Spectra RioBroker Partial File Restore Plugin

Installation and User Guide

Part Number

90990146 Revision A

Revision History

Revision	Date	Description
A	July 2019	Initial release.

> **Note:** To make sure you have the most current version of this guide check the Spectra Logic Technical Support portal at https://support.spectralogic.com/support-by-product/blackpearl/.
>
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Contents

CHAPTER 1

Spectra RioBroker Partial File Restore Plugin Overview

This section provides a general overview for the Spectra® RioBroker Partial File Restore plugin.

If your MAM client does not use the Spectra RioBroker application, see the *BlackPearl Partial File Restore (PFR) User Guide*.

The Spectra RioBroker application is designed as a simple interface layer allowing a RESTful archive and retrieve API that intelligently manages jobs to a Spectra BlackPearl® Converged Storage System. This intermediary layer abstracts those archive systems and allows for data migration between different systems simultaneously. The Spectra RioBroker application's simplified API reduces the amount of effort required to integrate across a broad range of applications needed by customers.

The Partial File Restore (PFR) plugin adds 'Media Awareness' to the restoration of content from the BlackPearl Converged Storage System using the Spectra RioBroker application. The BlackPearl system natively allows partial file restore using 'byte offsets'. When PFR is enabled, archives flagged with the optional "indexMedia" parameter set to "true" are indexed before being sent to the BlackPearl system. On restore, if a time range is specified, the index is requested from the PFR server by the Spectra RioBroker application, which then converts the request to a time-based file chunk. That chunk is then stored in the temporary storage location specified in the Spectra RioBroker application Marquis Device configuration, the PFR software rewraps it, and it is then transferred to the proper primary storage location.

SYSTEM COMPONENTS AND WORKFLOW

The Spectra RioBroker PFR solution consists of the following components:

- A fully installed and configured BlackPearl system with BlackPearl software versions 4.1.*x* or 5.*x*
- A fully installed and configured Spectra RioBroker application
  - The Spectra RioBroker application is only available for 64-bit Microsoft® Windows® operating systems. It is compatible with:
    - Windows 7
    - Windows 10 Pro
    - Windows Server 2008 R2
    - Windows Server 2012
    - Windows Server 2016 - recommended
  - The host server must meet the following requirements:
    - 32 GB RAM
    - 500 GB hard drive space
    - 10 Gb/s network connection to the BlackPearl and production storage
- The PFR plugin (running on a Windows Server)
  - In most cases, the PFR software can be run on the same server as the primary Spectra RioBroker installation. The actual indexing load on the server is light, and for small to mid-range installations, the restore/rewrap process is more disk intensive than processor intensive.
  - For larger installations, defined as using a BlackPearl P-Series or multiple BlackPearl S-Series devices, a separate server is recommended. For any installations that use multiple PFR servers for enhanced indexing or restore speed, external servers are required.
  - PFR requires Microsoft .NET Framework 3.5.

The diagram below shows a basic Spectra RioBroker PFR setup.
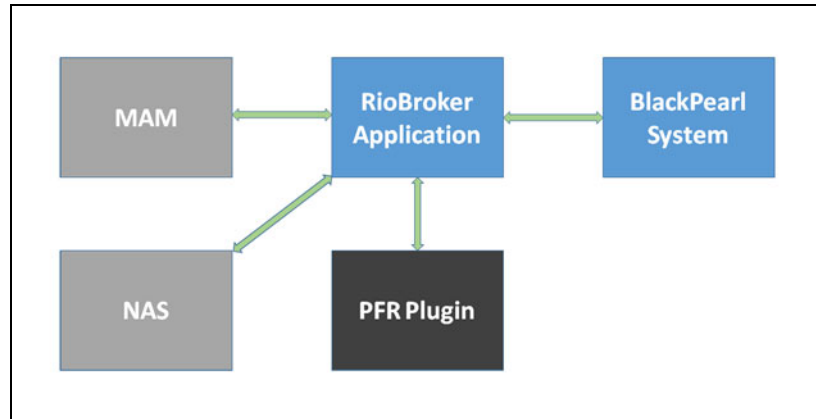
Figure 1 Spectra RioBroker Partial File Restore plugin example.

The MAM sends a command to the Spectra RioBroker application to archive a video file, which will move the file from NAS to a BlackPearl system. If the parameter "indexMedia" is set to "true" in the archive command, then the Spectra RioBroker application uses the PFR plugin to index the file before archiving. The PFR plugin reads the video file and creates an index file it later uses for partial restores. The index files are stored in a location specified when installing the PFR plugin.

The MAM can later send a command to the Spectra RioBroker application to restore a partial file. In the restore command, the MAM specifies the desired time range of the file. The Spectra RioBroker application uses the PFR plugin and the associated index file to convert the time range to a byte range. The Spectra RioBroker application then issues a command to the BlackPearl system to restore the byte range. Next, the Spectra RioBroker application uses the PFR plugin to "wrap" the partial file so it can be used as if it were a complete file. Finally, the Spectra RioBroker application restores the wrapped partial file to the restore location.

Codecs

Following is a list of MXF (Material eXchange Format) and QuickTime® file and media formats that have been tested with Partial File Restore:

Codec	NTSC	PAL	720p	1080i	1080p	QFDH/4K / UHD
DV25	✓	✓	n/a	n/a	n/a	n/a
DVCPro	✓	✓	n/a	n/a	n/a	n/a
DVCPro50	✓	✓	n/a	n/a	n/a	n/a
DVCProHD	n/a	n/a	✓	✓	✓	n/a
IMX 30	✓	✓	n/a	n/a	n/a	n/a
IMX 40	✓	✓	n/a	n/a	n/a	n/a
IMX 50	✓	✓	n/a	n/a	n/a	n/a
MPEG2 I-Frame	✓ [1]	✓ [1]	✓ [1]	✓ [1]	✓ [1]	n/a
MPEG2 LGOP	✓ [1]	✓ [1]	✓ [1]	✓ [1]	✓ [1]	n/a
XDCAM HD25	n/a	n/a	✓	✓	✓	n/a
XDCAM HD35	n/a	n/a	✓	✓	✓	n/a
XDCAM EX35	n/a	n/a	✓	✓	✓	n/a
XDCAM HD50	n/a	n/a	✓	✓	✓	n/a
AVC Intra 50	n/a	n/a	✓	✓	✓	n/a
AVC Intra 100	n/a	n/a	✓	✓	✓	n/a
AVC LGOP 12/25/50	n/a	n/a	✓ MXF only	✓ MXF only	✓ MXF only	n/a
XAVC LGOP 4:2:0 (8 Bit)	n/a	n/a	n/a	n/a	n/a	✓ [2, 3] MXF only
XAVC LGOP 4:2:2 (10 Bit)	n/a	n/a	n/a	n/a	n/a	✓ [2, 3] MXF only
XAVC 300/480	n/a	n/a	n/a	n/a	n/a	✓ [2, 3] MXF only
DNxHD	n/a	n/a	✓ MXF only	✓ MXF only	✓ MXF only	n/a
DNxHR	n/a	n/a	n/a	n/a	n/a	✓ [3] MXF only
ProRes 422	n/a	n/a	✓ QT only	✓ QT only	✓ QT only	Future QT only
H264	✓	✓	✓	✓	✓	✓ [2, 3]

1. Generic MPEG (LGOP & iFrame) can vary greatly depending on the creating system. Not all variants will be supported.
2. XAVC & h.264 include a considerable number of variants and not all will be tested.
3. 4k is often used to describe a wide selection of formats. Marquis tests against a selection of standards but cannot guarantee support of all variants. For example, XAVC LGOP is only currently supported for QFHD.

Frame Rates: Common supported frame rates are 23.976, 25, 29.97, 50 & 59.94 frames per second. Codecs are supported across a number of frame rates although not all frame rates are available in all codecs/standards.

Wrappers: PFR Supports media wrapped as either MXF Op1a or Quicktime (Self Contained).

Version Compatibility

The following software versions were tested together.

Partial File Restore Version	BlackPearl Software Version	Spectra RioBroker Version
4.0.0.303	4.1.*x* or 5.*x* or greater	1.0.2 or greater

Spectra Logic makes every effort to retain compatibility between current and future versions of Spectra products and PFR. Spectra Logic tests new releases to verify compatibility. To determine the latest compatibility information, contact Spectra Logic Technical support as described in Contacting Spectra Logic on page 7.

Spectra Logic Requirements

Before installing PFR and the Spectra RioBroker application, a BlackPearl Converged Storage system must be configured and available for network communications. See "Initial Configuration" in the *BlackPearl User Guide*.

RELATED INFORMATION

For more detailed information about the components of the solution, see the following resources:

- For additional information about the Spectra BlackPearl Converged Storage system, see the *Spectra BlackPearl User Guide*.

- For additional information about the Spectra RioBroker application, see the *Spectra RioBroker Application User Guide*.

- For additional information about Spectra Logic Tape Libraries, see the *User Guides* section of the Spectra Logic support portal at: https://support.spectralogic.com/documentation/user-guides/.

- For additional information about your MAM BlackPearl plugin, see the *User Guides* on the BlackPearl product page of the Spectra Logic Support portal at: https://support.spectralogic.com/support-by-product/blackpearl/

Install and Configure the Partial File Restore Plugin

This chapter describes the requirements for the Partial File Restore plugin as well as the installation and configuration instructions.

INSTALLATION

The basic installation assumes that the Spectra RioBroker application and PFR share the same server. If the installation requires PFR and the Spectra RioBroker application to be installed on separate servers, see for additional steps.

PFR Installation

⚠️ **Important** Before installing the software, it is a best practice to create a restore point in your operating system.

---

1. Contact your Spectra Logic Professional Services representative for the PFR installer.

2. Log into the PFR server as a local Windows Administrator.

3. Create the Endpoint Location directory and Temporary Storage location directory for PFR to use.

    a. The Endpoint Location is used for the INDEX_PATH. Navigate to the desired location and create a new folder. You can use any name for the folder. In the [*Endpoint Location*] folder, create another folder named "BP-PFR".

    b. In Windows File Explorer, right click on this folder, and select **Properties**. Select the **Sharing** tab and click **Share**.

    c. The Temporary Storage location is used to hold temp files from PFR. Navigate to the desired location and create a new folder. Consider available file storage and connection speed when determining where to put the Temporary Storage directory. You can use any name for the folder. This location will be used when connecting the PFR service to the Spectra RioBroker application.

    d. In Windows File Explorer, right click on this folder, and select **Properties**. Select the **Sharing** tab and click **Share**.

4. In Windows Explorer, navigate to the folder location where the installer packages are located, go to **File ⋯⋗ Open Command Prompt ⋯⋗ Open a Command Prompt as Administrator**.

The ServerInstaller and IndexerInstaller must be run silently from a command prompt.

    a. To run the Service Installer, enter the following:

```
msiexec /i PFRServerinstaller.msi
SERVICEUSERNAME=domain\user SERVICEPASSWORD=******
INDEX_PATH=\\localhost\[Endpoint Location]\BP-PFR /q
```

    b. To run the Index Installer, enter the following:

```
msiexec /i PFRIndexerInstaller.msi
SERVICEUSERNAME=domain\user SERVICEPASSWORD=******
INDEX_PATH=\\localhost\[Endpoint Location]\BP-PFR /q
```

    Where:

- **SERVICEUSERNAME** is the system user account that will be used by the service, this account must be a local administrator account. If the server is connected to active directory, utilize the active directory domain. If the server is not connected to active directory, the domain will be the computer name. To find the computer name, open a command prompt and type the command `hostname`.

- **SERVICEPASSWORD** is the password for the **SERVICEUSERNAME**. The password will be shown in plaintext, but is encrypted through the installation process.

- **INDEX_PATH** is the UNC path for the folder that will contain the index files. For example, if the UNC file path is "C:\Media\BP-PFR" it will be installed as "INDEX_PATH=\\localhost\media\BP-PFR".

5. After the installation completes, A PFR Log Viewer shortcut, a PFR Configuration shortcut, and a shortcut to a file named 'ServerName PFR Product Token' display on the desktop of the server. Submit the token to Spectra Logic via the Support Portal (https://support.spectralogic.com) by creating a new Support Incident.

6. Once received, install the permanent license.

   a. Right click the PFR Configuration application shortcut on the desktop and select **Run as Administrator**. The Welcome screen displays.
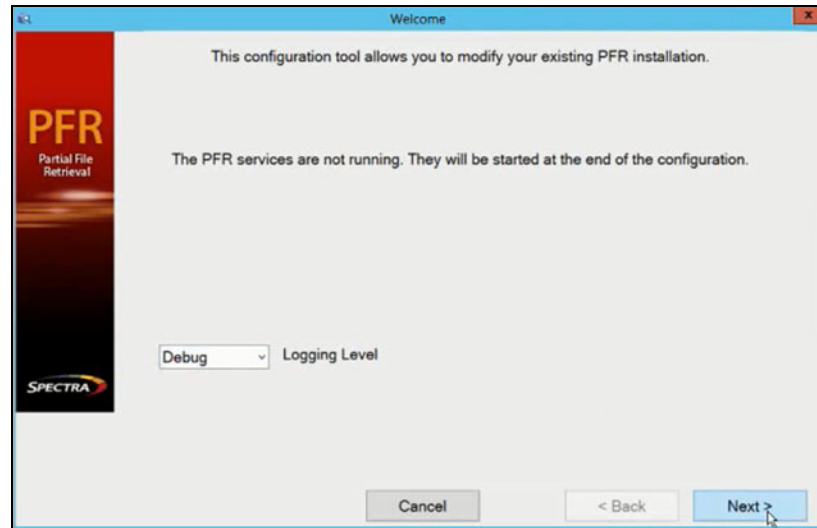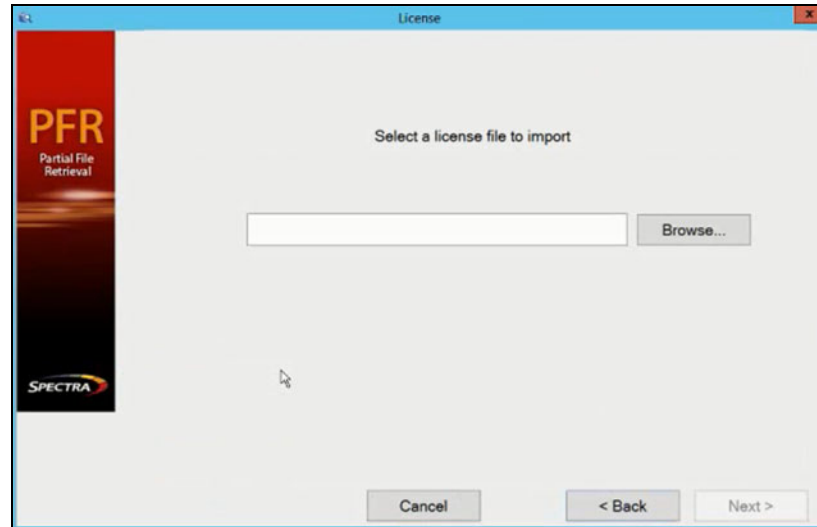

Figure 2 The Welcome screen.

   b. Do not change the logging level. **Debug** provides the maximum logging. Click **Next**. The Import License File screen displays.
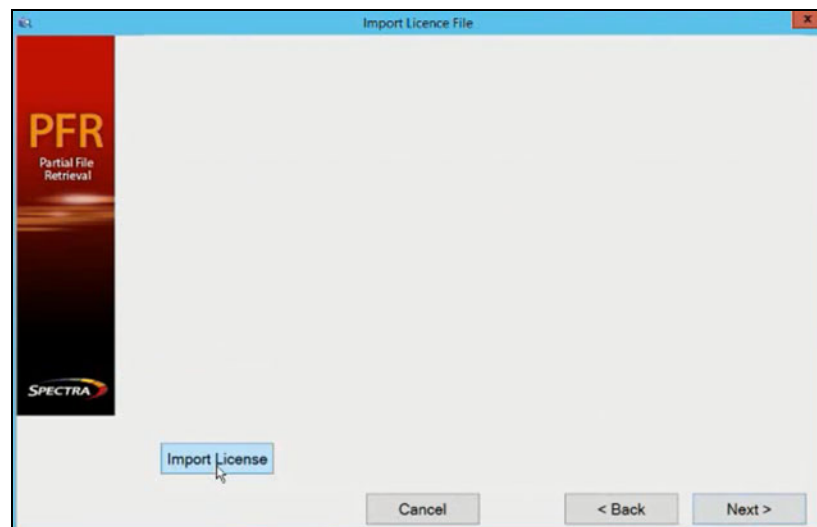
Figure 3 The Import License File screen.

c. Click **Import License**, the License screen displays.

Figure 4 The License screen.

d. Browse to the location of the license file and click **Next**. The System Configuration screen displays.
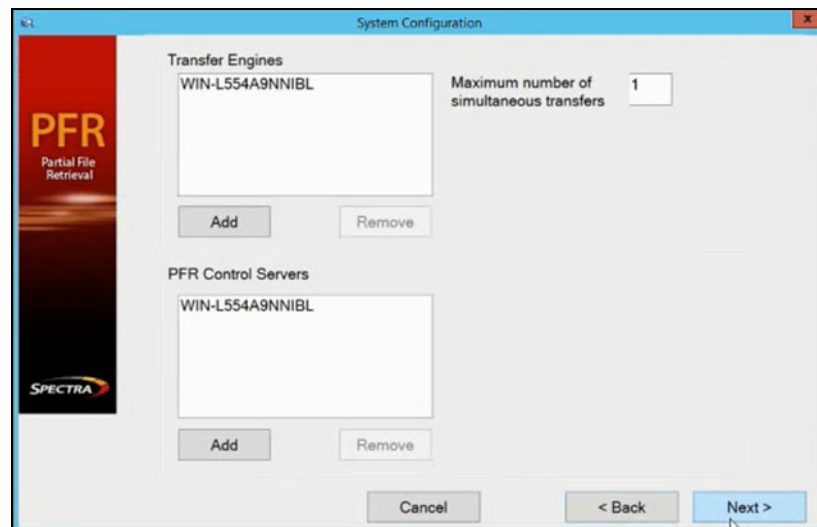
Figure 5 The System Configuration screen.

e. By default the details of the current local machine automatically display as both a Transfer Engine and a PFR Control Server, and do not need to be adjusted. If desired, click **Add** to enter additional Transfer Engines to allow greater redundancy and throughput, or to enter additional PFR Control Servers for redundancy.

f. Depending on the license installed, edit the **Maximum number of simultaneous transfers**. Click **Next** to continue. The Summary screen displays.
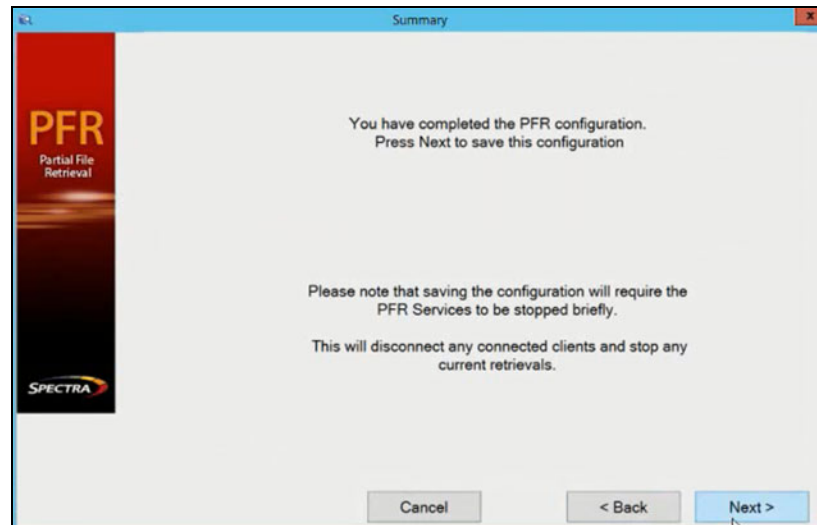
Figure 6 The PFR Summary screen.

g. Click **Next**. The PFR Configuration application saves the configuration changes and starts the PFR services.

7. Open the Services screen and for each of the following services, confirm that the service is configured to Log On As 'Administrator' and that the service is running.

- BlackPearl PFR Index Service
- Marquis Log Service
- Medway Engine Server
- MedwaySync
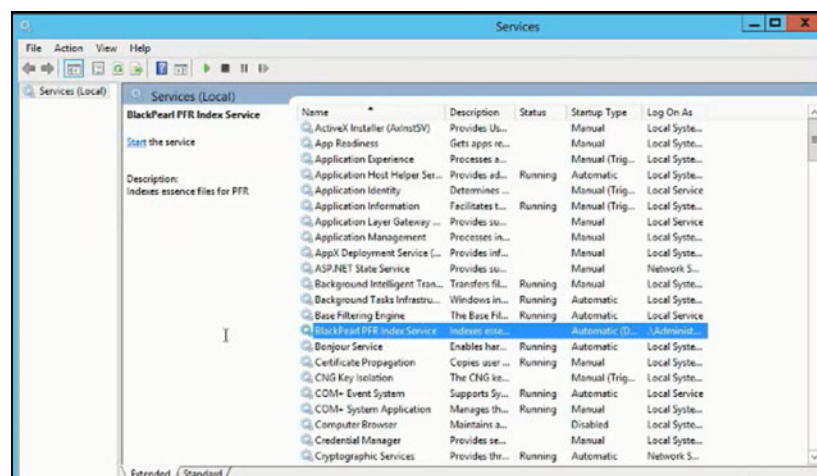
Figure 7 The Services screen.

- If 'Log On As' is not 'Administrator', do the following:

    a. Right click the service and select **Properties**. The *Service* Properties screen displays. Select the **Log On** tab.
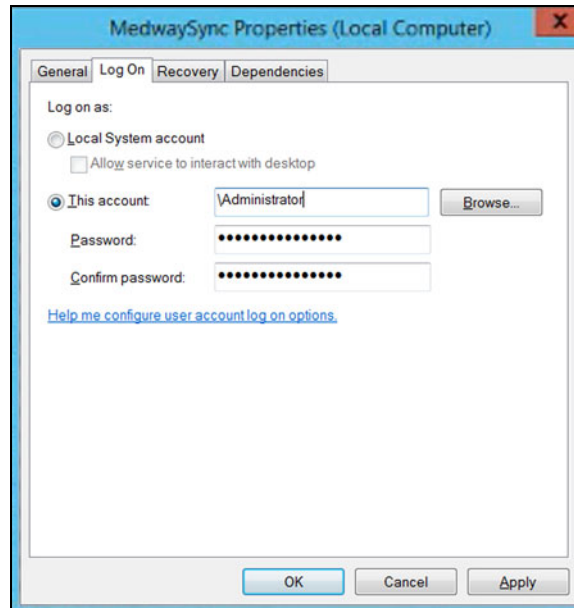
Figure 8 The *Service* Properties screen.

    b. Select **This account** and enter `\Administrator`.

    c. Enter and confirm the password and click **OK**.

- If the service is not running, select the service and click **Start** the service in the upper left corner of the Services screen.

Repeat this step for each additional service listed.

Spectra RioBroker Setup for PFR

1. If necessary, use the following instructions to download and install the Spectra RioBroker software.

    a. Open your web browser and navigate to: https://developer.spectralogic.com/rio

    b. Download the latest version of the RioBroker software installer file.

    c. Start the installation by double clicking `SpectraRioBrokerSetup-x.x.x.msi`, where x.x.x indicates the version of the software.

    d. Follow the on-screen instructions to install the application.

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

2. Open the Services screen and confirm that the Spectra RioBroker service is configured to Log On As 'Administrator' and that the service is running.

   ▪ If 'Log On As' is not 'Administrator', do the following:

   a. Right click the service and select **Properties**. The *Service* Properties screen displays. Select the **Log On tab**.
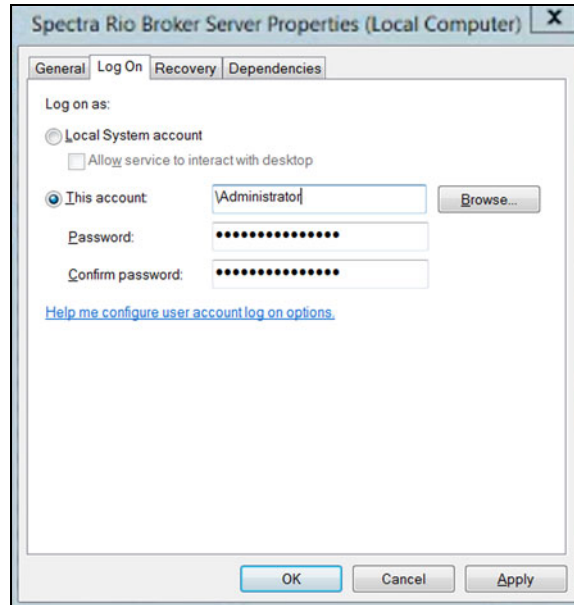

Figure 9 The *Service* Properties screen.

   b. Select **This account** and enter \Administrator.

   c. Enter and confirm the password and click **OK**.

   ▪ If the service is not running, select the service and click **Start** the service in the upper left corner of the Services screen.

3. Using a web browser, navigate to https://localhost:5050/app/login.

   Notes: ▪ The application requires a secure connection.

   ▪ If necessary, resolve the security warning for the application.

   ▪ The RioBroker user interface has a 60 minute session time out setting.

4. If this is the first time launching the application, the Cluster Welcome screen displays. Otherwise, the login page displays (see Step 6 on page 17).

Figure 10 The Cluster Welcome screen.

5. Create a new cluster.

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

a. Click **New**. The Create Cluster dialog box displays.
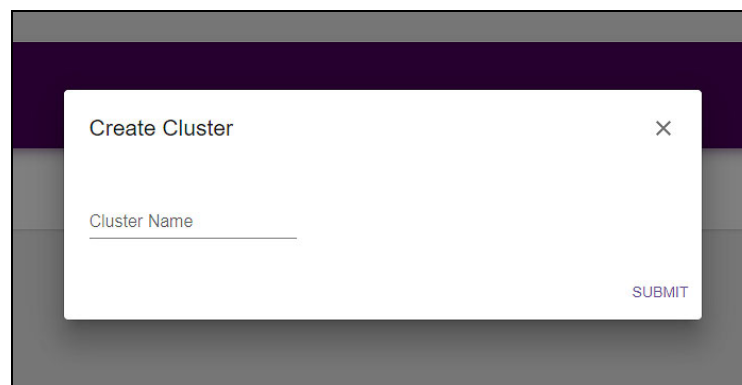
Figure 11 The Create Cluster dialog box.

b. Enter the desired cluster **Name**.

c. Click **Submit**. The Spectra RioBroker login screen displays.

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

   Note: The default username and password are both "**spectra**".
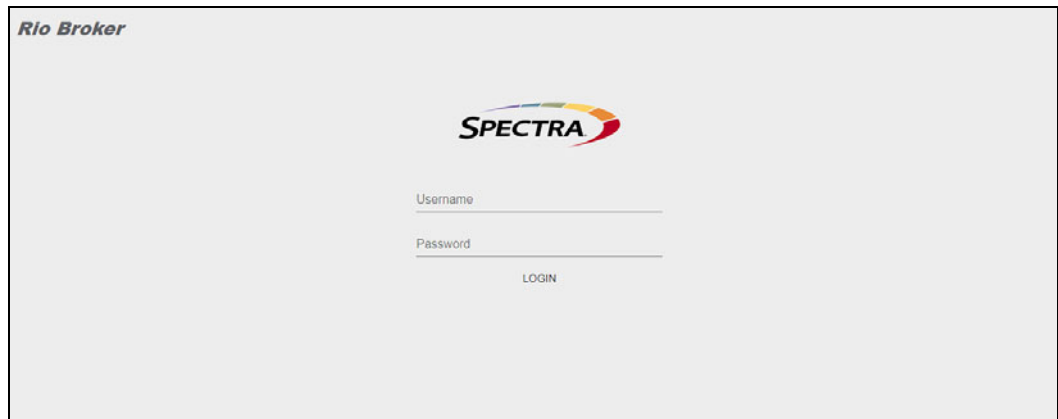
Figure 12 The Login screen.

7. Click **Login**. The Dashboard screen displays showing an overview of the Spectra RioBroker application.
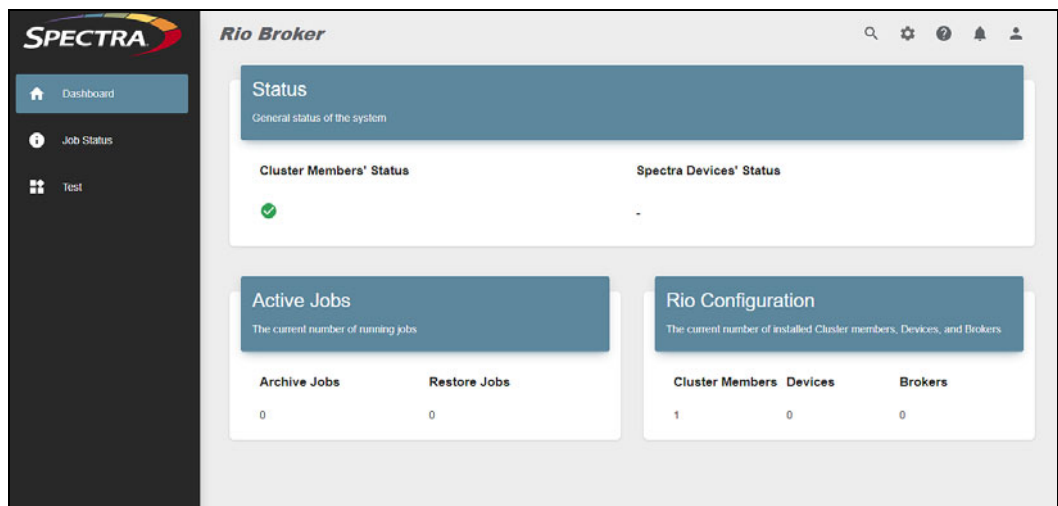
Figure 13 The Dashboard screen.

Create Devices

Once you are logged in to the application, use the instructions below to create a device as a data repository target. Both the BlackPearl system and the PFR plugin must be configured as Spectra RioBroker devices.

On the toolbar in the upper-right of the application window, click **Settings** (gear icon) ⋯⁝ **Devices**. The Devices screen displays.
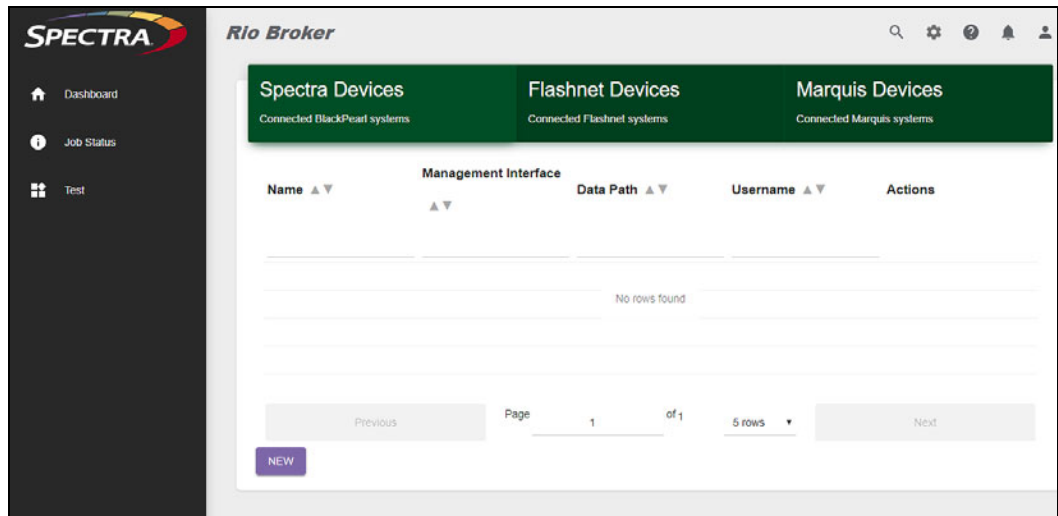
Figure 14 The Devices screen.

Create a Spectra Device

1. If necessary, click Spectra Devices to highlight the Spectra tab.

2. Click **New**. The Add Spectra Device dialog box displays.

Figure 15 The Add Spectra Device dialog box.

3. Enter the desired **Name** for the Spectra device. Spectra Logic recommends using the name assigned to the BlackPearl system.

4. Enter the **Management Interface** IP address of the desired BlackPearl target. Do not include http or https.

   Note: If you are using an IPv6 address to communicate with the BlackPearl system, you must use square brackets ([ ]) at the start and end of the IPv6 address.

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 specifying http or https. Otherwise leave this field blank and RioBroker retrieves this IP address automatically.

> **Note:** If you are using an IPv6 address to communicate with the BlackPearl system, you must use square brackets ([ ]) at the start and end of the IPv6 address.

6. Enter the **Username** and **Password** of a user configured on the BlackPearl target.

> **Note:** Only users with Administrator or Monitor permissions are allowed. Users with only Login privileges are not supported by the RioBroker application.

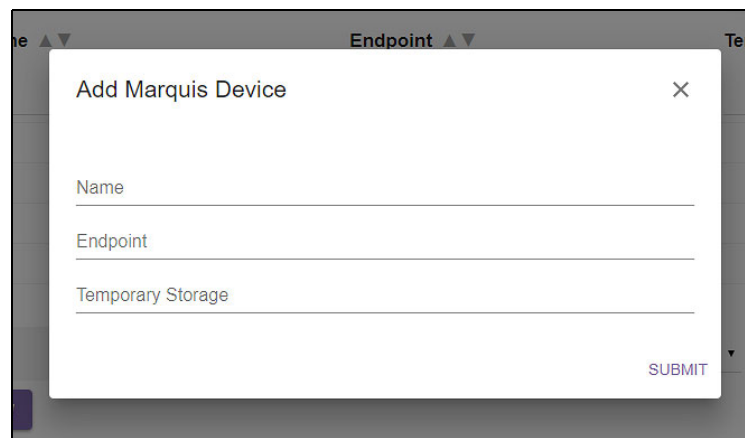**7.** Click **Submit**. The Devices screen displays showing the newly created Spectra device.

Create a Marquis Device

1. Click Marquis Devices to highlight the Marquis tab.

2. Click **New**. The Add Marquis Device dialog box displays.

Figure 16 The Add Marquis Device dialog box.

3. Enter the desired **Name** for the Marquis device.

> **Note:** The **Name** cannot include spaces.

4. Enter the **Endpoint** IP address of the desired Marquis target in the format: http(s)://*<IP address>*:60792.

> **Note:** 60792 is the port used by PFR.

5. Enter the UNC path (for example, file:///C:/TEMP_PFR) for the **Temporary Storage** location of the desired Marquis target. This is the directory created in Step c on page 10.

6. Click **Submit**. The Devices screen displays showing the newly created Marquis device.

Create a Broker

Once you create a device in RioBroker, use the instructions below to create a data broker.

A broker is a logical construct that defines a specific archive environment which must include exactly one default archive agent bucket on a BlackPearl system. Each broker can also contain one or more other read-only agents from which objects can be retrieved. Any number of brokers can be defined within the RioBroker application to allow multi-bucket support for archives.

On the toolbar in the upper-right of the application window, click **Settings** (gear icon) ⋯⋮ **Brokers**. The Brokers screen displays.
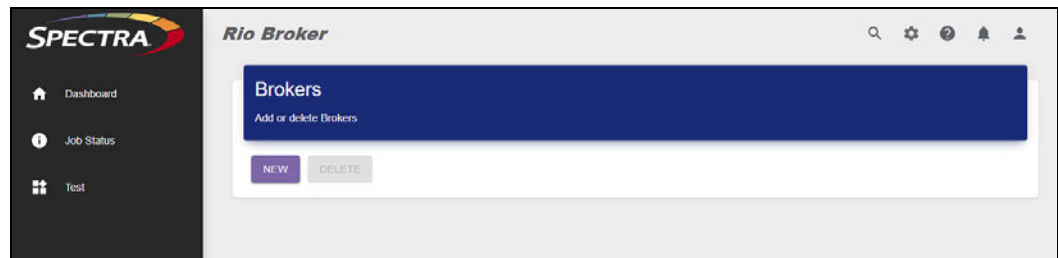
Figure 17 The Brokers screen.

1. Click **New**. The Add Broker dialog box displays.

Figure 18 The Add Broker dialog box.

2. Enter the desired **Broker Name** and **Agent Name**.

   Notes: ▪ The Broker and Agent name can be anything but it is a best practice for both to use the same name as the associated BlackPearl bucket name.

   ▪ The Spectra RioBroker application will change any name entered to all lower case characters.

3. Enter the **BlackPearl Name** of the BlackPearl system configured in Step 3 on page 18.

4. Enter the **Username** of a user configured on the BlackPearl system specified in Step 3.

5. Enter the name of a **Bucket** associated with the user specified in Step 4. Make sure that this bucket has the desired data placement and Advanced Bucket Management (ABM) policy. See the *BlackPearl Converged Storage System User Guide* for more information.

   Note: The bucket must already exist on the BlackPearl system.

6. Click **Submit**.

Installing on Multiple Servers

If you are installing the Spectra RioBroker application and PFR on separate servers, complete the additional steps outlined below.

1. All file locations created during the PFR and Spectra RioBroker installations need to be shared and accessible by both servers. To share a folder between servers:

   a. Start Windows Explorer.

   b. Right-click the folder that you want to share and then select **Sharing and Security**.

   c. On the **Sharing** tab, select **Share this folder**. Windows automatically uses the name of the folder as the share name (if there is not already another share that uses the name on the computer). You can change the share name if you want to use a different name.

   d. Click **Permissions**.

   e. In the Permissions for *Folder Name* dialog box, click **Add**.

   f. In the Select Users or Groups dialog box, type the names of the users or groups that you want to add to the shared folder, and then click **OK**.

   g. To grant or remove a user or group permission for the shared folder, click the user or group in the Group or user names dialog box, and then select or clear the **Allow or Deny** check box next to the permission that you want to grant or deny.

   h. In the Group or user names list, select **Everyone**, and then click **Remove**.

   i. Click **OK**.

2. Media should be stored in a location that is accessible by both servers. Follow the steps above to ensure that the folder is shared to both Spectra RioBroker and PFR servers.

3. The user logged into the Spectra RioBroker Service needs to have administrator permission on the Spectra RioBroker server as well as the PFR server.

TESTING THE INSTALLATION

To test the PFR installation, you need to download Postman. 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 RioBroker application.

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

Test Setup

1. Start Postman. The main screen displays.
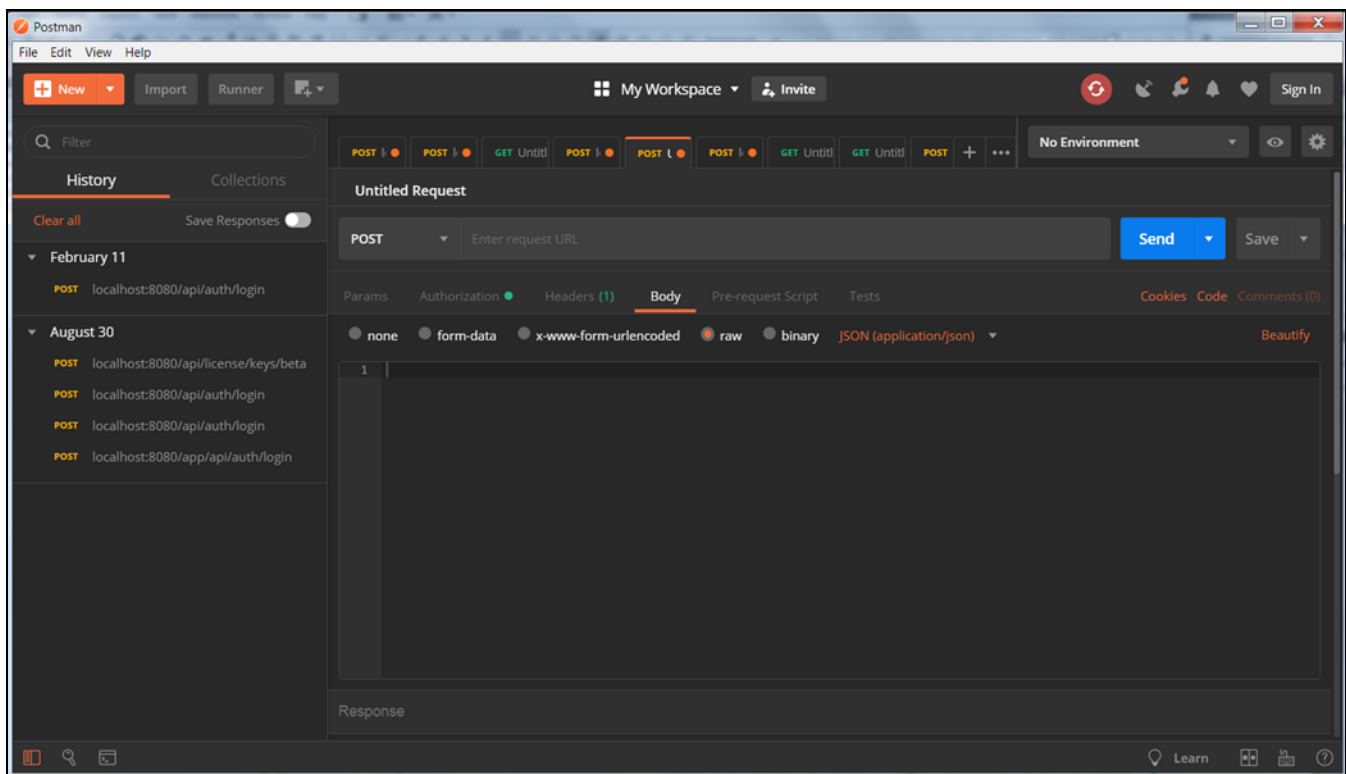
Figure 19 The Postman main screen.

2. Navigate to **File ⋯⁞ Settings**. The settings screen displays.
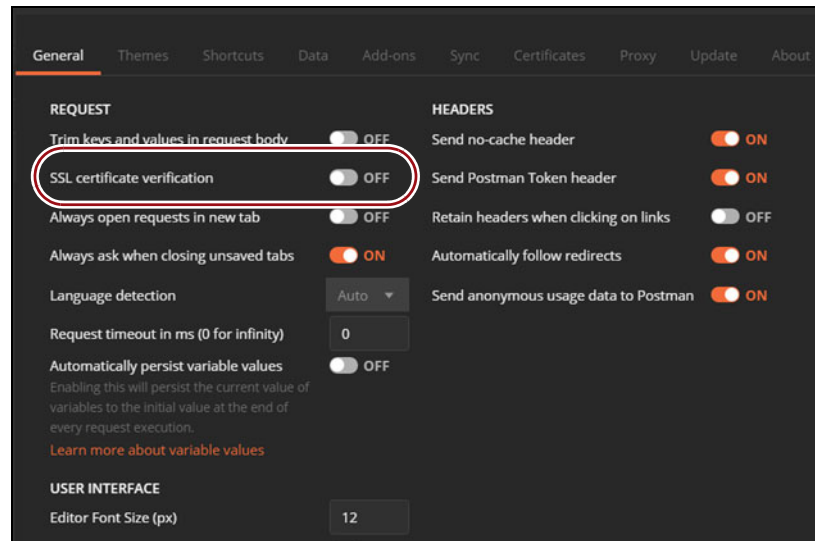
Figure 20 The Postman Settings screen

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 19.

5. Use the following steps to obtain an authorization token. Authorizationtokens expire in one hour, but can be generated as often as needed during testing.
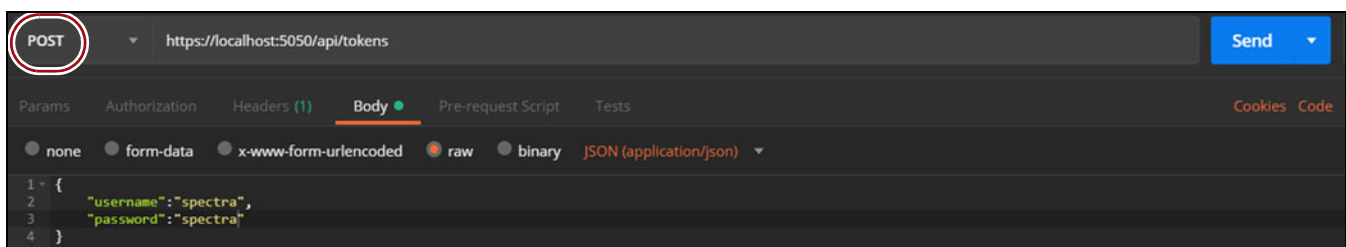
Figure 21 Request an authorization token using Postman.

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 22 The response from the token request.

e. In the workspace, select the Authorization tab.

Figure 23 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

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 RioBroker application.

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

```
POST          ▼    https://localhost:5050/api/brokers/TestBroker/archive

Params    Authorization ●    Headers (2)    Body ●    Pre-request Script    Tests

● none    ● form-data    ● x-www-form-urlencoded    ● raw    ● binary    JSON (application/json) ▼

1 ▾ {
2 ▾     "files": [
3 ▾         {
4               "name": "Testing1.txt",
5               "uri": "file:///C:/Users/Administrator/Desktop/Testing.txt"
6           }
7       ]
8   }
```
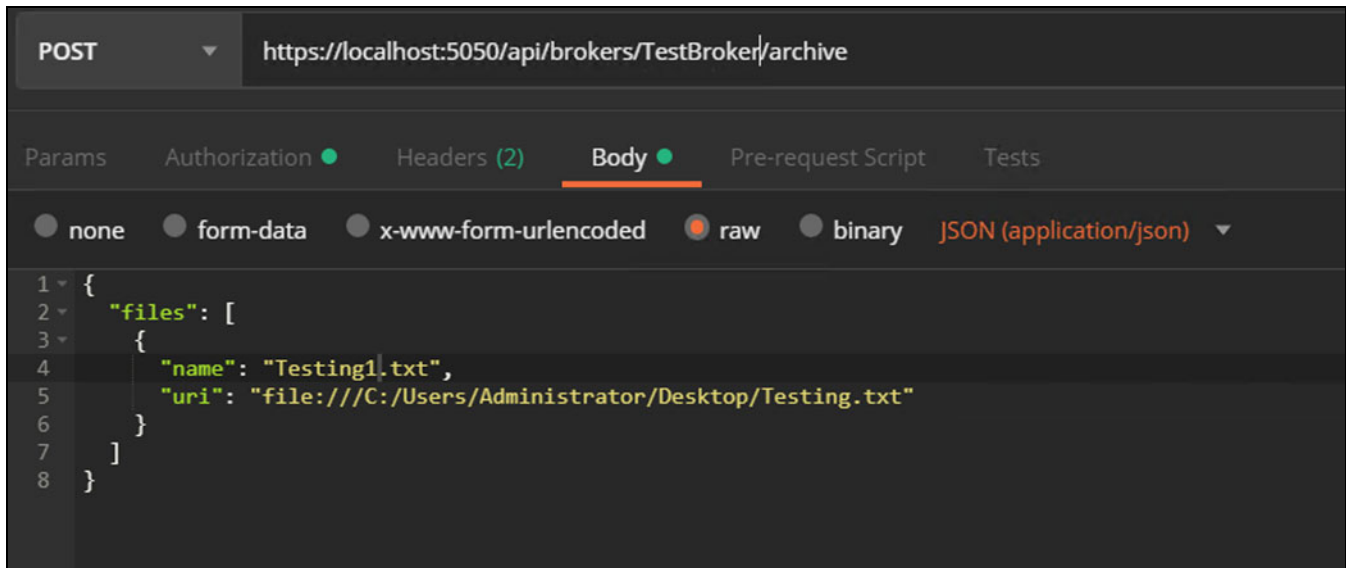
Figure 24 An archive request example.

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 broker name configured in Step 2 on page 20.

c. In the Body area, enter:

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

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

Figure 25 The response from the archive request.

3. Check that a file was successfully archived using either the Spectra RioBroker user interface or Postman.

- Using the Spectra RioBroker user interface, select **Job Status** in the taskbar, and then select the **Completed Jobs** tab. If the archive was successful, you will see it listed on this page. If the job is not listed there, then select the **Failed Jobs** tab. Select a failed job to see additional information about why the job failed. Using Postman,

  a. Select **GET** from the drop-down menu next to the Request URL field.

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

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

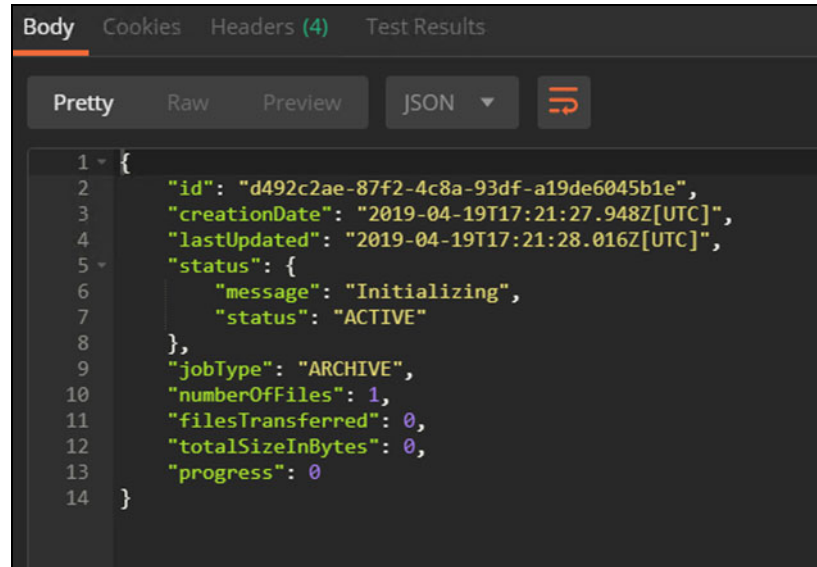**4.** Use the following steps to restore the small text file.

  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 broker name configured in .

c. In the Body area, enter:

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

The file URI needs to be directed to a different location than from the files original location. It is a best practice to create a separate restore folder.

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

Test with PFR

1. To test PFR, identify a media file to use for testing. You will need to know if the media file has a Drop Frame Rate (29.97 FPS) or a Non-Drop Frame Rate (25 FPS). This will change how the restore is processed.

2. Use the following steps to archive the media file to the BlackPearl system using the Spectra RioBroker application and PFR. The following example uses a file named MAAAAA60SE2.mxf .

Figure 26 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 broker name configured in .

c. In the Body area, enter:

```
{
    "files": [
        {
            "name":"[file name]",
            "uri":"[full file uri]"
            "indexMedia": true
        }
    ]
}
```
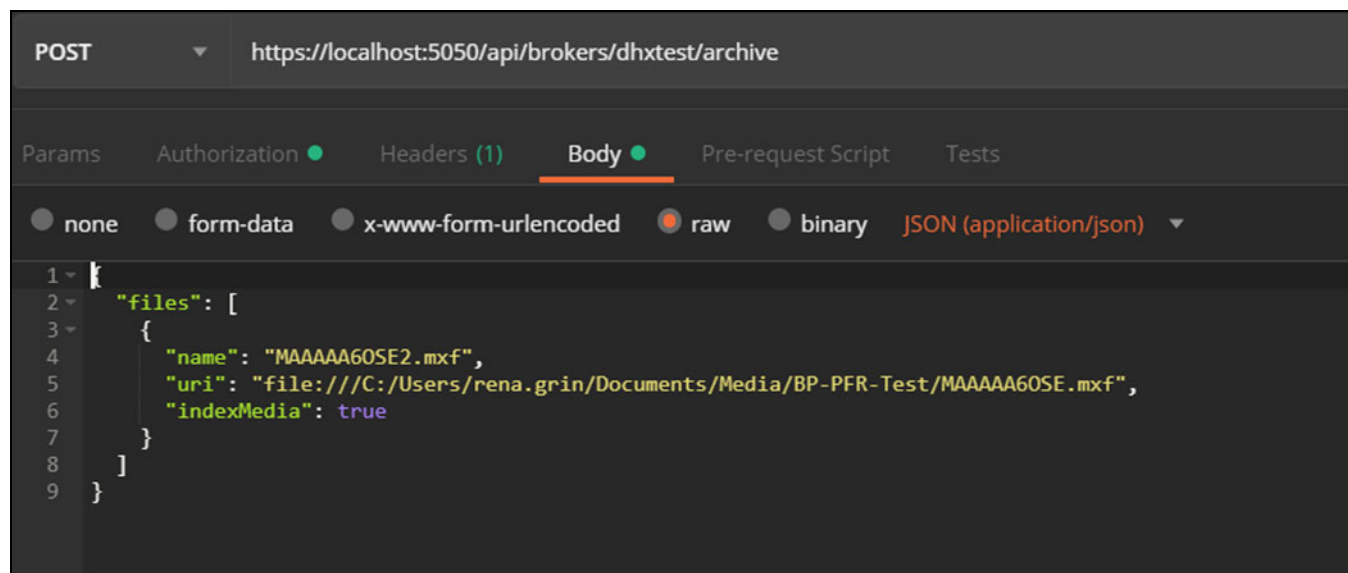
d. Click **Send**. The response displays in the response pane.

3. Check that a file was successfully archived using either the Spectra RioBroker user interface or Postman.

- Using the Spectra RioBroker user interface, select **Job Status** in the taskbar, and then select the **Completed Jobs** tab. If the archive was successful, you will see it listed on this page. If the job is not listed there, then select the **Failed Jobs** tab. Select a failed job to see additional information about why the job failed. Using Postman,

   a. Select **GET** from the drop-down menu next to the Request URL field.

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

   c. 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 media file.

   Notes:
   - When restoring a media file with PFR, the time code range for the restore needs to be specified (see example on).

   - When attempting to restore a media file with a Drop Frame Rate (29.97 FPS) you need to use the ";" character in the time code range line to specify the frame number.

   - When attempting to restore a media file with Non-Drop Frame Rate (25 FPS) use the ":" character in the time code range line.

The file in the first example below is a Drop Frame Rate media file. The second example is a Non-Drop Frame Rate media file.

- Drop Frame Rate example:

Figure 27 Restoring a Drop Frame Rate media 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 broker name configured in Step 2 on page 20.

c. In the Body area, enter:

```
{
    "files": [
        {
            "name":"[file name]",
            "uri":"[full file uri]"
            "timeCodeRange":"[Begining Time];[frame number]-
                [Ending Time];[frame number]"
        }
    ]
}
```
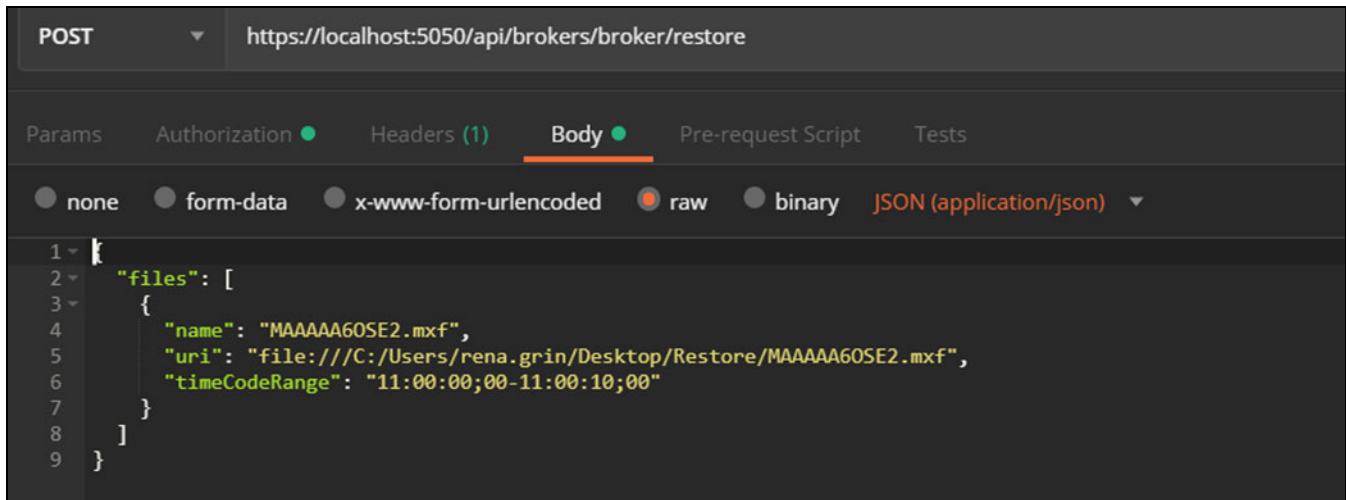
The file URI needs to be directed to a different location than from the files original location. It is a best practice to create a separate restore folder.

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

▪ Non-Drop Frame Rate example:
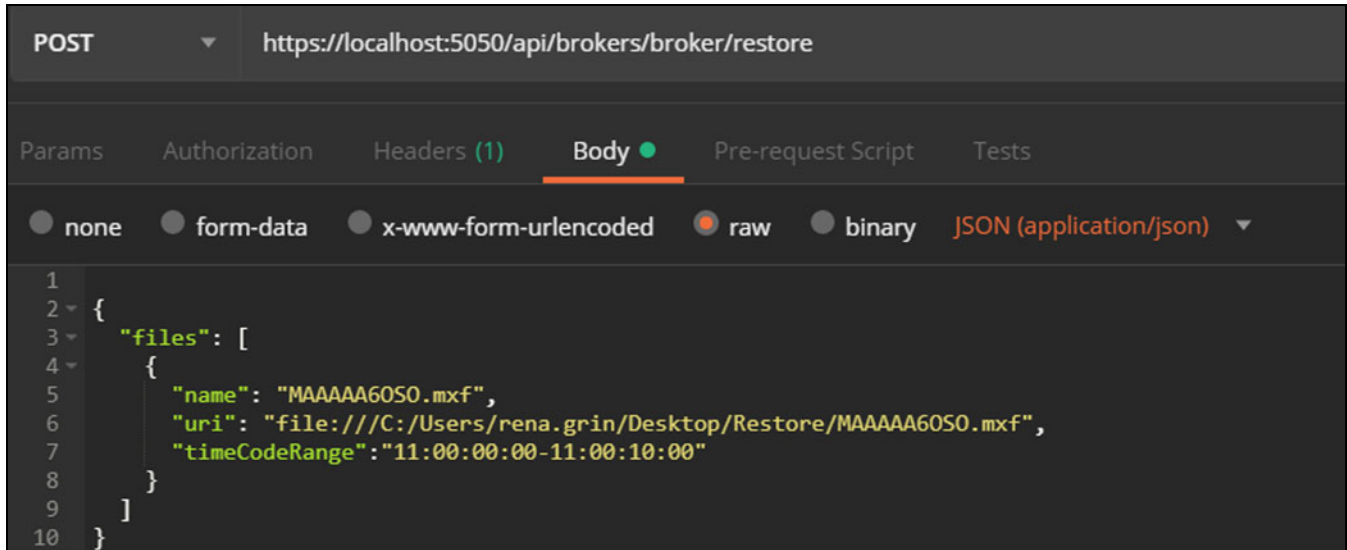
Figure 28 Restoring a Non-Drop Frame Rate media file.

    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 broker name configured in Step 2 on page 20.

    c. In the Body area, enter:

```
{
    "files": [
        {
            "name":"[file name]",
            "uri":"[full file uri]"
            "timeCodeRange":"[Begining Time]:[frame number]-
                [Ending Time]:[frame number]"
        }
    ]
}
```
The file URI needs to be directed to a different location than from the files original location. It is a best practice to create a separate restore folder.

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

5. Delete all temporary files and directories used for testing.

Performance Test

If desired, run the performance test detailed in the *Spectra RioBroker Application User Guide*.

CHAPTER 3

Use the Spectra RioBroker Partial File Restore Plugin

This chapter describes how to use the Spectra RioBroker Partial File Restore plugin.

INDEX AND RESTORE FILES

Indexing, determining the byte offset for a partial file restore, and processing a partial file restore are accomplished through API calls to the PFR services. These are handled automatically by the plugin. See System Components and Workflow on page 5 for a description of the workflow.

TROUBLESHOOT PFR ISSUES

If the PFR plugin is not indexing or restoring files as expected, open the Services screen and for each of the following services, confirm that the service is configured to Log On As 'Administrator' and that the service is running.

- BlackPearl PFR Index Service
- Marquis Log Service
- Medway Engine Server
- MedwaySync
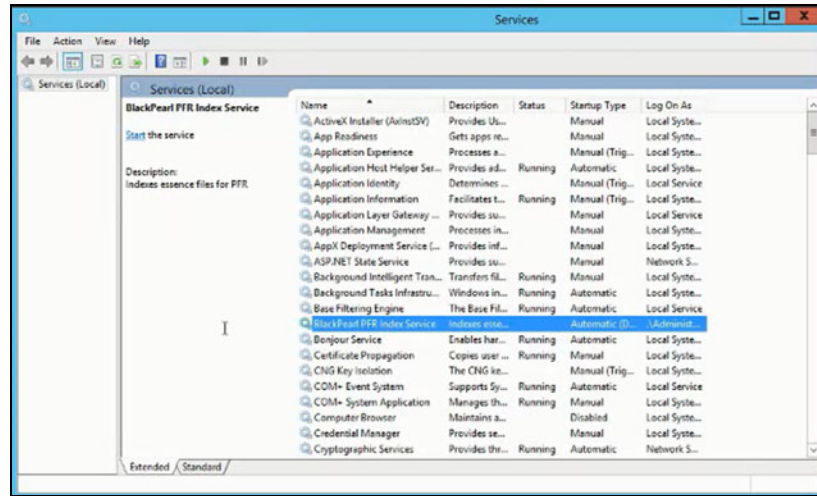
Figure 29 The Services screen.

- If 'Log On As' is not 'Administrator', do the following:

  a. Right click the service and select **Properties**. The *Service* Properties screen displays. Select the **Log On tab**.
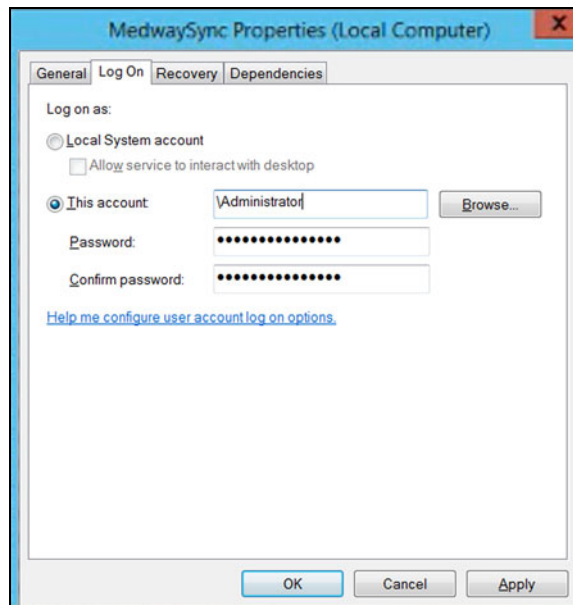
Figure 30 The *Service* Properties screen.

     b. Select **This account** and enter \Administrator.

     c. Enter and confirm the password and click **OK**.

- If the service is not running, select the service and click **Start** the service in the upper left corner of the Services screen.

Repeat these steps for each additional service listed.

Other Issues

Use the following resources to troubleshoot other issues:

- The *BlackPearl Archive Solution Frequently Asked Questions, Troubleshooting & Maintenance Guide.*
- The "Library Troubleshooting" chapter of your *Tape Library User Guide*.
- The "Troubleshooting and Support" chapter of the *BlackPearl User Guide.*
- The *Spectra BlackPearl Network Setup Tips.*

SUBMIT A SUPPORT TICKET

If you need additional assistance, use the following instructions to gather log sets and open a support ticket.

1. Log in to the tape library as described in your *Tape Library User Guide*.

2. Collect an ASL from the tape library as described in the "Configuring and Using AutoSupport" chapter in your *Tape Library User Guide*. Save the ASL file to a USB device, or email it to yourself.

3. Log into the BlackPearl user interface as described in the *BlackPearl User Guide*.

4. From the menu bar, select **Support ⋯⋮ Logs**. The Logs screen displays.

5. Select **Action ⋯⋮ New Log Set** to generate a log set for use in general troubleshooting.

6. Select the log set you just generated, and then select **Action ⋯⋮ Download**. The log set begins downloading to your host computer.

7. Locate the PFR system log on the Windows server in C:\Program Files (x86)\BlackPearl\Logs.

8. Submit a support incident using the Spectra Logic Technical Support portal as described in "Opening a Support Ticket" in the *BlackPearl User Guide*. Include the library ASL, the BlackPearl logs, and the PFR system log.