkpoints being created on the tape. If a checkpoint mismatch occurs, the recovery operation takes many hours to complete.	Wait for the recovery operation to complete, or contact Spectra Logic Technical Support for assistance. Consider using Spectra S3 PUT commands to avoid this issue in the future.
If there are no additional tapes that can be allocated to a storage domain, the BlackPearl gateway generates an error message and logset every 4 minutes.	Add more tape cartridges to the storage domain.
When using the Edit Pool screen to expand the size of the BlackPearl cache, the system may incorrectly use drives installed in ArcticBlue expansion nodes.	To correctly expand the cache, from the menu bar select **Configuration ···⫶ Advanced Bucket Management**. The Advanced Bucket Management screen displays. Select **Action ···⫶ Manage Cache and Online Disk**. Use the Change Cache Configuration wizard to expand the cache.
When editing the SNMP host list, the minus sign always deletes the last host listed.	If you need to delete a host that is not at the bottom of the list, you must delete all the hosts listed below the host you want to delete.
When cleaning tapes are stored in the data storage partition and not in a cleaning partition, those cleaning tapes are displayed on the BlackPearl user interface dashboard page as allocated capacity.	Ignore this display. Cleaning cartridges are not used to store data information.
The Tape Management page of the BlackPearl user interface does not allow you to cancel a Format or Format All operation in progress.	Either use an Spectra S3 client to stop the format operation (see the *Spectra BlackPearl S3 API Reference)*, or contact Spectra Logic Technical Support (see Contacting Spectra Logic on page 7).
When creating a new user and selecting options for Global Access Control Lists, the Global ACL options are not generated when the new user is created.	After creating a user with Global ACL options, select the user from the list and select **Action ···⫶ Edit**. The Edit User window displays. Select the Global Access Control List options again, and click **Save**. The Global ACL options are created.

Issue	Workaround
Cleaning tapes present in a data partition under the control of a BlackPearl gateway are not detected as cleaning tapes.	Cleaning tape barcodes must start with "CLN" in order to be detected as cleaning tapes when present in a data partition.
When assigning a data policy to a database backup, the operation fails if the BlackPearl system name is too long. **Note:** This issue is fixed in BlackPearl 3.3.	Limit the BlackPearl system name to 64 characters or fewer.
After upgrading the BlackPearl software, the bezel Visual Status Beacon light returns to its default color.	In the BlackPearl user interface, select **Status ⋯⋗ Hardware**. The Hardware screen displays. Select **Bezel**, and then use the color slider to select the desired color for the Visual Status Beacon.
When removing the front bezel from the BlackPearl gateway, an error message is incorrectly generated indicating a drive is missing from slot 1.	Ignore the message. There is no data drive in slot 1. That slot is reserved for the Visual Status Beacon control sled.
If you turn on the front bezel beacon feature, the Visual Status Beacon fails to blink blue as designed.	When the beacon feature is activated, the status LED on all drives installed in the gateway blinks red. After activating the beacon feature, use the blinking red drive lights to identify the gateway.

BlackPearl 1.2.1

Resolved Issues

Issue	Resolution
If a tape drive experiences an error while a BlackPearl gateway is writing to a data cartridge, the BlackPearl gateway may stop writing data to the tape. Subsequently, a core file from the operating system is generated.	This issue no longer occurs.
When issuing a `Get Jobs` request immediately after completing a `Bulk Get` request, the `Get Jobs` request may fail.	This issue no longer occurs.
Completed and canceled job lists can grow exponentially and cause the Spectra S3 service to fail.	The maximum active job count was reduced from 5000 to 1000 to prevent the Spectra S3 service from failing as the completed and canceled jobs list grows in size. In addition, customers are urged to use the Spectra S3 bulk commands rather than native S3 commands. The lower maximum active job count will catch overly abusive native S3 workloads more quickly.
If a tape drive fails during a write operation, resulting in a Data Checkpoint Failure, the BlackPearl gateway initiates a recovery operation to recover the tape cartridge. If the data on the tape cartridge was written with small jobs (< 4 GB), the recovery operation may time out before the verify process completes.	The time out value was increased to 12 hours to lessen the chances that the recovery operation times out.

BlackPearl 1.2

Enhancements

BlackPearl User Interface Updates to the BlackPearl user interface enhance the functionality and usability of the interface.

Resolved Issues

Issue	Resolution
If you use the tape library BlueScale interface to move a tape cartridge from one partition to another, the gateway reports that the tape is still being used by the initial partition. If the tape cartridge is accessed, the gateway may lock up.	The tape partition ID is updated on the BlackPearl gateway when using the BlueScale interface to move tape cartridges.
If you delete a permanently offline partition using the DS3 API, the states of the tapes associated with the partition are not set correctly. If the tape cartridge is accessed, the gateway may lock up.	This issue no longer occurs.
If a tape inspection or verify operation does not report a tape ID, the system may run slowly until rebooted.	This issue no longer occurs.
If there is a CRC mismatch when reading data from the BlackPearl gateway, the gateway incorrectly issues an HTTP error 307.	The gateway now issues an HTTP error 400 when there is a CRC mismatch.
Rebooting a BlackPearl gateway causes all tapes in the associated tape library to enter the "Pending Inspection" state, and those tapes then need to be inspected by the gateway before use.	This issue no longer occurs.
If you change the BlackPearl cache mode and there are outstanding data storage operations on the data port, unintentional data loss may occur.	The gateway now checks the data port prior to changing the cache mode. If there are active file transfer operations, the cache mode change fails. Cancel all outstanding jobs, stop all traffic to the data port, and retry changing the cache mode again.
Under certain circumstances, the DS3 service may report invalid data about the tape library associated with the gateway. This prevents the gateway from displaying any further updates or changes to the tape library and tape media.	This issue no longer occurs.
After extended use of the gateway, the amount of space the gateway allocates on the cache for each job begins to decrease. Eventually the gateway incorrectly calculates that it is out of space on the cache and any jobs in progress fail.	This issue no longer occurs.

Issue	Resolution
If the BlackPearl gateway runs out of space when receiving data from an nTier Verde NFI, the gateway incorrectly issues an HTTP error 500.	The gateway now issues an HTTP error 400 when it runs out of space during NFI data transfer.
When a tape drive is added to a tape library and the gateway discovers the drive, it incorrectly makes the drive available for use immediately. This results in the system running slowly and may prevent the drive from being successfully added to the gateway's list of available drives.	This issue no longer occurs.
Occasionally, the gateway may report a tape partition with no drives, tape cartridges, or serial number. The tape partition cannot be used.	This issue no longer occurs.
The DS3 Jobs screen in the BlackPearl web interface does not refresh automatically.	The DS3 Jobs screen now refreshes on a fixed interval.
When a client attempts to eject a tape that cannot be ejected, the gateway does not return an HTTP error message.	The gateway now issues an HTTP error 409 when a client attempts to eject a tape that cannot be ejected.

Known Issues

Issue	Workaround
If a tape cartridge fails inspection and enters the "Inspect Failed" state, further attempts to inspect the tape cause the state field to temporarily show no entry, before displaying the "Inspect Failed" state again.	Contact Spectra Logic Technical Support to resolve this issue (see Contacting Spectra Logic on page 7).
The BlackPearl web interface may fail to display the amount of data transferred to tape for jobs that have completed transferring data to the cache. **Note:** This issue is resolved in the BlackPearl 3.0 release.	Use a request handler in a DS3 client to determine the physical placement of data on tape.
When using a DS3 client, if you specify the checksum for a put job as "CRC", the BlackPearl gateway incorrectly issues an HTTP 500 error. **Note:** This issue is resolved in the BlackPearl 3.0 release.	There is no workaround for this issue.

BlackPearl 1.1.1

Enhancements

Stability Changes to the BlackPearl software increase the stability of the gateway.

Resolved Issues

Issue	Resolution
If an error occurs when running the **Online All Tapes** command, the error message disappears from the interface before it can be read.	The error message display now persists in the web interface until closed.
If you attempt to delete a user who is the owner of one or more buckets, the deletion fails and no error message is displayed.	The web interface now indicates that the user cannot be deleted while it is the owner of a bucket.
When attempting a BULK GET command on objects that do not exist on the gateway, an HTTP 500 error incorrectly appears.	Attempting a BULK GET command on an object not present on the gateway now correctly returns an HTTP 400 error.
If you change the port setting of the DS3 Server prior to upgrading to BlackPearl 1.1, that change is lost after the upgrade.	The DS3 Server port setting is maintained through the upgrade.
Data written to a BlackPearl gateway with a checksum specification of CRC32 is incorrectly computed with a checksum of 64 bits.	Specifying a checksum of CRC32 now correctly computes the checksum with 32 bits.
Large GET or VERIFY jobs will incorrectly attempt to access tapes that are not in a "Normal" or "Managed" state.	This issue no longer occurs.
Under rare circumstances, an error may not be logged in the system when it occurs.	This issue no longer occurs.
It is possible to upgrade the BlackPearl software on a gateway while the system is processing data storage requests.	The system now waits until the current job is complete, and then prevents other jobs from starting until after the upgrade is complete.
If you use the BlueScale library interface to move a tape from a storage slot to an EE slot, or vice versa, the BlackPearl gateway cannot update the status for the tape.	Tapes in this state transition to the **Pending Inspection** state, and must be manually inspected as described in the *User Guide*.
The Chelsio 10 GigE card in the BlackPearl gateway sometimes experiences intermittent data transfer problems due to packet loss.	New firmware for the Chelsio 10 GigE cards is included in the BlackPearl 1.1.1 release.
With the bezel attached to a gateway, after a certain period of time, a user is unable to log into the BlackPearl web interface. Data transactions are not affected.	This issue no longer occurs.

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. **Note:** This issue is resolved in BlackPearl 3.0.	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 7).
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 *BlackPearl User Guide* 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. **Note:** This issue is resolved in BlackPearl 3.0	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
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. **Note:** This issue is resolved in the BlackPearl 1.1 release.	To delete the user, you must first delete all buckets that are owned by the user, and then delete the user.
After the initial setup of the gateway, the BlackPearl user interface does not display associated tape drives on the Hardware screen.	Using the tape library touch screen, move any tape cartridge to any available slot in the partition as described in your library's *User Guide*. After several minutes the BlackPearl Hardware screen correctly displays the tape drives.
If a tape cartridge causes a SCSI Medium Error to occur in the tape library, the BlackPearl gateway stops communicating with the library.	Contact Spectra Logic Technical Support (see Contacting Spectra Logic on page 7).
The S3 Cloudberry browser fails to create a folder object.	There is no workaround for this issue.
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.	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.
When using a Brocade 16 Gig switch, the library tape drives may disappear from the Fibre Channel network and the BlackPearl user interface.	Use the following steps to resolve the issue. 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 *User Guide*. 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 *User Guide*.
Downloading an object with a space in the filename through the GUI fails with a 404 error.	Use a DS3 or S3 client to download an object with a space in the filename.

Issue	Workaround
A drive replaced using the *Spectra BlackPearl Drive Replacement Guide* does not automatically begin rebuilding when installed. ⚠️ **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. **Note:** This issue is resolved in the BlackPearl 1.0.1 release.	Contact Spectra Logic Technical Support (see Contacting Spectra Logic on page 7) for instructions on replacing a data drive.

User Guide Updates

The *Spectra BlackPearl User Guide* is current as of the release of BlackPearl 3.4.1.

Spectra S3 API Reference Updates

The *Spectra S3 API Reference* is current as of the release of BlackPearl 3.2.2.

The BlackPearl 3.4.1 software code includes new API commands for Cloud Out. For more information on these, contact Spectra Logic Technical Support (see).

Site Preparation Guide Updates

The *Spectra BlackPearl Site Preparation Guide* is current as of the release of BlackPearl 3.0.

There are no updates for the release of BlackPearl 3.4.1.