SPECTRA RIO MEDIAENGINE

USER GUIDE

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Part Number

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Revision History

Revision	Date	Description
D	June 2020	Updated for Rio MediaEngine 2.1.0 release.
E	June 2021	Updated for Rio MediaEngine 3.1.0 release.
F	October 2021	Updated for Rio MediaEngine 3.2.0 release.
G	January 2023	Updated for Rio MediaEngine 3.4.2 release.
H	December 2023	Updated for Rio MediaEngine 3.5.0 release.
I	May 2024	Updated for Rio MediaEngine 4.0.0 release.
J	February 2025	Updated for Rio MediaEngine 4.1.0 release.
K	September 2025	Updated for Rio MediaEngine 5.0.0 release.

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Contents

Related Publications

The following documents related to the Spectra Rio MediaEngine application are available on the Support Portal website at *support.spectralogic.com*.

- The *Spectra Rio MediaEngine Release Notes* provide the most up-to-date information about the Spectra Rio MediaEngine application, including information about the latest software releases and documentation updates.
- The *Spectra BlackPearl Nearline Gateway User Guide* provides detailed information about configuring, using, and maintaining your Spectra BlackPearl system.
- The *Spectra BlackPearl Release Notes and Documentation Updates* provide the most up-to-date information about the BlackPearl system, including information about the latest software releases and documentation updates.
- The *Rio MediaEngine Partial File Restore Plugin Installation and User Guide* provides information on installing, configuring, and using the PFR plugin.

To view the Rio MediaEngine API documentation after the application is installed:

- If you are on the server where the Rio MediaEngine application is installed:
  - In the Rio MediaEngine user interface, click the **Settings** icon (a gear), and select **System**, then click **API Docs** (see System Screen on page 124).
  - Using a supported web browser, enter `https://localhost:5050/api/viewer/index.html`.
- If you are on a host on the same network as the Rio MediaEngine server, using a supported web browser, enter the IP address for the server instead of '`localhost`' (for example `https://`*xxx.xxx.xxx.xxx*`:5050/api/viewer/index.html`).

Typographical Conventions

This document uses the following conventions to highlight important information:

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 hardware or losing data.

Note: Read text marked with "Note" for additional information or suggestions about the current topic.

What's New

Here is what's new in Rio MediaEngine 5.0:

Spectra Rio MediaEngine Rename

The Spectra RioBroker application has been re-branded as the Rio MediaEngine application, part of the Spectra Rio Media Suite.

User Interface Update

Overhaul of the Rio MediaEngine user interface to reflect the new product functionality and to match user interfaces of other Spectra Logic applications.

Lifecycle Policy Management

The Rio MediaEngine application supports a new Lifecycle policy manager. Users can configure the Lifecycle to archive to multiple storage targets, move archived data to different targets after a fixed amount of time, and remove archived data from storage targets after a fixed amount of time

Improved Archive

When configuring an archive job, the archive wizard now offers users the option to only upload new files.

Improved Security

Numerous improvements to application security.

Improved Database Backup Readme

The database backup readme file now includes the version of PostgreSQL.

Chapter 1 - Spectra Rio MediaEngine Archive Solution Overview

This guide is for installers, administrators, and users of the Spectra® Rio MediaEngine® application in conjunction with a production and archive structure.

OVERVIEW

At its core, Rio MediaEngine is a sophisticated data mover augmented with features that aid in creating, monitoring, managing, and reporting on jobs to store and retrieve data from modern object storage systems. With the adoption of modern object storage systems, legacy middle-ware is no longer required but many of those sub functions are still required. Rio MediaEngine bridges the gap between file based and object based systems and streamlines the overall management and migration of data.

At the heart of the modern storage system provided by Spectra Logic is the BlackPearl™ Converged Storage System, an appliance designed to provide a simple, RESTful interface to a variety of tier 2 storage targets.

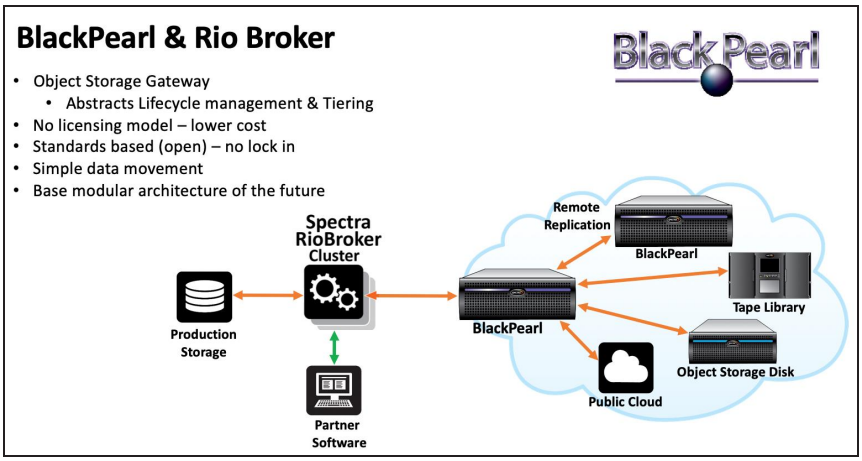

Figure 1 Rio MediaEngine with BlackPearl workflow.

While direct integration with a BlackPearl system is possible, most software clients find the need for a data mover "helper". Rio MediaEngine was developed to meet this need.

Rio MediaEngine provides:

- Job based data movement in or out of Object Storage.
- "Endpoints", or sources, can be NAS, proprietary storage enabled by an installed client, any CIFS or NFS target, FTP servers, or S3 targets, and are generally referenced by predefining the endpoint in the user interface or using a URI.
- "Devices", or targets, which include BlackPearl systems or Spectra Vail nodes for both archive and restore, as well as a variety of other legacy middle-ware options for read-only.
- Job creation, monitoring, and control via the user interface.
- Global search across targets with built in restore.

- An optional Partial-File Recovery (PFR) plug-in enabling indexing as well as PFR restore.
- Speed and High Availability scaling by clustering Rio MediaEngine instances.
- Object browse via the user interface.
- Abstraction of storage targets with a simple immutable interface.
- Off-load of client software from data movement responsibilities.

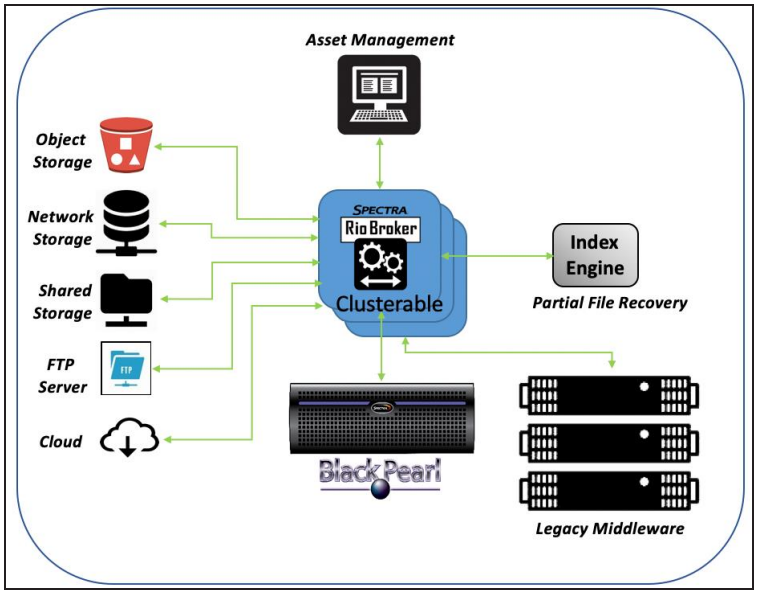

Figure 2 Rio MediaEngine with third party software workflow.

Rio MediaEngine is typically set up either as a VM or on a bare metal stand-alone server. A Rio MediaEngine system is typically set up as either a single instance or a cluster with an odd number of members. Rio MediaEngine instances must be added in pairs to achieve an odd number of cluster instances. The master node is the primary instance to which the clients connect, other Rio MediaEngine nodes act as cluster members which are assigned archive or restore jobs by the master node. The Rio MediaEngine database is shared across the cluster members for protection in the event of the loss of a cluster member. Each cluster member must have the same permissions and configured with the correct mount points so that any cluster member can move data in and out of any endpoint or target.

Rio MediaEngine has its own database that allows addition of any metadata tags either at the point of ingest or at any time thereafter that can be directly accessed by the client, through the user interface, or the RESTful interface.

Benefits include:

- Data movement does not require third party software.
- Ability to move individual files to a BlackPearl system.
- Provides a layer of abstraction over the BlackPearl interface allowing for much easier development.
- Stable API – Changes to the BlackPearl API do not affect the Spectra Rio MediaEngine API.
- Scalable and clusterable.
- Provides a global search across all namespaces and direct restore.
- Single name space for legacy and new systems.
- Provides system monitoring, auditing, PFR, and user metadata for objects.
- Restore archived objects to endpoints outside of legacy data flows in case of emergency, or to support outside workflows and auditing.

Terminology Definitions

Cluster

A set of Spectra Rio MediaEngine application installations that reference each other in order to form a set of servers that scale out for increased data movement with shared databases. The master node assigns jobs to secondary nodes in the cluster. Secondary nodes fail over to each other in the event of a failure.

Using a Rio MediaEngine cluster increases performance. A single Rio MediaEngine node processes ten tasks per job simultaneously. Each additional cluster increases this by ten per cluster.

Device

Any archive target that the Spectra Rio MediaEngine application can use to archive or restore objects, including a BlackPearl system, Spectra Vail sphere, Diva application, FlashNet application, or a Time Based Partial File Restore device. Each device is individually set up as a generic target for the purposes of physical and logical connection.

Namespace

A logical construct that defines a specific archive environment which can include multiple Rio Media buckets on a device target. Any number of namespaces can be defined within the Rio MediaEngine application so as to allow multi-bucket support for archives.

Rio Media Engine Bucket

A logical interface to a device. Each bucket includes the API protocol to interface with its respective device as well as ancillary translation protocols if the stored objects have to be uniquely manipulated for that particular archive system.

REQUIREMENTS

The following sections describe the requirements for using the Spectra Rio MediaEngine application.

Spectra Logic Requirements

A BlackPearl Converged Storage System must be configured and available for network communications with the Spectra Rio MediaEngine application and a Spectra Rio MediaEngine client. See the *Spectra BlackPearl Nearline Gateway User Guide*.

Operating System Requirements

The Spectra Rio MediaEngine application is available for 64-bit Microsoft® Windows® operating systems. The Spectra Rio MediaEngine application was tested on:

- Windows Server 2019 and Windows Server 2022

The Spectra Rio MediaEngine application is also available for RHEL 8.x and Rocky8 Linux operating systems.

Server Requirements

The host server must meet the following requirements to run the Spectra Rio MediaEngine application:

- Six CPU cores each with a minimum speed of 1.3 GHz.
- 64 GB RAM
- 500 GB SSD disk space
- 10 Gb/s network connection to both the BlackPearl system data port(s) and production storage

Version Compatibility

The Spectra Rio MediaEngine application is compatible with BlackPearl software versions 4.1.*x* and 5.*x*.

Supported Browsers

Spectra Logic only supports using Google® Chrome™ version 75 or later, on Windows® and macOS® to access the user interface.

Note: Elements of the Rio MediaEngine user interface may fail to display if the browser window is compressed horizontally.

Best Practices

Performance

Archive and restore performance may be improved by maximizing the transfer rates with the following guidelines:

- Include as many files in a job as possible. This allows the Spectra Rio MediaEngine application to efficiently group the files during the transfer to or from a BlackPearl system.

  Note: The maximum number of files per job is 10,000. Rio MediaEngine 2.1 and earlier are limited to 1,000 files per job.

- Send transfer requests in parallel. The Spectra Rio MediaEngine application can process multiple archive and restore commands in parallel. Clients should send the archive and restore requests as soon as possible and in parallel to achieve maximum transfer performance.

Multi-Node Cluster

If you plan to create a multi-node cluster, it is very important that the IP address of the master node does not change. Setting a static IP address for the master cluster node is highly recommended.

Archive and Restore of Filenames containing Control Characters

If your Media Asset Management (MAM) environment uses control characters in filenames, when the files are archived using the Rio MediaEngine application, the control characters are ignored. Spectra Logic recommends restoring the files using the Rio MediaEngine user interface and then archiving the restored files again to update the MAM database with the new filenames.

Rio MediaEngine with AntiVirus Software

The use of antivirus or scanner software including Cloudstrike™, AVAST®, Norton™, and other antivirus software greatly impacts performance and is not supported for use with the Rio MediaEngine application. The performance impact of such software is not a valid reason for support escalation with Spectra Logic Technical Support. A regular scheduled scan of the Rio MediaEngine server is recommended during off hours. Real time scanning is not supported.

Host System Memory Usage

The Spectra Rio MediaEngine application uses PostgreSQL™ as its database infrastructure.

SPECTRA RIO MEDIAENGINE USER INTERFACE OVERVIEW

The user interface provides browser-based configuration, management, and monitoring of the Spectra Rio MediaEngine application. The following sections describe the common features that appear in all screens in the user interface.

IMPORTANT Do not use the refresh or back buttons on a web browser to navigate the user interface. Any manual changes, such as the number of jobs displayed are lost if the refresh or back buttons are used.

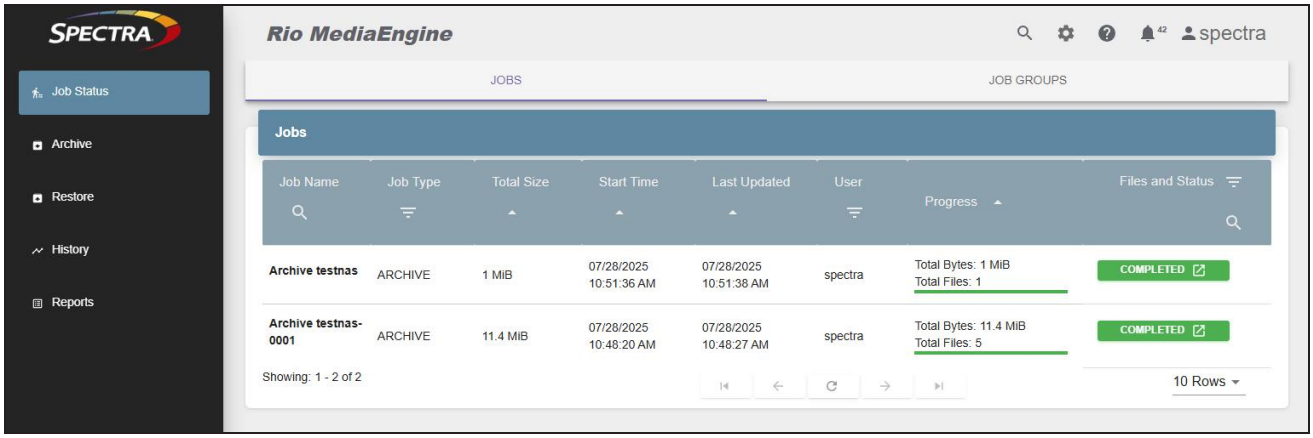

Figure 3 The Job Status screen of the Spectra Rio MediaEngine application user interface.

Taskbar

The taskbar displays along the left edge of each screen. Use the taskbar to access the Job Status, Browse, and Reports screens.

The following table provides an overview of the selections in the taskbar.

Taskbar	Description
Job Status	The **Job Status** navigation link takes you to a screen displaying the status of active, completed, canceled, and failed jobs. See Manage the Spectra Rio MediaEngine Application on page 106 for more information.
Archive	The **Archive** navigation link takes you to a screen that allows you to search endpoints and select files and folders to archive. See Manage the Spectra Rio MediaEngine Application for more information.
Restore	The **Restore** navigation link takes you to a screen that allows you to search for files based on the file's namespace, prefix, metadata, and archive start and stop dates. It also allows you to restore files found during a search. See Manage the Spectra Rio MediaEngine Application on page 106 for more information.

Taskbar	Description
History	The **History** navigation link takes you to the history screen where you can view the number of jobs, files, and bytes processed by the Rio MediaEngine application, as well as data for a specified namespace or date range. See History on page 118 for more information.
Reports	The **Reports** navigation link takes you to a screen that allows you to view all currently configured settings for the Rio MediaEngine application, as well as generating object search reports. See Reports on page 120.

Toolbar

The toolbar displays in the upper right corner of each screen. The following table provides an overview of the selections in the toolbar.

Icon	Meaning	Description
	**Search**	Takes you to the Search screen used to search configured namespaces for files to restore.
	**Settings**	Provides access to the Settings menu which allows you to configure or access the following: • System • Cluster • Devices • Namespaces • Storage Endpoints • Lifecycles • Database Backup • Users • Logs • BlackPearl Dashboard
	**Help**	Takes you to the help system.
	**Messages**	Takes you to the Messages screen. When there are unread messages on the system, the number of messages displays next to this icon.
	**User**	Provides access to the Logout function.

Chapter 2 - Install the Spectra Rio MediaEngine Application

This chapter describes how to install the Spectra Rio MediaEngine application.

INSTALL THE RIO MEDIAENGINE APPLICATION FOR WINDOWS

Use the instructions in this section to install the Rio MediaEngine application for the first time in a Microsoft Windows operating system environment.

Note: To upgrade the application, see the *Rio MediaEngine Application Release Notes*.

Install the PostgreSQL Service

Use the following instructions to download and install the PostgreSQL service. PostgreSQL is a standalone service that the Rio MediaEngine application utilizes. The Rio MediaEngine application requires Postgres version 16.0 or higher.

Note: The PostgreSQL service can be on the same server as the Rio MediaEngine master node or can be installed on a different server. You may want to install the service on a different server for one of the following reasons:

- A PostgreSQL service is already running on the local network, and you want to add the Rio MediaEngine database to the existing service.
- The server does not have enough free disk space.
- You expect performance issues with the PostgreSQL service and Rio MediaEngine application on the same server.
- You want your PostgreSQL service and database on a Linux server.

1. Download the PostgreSQL installer from *https://www.enterprisedb.com/downloads/postgres-postgresql-downloads*.
2. Launch the PostgreSQL service installer.
3. On the Select Components screen of the install wizard, select the **PostgreSQL Server**, **pgAdmin 4**, and **Command Line Tools** components.
4. Finish the PostgreSQL installation wizard.

Allow Remote Connections

If you install the PostgreSQL service on a different server than the Rio MediaEngine master node or if you intend to configure multiple Rio MediaEngine data nodes, you must configure the PostgreSQL service to allow remote connections. If you installed PostgeSQL on the same server as the Rio MediaEngine master node, skip to Add PostgreSQL to the Windows Execution PATH on the next page.

Use the steps below to configure remote connections, otherwise continue with Add PostgreSQL to the Windows Execution PATH below.

1. As a Windows administrator, edit the file found at `C:\Program Files\PostgreSQL\16\data\pg_hba.conf`

   Note: You may need to change the number in red to match the version of PostgreSQL you have installed.

2. Add the following line to the end of the file:
   `host all all 0.0.0.0/0 md5`
3. Save the file and exit the editor.

Add PostgreSQL to the Windows Execution PATH

After installing the PostgreSQL service, you need to add the PostgreSQL `bin` folder to the system PATH. Follow the steps below:

1. Search for and open the **Edit the systems environment variables** option in Windows.
2. On the Advanced tab, click **Environmental Variables...**.
3. In the System Variables window, select the Path line and click **Edit**.
4. In the Edit environment variable window, click **New** then click **Browse**.
5. Navigate to the PostgreSQL install location and select the `bin` folder.
6. Click **OK**.
7. Use the **Move Up** button to raise the PostgreSQL `bin` entry to the top of the list.
8. Click **OK** to close the Environmental Variables window.
9. Click **OK** to save and close all remaining Windows Setting dialogue windows.

Verify the PostgreSQL Service

Spectra Logic recommends verifying your PostgreSQL connectivity before proceeding. Use the steps below:

1. Open a Windows Command Prompt.
2. Enter the following command. You may need to change the values for `host` and `port` based on the values used in your installation.

   ```
   psql --host=localhost --port=5432 --username=postgres
   ```

3. Enter the administrator role password created during the PostgreSQL installation. If you can log in successfully, then connectivity is verified.

Install the Rio MediaEngine Software

Use the following instructions to download and install the Spectra Rio MediaEngine software for a new installation of the Rio MediaEngine application.

1. Contact Spectra Logic Professional Services or Technical Support for access to the Rio MediaEngine installer (see Contacting Spectra Logic on page 3).
2. Start the installation by double clicking `SpectraRioMediaEngineSetup-x.x.x.msi`, where x.x.x indicates the version of the software.
3. Follow the on-screen instructions to install the application.

Note: If prompted by the installer, reboot your Windows system.

Configure the Local System User Account

Unless you specified a user account for the Spectra Rio MediaEngine service during installation, the Rio MediaEngine service is run by the Local System User. For an Avid PAM installation accessing Avid Nexis, no changes to permissions are required.

However, if your file storage uses a Server Message Block (SMB) protocol, such as CIFS, then the Local System User often does not have access to all storage locations or permissions to read from and write to the storage locations. Use the table below to select the privileges to configure for the user running the Rio MediaEngine service.

Note: Consult an IT administrator to configure the Rio MediaEngine service user.

Role	Privileges	Configuration Instructions
A domain administrator **Recommended**	Able to migrate / restore any files and folders on a computer in the domain, with or without a two-way trust relationship.	Configure a Domain Administrator or Backup Operator on the next page.
A local group administrator	Able to migrate / restore files and folders on the local computer to which the local group applies. This must be configured on the Rio MediaEngine server and each source storage location and target storage location.	Configure a Local Group Administrator or Backup Operator on the next page.
A custom owner of files and folders that is not an administrator - **Not Recommended**	Custom privileges on the Rio MediaEngine server, source storage locations, and target storage locations.	Contact Spectra Logic Professional Services to discuss requirements and possible issues. See Contacting Spectra Logic on page 3.

Configure a Domain Administrator or Backup Operator

1. Create a user account for running the Rio MediaEngine service.

   Note: Spectra Logic recommends that you select the **User cannot change password** and **Password never expires** check boxes when creating the new user.

2. Add the new user account as a member of the Domain Administrators or Backup Operators group.
3. Launch the Services app, and configure the "Spectra RioBroker" service to run under the new user.

Configure a Local Group Administrator or Backup Operator

1. Create a User Account for running the Rio MediaEngine Service.

   Note: Spectra Logic recommends that you select the **User cannot change password** and **Password never expires** check boxes when creating the new user.

2. Make the new user account a local Administrator or Backup Operator on the Rio MediaEngine server, all source locations, and all target storage locations.
3. Launch the Services app, and configure the "Spectra RioBroker" service to run under the new user.

INSTALL THE RIO MEDIAENGINE APPLICATION FOR LINUX

Use the instructions in this section to install the Rio MediaEngine application for the first time in a Linux operating system environment.

Note: The instructions below are written for systems running RHEL 9. If you are using a different version of Linux software, the instructions may not match the commands used by your system. Contact Spectra Logic Technical Support for assistance.

Install the PostgreSQL Service

Use the following instructions to download and install the PostgreSQL service. PostgreSQL is a standalone service that the Rio MediaEngine application utilizes. The Rio MediaEngine application requires Postgres version 16.0 or higher.

Note: The PostgreSQL service can be on the same server as the Rio MediaEngine master node or can be installed on a different server. You may want to install the service on a different server for one of the following reasons:

- A PostgreSQL service is already running on the local network, and you want to add the Rio MediaEngine database to the existing service.
- The server does not have enough free disk space.
- You expect performance issues with the PostgreSQL service and Rio MediaEngine application on the same server.

1. For your Linux software and architecture, download version 16 or later of the PostgreSQL service from *https://www.postgresql.org/download/linux/redhat/* .
2. Install the PostgreSQL repository RPM:

   ```
   sudo dnf install -y
   https://download.postgresql.org/pub/repos/yum/reporpms/EL-9-x86_
   64/pgdg-redhat-repo-latest.noarch.rpm
   ```

3. Install the PostgreSQL service:

   ```
   sudo dnf install -y postgresql16-server
   ```

Note: You may need to change the number in red to match the version of PostgreSQL you plan to install.

Configure the PostgreSQL Service

1. Initialize the database:

   ```
   sudo postgresql-setup --initdb
   ```

2. Start the database:

   ```
   sudo systemctl start postgresql.service
   ```

3. Create an administrative user named `root` with a password of `root` in PostgreSQL:

   ```
   CREATE ROLE root with superuser;
   ALTER ROLE root with PASSWORD 'root' ;
   ALTER ROLE root with LOGIN;
   \du
   exit
   ```

4. Enable the PostgreSQL to launch after a host server restart:

   ```
   sudo systemctl enable postgresql.service
   ```

5. Create a user and set a desired password in PostgreSQL:

   ```
   sudo -i -u <username> pgsql
   \password <password>
   ```

Install the Rio MediaEngine Software

1. Contact Spectra Logic Professional Services or Technical Support for access to the Rio MediaEngine RPM installer (see Contacting Spectra Logic on page 3).
2. Download the Rio MediaEngine RPM installer to the directory `/tmp` on the host server.
3. If necessary, switch to the OS root user (su root).
4. Run the installer by entering:

   ```
   sudo dnf install /tmp/rio-broker.xxxxx-release-1.x86_64.rpm
   ```

   where *xxxxx* refers to the version you downloaded in Step 2 on page 32.

   Note: For this command "`sudo`" is still required even if you are logged in as the root user.

5. Start the RioBroker service:

   ```
   systemctl start RioBroker.service
   ```

6. Verify that the RioBroker service is running:

   ```
   systemctl status RioBroker.service
   ```

7. Configure the RioBroker service to launch after a host server restart:

   ```
   systemctl enable RioBroker.service
   ```

Chapter 3 - Configure the Spectra Rio MediaEngine Application

This chapter describes how to configure and test the Spectra Rio MediaEngine application.

Configuration Process Overview

At a high-level, the Rio MediaEngine uses Namespaces to migrate and persist data. Before configuring a namespace, the general process of configuring the Rio MediaEngine is as follows:

1. First create storage containers on one or more systems where you plan to persist data. This is done using your application's software. The Rio MediaEngine supports using multiple and mixed types of target systems.
2. Next you use the Rio MediaEngine to create Devices that target the systems that contain the storage containers. See Create a Device on page 39 for instructions.
3. Then you create Namespaces, and assign buckets to the Namespaces. Multiple buckets can be assigned to a Namespace and each bucket targets a storage container on a configured Device. See Create a Namespace on page 48 for instructions.
4. After that you configure Policies that control where and for how long data is persisted. See Create Lifecycles and Policies on page 58 for instructions.
5. Lastly you create Endpoints, which acts as data sources for the Rio MediaEngine to ingest data. See Create an Endpoint on page 63 for instructions.

Once these steps are completed, you can begin archiving data.

LOG IN TO THE SPECTRA RIO MEDIAENGINE APPLICATION

1. Using a supported web browser (see Install the Spectra Rio MediaEngine Application on page 26), do one of the following:

- If you are on the server, enter `https://localhost:5050` and press Enter.
- If you are on a host on the same network as the server, enter the IP address for the Rio MediaEngine server instead of `localhost` (for example `https://xxx.xxx.xxx.xxx:5050`).

Notes:
- The application requires a secure connection.
- If necessary, resolve the security warning for the application. If desired, you can use a custom SSL key and certificate file using API commands.
- The Spectra Rio MediaEngine user interface has a 60 minute session time out setting.
- Elements of the Rio MediaEngine user interface may fail to display if the browser window is compressed horizontally.

2. The first time launching the application, the Cluster Welcome screen displays. Otherwise, the login page displays (see Step 4 on page 37).

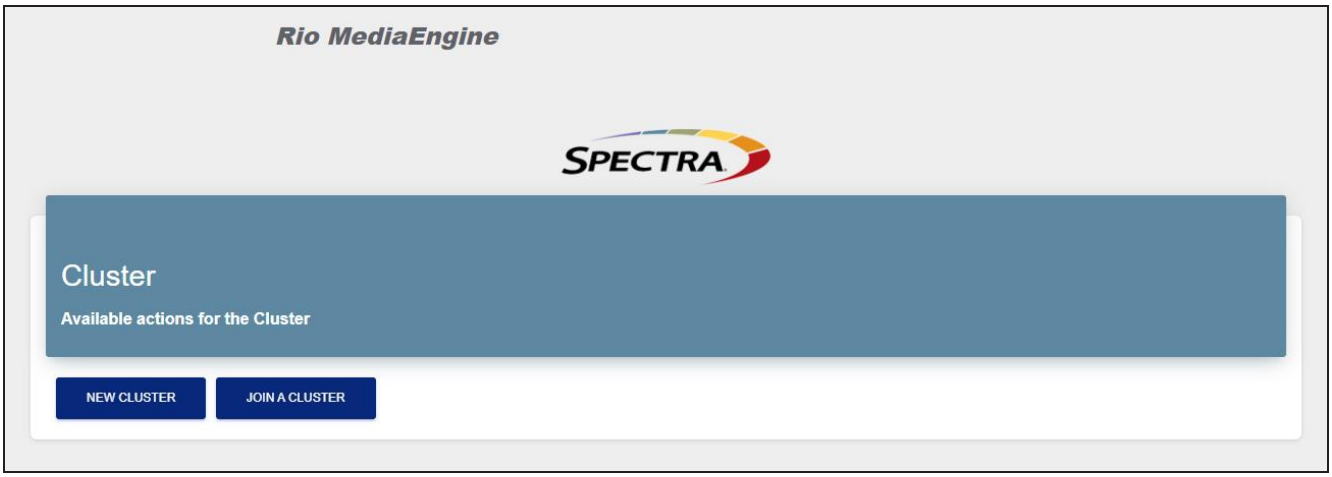

Figure 4 The Cluster Welcome screen.

3. Create a new cluster, or join an existing cluster.

   A cluster is a logical designation for a set of Spectra Rio MediaEngine installations that reference each other in order to form a set of servers that scale for increased data movement using shared databases. The master node assigns jobs to secondary nodes in the cluster. Secondary nodes fail over to each other in the event of a failure.

Note: When creating a multi-cluster configuration, it is very important that the IP address of the master node does not change.

CAUTION

If the IP address of the master node in the cluster changes, the cluster dissolves and all data transfers stop. No data loss occurs, but as you can only access data using the master node, data is unavailable. The cluster cannot be restored and must be manually recreated. Contract Spectra Logic Technical Support for assistance (see Contacting Spectra Logic on page 3).

Create Cluster:

a. Click **New**. The Create Cluster dialog box displays.

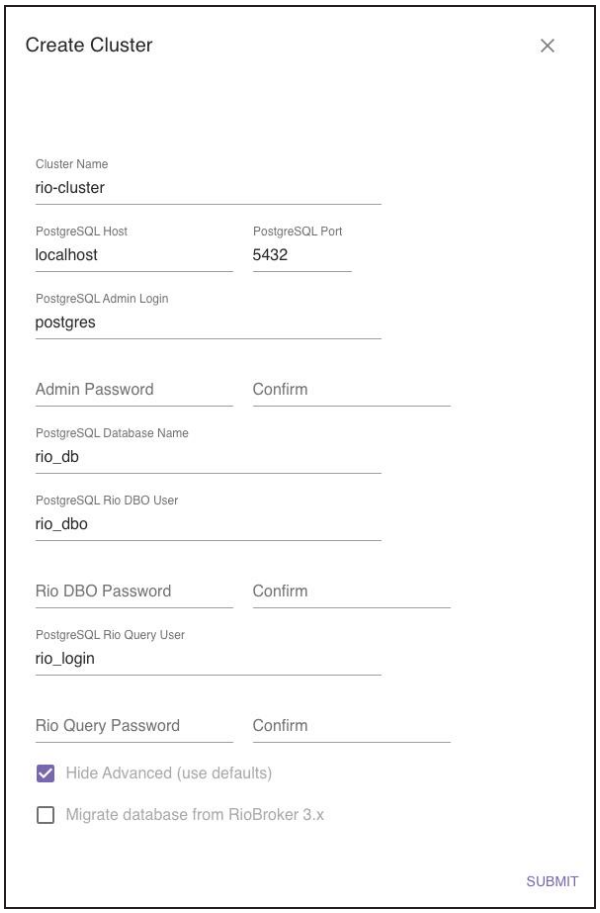

Figure 5 The Create Cluster dialog box.

b. Enter the desired **Cluster Name**.

c. Enter the **PostgreSQL Host** name and **PostgreSQL Port**.

d. Enter the **PostgreSQL Admin Login** username.

e. Enter and confirm the **Admin Password** for the PostgreSQL admin account.

f. If desired, select **Show Advanced** to view the advanced cluster creation options and continue with the following steps, or click **Submit** to create the cluster.

g. Enter the **PostgreSQL Database Name**.

h. Enter the username of the **PostgreSQL Rio DBO User**.

i. Enter and confirm the **Rio DBO Password** for the Rio DBO user.

j. Enter the username of the **PostgreSQL Rio Query User**.

k. Enter and confirm the **Rio Query Password** for the Rio Query user.

Note: The **Migrate database from RioBroker 3.x** setting is used when upgrading the Rio MediaEngine application and is not required unless you are upgrading your software. See Manage the Spectra Rio MediaEngine Application on page 106 for upgrade instructions.

l. Click **Submit**. After a short delay, the Spectra Rio MediaEngine login screen displays.

Join Cluster:

a. Click **Join**. The Join Cluster dialog box displays.

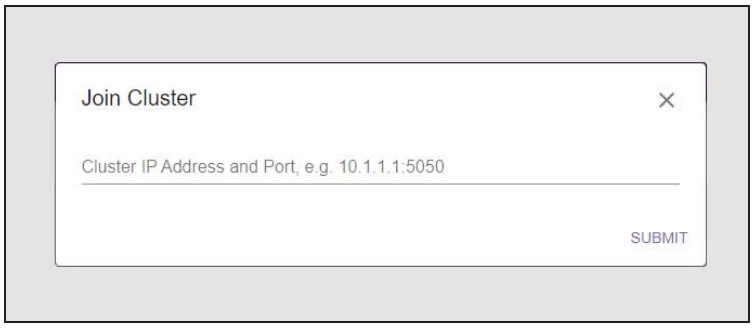

Figure 6 The Join Cluster dialog box.

b. Enter the cluster URL in the format: <*IP address*>:<*port*>.

Note: Port 5050 is the default port used by the Spectra Rio MediaEngine application.

c. Click **Submit**. The Spectra Rio MediaEngine login screen of the **master node** displays.

4. On the login screen, enter the **Username** and **Password**.

Note: The default username and password are both "**spectra**". It is recommended that you change the password for this administrator account.

Figure 7 The Login screen.

5. Click **Login**. The Jobs screen displays. After configuring the Rio Engine application, the Jobs screen shows an overview of all archive and restore jobs.

Figure 8 The Jobs screen.

CREATE A DEVICE

Once you are logged in to the application, use the instructions below to create a device as a data repository target. A device is any archive target that the Spectra Rio MediaEngine application can use to archive or restore objects. Each device is individually set up as a generic target for the purposes of physical and logical connections.

You can create a Spectra BlackPearl converged storage system device, a Diva device, a FlashNet device, a Spectra Vail device, an S3 device, or a Time Based Partial File Restore (TBPFR) device.

On the toolbar in the upper-right of the application window, click **Settings** (gear icon) **> Devices**. The Devices screen displays.

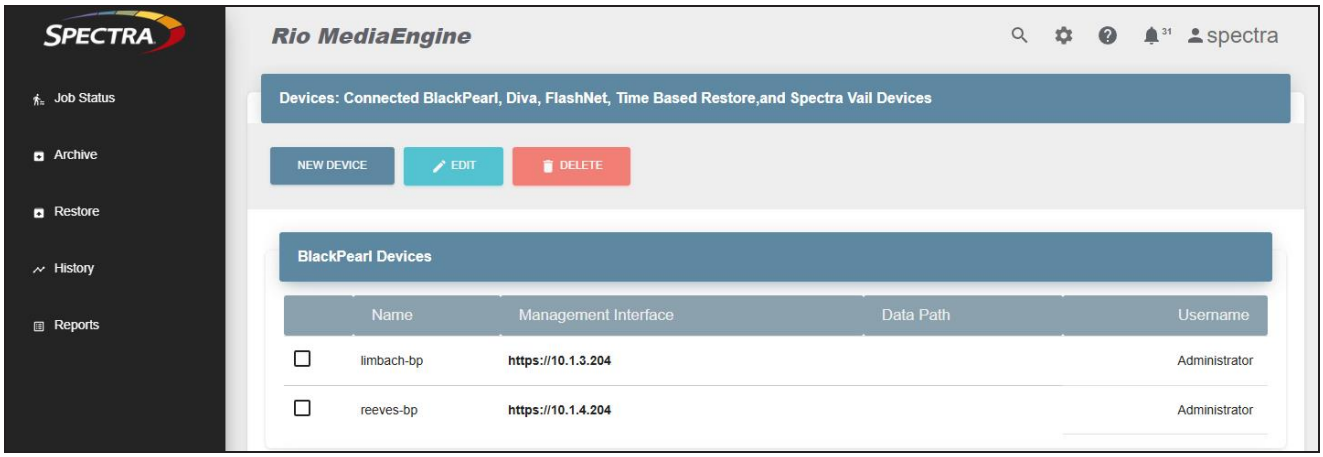

Figure 9 The Devices screen.

Select the type of device that you want to create:

- **Create a BlackPearl Device on the next page**
- **Create a Diva Device on page 41**
- **Create a FlashNet Device on page 42**
- **Create a Spectra Vail Device on page 44**
- **Create a S3 Device on page 45**
- **Create a Time Based Partial File Restore Device on page 46**

Create a BlackPearl Device

Use the instructions below to create a BlackPearl device.

1. Click **New Device**. The New Device dialog box displays.

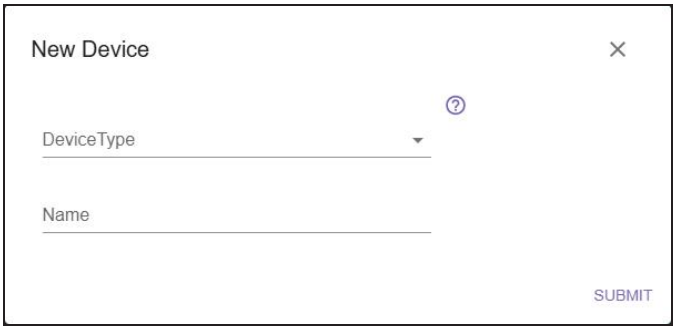

Figure 10 The New Device dialog box.

2. From the **Device Type** drop-down menu, select **BlackPearl**. The New Device dialog box refreshes to display the options for configuring a BlackPearl device.

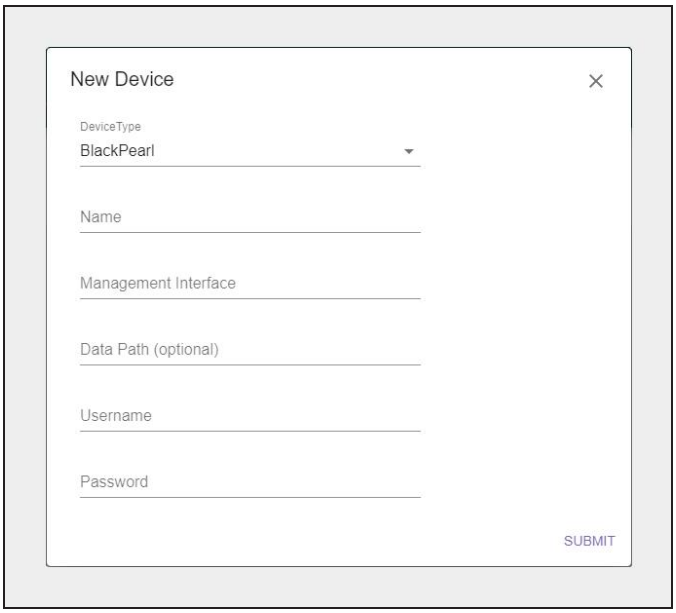

Figure 11 The New Device - BlackPearl dialog box.

3. Enter the desired **Name** for the BlackPearl device. Device names can only use upper and lowercase letters, numbers, the dash (-), and the underscore (_) characters.
4. Enter the **Management Interface** IP address of the desired BlackPearl target.

5. If you are connecting to a BlackPearl simulator for testing or development purposes, enter the **Data Path** IP address, of the desired BlackPearl target in the format `http://xxx.xxx.xxx.xxx:8080`. The simulator can only use **http** for the **Data Path**. Otherwise leave this field blank and Rio MediaEngine retrieves this IP address automatically.
6. Enter the **Username** and **Password** of a user configured on the BlackPearl target.

Note: Only users with Administrator or Monitor permission are allowed. Users with only Login privilege are not supported by the Spectra Rio MediaEngine application.

7. Click **Submit**. The Devices screen displays showing the newly created BlackPearl device.

Note: If the user credentials on the BlackPearl system are changed after creating a BlackPearl device, restart the Rio MediaEngine service using the Windows Services app.

Create a Diva Device

Use the instructions below to create a Diva device.

1. Click **New Device**. The New Device dialog box displays.

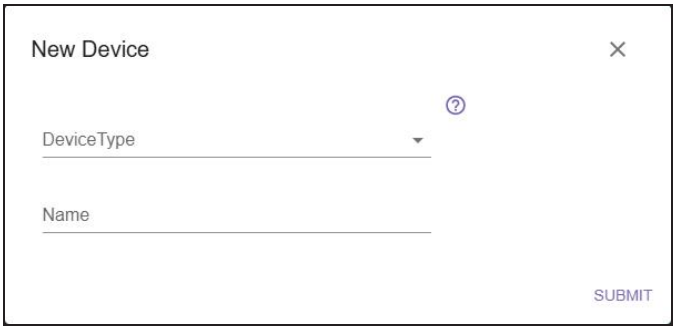

Figure 12 The New Device dialog box.

2. From the **Device Type** drop-down menu, select Diva. The New Device dialog box refreshes to display the options for configuring a Diva device.

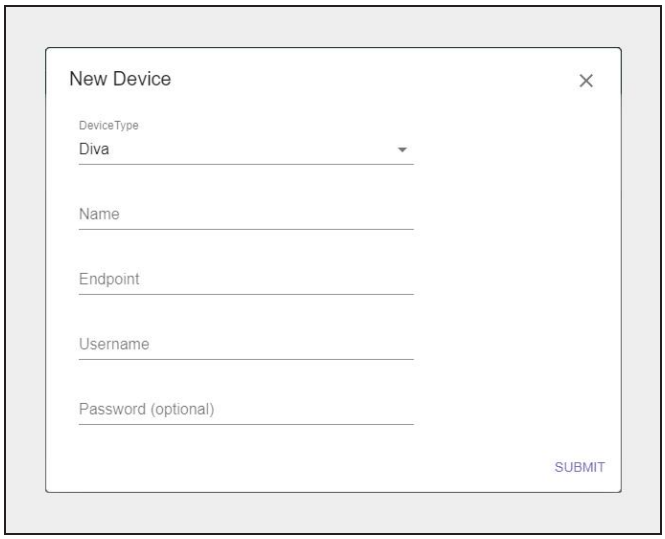

Figure 13 The New Device - Diva dialog box.

3. Enter the desired **Name** for the Diva device. Device names can only use upper and lowercase letters, numbers, the dash (-), and the underscore (_) characters.
4. Enter the **Endpoint** for the Diva device. The Endpoint is the API address of the Diva archive.

Note: The Diva archive must use API protocol 1.0 or 2.1.

5. Enter the **Username** of a user configured in the Diva application.
6. If desired, enter the **Password** of the user configured in Step 5.
7. Click **Submit**.

Create a FlashNet Device

Use the instructions below to create a FlashNet device.

1. Click **New Device**. The New Device dialog box displays.

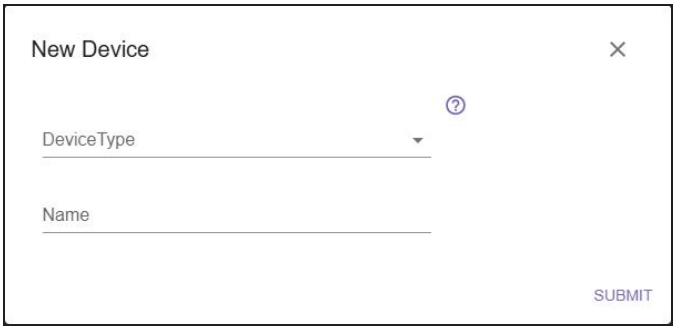

Figure 14 The New Device dialog box.

2. From the **Device Type** drop-down menu, select FlashNet. The New Device dialog box refreshes to display the options for configuring a FlashNet device.

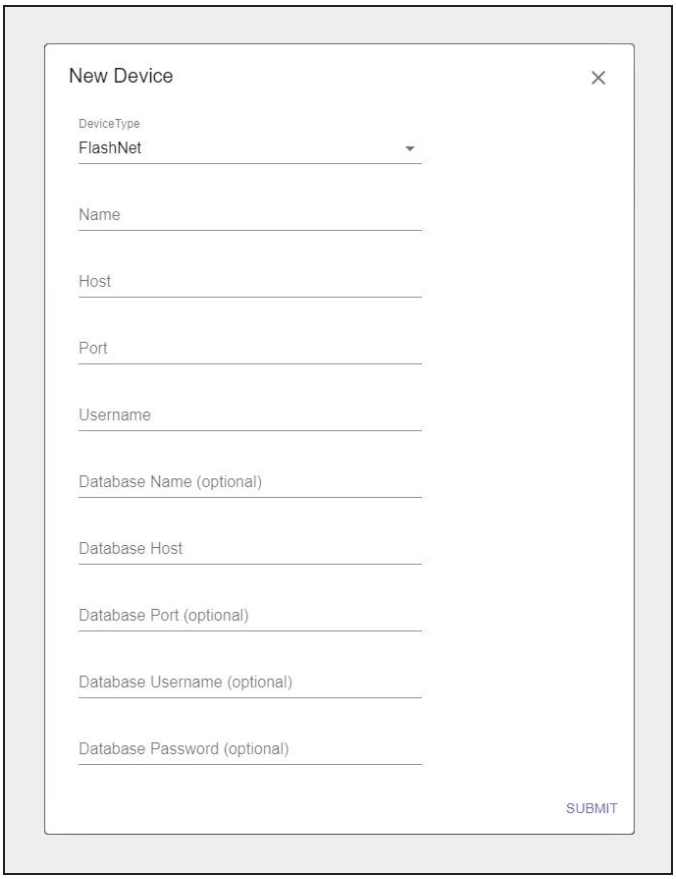

Figure 15 The New Device - FlashNet dialog box.

3. Enter the desired **Name** for the FlashNet device. Device names can only use upper and lowercase letters, numbers, the dash (-), and the underscore (_) characters.
4. Enter the **Host** IP address for the FlashNet application.
5. Enter the **Port** used to connect to the FlashNet application.

Note: The default port is 8199.

6. Enter the **Username** of a user configured in the FlashNet application.
7. If desired, enter the **Database Name**.
8. For **Database Host**, enter the IP address for the server for the FlashNet database.
9. If desired, enter the **Database Port** used to connect to the database host.

Note: The default port is 1433.

10. If desired, enter the **Database Username**, the username of a user configured in the FlashNet database.
11. If you entered a username in Step 10, enter the associated **Database Password**. Otherwise continue with Step 12.
12. Click **Submit**.

Create a Spectra Vail Device

Use the instructions below to create a Spectra Vail device.

Note: The multipart upload threshold for a Vail device is 5 GB. Objects 5 GB or less are archived as a single file. Objects larger than 5 GB are transferred in chunks of 1 GB each.

1. Click **New Device**. The New Device dialog box displays.

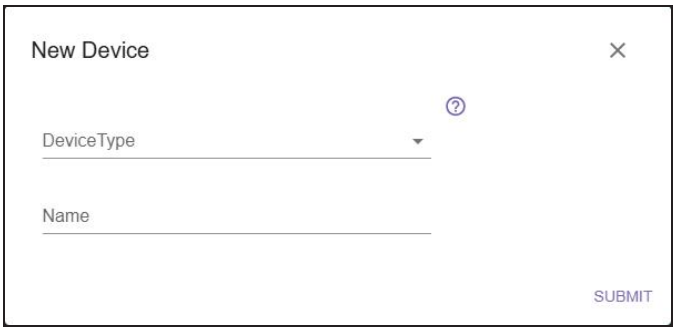

Figure 16 The New Device dialog box.

2. From the **Device Type** drop-down menu, select Spectra Vail. The New Device dialog box refreshes to display the options for configuring a Spectra Vail device.

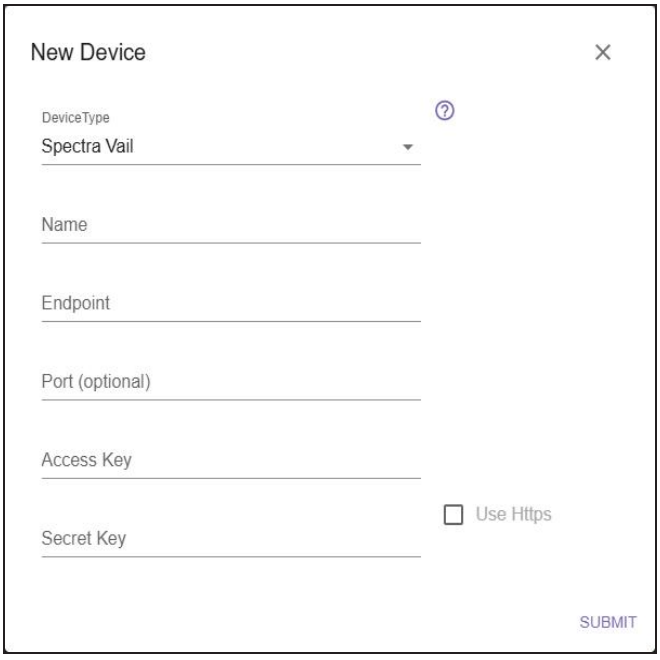

Figure 17 The New Device - Spectra Vail dialog box.

3. Enter the desired **Name** for the Spectra Vail device. Device names can only use upper and lowercase letters, numbers, the dash (-), and the underscore (_) characters.
4. Enter the public IPv4 address or hostname for the Vail node as the **Endpoint** for the Spectra Vail device.

5. If necessary, enter the **Port** required to connect to the Spectra Vail device.
6. Enter the **AccessKey** and **SecretKey** of an IAM User who has access to Vail node, and is configured in an IAM group with the required policy settings. See the *Vail User Guide* for more information.
7. If desired, select **Use Https** to use a secure connection to connect to the Vail device.
8. Click **Submit**.

Create a S3 Device

Use the instructions below to create a S3 device.

1. Click **NewDevice**. The New Device dialog box displays.

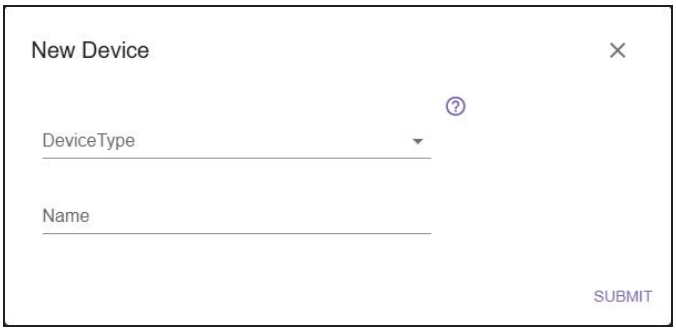

Figure 18 The New Device dialog box.

2. From the **Device Type** drop-down menu, select S3. The New Device dialog box refreshes to display the options for configuring a S3 device.

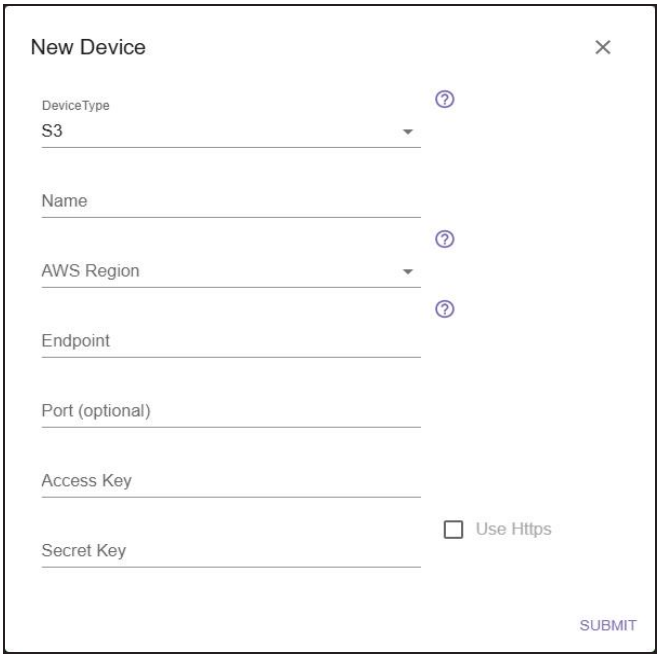

Figure 19 The New Device - S3 dialog box.

3. Enter the desired **Name** for the S3 device. Device names can only use upper and lowercase letters, numbers, the dash (-), and the underscore (_) characters.
4. Select the **AWS Region** from the drop-down menu.
5. Enter the public IPv4 address or hostname for the S3 device as the **Endpoint**.
6. If necessary, enter the **Port** required to connect to the S3 device.
7. Enter the **AccessKey** and **SecretKey** of an IAM User who has access to the S3 node.
8. If desired, select **Use Https** to use a secure connection to connect to the S3 device.
9. Click **Submit**.

Create a Time Based Partial File Restore Device

Use the instructions below to create a Partial File Restore device.

Note: If a file in the PFR environment contains a space character ( ), that file fails to index, and cannot be restored using a time code. The file can only be restored using a byte-based Rio MediaEngine restore.

1. Click **New Device**. The New Device dialog box displays.

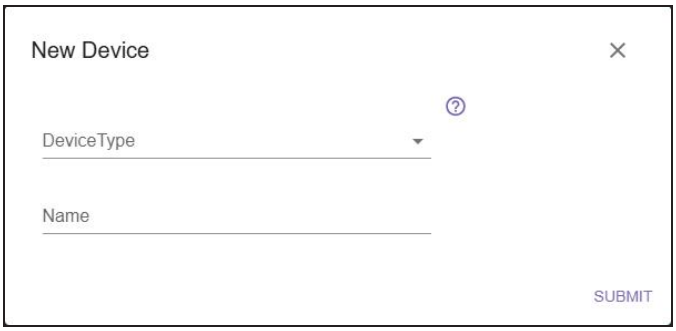

Figure 20 The New Device dialog box.

2. From the **Device Type** drop-down menu, select Time Based Partial File Restore. The New Device dialog box refreshes to display the options for configuring a Time Based Partial File Restore device.

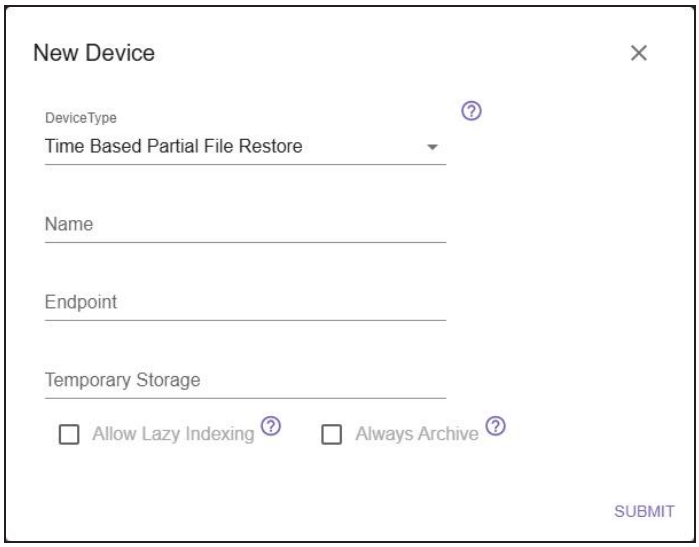

Figure 21 The New Device - Time Based Partial File Restore dialog box.

3. Enter the desired **Name** for the Time Based Partial File Restore device. Device names can only use upper and lowercase letters, numbers, the dash (-), and the underscore (_) characters.
4. Enter the **Endpoint**, the IP address of the desired Time Based Partial File Restore target, in the format: http(s)://<*IPv4 address*>:60792.

Note: 60792 is the port used by Time Based Partial File Restore.

5. Enter the **Temporary Storage** location of the desired Time Based Partial File Restore target.
6. If desired, select **Allow Lazy Indexing**. When enabled, the Rio MediaEngine application determines if a file format that was not supported when the file was archived, is now supported by a newer version of PFR software. When an unsupported media format file is restored, the Rio MediaEngine application submits the file to the PFR software to determine if it is now a supported file type.
   - If the file is not supported, the full file is restored to the user.
   - If the file format is supported, it is indexed and partial file restoration is enabled for both this restore, and all future restores of the file. Additionally, the Rio MediaEngine application does not perform the file format check on subsequent restores.
7. If desired, select **Always Archive**. When this setting is enabled, if objects archived to a Marquis Media Asset Manager are not supported file formats, the files are still archived.

Notes:
- Unsupported media formats are not indexed and must be restored as a full file.
- Currently supported file formats are .MOV and .MXF.

8. Click **Submit**. The Devices screen displays showing the newly created Time Based Partial File Restore device.

CREATE A NAMESPACE

Once you create a device in the Rio MediaEngine application, use the instructions below to create a namespace.

A namespace is a logical construct that defines a specific archive environment. When creating a namespace, you must specify exactly one bucket on a target system, but additional buckets can be added after you create the namespace. There is no limit to the number of buckets you can add to a namespace.

Any number of namespaces can be defined within the Spectra Rio MediaEngine application to allow multi-bucket support for archives.

Here is how you create a Namespace:

1. On the toolbar in the upper-right of the application window, click **Settings** (gear icon) > **Namespaces**. The Namespaces screen displays.

Figure 22 The Namespaces screen.

2. Click **New Namespace**. The New Namespace wizard displays.

Figure 23 The Name screen.

3. Enter a **Name** for the Namespace, and click **Next**. You cannot change this setting after creating the Namespace.
4. The next steps depend on what type of bucket you are adding to the Namespace:
   - **Add a BlackPearl Bucket on the next page**
   - **Add a Spectra Vail Bucket on page 50**

- **Add an S3 Bucket on page 51**
- **Add a NAS Bucket on page 52**
- **Add a Diva Bucket on page 53**
- **Add a FlashNet Bucket on page 55**
- **Add an SGL LTFS Bucket on page 56**

Add a BlackPearl Bucket

Here is how you add a BlackPearl bucket:

1. Using the **New Bucket Type** drop-down menu, select **Add BlackPearl Bucket to XXX**, where XXX is the name of the namespace you assigned on the first screen of the New Namespace wizard. The screen updates to display the options for adding a BlackPearl bucket.

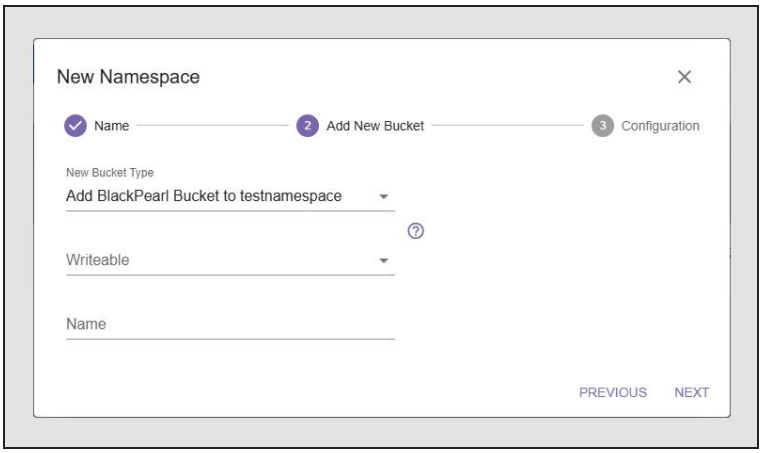

Figure 24 The Add New Bucket screen.

2. Using the **Writable** drop-down menu, select either **Writable** or **Read Only**. This setting can be changed after you create the Namespace.
3. Enter a **Name** for the Rio Bucket, and click **Next**. The bucket is created automatically by the wizard. You cannot change this name after creating the Namespace.

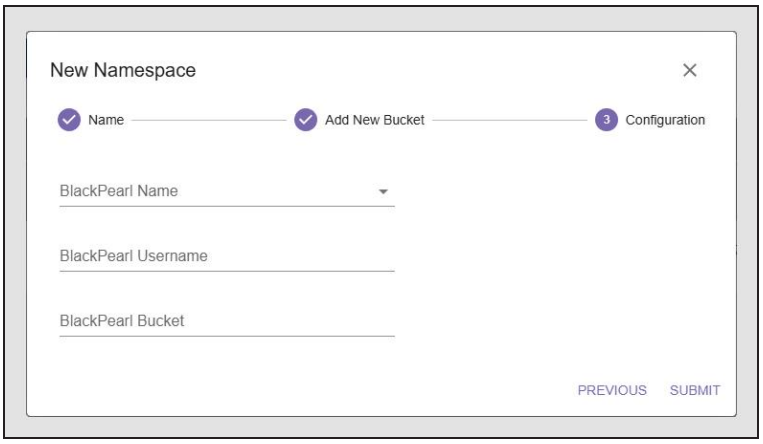

Figure 25 The Add New Bucket screen.

4. Using the **BlackPearl Name** drop-down menu, select a previously configured BlackPearl device.
5. In the **BlackPearl Username**, enter the name of the user that has ownership permissions and full access for the bucket specified in Step 6.
6. In the **BlackPearl Bucket** field, enter the name of a previously created bucket on the selected BlackPearl device.
7. Click **Submit**.

Add a Spectra Vail Bucket

Here is how you add a Spectra Vail bucket:

1. Using the **New Bucket Type** drop-down menu, select **Add Vail Bucket to XXX**, where XXX is the name of the namespace you assigned on the first screen of the New Namespace wizard. The screen updates to display the options for adding a Vail bucket.

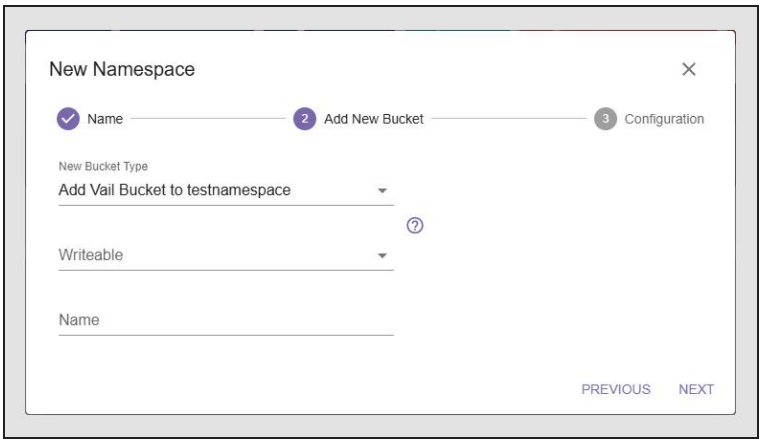

Figure 26 The Add New Bucket screen.

2. Using the **Writable** drop-down menu, select either **Writable** or **Read Only**. This setting can be changed after you create the Namespace.
3. Enter a **Name** for the Rio Bucket, and click **Next**. The bucket is created automatically by the wizard. You cannot change this name after creating the Namespace.

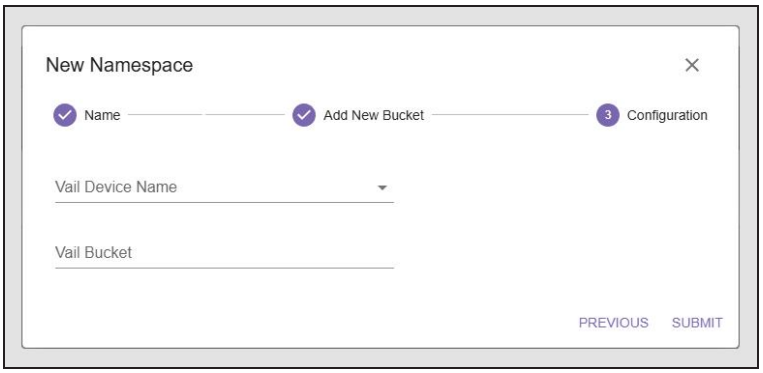

Figure 27 The Add New Bucket screen.

4. Using the **Vail Device Name** drop-down menu, select a previously configured Vail device.
5. In the **Vail Bucket** field, enter the name of a previously created bucket on the selected Vail device.
6. Click **Submit**.

Add an S3 Bucket

Here is how you add an Amazon S3 compatible S3 bucket:

1. Using the **New Bucket Type** drop-down menu, select **Add S3 Bucket to XXX**, where XXX is the name of the namespace you assigned on the first screen of the New Namespace wizard. The screen updates to display the options for adding an Amazon S3 compatible S3 bucket.

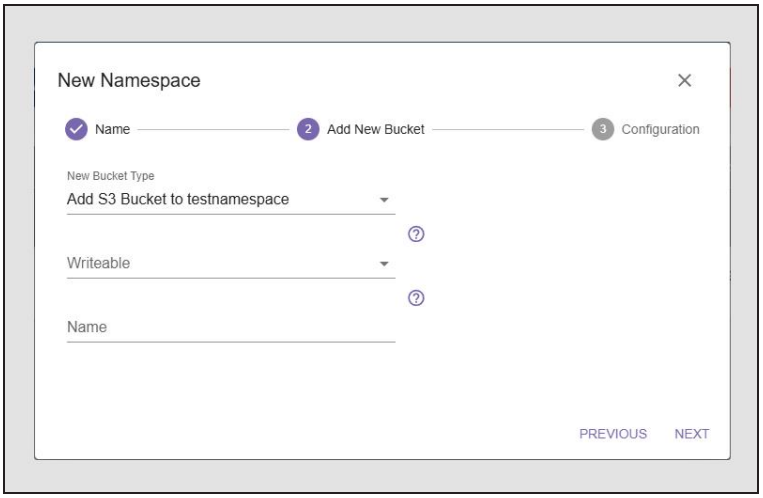

Figure 28 The Add New Bucket screen.

2. Using the **Writable** drop-down menu, select either **Writable** or **Read Only**. This setting can be changed after you create the Namespace.
3. Enter a **Name** for the Rio Bucket, and click **Next**. The bucket is created automatically by the wizard. You cannot change this name after creating the Namespace.

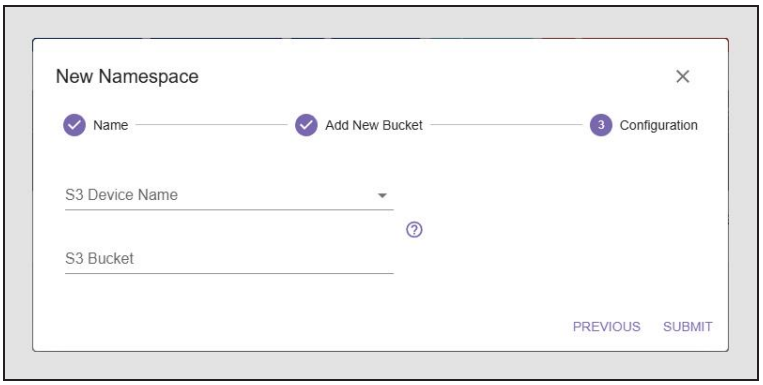

Figure 29 The Add New Bucket screen.

4. Using the **S3 Device Name** drop-down menu, select a previously configured Amazon S3 compatible S3 device.
5. In the **S3 Bucket** field, enter the name of a previously created bucket on the selected Amazon S3 compatible S3 device.
6. Click **Submit**.

Add a NAS Bucket

Here is how you add a NAS bucket:

1. Using the **New Bucket Type** drop-down menu, select **Add NAS Bucket to XXX**, where XXX is the name of the namespace you assigned on the first screen of the New Namespace wizard. The screen updates to display the options for adding a NAS bucket.

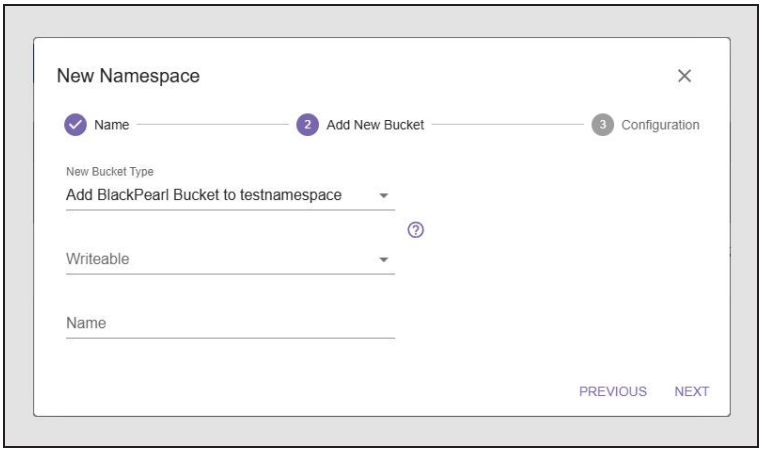

Figure 30 The Add New Bucket screen.

2. Using the **Writable** drop-down menu, select either **Writable** or **Read Only**. This setting can be changed after you create the Namespace.
3. Enter a **Name** for the Rio Bucket, and click **Next**. The bucket is created automatically by the wizard. You cannot change this name after creating the Namespace.

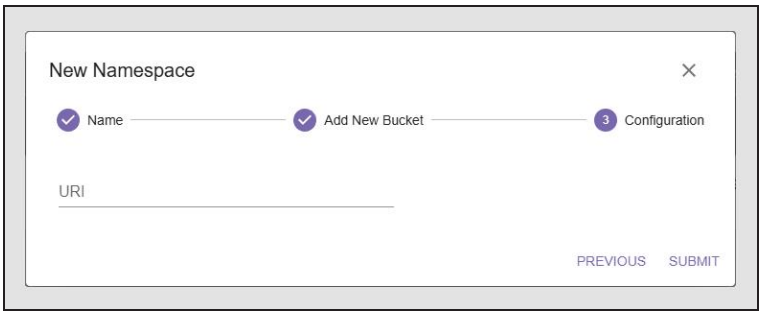

Figure 31 The Add New Bucket screen.

4. In the **URI** text entry field, enter the URI address for the NAS target in one of the following forms:
   - file://*x.x.x.x/folder name* where *x.x.x.x* is the IPv4 address or hostname of the NAS endpoint, and *folder name* is the name of the volume configured on the NAS endpoint.
   - file:///*x*:/*folder name* where *x*: is the drive letter for the NAS endpoint on the local host, and *folder name* is the name of the volume configured on the NAS endpoint.
5. Click **Submit**.

Add a Diva Bucket

Here is how you add a Diva bucket:

1. Using the **New Bucket Type** drop-down menu, select **Add Diva Bucket to XXX**, where XXX is the name of the namespace you assigned on the first screen of the New Namespace wizard. The screen updates to display the options for adding a Diva bucket.

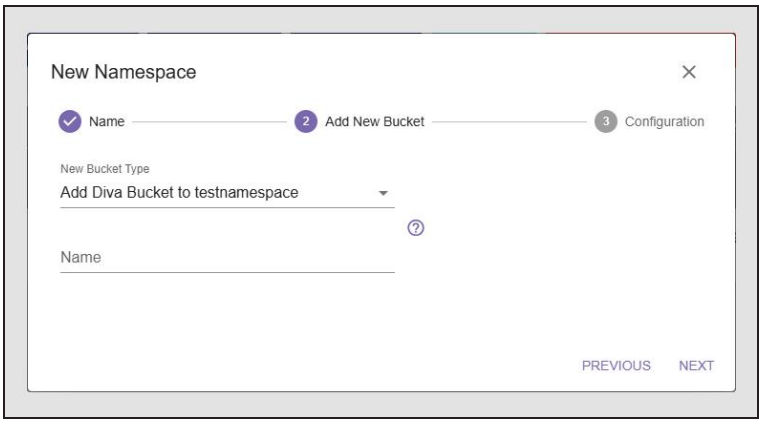

Figure 32 The Add New Bucket screen.

2. Enter a **Name** for the Rio Bucket, and click **Next**. The bucket is created automatically by the wizard. You cannot change this name after creating the Namespace.

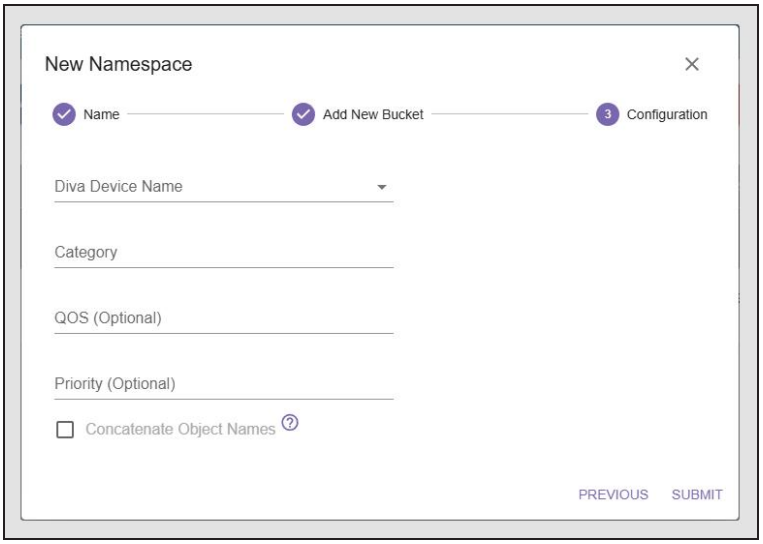

Figure 33 The Add New Bucket screen.

3. Using the **Diva Device Name** drop-down menu, select a previously configured Diva device.
4. Enter the desired **Category** to be used in the namespace. In Diva, a category and object pair is a unique logical construct. An object cannot exist multiple times in a category.

Note: You may use the asterisk (*) to allow multiple categories to use the namespace. This allows you to use the same file name in multiple categories.

5. Optionally, enter the **QOS** (Quality Of Service) to be used. This is the QOS setting used when **Default** is specified in a request's Quality of Service field in the DIVA application.

Note: After the Diva namespace is created, the QOS setting cannot be changed using the Rio MediaEngine application interface. If the QOS must be changed at a later date, contact Spectra Logic Technical Support for assistance (see Contacting Spectra Logic on page 3).

6. Enter the **Priority** for the Diva namespace. This setting controls the priority level for the namespace. The level can be in the range zero to 100, or the value **Default**. The value zero is the lowest priority and 100 is the highest priority. **Default** uses the value configured by the Diva system.

Note: After the Diva namespace is created, the Priority setting cannot be changed using the Rio MediaEngine application interface. If the Priority must be changed at a later date, contact Spectra Logic Technical Support for assistance (see Contacting Spectra Logic on page 3).

7. Click **Submit**.

Add a FlashNet Bucket

Here is how you add a FlashNet bucket:

1. Using the **New Bucket Type** drop-down menu, select **Add FlashNet Bucket to XXX**, where XXX is the name of the namespace you assigned on the first screen of the New Namespace wizard. The screen updates to display the options for adding a FlashNet bucket.

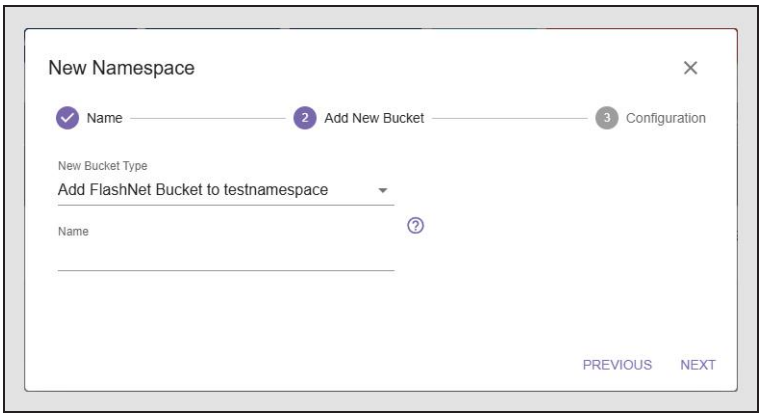

Figure 34 The Add New Bucket screen.

2. Enter a **Name** for the Rio Bucket, and click **Next**. The bucket is created automatically by the wizard. You cannot change this name after creating the Namespace.

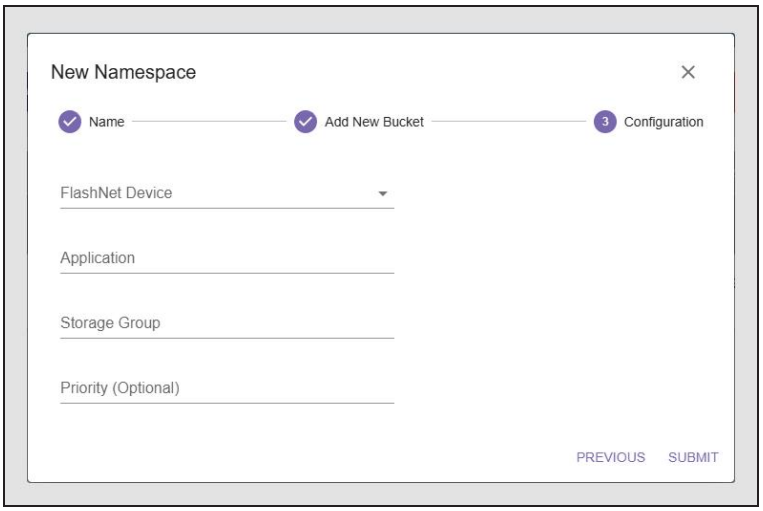

Figure 35 The Add New Bucket screen.

3. Use the e **FlashNet Device** drop-down menu to select a previously created FlashNet device.
4. Enter the desired name for the FlashNet **Application**.

Note: The application name can be anything but it is a best practice to use the same name as the associated FlashNet service.

5. Enter the name of the desired **Storage Group** to use with this namespace.

   Note: If you do not specify a storage group, the FlashNet namespace indexes data from all storage groups configured on the FlashNet system.

6. Enter the **Priority** for the FlashNet namespace. This setting controls the priority level for the namespace. The level can be in the range zero to 100, or the value **Default**. The value zero is the lowest priority and 100 is the highest priority. **Default** uses the value configured by the FlashNet system.

   Note: If the priority must be changed at a later date, contact Spectra Logic Technical Support for assistance.

7. Click **Submit**.

Add an SGL LTFS Bucket

Here is how you add an SFL LTFS bucket:

1. Using the **New Bucket Type** drop-down menu, select **Add SGL LTFS Bucket to XXX**, where XXX is the name of the namespace you assigned on the first screen of the New Namespace wizard. The screen updates to display the options for adding an SGL LTFS bucket.

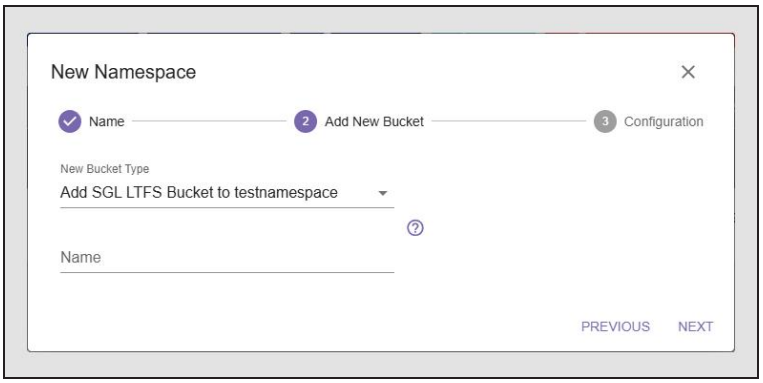

Figure 36 The Add New Bucket screen.

2. Enter a **Name** for the Rio Bucket, and click **Next**. The bucket is created automatically by the wizard. You cannot change this name after creating the Namespace.

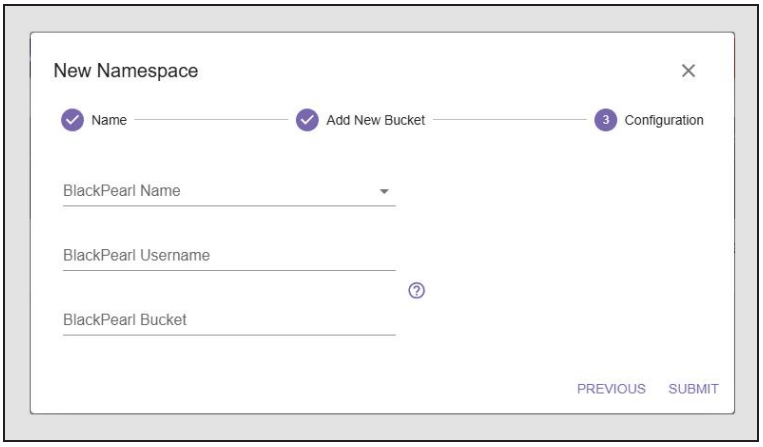

Figure 37 The Add New Bucket screen.

3. Using the drop-down menu, select the **BlackPearl Name** of a previously configured BlackPearl device.
4. Enter the **BlackPearl Username** of a user configured on the BlackPearl device selected in Step 3.
5. Enter the name of a previously created **BlackPearl Bucket** associated with the user selected in Step Chapter 3.
6. Click **Submit**.

CREATE LIFECYCLES AND POLICIES

A Lifecycle controls when data is archived, and how long data is persisted. The Rio MediaEngine application features three pre-configrued Lifecycles for each of the three most common use case scenarios. Additional lifecycles can be created and configured for your storage environment requirements.

A Policy is used to assign a Lifecycle to the buckets used in Namespaces. Each bucket can use a different lifecycle, and there must be at least one lifecycle with the Archive Immediate rule. Only one policy can be assigned to a namespace. A policy also allows you to restrict transfers during peak hours on a per-day basis.

Create a Lifecycle

Here is how to create a Lifecycle:

1. On the toolbar in the upper-right of the application window, click **Settings** (gear icon) **> Lifecycles**.
2. Click **New Lifecycle**.

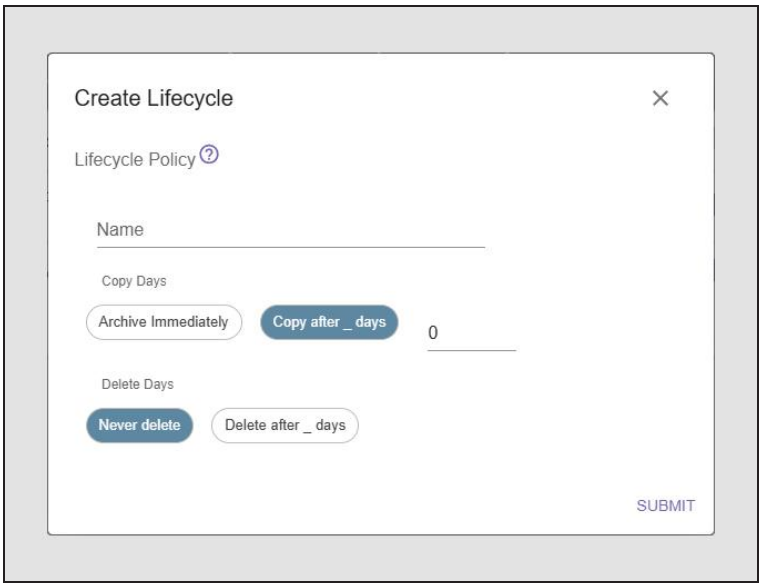

Figure 38 The Create Lifecycle screen.

3. Enter a **Name** for the Lifecycle.
4. Select **Archive Immediately** or **Copy after _ days**. If you select Copy after _ days, enter a value in the entry field for the number of days to wait before archiving data.
   - Archive Immediately copies data to a bucket as soon as it is placed into a endpoint.
   - Copy after copies data to a bucket after the specified number of days.

5. Select **Never Delete** or **Delete after _ days**. If you select Delete after _ days, enter a value in the entry field for the number of days you want data to persist before it is deleted.
6. Click **Submit**.

Create a Policy

A policy is used to set Lifecycles for each bucket in a Namespace. A namespace configured with multiple buckets can use different lifecycles in the namespace policy to control where and for how long data is persisted. A Policy also allows you to configure blackout times to control when archives take place. Additionally, a Policy with multiple buckets also specifies the priority for the restore source.

- Buckets do not need to have a Lifecycle configured.
- At least one Lifecycle in a Policy must have an archive rule of Archive Immediately.

Here is how you configure a Policy:

1. On the toolbar in the upper-right of the application window, click **Settings** (gear icon) **> Namespaces**. The Namespaces screen displays.
2. Select the namespace for which you want to configure a policy and click **Policies**.
3. For each bucket, use the **Lifecycle** drop-down menu to select a previously configured lifecycle.

Note: If you do not want to assign a lifecycle that controls data placement or retention, select the Do Nothing lifecycle. This lifecycle is created by default.

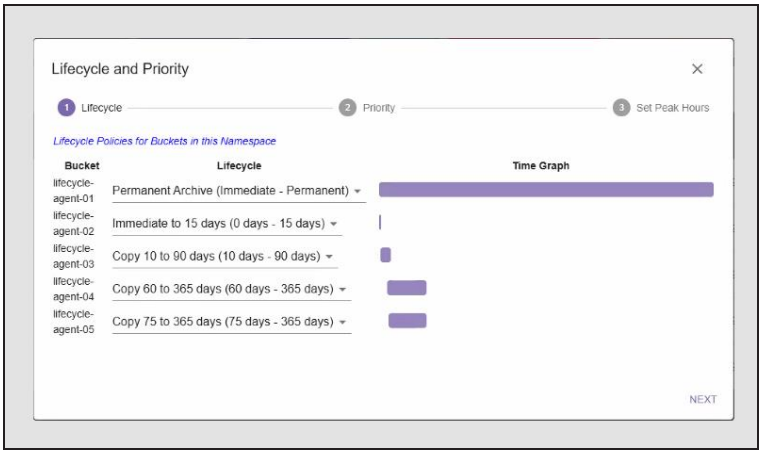

Figure 39 The Lifecycle screen.

4. Click **Next**.
5. Using the **Restore Priority** arrow buttons, arrange the buckets in the order you want data to be restored, with the topmost selection being the primary restore source.

Note: This screen only displays if you have configured multiple buckets in the Namespace.

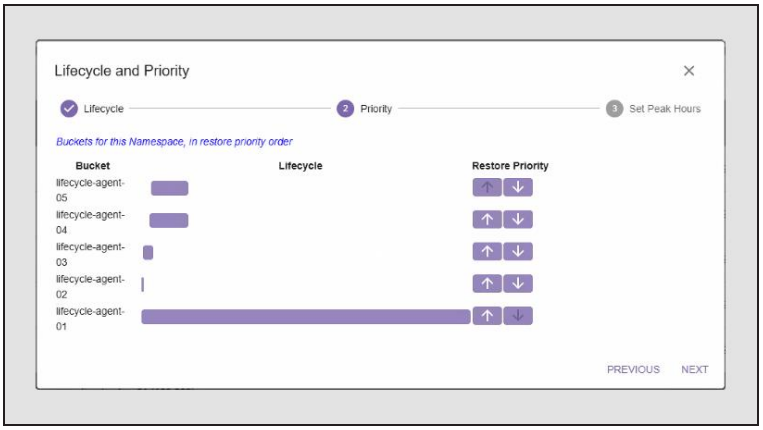

Figure 40 The Priority screen.

6. Click **Next**.
7. If desired, you can restrict the hours that data is transferred on a per-bucket basis:
   a. Select the bucket for which you want to restrict transfer hours and select **Restrict transfer during peak hours**.

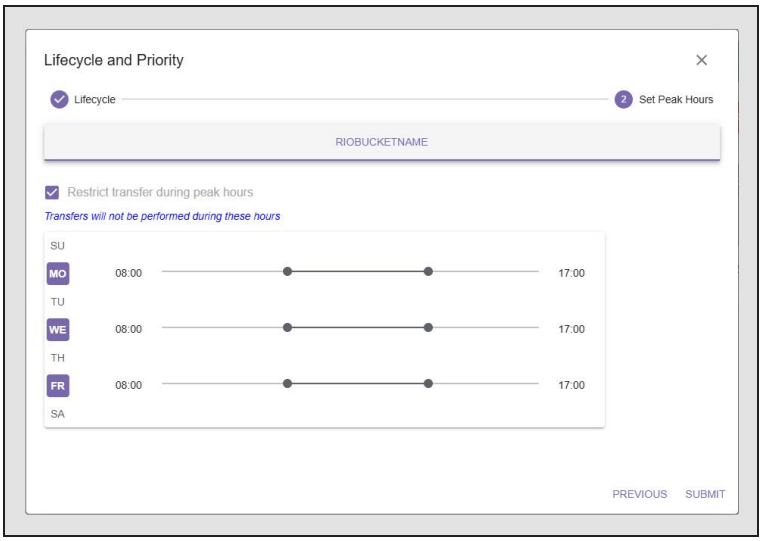

Figure 41 The Set Peak Hours screen.

   b. On the right-hand side of the screen, click the name of the day you want to configure restricted hours, then use the time sliders to configure the hours to restrict transfers.
   c. If desired, repeat for additional buckets.
8. Click **Submit**.

Configure the Lifecycle Cache

In order to migrate files/objects to different buckets within a namespace as part of the lifecycle, the Rio lifecycle cache must be configured. The process of migration from one bucket to another is a copy job that checks if the file is in the cache and then performs the following:

- If the object **is in** the cache, the file is archived from the cache to the target bucket.
- If the object **is not in** cache, the file is restored to the cache and then archived to the target bucket.

Here is how to configure the cache:

1. On the toolbar, click **Settings** (gear icon) and select **System**. The System information screen displays.

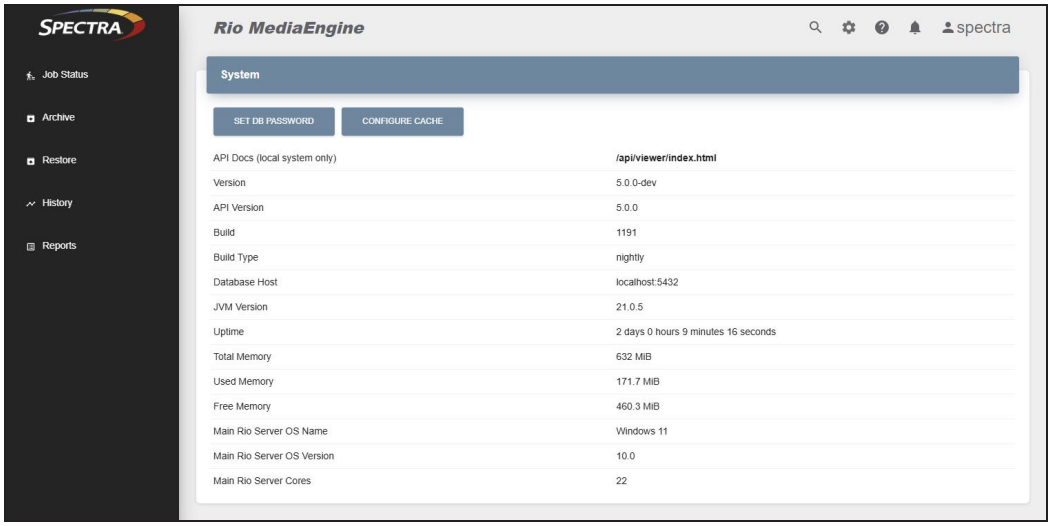

Figure 42 The System screen.

2. Click **Configure Cache**.

Figure 43 The System screen.

3. Enter the **URI** address where you want to create the cache file in one of the following forms:
   - file://*x.x.x.x/folder name* where *x.x.x.x* is the IPv4 address or hostname of the NAS endpoint, and *folder name* is the name of the volume configured on the NAS endpoint.
   - file:///*x*:/*folder name* where *x*: is the drive letter for the NAS endpoint on the local host, and *folder name* is the name of the volume configured on the NAS endpoint.
4. Enter the **Maximum Size** in GB of the cache file. Generally, a larger size cache allows for faster migrations. If a small cache is configured, slower migrations may occur.

IMPORTANT The cache must be larger than the largest object you want to migrate, otherwise the object cannot migrate.

5. Click **Submit**.

CREATE AN ENDPOINT

Endpoints are used as the source of data to ingest into the Rio MediaEngine application, as well as the targets of data restored from the application. When a file is placed in an endpoint, the file is made available to the Rio MediaEngine application. Once there, the file can be archived to any namespace.

Endpoints can be pre-configured to replace URIs. On the toolbar in the upper-right of the application window, click **Settings** (gear icon) **> Endpoints**. The Endpoints screen displays.

Figure 44 The Endpoints screen.

Choose the type of endpoint that you want to create:

- **Create an FTP Endpoint below**
- **Create an S3 Endpoint on page 65** - Amazon® S3 or Third Party S3
- **Create a NAS Endpoint on page 66**
- **Create a Linux Endpoint on page 67**

Create an FTP Endpoint

1. Click **Add Endpoint**. The Add Endpoint dialog box displays with NAS selected as the type.
2. Using the **Type** drop-down menu, select **FTP**. The dialog box changes to show fields used to configure an FTP endpoint.

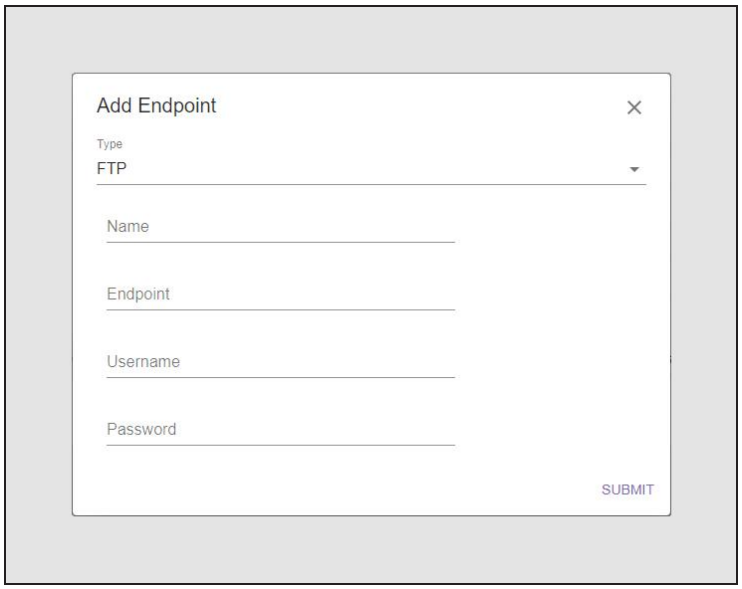

Figure 45 The Add Endpoint - FTP dialog box.

3. Enter the desired **Name** for the endpoint. Endpoint names can only use upper and lowercase letters, numbers, the dash (-), and the underscore (_) characters.
4. Enter the IP address or host name for the **Endpoint** with the prefix ftp (for example, ftp://*xxx.xxx.xxx.xxx*).
5. Enter the **Username** and **Password** of a user configured to use the FTP server.
6. Click **Submit**. The Endpoints screen displays showing the newly created endpoint.

Once the endpoint is created, use the following format for the endpoint URI when creating archive or restore commands using the API:

```
{
      "files": [
         {
            "name":"[filename]",
    "uri":"[endpoint://endpointname/filename]"
   }
 ]
  }
```

where *endpointname* is the name you entered in Step 3.

Create an S3 Endpoint

1. Click **Add Endpoint**. The Add Endpoint dialog box displays with NAS selected as the type.
2. Using the **Type** drop-down menu, select **S3**. The dialog box changes to show fields used to configure an S3 endpoint.

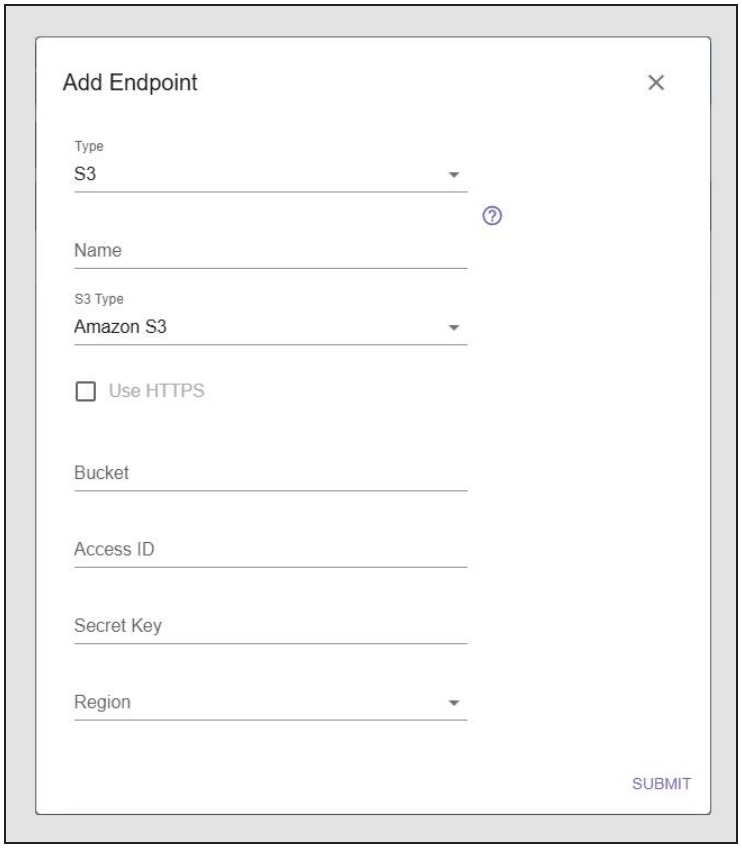

Figure 46 The Add Endpoint - S3 dialog box.

3. Enter the desired **Name** for the endpoint.
4. Select whether this is an **Amazon S3** endpoint or a **Third Party S3** endpoint.
5. Select whether to use **HTTPS** when connecting to the endpoint. If you select this option, the Rio MediaEngine application uses port 443. Otherwise the application uses port 80.
6. Enter the name of a **Bucket** configured on the endpoint. Do not include a folder or prefix name. Bucket names are case sensitive.
7. Enter the **Access ID** and **Secret Key** of a user with credentials for the S3 account and the bucket that will be used for data storage.

8. Depending on your selection in Step 4 on page 65 do one of the following:
   - If you selected **Amazon S3**, use the drop-down list to select the **Region**.
   - If you selected **Third Party S3**, enter the **Hostname** or IP address for the endpoint. Optionally, enter a **Port** number.

Notes:
- Do include a port number with the endpoint hostname or IP address.
- The Rio MediaEngine application uses virtual hosting by default (for example: https://*bucketname.hostname*.com). If you do not want to use the virtual hosting of bucket names, enter an IP address instead of an endpoint hostname.

9. Click **Submit**. The Endpoints screen displays showing the newly created endpoint.

Once the endpoint is created, use the following format for the endpoint URI when creating archive or restore commands using the API:

```
{
    "files": [
      {
         "name":"[filename]",
         "uri":"[endpoint://endpointname/filename]"
      }
    ]
}
```

where *endpointname* is the name you entered in Step 3 on page 65.

Create a NAS Endpoint

1. Click **Add Endpoint**. The Add Endpoint dialog box displays with NAS selected as the type.

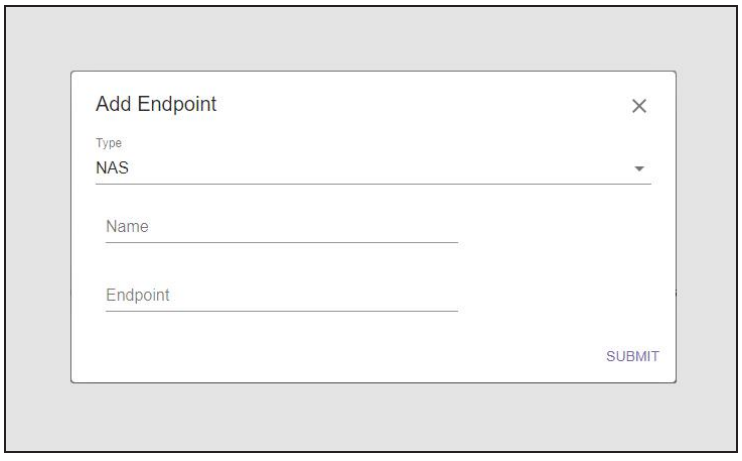

Figure 47 The Add Endpoint - NAS dialog box.

2. Enter the desired **Name** for the endpoint.

3. Enter the URI for the **Endpoint** in one of the following forms:
   - file://*x.x.x.x/folder name* where *x.x.x.x* is the IPv4 address or hostname of the NAS endpoint, and *folder name* is the name of the volume configured on the NAS endpoint.
   - file:///*x*:/*folder name* where *x*: is the drive letter for the NAS endpoint on the local host, and *folder name* is the name of the volume configured on the NAS endpoint.
4. Click **Submit**. The Endpoints screen displays showing the newly created endpoint.
5. Once the endpoint is created, use the following format for the endpoint URI when creating archive or restore commands using the API:

   ```
   {"files": [{"name":"[filename]", "uri":"
   [endpoint://endpointname/filename]" }]}
   ```

   where *endpointname* is the name you entered in Step 2.

Create a Linux Endpoint

The Rio MediaEngine service can use any mounted file system path for archive or restore operations provided the user has the correct privileges.

URIs can be specified as paths or defined as endpoints. In a cluster environment, endpoints are required to provide the same path across multiple machines.

1. If not previously installed, install `nfs-utils`.
2. Enter the following on your Linux server:

   ```
   $ mkdir /mnt/myNFS1
   ```

   ```
   $ mount -t nfs HostIP:/export/test_data/nfs1 /mnt/myNFS1
   ```
3. Using the Rio MediaEngine user interface, click **Add Endpoint**. The Add Endpoint dialog box displays with NAS selected as the type.
4. Enter the desired **Name** for the endpoint.
5. Enter the following for the **Endpoint**:

   ```
   file://mnt/myNFS1
   ```
6. Click **Submit**.
7. To share data with Windows OS, create a CIFS share. To create a CIFS share, use the following steps. Otherwise, continue from Step 10 on page 68 to finish configuring the endpoint.
8. If not previously installed, install `gifs-utils`.
9. Enter the following on your Linux server:

   ```
   $ mkdir /mnt/myCIFS1
   ```

```
$ mount -t cifs -o username=user //HostIP/MyCifsVolume/MyCifsShare1
/mnt/myCIFS1
```

10. Using the Rio MediaEngine user interface, click **Add Endpoint**. The Add Endpoint dialog box displays with NAS selected as the type.
11. Enter the desired **Name** for the endpoint.
12. Enter the following for the **Endpoint**:

    ```
    file://mnt/myCIFS1
    ```

13. Click **Submit**.

Test the Installation

To test the installation, you need to download Postman or a similar tool. Postman is a generic restful client with a free version available for Windows OS and macOS. Postman is used for sending commands through the Spectra Rio MediaEngine application.

Postman can be downloaded from *https://www.getpostman.com/downloads/*.

You can view all API commands on the computer where Rio MediaEngine is installed from https://localhost:5050/api/viewer/index.html.

Use the instructions in this section to test your installation.

Test Setup

1. Start Postman. The main screen displays.

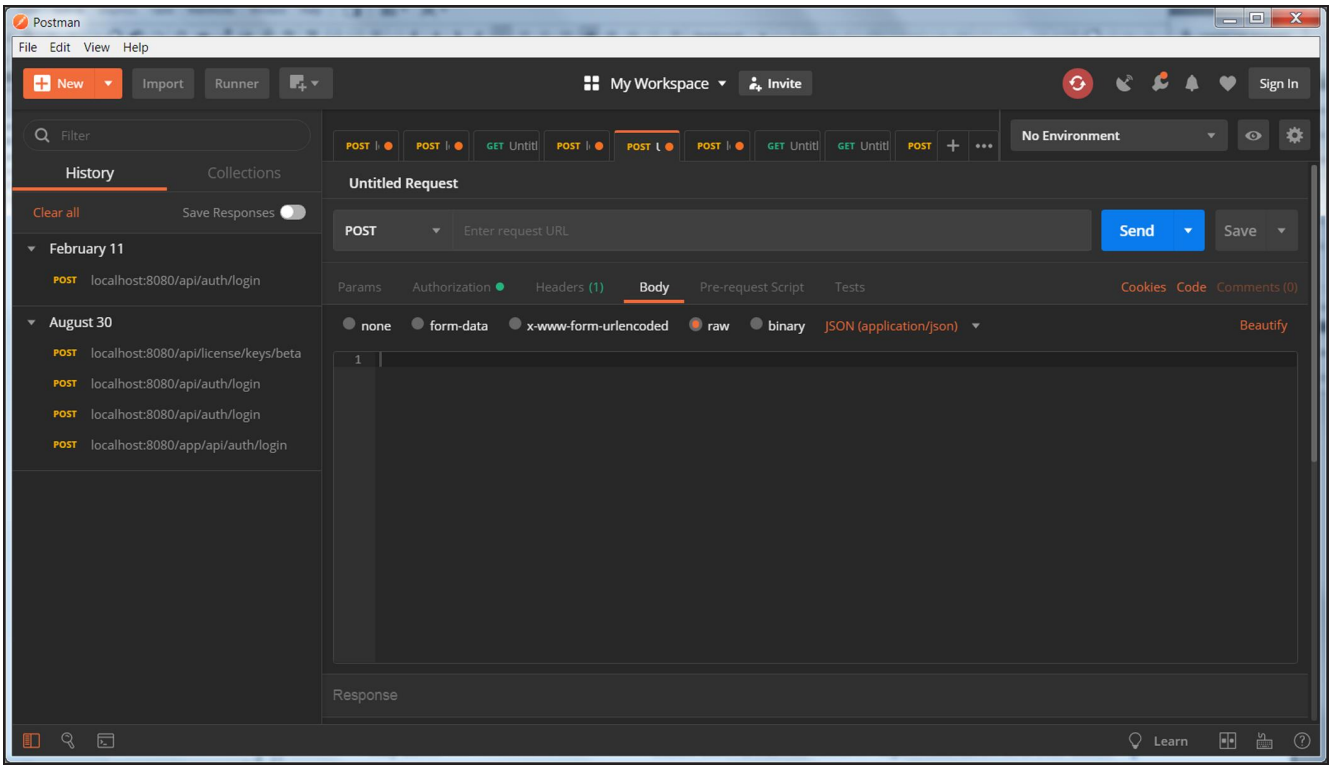

Figure 48 The Postman main screen.

2. Navigate to **File > Settings**. The settings screen displays.

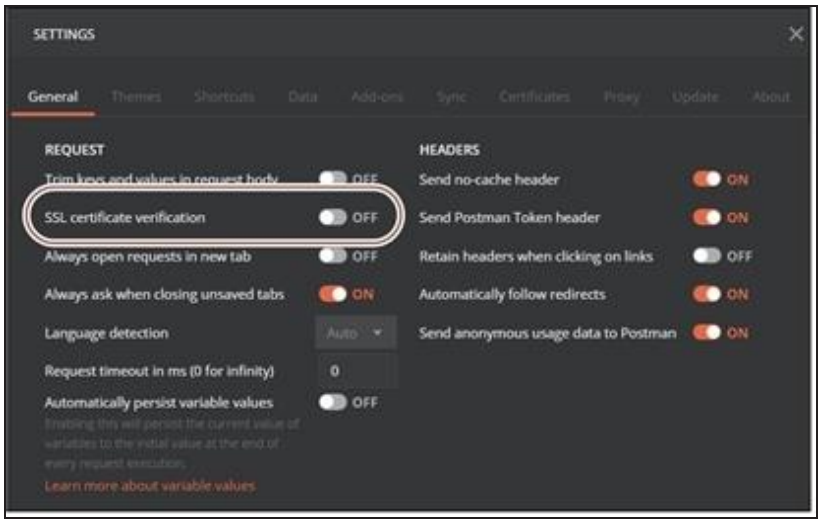

Figure 49 The Postman Settings screen.

3. Turn off **SSL certificate verification** and close the Settings dialog box.
4. If necessary, on the main screen select the Body tab. Verify that **raw** and **JSON (application/json)** are selected. See Figure 48 on page 69.

Note: These settings are used for all communications with Rio MediaEngine.

5. Use the following steps to obtain an authorization token. Authorization tokens expire in one hour, but can be generated as often as needed during testing.

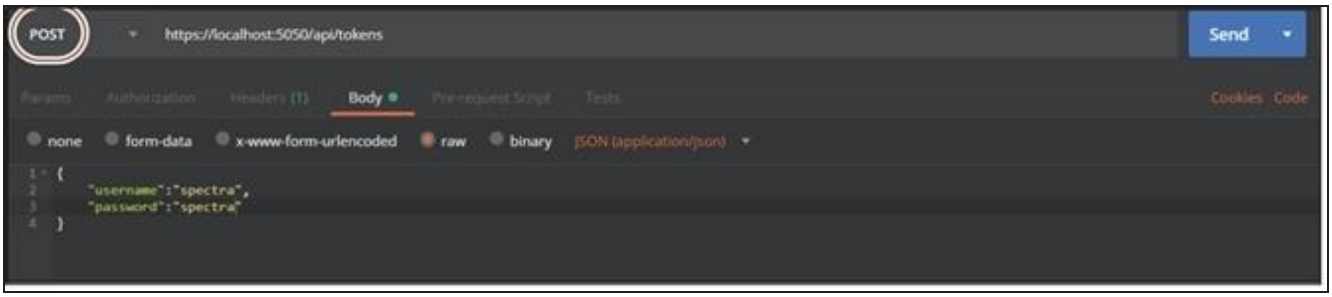

Figure 50 Request an authorization token using Postman.

   a. If necessary, select **POST** from the drop-down menu next to the Request URL field.
   b. Enter the command `https://localhost:5050/api/tokens` in the Request URL field.
   c. In the Body area, enter:

```
{
  "username":"spectra",
  "password":"spectra"
}
```

   d. Click **Send**. The response displays in the response pane. Copy the token.

Figure 51 The response from the token request.

e. In the workspace, select the **Authorization** tab.

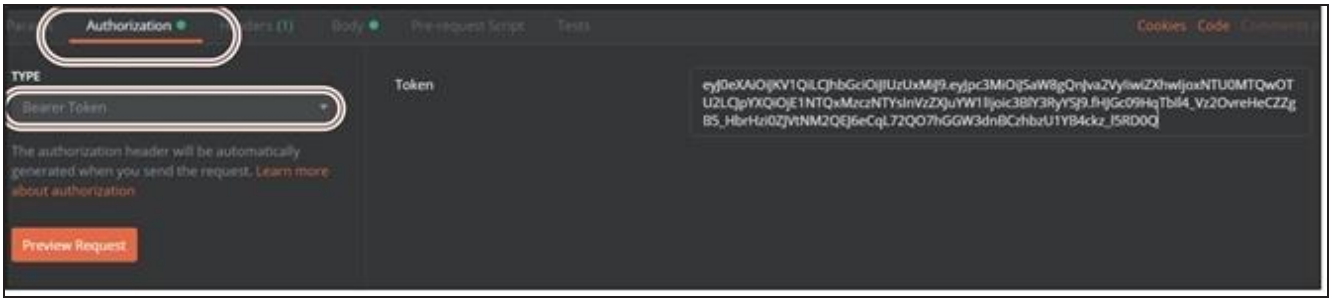

Figure 52 Enter the token.

f. Very that **Type** is set to Bearer Token and paste the token in the Token field.

Note: Each new tab in Postman needs to have the token pasted into the authorization field.

Test with a Small Text File

Use a small text file to test communication to the Rio MediaEngine application.

1. Create a small text file to use for testing.
2. Use the following steps to archive the small text file to the BlackPearl system using the Spectra Rio MediaEngine application.

Note: The following example uses a file named Testing1.txt located on the desktop.

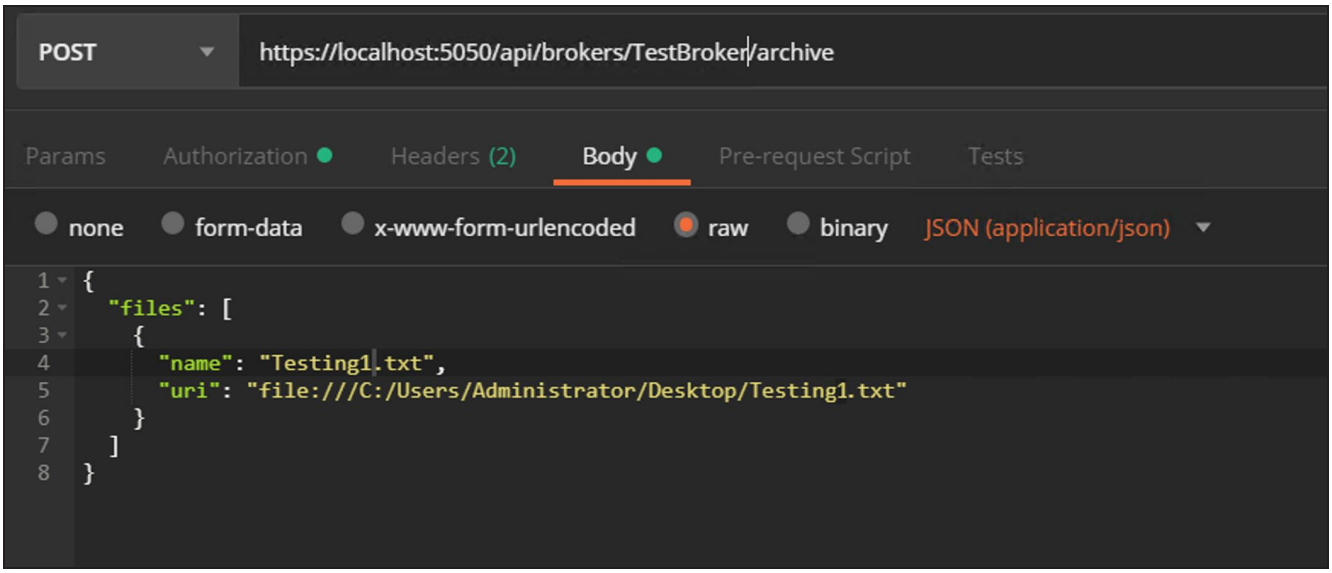

Figure 53 An archive request example.

a. If necessary, select **POST** from the drop-down menu next to the Request URL field.

b. Enter the command `https://localhost:5050/api/brokers/{`*brokername*`}/archive` in the Request URL field. Use the namespace name configured in Step Chapter 3 on page 33.

c. The archive command requires the file name and URI. In the Body area, enter:

```
{
  "files": [
    {
      "name":"[file name]",
      "uri":"[full file uri]"
    }
  ]
}
```

d. Click **Send**. The response displays in the response pane.

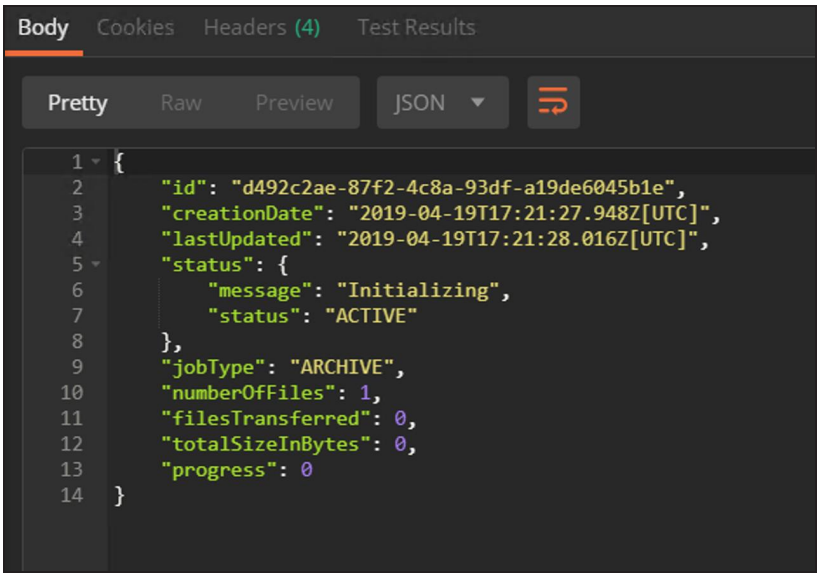

Figure 54 The response from the archive request.

3. Confirm that the test file was successfully archived using either the Spectra Rio MediaEngine user interface or Postman.

- Using the Spectra Rio MediaEngine user interface, select **Job Status** in the taskbar, and use the **Status** drop-down menu to select **Completed** jobs. If the archive was successful, the job displays here. If the job is not listed, use the **Status** drop-down menu to select **Failed** jobs. If the job is listed here, select the failed job to see additional information about why the job failed.
- More information about why a job failed can be found in the Spectra Rio MediaEngine logs. See Logs on page 119 for more information.
- Using Postman,

    i. Open a new tab and select **GET** from the drop-down menu next to the Request URL field (see Figure 53 on page 72).

    ii. Enter the command `https://localhost:5050/api/jobs/{`*jobId*`}` in the Request URL field. For jobId, use the ID from the archive request response.

    iii. Click **Send**. The response will list the Job ID, creation date, last updated date, and the status of the job.

4. Use the following steps to restore the small text file.

    a. If necessary, select **POST** from the drop-down menu next to the Request URL field.

    b. Enter the command `https://localhost:5050/api/brokers/{`*brokername*`}/restore` in the Request URL field. Use the namespace name configured in Step Chapter 3 on page 33.

    c. In the Body area, enter:

```
{
  "files": [
    {
      "name":"[file name]",
      "uri":"[full file uri]"
    }
  ]
}
```

The file URI must be directed to a different location than the test file's original location. Or, if restoring to the original location, the file name must be changed.

d. Click **Send**. The response displays in the response pane.

Test Performance

To test Spectra Rio MediaEngine performance, you must first use the Dummy File Creator application to generate the files used in the testing the write/read speed of the Rio MediaEngine application. Download the Dummy File Creator from *http://www.mynikko.com/dummy/.*

1. Utilizing the Dummy File Creator, create 100 1 GB files.
   a. If necessary, create a directory on the host system where you want to generate the test files.
   b. In the directory created in Step a, create a new text file.
   c. Using a text file editor, enter:

- the directory name created in Step a.
- the desired file name.
- the binary value for 1 GB (`1073741824`).
- and include the character zero after the file size value.

Use a new line for each file. Refer to the example below.

```
C:\Media\Test_Files\1.txt      1073741824    0
C:\Media\Test_Files\2.txt      1073741824    0
C:\Media\Test_Files\3.txt      1073741824    0
C:\Media\Test_Files\4.txt      1073741824    0
C:\Media\Test_Files\5.txt      1073741824    0
...
```

C:\Media\Test_Files\100.txt 1073741824 0

d. Using the Widows Start menu, or the icon on the desktop, launch the Dummy File Creator application.

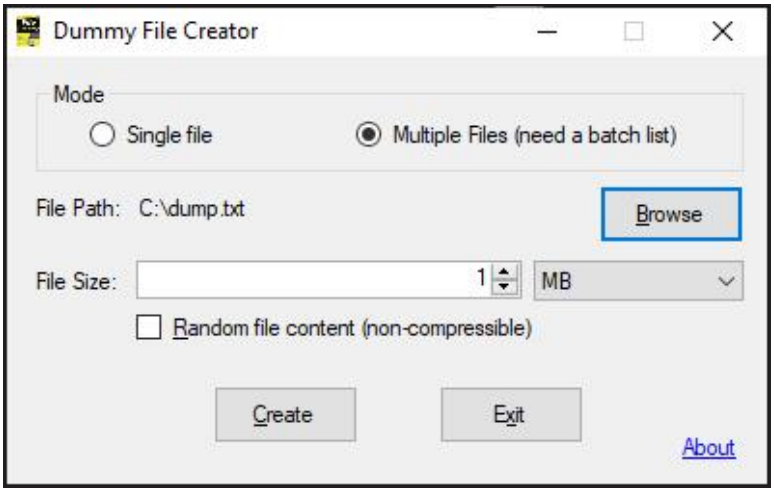

Figure 55 The Dummy File Creator dialog box.

e. Select **Multiple Files**.

f. **Browse** to the location of the text file created in Step a.

g. Use the data size drop-down menu to select **GB**.

h. Click **Create**. The Dummy File Creator creates 100, 1 GB files.

2. Use the following steps to archive the files to the BlackPearl system using the Spectra Rio MediaEngine application.

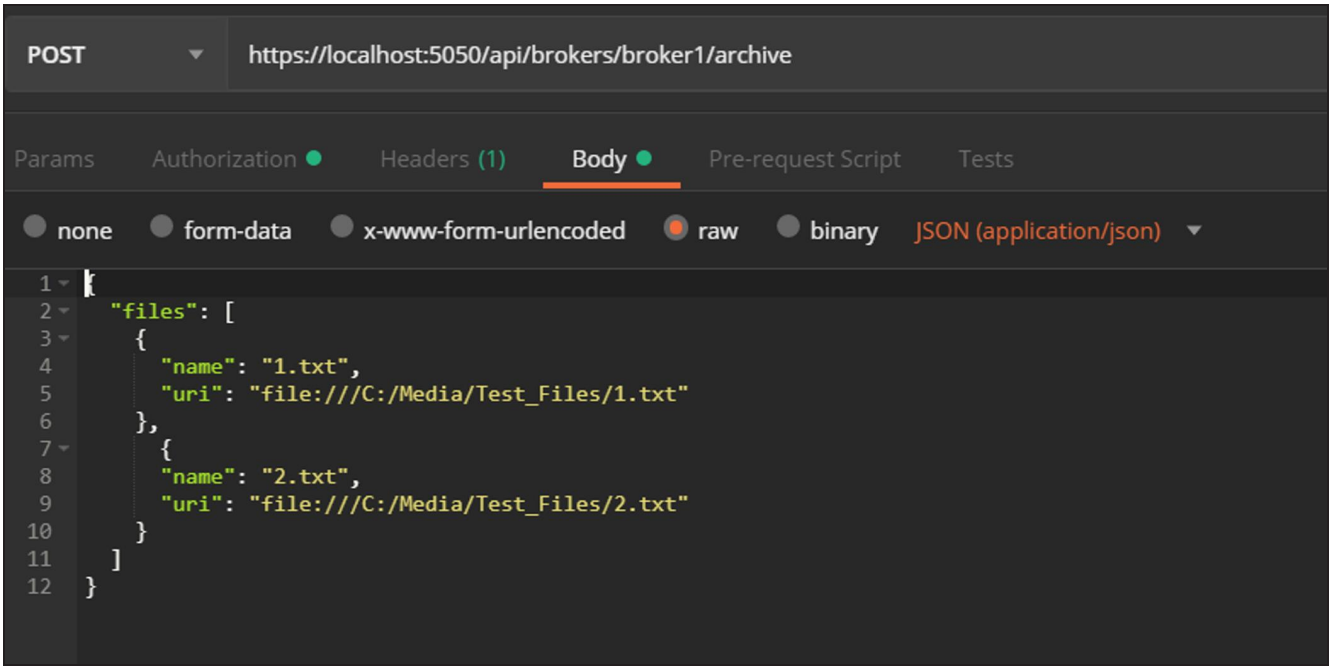

Figure 56 A multiple file archive request example (only two files displayed).

a. If necessary, select **POST** from the drop-down menu next to the Request URL field.

b. Enter the command `https://localhost:5050/api/brokers/{`*brokername*`}/archive` in the Request URL field. Use the namespace name configured in Step Chapter 3 on page 33.

c. In the Body area, enter the following:

```
{
  "files": [
    {
      "name":"[file name]",
      "uri":"[full file uri]"
    }
  ]
}
```

If you used the example file names given in Step 1 on page 74, you can copy and paste the following:

```
{
  "files": [
{"name": "1.txt",
    "uri": "file:///C:/Media/Test_Files/1.txt"},
```

{"name": "2.txt",
"uri": "file:///C:/Media/Test_Files/2.txt"},
{"name": "3.txt",
"uri": "file:///C:/Media/Test_Files/3.txt"},
{"name": "4.txt",
"uri": "file:///C:/Media/Test_Files/4.txt"},
{"name": "5.txt",
"uri": "file:///C:/Media/Test_Files/5.txt"},
{"name": "6.txt",
"uri": "file:///C:/Media/Test_Files/6.txt"},
{"name": "7.txt",
"uri": "file:///C:/Media/Test_Files/7.txt"},
{"name": "8.txt",
"uri": "file:///C:/Media/Test_Files/8.txt"},
{"name": "9.txt",
"uri": "file:///C:/Media/Test_Files/9.txt"},
{"name": "10.txt",
"uri": "file:///C:/Media/Test_Files/10.txt"},
{"name": "11.txt",
"uri": "file:///C:/Media/Test_Files/11.txt"},
{"name": "12.txt",
"uri": "file:///C:/Media/Test_Files/12.txt"},
{"name": "13.txt",
"uri": "file:///C:/Media/Test_Files/13.txt"},
{"name": "14.txt",
"uri": "file:///C:/Media/Test_Files/14.txt"},
{"name": "15.txt",
"uri": "file:///C:/Media/Test_Files/15.txt"},
{"name": "16.txt",
"uri": "file:///C:/Media/Test_Files/16.txt"},
{"name": "17.txt",

"uri": "file:///C:/Media/Test_Files/17.txt"},
{"name": "18.txt",
"uri": "file:///C:/Media/Test_Files/18.txt"},
{"name": "19.txt",
"uri": "file:///C:/Media/Test_Files/19.txt"},
{"name": "20.txt",
"uri": "file:///C:/Media/Test_Files/20.txt"},
{"name": "21.txt",
"uri": "file:///C:/Media/Test_Files/21.txt"},
{"name": "22.txt",
"uri": "file:///C:/Media/Test_Files/22.txt"},
{"name": "23.txt",
"uri": "file:///C:/Media/Test_Files/23.txt"},
{"name": "24.txt",
"uri": "file:///C:/Media/Test_Files/24.txt"},
{"name": "25.txt",
"uri": "file:///C:/Media/Test_Files/25.txt"},
{"name": "26.txt",
"uri": "file:///C:/Media/Test_Files/26.txt"},
{"name": "27.txt",
"uri": "file:///C:/Media/Test_Files/27.txt"},
{"name": "28.txt",
"uri": "file:///C:/Media/Test_Files/28.txt"},
{"name": "29.txt",
"uri": "file:///C:/Media/Test_Files/29.txt"},
{"name": "30.txt",
"uri": "file:///C:/Media/Test_Files/30.txt"},
{"name": "31.txt",
"uri": "file:///C:/Media/Test_Files/31.txt"},
{"name": "32.txt",
"uri": "file:///C:/Media/Test_Files/32.txt"},

{"name": "33.txt",
"uri": "file:///C:/Media/Test_Files/33.txt"},
{"name": "34.txt",
"uri": "file:///C:/Media/Test_Files/34.txt"},
{"name": "35.txt",
"uri": "file:///C:/Media/Test_Files/35.txt"},
{"name": "36.txt",
"uri": "file:///C:/Media/Test_Files/36.txt"},
{"name": "37.txt",
"uri": "file:///C:/Media/Test_Files/37.txt"},
{"name": "38.txt",
"uri": "file:///C:/Media/Test_Files/38.txt"},
{"name": "39.txt",
"uri": "file:///C:/Media/Test_Files/39.txt"},
{"name": "40.txt",
"uri": "file:///C:/Media/Test_Files/40.txt"},
{"name": "41.txt",
"uri": "file:///C:/Media/Test_Files/41.txt"},
{"name": "42.txt",
"uri": "file:///C:/Media/Test_Files/42.txt"},
{"name": "43.txt",
"uri": "file:///C:/Media/Test_Files/43.txt"},
{"name": "44.txt",
"uri": "file:///C:/Media/Test_Files/44.txt"},
{"name": "45.txt",
"uri": "file:///C:/Media/Test_Files/45.txt"},
{"name": "46.txt",
"uri": "file:///C:/Media/Test_Files/46.txt"},
{"name": "47.txt",
"uri": "file:///C:/Media/Test_Files/47.txt"},
{"name": "48.txt",

"uri": "file:///C:/Media/Test_Files/48.txt"},
{"name": "49.txt",
"uri": "file:///C:/Media/Test_Files/49.txt"},
{"name": "50.txt",
"uri": "file:///C:/Media/Test_Files/50.txt"},
{"name": "51.txt",
"uri": "file:///C:/Media/Test_Files/51.txt"},
{"name": "52.txt",
"uri": "file:///C:/Media/Test_Files/52.txt"},
{"name": "53.txt",
"uri": "file:///C:/Media/Test_Files/53.txt"},
{"name": "54.txt",
"uri": "file:///C:/Media/Test_Files/54.txt"},
{"name": "55.txt",
"uri": "file:///C:/Media/Test_Files/55.txt"},
{"name": "56.txt",
"uri": "file:///C:/Media/Test_Files/56.txt"},
{"name": "57.txt",
"uri": "file:///C:/Media/Test_Files/57.txt"},
{"name": "58.txt",
"uri": "file:///C:/Media/Test_Files/58.txt"},
{"name": "59.txt",
"uri": "file:///C:/Media/Test_Files/59.txt"},
{"name": "60.txt",
"uri": "file:///C:/Media/Test_Files/60.txt"},
{"name": "61.txt",
"uri": "file:///C:/Media/Test_Files/61.txt"},
{"name": "62.txt",
"uri": "file:///C:/Media/Test_Files/62.txt"},
{"name": "63.txt",
"uri": "file:///C:/Media/Test_Files/63.txt"},

{"name": "64.txt",
"uri": "file:///C:/Media/Test_Files/64.txt"},
{"name": "65.txt",
"uri": "file:///C:/Media/Test_Files/65.txt"},
{"name": "66.txt",
"uri": "file:///C:/Media/Test_Files/66.txt"},
{"name": "67.txt",
"uri": "file:///C:/Media/Test_Files/67.txt"},
{"name": "68.txt",
"uri": "file:///C:/Media/Test_Files/68.txt"},
{"name": "69.txt",
"uri": "file:///C:/Media/Test_Files/69.txt"},
{"name": "70.txt",
"uri": "file:///C:/Media/Test_Files/70.txt"},
{"name": "71.txt",
"uri": "file:///C:/Media/Test_Files/71.txt"},
{"name": "72.txt",
"uri": "file:///C:/Media/Test_Files/72.txt"},
{"name": "73.txt",
"uri": "file:///C:/Media/Test_Files/73.txt"},
{"name": "74.txt",
"uri": "file:///C:/Media/Test_Files/74.txt"},
{"name": "75.txt",
"uri": "file:///C:/Media/Test_Files/75.txt"},
{"name": "76.txt",
"uri": "file:///C:/Media/Test_Files/76.txt"},
{"name": "77.txt",
"uri": "file:///C:/Media/Test_Files/77.txt"},
{"name": "78.txt",
"uri": "file:///C:/Media/Test_Files/78.txt"},
{"name": "79.txt",

"uri": "file:///C:/Media/Test_Files/79.txt"},
{"name": "80.txt",
"uri": "file:///C:/Media/Test_Files/80.txt"},
{"name": "81.txt",
"uri": "file:///C:/Media/Test_Files/81.txt"},
{"name": "82.txt",
"uri": "file:///C:/Media/Test_Files/82.txt"},
{"name": "83.txt",
"uri": "file:///C:/Media/Test_Files/83.txt"},
{"name": "84.txt",
"uri": "file:///C:/Media/Test_Files/84.txt"},
{"name": "85.txt",
"uri": "file:///C:/Media/Test_Files/85.txt"},
{"name": "86.txt",
"uri": "file:///C:/Media/Test_Files/86.txt"},
{"name": "87.txt",
"uri": "file:///C:/Media/Test_Files/87.txt"},
{"name": "88.txt",
"uri": "file:///C:/Media/Test_Files/88.txt"},
{"name": "89.txt",
"uri": "file:///C:/Media/Test_Files/89.txt"},
{"name": "90.txt",
"uri": "file:///C:/Media/Test_Files/90.txt"},
{"name": "91.txt",
"uri": "file:///C:/Media/Test_Files/91.txt"},
{"name": "92.txt",
"uri": "file:///C:/Media/Test_Files/92.txt"},
{"name": "93.txt",
"uri": "file:///C:/Media/Test_Files/93.txt"},
{"name": "94.txt",
"uri": "file:///C:/Media/Test_Files/94.txt"},

{"name": "95.txt",
"uri": "file:///C:/Media/Test_Files/95.txt"},
{"name": "96.txt",
"uri": "file:///C:/Media/Test_Files/96.txt"},
{"name": "97.txt",
"uri": "file:///C:/Media/Test_Files/97.txt"},
{"name": "98.txt",
"uri": "file:///C:/Media/Test_Files/98.txt"},
{"name": "99.txt",
"uri": "file:///C:/Media/Test_Files/99.txt"},
{"name": "100.txt",
"uri": "file:///C:/Media/Test_Files/100.txt"}
]
}

d. Click **Send**. The response displays in the response pane.

3. Confirm that the test files were successfully archived using either the Spectra Rio MediaEngine user interface or Postman.
   - Using the Spectra Rio MediaEngine user interface, select **Job Status** in the taskbar, and use the **Status** drop-down menu to select **Completed** jobs. If the archive was successful, the job displays here. If the job is not listed, use the **Status** drop-down menu to select **Failed** jobs. If the job is listed here, select the failed job to see additional information about why the job failed.
   - More information about why a job failed can be found in the Spectra Rio MediaEngine logs. See Logs on page 119 for more information.
   - Using Postman,
     i. Select **GET** from the drop-down menu next to the Request URL field.
     ii. Enter the command `https://localhost:5050/api/jobs/{jobId}` in the Request URL field. For jobId, use the ID from the archive request response.
     iii. Click **Send**. The response will list the Job ID, creation date, last updated date, and the status of the job.
4. Move the dummy files to a different directory. This allows you to use the body text from Step c on page 76 for the restore command.
5. Use the following steps to restore the files.

   a. If necessary, select **POST** from the drop-down menu next to the Request URL field.
   b. Enter the command `https://localhost:5050/api/brokers/{brokername}/restore` in the Request URL field. Use the namespace name configured in Step Chapter 3 on page 33.
   c. In the Body area, enter the same text used for Step c on page 76.
   d. Click **Send**. The response displays in the response pane.
6. Log into the BlackPearl system and download a Statistic Log Set to view the read/write performance statistics. See 'Log Sets' in the *BlackPearl Converged Storage System User Guide* for instructions.
7. Delete all temporary files and directories used for testing.

Chapter 3 - Archive and Restore Using the Spectra Rio MediaEngine Application

This chapter describes how to archive and restore data, and manage jobs using the Spectra Rio MediaEngine application.

ARCHIVE FILES

The Rio MediaEngine application supports archiving files using the Rio MediaEngine user interface. Use the instructions in this section to create a new archive job.

Figure 57 The New Archive Job screen.

1. On the task bar, click **Archive**. The New Archive Job screen displays.
2. Click the name of the **Storage Endpoint** from which you want to archive files. The screen updates to show the contents of the endpoint.

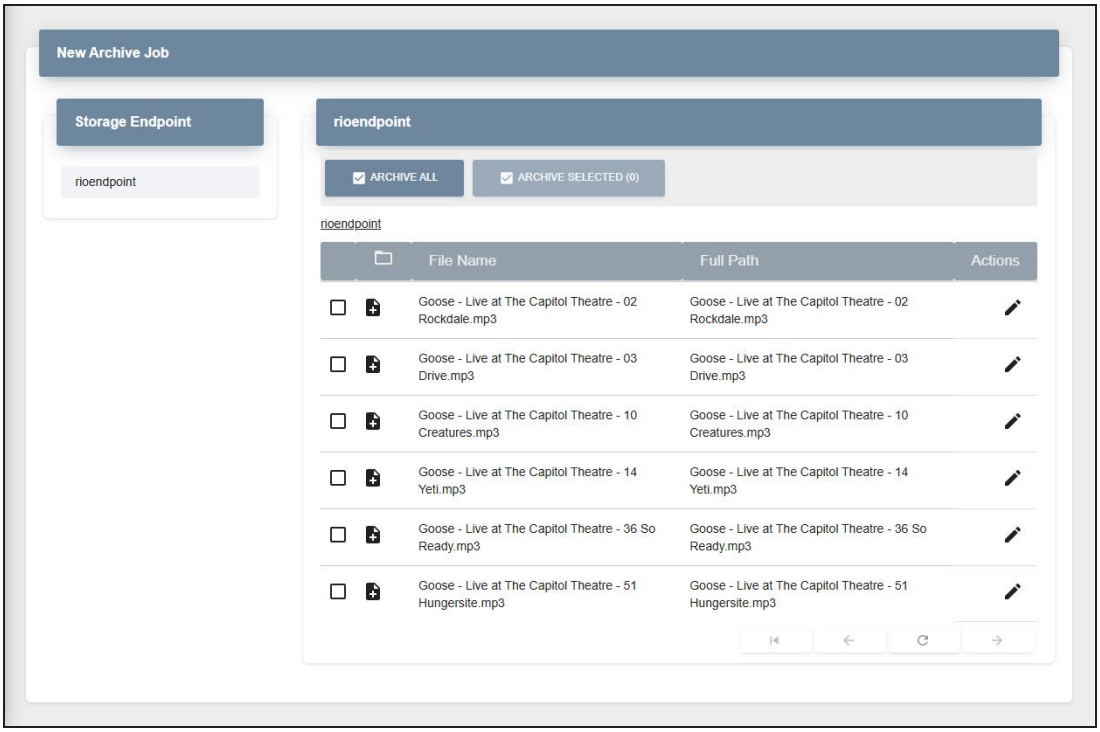

Figure 58 The New Archive Job screen.

3. Click **Archive All** to archive all objects, or select the objects you want to archive and click **Archive Selected**. The Archive Objects screen displays.

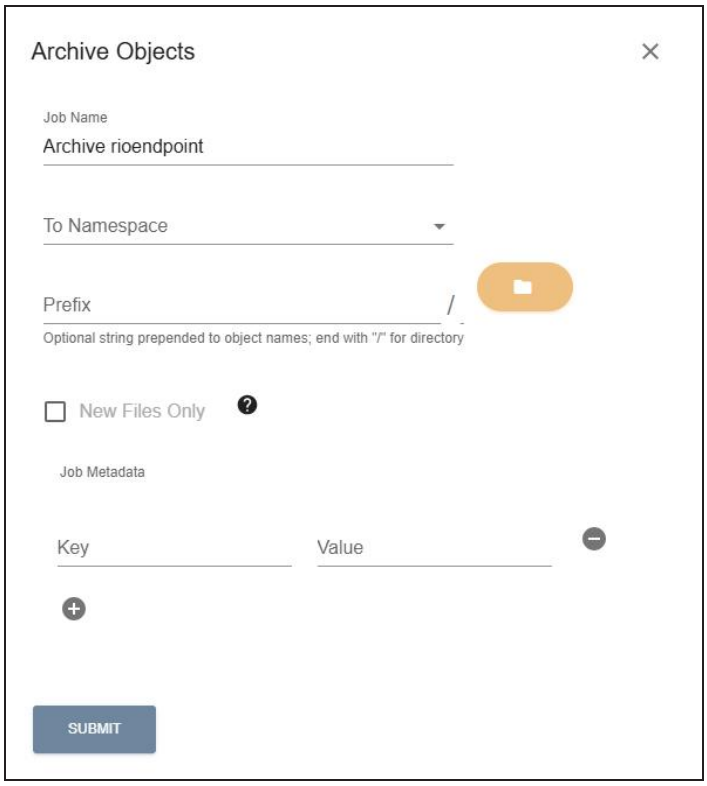

Figure 59 The Archive Objects screen.

4. If desired, change the default **Job Name**.
5. Using the **To Namespace** drop-down menu, select the destination namespace for the job.
6. If desired, enter a **Prefix** to prepend a string to all object names in the job.
   - To prepend object names directly, enter a prefix.
   - To group all objects into a new subfolder, end the string with the forward slash (/) character.
7. Select **New Files Only** to only archive files that are not already in the namespace.
8. If desired enter one or more metadata **Key** and **Value** combinations. All files included in the job are tagged with entered metadata.
9. Click **Submit**.

Note: If you select a folder to archive, the application generates a Bulk Archive job, which archives all sub-folders and files contained in the selected folder.

BROWSE AND RESTORE OBJECTS

If desired, you can browse objects archived by the Rio MediaEngine application, as well as restore files returned by a search.

1. On the task bar, select **Restore**. The Browse / Restore screen displays.

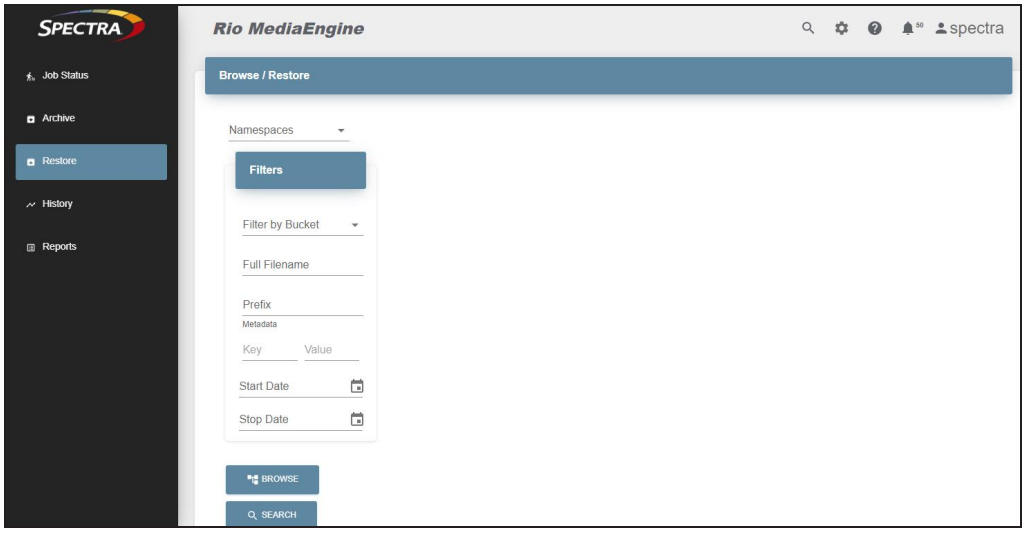

Figure 60 The Browse / Restore screen.

2. Using the **Namespace** drop-down menu, select the namespace for which you want to view objects.
3. To narrow your search, do any of the following:

- To display the objects in a specific bucket, use the **Filter by Bucket** drop-down menu to select a bucket configured in the namespace.
- To locate a specific file, enter the **Full Filename**.
- To locate objects by starting prefix, enter the filename **Prefix**. The prefix name is case sensitive.
- To locate files by metadata, enter the **Metadata** information.

Note: The Rio MediaEngine application accepts an asterisk (*), or a question mark (?) as wild cards.

- Click **Start Date** to display a calendar allowing you to select a start date for the object browser.
- Click **Stop Date** to display a calendar allowing you to select a stop date for the object browser.

Notes:
- The current date is automatically selected as the stop date.

4. Click **Search** or **Browse** to update the list displayed on the object browser screen.
   - **Browse** returns results in a directory hierarchy format.
   - **Search** returns results in a flat file format.

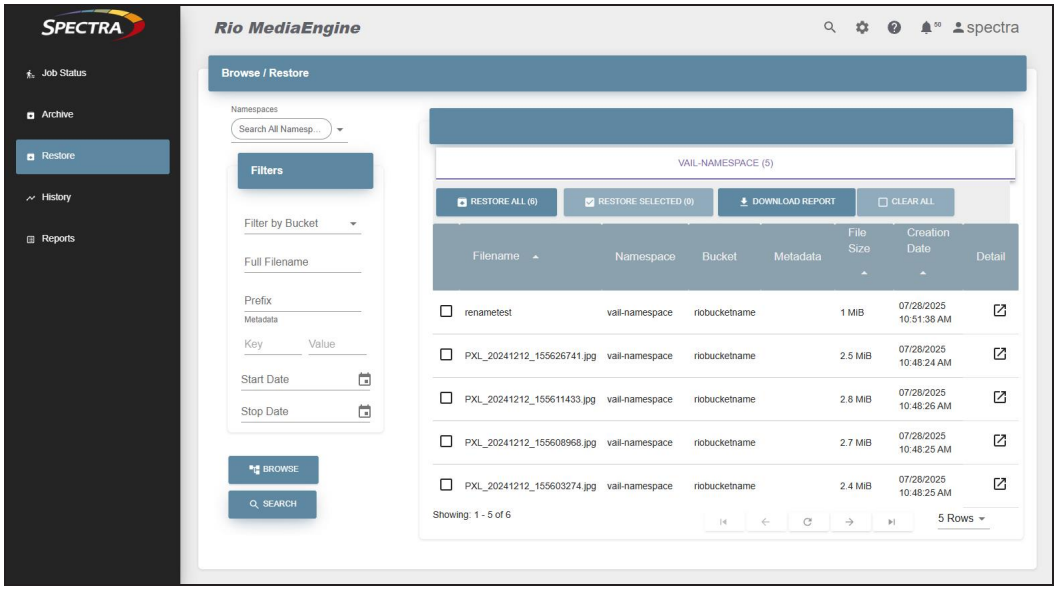

Figure 61 The Browse / Restore screen populated with objects from the selected namespace.

- Use the **Previous**, **Next**, **Beginning**, and **End** buttons to navigate the object list.
- Use the **Refresh** button to update the list of object.
- Use the **Rows** drop-down menu to set how many object are displayed at one time.

Restore a Single Object

The Rio MediaEngine application provides a feature to restore a single object.

1. Select the object you want to restore and click the **Restore Selected** button. The Restore dialog box displays.

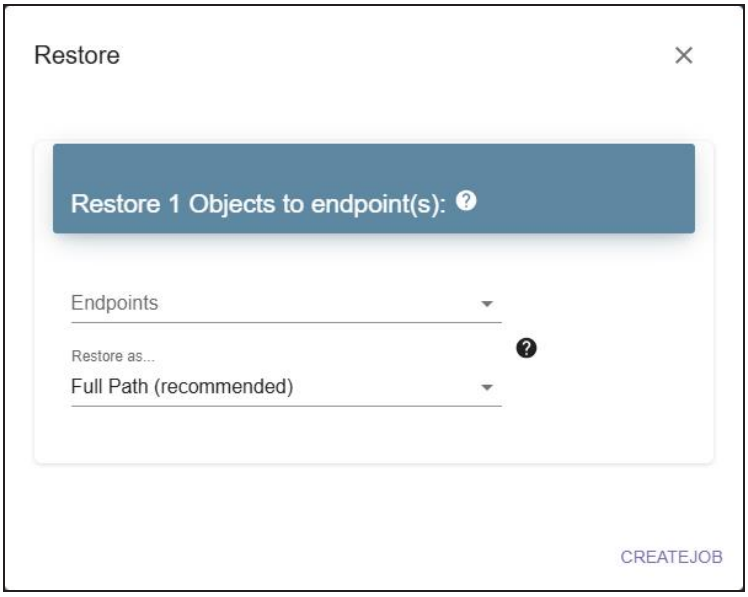

Figure 62 The Restore dialog box for restoring a single file.

2. Using the **Endpoints** drop-down menu, select one or more endpoint(s) where you want to restore the object.
3. Using the **Restore As...** drop-down menu, select between **Full Path**, **Filename**, **Prefix**, and **Replace**.
   - **Full Path** restores the full path from the object name.
   - **Filename** removes the path.
   - **Prefix** allows you to add a prefix string to the object name.
   - **Replace** allows you to change the existing string to a new string of your choice.
4. Click **Create Job**.

Restore Multiple Objects

The Rio MediaEngine application allows you to download multiple objects returned by a search.

1. After a search completes, select each object you want to restore.
2. Click **Restore Selected**. The Restore dialog box displays.

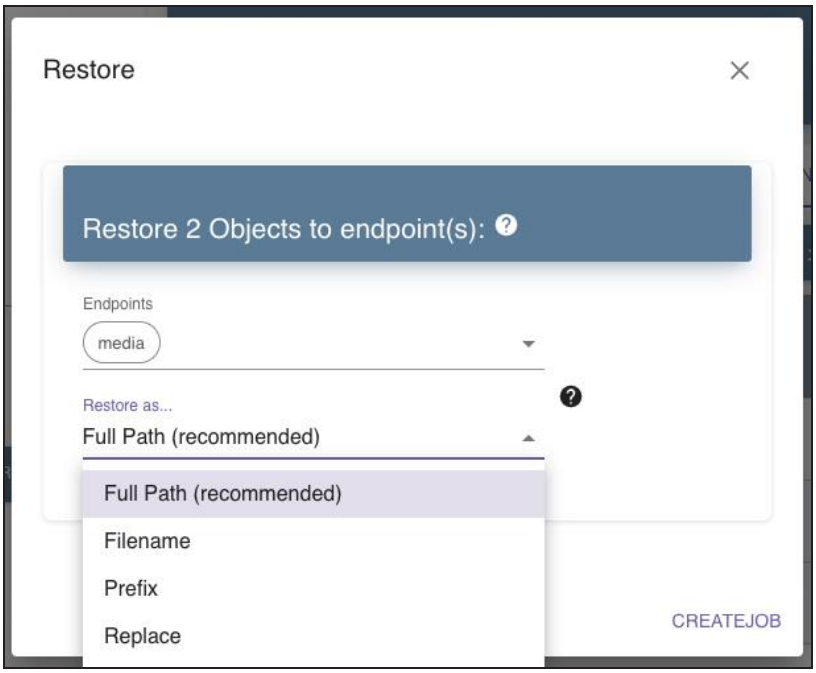

Figure 63 The Restore dialog box for restoring multiple files.

3. Using the **Endpoints** drop-down menu, select one or more endpoint(s) where you want to restore the objects.
4. Using the **Restore As...** drop-down menu, select between **Full Path**, **Filename**, **Prefix**, and **Replace**.
   - **Full Path** restores the full path from the object name.
   - **Filename** removes the path.
   - **Prefix** allows you to add a prefix string to the object name.
   - **Replace** allows you to change the existing string to a new string of your choice.
5. Click **Create Job**.

Restore All Objects

The Rio MediaEngine application provides a “one-click” feature to restore all objects found during a search.

1. After a search completes, click **Restore All**. The Restore dialog box displays.

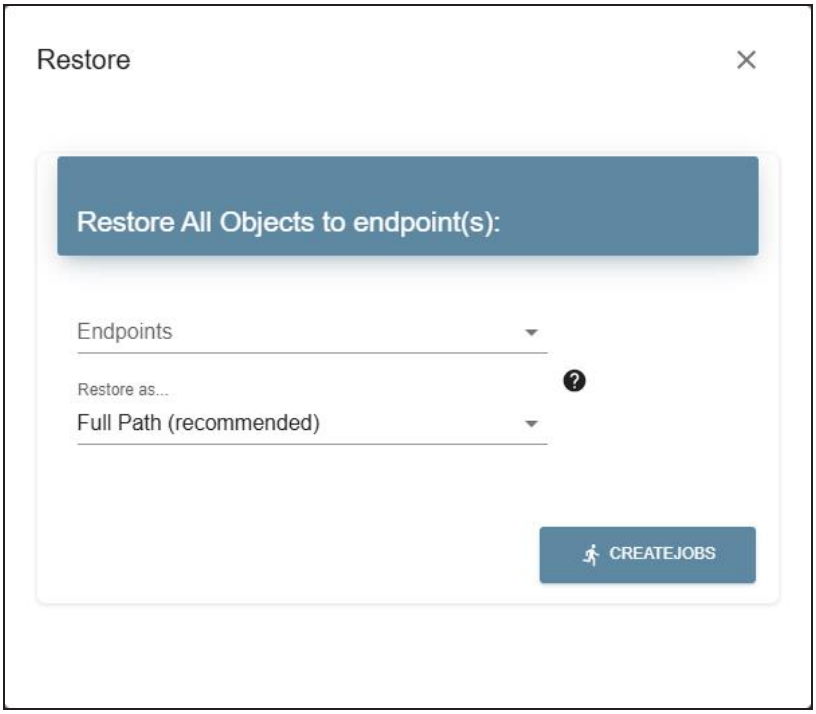

Figure 64 The Restore dialog box for restoring all files.

2. Using the **Endpoints** drop-down menu, select one ore more endpoint(s) where you want to restore the objects.
3. Using the **Restore As...** drop-down menu, select between **Full Path**, **Filename**, **Prefix**, and **Replace**.
   - **Full Path** restores the full path from the object name.
   - **Filename** removes the path.
   - **Prefix** allows you to add a prefix string to the object name.
   - **Replace** allows you to change the existing string to a new string of your choice.
4. Click **Create Job**.

View Object Details

After configuring the parameters for browsing the namespace objects, click the View Details button on the row of the object for which you want to display detailed information.

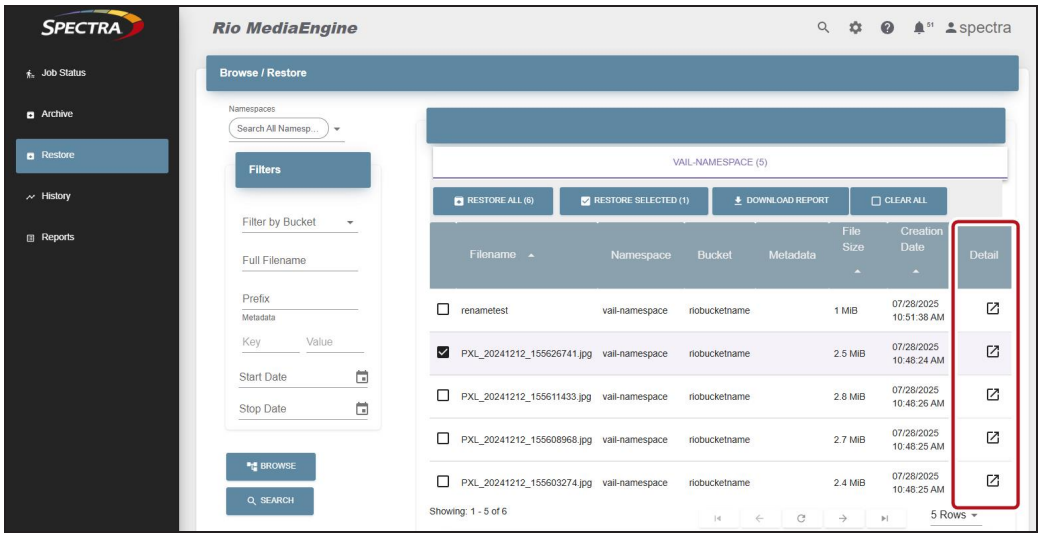

Figure 65 The Browse / Restore screen View Details button.

The details window for the object displays.

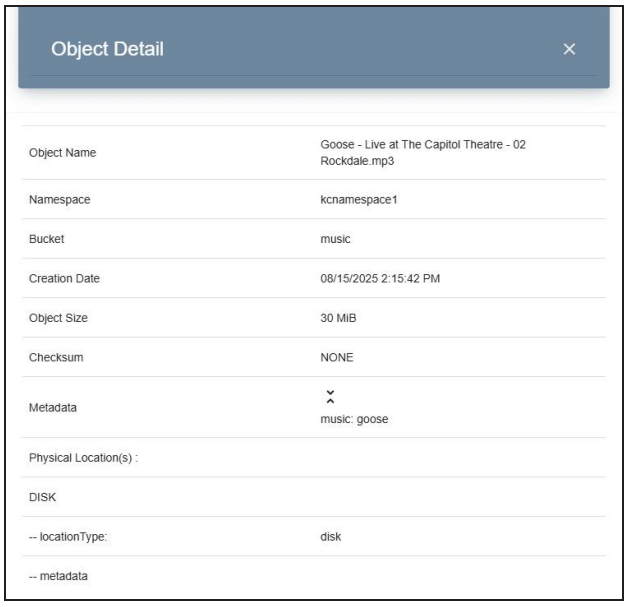

Figure 66 The Object Details screen.

Use the table below for information on the details displayed for a selected object.

Category	Description
Object Name	The filename of the object.
Namespace	The namespace used to control the placement of the object.
Bucket	The bucket containing the object.
Creation Date	The file creation date and time.
Object Size	The size of the object.
Checksum	The checksum, if any, used to verify the file during archives and restores.
Metadata	The metadata the Rio MediaEngine assigned to the file. Click the **double-arrow** icon (see Chapter 3 on page 85) to expand the list of metadata information.

Information about the physical location(s) of the object is also included in the Objects Detail screen.

Note: Not all of the fields below display for each type of location:

Category	Description
Barcode	The barcode of the tape cartridge where the object physically resides.
PartitionID	The partition ID of the tape partition in the library.
ID	The instance ID.
State	The current state of the tape cartridge where the object physically resides.
Location Type	Tape, disk, or Spectra Vail storage.
Metadata	The metadata information for the object on the location endpoint.

Note: If the object exists on multiple tape cartridges, information about each tape cartridge displays.

View Object Metadata

After configuring the parameters for browsing the namespace objects, click the **Tags** button on the row of the object for which you want to display metadata. The screen refreshes to show the metadata tags for the object.

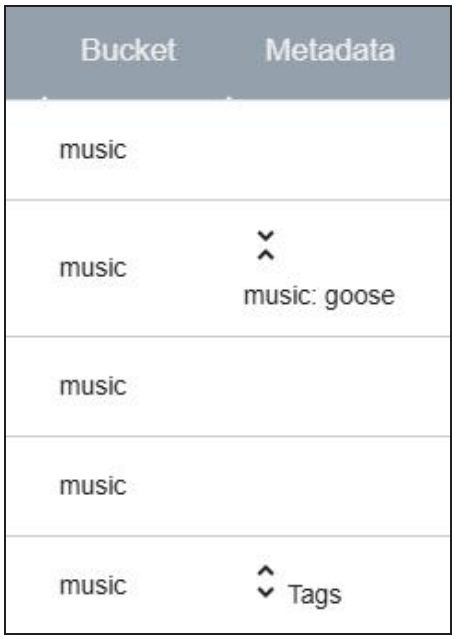

Figure 67 The Tags button.

Click the **Tags** button again to stop displaying metadata for the object.

Search and Restore Objects

If desired, you can search for files processed by the Spectra Rio MediaEngine application instead of searching for them in a BlackPearl system or your MAM or PAM application. After the search completes, you can download a report of the file of the file(s) returned by the search.

Search for Objects

Use the instructions below to search for files.

1. On the toolbar, click **Search** (magnifying glass icon). The Object Search dialog box displays.

Figure 68 The toolbar.

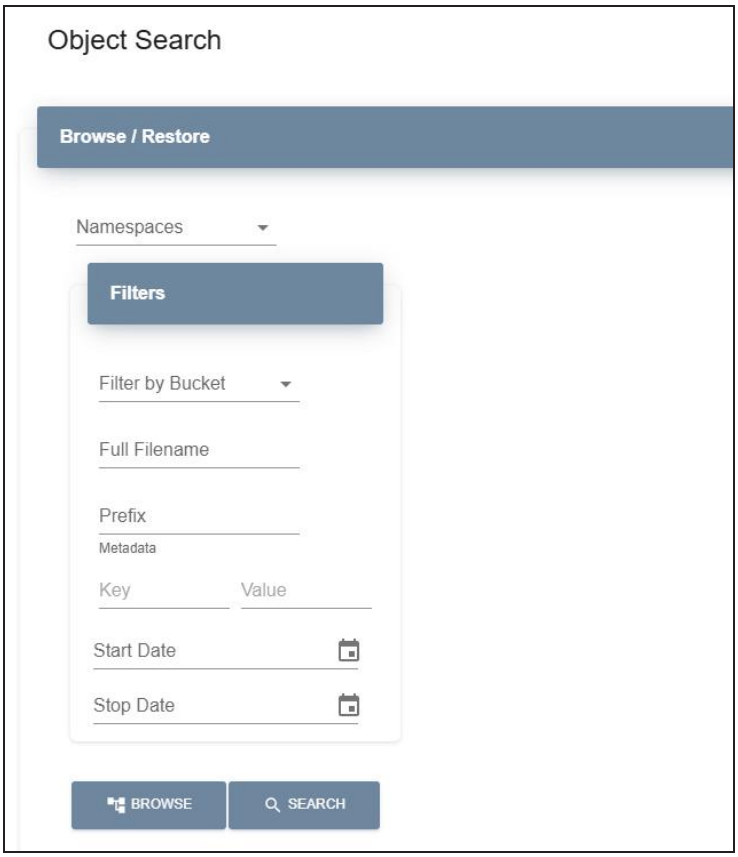

Figure 69 The Object Search dialog box.

2. Using the **Namespaces** drop-down menu, select one or more namepace(s) to search.

Note: To search all namespaces, select **Search All Namespaces**.

3. To narrow your search, do one of the following:

- To locate a specific file, enter the **Full Filename** of the file.
- To locate files by starting prefix, enter the **Filename Prefix**.
- To locate files by metadata, enter the **Metadata** information. The Metadata search value can either be a string to match a value, or a key/name pair.

Note: The Rio MediaEngine application accepts an asterisk (*), or a question mark (?) as wild cards.

- To restrict your search to a specific date range, use the **Start Date** and **Stop Date** calendar menus.

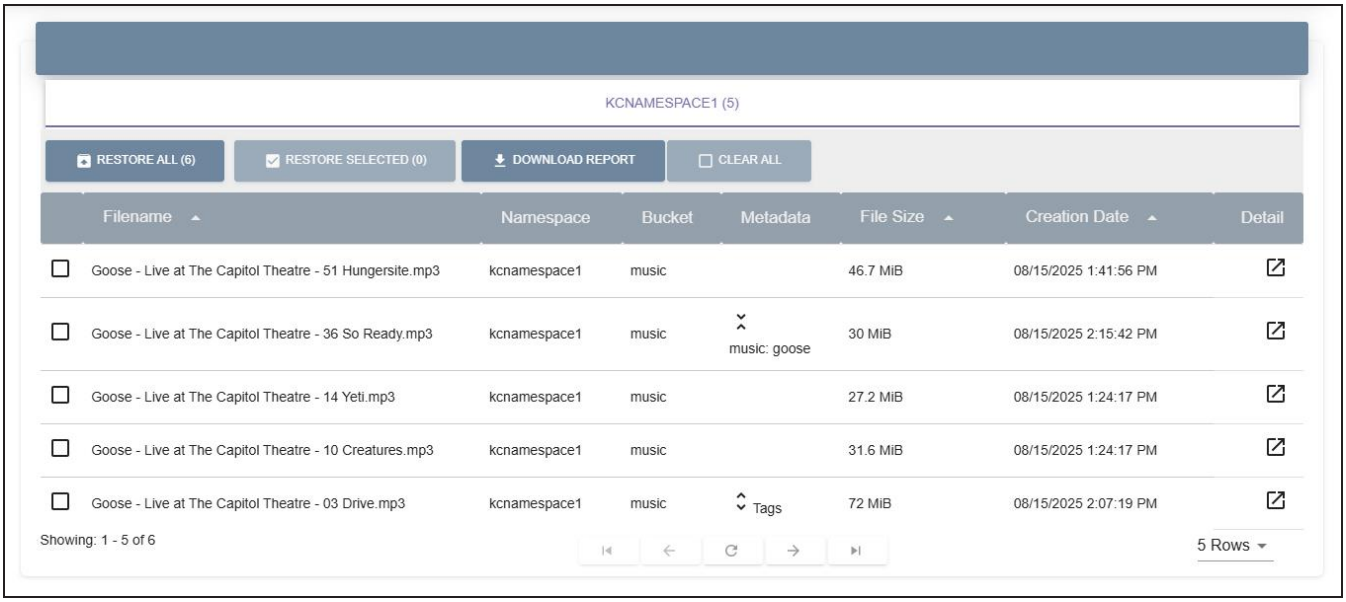

Figure 70 The Object Search dialog box with search results.

4. Click **Search** to view flat files or **Browse** to view the directory hierarchy. The results display.

- Use the **Previous**, **Next**, **Beginning**, and **End** buttons to navigate the object list.
- Use the **Refresh** button to update the list of objects.
- Use the **Rows** drop-down menu to set how many objects are displayed at one time.

Restore Objects

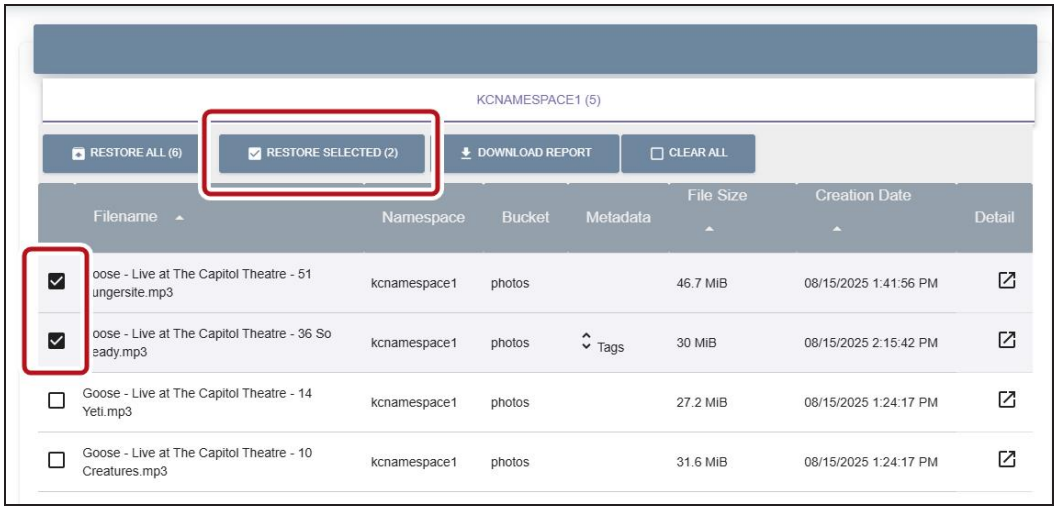

Figure 71 The Restore Selected button.

1. Select the row of the object(s) you want to restore, then click **Restore Selected**, or click **Restore All**. The Restore dialog box displays.

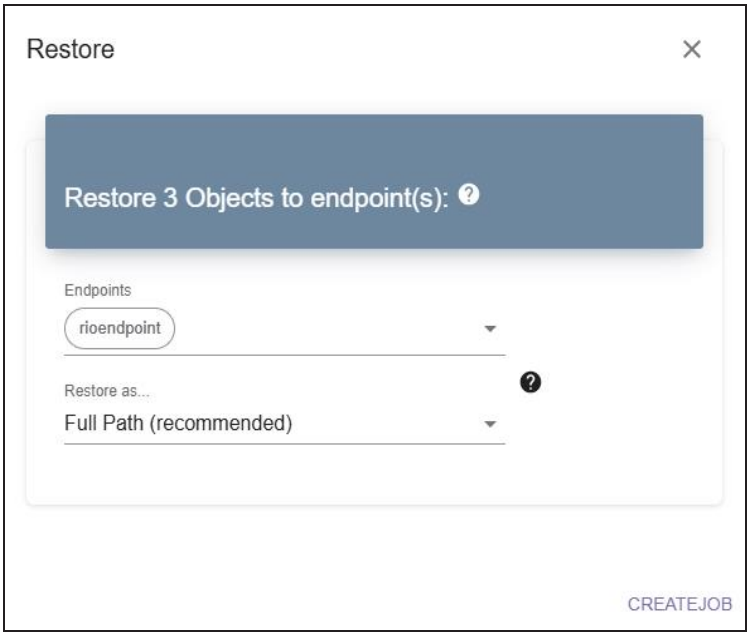

Figure 72 The Restore dialog box.

2. Using the **Endpoints** drop-down menu, select one or more endpoint(s) where you want to restore the object.

3. Using the **Restore As...** drop-down menu, select between **Full Path**, **Filename**, **Prefix**, and **Replace**.
   - **Full Path** restores the full path from the object name.
   - **Filename** removes the path.
   - **Prefix** allows you to add a prefix string to the object name.
   - **Replace** allows you to change the existing string to a new string of your choice.
4. Click **Create Job**.

Download Object Report

After you have performed an object search, you can download a report of the objects in CSV or JSON format.

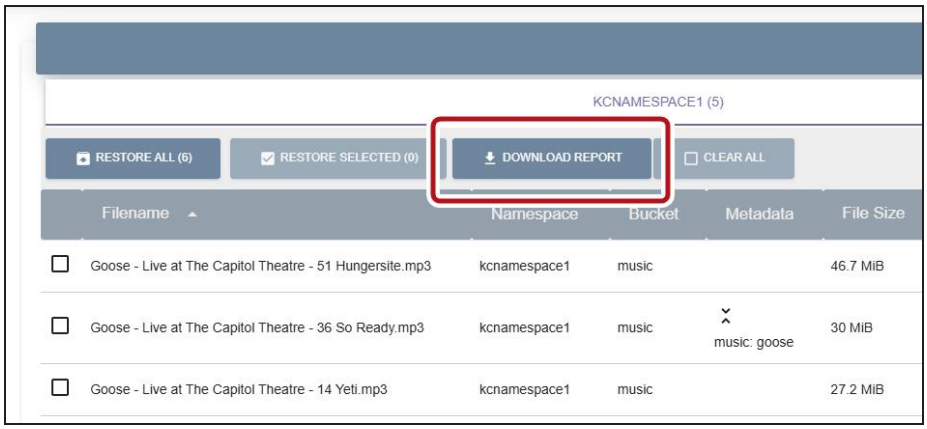

Figure 73 The Download Report button.

1. In the Search dialog box, click **Download Report**. The Download Reports screen displays.

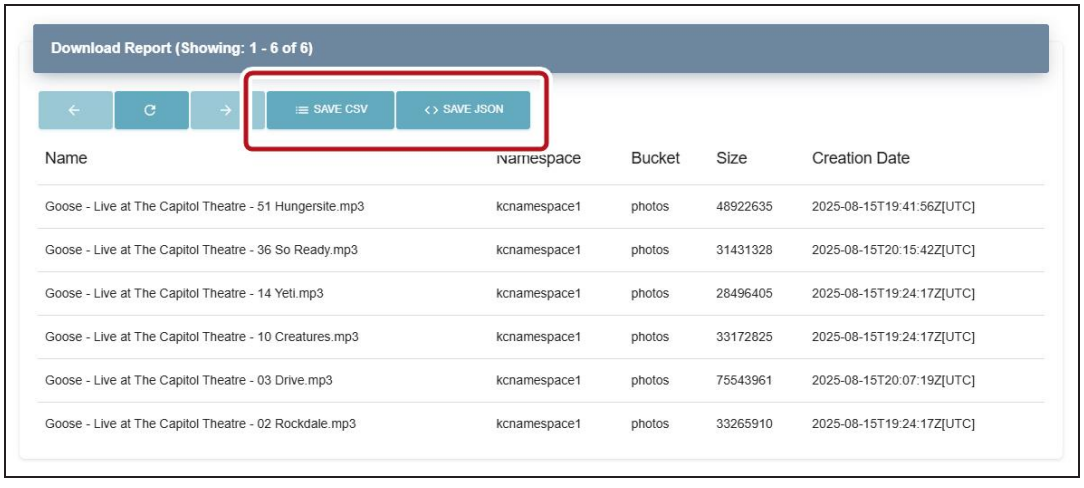

Figure 74 The Download Reports screen.

2. Click **Save CSV** or **Save JSON** to download the report in the specified format.

MANAGE JOBS

The Job screen provides the current status of all jobs processed by the application, as well as the ability to cancel an in-progress job, and to restart a canceled job.

View Job Status

If desired, you can use the Spectra Rio MediaEngine application to view the job status of active, completed, and canceled jobs. From the Jobs screen you can change a job priority, cancel a job, and view detailed information about job, and files in the job.

Note: In a multi-cluster configuration, all jobs display the master node as the owner of the file.

1. On the task bar, click **Job Status**. The Jobs screen displays.

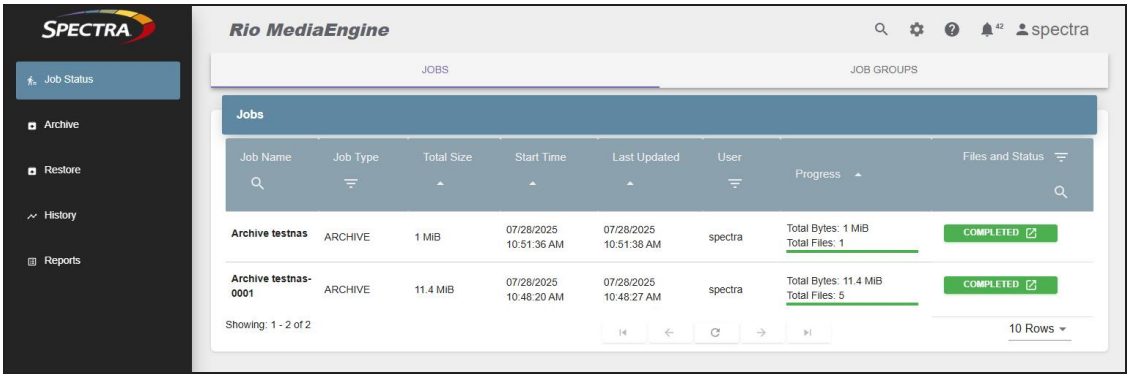

Figure 75 The Jobs screen.

2. Click **Files and Status**, and then click **Completed**, **Canceled**, **Active,** or **Failed** to view the status of jobs in each category.

View Active Job Transfer Information

The Rio MediaEngine Jobs screen also displays the amount of data transferred and percentage complete for each active job, and the current data transfer speed.

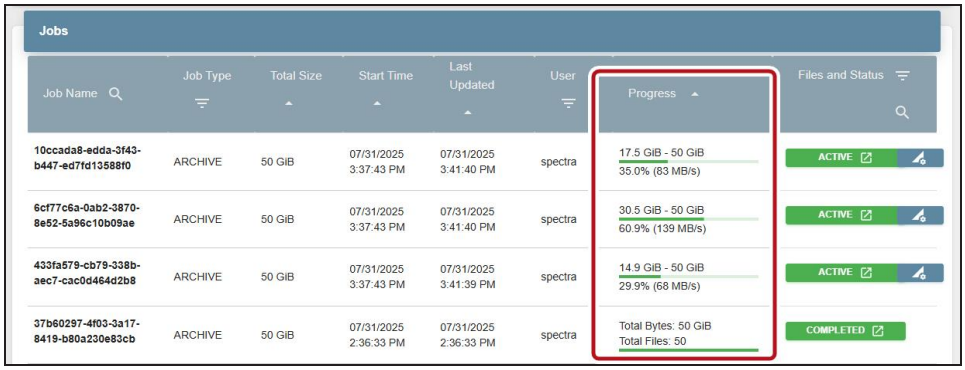

Figure 76 Active job transfer information.

Change Job Priority

If desired, you can change the priority of an in-progress job.

1. On the task bar, click **Job Status**. The Jobs screen displays.

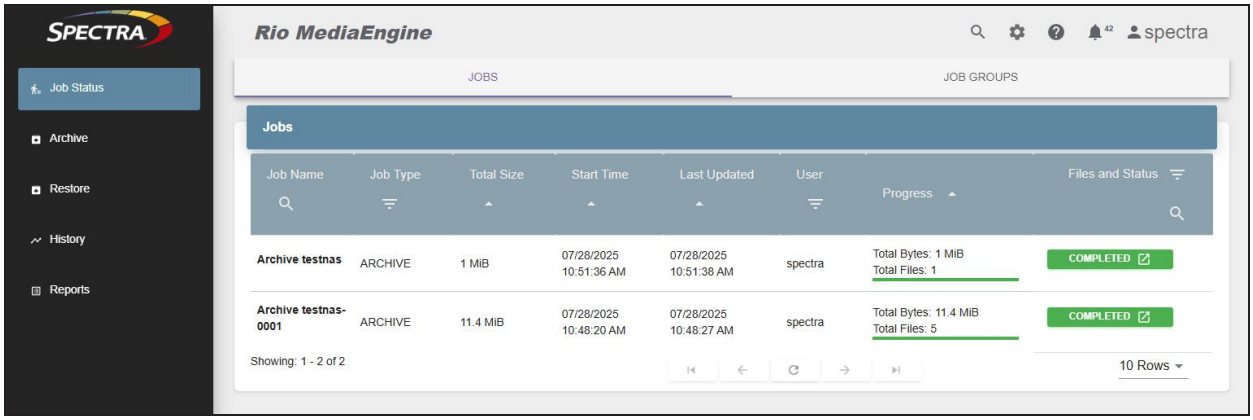

Figure 77 The Jobs screen.

2. If necessary, use the **Files and Status** drop-down menu and select **Active**.
3. Click the **Job Manager** icon (purple rectangle with a **triangle** and **gear**) next to the job for which you want to change the priority. The Job Manager screen displays.

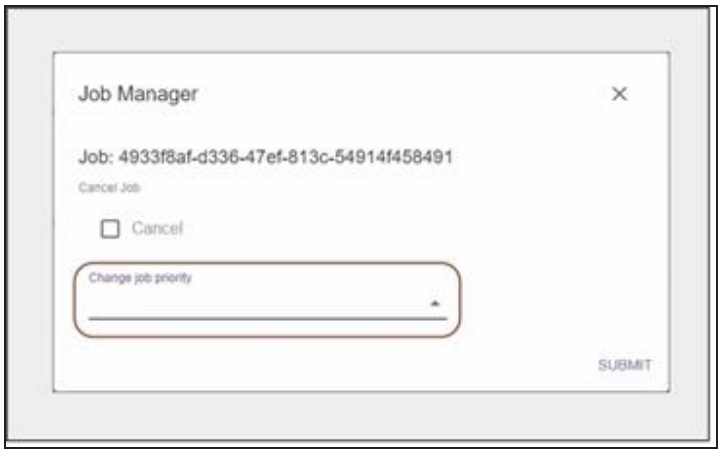

Figure 78 The Job Manager screen.

4. Use the **Change job priority** drop-down menu to select the new job priority. The job priority options are **Urgent**, **High**, **Normal**, and **Low**.

Note: Spectra Logic does not recommend setting jobs to **Urgent**.

5. Click **Submit**.

Cancel an Active Job

If desired, you can cancel an active job using the Spectra Rio MediaEngine application.

1. On the task bar, click **Job Status**. The Jobs screen displays.

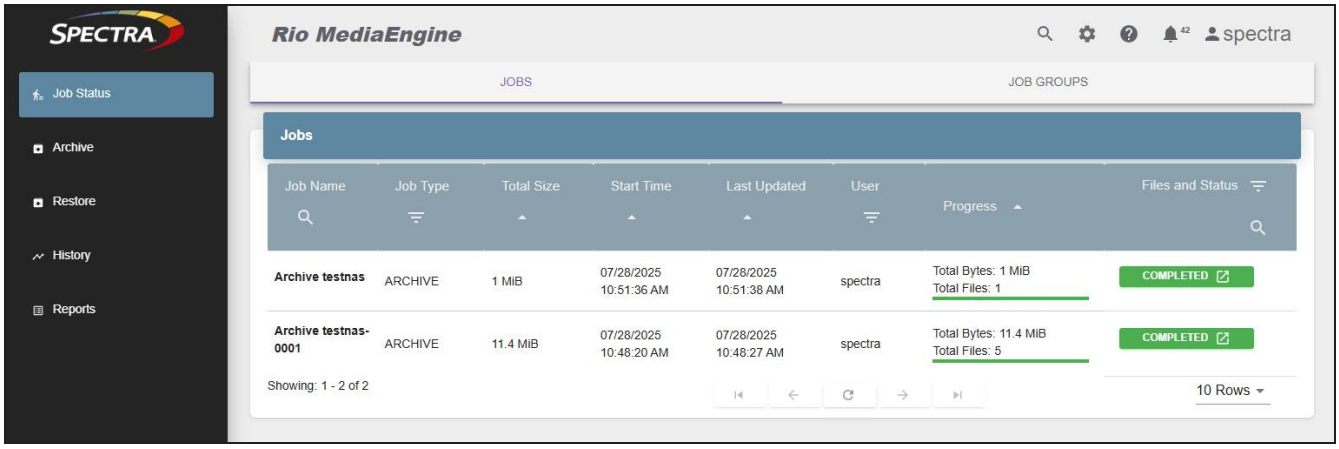

Figure 79 The Jobs screen.

2. If necessary, use the **Files and Status** drop-down menu and select **Active**.
3. Click the **Job Manager** icon (purple rectangle with a **triangle** and **gear**) next to the job you want to cancel. The Job Manager screen displays.

Figure 80 The Job Manager screen.

4. Select **Cancel** and click **Submit** to cancel the job.

Restart a Job

If a job failed or was manually canceled, you can use the Rio MediaEngine application to restart the job.

1. On the task bar, click **Job Status**. The Jobs screen displays.

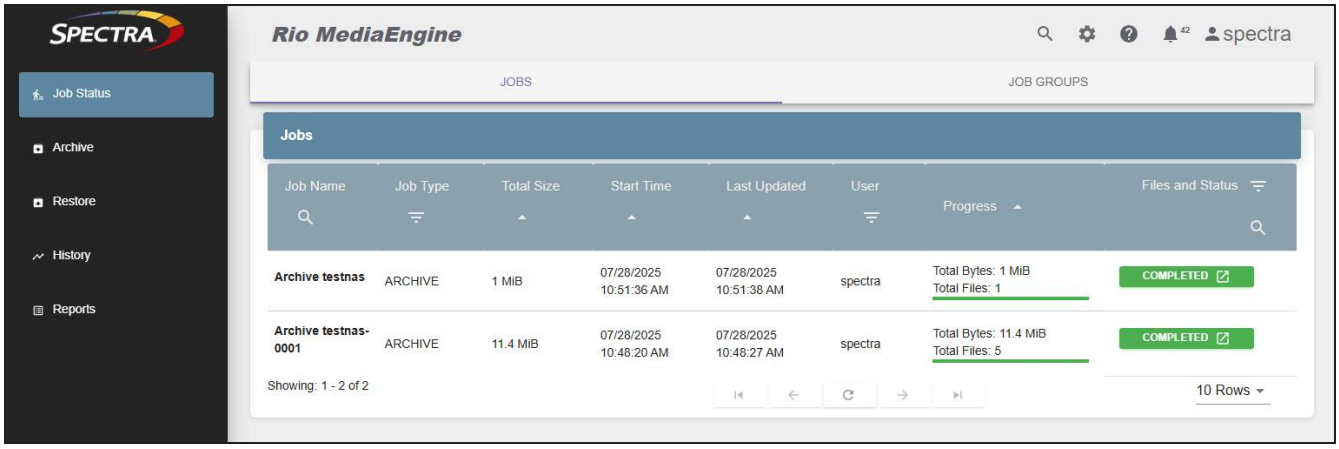

Figure 81 The Jobs screen.

2. If necessary, use the **Files and Status** drop-down menu and select **Failed** or **Canceled**.
3. Click the **Restart** icon (green rectangle with circular arrow) next to the job you want to restart. A confirmation screen displays.
4. Click **Submit** to confirm restarting the job.

View Detailed Job Information

1. For more information, click the job name or the button that displays the job status (**Completed**, **Active**, **Canceled**, **Failed**) on the row of a job for which you want to view detailed status.

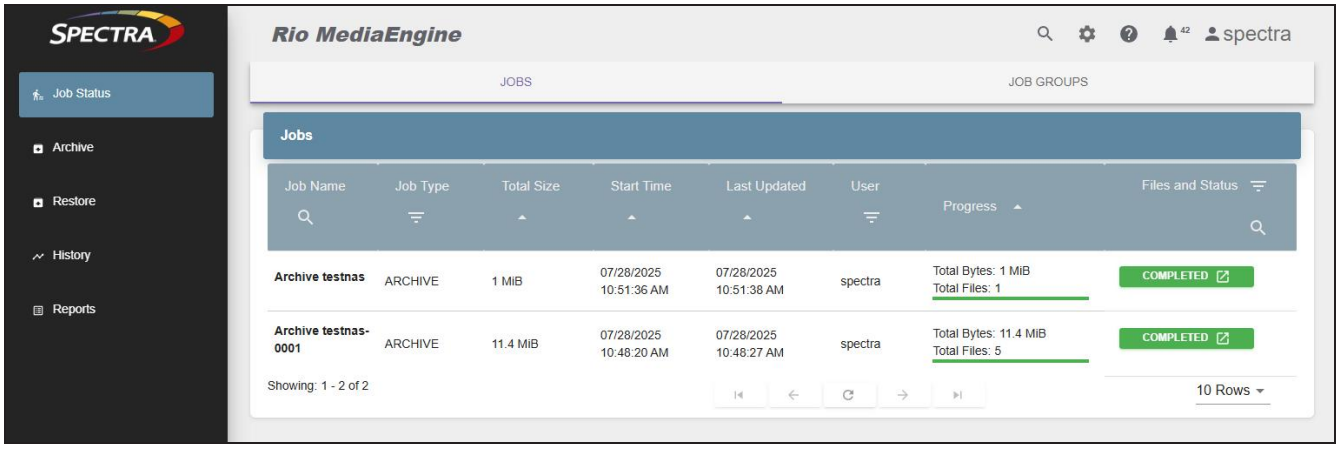

Figure 82 The Jobs screen.

2. Click the **Job**, **Metadata**, or **Files** tab to view information about the job or the files included in the job.

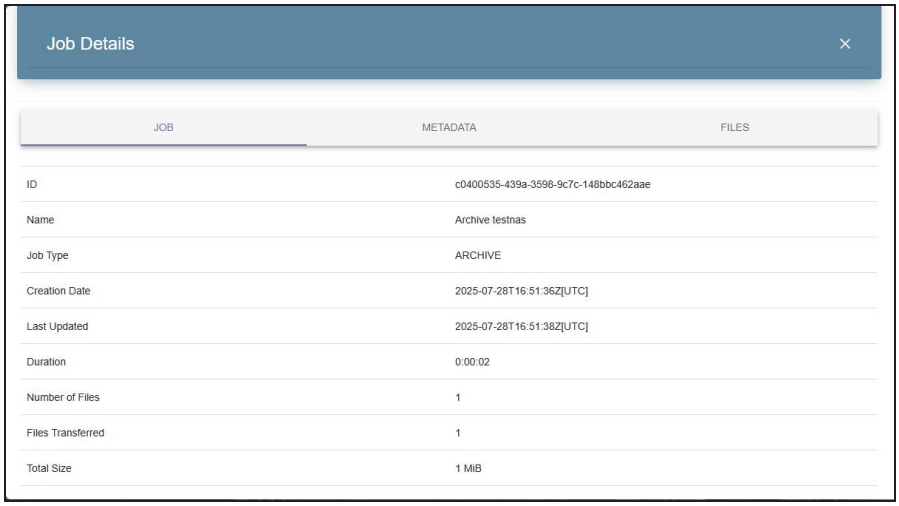

Figure 83 The Job Details screen.

View Job Groups

The Rio MediaEngine application automatically generates a job group when archiving a folder containing multiple files and sub-folders.

To view job groups history and details, click the **Job Groups** tab at the top of the Jobs screen. The Job Groups screen displays.

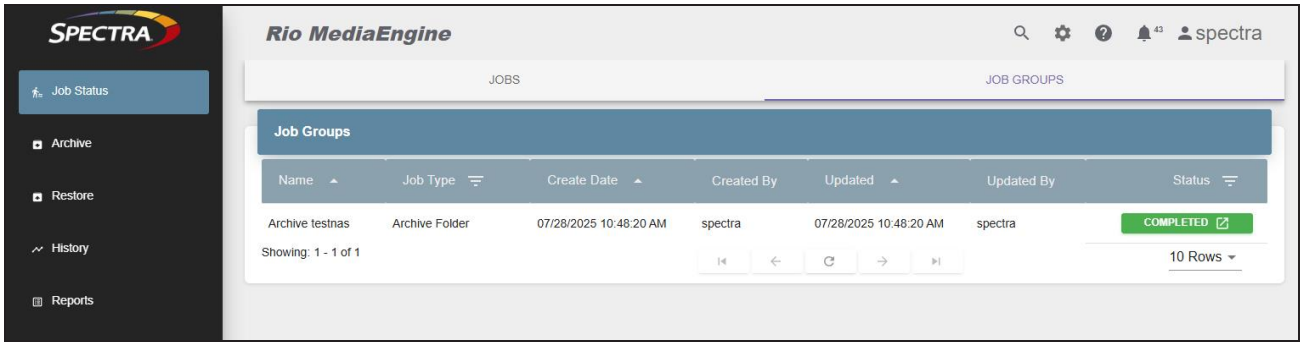

Figure 84 The Job Groups screen.

The Job Groups screen supports the same management features of the Jobs screen as detailed above. Following the instructions above for the Jobs screen, users may view bulk archive job status, view active bulk archive job transfer information, change bulk archive job priority, cancel active bulk archive jobs, restart bulk archive jobs, and view detailed information about bulk archive jobs.

View All Jobs in a Job Group

The Jobs Groups screen allows users to view all jobs contained in a singular bulk archive job. Job Groups can contain up to 10,000 files. If a Job Group exceeds 10,000 files, the Rio MediaEngine application generates additional Job Groups every 10,000 files. To view all jobs contained in a Job Group, navigate to the Job Groups screen and open the Job Details screen on a desired Job Group.

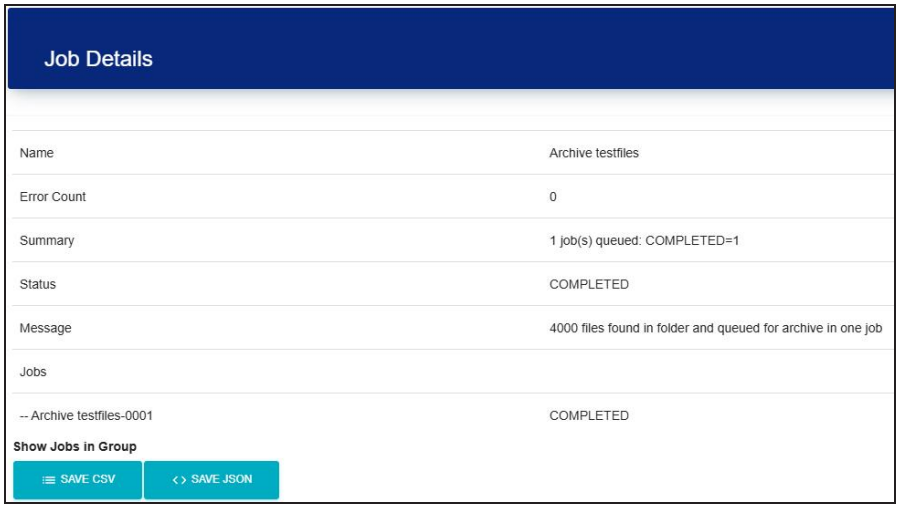

Figure 85 The Bulk Archive Job Details screen.

On the Job Details screen, click **Show Jobs in Group**. This opens a filtered version of the Jobs Screen (not pictured) that only displays the jobs contained in the previously selected Job Group job.

Chapter 4 - Manage the Spectra Rio MediaEngine Application

This chapter describes features that help you manage the Spectra Rio MediaEngine application.

MANAGE USERS

The Rio MediaEngine application supports creating and editing users using the Rio MediaEngine user interface. To view the Users screen, click **Settings** (gear icon) **> Users**.

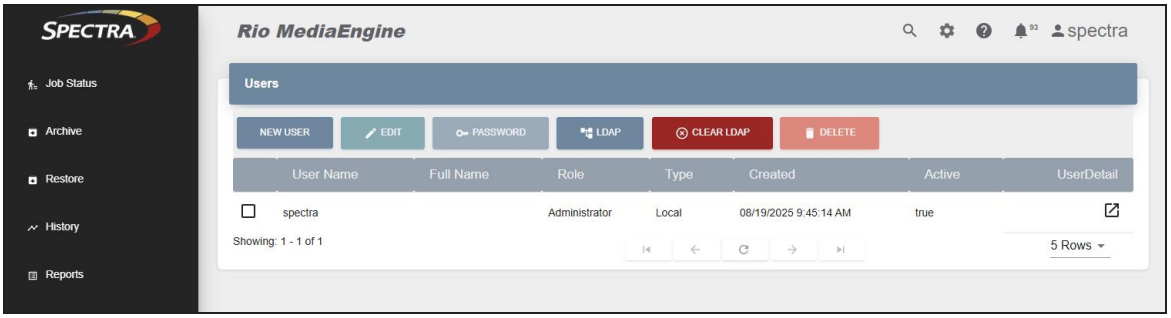

Figure 86 The Users screen.

Create a New User

To create a new user, click **New User** on the Users screen. The New User window displays.

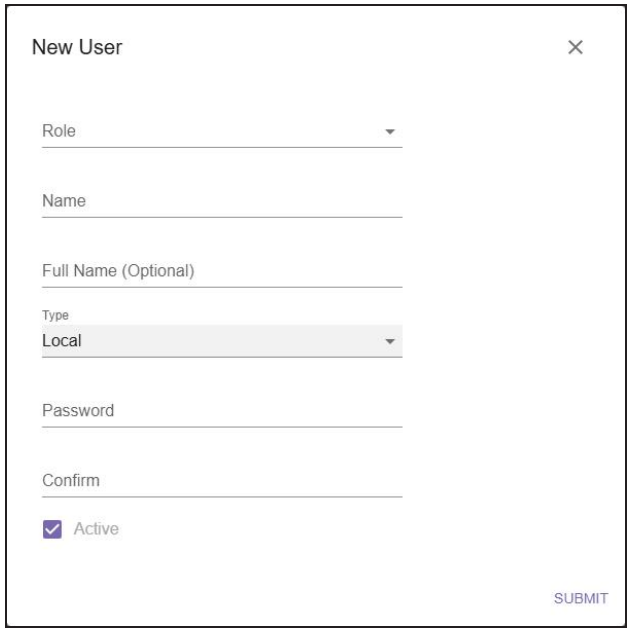

Figure 87 The New Users window.

1. Use the drop-down menu to select a **Role** for the user:
   - **Administrators** have unrestricted access to the Rio MediaEngine application and can change settings in the application.
   - **Operators** are have limited access to the Rio MediaEngine application. Operators may queue archive and restore jobs. Operators may view job history, namespace object data, and reports.

2. Enter a **Name** for the new user.
3. Optionally, enter a **Full Name** for the user. The full name of the user will display under User Detail.
4. Select the **Type** from the drop-down menu. Local users require you to create a password. LDAP users require a previously configured LDAP server and user. You cannot change a user type after creation.
5. Enter a **Password** and **Confirm** the password for a local user.
6. If desired, deselect **Active**. Inactive users cannot access the Rio MediaEngine application.
7. Click **Submit**.

Create LDAP

To configure a LDAP server for LDAP users, click **LDAP** on the Users screen. The LDAP Configuration window appears.

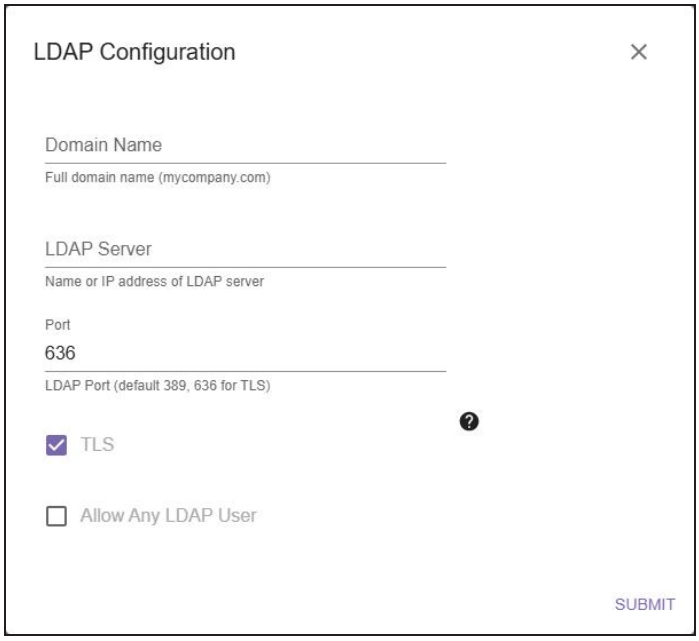

Figure 88 The LDAP Configuration window.

1. Enter the **Domain Name** for the LDAP server.
2. In the **LDAP Server** field, enter the name or IP address for the LDAP server.
3. Enter the **Port** for the LDAP server.
4. Select **TLS** to enable TLS access for encrypted LDAP traffic.
5. Select **Allow Any LDAP User** to allow any configured LDAP users to access the Rio MediaEngine application.
6. Click **Submit**.

Edit a User

To edit a user, select a user to edit on the Users screen then click **Edit**. The Edit User window appears.

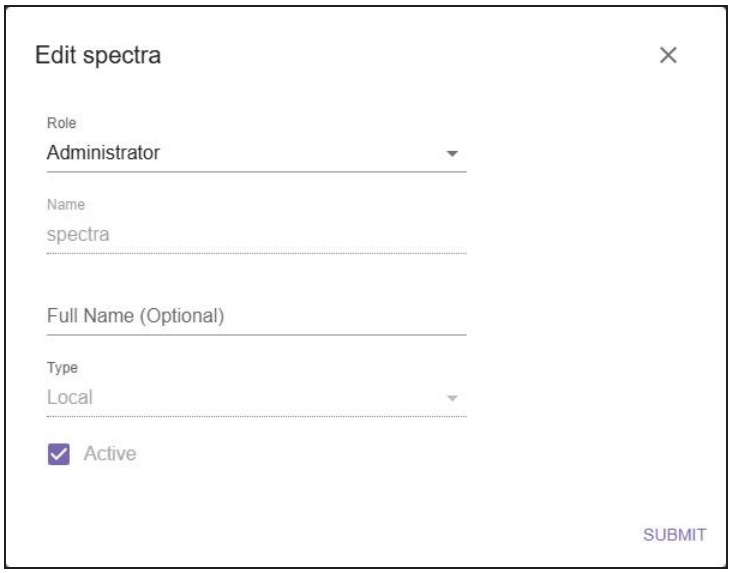

Figure 89 The Edit User window.

1. Use the drop-down menu to select a **Role** for the user.

   Administrators have unrestricted access to the Rio MediaEngine application and can change settings on the application.

   Operators are have limited access to the Rio MediaEngine application. Operators may queue archive and restore jobs. Operators may create, edit, and delete endpoints. Operators may view job history, namepace object data, and reports.

2. Optionally, enter a **Full Name** for the user. The full name of the user will display under User Detail.
3. If desired, deselect **Active**. Inactive users cannot access the Rio MediaEngine application.
4. Click **Submit**.

Change User Password

To change a local user's password, select the desired local user then click **Password**. The Set Password window displays.

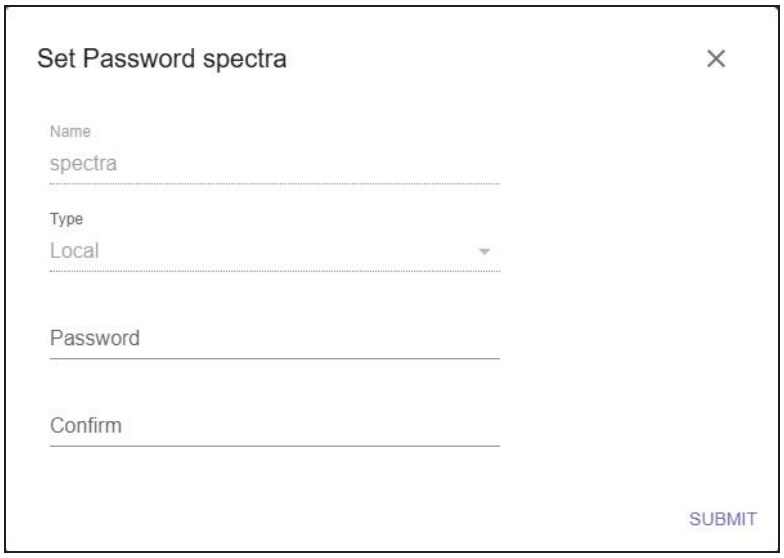

Figure 90 The Set Password window.

1. Enter a new password in the **Password** text field.
2. Re-enter the new password in the **Confirm** text field.
3. Click **Submit**.

Delete a User

To delete a user, select a user from the Users list and click **Delete**.

MANAGE NAMESPACES

Use the instructions in this section to edit namespace bucket indexing, view bucket details, configure bucket write protection, and delete a bucket or namespace.

Edit Namespace Bucket

After creating bucket in a namespace, you can force the bucket index or to be re-indexed with if desired. Also, you can configure the bucket write protection, and set the object ingest date.

1. On the toolbar in the upper-right of the application window, click **Settings** (gear icon) **> Namespaces**. The Namespaces screen displays.
2. Select the bucket you want to modify and click **Edit**. The Edit *bucket name* dialog box displays.

Figure 91 The Edit *bucket name* dialog box.

3. Configure the desired settings:

Setting	Description
Index Tab - Index	Index the bucket associated with the namespace bucket in the Spectra Rio MediaEngine application. This option does not add file information into the application when the file creation timestamp is older than the last Spectra Rio MediaEngine index operation timestamp.
Index Tab - Re-Index	Index the bucket associated with the namespace bucket in the Spectra Rio MediaEngine application. All files are added into the application regardless of the object timestamp. All objects in the bucket are updated in the Spectra Rio MediaEngine application.

Setting	Description
Config Tab - Writable	Flag the bucket associated with the namespace bucket in the Spectra Rio MediaEngine application. This option prevents users from writing or editing the associated bucket.
Ingest Date Tab - Ingest Date	Set the ingest date for objects in the bucket without a valid ingest date, such as legacy data archived or indexed with RioBroker 4.3, or earlier. This date is used by Lifecycles and Policies.

4. Click **Submit**.

Note: During the re-indexing, files in the namespace show as “Indexing” on the Jobs status screen.

View Namespace Bucket Information

After creating a bucket in a namespace, you can view information about the bucket , such as the bucket type, bucket name, creation date, last index date, and the write protection status.

1. On the toolbar in the upper-right of the application window, click **Settings** (gear icon) **> Namespaces**. The Namespace screen displays.
2. On the Namespaces screen, click the **Details** button (square with diagonal arrow) on the row of the bucket for which you want to view information. The Details screen displays.

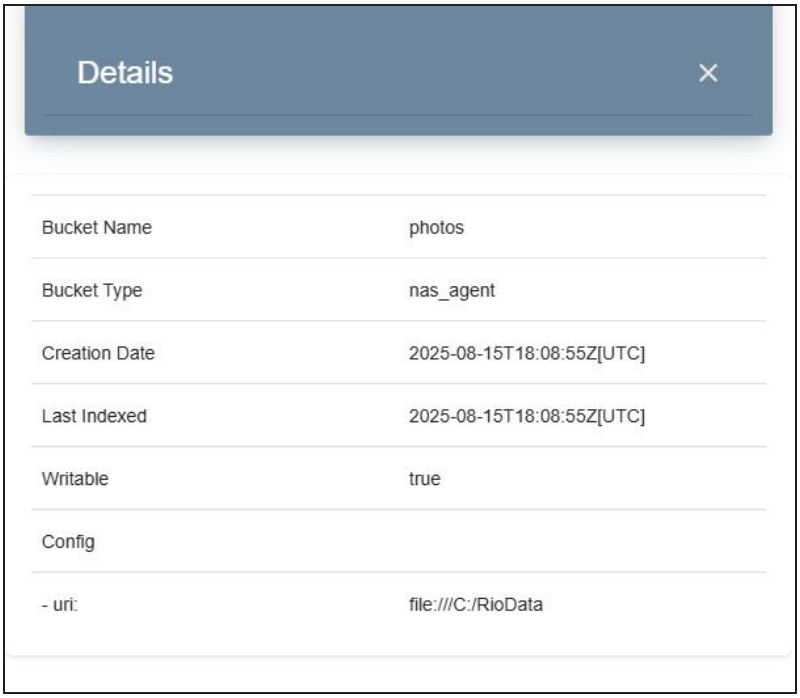

Figure 92 The Namespace Bucket details screen.

Delete a Namespace Bucket

If desired, you can delete a previously configured namespace bucket.

CAUTION Before deleting a BlackPearl namespace bucket, you must remove the bucket protection flag. Failure to remove the protection flag results in the BlackPearl bucket being inaccessible and requires the user to create a new namespace or namespace bucket on the bucket to remove the protection flag.

Note: No files are deleted when deleting a namespace bucket, but metadata used by the Spectra Rio MediaEngine application associated with archived files is deleted.

1. On the toolbar in the upper-right of the application window, click **Settings** (gear icon) > **Namespaces**. The Namespace screen displays.
2. On the Namespaces screen, select the bucket you want to delete and click **Delete Bucket**. The delete bucket dialog box displays.
3. If necessary, select the **Force** option. This option is required if the namespace has any buckets with object data.
4. Click **Submit** to delete the namespace bucket.

Delete a Namespace

If desired, you can delete an existing namespace.

CAUTION Before deleting a namespace with a BlackPearl bucket, you must remove the bucket protection flag. Failure to remove the protection flag results in the BlackPearl bucket being inaccessible and requires the user to create a new namespace or namespace bucket on the bucket to remove the protection flag.

Note: No files are deleted when deleting a namespace , but metadata used by the Spectra Rio MediaEngine application associated with archived files is deleted.

1. On the toolbar in the upper-right of the application window, click **Settings** (gear icon) > **Namespaces**. The Namespace screen displays.
2. Select the namespace you want to delete and click **Delete Namespace**. The Delete Namespace window displays.
3. If necessary, select the **Force** option. This option is required if the namespace has any buckets with object data.
4. Click **Submit**.

MANAGE CLUSTERS, DEVICES, AND ENDPOINTS

If desired, you can delete cluster members, or endpoints using the instructions in this section.

Select the item you want to delete:

- **Delete a Cluster Member below**
- **Delete a Device on the next page**
- **Delete an Endpoint on the next page**

Delete a Cluster Member

Use the instructions in this section to delete a cluster member.

1. On the toolbar in the upper-right of the application window, click **Settings** (gear icon) **> Cluster**. The Cluster screen displays.

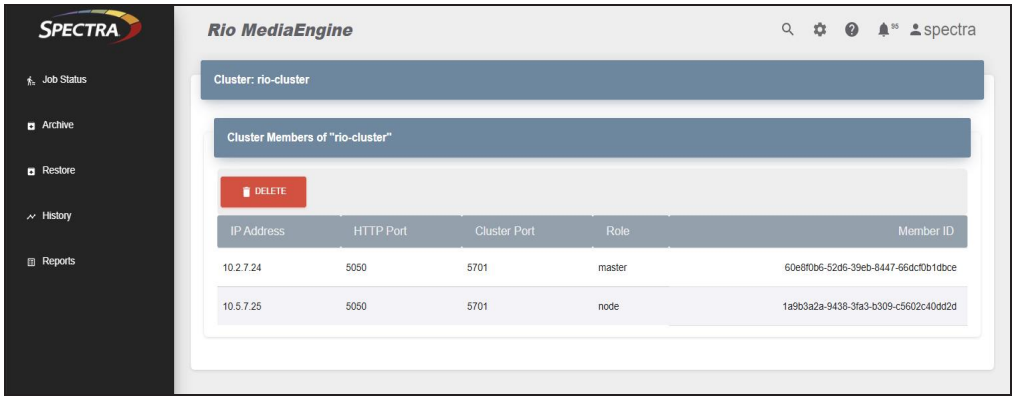

Figure 93 The Cluster screen.

2. Select the cluster you want to delete and click **Delete**. A confirmation window displays.
3. Click **Submit** to delete the cluster member.

Delete a Device

1. On the toolbar in the upper-right of the application window, click **Settings** (gear icon) > **Devices**. The Devices screen displays.

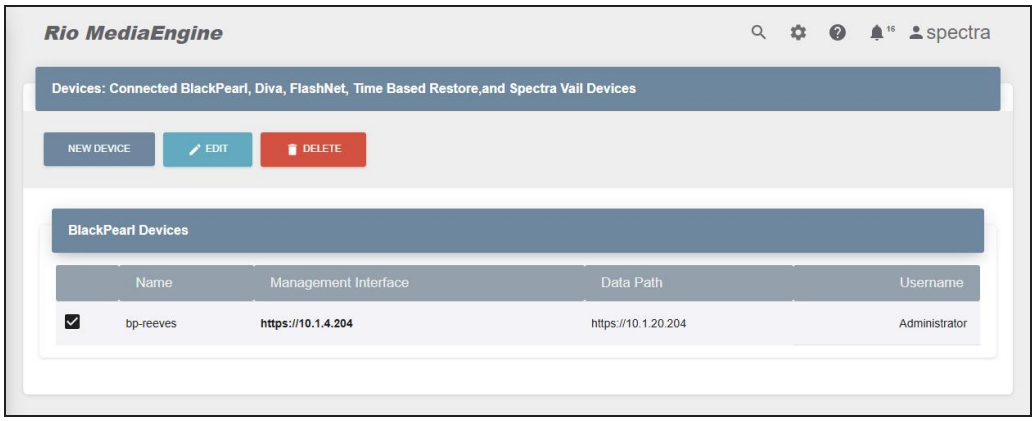

Figure 94 The Devices screen.

2. On the Devices screen, select the device you want to delete and click **Delete**. A confirmation window displays.
3. Click **Submit** to confirm the deletion.

Delete an Endpoint

1. On the toolbar in the upper-right of the application window, click **Settings** (gear icon) > **Endpoints**. The Endpoints screen displays.

Figure 95 The Endpoints screen.

2. On the Endpoints screen, select the endpoint you want to delete and click **Delete**. The Delete confirmation screen displays.
3. Click **Submit** to confirm the deletion.

Log Out of Existing Session

Use the toolbar on the upper-right of the Spectra Rio MediaEngine application interface to log out of the interface and return to the login screen.

1. On the toolbar, click the **User** icon (person) at the far right of the toolbar.

Figure 96 The toolbar.

2. Click **Logout**. The Login screen displays.

Chapter 5 - Spectra Rio MediaEngine Application Information and Reports

This chapter describes features that provide information and statistics for the Rio MediaEngine application, as well as messaging, logs, and reports.

HISTORY

The History screen allows you to view past data activity based on bytes transferred, number of files transferred, or number of jobs processed.

To access the History screen, on the task bar, select **History**.

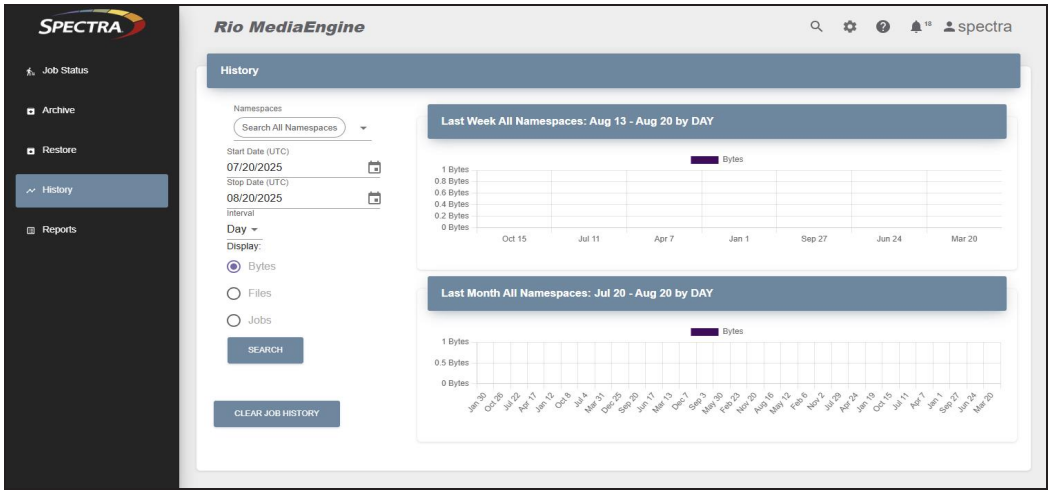

Figure 97 The History screen.

The History screen always shows the previous month and previous week.

- To add a custom graph, use the **Namespaces**, **Start Date** and **Stop Date**, and **Interval** menus.
- Changing the **Legend** (Bytes, Files, Jobs) updates all graphs on the History screen.
- **Mouse-over** graph bars for exact amounts.
- Click **Clear Job History** to delete job history information from the database. In the Clear Job History screen, use the **Clear Jobs Before** calendar to set the date for which you want to clear all older job information.

LOGS

The Spectra Rio MediaEngine application automatically creates error logs and writes event information into log files for troubleshooting purposes. A log set, which gathers the current log of each type, can be generated manually.

Note: The current log file is not cleared when a log set is created. If one log set is created and then a second log set is created before the log file reaches 10 MB in size and is cleared, the two log sets will have overlapping information.

To access the Logs screen, click **Settings** (gear icon) **> Logs**.

Figure 98 The Logs screen.

Create a Log Set

1. Click **Create A New Log Set**. The Create a new Log Set dialog box displays.
2. Click **Submit**. A new log set is collected immediately.

Download a Log Set

To download a log set, select the log set or sets from the list and click **Download**. The log set begins downloading to your host computer.

Delete a Log Set

To delete a log set, select the log set or sets from the list a click **Delete** to confirm the deletion.

Set Log Level

To change the level of detail in the log sets, click **Set Log Level**, then use the **Level** drop-down menu to select Info or Debug detail level and click **Submit**.

REPORTS

The Rio MediaEngine application provides custom object search reports which allow users to see how and where files were moved. The application also provides reports on aspects of the application including configured devices, namespaces, endpoints, as well as job information, messages, and system information.

Object search reports are downloadable in Comma Separated Value (CSV) format. Settings reports are available in both CSV and JSON (Java Script Object Notification) formats.

Object Search Reports

Use the following instructions to generate an object search report.

1. Click **Settings** (gear icon) **> Reports**. The Reports screen displays.

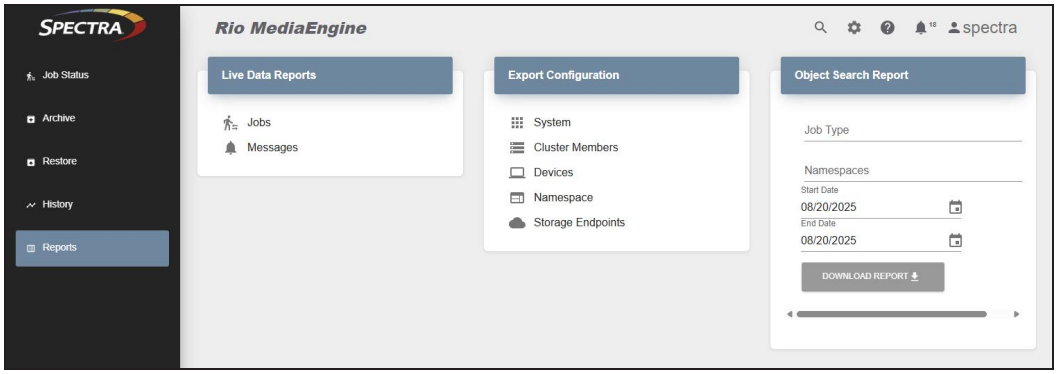

Figure 99 The Reports screen.

2. Use the **Job Type** drop-down menu to select **Archive**, **Restore**, or both.
3. Use the **Namespaces** drop-down menu to select one or more namespaces.
4. Select a **Start Date** and an **End Date**.

Note: If you do not select an End Date, the system uses the current day for the end date.

5. Click **Download Report**. The report is downloaded to your host computer.

Live Data Reports

Use the instructions below to view and save Live Data Reports.

1. Click **Settings** (gear icon) **> Reports**. The Reports screen displays.

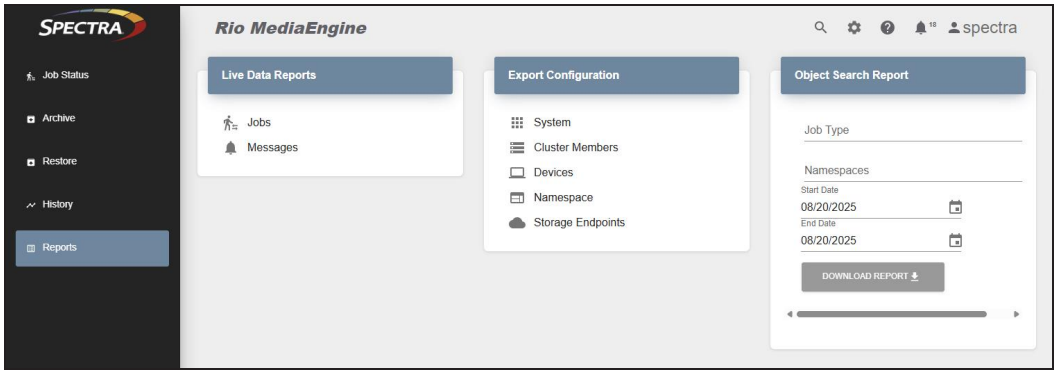

Figure 100 The Reports screen.

2. Under the **Live Data Reports** banner, click the row of the live data you want to view.

Report	Description
Jobs	Displays information about each job processed by the application including job name, ID, type, status, progress, total files in the job, total files transferred, total bytes transferred, and the last update time.
Messages	Displays the message subject, details, severity, creation date, and if the message is read or unread.

A screen displays showing the data as well as providing controls to download the information in CSV or JSON format.

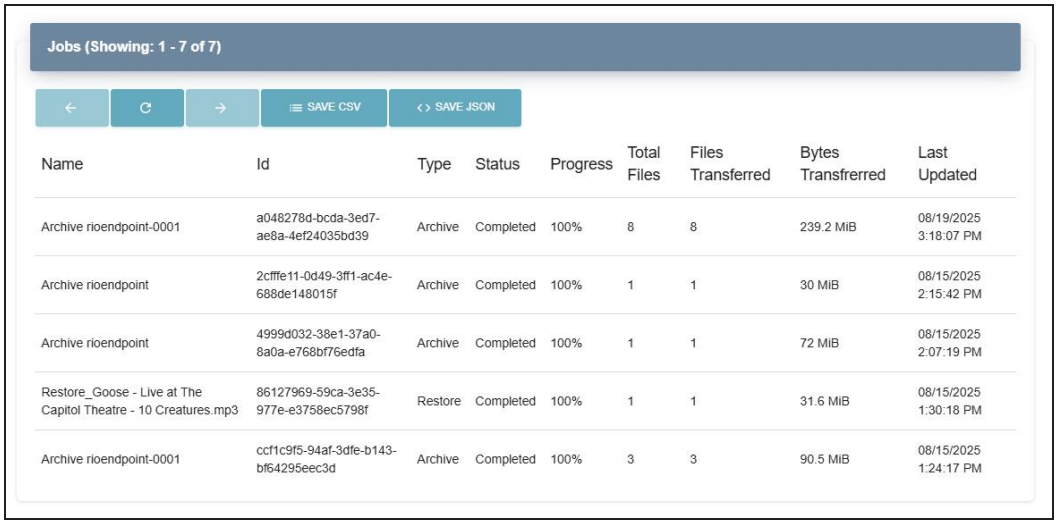

Figure 101 The Jobs screen displaying live data information.

Settings Reports

Use the instructions below to view and save Settings reports.

1. Click **Settings** (gear icon) **> Reports**. The Reports screen displays.

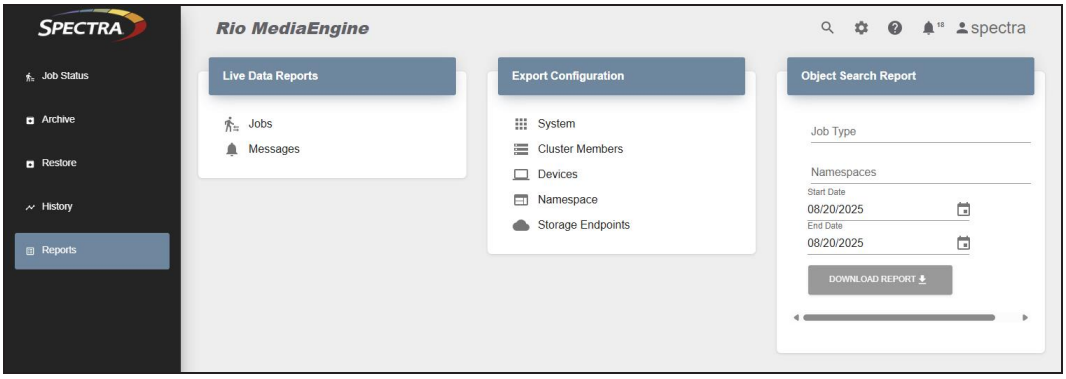

Figure 102 The Reports screen.

2. Under the **Export Configuration** banner, click the row of the system report you want to view.

Report	Description
System	Displays information about the Rio MediaEngine application software, the host system, memory usage, and application uptime.
Cluster Members	Displays the cluster role (master or node), cluster port, HTTP port, IP address, and member ID for each cluster.
Devices	Displays information for devices configured in the application.
Namespace	For each configured namespace the report includes information about the namespace buckets including the bucket name, type, creation date, last index date, read/write status, and information about devices used in the namespace.
Endpoints	Displays the endpoint name, type, URL, and login credentials.

Notes:
- For each report, you can **Refresh** the currently displayed information, as well as **Save** the report in a CSV or JSON format.
- For the Jobs report, if the system has processed more than 1,000 jobs, use the **Next** and **Prev** buttons to navigate through the list.

MESSAGES

The Messages screen contains messages generated by the Rio MediaEngine application.

On the toolbar, click **View Messages** (bell icon). The Messages screen displays.

Note: If there are unread messages, a blue oval appears next to the bell icon displaying the number of unread messages.

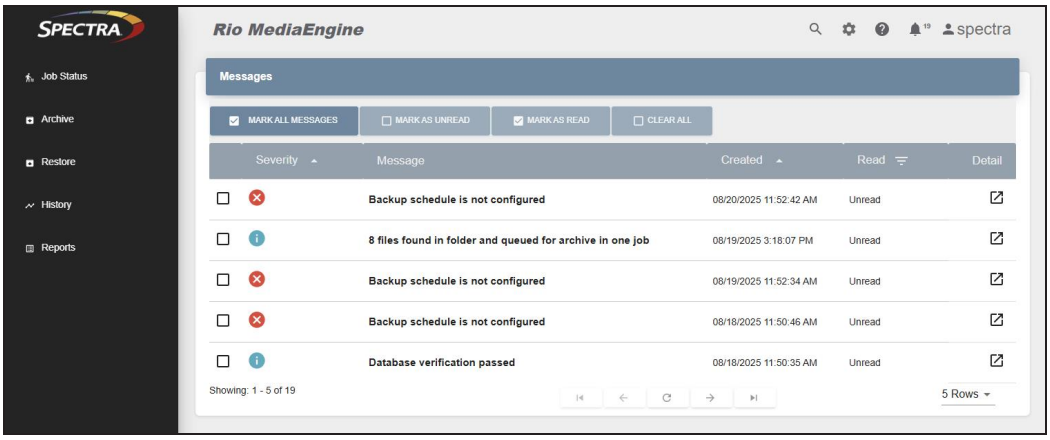

Figure 103 The Messages screen.

- Select the **Read** check box on a message row to mark that message as read. Click **Mark All Messages** to mark all messages as read.
- Click the **Detail** icon on the row of a message for which you want to view more detail.
- Use the **<** and **>** arrows, **Prev**, and **Next** buttons to navigate the message list.
- Use the **Rows** drop-down menu to set how many messages are displayed at one time.
- Use the **Refresh** button (circle with an arrow) to refresh the Notifications screen.

  Note: If you use your browser to refresh the Notifications screen, the number of rows displayed returns to the default of five.

System Screen

The System screen contains information related to the Spectra Rio MediaEngine application software and the host computer on which the application is installed.

On the toolbar, click **Settings** (gear icon) and select **System**. The System information screen displays.

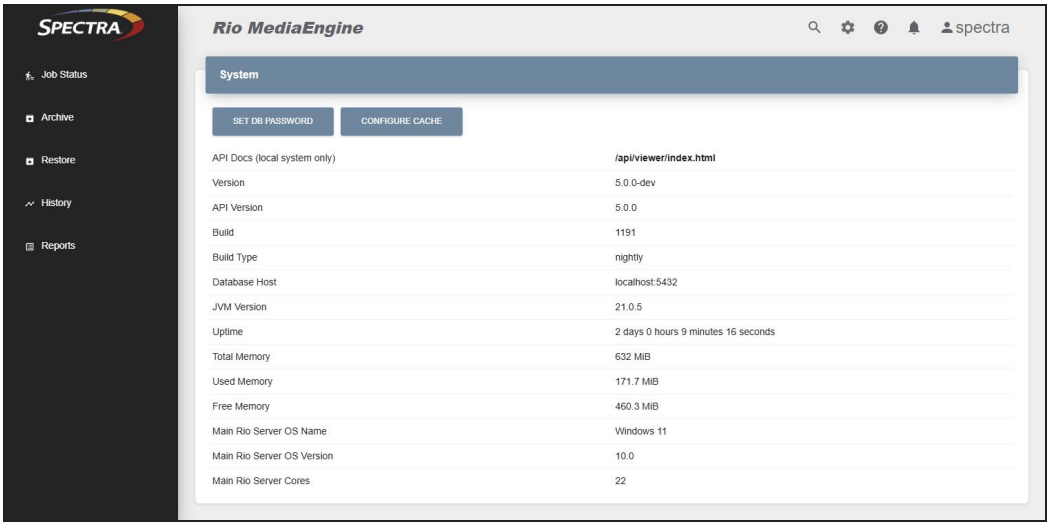

Figure 104 The System screen.

Click the URL on the **API Docs** row to open the Swagger API documentation in a new web browser tab.

Note: This link only displays if you are using a browser on the same host system where Rio MediaEngine is installed. To access API documentation on a remote connection, see Spectra Rio MediaEngine Archive Solution Overview on page 17.

Chapter 5 - Rio MediaEngine Database Operations and Software Update

This chapter describes Rio MediaEngine database backup, restore, and transfer, as well as instructions for updating the application software.

DATABASE BACKUP

Use the instructions in this section to backup and restore Rio MediaEngine databases. To view the Database Backup screen, click **Settings** (gear icon)**> DB Backup**.

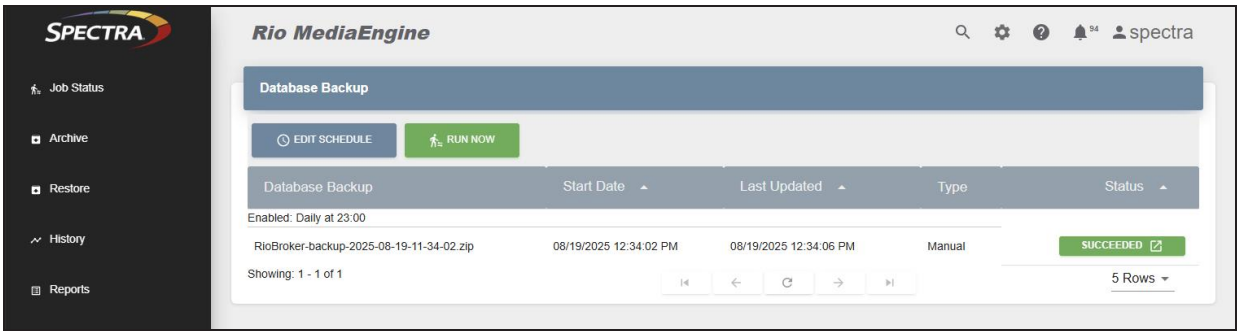

Figure 105 The Database Backup screen.

Automatic Database Backup Schedule

The Rio MediaEngine application creates automatic database backups on a schedule. To edit the database backup schedule, click **Edit Schedule** and follow the instructions below.

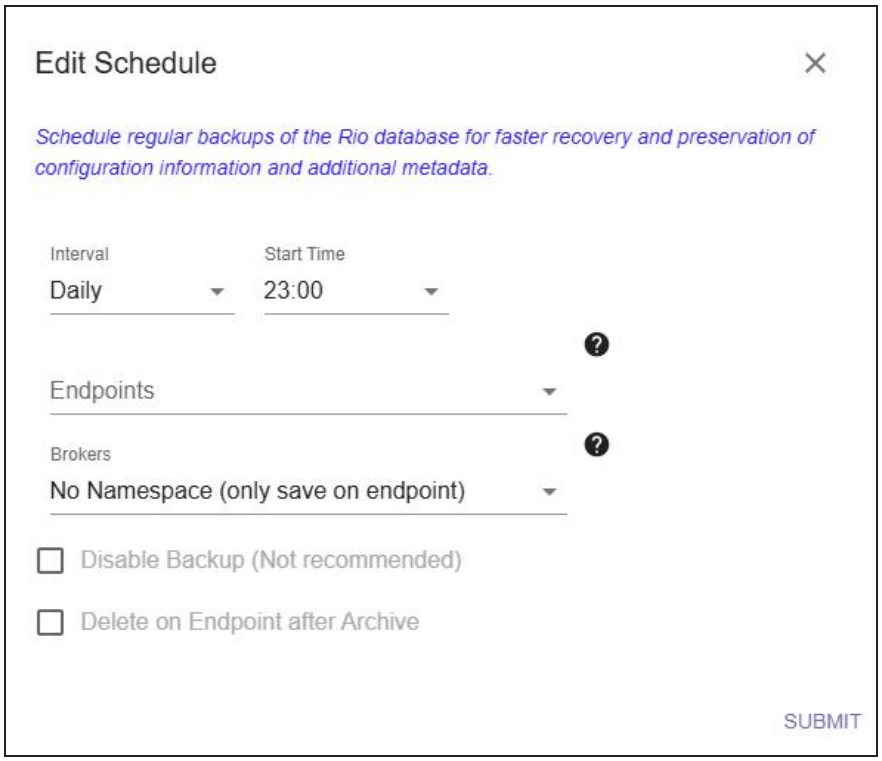

Figure 106 The Edit Schedule screen.

1. Use the **Interval** drop-down menu to select the automatic database backup frequency. Spectra Logic recommends daily database backups.

2. Use the **Start Time** drop-down menu to select the start time of the backup process. **Start Time** is based on the timezone of the system running the Rio MediaEngine application.
3. Use the **Endpoints** drop-down menu to select the endpoint to contain the database backup.
4. Use the **Namespace** drop-down menu to select the namespace to use during the backup.
5. Optionally, select **Disable Backup (Not recommended)** to disable the automatic backup schedule.
6. Optionally, select **Delete on Endpoint after Archive** to delete the backup zip file after it is successfully archived.

Manual Database Backup

The Rio User Interface allows you to manually create a database backup using a one-click solution. This section covers using the Rio User Interface to create a manual database backup.

1. Click **Settings** (gear icon)**> DB Backup**. The Database Backup screen displays.

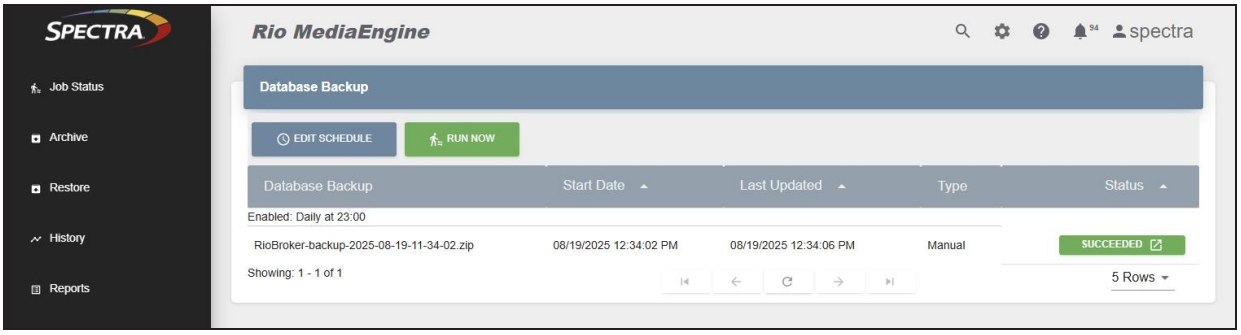

Figure 107 The Database Backup screen.

2. Click **Run Now**. A confirmation screen displays.
3. Click **Submit** to create the manual database backup.

Change Database Password

If desired, you can change the Rio database password. Use the instructions in this section to change the password.

1. On the toolbar, click **Settings** (gear icon) and select **System**. The System information screen displays.

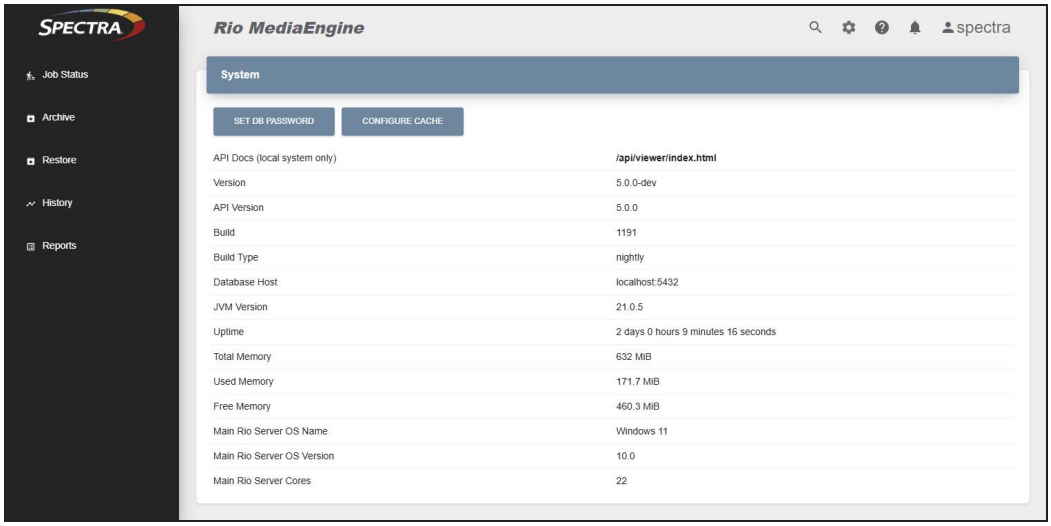

Figure 108 The System screen.

2. Click **Set DB Password**.

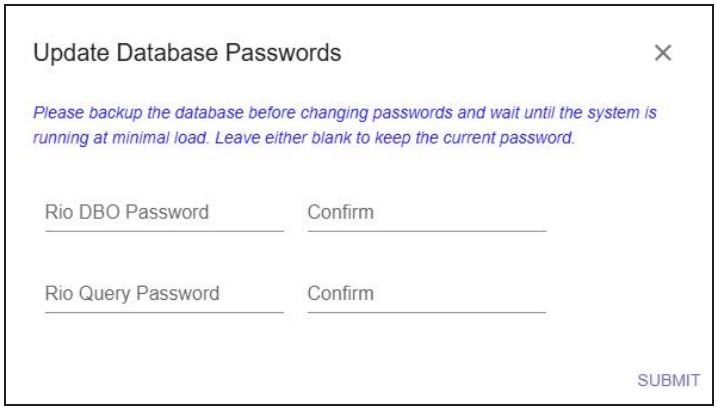

Figure 109 The Update Database Passwords screen.

3. Enter and confirm the **Rio DBO Password**.
4. Enter and confirm the **Rio Query Password**.
5. Click **Submit**.

DATABASE RESTORE

Use one of the methods below to restore the Rio application database.

Restore Database to an Existing 4.x or 5.x Installation

IMPORTANT These instructions apply to Rio software versions 4.x and 5.x only. For instructions for earlier versions of Rio software, contact Spectra Logic Technical Support.

1. Stop the Spectra RioBroker Windows service.
2. Restore the Rio database ("rio_db_dev") PostgreSQL database using this command:

   ```
   pg_restore.exe --verbose --host=localhost --port=5432 --
   username=postgres --clean --dbname=rio_db_dev RioBroker-
   postgres.dump
   ```

Notes:
- The .EXE should already be in the PATH.
- You will be prompted for the PostgreSQL administrator password
- Any step with "broker_object" in the name will run much slower than others

3. Start the Spectra RioBroker Windows service.

Note: You do no need to restore the cluster.json, keys.keytool, nor postgres.json files.

Restore Database to an Existing Rio 3.x Installation

Contact Spectra Logic Technical Support.

DATABASE TRANSFER

Use one of the methods below to transfer the Rio application database.

Transfer Rio 4.x/5.x Database to a Rio 4.x/5.x Installation

1. If necessary, uninstall the Rio application software.
2. If necessary, remove the RioBroker database ("rio_db_dev") database from PostgreSQL:
   a. Launch the **PostgreSQL -> pgadmin 4** application.
   b. Expand **Servers**, you will be prompted for the postgres administrator password.
   c. Expand **Databases**.
   d. Right-click on the RioBroker database ("rio_db_dev") database and select **Delete** or **Delete (force)**.

   If you are going to use different passwords for the DBO and QUERY PostgreSQL roles, then remove them. If you are not sure, then just remove them, they will be re-created by step #4 below
   a. Expand **Login/Group Roles**.
   b. Right-click on DBO role ("rio_dbo_dev") and select **Delete**.
   c. Right-click on QUERY role ("rio_login_dev") and select **Delete**.
3. Install the RioBroker application. See Install The Rio MediaEngine Application for Windows on page 27 for instructions.
4. In a web browser, enter `https://localhost:5050` and press Enter.
5. Choose **New Cluster**, and configure the cluster as required.
6. Stop the RioBroker Windows service.
7. Restore the RioBroker database ("rio_db_dev") PostgreSQL database using this command. You will need to replace "HOST" and "PORT" with the values for your environment:

   ```
   pg_restore.exe --verbose --host=localhost --port=5432 --
   username=postgres --clean --dbname=rio_db_dev RioBroker-
   postgres.dump
   ```

Notes:
- The .EXE should already be in the PATH.
- You will be prompted for the PostgreSQL administrator password
- Any step with "broker_object" in the name will run much slower than others

8. Copy the following files from this ZIP archive into the application program data.
   a. Replace the files in C:\ProgramData\Spectra Logic Corporation\SpectraRioBroker\config
      - cluster.json
      - postgres.json
   b. Replace the files in C:\ProgramData\Spectra Logic Corporation\SpectraRioBroker\data
      - keys.keytool
      - ldaps-keys.keytool (Only present if user login using LDAP with TLS is configured)
9. If any resources files were captured by the backup, you may copy them to:

   C:\ProgramData\Spectra Logic Corporation\SpectraRioBroker\resources

   Note: See the README.txt file included in the above folder for details.
10. Start the RioBroker Windows service.

Transfer Rio 3.5 Database to Rio 4.x/5.x Installation

IMPORTANT These instructions apply to RioBroker version 3.5 **only**. For earlier versions of software, contact Spectra Logic Technical Support.

See Updating the Rio MediaEngine Application on the next page for instructions on how to transfer a RioBroker 3.5 database to a newer version of the application software.

UPDATING THE RIO MEDIAENGINE APPLICATION

Use the information in this section to update the Rio MediaEngine application.

Updating from Version 4.x or Later

1. **Download** the updated software installer from Spectra Logic.
2. **Backup** the Rio application database. Navigate to the Database Backup screen in the Rio application interface and then click **Run Now**.
3. **Run** the installer and overwrite the previous installation. For assistance navigating the install wizard screens, see Install the Rio MediaEngine Software on page 29.
4. **Reboot** the Windows host, if required.

Updating from Version 3.5

IMPORTANT These instructions apply to RioBroker version 3.5 **only**. For earlier versions of software, contact Spectra Logic Technical Support.

Backup RioBroker Configuration

Before updating the RioBroker software, you must backup the existing installation configuration settings. This backup ensures you can restore your existing configuration in the case of a failure during the software update.

Migrating an existing RioBroker application from 3.5 to 4.x or Rio MediaEngine 5.x requires a RioBroker application backup. The migration backup requires the **Arango**, **config**, and **data** sub folders.

1. In the Windows Services application, right-click the **Spectra RioBroker Server** row and select **Stop**.
2. Backup the program information:
   a. Using **Windows Explorer**, navigate to the installation directory.

   Note: The default location is:
   C:\ProgramData\Spectra Logic Corporation\SpectraRioBroker

   b. Copy the entire directory, and save it to a different location.
3. Uninstall the RioBroker 3.5 application.

Install the PostgreSQL Service

Before updating the software to RioBroker 4.x or Rio MediaEngine 5.x, you must install the PostgreSQL service. The PostgreSQL service must be version 16.0 or higher.

1. Decide an installation location for the PostgreSQL service. You may install PostgreSQL to the same server as the RioBroker application. Consider installing PostgreSQL to a different server in the following circumstances:
   - A PostgreSQL service is already running on the local network, and you want to add the RioBroker database to the existing service.
   - The server does not have enough free disk space for the PostgreSQL service and the RioBroker application and database.
   - You expect an impact on performance with PostgreSQL and RioBroker on the same server.
   - You want your PostgreSQL service and RioBroker database on a Linux server.
2. Download the PostgreSQL installer from https://www.enterprisedb.com/downloads/postgres-postgresql-downloads.
3. Launch the PostgreSQL service installer.
4. On the Select Components screen of the install wizard, select the **PostgreSQL Server**, **pgAdmin 4**, and **Command Line Tools** components.
5. Follow the instructions on the PostgreSQL installation wizard to complete the installation.
6. If the PostgreSQL service is installed on a different server than the RioBroker master node, or if you intend to configure multiple RioBroker data nodes, you must enable and configure remote connections for the PostgreSQL service.
   a. As a Windows administrator, open the file found at `C:\Program Files\PostgreSQL\16\data\pg_hba.conf`

Note: You may need to adjust the value in red depending on the version of PostgeSQL you have installed.

   b. Add the following line to the end of the file:
   ```
   host all all 0.0.0.0/0 md5
   ```
   c. Save and close the file.

After installing the PostgreSQL service, you must add the PostgreSQL **bin** folder to the Windows system execution PATH. Use the steps below:

1. Search for and open the **Edit the systems environment variables** option in Windows.
2. On the Advanced tab, click **Environmental Variables...**
3. In the System Variables window, select the Path line and click **Edit**.

4. In the Edit environment variable window, click **New** then click **Browse**.
5. Navigate to the PostgreSQL install location and select the **bin** folder.
6. Click **OK**.
7. Use the **Move Up** button to raise the PostgreSQL bin entry to the top of the list.
8. Click **OK** to close the Environmental Variables window.
9. Close all remaining Windows Setting dialogue windows.

Note: To verify PostgreSQL connectivity, enter the following command on a Windows Command Prompt, using the values set for host and port during installation:

```
psql --host=localhost --port=5432 --username=postgres
```

Upgrade Software

1. If necessary, download the RioBroker 4.x or Rio MediaEngine 5.x installer.
2. If necessary, in the Windows Services application, right-click the Spectra RioBroker Server row and click **Stop**.
3. Launch the Rio application installer.
4. Proceed through the installation wizard, and click **Finish**.
5. After installation is complete, **restart** the host computer.
6. After the host server completes the reboot, launch the RioBroker application and select **New Cluster**.
7. Enter information into the **New Cluster** text fields.
    a. In the **PostgreSQL Host** entry field, enter the hostname or IP address of the server where you installed the PostgreSQL service.
    b. In the **PostgreSQL Port** entry field, enter the port of the server where you installed the PostgreSQL service. The default port is 5432.
    c. In the **PostgreSQL AdminLogin** entry field, enter the admin login username created during installation. The default admin login name is ‘postgres’.
    d. In the **Admin Password** entry field, enter the desired admin login password.
    e. In the **Confirm** entry field, re-enter the desired admin login password.

Figure 110 The RioBroker Migrate Database Options Screen.

8. Select **Migrate database from RioBroker 3.x**.
   a. In the **RioBroker 3.x Backup** entry field, enter the full path to the RioBroker 3.x backup folder. The RioBroker 3.x backup folder must contain the following sub folders: **Arango**, **config**, and **data.**
   b. In the **RioBroker 4.x Backup Directory** entry field, enter the full path to a previously created folder to store a full database backup. Ensure the designated folder is write enabled and has enough storage space for the file size of your RioBroker 3.x backup files.
   c. In the **Migrate Job History Days** entry field, enter the number of days of job history to retain. The amount of job history retained impacts the migration completion time. Spectra Logic recommends a maximum of 90 days.
9. Click **Submit** to begin the migration process.

Note: For the duration of the migration, all RioBroker APIs are unavailable, and the RioBroker GUI is unresponsive. To monitor migration progress, open the file located at `C:\Program Files\Spectra Logic Corporation\SpectraRioBroker\arango\migrate_progress.html`

Updating from Version 3.4 or Earlier

Contact Spectra Logic Technical Support.

Chapter 6 - Use and Monitor a BlackPearl System in the Rio MediaEngine Interface

If your Rio MediaEngine configuration includes a BlackPearl system, use the information in this chapter to use the embedded BlackPearl dashboard to easily perform commonly used functions of the BlackPearl system and quickly view the status of critical aspects of the system.

ACCESS THE BLACKPEARL DASHBOARD

To access the BlackPearl dashboard, click the **Gear** icon, then **BlackPearl > Name** of the BlackPearl system.

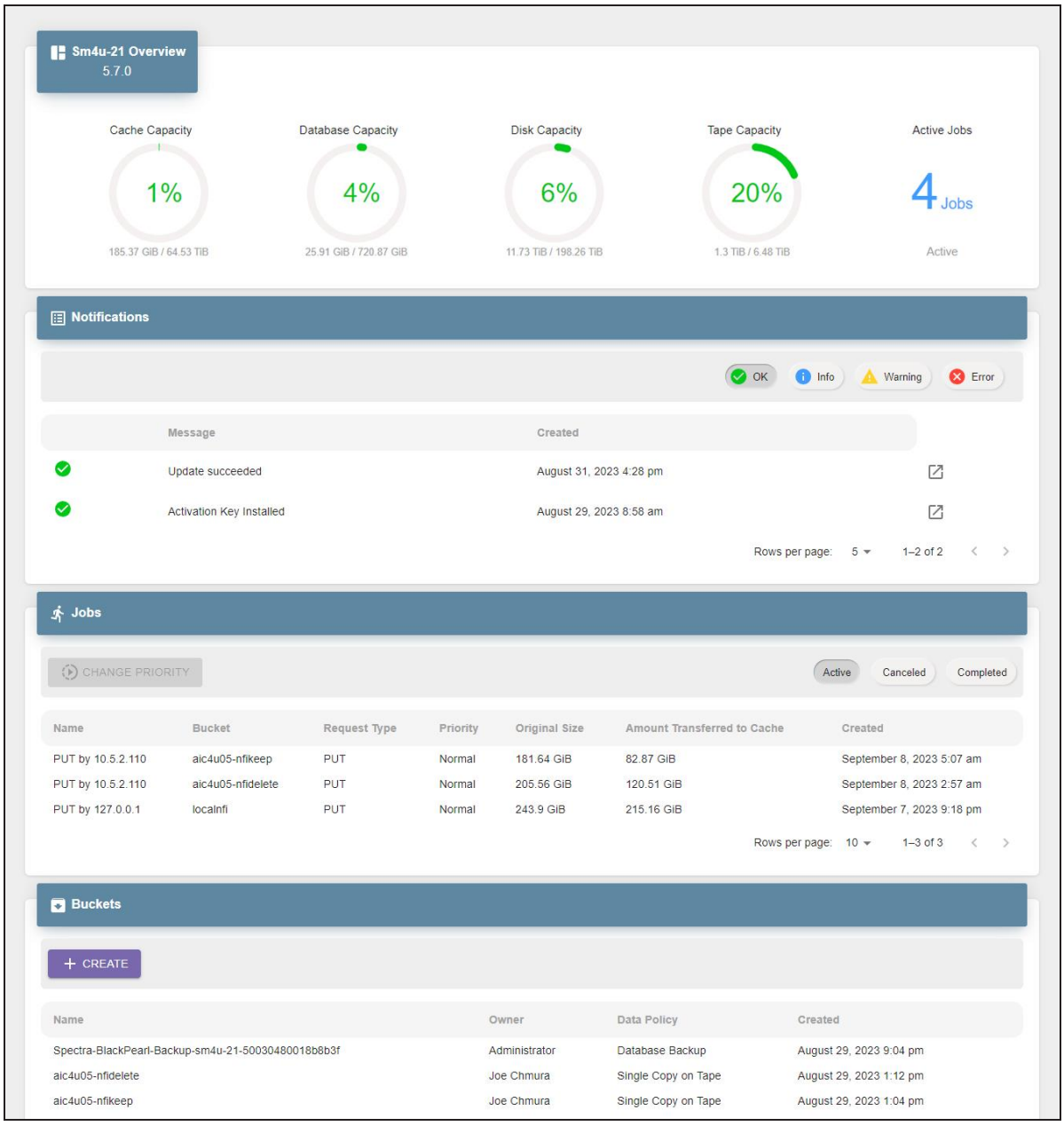

Figure 111 The Embedded Dashboard.

VIEW THE STATUS OF THE BLACKPEARL SYSTEM

Use the sections below to view the status of multiple aspects of the BlackPearl system.

View System Overview

The Overview pane provides a quick look at the most critical aspects of the BlackPearl system.

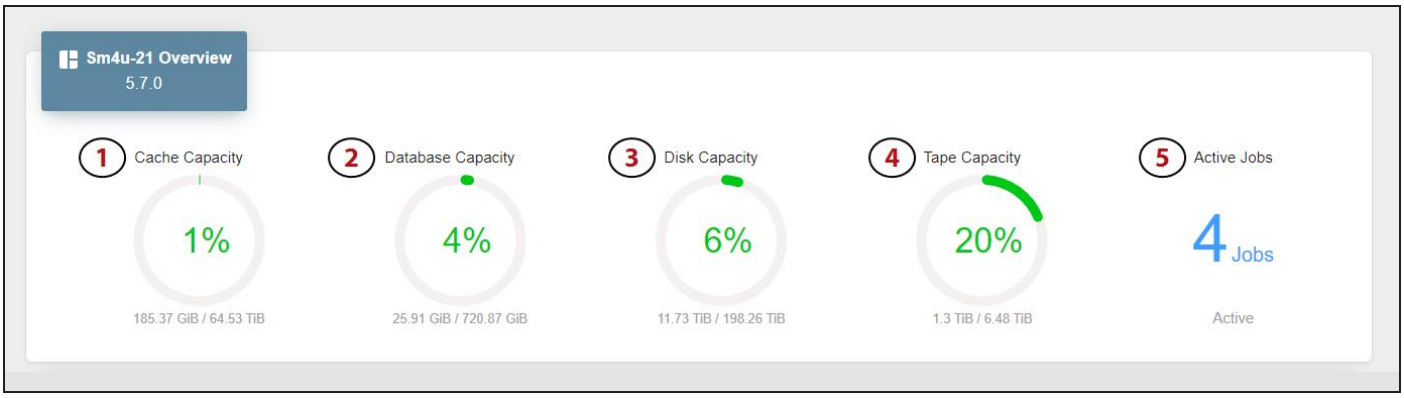

Figure 112 The Overview pane.

1. The BlackPearl cache capacity and percentage of used cache space.
2. The capacity of the BlackPearl database and percentage of used space.
3. The capacity of all disk-based storage connected to the BlackPearl system and percentage of used space.
4. The capacity of all tape-based storage in the tape library connected to the BlackPearl system and percentage of used space.
5. The number of active jobs running on the BlackPearl system.

Mouse-over the green section of any percentage graph to display the amount of used space, and over the gray section to display the amount of remaining space.

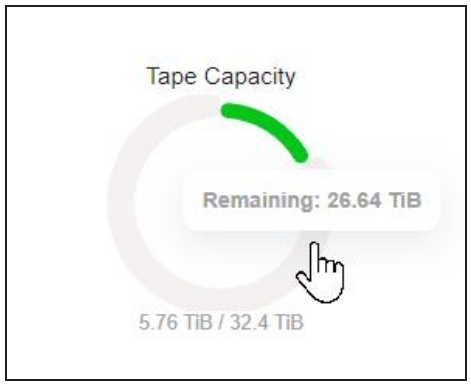

Figure 113 Mouse-over a graph to view specific details.

View Notifications

Notifications provide information about errors that occur on the system, caution messages that alert you to issues that may impact your workflow, and informational messages. Additionally, notifications may provide troubleshooting advice to help you resolve issues that may occur.

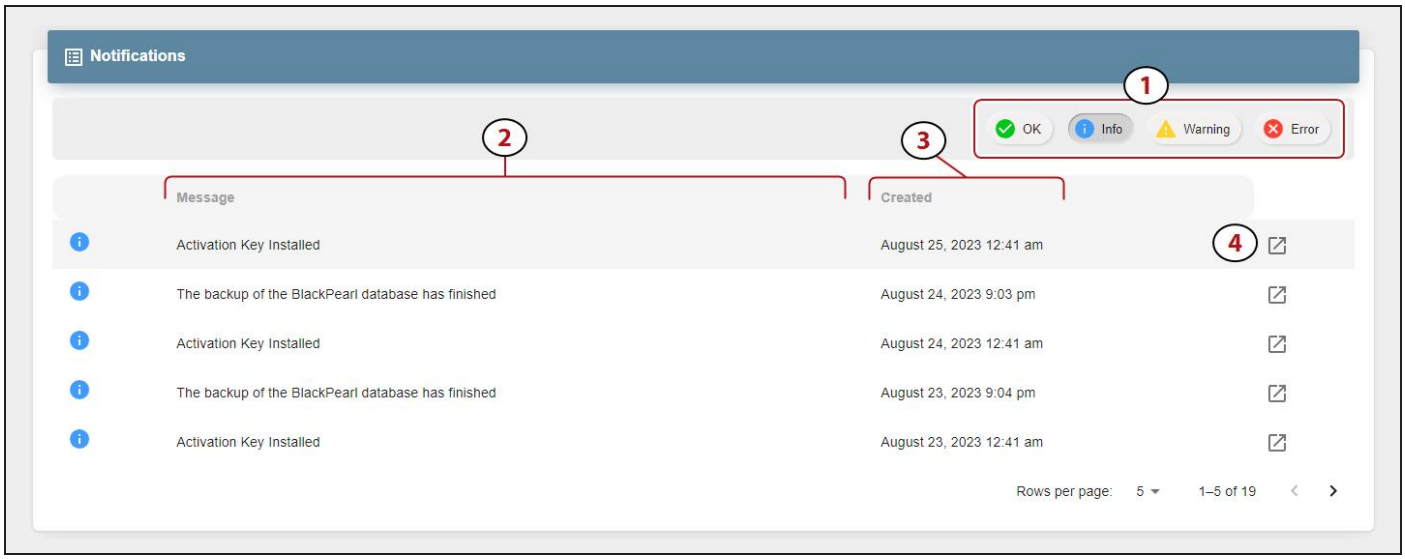

Figure 114 The Notifications pane.

1. Use the **Notification Type** buttons to switch between OK, Info, Warning, and Error messages.
2. Contains a brief description of the notification.
3. Displays the timestamp the notification was generated.
4. Click the **Details Button** to view additional message **Details** and **Troubleshooting Advice**.

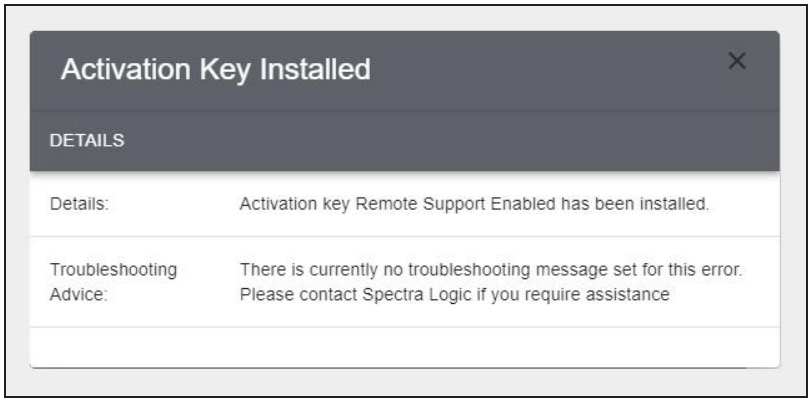

Figure 115 The Notification details dialog box.

View Jobs

The Jobs pane provides information on each Active, Canceled, or Completed job processed by the BlackPearl system.

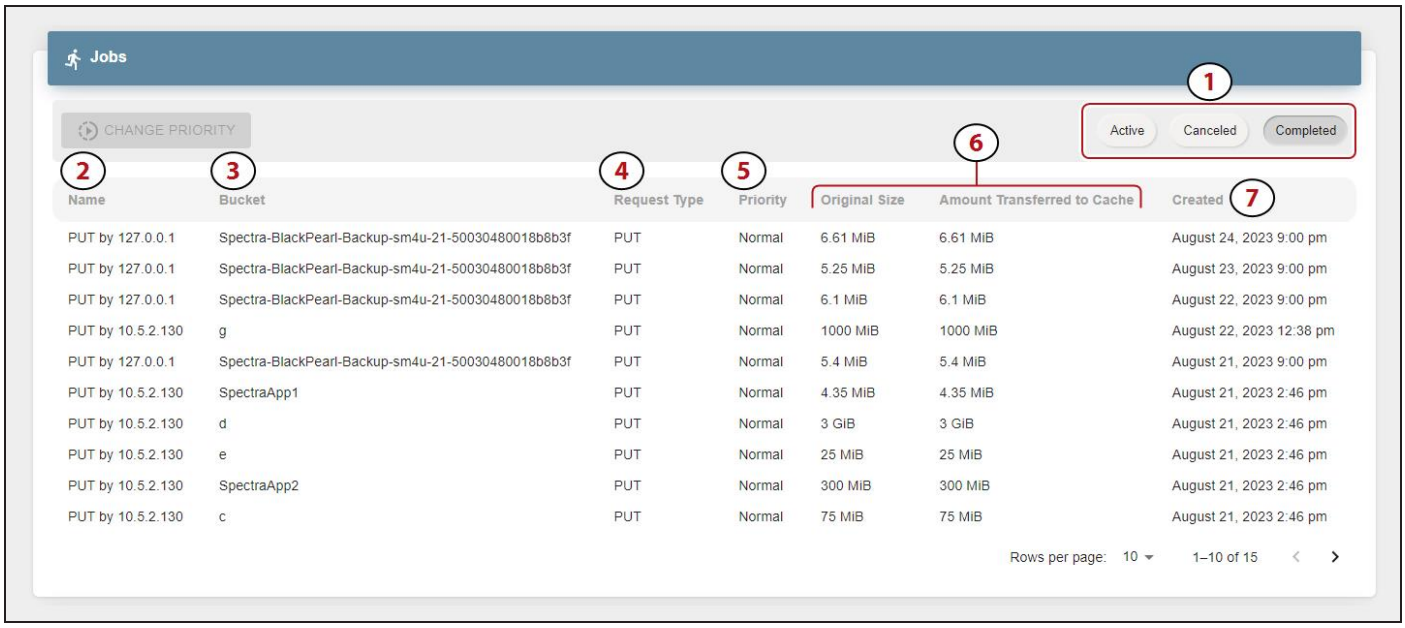

Figure 116 The Jobs pane.

1. Use the **Job Type** buttons to switch between Active, Canceled, and Completed jobs.
2. The name of the job includes the job type and the IP address of the job initiator.
3. The bucket used in the PUT or GET operation.
4. The type of job request.
5. The assigned priority of the job.
6. The original size and amount of data transferred to the BlackPearl cache.
7. Displays the timestamp of when the job was initiated.

Use the **Change Priority** button to change the priority of an active job. See Change Job Priority on page 148 for more information.

View Buckets

The Buckets pane provides information about all buckets configured on the BlackPearl system.

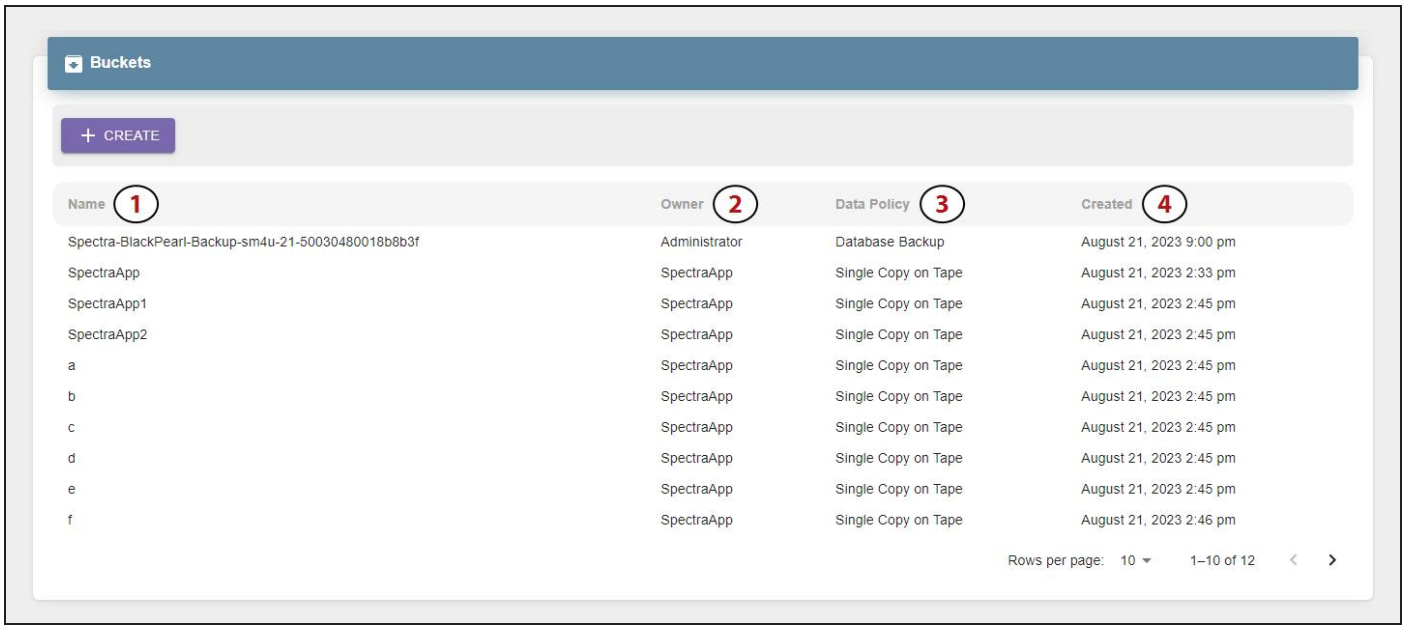

Figure 117 The Buckets pane.

1. Displays the name of the bucket
2. The bucket owner configured on the BlackPearl system.
3. The data policy used by the bucket.
4. Displays the timestamp of when the bucket was created.

The **Create** button to create a new bucket. See Create a Bucket on page 149 for instructions.

View Pools

The Pools pane displays information about all disk storage pools configured on the BlackPearl system including dedicated BlackPearl cache and database pools.

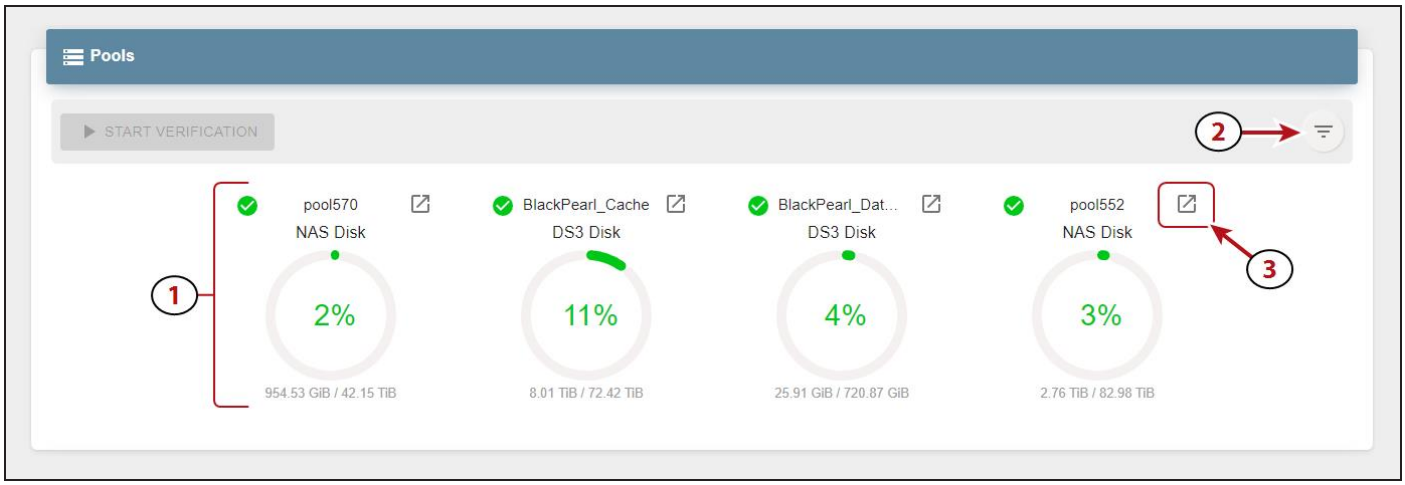

Figure 118 The Pools pane.

1. Each percentage graph displays both the used and remaining space for the associated pool.
2. Use the **Filter** button to select which pools to display on the Pools pane.
3. Click the **Details** button to view additional information about a specified pool.

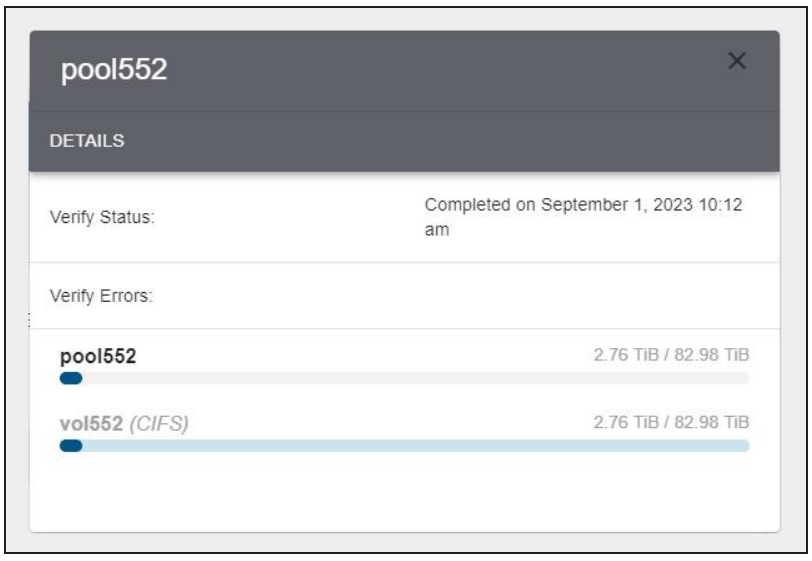

Figure 119 The pool details dialog box.

Use the **Start Verification** button to verify the data contained on the pool. See Start a Storage Pool Verification on page 148 for more information.

View Tape Partitions - Main View

The Tape Partitions pane displays information about the tape partitions configured on the tape library attached to the BlackPearl system. The Tape Partitions pane features both a main view and a tape cartridge state view.

To display the main view, manipulate the slider (**2**) to the left position.

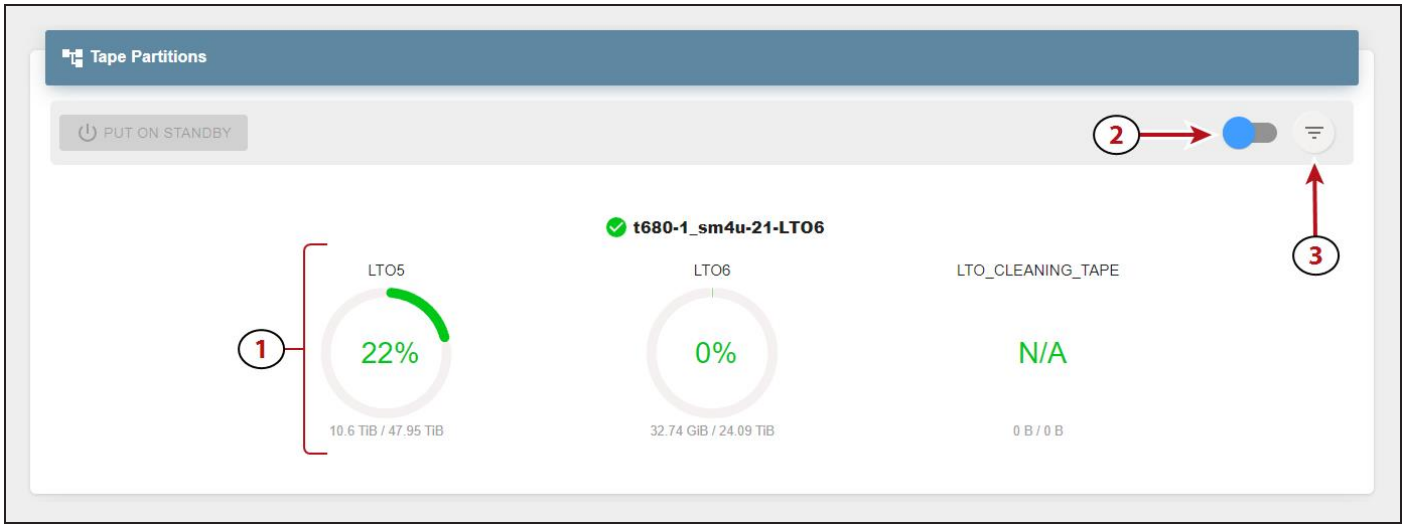

Figure 120 The Tape Partitions pane - main view.

1. Each percentage graph displays both the used and remaining space for the associated type and generation of media present in the tape partition. Mouse-over the green section of any percentage graph to display the amount of used space, and over the gray section to display the amount of remaining space.
2. Use the slider to change the display a graph of the current state of each tape cartridge present in the partition.
3. Use the **Filter** button to select which pools to display on the Tape Partitions pane.

If you need to service the tape library, you can put a tape partition into a standby state. See Put a Tape Partition into Standby on page 149 for more information.

View Tape Partitions - Tape State View

The Tape Partitions pane displays information about the tape partitions configured on the tape library attached to the BlackPearl system. The Tape Partitions pane features both a main view and a tape cartridge state view.

To display the tape cartridge state view, manipulate the slider (**2**) to the right position.

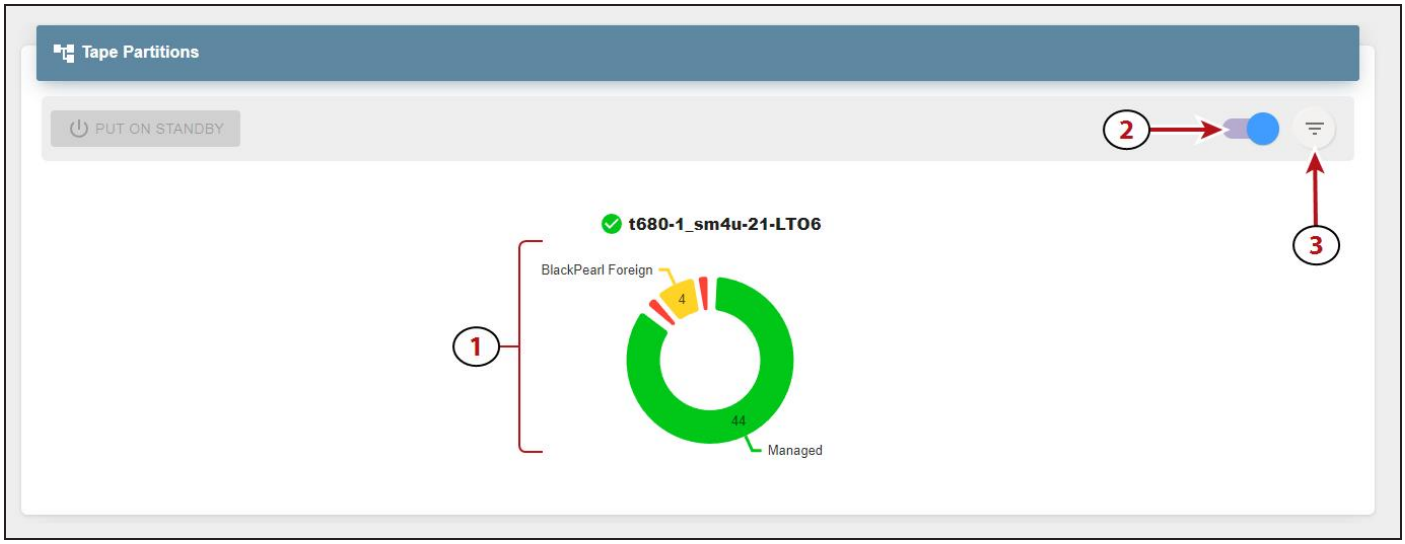

Figure 121 The Tape Partitions pane - main view.

1. The state of all tape cartridges in the partition. Each state combines different generations of tape media if present. Mouse-over any part of the graph to display more detailed information.
2. Use the slider to change the display a graph of the current state of each tape cartridge present in the partition.
3. Use the **Filter** button to select which pools to display on the Tape Partitions pane.

If you need to service the tape library, you can put a tape partition into a standby state. See Put a Tape Partition into Standby on page 149 for more information.

View Tape Drives

The Tape Drives pane displays information about all tape drives installed in the tape library connected to the BlackPearl system.

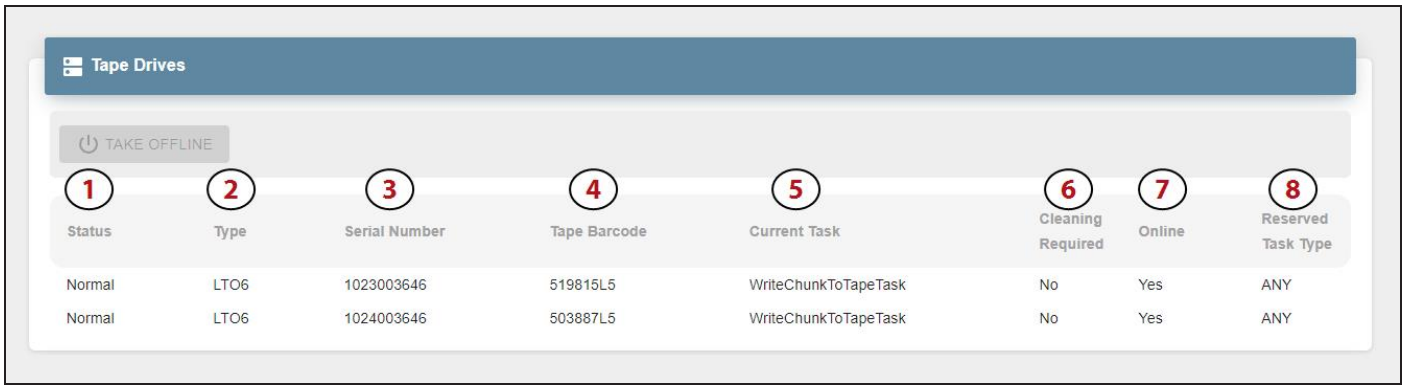

Figure 122 The Tape Drives pane.

1. The current status of the tape drive.
2. The drive type and generation.
3. The drive serial number as assigned by the tape library.
4. The physical barcode of the tape cartridge loaded into the tape drive. This field is blank when no tape is loaded.
5. The current task being performed by the drive. This field is blank when no task is in progress.
6. Indicates if the tape drive requires cleaning.
7. Indicates if the tape drive is online or offline.
8. The reserved task type, if configured. The default setting is Any.

Use the **Take Offline** button to take the drive offline. See Offline a Tape Drive on page 150 for more information.

View Tape Management

The Tape Management pane displays the status of all managed tapes in the tape library connected to the BlackPearl system.

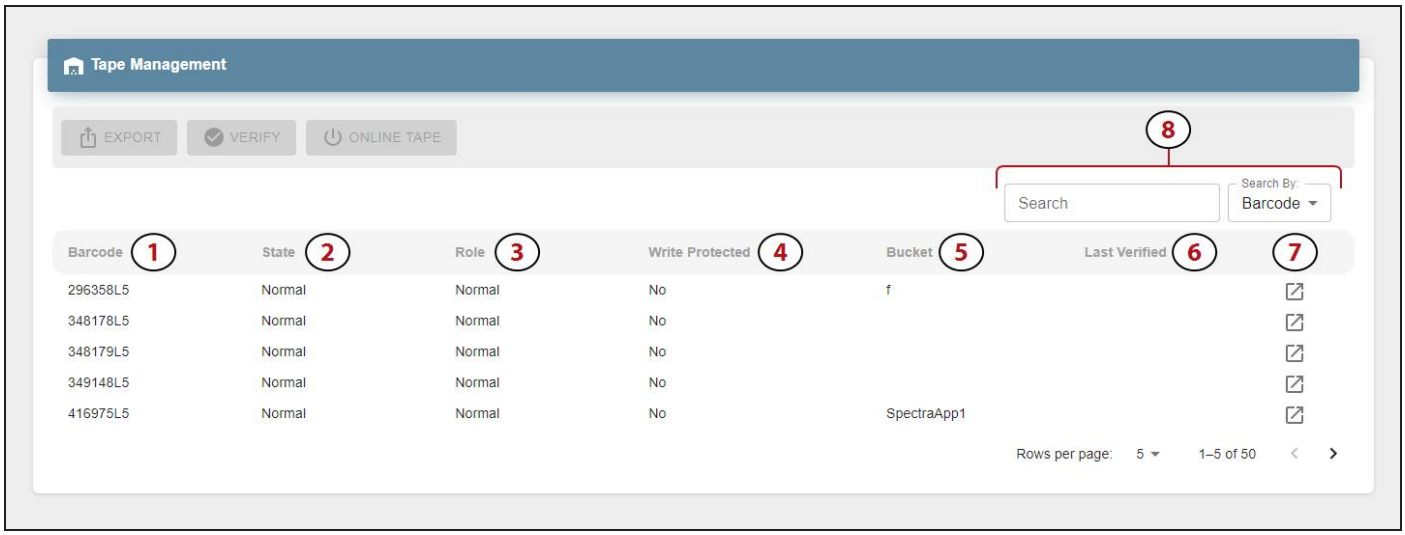

Figure 123 The Tape Management pane.

1. The physical barcode label on the tape cartridge.
2. The current state of the tape cartridge. See State on page 1 for more information.
3. Indicates if the tape is configured for use as a **Normal** or **Test** tape.
4. The physical **Write Protected** status of the tape cartridge.
5. The name of any BlackPearl bucket(s) present on the tape cartridge.
6. Displays the timestamp of the last tape verification.
7. Click the **Details** button to display additional information about the selected tape cartridge.
8. Use the **Search** entry field and **Search By** drop-down menu to find a specific tape cartridge.

See one of the following sections for instructions to export, verify, or online a tape cartridge:

- Export a Tape Cartridge on the next page
- Verify a Tape Cartridge on page 148
- Online a Tape Cartridge on the next page

DASHBOARD ACTIONS

In addition to displaying information about the BlackPearl system, the embedded dashboard allows you to perform the most frequently-used actions as described in the sections below.

Export a Tape Cartridge

Exporting a tape cartridge prepares it for physical removal from the attached tape library. In a Spectra Logic tape library, the cartridge is moved from the storage pool to the Entry/Exit pool, before it is physically exported from the library at the library front panel.

1. In the BlackPearl dashboard, navigate to the **Tape Management** pane.
2. **Select** the tape you want to export.
3. Click **Export**.
4. If desired, edit the **Export Label** and **Export Location**.

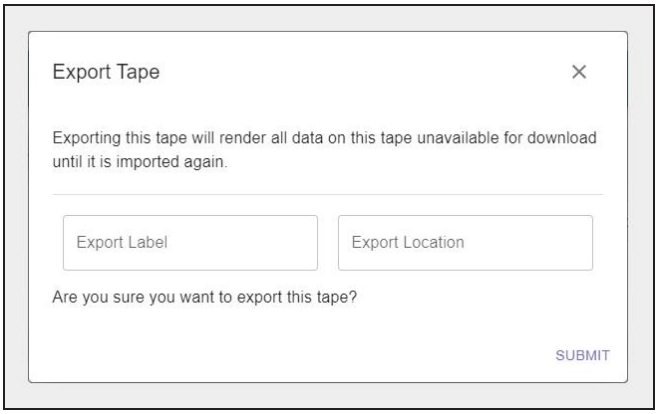

Figure 124 The Export Tape dialog box.

5. Click **Submit**.

Online a Tape Cartridge

Setting a tape cartridge to "online" prepares the cartridge for use by the BlackPearl system. This allows the system to use the tape cartridge for data storage operations.

Here is how to online a tape cartridge:

1. In the BlackPearl dashboard, navigate to **Tape Management**.
2. Select a tape in the **Offline** state.
3. Click **Online Tape**.
4. Click **Submit**.

Verify a Tape Cartridge

The BlackPearl system can perform a data integrity verification of all data on a selected tape cartridge to confirm it is still viable. While the verification is in progress, client access has priority over the data integrity scan.

Here is how to verify a tape cartridge:

1. In the BlackPearl dashboard, navigate to **Tape Management**.
2. **Select** the tape you want to verify.
3. Click **Verify Tape**.
4. Click **Submit**.

Change Job Priority

If desired, you can change the priority of an active job on the BlackPearl system.

Here is how you change the priority of a job:

1. In the BlackPearl dashboard, navigate to the **Jobs** pane.
2. If necessary, click **Active** to display the list of active jobs.
3. **Select** the job for which you want to change priority.
4. Use the **drop-down** menu to select a new priority for the job.
5. Click **Submit**.

Start a Storage Pool Verification

The BlackPearl system can perform a data integrity verification of all data on a selected storage pool to confirm it is still viable.

Here is how to start data verification on a storage pool:

1. In the BlackPearl dashboard, navigate to the **Pools** pane.
2. **Select** the pool that you want to verify.
3. Click **Start Verification**.
4. Click **Submit**.

Create a Bucket

Buckets on the BlackPearl system are data transfer targets for read and write operations. When you create a new bucket on the solution, you assign it a owner and a data policy. You can then use the new bucket in your other Spectra software applications as a target for data storage on the BlackPearl solution.

Here is how you create a new bucket:

1. In the BlackPearl dashboard, navigate to the **Buckets** pane.
2. Click **Create**.
3. Enter a **Bucket Name**.

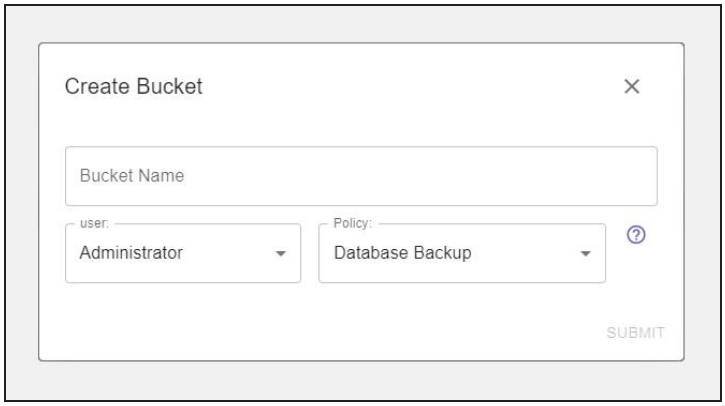

Figure 125 The Create Bucket dialog box.

4. Using the **User** drop-down menu, select an owner for the bucket.
5. Using the **Policy** drop-down menu, select a data policy for the bucket.
6. Click **Submit**.

Put a Tape Partition into Standby

If you need to perform service on the tape library associated with your BlackPearl gateway, or with the BlackPearl gateway itself, you must first put the tape library into a standby state. Otherwise, the BlackPearl gateway may attempt to use the tape library while it is in service.

Note: After the tape partition is placed in standby, any currently running tape operations continue until they are complete, which may take 30 minutes or longer.

Here is how to out a tape partition into standby:

1. In the BlackPearl dashboard, navigate to the Tape Partitions pane.
2. Select the partition you want to set to standby.
3. Click **Put On Standby**.
4. Click **Submit**.

Offline a Tape Drive

If a tape drive is experiencing errors and needs to be physically replaced, the drive can be taken offline to prevent the BlackPearl system from using the drive for data storage operations until the replacement is complete.

Here is how to offline a tape drive:

1. In the BlackPearl dashboard, navigate to the **Tape Drives** pane.
2. **Select** the drive you want to offline.
3. Click **Take Offline**.
4. Click **Submit**.

CHAPTER 7 - TECHNICAL SUPPORT

Spectra Logic Technical Support provides a worldwide service and maintenance structure, refined over many years to provide timely, professional service.

ACCESSING THE TECHNICAL SUPPORT PORTAL

The Spectra Logic Technical Support portal provides access to the Knowledge Base, the current version of BlueVision software for the library, drive firmware, drive device drivers, and additional service and support tools. You can also open or update a support incident.

Create an Account

Access to *User Guides* and compatibility matrices does not require you to create an account. You must create a user account and log in to access *Release Notes*, to download the latest version of Vail software, or to open a support incident.

Note: If you have multiple Spectra Logic products, the serial numbers for all products will be associated with your account. If you do not see the serial numbers for all of your products when you log in, contact Technical Support (see Contacting Spectra Logic on page 3).

1. Access the Technical Support portal login page at *support.spectralogic.com*.
2. On the home page, click **Register Now**.

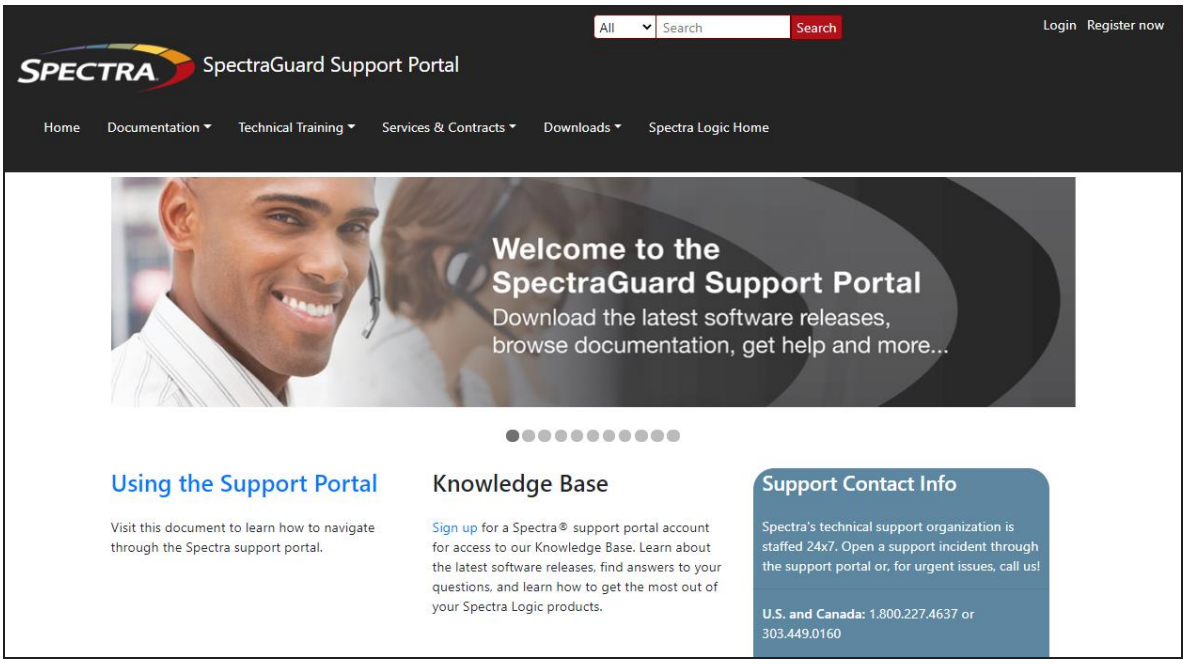

Figure 126 The Spectra Logic Technical Support portal home page.

3. Enter your registration information. Your account is automatically associated with the serial numbers of all Spectra Logic products owned by your site.

- If you have an invitation, follow the link and enter the invitation code.

Figure 127 The Signup screen.

- If you do not have an invitation, enter the requested information to create your account. When you are finished, click **Submit**.

When the account is approved, you receive an email with an initial password. Use your email address and the password provided in the email to log in to your account. After you log in, you can change your password if desired.

Log Into the Portal

1. Access the Technical Support portal login page at *support.spectralogic.com*.
2. Use your email address and password to log into the Technical Support Portal.

Opening a Support Ticket

You can open a support incident using the Spectra Logic Technical Support portal or telephone.

Search for Help Online

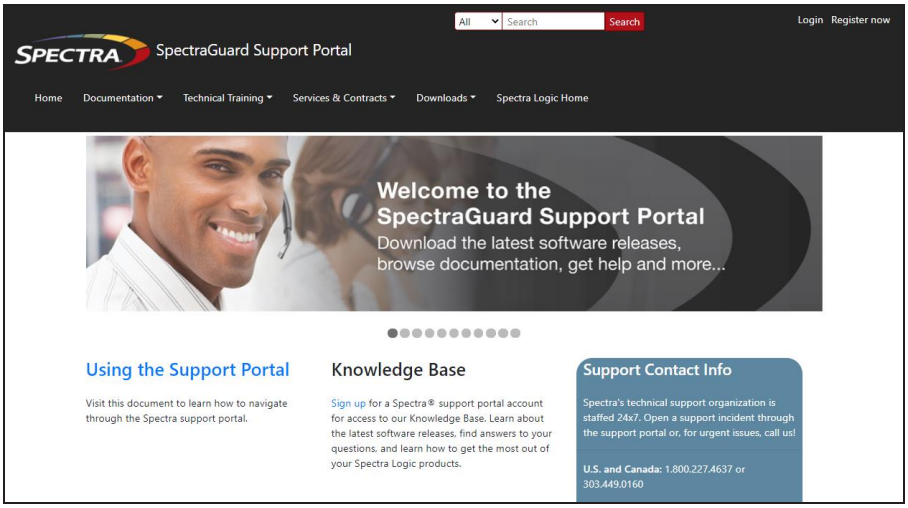

Figure 128 The Spectra Logic Technical Support portal home page.

1. Make notes about the problem, including what happened just before the problem occurred.
2. Gather the following information:
   - Your Spectra Logic customer number
   - Company name, contact name, phone number, and email address
   - The library serial number on the **Configuration>Settings** screen.
   - Type of host system being used
   - Type and version of host operating system being used
   - Type and version of host storage management software being used
3. If necessary, log in to the Support Portal by clicking **Login**, enter your **email address** and **password**, and click **Log in**.

Note: See Technical Support on page 151 if you have not previously created an account on the Technical Support portal.

4. From any page, select **Incident>Incidents & Inventory**.

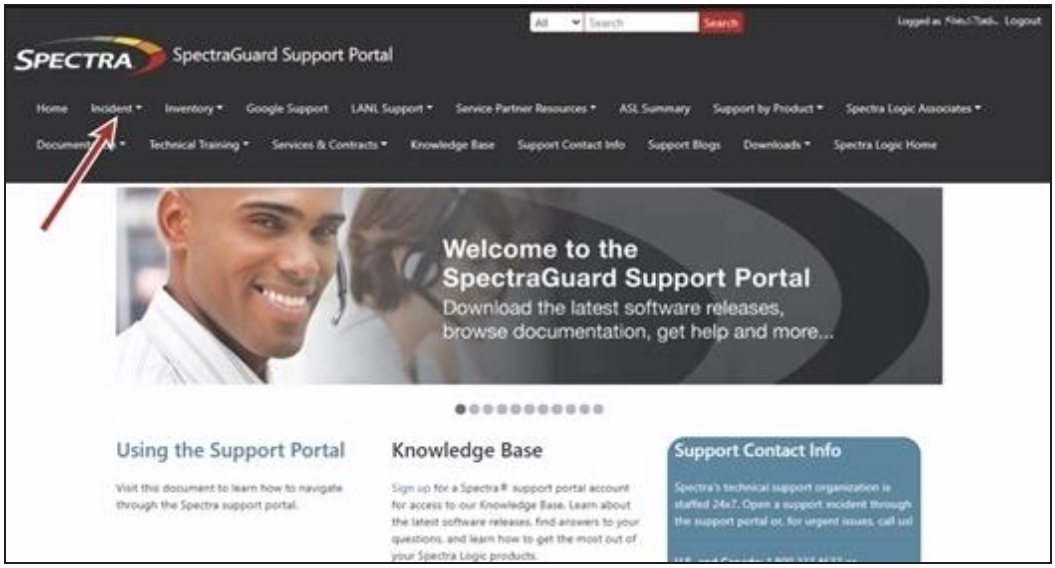

Figure 129 Select **Incidents>Incidents & Inventory**.

5. Select **Open or View Incidents**.

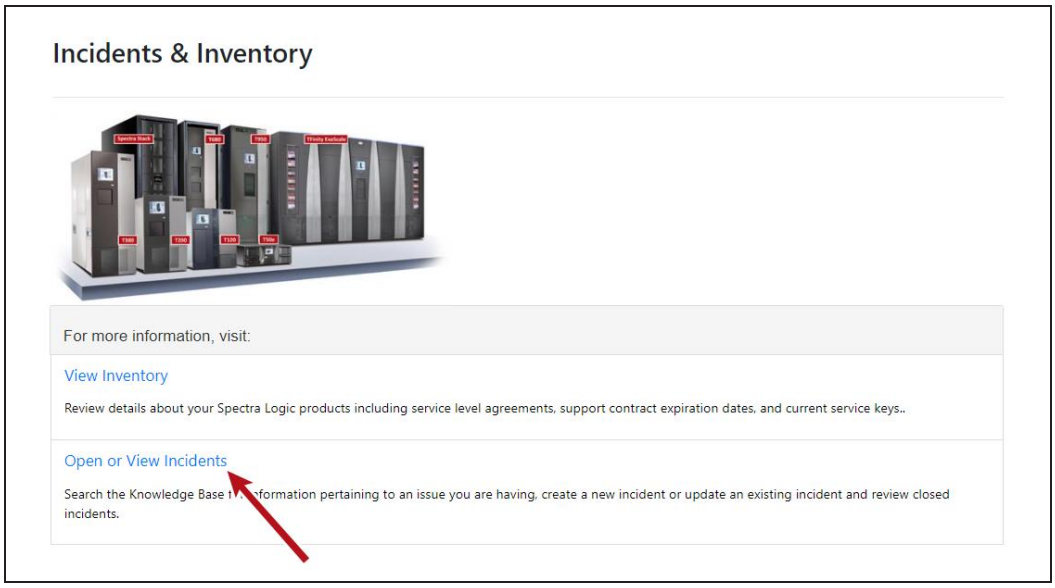

Figure 130 Select **Open or View Incidents**.

6. In the Search dialog box, enter a term or phrase about your problem (**1**) and click **Search** (**2**).

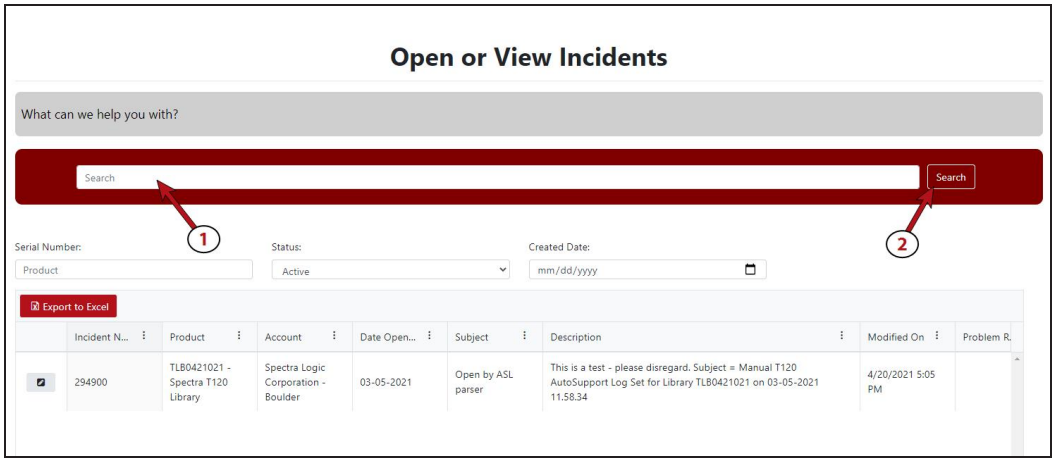

Figure 131 Enter a search phrase and click **Search**.

7. If the search does not provide an answer, click **Open a New Incident**.

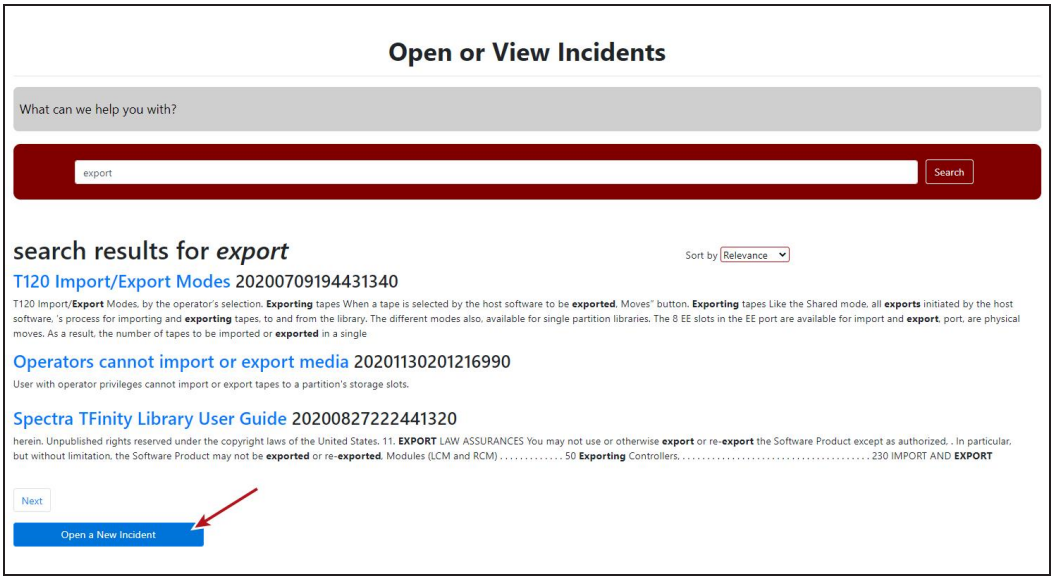

Figure 132 Click **Open a New Incident**.

8. On the Create Incident page, enter the requested information providing as much detail as possible. When you are finished, click **Submit**.

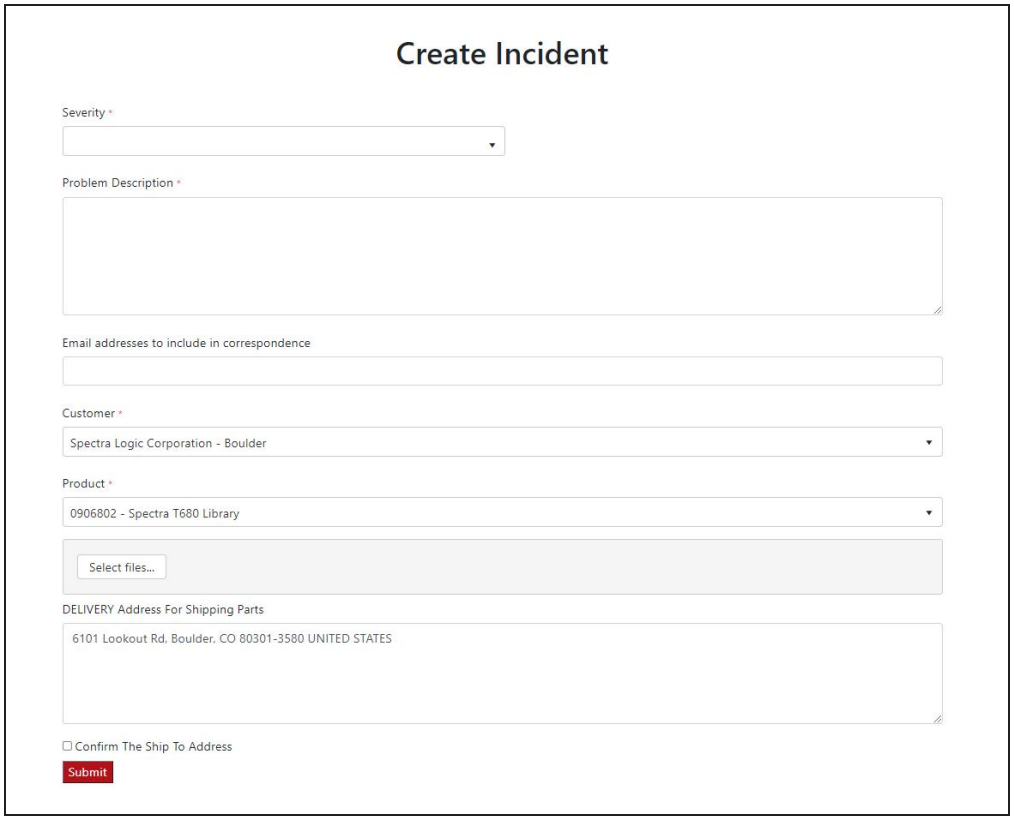

Figure 133 Enter information about your incident and click **Submit**.

Submit an Incident Online

1. Make notes about the problem, including what happened just before the problem occurred.
2. Gather the following information:
   - Your Spectra Logic customer number
   - Company name, contact name, phone number, and email address
   - The library serial number on the **Configuration>Settings** screen.
   - Type of host system being used
   - Type and version of host operating system being used
   - Type and version of host storage management software being used
3. If necessary, log in to the Support Portal by clicking **Login**, enter your **email address** and **password**, and click **Log in**.

Note: See Technical Support on page 151 if you have not previously created an account on the Technical Support portal.

4. From any page, select **Inventory>My Inventory**.
5. Locate the row of the product for which you want to submit an incident and click **Create Incident**.

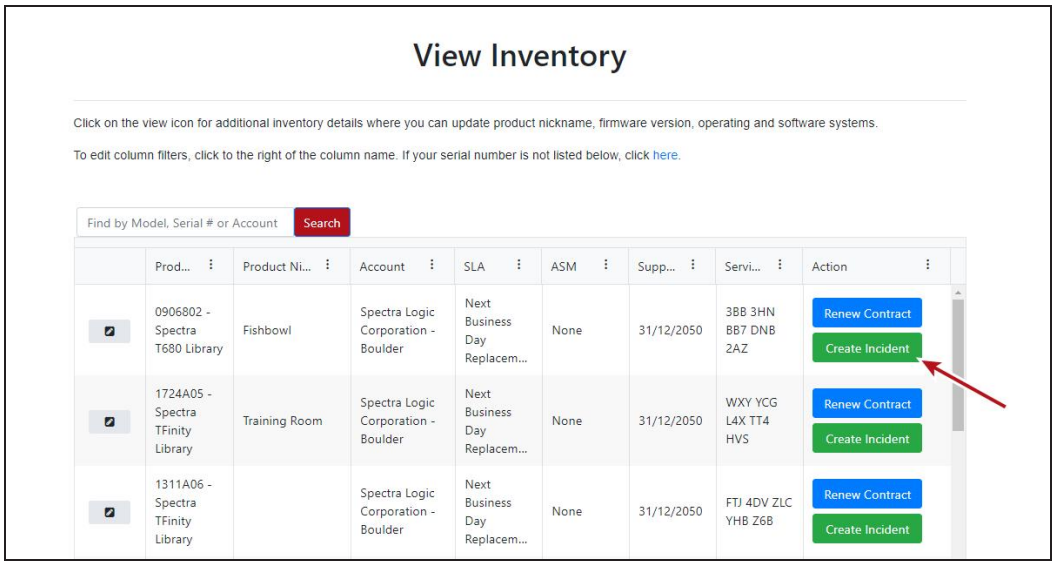

Figure 134 Click **Create Incident**.

6. On the Create Incident page, enter the requested information providing as much detail as possible. When you are finished, click **Submit**.

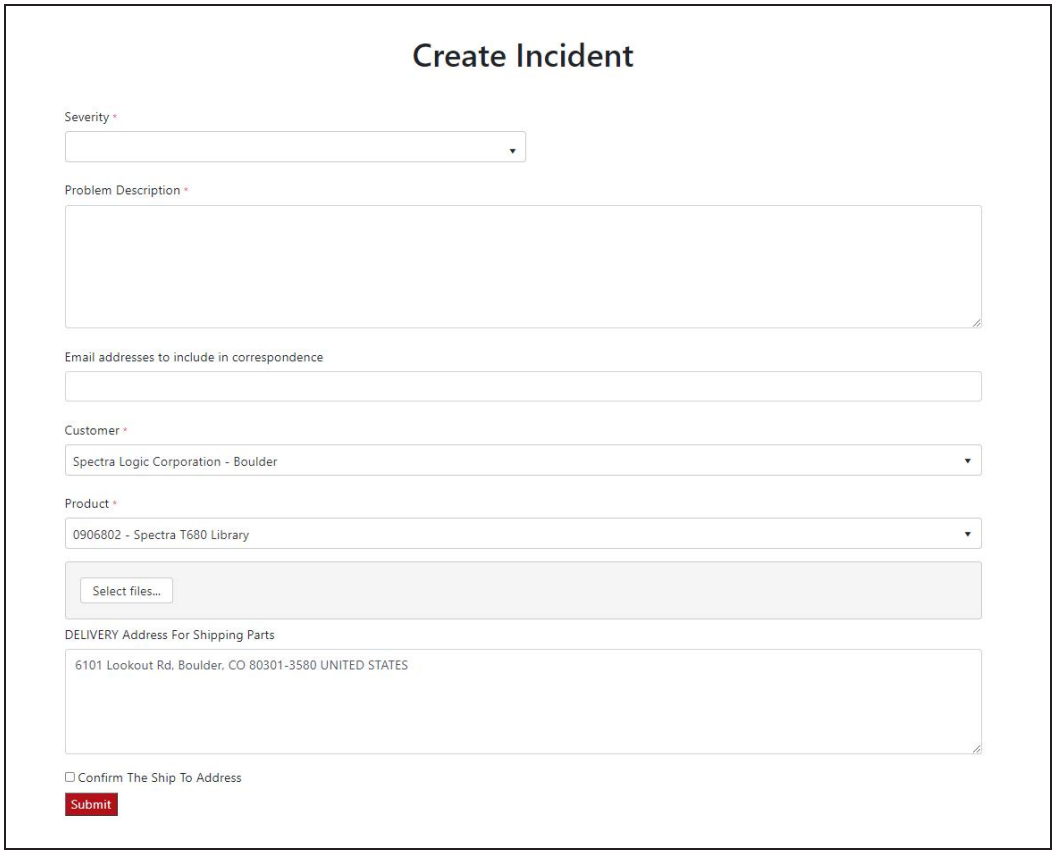

Figure 135 Enter information about your incident and click **Submit**.

Submit an Incident by Phone

Contact Spectra Logic Technical Support by phone using the information below.

Spectra Logic Technical Support	
Technical Support Portal: ***support.spectralogic.com***	
United States and Canada **Phone:** **Toll free US and Canada:** 1.800.227.4637 **International:** 1.303.449.0160	**Europe, Middle East, Africa** **Phone:** 44 (0) 870.112.2185 **Deutsch Sprechende Kunden** **Phone:** 49 (0) 6028.9796.507
Additional international numbers available at *support.spectralogic.com/home* **If you have a Spectra Logic Portal account, please log in for country-specific numbers at *support.spectralogic.com/support-contact-info***	