



# **Spectra StorCycle Solution**

## **User Guide**

***SPECTRALOGIC.COM***

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## Part Number

90990140 Revision A

## Revision History

Revision	Date	Description
A	2019	Initial Release.

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# Helpful Information

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This help describes how to configure, use, and monitor the Spectra® StorCycle Solution, sometimes referred to as the *solution* in these instructions.

## INTENDED AUDIENCE

This guide is intended for data center administrators and operators who maintain and operate file storage systems. The information in this guide assumes a familiarity with computing terminology. You also need to be familiar with installing, configuring, and using data file storage and archival software.

## USER INTERFACE SCREENS

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

## RELATED INFORMATION

This section contains information about this document and other documents related to the Spectra StorCycle Solution.

## Typographical Conventions

This document uses the following conventions to highlight important information:

**WARNING**

---

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

---

**Caution**

---

Read text marked by the “Caution” icon for information you must know to avoid losing data.

---

**Important**

---

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

---

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

## Related Publications

The following document is available after logging into your Support portal account at: [support.spectrallogic.com](https://support.spectrallogic.com).

- The *Spectra StorCycle Solution Release Notes and Documentation Updates* provide the most up-to-date information about the solution, including information about the latest software releases and documentation updates.

For additional information about the Spectra BlackPearl Converged Storage system and the Spectra BlackPearl NAS solution, refer to the publications listed in this section.

The following documents related to the Spectra BlackPearl Converged Storage System and the Spectra BlackPearl NAS solution are available on the Support Portal website at [support.spectrallogic.com](https://support.spectrallogic.com), and from the Documentation screen in the user interface.

- The *Spectra BlackPearl Converged Storage System User Guide* provides detailed information about configuring, using, and maintaining your BlackPearl system.
- The *Spectra S3 API Reference* provides information on understanding and using the Spectra S3 API.
- The *Spectra BlackPearl Eon Browser User Guide* provides installation and usage information for the BlackPearl Eon Browser.
- The *Spectra BlackPearl NAS Solution (formerly the Spectra Verde Array) User Guide* provides information about configuring, using and maintaining your BlackPearl NAS solution.

The following documents are available after logging into your Support portal account at: [support.spectrallogic.com](https://support.spectrallogic.com).

- The *Spectra BlackPearl Converged Storage System 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 *Spectra BlackPearl NAS Solution (formerly the Spectra Verde Array) Release Notes and Documentation Updates* provide the most up-to-date information about the BlackPearl NAS solution, including information about the latest software releases and documentation updates.

# CHAPTER 1

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## Product Overview

This section provides an overview of the Spectra StorCycle solution features.

Topic	
Overview	page 14
Features	page 15
User Interface	page 16
Taskbar	page 17
Toolbar	page 17
Supported Browsers	page 19

### OVERVIEW

The Spectra StorCycle solution provides an easy and affordable means to move inactive data onto lower cost storage, saving not only cost per terabyte, but also management expenses of backup, auditing, and maintenance.

# FEATURES

The Spectra StorCycle solution includes the following features:

**Spectra StorCycle User Interface** The user interface can be accessed over an Ethernet network using a standard web browser and is used to perform configuration and management tasks on the solution. It also lets you view system messages.

**Spectra StorCycle API Interface** The API interface can be used instead of the user interface to perform configuration and management tasks, and view system messages.

**Multiple Supported Sources** The Spectra StorCycle solution supports NFS and CIFS sources.

**Multiple Supported Destinations** The Spectra StorCycle solution supports migrating / storing data to multiple destinations including:

- Spectra BlackPearl Converged Storage system
- Spectra BlackPearl NAS solution (NFS and CIFS)
- Amazon S3 Cloud (AWS)
- Non-Spectra NAS (NFS and CIFS)

**Control of Storage Resources and Performance** Storage locations can be configured to control peak time versus non-peak time activity.

**File Scanning** The Spectra StorCycle solution scans source directories and based on file size and age, as well as including certain file types, determines how much data can be migrated / stored and the resulting cost savings.

**Scheduled Scanning and Migrating / Storing** Schedules can be set for scanning and data migration / storing projects.

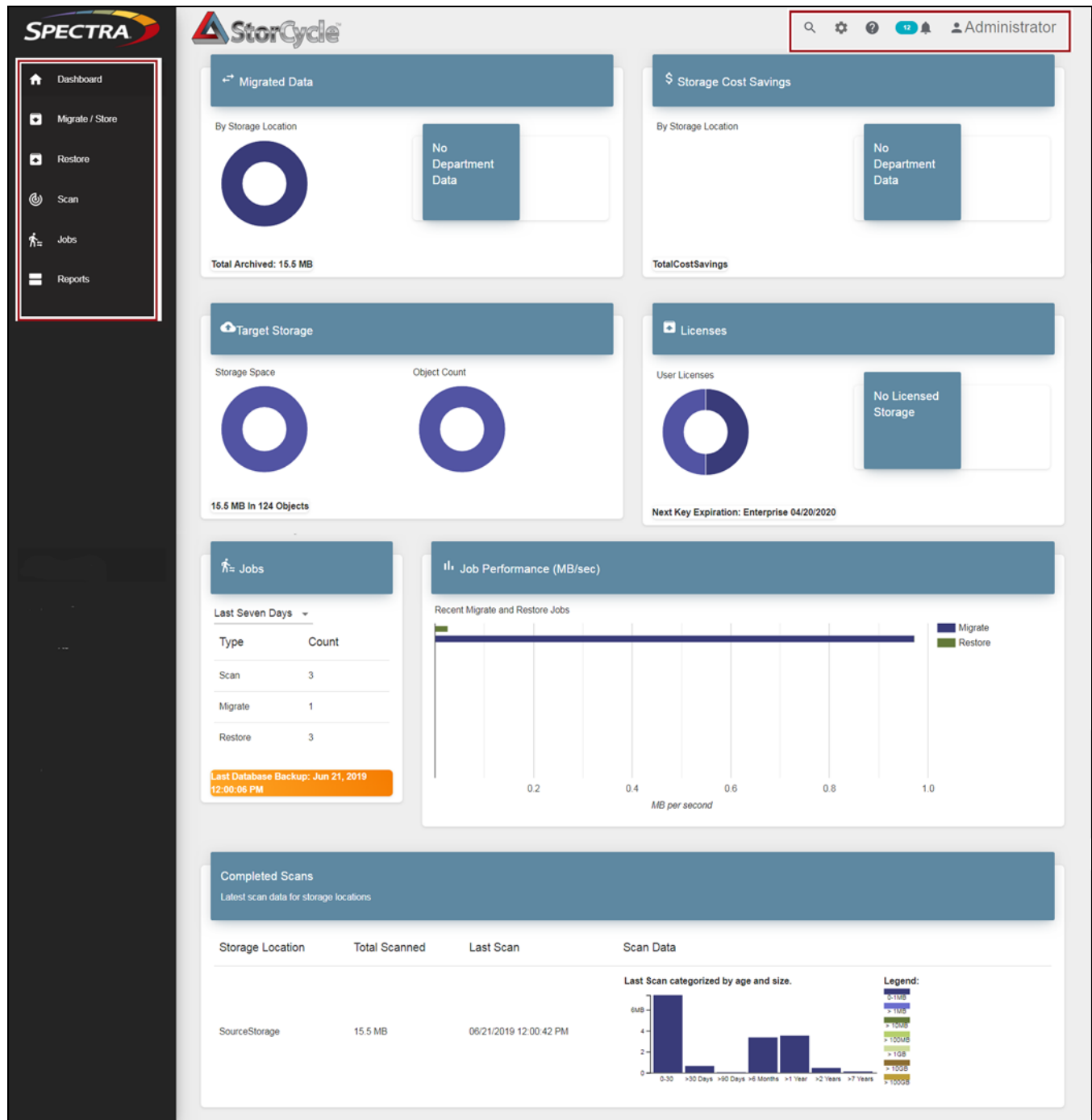
**Include and Exclude Filters for Scanning and Migrating / Storing** For migrate / store projects and scan projects, the files to include can be filtered by file types to include, directories to exclude, file sizes to include, and file ages to include.

**File Packing** For the BlackPearl system and S3 Cloud targets, you can select whether data should be packed into a single large file for transfer. The Spectra StorCycle solution features both ZIP and TAR packing protocols.

**Migrate / Store Tags** Tags are a way to add metadata to the migrate / store operation. Users can add any number of tags to a migrate / store operation. When restoring data, you can search for the tag to determine from which migrate / store job to restore data.

# USER INTERFACE

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



**Figure 1** The Dashboard screen of the Spectra StorCycle solution user interface. //need better//



## Taskbar

The taskbar displays along the left edge of each screen. Use the taskbar to access the Dashboard, Jobs, and Reports screens, and the Migrate / Store, Restore, and Scan wizards.






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

Taskbar	Description
<b>Dashboard</b>	The <b>Dashboard</b> navigation link returns you to the Dashboard screen from any other screen in the interface. The Dashboard screen displays the amount of data migrated, the target storage used, the cost saving for all migrated / stored data, licensed storage, the number and types of jobs ran, job performance, and the results of completed scans.
<b>Migrate / Store</b>	The <b>Migrate / Store</b> navigation link takes you to the Migrate / Store dashboard which displays configured Migrate / Store projects and job statuses and provides access to the wizard for editing current Migrate / Store projects or configuring new Migrate / Store projects. See <a href="#">Migrate or Store Data on page 40</a> for more information.
<b>Restore</b>	The <b>Restore</b> navigation link takes you to the Restore dashboard which displays configured Restore projects and job statuses and provides access to the wizard for editing current Restore projects or configuring new Restore projects. See <a href="#">Restore on page 50</a> for more information.
<b>Scan</b>	The <b>Scan</b> navigation link takes you to the Scan dashboard which displays configured Scan projects and job statuses and provides access to the wizard for editing current Scan projects or configuring new Scans. See <a href="#">Scan on page 63</a> for more information.
<b>Jobs</b>	The <b>Jobs</b> navigation link takes you to the Jobs dashboard which displays information about completed jobs.
<b>Reports</b>	<p>The <b>Reports</b> navigation link takes you to the Reports screen which displays links to the following reports:</p> <ul style="list-style-type: none"> <li>▪ Settings and Configuration - Configuration, Users, Departments, Storage Locations, Migrate, Restore, and Scan Projects</li> <li>▪ Jobs and Status - Logs, Jobs, Data Transfer, Catalogs, Cost Savings by Department, and System Notifications.</li> <li>▪ Catalogs - Lists available catalogs with an option to search a catalog or view details.</li> </ul> <p>Buttons on each displayed report allow saving it in CVS or JSON format.</p>

## Toolbar




The toolbar displays in the upper right corner of each screen when the logged in user is an Administrator or Storage Manager (see [Configure Users on page 77](#)). It does not display for users added as part of an Active Directory group (see [Configure Departments on page 79](#)).

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

Icon	Meaning	Description
	<b>Search</b>	Takes you to the Search screen used to search the catalog for files to restore. See <a href="#">Search for Project on page 55</a> for more information.
	<b>Settings</b>	<p>The Settings menu is only available to Administrator users. It provides access to the Settings menu which allows you to configure or view the following:</p> <ul style="list-style-type: none"> <li>▪ Users</li> <li>▪ Departments</li> <li>▪ Storage</li> <li>▪ Licenses &amp; SSL Certificate</li> <li>▪ SMTP</li> <li>▪ Logs</li> <li>▪ Active Directory</li> <li>▪ Database Backup</li> <li>▪ Software Updates</li> <li>▪ Global Settings</li> </ul> <p>See <a href="#">Configure Storage on page 25</a> and <a href="#">Configure Optional Settings on page 76</a> for more information. The Settings menu is only available to Administrator users.</p>
	<b>Help</b>	Displays the help system.
	<b>Messages</b>	<p>The Messages menu is only available to Administrator users. Displays the messages generated by the Spectra StorCycle solution. The messages are categorized as:</p> <ul style="list-style-type: none"> <li>▪ <b>Info</b> - An event such as a job starting or completing occurred.</li> <li>▪ <b>Warning</b> - The program detected conditions that may affect operation. Determine the cause of the problem and remedy it as soon as possible.</li> <li>▪ <b>Error</b> - An error occurred that impacts the operation of the program. Determine the cause of the error and remedy it as soon as possible.</li> </ul>
	<b>User</b>	Indicates the user currently logged in and provides access to the Logout function.

## Other Icons

The table below describes icons that display on various screens in the user interface.

Icon	Meaning	Description
	<b>Delete</b>	Click to delete projects, jobs, or logs.
	<b>Download</b>	Click to download logs. See <a href="#">Logs</a> on page 104
	<b>Edit</b>	Click to edit projects.

## Supported Browsers

The user interface supports Google<sup>®</sup> Chrome<sup>™</sup> version 75 or later, on Windows, macOS, and Linux.

# CHAPTER 2

## Getting Started

This section describes how to get started using the Spectra StorCycle Solution. The StorCycle solution is intended to migrate / store or copy inactive files. It is not intended to back up or manage active files in primary storage.

Task	
Download and Install the Software	page 21
Log Into the User Interface	page 21
Install License Keys	page 22
Next Steps	page 24

### VERIFY STORCYCLE REQUIREMENTS

Ensure that the server you will use for StorCycle meets the following requirements:

- 32 GB RAM
- Four 64-bit CPU cores running at a minimum of 2.8 GHz
- 500 GB hard drive space
- 10 GbE network
- Windows server 2016
- A network which supports reverse DNS lookups. If the network does not support reverse DNS lookups, then the IP address of storage locations are used in HTML links created during a migrate / store job. See [Migrate / Store Wizard – Set Targets on page 48](#) for more information.
- If BlackPearl or Amazon S3 storage locations are configured to group files into TAR or ZIP 'packs' ([Step 1 on page 30](#) or [Step 1 on page 38](#)), the data to be packed is temporarily written to the server disk storage before it is transferred.
  - When using packing, the StorCycle solution requires enough disk space for ten times the size of a pack (10 GB) or the largest file that will be migrated / stored in a pack, whichever is bigger.

- For maximum performance, Spectra Logic recommends that flash/SSD storage be available when creating TAR or ZIP packs.

Due to Windows limitations, the file system must meet the following requirements:

- Maximum file directory path length of 260 characters (Windows limitation)
- Maximum directory depth: whatever the maximum directory depth that is possible within the constraints of the 260-character limit above

The StorCycle user interface supports Google<sup>®</sup> Chrome<sup>™</sup> version 75 or later, on Windows, macOS, and Linux.

## DOWNLOAD AND INSTALL THE SOFTWARE

Use the following instructions to download and install the software.

1. Download the Spectra StorCycle solution installer to the server where you want the program to run and index files to be saved. Run the installer, `sps.msi`
2. Follow the on-screen instructions to install the software.

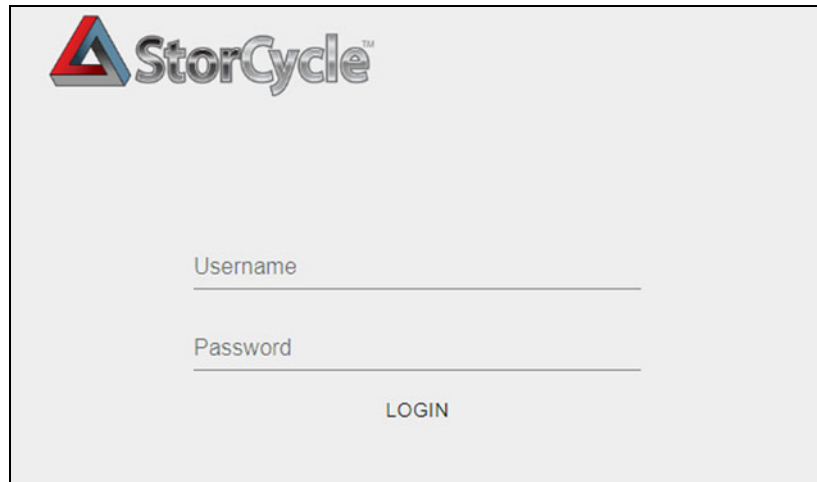
## LOG INTO THE USER INTERFACE

Use the following instructions to log into the Spectra StorCycle solution user interface.

**Note:** There is no limit to the number of users who can log in to the user interface. Spectra Logic recommends only one person use the interface at a time to avoid conflicting operations.

1. Using a supported web browser (see [Supported Browsers on page 19](#)), do one of the following:
  - If you are on the server, enter `localhost : 8080` and press the Enter key.
  - If you are on a host on the same network as the server, enter the IP address for the Spectra StorCycle solution server with the port `: 8080` and press the Enter key.

The Login screen displays.



**Figure 2** The Spectra StorCycle solution Login screen.

2. Enter the primary administrator username and password.

The default username is **Administrator**. The default password is **spectra**. The fields are case sensitive.

**Note:** Spectra Logic recommends that you change the default password for the primary administrator (see [Configure Users on page 77](#)).

3. Click **Login** to log in.



### Important

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The remainder of this guide assumes that you are logged in to the Spectra StorCycle solution user interface.

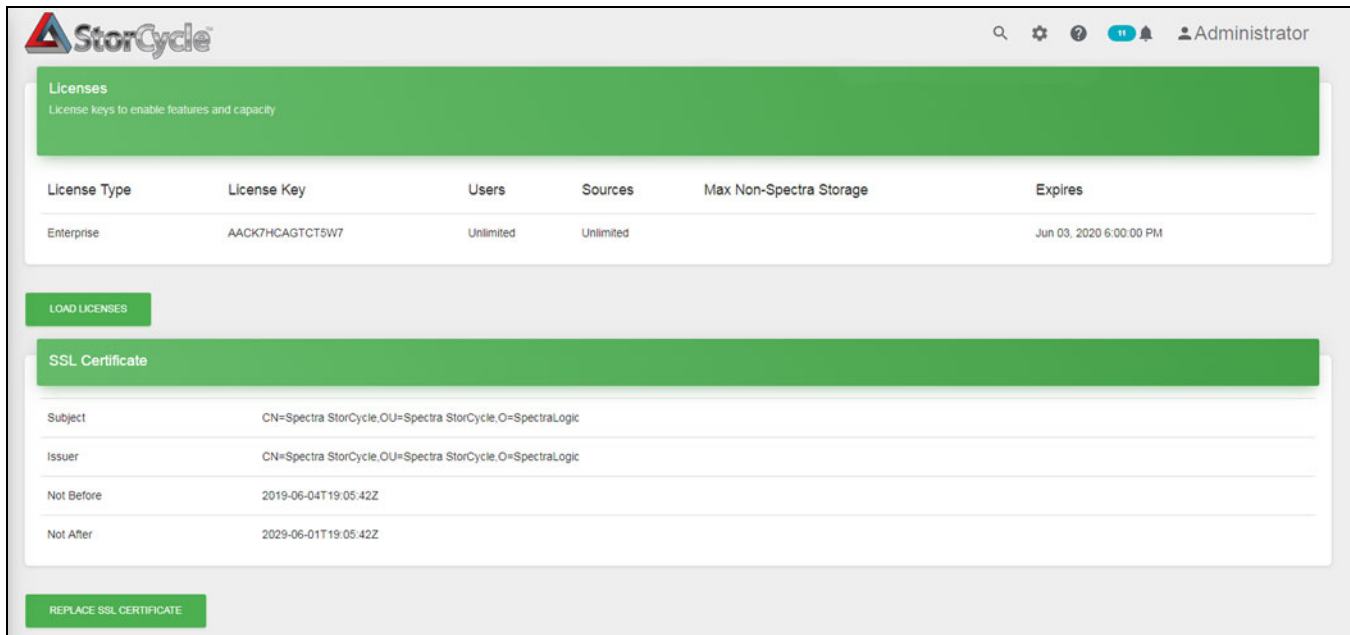
---

## INSTALL LICENSE KEYS

License keys enable features and capacity within the Spectra StorCycle solution.

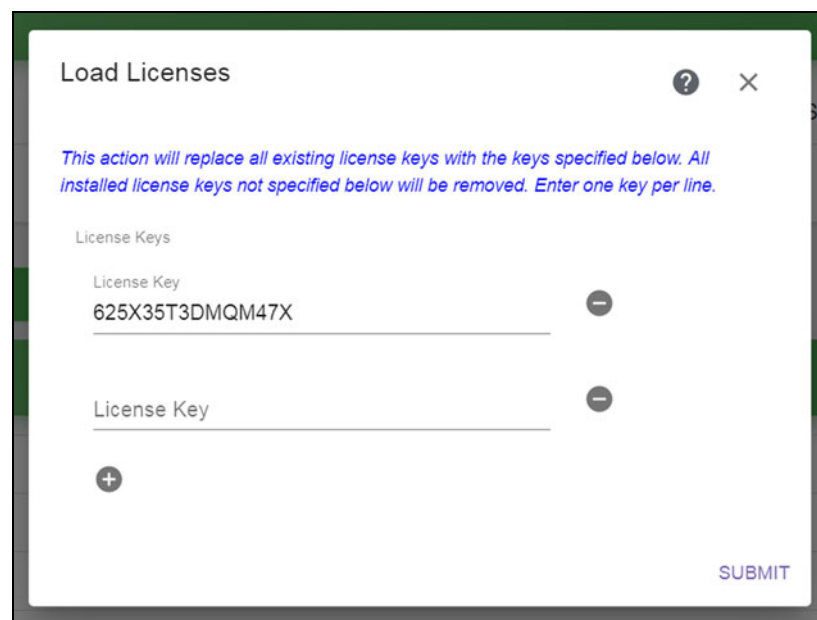
Use the instructions below to install new license keys.

1. Click the Settings icon and then select **Licenses and SSL Certificate**. The Licenses and SSL Certificate screen displays showing any licenses currently installed in the software.



**Figure 3** The Licenses and SSL Certificate screen.

2. Click **Load Licenses**. The Load Licenses dialog box displays.



**Figure 4** The Load Licenses dialog box.

3. Click the minus (-) sign next to any license that you want to remove.
4. Click the plus (+) sign to add a new line for entering a license. Enter all license keys, exactly as provided, one per line.

5. Click **Submit** to save the license keys. The Licenses and SSL Certificate screen displays with the newly entered keys listed.

## NEXT STEPS

At this point you can configure optional settings or get started with configuring storage locations.

- Configure optional settings:
  - [Configure Database Backup on page 88](#) — **Recommended**
  - [Configure Users on page 77](#)
  - [Configure Users on page 77](#)
  - [Configure Departments on page 79](#)
  - [Replace Licenses or the SSL Certificate on page 81](#)
  - [Configure SMTP on page 83](#)
  - [Configure Global Settings on page 96](#)
- [Configure Storage on page 25](#)

After you have configured source and target storage locations, you can configure a Scan project or a Migrate / Store Project.

- [Scan on page 63](#)
- [Migrate or Store Data on page 40](#)

After you have migrated / stored data, you can configure a Restore project.

- [Restore on page 50](#)



# CHAPTER 3

---

## Configure Storage

This section provides instructions for configuring storage locations. Configure both source and target storage locations before configuring a migrate / store project.

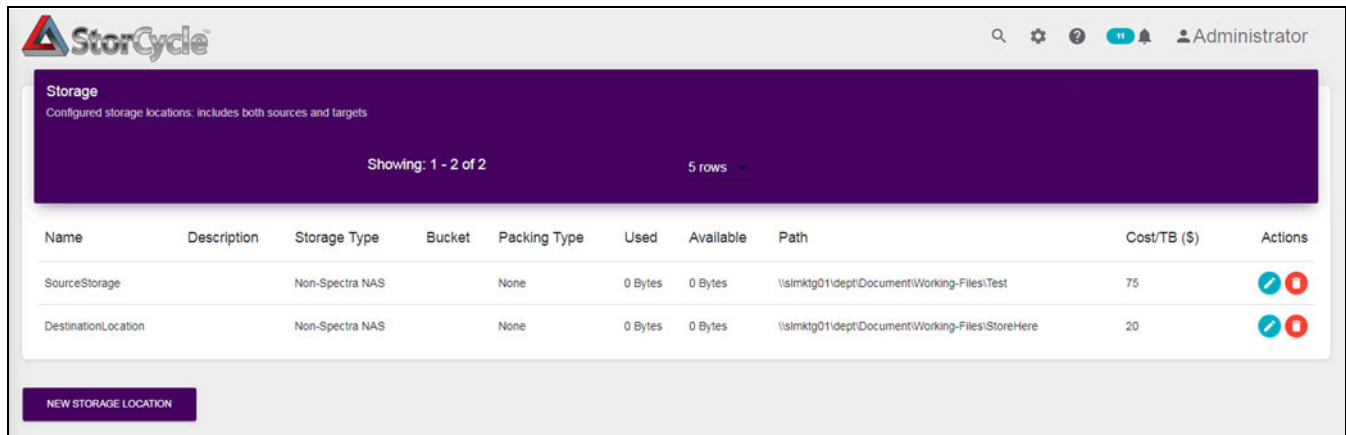
<b>Task</b>	
Configuring Storage	page 26
Enter Basic New Storage Location Information	page 27
Enter BlackPearl Storage Location Information	page 29
Enter Spectra NAS Storage Location Information	page 31
Enter Non-Spectra NAS Storage Location Information	page 34
Enter Amazon S3 Storage Location Information	page 38

# CONFIGURING STORAGE

Use the instructions below to configure a new storage location.

**Note:** Storage locations cannot be deleted after they are used in a project.

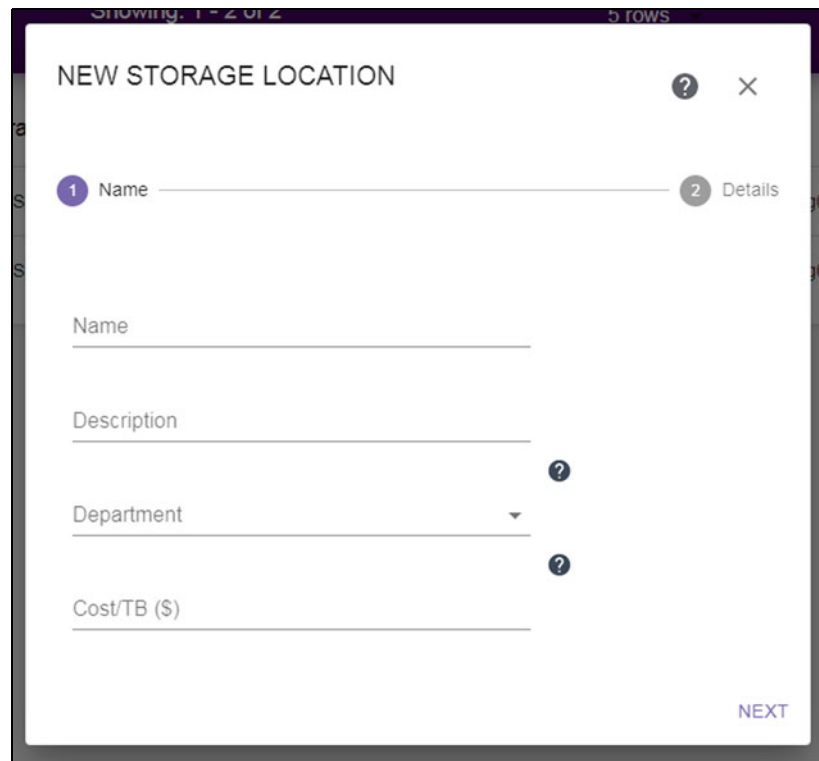
1. Click the Settings icon and then select **Storage**. The Storage screen displays showing all storage locations currently configured in the software.



**Figure 5** The Storage screen.

2. Click **New Storage Location**. The New Storage Location dialog box displays.

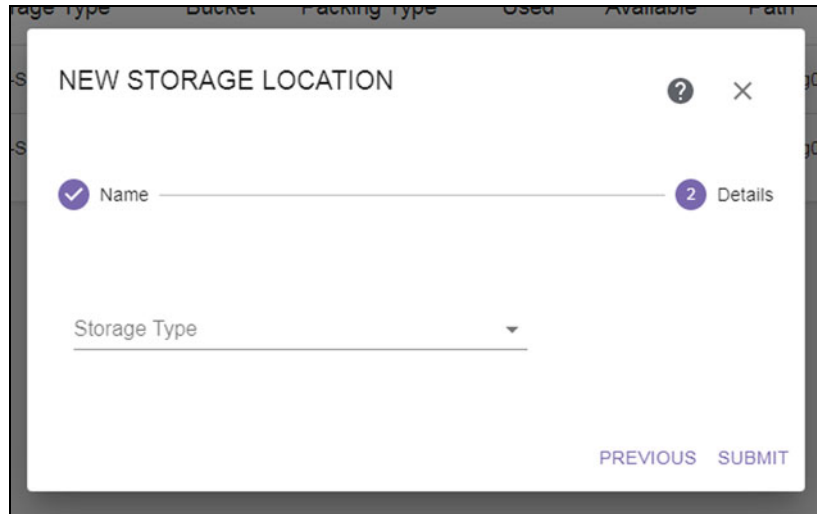
## Enter Basic New Storage Location Information



**Figure 6** The New Storage Location dialog box.

1. Enter a unique **Name** for the storage location.
2. If desired, enter a **Description** for the storage location.
3. If desired, use the drop-down list to select the **Department** responsible for the storage location costs. To create a department, see [Configure Departments on page 79](#).
4. If desired, enter the **Cost/TB** to use for storage location costs.
  - [Enter BlackPearl Storage Location Information on page 29](#)
  - [Enter Spectra NAS Storage Location Information on page 31](#)
  - [Enter Non-Spectra NAS Storage Location Information on page 34](#)
  - [Enter Amazon S3 Storage Location Information on page 38](#)

5. Click Next. The New Storage Location — Details screen displays.



**Figure 7** The New Storage Location dialog box.

6. Use the drop-down list to select the **Storage Type**.

Depending on the storage type selected, the dialog box updates to show the configuration fields required for that storage type. Continue with the applicable section below:

- [Enter BlackPearl Storage Location Information on page 29](#)
- [Enter Spectra NAS Storage Location Information on page 31](#)
- [Enter Non-Spectra NAS Storage Location Information on page 34](#)
- [Enter Amazon S3 Storage Location Information on page 38](#)

## Enter BlackPearl Storage Location Information



### Important

See “Understanding Spectra Advanced Bucket Management Concepts” in the *Spectra BlackPearl Converged Storage System User Guide* for information about configuring data placement policies for a bucket to meet your archiving needs.

If you select the **BlackPearl** storage type, the dialog box updates to display the following fields:

NEW STORAGE LOCATION

✓ Name 2 Details

Storage Type  
BlackPearl

Packing Type  
None

BlackPearl Management Port  
IP address or hostname of the BlackPearl management port

BlackPearl Username

BlackPearl Password

BlackPearl Data Port  
IP address or hostname of the BlackPearl data port

S3 Access ID  
S3 Access ID credentials

S3 Secret Key  
S3 Secret Key associated with the S3 Access ID

Bucket  
Valid Bucket Name

TEST LOCATION

PREVIOUS SUBMIT

**Figure 8** The New Storage Location dialog box with BlackPearl specific fields.

1. Select whether archived data should be packed into a single large file for transfer, and, if so, which **Packing Type** to use.
  - Notes:**
    - Spectra Logic recommends using packing when a majority of files are smaller than 100 KB and no files are larger than 10 GB.
    - Spectra Logic recommends using **ZIP** for Windows clients and **Tar** for UNIX clients.
    - Packs contain up to 10,000 files or 10 GB of data whichever is reached first.
    - Up to five packs can be created at the same time.
2. Enter the IP address or hostname for the **BlackPearl Management Port**.
3. Enter the **Username** of a user configured on the BlackPearl system.
4. Enter the **Password** associated with the username entered above.
5. Enter an IP address or hostname for the **BlackPearl Data Port**.
6. Enter the **S3 Access ID** of a user with credentials for the BlackPearl system and the bucket that will be used for data storage.
7. Enter the **S3 Secret Key** associated with the **S3 Access ID** entered above.
8. Enter the name of the **Bucket** to be used for data storage. If the bucket does not exist, it is created.

**Caution**

---

---

Make sure the target bucket uses a data policy with versioning configured to avoid files being overwritten.

---

---

The StorCycle solution uses S3 bucket naming restrictions when creating a bucket, but can use a bucket previously created on a BlackPearl system that does not meet S3 naming restrictions.

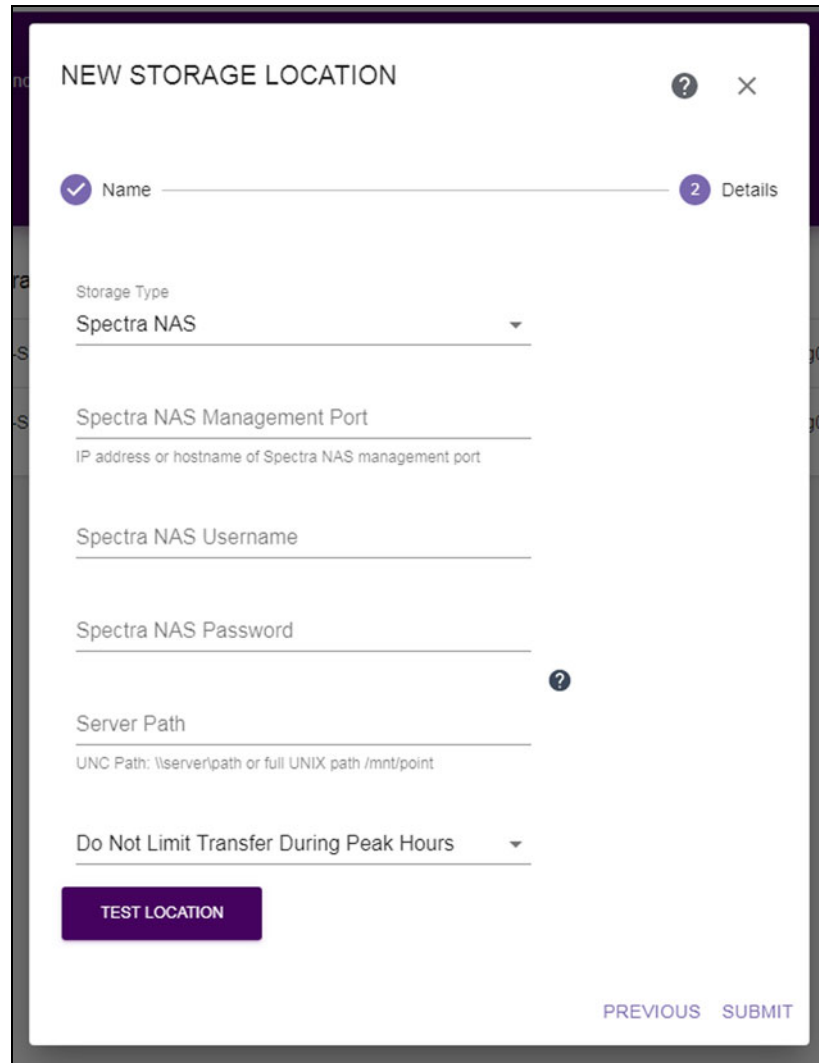
S3 naming conventions require the following:

- Bucket names must comply with DNS naming conventions.
  - Bucket names must be at least 3 and no more than 63 characters long.
  - Bucket names must be a series of one or more labels. Adjacent labels are separated by a single period (.).
  - Bucket names can contain lowercase letters (a-z), numbers (0-9), and hyphens. You cannot use a hyphen at the beginning or end of a label.
  - Bucket names cannot contain uppercase characters or underscores.
  - Bucket names cannot be formatted as an IP address.
9. Click **Test Location** to verify that the server can connect to the storage location. *//Is this optional or required?//*
  10. Click **Submit** to save the storage location.

11. If necessary, repeat these steps, starting with [Step 2 on page 26](#) to configure additional storage locations.

## Enter Spectra NAS Storage Location Information

If you select the **Spectra NAS** storage type for a BlackPearl NAS system, the dialog box updates to display the following fields:



The screenshot shows a dialog box titled "NEW STORAGE LOCATION" with a close button (X) and a help button (?). The dialog is divided into two sections: "Name" (indicated by a checkmark icon) and "Details" (indicated by a "2" icon). The "Details" section contains the following fields:

- Storage Type:** A dropdown menu with "Spectra NAS" selected.
- Spectra NAS Management Port:** A text input field with the placeholder text "IP address or hostname of Spectra NAS management port".
- Spectra NAS Username:** A text input field.
- Spectra NAS Password:** A text input field with a help icon (?) to its right.
- Server Path:** A text input field with the placeholder text "UNC Path: \\server\path or full UNIX path /mnt/point".
- Do Not Limit Transfer During Peak Hours:** A dropdown menu.

At the bottom of the dialog, there is a purple "TEST LOCATION" button and two links: "PREVIOUS" and "SUBMIT".

**Figure 9** The New Storage Location dialog box with Spectra NAS specific fields.

1. Enter the IP address or hostname for the **Spectra NAS Management Port**.
2. Enter the **Username** of a user configured on the BlackPearl NAS system.
3. Enter the **Password** associated with the username entered above.

4. Enter the file system **Server Path** to the NAS mount point (`\\server\path` or full UNIX path `/mnt/point`).

**Important**

---

Storage location source paths should not overlap. For example:

- The storage location server path should not be a subdirectory of an existing storage location path
  - The storage location server path should not have as a subdirectory an existing storage location path
  - The storage location server path cannot be the same as an existing storage location path with different capitalizations.
- 

5. Use the drop-down menu to select either:
  - [Do Not Limit Transfer During Peak Hours, below, or](#)
  - [Limit Transfer During Peak Hours on page 33.](#)

## Do Not Limit Transfer During Peak Hours

If you select **Do Not Limit Transfer During Peak Hours**, do the following:

6. Click **Test Location** to verify that the server can connect to the storage location.
7. Click **Submit** to save the storage location.
8. If necessary, repeat these steps, starting with [Step 2 on page 26](#) to configure additional storage locations.



## Limit Transfer During Peak Hours

If you select **Limit Transfer During Peak Hours**, the configuration options for limiting transfer display.

**Limit Transfer During Peak Hours**  
Select the day of the week and then drag the handles to select the times

### Peak Hours

Peak Hours Bandwidth: 10 MB  
Scan Objects per Second: 100  
Max MB per second: \_\_\_\_\_  
Limit scan overhead: peak times

Su  
Mo  
Tu  
We  
Th  
Fr  
Sa

### Off-peak Hours

Off-peak Bandwidth: 100 MB  
Scan Objects per Second: 1000  
Max MB per second: \_\_\_\_\_  
Limit scan overhead: off-peak times

TEST LOCATION

PREVIOUS SUBMIT

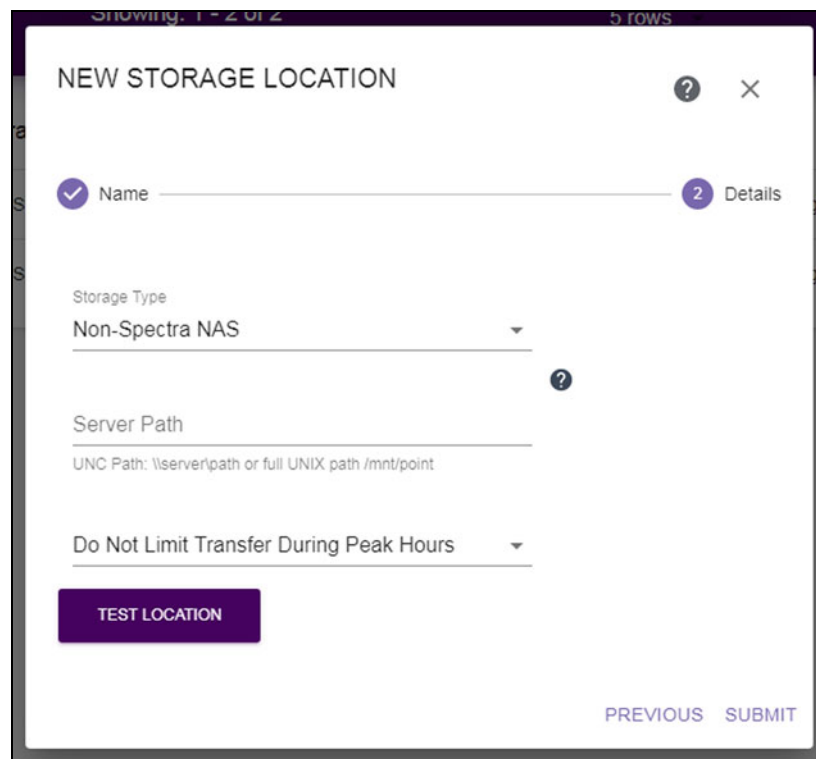
**Figure 10** The Limit Transfer During Peak Hours configuration settings.

6. Enter the **Peak Hours Bandwidth**. The default is 10. Spectra Logic recommends starting with 10% of peak load and then adjust as necessary by editing the storage location.
7. Enter the maximum **Scan Objects per Second** during peak hours. The default is 100. *//Recommendation?//*

8. Select a day of the week for which you want to designate peak hours. The default peak hour selection of 07:00-18:00 (7:00 AM - 6:00 PM) displays. Select and move a handle to change the start and end times. Repeat this step for other days as necessary.
6. Enter the **Off-Peak Bandwidth**. The default is 100. Spectra Logic recommends starting with 100% of peak load and then adjust as necessary by editing the storage location.
7. Enter the maximum **Scan Objects per Second** during off-peak hours. The default is 1000. *//Recommendation?//*
8. Click **Test Location** to verify that the server can connect to the storage location.
9. Click **Submit** to save the storage location.
10. If necessary, repeat these steps, starting with [Step 2 on page 26](#) to configure additional storage locations.

## Enter Non-Spectra NAS Storage Location Information

If you select the **NAS** storage type, the dialog box updates to display the following fields:



The screenshot shows a dialog box titled "NEW STORAGE LOCATION" with a close button (X) and a help button (?). The dialog is divided into two sections: "Name" (with a checkmark icon) and "Details" (with a "2" icon). Under "Details", there is a "Storage Type" dropdown menu set to "Non-Spectra NAS". Below that is a "Server Path" field with a help icon (?). A hint text below the field reads "UNC Path: \\server\path or full UNIX path /mnt/point". At the bottom of the details section is a "Do Not Limit Transfer During Peak Hours" dropdown menu. A purple "TEST LOCATION" button is located below the dropdowns. At the bottom right of the dialog are "PREVIOUS" and "SUBMIT" buttons.

**Figure 11** The New Storage Location dialog box, Non-Spectra NAS specific fields.

1. Enter the file system **Server Path** to the NAS mount point (`\\server\path` or full UNIX path `/mnt/point`).

**Important**

---

Storage location source paths should not overlap. For example:

- The storage location server path should not be a subdirectory of an existing storage location path
  - The storage location server path should not have as a subdirectory an existing storage location path
  - The storage location server path cannot be the same as an existing storage location path with different capitalizations)
- 

2. Use the drop-down menu to select either:
  - [Do Not Limit Transfer During Peak Hours, below, or](#)
  - [Limit Transfer During Peak Hours on page 33.](#)

### Do Not Limit Transfer During Peak Hours

If you select **Do Not Limit Transfer During Peak Hours**, do the following:

3. Click **Test Location** to verify that the server can connect to the storage location.
4. Click **Submit** to save the storage location.
5. If necessary, repeat these steps, starting with [Step 2 on page 26](#) to configure additional storage locations.

## Limit Transfer During Peak Hours

When you select Limit Transfer During Peak Hours, the configuration options for limiting transfer display.

**Limit Transfer During Peak Hours**  
Select the day of the week and then drag the handles to select the times

### Peak Hours

Peak Hours Bandwidth: 10 MB  
Scan Objects per Second: 100  
Max MB per second: \_\_\_\_\_  
Limit scan overhead: peak times

Su  
Mo  
Tu  
We  
Th  
Fr  
Sa

### Off-peak Hours

Off-peak Bandwidth: 100 MB  
Scan Objects per Second: 1000  
Max MB per second: \_\_\_\_\_  
Limit scan overhead: off-peak times

**TEST LOCATION**

PREVIOUS SUBMIT

**Figure 12** The Limit Transfer During Peak Hours configuration settings.

6. Enter the **Peak Hours Bandwidth**. The default is 10. Spectra Logic recommends starting with 10% of peak load and then adjust as necessary by editing the storage location.
7. Enter the maximum **Scan Objects per Second** during peak hours. The default is 100. *//Recommendation?//*

8. Select a day of the week for which you want to designate peak hours. The default peak hour selection of 07:00-18:00 (7:00 AM - 6:00 PM) displays. Select and move a handle to change the start and end times. Repeat this step for other days as necessary.
6. Enter the **Off-Peak Bandwidth**. The default is 100. Spectra Logic recommends starting with 100% of peak load and then adjust as necessary by editing the storage location.
7. Enter the maximum **Scan Objects per Second** during off-peak hours. The default is 1000. *//Recommendation?//*
8. Click **Test Location** to verify that the server can connect to the storage location.
9. Click **Submit** to save the storage location.
10. If necessary, repeat these steps, starting with [Step 2 on page 26](#) to configure additional storage locations.

## Enter Amazon S3 Storage Location Information

If you select the **Amazon S3** storage type, the dialog box updates to display the following fields:

**Figure 13** The New Storage Location dialog box, Amazon S3 specific fields.

1. Select whether archived data should be packed into a single large file for transfer, and, if so, which **Packing Type** to use. Spectra Logic recommends using **ZIP** for Windows clients and **Tar** for UNIX clients.
 

**Notes:**

  - Spectra Logic recommends using packing when a majority of files are smaller than 100 KB and no files are larger than 10 GB.
  - Spectra Logic recommends using **ZIP** for Windows clients and **Tar** for UNIX clients.
  - Packs contain up to 10,000 files or 10 GB of data whichever is reached first.

2. Enter an **S3 Region** or an **S3 Data End Point** . If both are entered, the system uses the Data End Point and ignores the Region. Hyphens (-) in the Region must be replaced by underscores (\_).
3. Enter the **S3 Access ID** of a user with credentials for the Amazon S3 cloud and the bucket that will be used for data storage.
4. Enter the **S3 Secret Key** associated with the **S3 Access ID**.
5. Enter the name of the **Bucket** to be used for data storage.

**Caution**

---

---

Make sure the target bucket is versioning configured for versioning to avoid files being overwritten.

---

---

The bucket name must adhere to the Amazon S3 naming requirements. If the bucket does not exist, it is created.

S3 naming conventions require the following:

- Bucket names must comply with DNS naming conventions.
  - Bucket names must be at least 3 and no more than 63 characters long.
  - Bucket names must be a series of one or more labels. Adjacent labels are separated by a single period (.).
  - Bucket names can contain lowercase letters (a-z), numbers (0-9), and hyphens. You cannot use a hyphen at the beginning or end of a label.
  - Bucket names cannot contain uppercase characters or underscores.
  - Bucket names cannot be formatted as an IP address.
6. Click **Test Location** to verify that the server can connect to the storage location.
  7. Click **Submit** to save the storage location.
  8. If necessary, repeat these steps, starting with [Step 2 on page 26](#) to configure additional storage locations.

# CHAPTER 4

---

## Migrate or Store Data

This section provides instructions for using the Migrate / Store wizard.

<b>Task</b>	
Create a Migrate / Store Project	page 41
Migrate / Store Wizard – Project Name	page 42
Migrate / Store Wizard – File Parameters	page 43
Migrate / Store Wizard – Schedule	page 44
Set Start Time	page 45
Set Recurring Schedule	page 46
Migrate / Store Wizard – Set Targets	page 48



## CREATE A MIGRATE / STORE PROJECT

Configure a Migrate / Store project to find and move objects to secondary storage.

- Notes:**
- A Migrate / Store project cannot be edited and can only be deleted if no jobs for that project have run.
  - If a Migrate / Store project includes a recurring schedule, it can be disabled at any time.

Use the instructions below to configure a new Migrate / Store project.

1. Click **Migrate / Store** in the taskbar. The Migrate / Store screen displays showing configured Migrate / Store Projects and current and completed Migrate / Store Jobs.

The screenshot displays the StorCycle web interface for managing Migrate / Store projects and jobs. The top navigation bar includes the StorCycle logo, search, settings, help, a notification bell with '6' alerts, and the user name 'Administrator'. The main content area is divided into two sections:

- Migrate / Store Projects:** A table listing configured projects. The table has columns for Name, Enabled, Source, Targets, Root Directory, Schedule, Size, Age, and Actions. One project, 'MigrateOldData', is listed with 'Enabled' set to 'false'. A green button labeled 'NEW MIGRATE / STORE PROJECT' is located below the table.
- Migrate / Store Jobs:** A table listing completed jobs. The table has columns for Job Name, Start Time, Complete Time, and Job State. One job, 'MigrateOldData-1', is listed as 'Completed' with a total byte count of 15.5 MB. The table includes sorting arrows and pagination controls (Page 1 of 1, 5 rows).

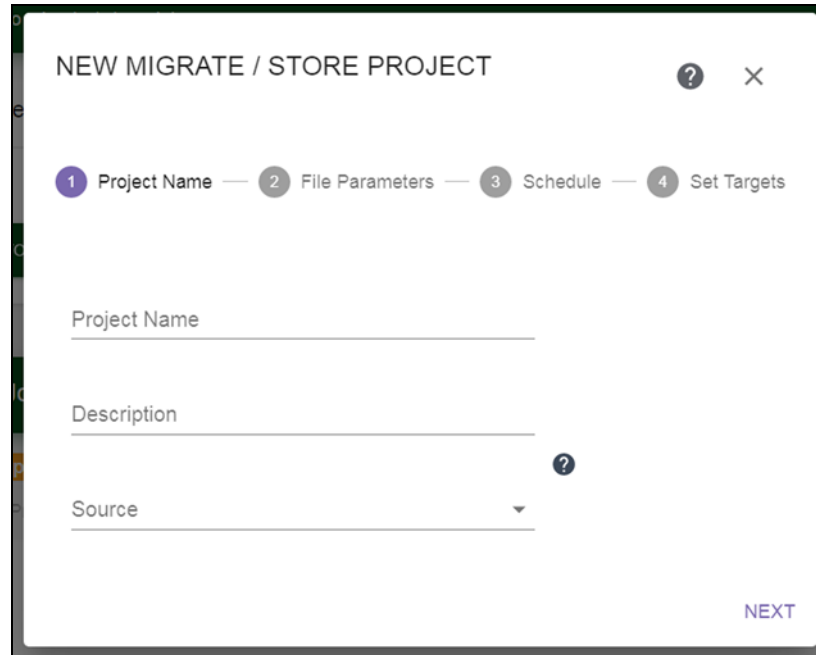
**Figure 14** The Migrate / Store screen.

2. Click **New Migrate / Store Project** to start the Migrate / Store wizard.

## MIGRATE / STORE WIZARD — PROJECT NAME

The Project Name screen of the Migrate / Store wizard allows you to configure the project name and storage location.

- Notes:**
- During Migrate / Store the permissions from the source storage files are collected and retained for each file and not inherited from the default permissions of the parent directory.
  - The StorCycle solution migrates empty directories.



**Figure 15** The Project Name screen of the Migrate / Store wizard.

1. Enter a unique **Project Name** for the project.



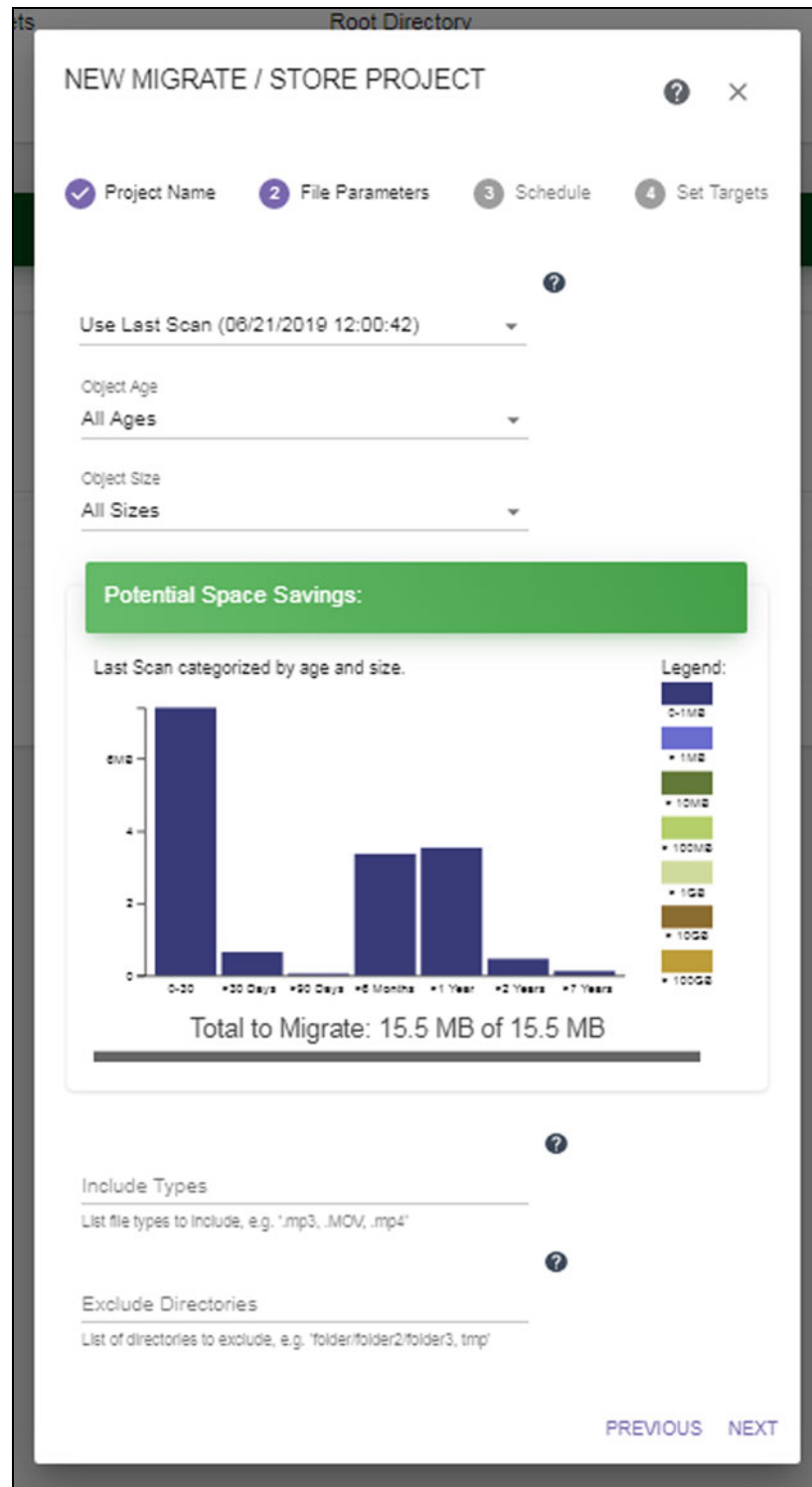
### Important

A project name must be unique across all scan, migrate / store, restore, and database backup projects. Names of deleted projects cannot be reused.

2. If desired, enter a **Description** for the project.
3. From the **Source** drop-down, select a previously configured storage location to be the source location. See [Configure Storage on page 25](#) for instructions for configuring a storage location. Subdirectories on the Source display.
4. Select the starting subdirectory on the share to start searching for objects to Migrate / Store.
5. Click **Next** to continue.

## MIGRATE / STORE WIZARD—FILE PARAMETERS

The File Parameters screen of the Migrate / Store wizard allows you to configure filters to select the files to migrate or store. The graphs update as you make selections to show the size and age of objects to be stored.

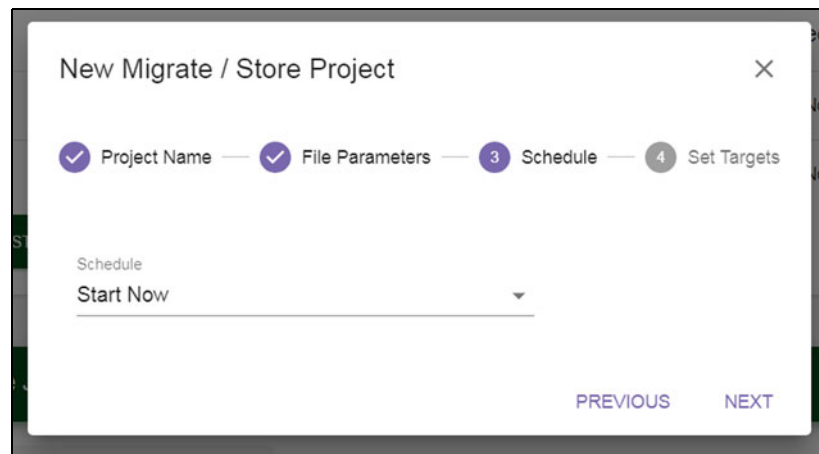


**Figure 16** The File Parameters screen of the Migrate / Store wizard.

1. Select whether to **Scan before Migrate / Store** or to **Use Last Scan** to determine the files to migrate / store.
2. From the **Object Age** drop-down, select the age of files to include.
3. From the **Object Size** drop-down, select size of files to include.  
If there was a previous scan of the source directory, the graph updates to indicate the potential space savings based on the object age and size settings.
4. If desired, enter a comma separated list of file extensions for file types to include. Specifying file types here excludes all file types not listed.
5. If desired, enter a comma separated list of directories to exclude.
6. Click **Next** to continue.

## MIGRATE / STORE WIZARD — SCHEDULE

The Schedule screen of the Migrate / Store wizard allows you to configure when to run the Migrate / Store project.



**Figure 17** The Schedule screen of the Migrate / Store wizard.

Using the **Schedule** drop-down menu, select **Start Now**, **Set Start Time**, or **Set Recurring Schedule** to set the run schedule.

- If you selected **Start Now**, click **Next** and continue with [Migrate / Store Wizard — Set Targets on page 48](#).
- If you selected **Set Start Time** or **Set Recurring Schedule**, the dialog box updates to show the configuration fields required for that schedule type. Continue with the applicable section below:

## Set Start Time

If you select **Set Start Time**, the dialog box updates to display the following fields:

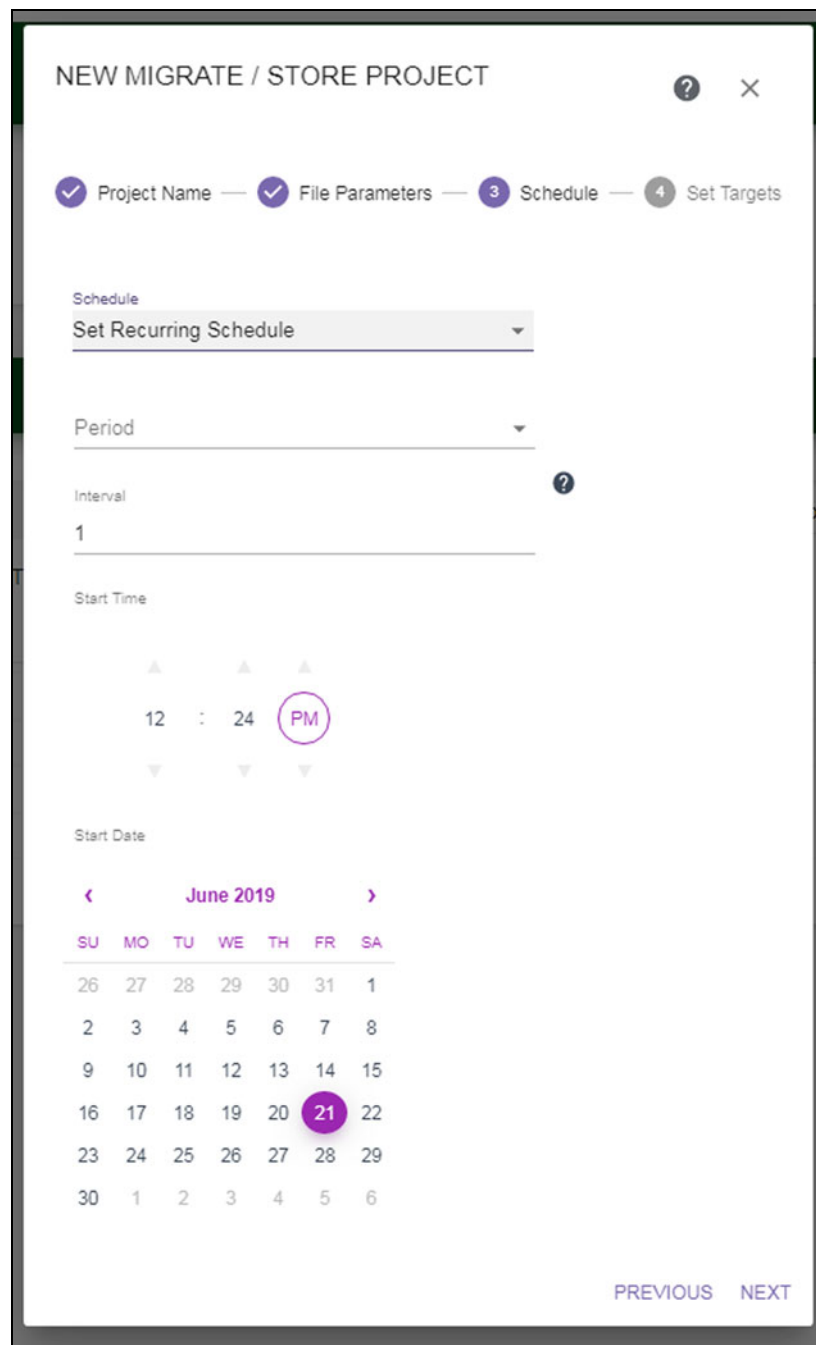
The screenshot shows a dialog box titled "NEW MIGRATE / STORE PROJECT" with a progress bar at the top indicating four steps: "Project Name", "File Parameters", "Schedule", and "Set Targets". The "Schedule" step is active, and a dropdown menu is open showing "Set Start Time". Below this, there are two sections: "Start Time" and "Start Date". The "Start Time" section features a digital clock interface with up and down arrows for the hour (12), minute (24), and period (PM). The "Start Date" section shows a calendar for June 2019, with the 21st highlighted in purple. At the bottom right of the calendar are "PREVIOUS" and "NEXT" buttons.

**Figure 18** Setting a start time.

1. Use the up and down arrows to select the **Start Time** for executing the Migrate / Store job.
2. Using the calendar, select the **Start Date** on which to execute the Migrate / Store job.
3. Click **Next** and continue with [Migrate / Store Wizard — Set Targets on page 48](#).

## Set Recurring Schedule

If you select **Set Recurring Schedule**, the dialog box updates to display the following fields:



The screenshot shows a dialog box titled "NEW MIGRATE / STORE PROJECT" with a progress indicator at the top showing four steps: "Project Name" (checked), "File Parameters" (checked), "Schedule" (active, circled in 3), and "Set Targets" (circled in 4). The "Schedule" section is expanded to show "Set Recurring Schedule". Below this, there are fields for "Period", "Interval" (set to 1), and "Start Time" (set to 12:24 PM). At the bottom, there is a "Start Date" calendar for June 2019, with the 21st highlighted. "PREVIOUS" and "NEXT" buttons are at the bottom right.

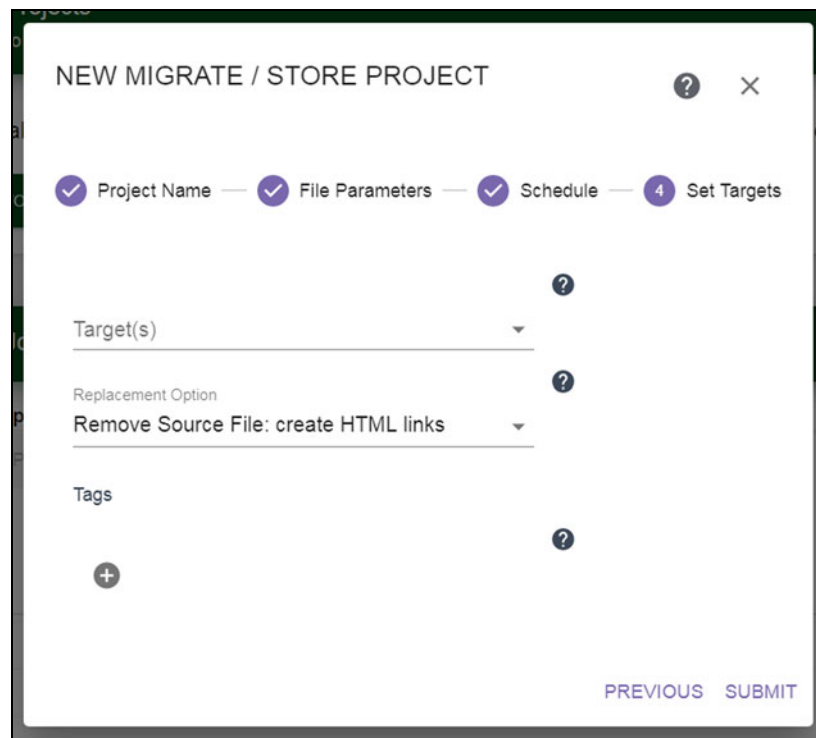
**Figure 19** Setting a recurring schedule.

1. Select on what **Period** (daily, weekly, monthly) to execute the migrate store job.
  - If you selected **Weekly**, select the day(s) of the week on which to execute the migrate / store job.

- If you selected **Monthly**, select the day(s) of the month on which to execute the migrate / store job. If you select a date past the last day of the month, the last day of the month is used.
2. Specify the **Interval**, of days, weeks, or months, before the next migrate / store job executes. For example, if this value is set to 1, the job executes every day, week, or month, if the value is set to 2 the job executes every other day, week, or month, etc.
  3. Use the up and down arrows to select the **Start Time** for executing the migrate /store job.
  4. Using the calendar, select the **Start Date**, this is the first possible date on which to execute the job. If the date selected does not match the selected day of the week or day of the month for executing the job, the migrate / store job will execute on the next selected day of the week or day of the month.
  5. Click **Next** and continue with [Migrate / Store Wizard — Set Targets on page 48](#).

## MIGRATE / STORE WIZARD — SET TARGETS

The Set Targets screen of the Migrate / Store wizard allows you to configure the target storage location for the migrate / store project.



The screenshot displays the 'NEW MIGRATE / STORE PROJECT' wizard interface. At the top, the title 'NEW MIGRATE / STORE PROJECT' is shown with a help icon and a close icon. Below the title, a progress bar indicates the current step: 'Project Name' (checked), 'File Parameters' (checked), 'Schedule' (checked), and 'Set Targets' (active, highlighted with a blue circle and the number 4). The 'Set Targets' section contains three main fields, each with a help icon to its right: 'Target(s)' (a text input field), 'Replacement Option' (a dropdown menu currently showing 'Remove Source File: create HTML links'), and 'Tags' (a text input field). Below the 'Tags' field is a plus sign icon. At the bottom right of the wizard, there are two buttons: 'PREVIOUS' and 'SUBMIT'.

**Figure 20** The Set Targets screen of the Migrate / Store wizard.

1. From the **Target(s)** drop-down menu, select up to three previously configured storage locations. See [Configure Storage on page 25](#) for instructions for configuring a storage location.

**Caution**

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Do not migrate / store multiple storage location sources to the same storage location targets such that the directory and file names could conflict on the target. For example, if Storage Locations A and B both contain a top-level directory **dir1** which contains a file **file1.txt**, and the file from both locations are migrated to the same target, there could be a failure or loss of data due to both storage locations having data with the same file path and file name.

If the target is a BlackPearl or cloud storage location, make sure the target is using versioning to avoid files being lost or overwritten.

If the target is a Spectra or non-Spectra NAS storage location, you can select different subdirectories to avoid the conflict.

---

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2. Select the **Replacement Option** for the files after they are copied to secondary storage.

**Note:** In the cases where the original file is deleted from the source storage or replaced by an HTML file, before the StorCycle solution deletes the file, it checks the file property dates/times and the file size to ensure that the file has not changed between the time it was copied to the targets until the time it is ready to be deleted or replaced. If the file has changed during this time, then the file is not deleted from the source storage and a note is added to the logs.

- **Remove Source File: create HTML links** — The original copy of the object is replaced with an HTML link to instructions for restoring the file from secondary storage.

**Note:** If the network does not support reverse DNS lookups, then the IP address of storage locations are used in HTML links created during a migrate / store job.

- **Remove Source File: no links** — The original copy of the object is removed from primary storage. The directory structure is left in place. The empty directories can be deleted. Upon restore, any missing directories will be recreated.
- **Keep Source File** — The original copy of the object is kept in primary storage.

3. If desired, enter a comma separated list of **Tags** to apply to this task for searching purposes. Tags can be in the form of "*Value*" or "*Name:Value*", for example, "Alicia Keys" or "Artist:Alicia Keys".
4. Click **Submit** to save the project. If you selected **Start Now**, the project starts immediately. If you set a schedule, the project will run as scheduled.



# CHAPTER 5

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## Restore

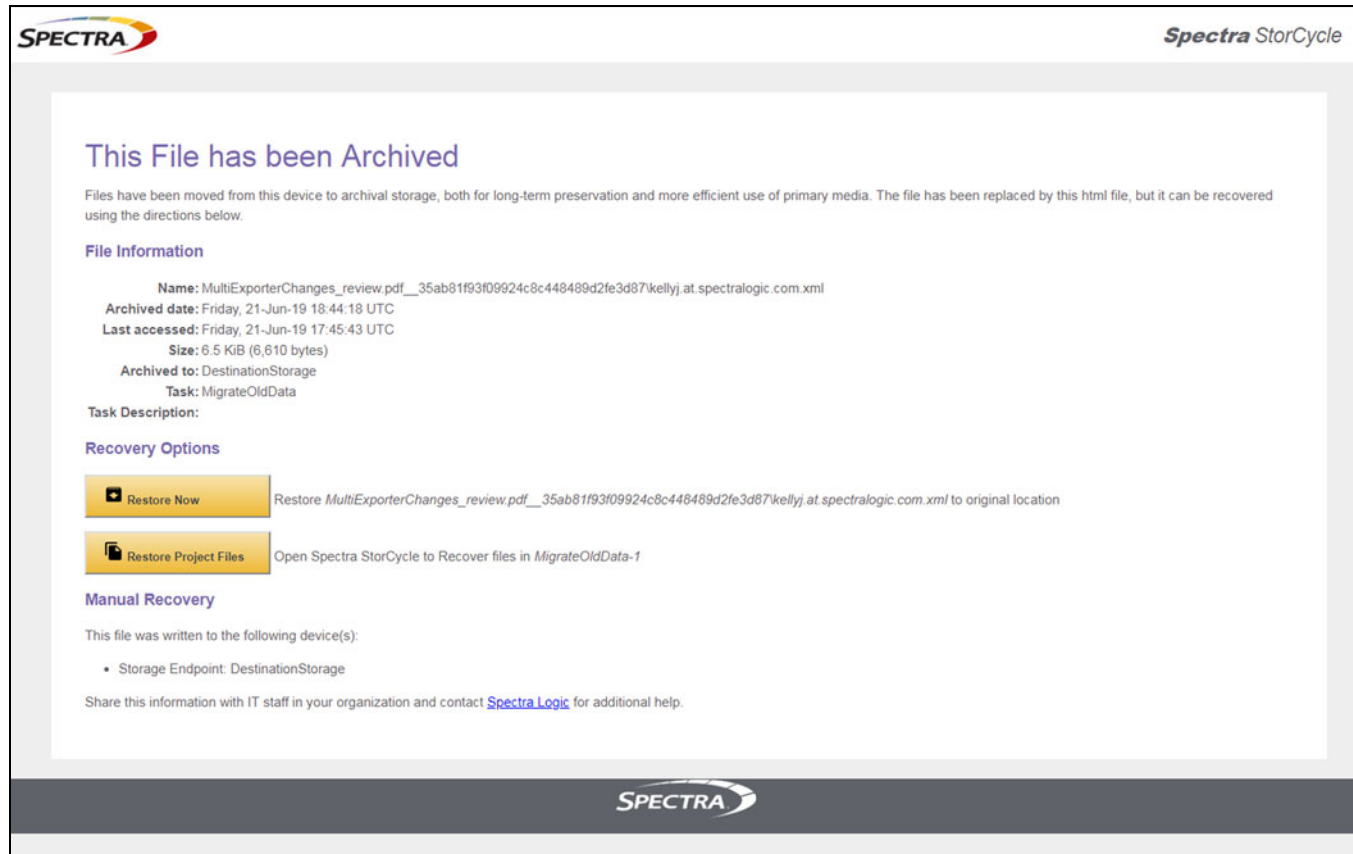
This section provides instructions for using the Restore wizard.

**Note:** For highest performance, when restoring an object that was migrated / stored to multiple types of targets, the StorCycle solution attempts to restore the object from NAS storage first, then a BlackPearl system, and finally cloud/S3 storage.

Task	
Create a Restore Project	page 53
Restore Wizard – Files to Restore	page 54
Search for Project	page 55
Select Project Manually	page 57
Restore Wizard – Schedule	page 59
Restore Now	page 59
Set Restore Time	page 60
Restore Wizard – Restore To	page 61

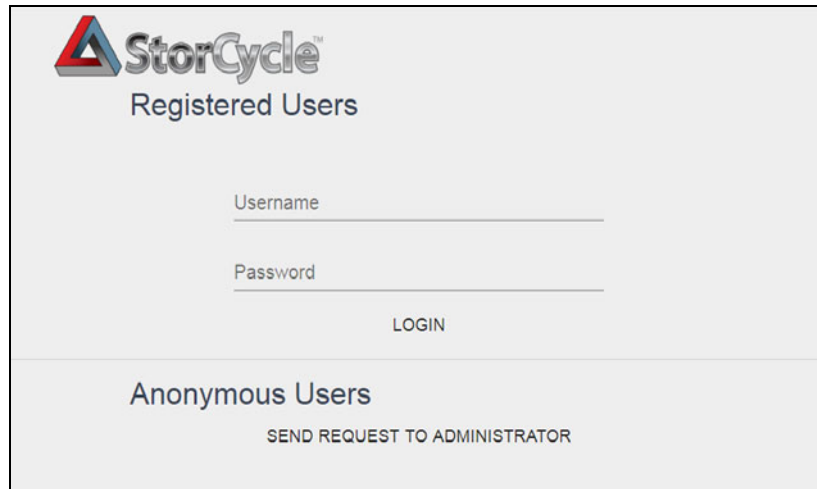
# RESTORING USING HTML LINKS

If you selected **Remove Source File: create HTML links** as the **Replacement Option** when you created the Migrate / Store Project (see [Step 2 on page 49](#)), you can open the HTML file present in the original file location for shortcuts to restore an individual file or all files that were migrated / stored in the same project.



**Figure 21** An HTML link for a stored file.

Click **Restore Now** to restore the individual file or **Restore Project Files** to restore all files in the Migrate / Store project. The Spectra StorCycle Solution login screen displays.

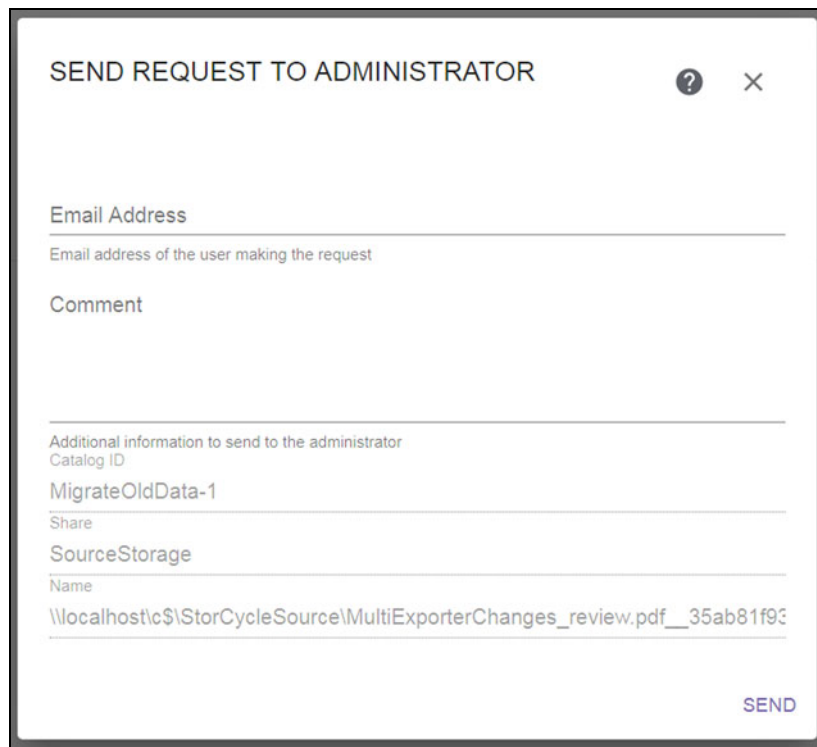


The screenshot shows the Spectra StorCycle login interface. At the top left is the StorCycle logo. Below it, the text 'Registered Users' is centered. Underneath are two input fields labeled 'Username' and 'Password', each with a horizontal line for text entry. Below these fields is a 'LOGIN' button. A horizontal line separates this section from the 'Anonymous Users' section below. In the 'Anonymous Users' section, there is a 'SEND REQUEST TO ADMINISTRATOR' button.

**Figure 22** The Spectra StorCycle Solution Login screen with link to email the Administrator.

If you are a registered user, log in to complete the restore. The Restore wizard runs with all fields populated to restore the requested file(s). See [Restore Wizard – Files to Restore on page 54](#) for more information.

If you are not a registered user, click **Send Request to Administrator**. The Send Request to Administrator screen displays.



The screenshot shows a window titled 'SEND REQUEST TO ADMINISTRATOR'. The window has a title bar with a question mark icon and a close button (X). The main content area contains several input fields. The first is 'Email Address' with a sub-label 'Email address of the user making the request'. Below it is a 'Comment' field. Then there is a section for 'Additional information to send to the administrator' with a sub-label 'Catalog ID'. This section contains several fields: 'MigrateOldData-1', 'Share', 'SourceStorage', and 'Name' with a sub-label '\\localhost\c\$\StorCycleSource\MultiExporterChanges\_review.pdf\_\_35ab81f93'. A 'SEND' button is located at the bottom right of the window.

**Figure 23** The Send Request to Administrator screen.

Enter your **Email Address** and, if desired, a **Comment**, and then click **Send** to email the request to the Spectra StorCycle solution Administrator.

## CREATE A RESTORE PROJECT

Configure a Restore project to move data from secondary storage back to primary storage.

Use the instructions below to configure a new Restore project.

1. Click **Restore** in the taskbar. The Restore screen displays showing configured restore projects and current and completed restore jobs.

The screenshot displays the Spectra StorCycle web interface. At the top left is the StorCycle logo. The top right shows search, settings, help, a notification bell with '8', and the user 'Administrator'. The main content is divided into two sections:

- Restores**: A blue header with the subtitle 'Configured projects to restore data'. Below it is a table:
 

Name	Storage	Root Directory	Schedule	Actions
Restore_MigrateOldData-1_201906211336	SourceStorage	/	Run Now	

 A 'NEW RESTORE' button is located below the table.
- Restore Jobs**: A blue header with the subtitle 'Last Database Backup: Jun 21, 2019 12:00:06 PM'. Below it is a table with pagination controls (Previous, Page 1 of 1, 5 rows, Next) and column headers (Job Name, Start Time, Complete Time, Job State):
 

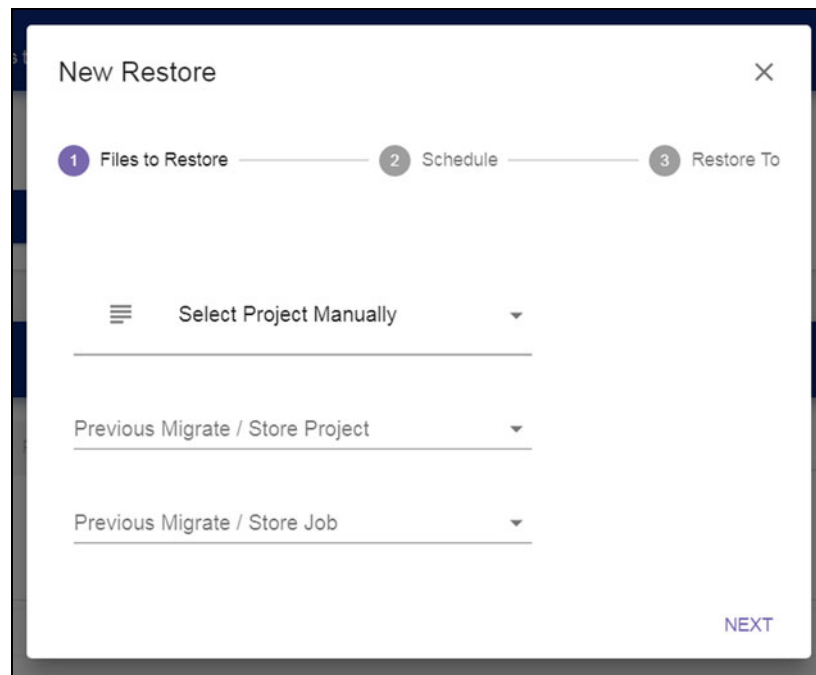
Job Name	Start Time	Complete Time	Job State
Restore_MigrateOldData-1_2019062113...	06/21/2019 1:41:52 PM	06/21/2019 1:41:52 PM	<b>Completed</b> Total Bytes: 6.5 KB

**Figure 24** The Restore screen.

2. Click **New Restore** to start the Restore wizard.

## RESTORE WIZARD—FILES TO RESTORE

The Files to Restore screen of the Restore wizard allows you to select from which migrate / store project to restore files.



**Figure 25** The Files to Restore screen of the Restore wizard.

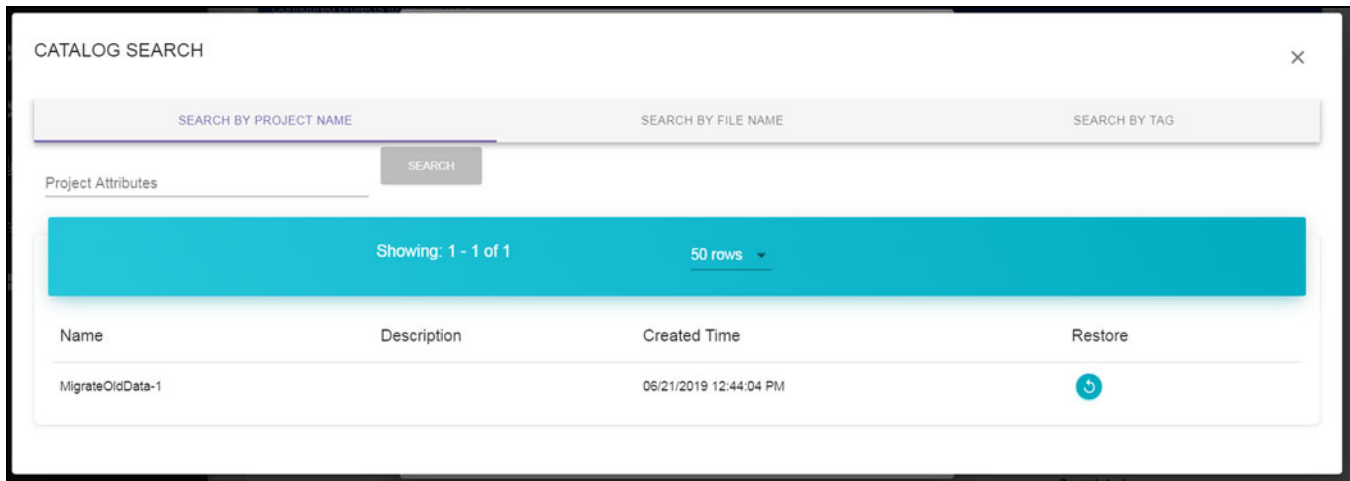
Select either **Search for Project** or **Select Project Manually** to select the Migrate / Store project from which you want to restore data.

Depending on the selection, the dialog box updates to allow you to select additional options. Continue with the applicable section below:

- [Search for Project on page 55](#)
- [Select Project Manually on page 57](#)

## Search for Project

If you select **I Want to Search**, the Catalog Search dialog box displays.



**Figure 26** The Search by Project Name tab of the Catalog Search dialog box.

Select the tab indicating how you want to search:

- [Search by Project Name, below](#)
- [Search by File Name on page 56](#)
- [Search by Tag on page 57](#)

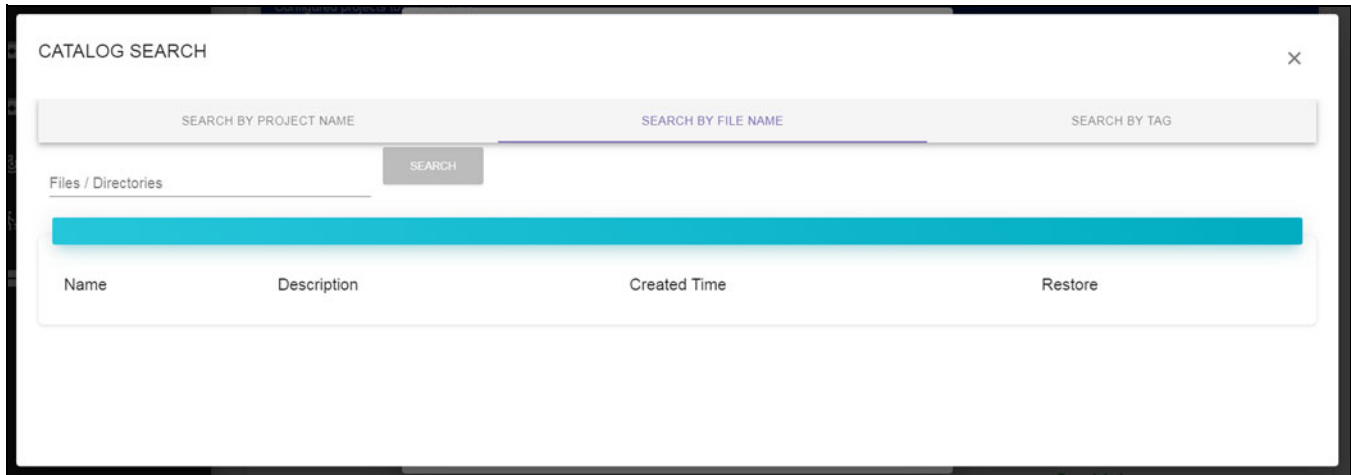
### Search by Project Name

1. In the **Project Attributes** field, enter the full or partial project name or description, and click **Search**.

All Migrate / Store jobs executed by a project with a name or description containing the search string are listed.

2. Click the **Restore** icon next to the job from which you want to restore files.
3. The user interface returns to the Restore wizard with the correct Migrate / Store Project and job selected.
4. Continue with [Step 3 on page 57](#).

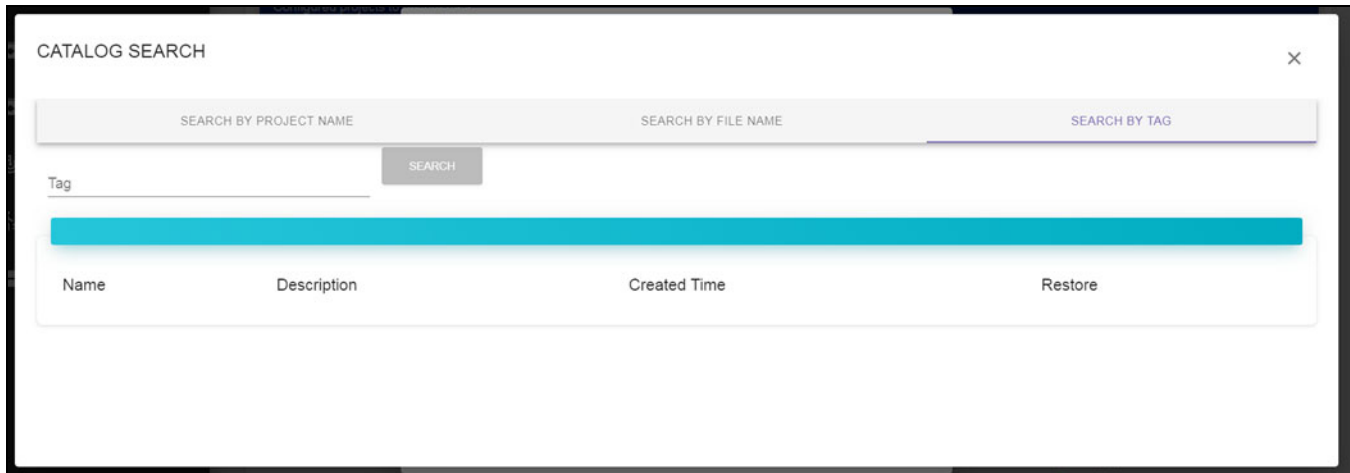
## Search by File Name



**Figure 27** The Search by File Name tab of the Catalog Search dialog box.

1. In the **Files / Directories** field, enter the full or partial file or directory name, and click **Search**.  
All Migrate / Store jobs containing a file or directory with a name containing the search string are listed.
2. Click the **Restore** icon next to the job from which you want to restore files.
3. The user interface returns to the Restore wizard with the correct Migrate / Store Project and job selected.
4. Continue with [Step 3 on page 57](#).

## Search by Tag



**Figure 28** The Search by Tag tab of the Catalog Search dialog box.

1. In the **Tag** field, enter a full or partial tag, and click **Search**.  
All Migrate / Store jobs with a tag containing the search string are listed.
2. Click the **Restore** icon next to the job from which you want to restore files.
3. The user interface returns to the Restore wizard with the correct Migrate / Store Project and job selected.
4. Continue with [Step 3 on page 57](#).

## Select Project Manually

1. From the **Previous Migrate / Store Project** drop-down, select a previously configured project which executed the job from which you want to restore files. See [Migrate or Store Data on page 40](#).
2. From the **Previous Migrate / Store Job** drop-down, select the previously executed job from which you want to restore files.
3. Select **Restore All Files in Project**, **Specify Single File**, or **Search Catalog for files**.

Depending on which option you select, the dialog box updates to display more fields. Continue with the applicable section below:

- [Restore All Files in Project on page 58](#)
- [Specify Single File on page 58](#)
- [Search Catalog for Files on page 58](#)

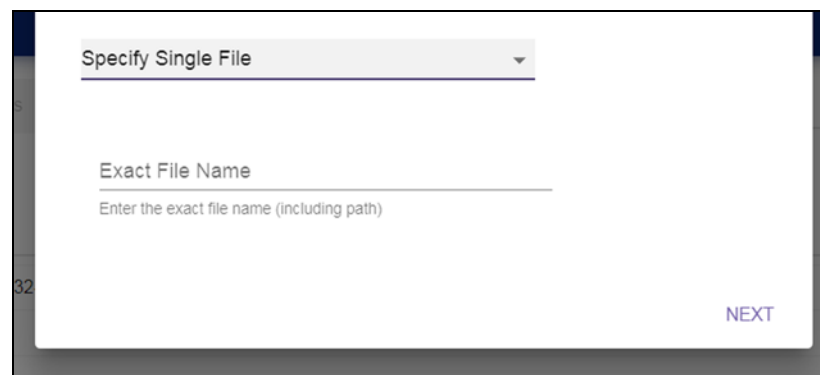


## Restore All Files in Project

All files in the migrate / store job are restored. Click **Next** and continue with [Restore Wizard – Schedule on page 59](#).

## Specify Single File

If you select **Specify Single File**, the dialog box updates to request the file name.



**Figure 29** The Specify Single File restore fields.

1. In the **Exact File Name** field, enter the full file name including the path to the share and the file extension.
2. Click **Next** and continue with [Restore Wizard – Schedule on page 59](#).

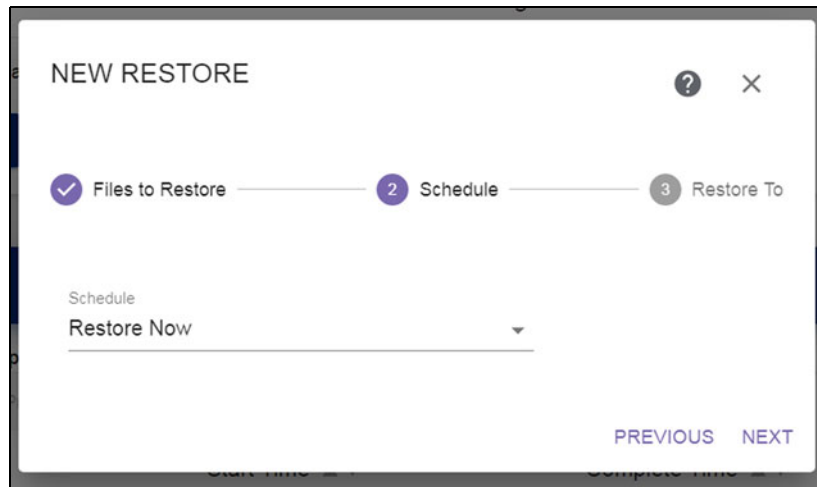
## Search Catalog for Files

If you select **Search Catalog for Files**, the dialog box updates to display all files and subdirectories in the selected job.

1. Browse to find the files that you want to restore and select the check box next to the file name.
2. Click **Next** and continue with [Restore Wizard – Schedule on page 59](#).

## RESTORE WIZARD — SCHEDULE

The Schedule screen of the Restore wizard allows you to configure when to run the restore project.



**Figure 30** The Schedule screen of the Restore wizard.

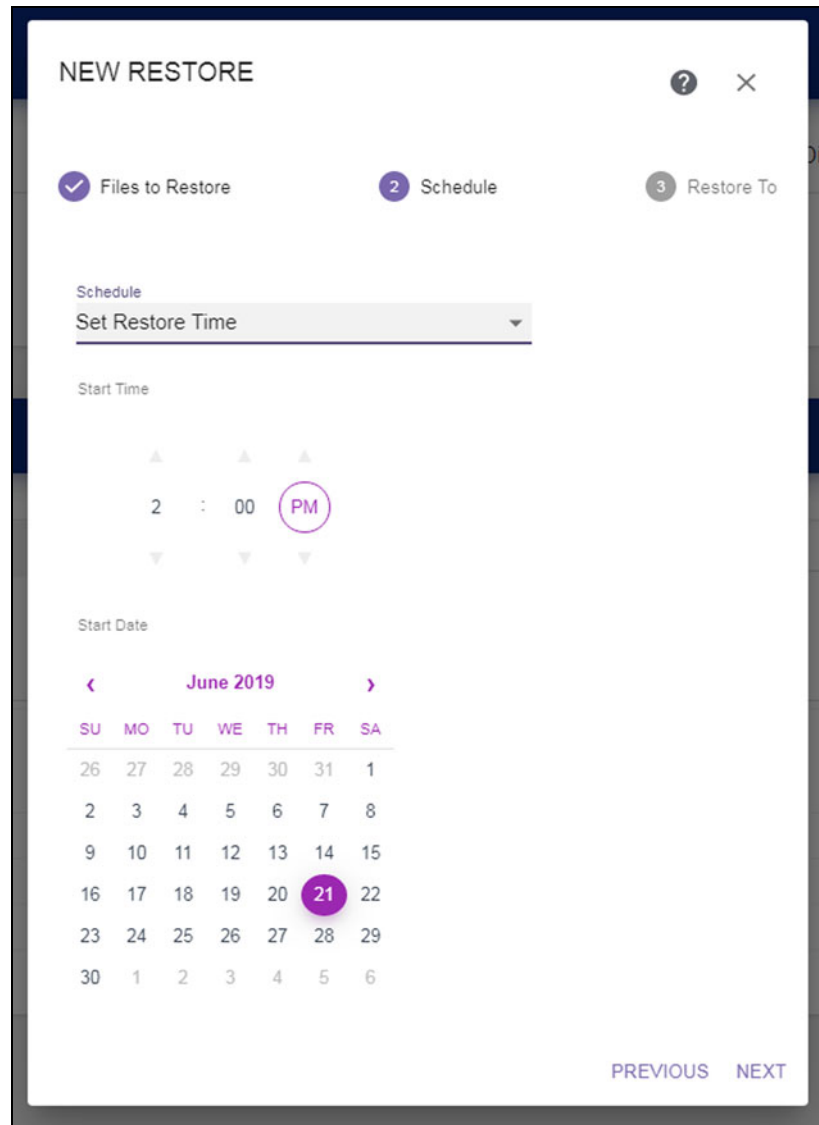
Select **Restore Now** or **Set Restore Time** to set the run schedule.

### Restore Now

Click **Next** and continue with [Restore Wizard — Restore To](#) on page 61.

## Set Restore Time

If you select **Set Restore Time**, the dialog box updates to display the following fields:



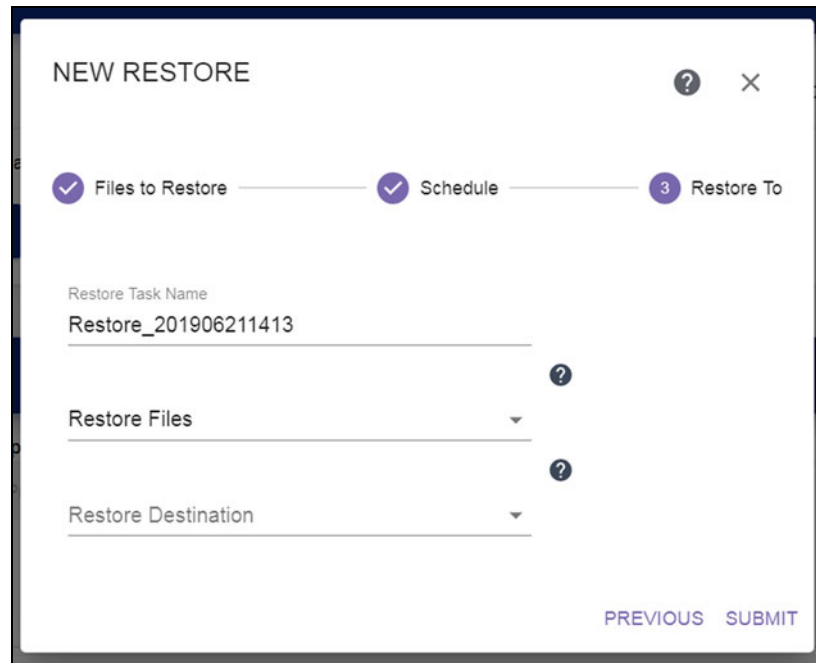
The screenshot shows a dialog box titled "NEW RESTORE" with three steps: "Files to Restore" (checked), "Schedule" (active), and "Restore To". Under the "Schedule" step, a dropdown menu is set to "Set Restore Time". Below this, the "Start Time" is set to 2:00 PM. The "Start Date" is set to June 21, 2019, as shown in a calendar view. The calendar shows the month of June 2019 with the 21st highlighted. At the bottom right, there are "PREVIOUS" and "NEXT" buttons.

**Figure 31** Setting a start time.

1. Use the up and down arrows to select the **Start Time** for executing the restore.
2. Using the calendar, select the **Start Date** on which to execute the restore.
3. Click **Next**.

# RESTORE WIZARD—RESTORE TO

The Restore To screen of the Restore wizard allows you to configure the location where the objects will be restored.

The screenshot shows a web-based wizard interface titled "NEW RESTORE". At the top right, there are help and close icons. Below the title, a progress bar shows three steps: "Files to Restore" (checked), "Schedule" (checked), and "Restore To" (active, highlighted with a blue circle and the number 3). The main form area contains three input fields: "Restore Task Name" with the value "Restore\_201906211413", "Restore Files" (a dropdown menu), and "Restore Destination" (a dropdown menu). Each dropdown menu has a question mark icon to its right. At the bottom right of the form, there are two buttons: "PREVIOUS" and "SUBMIT".

**Figure 32** The Restore To screen of the Restore wizard.

1. If desired, edit the **Restore Task Name**.



## Important

A project name must be unique across all scan, migrate / store, restore, and database backup projects. Names of deleted projects cannot be reused.

2. Select whether to **Restore Files** or **Restore HTML Links Only**.
  - **Restore Files** — The file is restored to restore destination.
  - **Restore HTML Links Only** — An HTML link to instructions for restoring the file from secondary storage is placed in the restore destination.

3. From the **Restore Destination** drop-down, select one or more previously configured storage location as the destination. See [Configure Storage on page 25](#) for instructions for configuring a storage location. If you are restoring files, the directory structure of the **Restore Destination** displays.  
**Notes:**
  - If you are restoring **HTML Links Only**, they are restored to the source location of the original migrate / store job.
  - If a restore project attempts to restore a file to a location in which a file of the same name already exists, the restore fails. The existing file is not overwritten.
  - If HTML files were created for migrated files, then when the files are restored to their original location, the HTML files are deleted.
4. If you are restoring files, select the starting subdirectory on the **Restore Destination** to be the restore directory.
5. Click **Submit** to save the project. If you selected Start Now, the project starts immediately. If you set a start time, the project runs as scheduled.

## ACCESSING MIGRATED / STORED FILES WITHOUT THE SPECTRA STORCYCLE SOLUTION

Files migrated by the Spectra StorCycle solution are typically accessed by having the StorCycle solution restore them to a source storage location so that they can be used. However, users can also access the files directly on the target storage without using the StorCycle solution.

StorCycle writes the files to storage targets using the files' original names and directory structures (except when using packs on BlackPearl).

When the storage target is a BlackPearl system and tape, the tapes are written in the open LTFS format, which means that the tapes can be read by any other system that supports LTFS. Use a BlackPearl data policy that uses object naming mode so the BlackPearl system uses the actual filenames on the LTFS tape.

# CHAPTER 6

## Scan

This section provides instructions for using the Scan wizard.

Task	
Scanning Overview	page 63
Scanning From the Root	page 63
Scanning from a Subdirectory	page 64
A Migrate / Store Job's Affect on Scan Data	page 68
Create a Scan Project	page 70
Scan Wizard – Scan Source	page 71
Scan Wizard – Schedule	page 72
Scan Now	page 72
Set Start Time	page 73

### SCANNING OVERVIEW

A scan traverses a file system and records, in the StorCycle database, information associated with the directories and files it encounters. A scan can start either at the root of a Storage Location or at a subdirectory of a Storage Location depending on parameters set in the scan project. From the starting directory, the scan traverses all subdirectories beneath it. Once a scan completes, categorization information (age and size of files), for each directory with changes since the last scan of that directory, is updated in the StorCycle database so that you can determine what data to Migrate / Store based on Age and Size attributes.

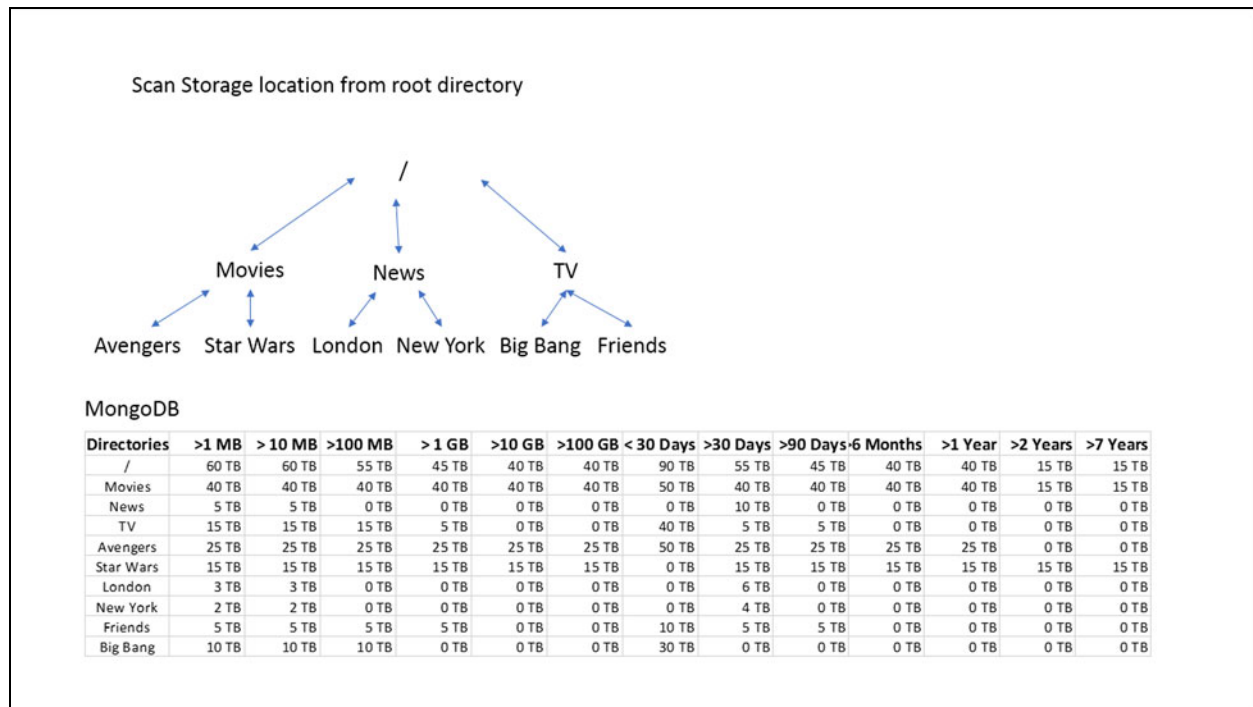
### Scanning From the Root

A scan from the root traverses all child directories in the Storage Location. If data in a directory has changed since the last time the directory was scanned, the information for the data in the directory is updated in the StorCycle database and the scan histograms. Scanning from the root ensures that the information for all subdirectories is up to date, but it may take a long time.

## Scan from Root - Example 1

A scan starting from the root directory provides the following:

**Note:** When the scan completes, histograms for previous root scans and subdirectory scans for subdirectories traversed by this root scan are updated with the data from the new scan.



**Figure 33** An example scan from the root.

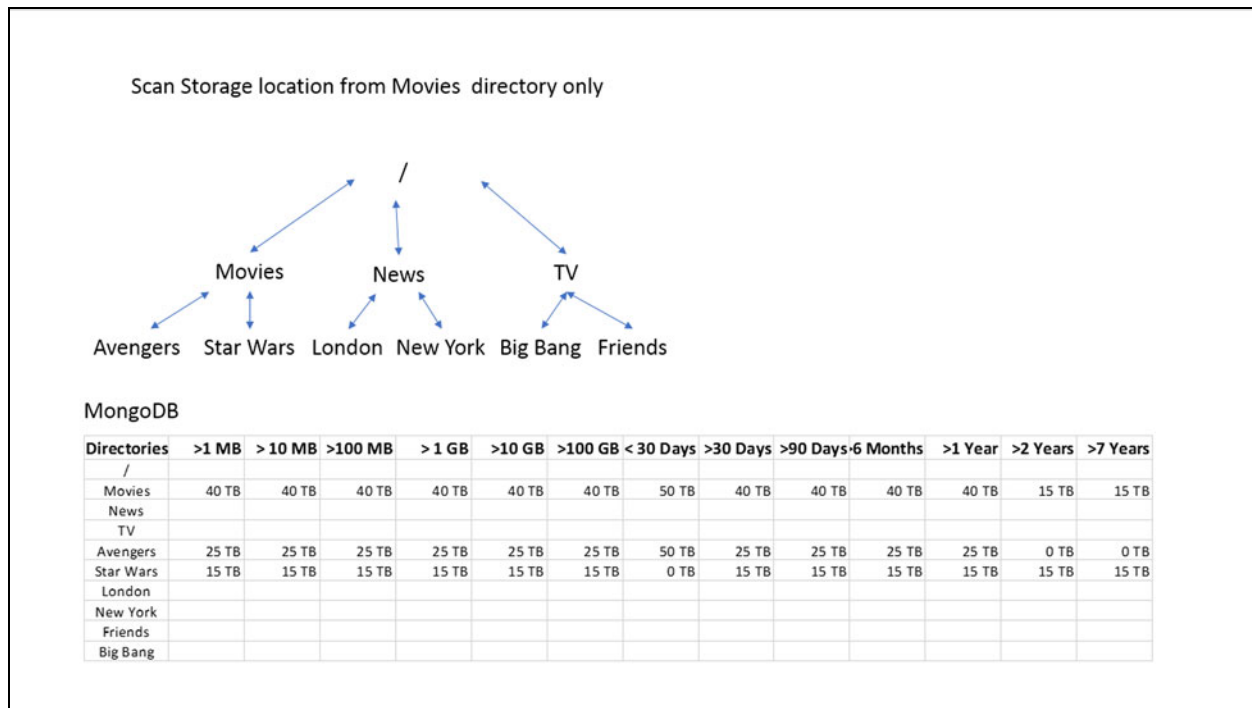
View the histogram, showing amount of data by age and file size, by clicking **Complete** next to the scan job in the Job State column of the Scan Jobs pane of the Scan dashboard. It can also be viewed in the Migrate / Store wizard once the working directory is selected.

## Scanning from a Subdirectory

A scan from a subdirectory traverses all subdirectories below the directory selected. If data in a directory has changed since the last time the directory was scanned, the information for the data in the directory is updated in the StorCycle database and histograms for previous scans of parent directories are updated with the new data. A subdirectory scan takes less time than a root scan, but does not update all branches of the storage location.

## Scan from a Subdirectory - Example 2

Using the same Storage Location from the last example, a scan starting from the Movies traverses and updates the subdirectories shown below:



**Figure 34** An example scan from a subdirectory.

View the histogram, showing amount of data by age and file size, for the Movies directory by clicking **Complete** next to this scan job in the Job State column of the Scan Jobs pane of the Scan dashboard.

View the histogram for the updated root scan by clicking **Complete** next to the root scan job in the Job State column of the Scan Jobs pane of the Scan dashboard.



### Scan from a Subdirectory after Data Deletion- Example 3

If the Star Wars® files are deleted from the Movies directory, a subsequent scan of the Movies directory updates the root scan as follows.

- Notes:**
- This scan updates the parent directory's scan data.
  - Old scan data is not re-classified as time passes. What is in the 0 to 30 day category stays there even if enough time has passed that it is now older than 30 days.
  - Although this scan updates the data for the root scan, the date of the root scan does not change.

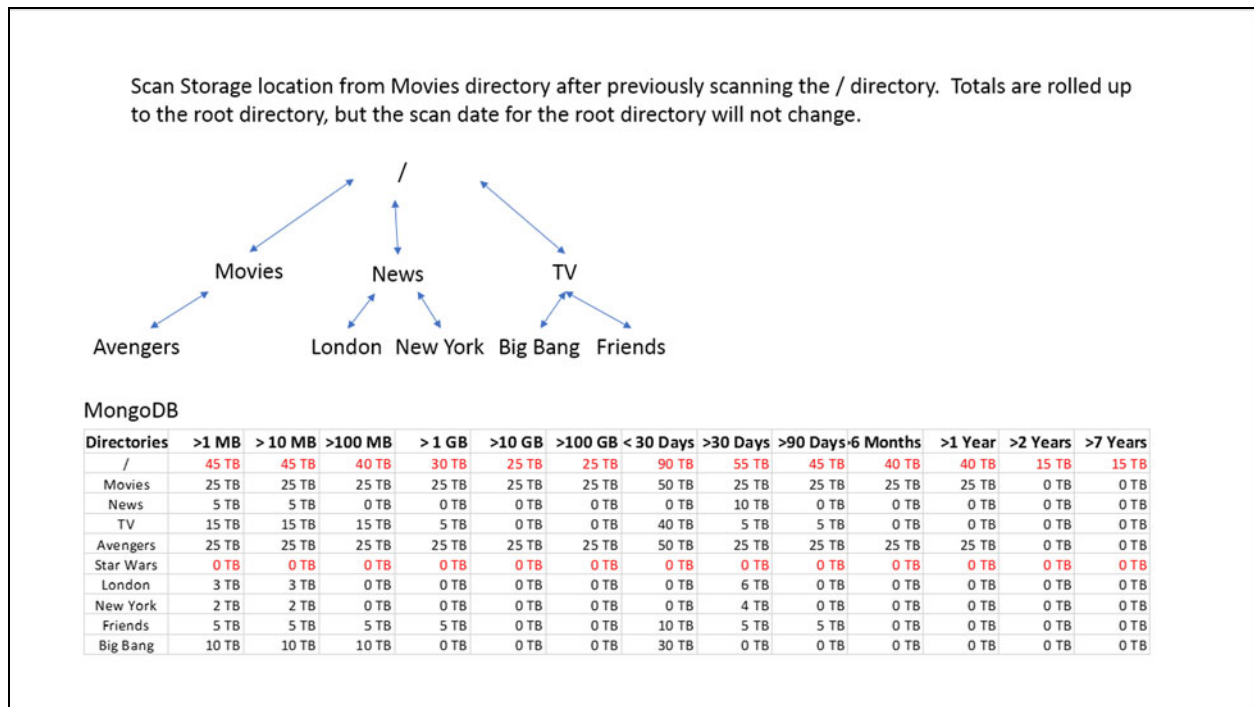
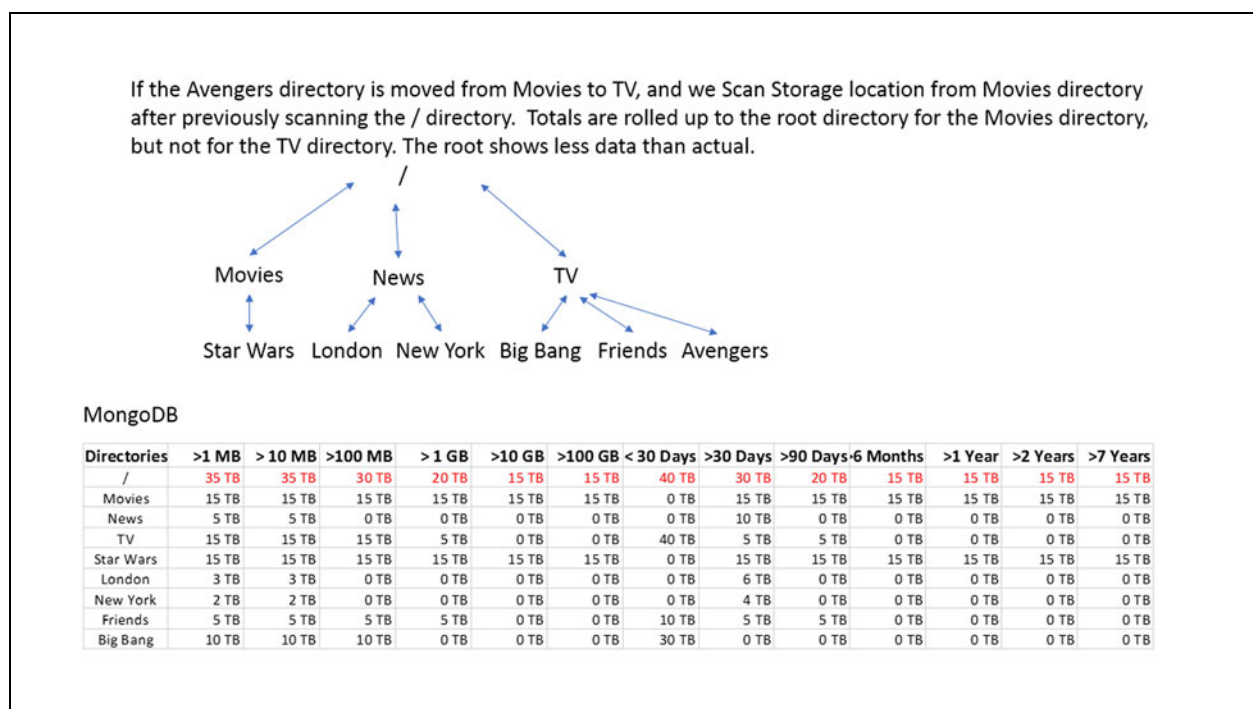


Figure 35 Example 3.

## Scan from a Subdirectory after Data Move- Example 4

If the Avengers files are moved from the Movies directory to the TV directory, a scan starting from the Movies directory updates the root scan as follows.

- Notes:**
- Since the scan started with the Movies subdirectory, it only knows that Avengers is not under Movies any longer. It does not know that it is under TV. The full scan updates to show less data than the Storage Location actually contains. The difference can be corrected by scanning the TV directory or by scanning the root
  - Although this scan updates the data for the root scan, the date of the root scan does not change.



**Figure 36** Example 4.

## A Migrate / Store Job's Affect on Scan Data

The Migrate / Store wizard shows the latest scan graph for the directory selected as long as a previous root or subdirectory scan included that directory. As shown in Example 4, the latest scan may not be correct. If **Use Last Scan** is selected in the Migrate / Store wizard, the Avengers data will not be considered for Migrating / Storing. To make sure that the correct data is used, select **Scan Before Migrate / Store**.

**Notes:** If **Use Last Scan** is selected:

- Only files present in the directory when the prior scan executed, are considered for migration.
- The current size and age of the file are considered against the selection criteria when determining files to migrate / store.

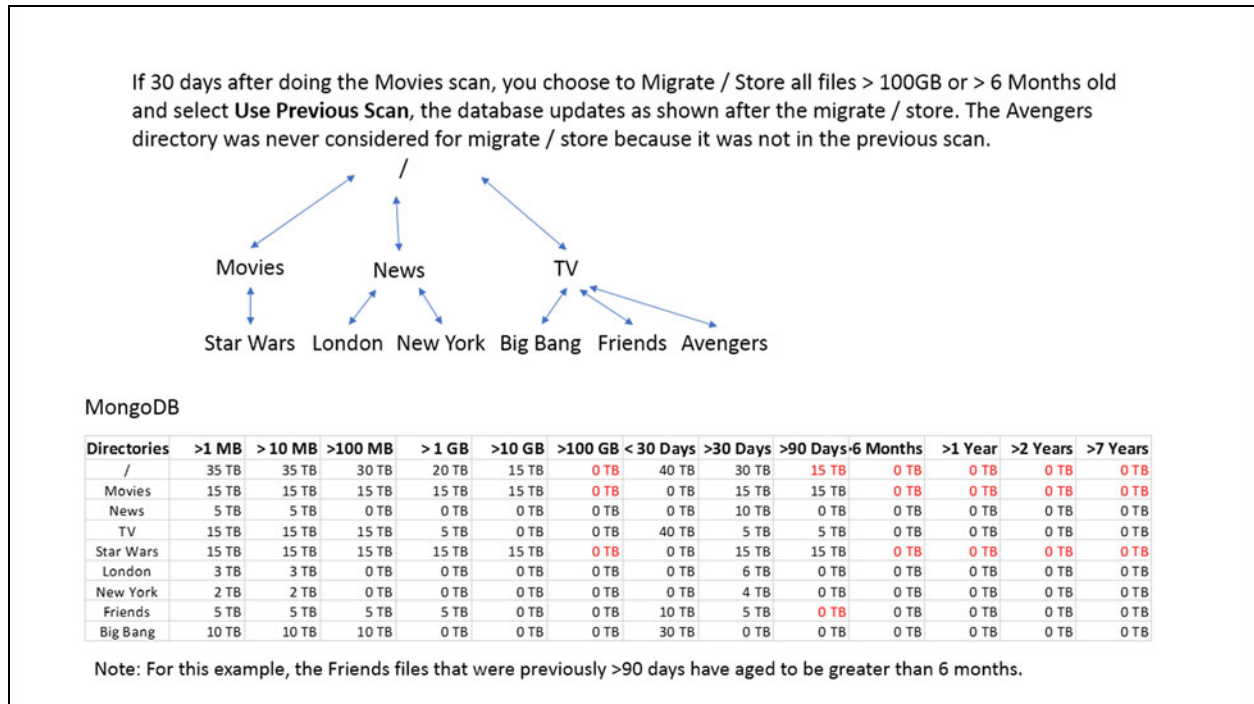
When the Migrate / Store wizard moves data, it updates all of the directory category totals and the file information for the moved files in the database. This updates the histogram of the scan data for all scans including the affected directories. If the Migrate / Store used **Use Last Scan**, the database update does not include adding files that were not in the previous scan.

**Note:** Scan data is not updated after a Restore. Similar to adding data to a directory, after a Restore a new scan is needed from the root or a subdirectory.

## Migrate / Store Example

If 30 days after executing Example 4, you choose to Migrate / Store all files > 100 GB or > 6 Months old and select **Use Last Scan**, the database updates as shown after the migrate / store.

- Notes:**
- The Avengers files were not considered for the Migrate / Store because they were not included in the previous scan.
  - The amount of data > 6 months old has increased because the Friends files that were previously > 90 days have aged to be greater than 6 months.



**Figure 37** Example 5.

## CREATE A SCAN PROJECT

Configure a Scan project to evaluate data in primary storage to determine the possible savings available if older files are moved to secondary storage.

Use the instructions below to configure a new Scan project.

1. Click **Scan** in the taskbar. The Scan screen displays showing configured Scan Projects and current and completed Scan Jobs.

The screenshot displays the StorCycle Scan screen. At the top, the StorCycle logo is on the left, and search, settings, help, notifications (5), and user (Administrator) icons are on the right. The main content is divided into two sections: 'Scans' and 'Scan Jobs'.

**Scans Section:**

Name	Source	Root Directory	Schedule	Actions
Scan_201906211156	SourceStorage	\	Run Now	
Scan_201906211157	SourceStorage	\	Run Now	
Scan_201906211200	SourceStorage	\	Run Now	

A 'NEW SCAN' button is located below the Scans table.

**Scan Jobs Section:**

Last Database Backup: Jun 21, 2019 12:00:06 PM

Navigation: Previous | Page 1 of 1 | 5 rows | Next

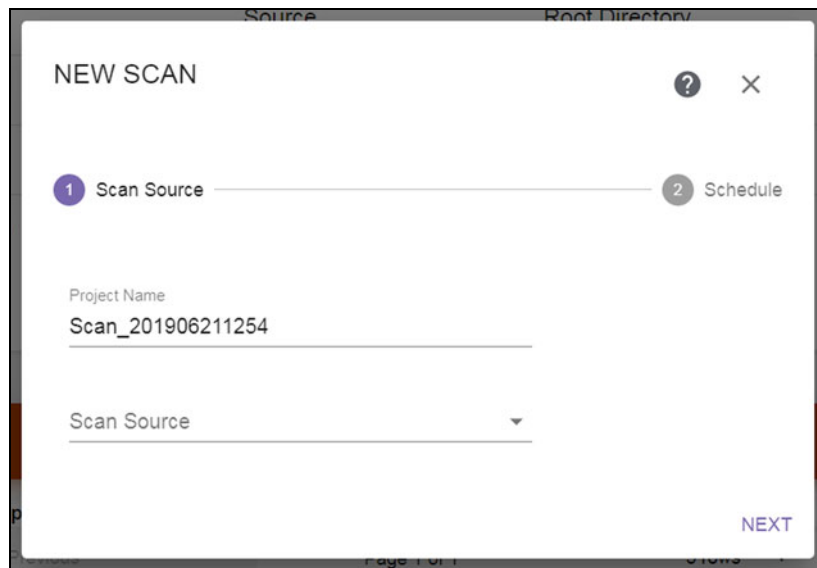
Job Name ▲ ▼	Start Time ▲ ▼	Complete Time ▲ ▼	Job State ▲ ▼
Scan_201906211200-1	06/21/2019 12:00:42 PM	06/21/2019 12:00:42 PM	<b>Completed</b> Total Bytes: 15.5 MB
Scan_201906211157-1	06/21/2019 11:57:30 AM	06/21/2019 11:57:30 AM	<b>Completed</b> Total Bytes: 21 KB
Scan_201906211156-1	06/21/2019 11:56:43 AM	06/21/2019 11:56:44 AM	<b>Completed</b> Total Bytes: 21 KB

**Figure 38** The Scan screen.

2. Click **New Scan** to start the Scan wizard.

## SCAN WIZARD — SCAN SOURCE

The Scan Source screen of the Scan wizard allows you to configure the scan name and scan source.



**Figure 39** The Scan Source screen of the Scan wizard.

1. If desired, edit the **Project Name** for the scan.



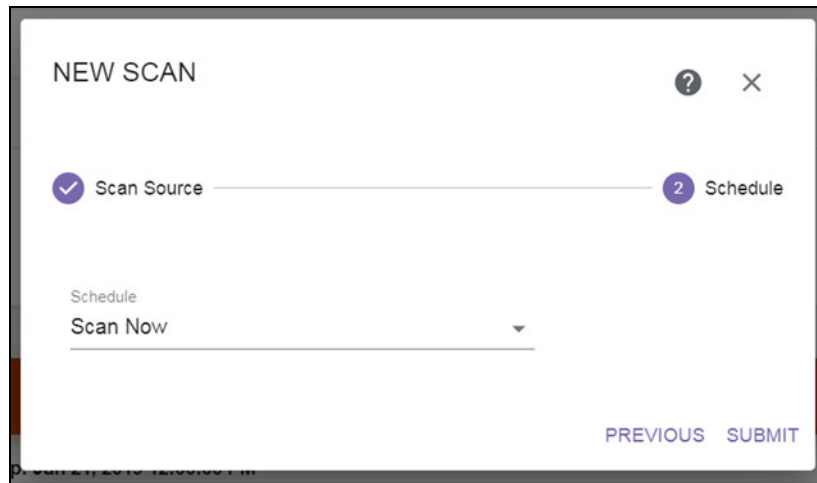
### Important

A project name must be unique across all scan, migrate / store, restore, and database backup projects. Names of deleted projects cannot be reused.

2. From the **Scan Source** drop-down, select a previously configured storage location to scan. See [Configure Storage on page 25](#) for instructions for configuring a storage location. Subdirectories on the Source display.
3. If desired, select a subdirectory on the source as the starting point for the scan.
4. Click **Next** to continue.

## SCAN WIZARD — SCHEDULE

The Schedule screen of the Scan wizard allows you to configure when to run the scan project.



**Figure 40** The Schedule screen of the Scan wizard.

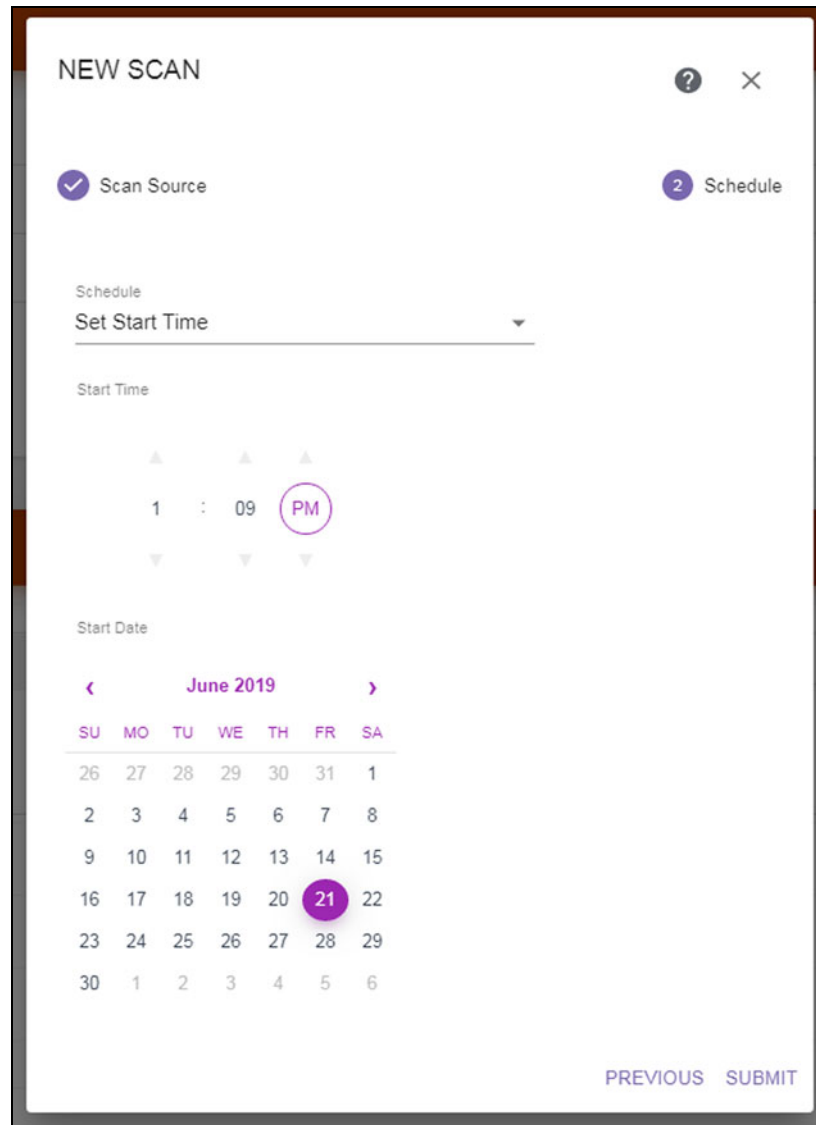
Select **Scan Now**, **Set Start Time**, or **Set Recurring Schedule** to set the run schedule.

### Scan Now

Click **Submit** to save the project. The scan runs immediately.

## Set Start Time

If you select **Set Start Time**, the dialog box updates to display the following fields:



The screenshot shows a 'NEW SCAN' dialog box with a progress indicator showing 'Scan Source' as step 1 (completed) and 'Schedule' as step 2 (active). Under the 'Schedule' section, the 'Set Start Time' option is selected. Below this, the 'Start Time' is set to 1:09 PM. The 'Start Date' is set to June 21, 2019, as indicated by the calendar view. The calendar shows the month of June 2019 with the 21st highlighted. At the bottom right, there are 'PREVIOUS' and 'SUBMIT' buttons.

**Figure 41** Setting a start time.

1. Use the up and down arrows to select the **Start Time** for executing the scan.
2. Using the calendar, select the **Start Date** on which to execute the scan.
3. Click **Submit** to save the project. The job runs as scheduled.



## Set Recurring Schedule

If you select **Set Recurring Schedule**, the dialog box updates to display the following fields:

The screenshot shows a 'NEW SCAN' dialog box with the following fields and options:

- Scan Source**: (checked)
- Schedule**: Set Recurring Schedule (dropdown)
- Period**: Monthly (dropdown)
- Interval**: 1
- Start Time**: 1 : 09 PM
- Start Date**: June 21, 2019

At the bottom of the dialog, there are 'PREVIOUS' and 'SUBMIT' buttons.

**Figure 42** Setting a recurring schedule.

1. Select on what **Period** (weekly, monthly) to execute tasks associated with this project.
  - If you selected **Weekly**, select the day(s) of the week on which to execute the scan.
  - If you selected **Monthly**, select the day(s) of the month on which to execute the scan. If you select a date past the last day of the month, the last day of the month is used.
2. Specify the **Interval**, of weeks or months, before the next execution of a scan. For example, if this value is set to 1, the action occurs every week or month, if the value is set to 2 the action occurs every other week or month, etc.
3. Use the up and down arrows to select the **Start Time** for executing the scan.
4. Using the calendar, select the **Start Date**, this is the first possible date on which to execute a scan. If the date selected does not match the selected day of the week or day of the month, the scan will execute on the next selected day of the week or day of the month.
5. Click **Submit** to save the project. The job runs as scheduled.

# CHAPTER 7

## Configure Optional Settings

This section provides instructions for configuring optional settings.

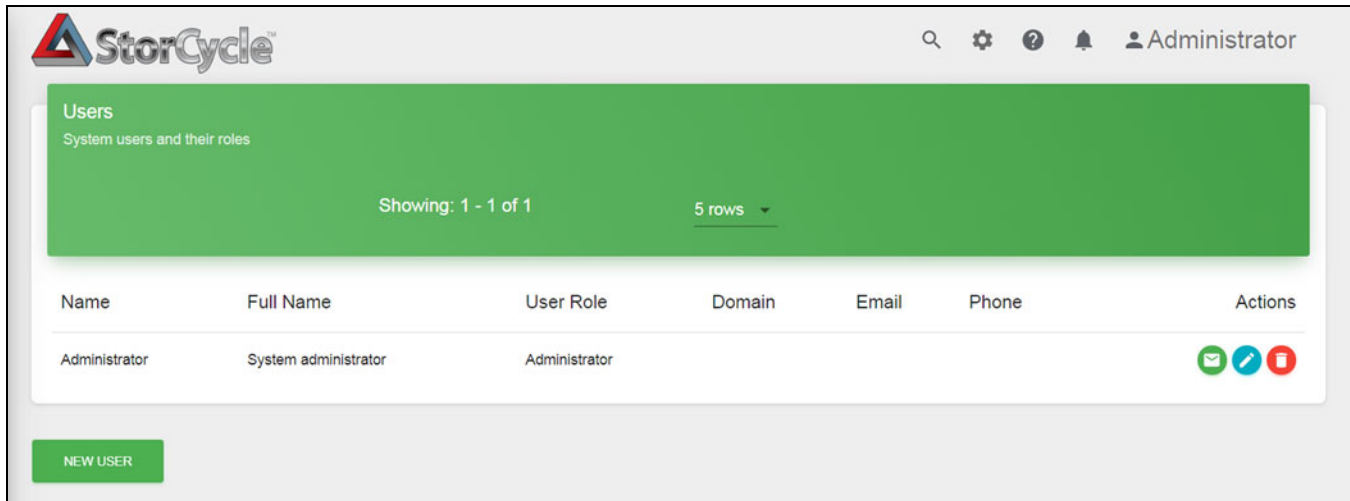
<b>Task</b>	
Configure Users	page 77
Configure Departments	page 79
Replace Licenses or the SSL Certificate	page 81
Install or Replace License Keys	page 82
Replace the SSL Certificate	page 83
Configure SMTP	page 83
Configure Active Directory	page 87
Configure Database Backup	page 88
Schedule New Database Backup – Database Backup Project Name	page 90
Schedule New Database Backup – Schedule	page 91
Restoring the Database from a Backup	page 95
Configure Global Settings	page 96

# CONFIGURE USERS

Configure users to manage access to the server.

Use the instructions below to configure a new user.

1. Click the Settings icon and then select **Users**. The Users screen displays showing all users currently configured in the software.



**Figure 43** The Users screen.

2. Click **New User**. The New User dialog box displays.

The 'New User' dialog box contains the following fields and options:

- Username (with a help icon)
- Full Name
- Domain (with a help icon)
- Email (with a help icon)
- Phone
- Password (with a help icon)
- Confirm Password
- User Role: Storage Manager (dropdown menu with a help icon)
- Receive Notifications (with a help icon):
  - Info
  - Warning
  - Error
- CREATE button

**Figure 44** The New User dialog box.

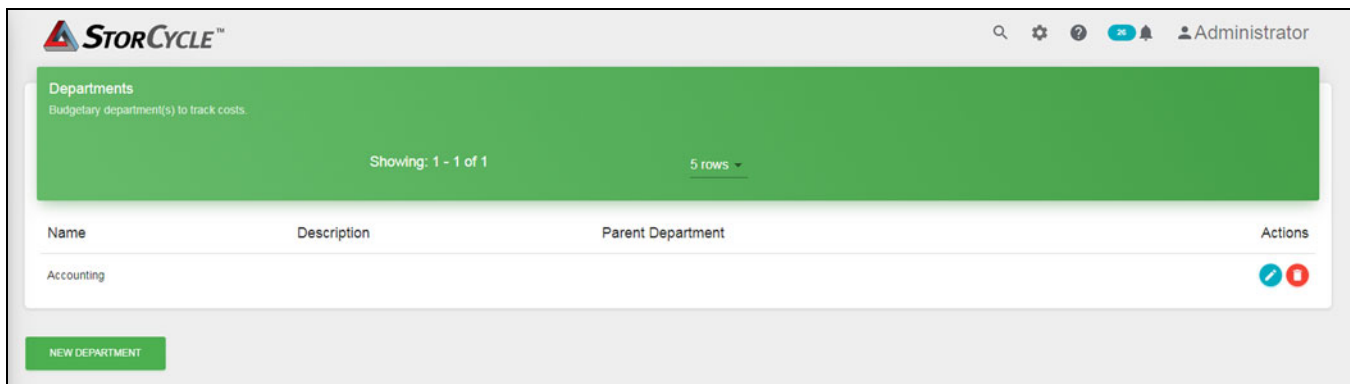
3. Enter the **Username** for the user. If using Active Directory, the username must be an Active Directory user name.
4. Enter the users **Full Name**.
5. If using Active Directory, enter the **Domain** for the user.
6. If desired, enter an email address for the user. An email address is required if you want the server to send email notifications to this user. This is automatically populated if the user is an Active Directory user.
7. If desired, enter a contact **Phone** number for the user.
8. If you are not using Active Directory, enter a **Password** and confirm the password. Active Directory users must use their domain credentials. Spectra Logic recommends that the password be at least 8 characters long and contain an upper case letter, a number, and a special character (! @ # \$ - = etc.).
9. Enter the role for the user:
  - **Administrator** — Has all privileges.
  - **Storage Manager** (default) — Can migrate / store and restore only.
10. Select the types of notification to send to the user. The SMTP settings must be configured in order to send emails. See [Configure SMTP on page 83](#).
  - **Info** — Activities that generate system messages occurred.
  - **Warning** — The software detected conditions that may affect operation. Determine the cause of the problem and remedy it as soon as possible.
  - **Error** — An error occurred that impacts the operation of the software. Determine the cause of the error and remedy it as soon as possible.
11. Click **Submit** to save the user configuration.
12. If necessary, repeat [Step 2 on page 77](#) through [Step 11](#) to add additional users.

# CONFIGURE DEPARTMENTS

Configure departments to manage user access and cost accounting.

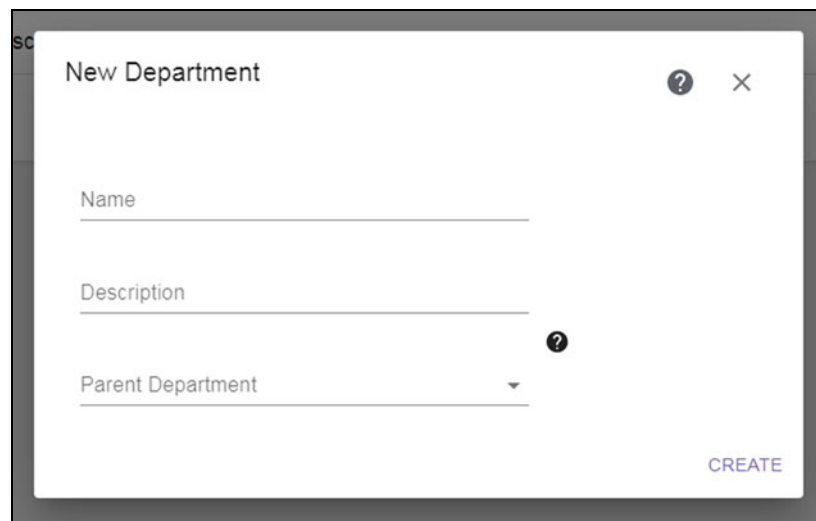
Use the instructions below to configure a new department.

1. Click the Settings icon and then select **Departments**. The Departments screen displays showing all departments currently configured in the software.



**Figure 45** The Departments screen.

2. Click **New Department**. The New Department dialog box displays.



**Figure 46** The New Department dialog box.

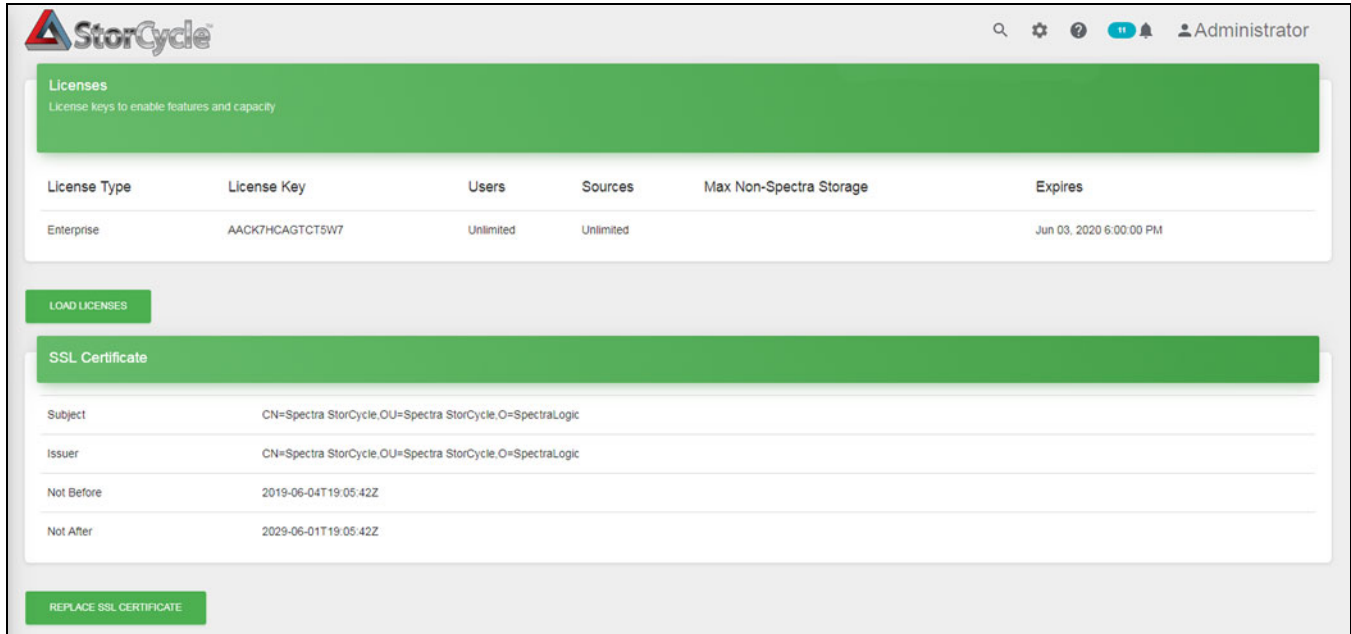
3. Enter a unique **Name** for the department.

**Note:** If Active Directory is in use, and the department name is an Active Directory group, all members of the Active Directory group are made members of the department, even if they have not been configured as a StorCycle user. All department members not configured as StorCycle users are given "Storage Manager" permissions. See [Configure Users on page 77](#) for details.

4. If desired, enter a **Description** for the department.
5. If applicable, use the drop-down list to select the **Parent Department** to which this department belongs.
6. Click **Submit** to save the department configuration.
7. If necessary, repeat [Step 2 on page 79](#) through [Step 6](#) to add additional departments.

## REPLACE LICENSES OR THE SSL CERTIFICATE

To view the currently installed licenses or SSL certificate, or access the screens to replace them, click the Settings icon and then select **Licenses and SSL Certificate**. The Licenses and SSL Certificate screen displays showing all licenses and the SSL certificate currently installed in the software.



The screenshot shows the StorCycle web interface. At the top left is the StorCycle logo. At the top right are search, settings, help, notification, and user icons, with the user name 'Administrator'.

The main content area is divided into two sections:

- Licenses:** A green header bar with the text 'License keys to enable features and capacity'. Below it is a table with the following data:
 

License Type	License Key	Users	Sources	Max Non-Spectra Storage	Expires
Enterprise	AACK7HCAGTCT5W7	Unlimited	Unlimited		Jun 03, 2020 6:00:00 PM
- SSL Certificate:** A green header bar. Below it are four rows of certificate details:
 

Subject	CN=Spectra StorCycle,OU=Spectra StorCycle,O=SpectraLogic
Issuer	CN=Spectra StorCycle,OU=Spectra StorCycle,O=SpectraLogic
Not Before	2019-06-04T19:05:42Z
Not After	2029-06-01T19:05:42Z

At the bottom of the Licenses section is a green button labeled 'LOAD LICENSES'. At the bottom of the SSL Certificate section is a green button labeled 'REPLACE SSL CERTIFICATE'.

**Figure 47** The Licenses and SSL Certificate screen.

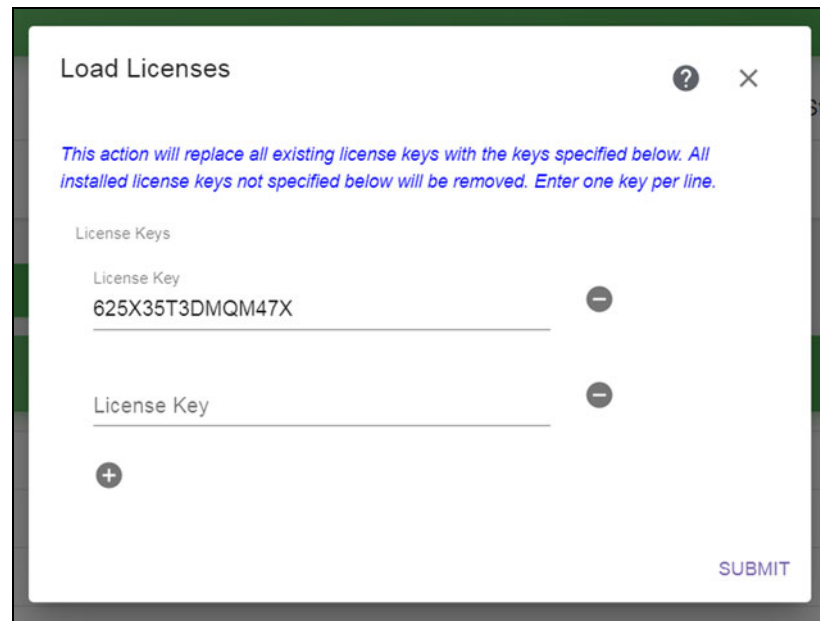


## Install or Replace License Keys

License keys enable features and capacity within the Spectra StorCycle solution.

Use the following instructions to install the initial License keys or replace the License keys currently configured in the StorCycle solution.

1. Click **Load Licenses**. The Load Licenses dialog box displays.



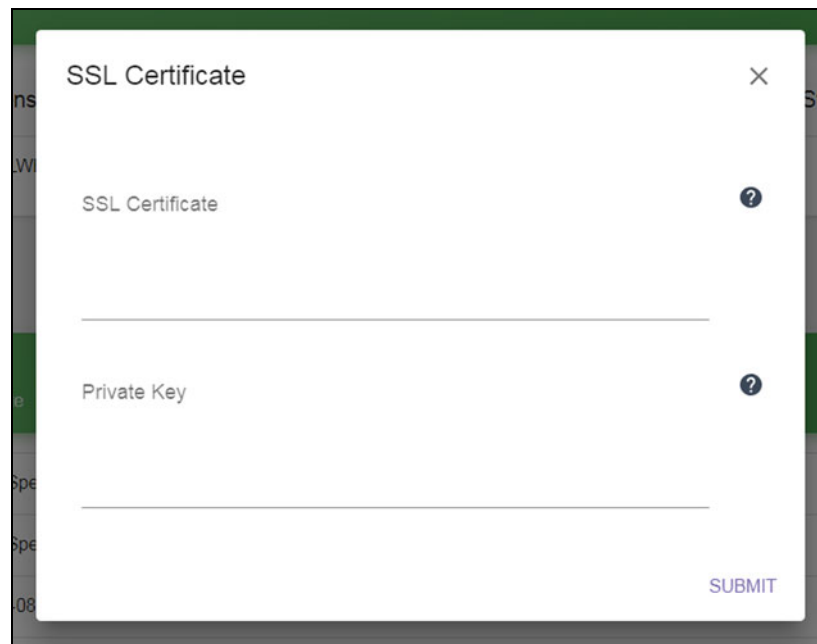
**Figure 48** The Load Licenses dialog box.

2. Click the minus (-) sign next to any license that you want to remove.
3. Click the plus (+) sign to add a new line for entering a license. Enter all license keys, exactly as provided, one per line.
4. Click **Submit** to save the license keys. The Licenses and SSL Certificate screen displays with the newly entered keys listed.

## Replace the SSL Certificate

Use the instructions below to replace the SSL certificate.

1. Click **Replace SSL Certificate**. The SSL Certificate dialog box displays.



**Figure 49** The SSL Certificate dialog box.

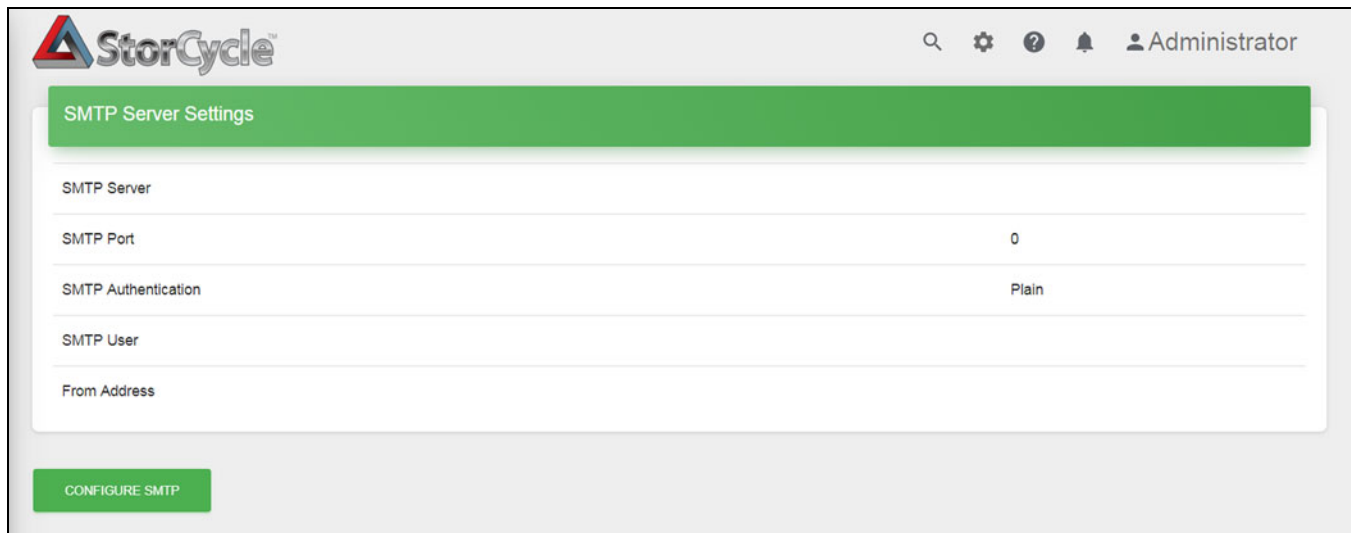
2. Copy and paste the SSL certificate for the server, in PEM format.
3. Enter the Private Key that signed the SSL certificate, in PEM format.
4. Click **Submit** to replace the SSL certificate. The Licenses and SSL Certificate screen displays with information about the newly configured SSL certificate.

## CONFIGURE SMTP

If desired configure SMTP to associate the Spectra StorCycle solution with an email server to send messages.

Use the instructions below to configure SMTP.

1. Click the Settings icon and then select **SMTP**. The SMTP screen displays showing the current SMTP settings.



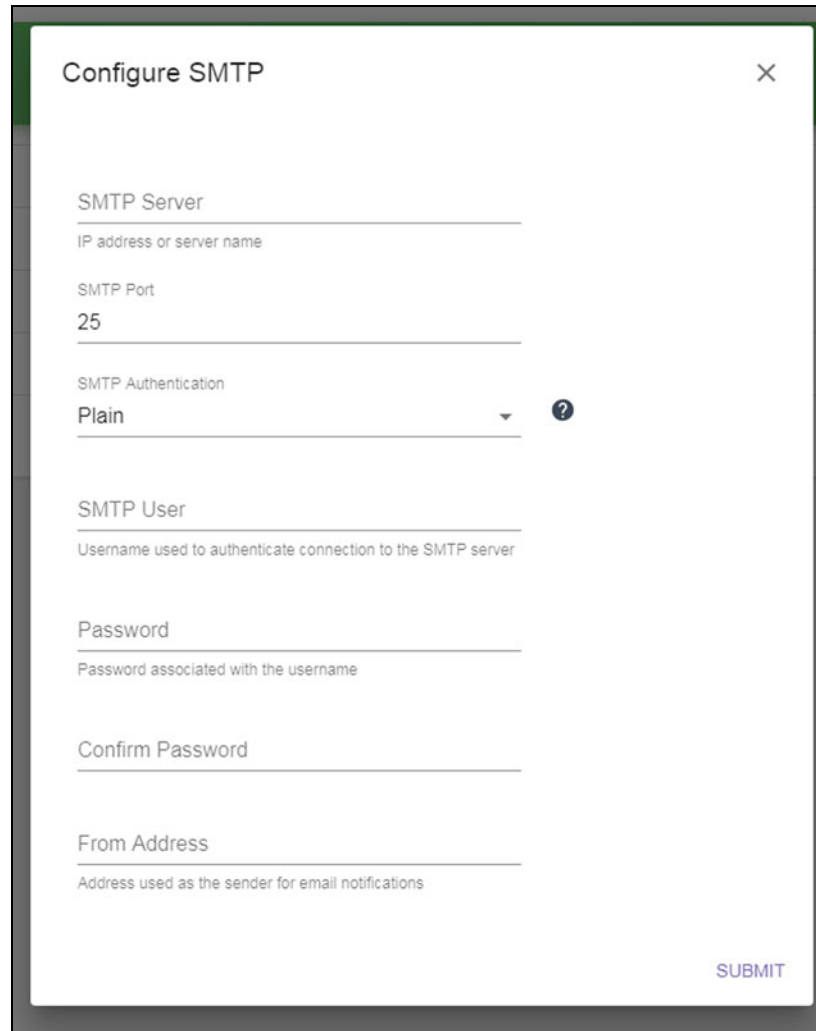
The screenshot shows the StorCycle web interface. At the top left is the StorCycle logo. At the top right are navigation icons (search, settings, help, notifications) and the user name 'Administrator'. Below the header is a green bar with the text 'SMTP Server Settings'. Underneath is a form with the following fields:

SMTP Server	
SMTP Port	0
SMTP Authentication	Plain
SMTP User	
From Address	

At the bottom left of the form area is a green button labeled 'CONFIGURE SMTP'.

**Figure 50** The SMTP screen.

2. Click **Configure SMTP**. The Configure SMTP dialog box displays.



**Figure 51** The Configure SMTP dialog box.

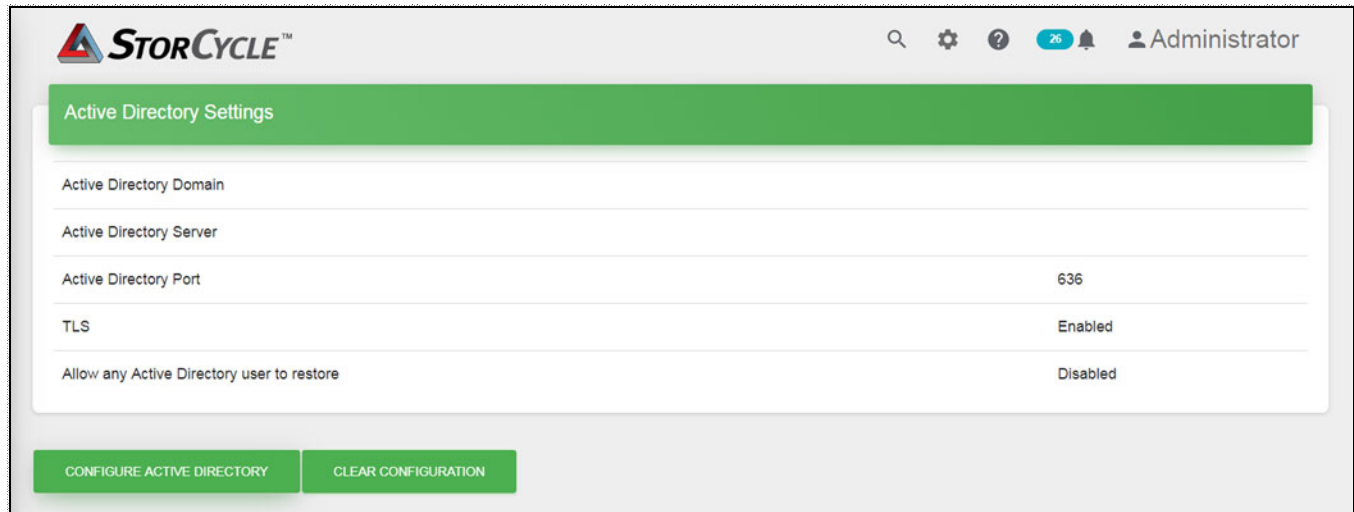
3. Enter the IP address or the server name for the **SMTP Server**.
4. Enter the **SMTP Port** to use to connect to the SMTP server.
5. Select **Plain**, **Login**, or **CramMD5** for the **SMTP Authentication** type. *// descriptions accurate? useful?//*
  - **Plain** — After the client has sent the AUTH PLAIN command to the server, the server responds with a 334 reply code. Then the username and password are sent from the client to the server. The username and password are combined into one string and BASE64 encoded.
  - **Login** — After that the AUTH LOGIN command has been sent to the server, the server asks for the username and password by sending BASE64 encoded text (questions) to the client. The client sends the username and the password also using BASE64 encoding.

- **CramMD5** — After that the AUTH CRAM-MD5 command has been sent to the server, the servers sends back an one-time BASE64 encoded "challenge" to the client. The client responds by sending a BASE64 encoded string to the server that contains a username and a 16-byte digest in hexadecimal notation.  
The digest in the reply string is the output of an HMAC (Hash-based Message Authentication Code) calculation with the password as the secret key and the SMTP server's original challenge as the message. The SMTP server also calculates its own digest with its notion of the user's password, and if the client's digest and the server's digest match then authentication was successful and a 235 reply code is sent to the client.
6. In the **SMTP User** field, enter the username used to authenticate connection to the SMTP server.
  7. Enter the **Password** associated with the **SMTP User** and confirm the password.
  8. In the **From Address** field, enter the email address used as the sender for email notifications.
  9. Click **Submit** to save the SMTP configuration.

# CONFIGURE ACTIVE DIRECTORY

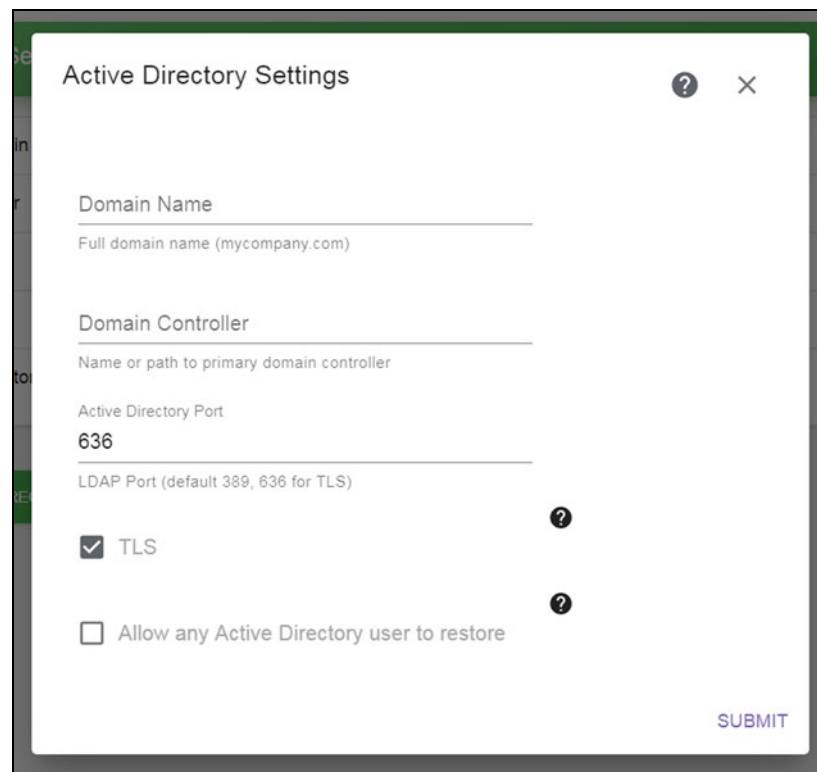
If desired, use the instructions below to configure Active Directory.

1. Click the Settings icon and then select **Active Directory**. The Active Directory screen displays showing the current Active Directory settings.



**Figure 52** The Active Directory Settings screen.

2. Click **Configure Active Directory**. The Active Directory Settings dialog box displays.



**Figure 53** The Active Directory Settings dialog box.

3. Enter the Active Directory **Domain Name**.
4. Enter the IP address or hostname for the **Domain Controller**.
5. Enter the LDAP **Port** to connect to on the Active Directory logon server.
6. Select or clear the **TLS** check box to indicate whether you want the software to use Secure SSL/TLS to connect to the server.
7. Select or clear **Allow any Active Directory user to restore**. If selected, any Active Directory user on the domain can restore files even if they are not configured as a StorCycle user. These users are considered 'anonymous' users and can only restore files using an HTML link.
8. Click **Submit** to save the Active Directory settings.

## CONFIGURE DATABASE BACKUP

Spectra Logic recommends that you configure a database backup with a daily recurring schedule, making two copies of the data which are stored in geographic locations separate from the StorCycle server. If something happens to the StorCycle database and you do not have a backup, you will lose information about what files have been migrated and where they are located.

Use the instructions below to configure a database backup.

1. Click the Settings icon and then select **Database Backup**. The Database Backup screen displays showing current Database Backup Schedules and database backup jobs.

**Database Backup Schedules**  
Schedules to back up all configuration and application databases

Name	Enabled	Targets	Schedule	Actions
DatabaseBackup	true	DestinationStorage	Next Run: Jun 22, 2019 12:00:00 PM	

**Database Backup Jobs**

Last Database Backup: Jun 21, 2019 12:00:06 PM

Previous Page 1 of 1 5 rows Next

Job Name ▲ ▼	Start Time ▲ ▼	Complete Time ▲ ▼	Job State ▲ ▼
DatabaseBackup-1	06/21/2019 11:59:59 AM	06/21/2019 12:00:06 PM	Completed Total Bytes: 0 Bytes

**Figure 54** The Database Backup screen.

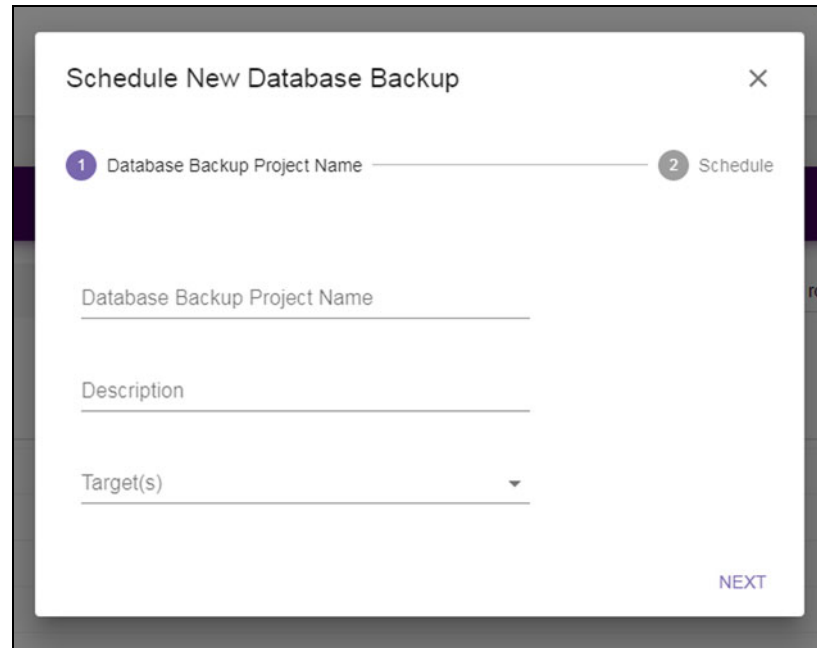
2. Click **Schedule New Database Backup**.



## Schedule New Database Backup — Database Backup Project Name

**Important** Spectra Logic recommends that you schedule daily database backups.

The Schedule New Database Backup dialog box displays.



**Figure 55** The Schedule New Database Backup dialog box.

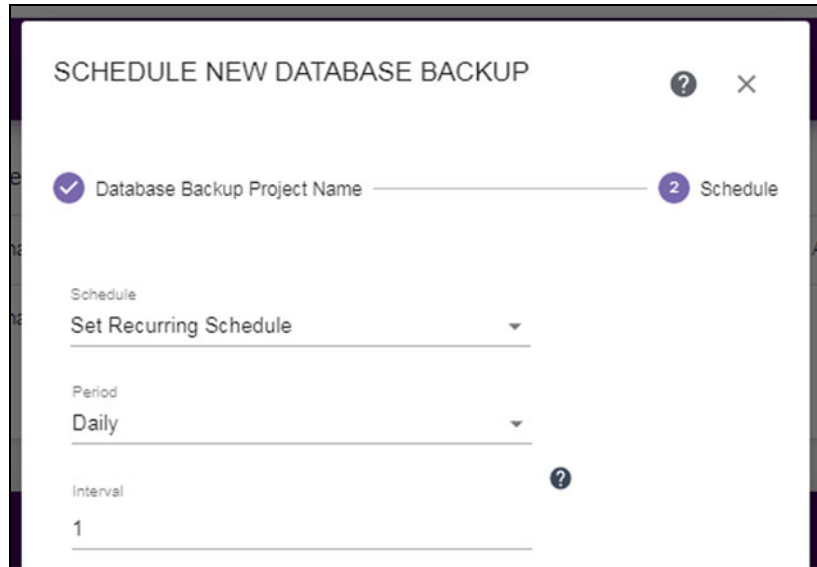
1. Enter a unique name in the **Database Backup Project Name** field.

**Important** A project name must be unique across all scan, migrate / store, restore, and database backup projects. Names of deleted projects cannot be reused.

2. If desired, enter a **Description** for the database backup project.
3. From the **Target(s)** drop-down, select one to three previously configured storage location. See [Configure Storage on page 25](#) for instructions for configuring a storage location.
4. Click **Next** to continue.

## Schedule New Database Backup—Schedule

The Schedule screen of the Database Backup wizard displays.

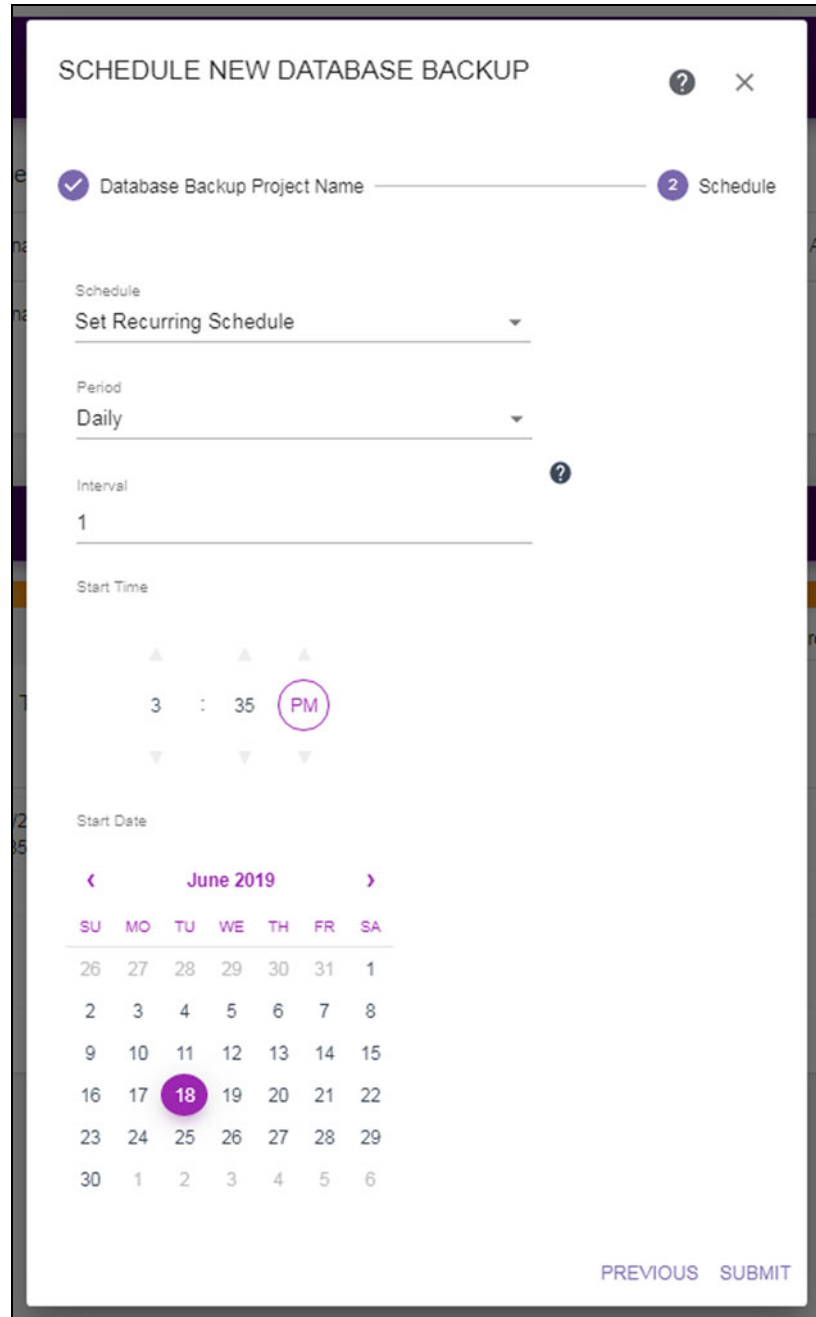


**Figure 56** The Schedule screen of the Database Backup wizard.

Select **Backup Now**, **Set Backup Time**, or **Set Recurring Schedule** to set the run schedule. The Default is **Set Recurring Schedule**. The dialog box updates to show the configuration fields required for that schedule type. Continue with the applicable section below:

## Set Recurring Schedule

If you select **Set Recurring Schedule**, the dialog box updates to display the following fields:



The screenshot shows a dialog box titled "SCHEDULE NEW DATABASE BACKUP" with a close button (X) and a help button (?). The "Database Backup Project Name" field is selected with a checkmark. The "Schedule" dropdown is set to "Set Recurring Schedule". The "Period" dropdown is set to "Daily". The "Interval" field is set to "1". The "Start Time" is set to "3 : 35 PM". The "Start Date" is set to "June 18, 2019". The calendar shows the month of June 2019, with the 18th highlighted. The "PREVIOUS" and "SUBMIT" buttons are at the bottom right.

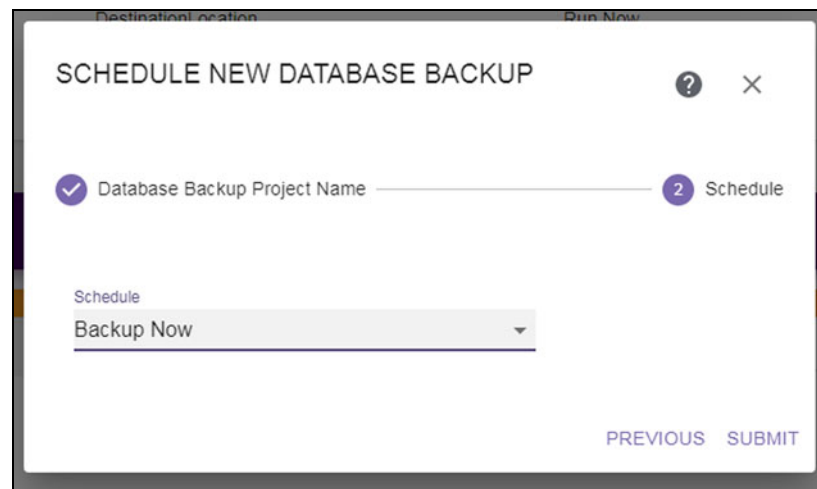
**Figure 57** Setting a recurring schedule.

1. Select on what **Period** (daily, weekly, monthly) to execute tasks associated with this project.
  - If you selected **Weekly**, select the day(s) of the week on which to execute the backup tasks.

- If you selected **Monthly**, select the day(s) of the month on which to execute the backup tasks. If you select a date past the last day of the month, the last day of the month is used.
2. Specify the interval, in days, weeks, or months, before the next execution of backup tasks. For example, if this value is set to 1, the action occurs every day, week, or month, if the value is set to 2 the action occurs every other day, week, or month, etc.
  3. Use the up and down arrows to select the **Start Time** for executing the backup project.
  4. Using the calendar, select the **Start Date**, this is the first possible date on which to execute the backup tasks. If the date selected does not match the selected day of the week or day of the month, the backup job will execute on the next selected day of the week or day of the month.
  5. Click **Submit** to save the backup project. The job will run as scheduled.

## Backup Now

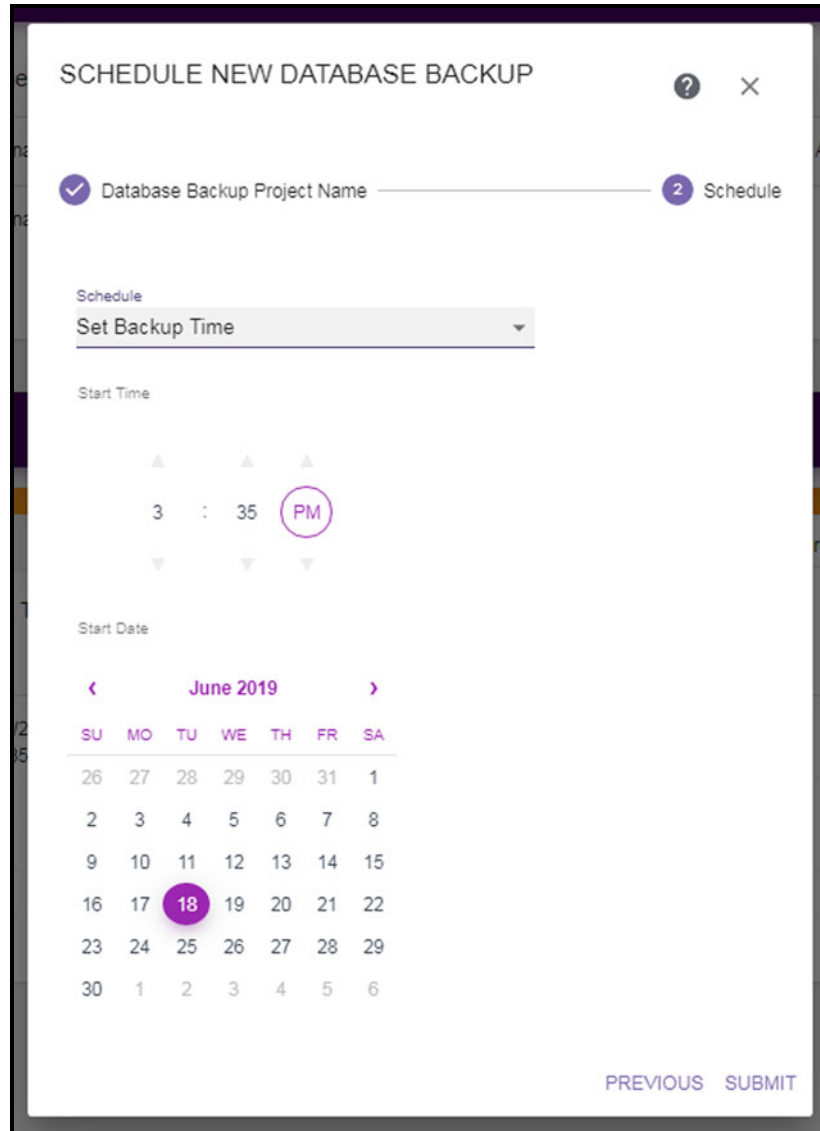
If you selected **Backup Now**, click **Submit**. The backup job runs immediately.



**Figure 58** Select Backup Now.

## Set Backup Time

If you select **Set Backup Time**, the dialog box updates to display the following fields:



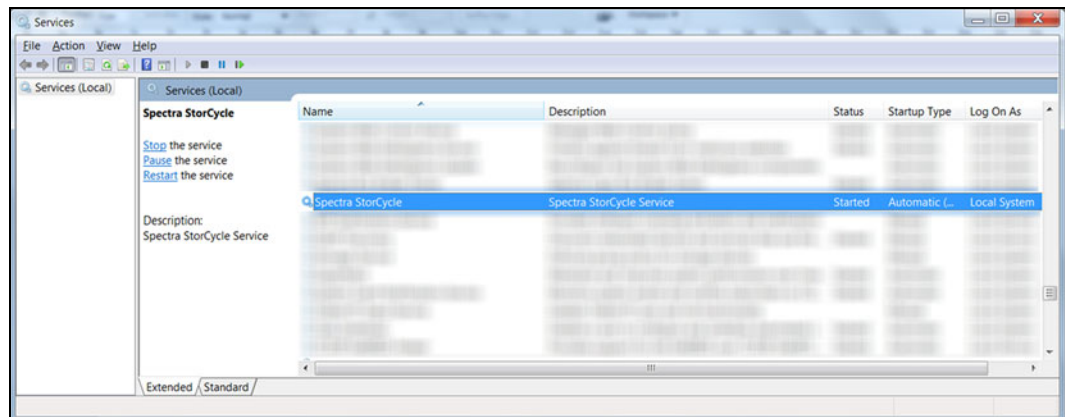
The screenshot shows a dialog box titled "SCHEDULE NEW DATABASE BACKUP". At the top, there are two tabs: "Database Backup Project Name" (selected) and "Schedule". Below the tabs, the "Schedule" dropdown menu is set to "Set Backup Time". Underneath, the "Start Time" is displayed as 3:35 PM, with up and down arrows for adjusting the time. Below that, the "Start Date" is shown as a calendar for June 2019, with the 18th selected. At the bottom right, there are two buttons: "PREVIOUS" and "SUBMIT".

**Figure 59** Setting a start time.

1. Use the up and down arrows to select the **Start Time** for executing the backup project.
2. Using the calendar, select the **Start Date** on which to execute the database backup.
3. Click **Submit** to save the backup project. The job will run as scheduled.

## RESTORING THE DATABASE FROM A BACKUP

1. Install StorCycle. See [Download and Install the Software](#) on page 21. Make note of the installation directory.
2. Stop the StorCycle service. Navigate to the Services screen. Select the StorCycle Service. Click **Stop** the service in the upper left corner of the screen.



**Figure 60** The Services screen.

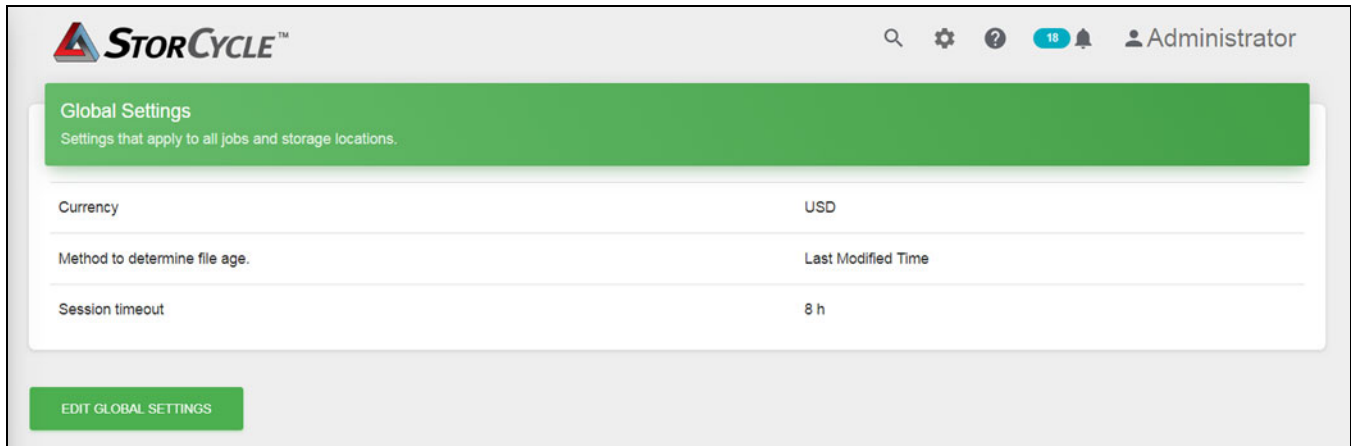
3. Find the database backup file. In your destination storage locations, look for backup files which are named neo-YYYY-mm-ddThh-mm-ssZ.zip. The file with the latest date code is the most recent backup.
4. Unzip the database backup file into the StorCycle install directory used in [Step 1](#).
5. Open a Command Prompt window and change directory to the StorCycle install directory.
6. Execute `restore/restore_mongodb.bat`.
7. Copy the file `config/sps.yml` to `InstallDrive:\ProgramData\Spectra Logic Corporation\Spectra StorCycle\config`.
 

**Note:** *InstallDrive* is the drive where the operating system is installed, most likely C:.
8. Return to the Services screen, select the StorCycle service, and click **Start** the service.

# CONFIGURE GLOBAL SETTINGS

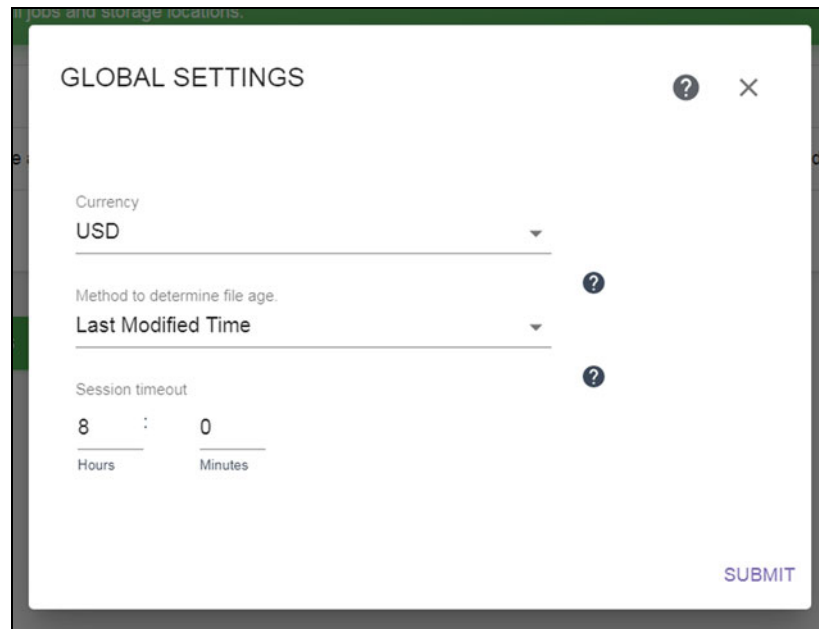
If desired use the instructions below to edit the Global Settings.

1. Click the Settings icon and then select **Global Settings**. The Global Settings screen displays showing the current global settings.



**Figure 61** The Global Settings screen.

2. Click **Edit Global Settings**. The Global Settings dialog box displays.



**Figure 62** The Global Settings dialog box.

3. Select the currency to use when tracking costs. The default is USD.
  - **AUD** — Australian dollar
  - **CAD** — Canadian dollar
  - **CHF** — Swiss franc
  - **EUR** — Euro
  - **GBP** — British pound sterling
  - **INR** — Indian rupee
  - **KRW** — South Korean won
  - **MXN** — Mexican peso
  - **NZD** — New Zealand dollar
  - **USD** — United States dollar
  - **YEN** — Japanese yen
4. Select the method to use to determine the file age:

**Note:** Changing this selection only affects future scans. You should rescan storage locations after making the change to update values in the database.

  - **Last Access Time** — The date and time the file was last read or written. This is the default and recommended method to use to prevent moving files that are being used.
  - **Creation Time** — The date and time the file was initially created.
  - **Last Modified Time** — The date and time the file was last written.
5. In the **Session Timeout** field, use the arrows to enter how long the current login to the Spectra StorCycle user interface can remain active.
6. Click **Submit** to save the Global Settings.



# CHAPTER 8

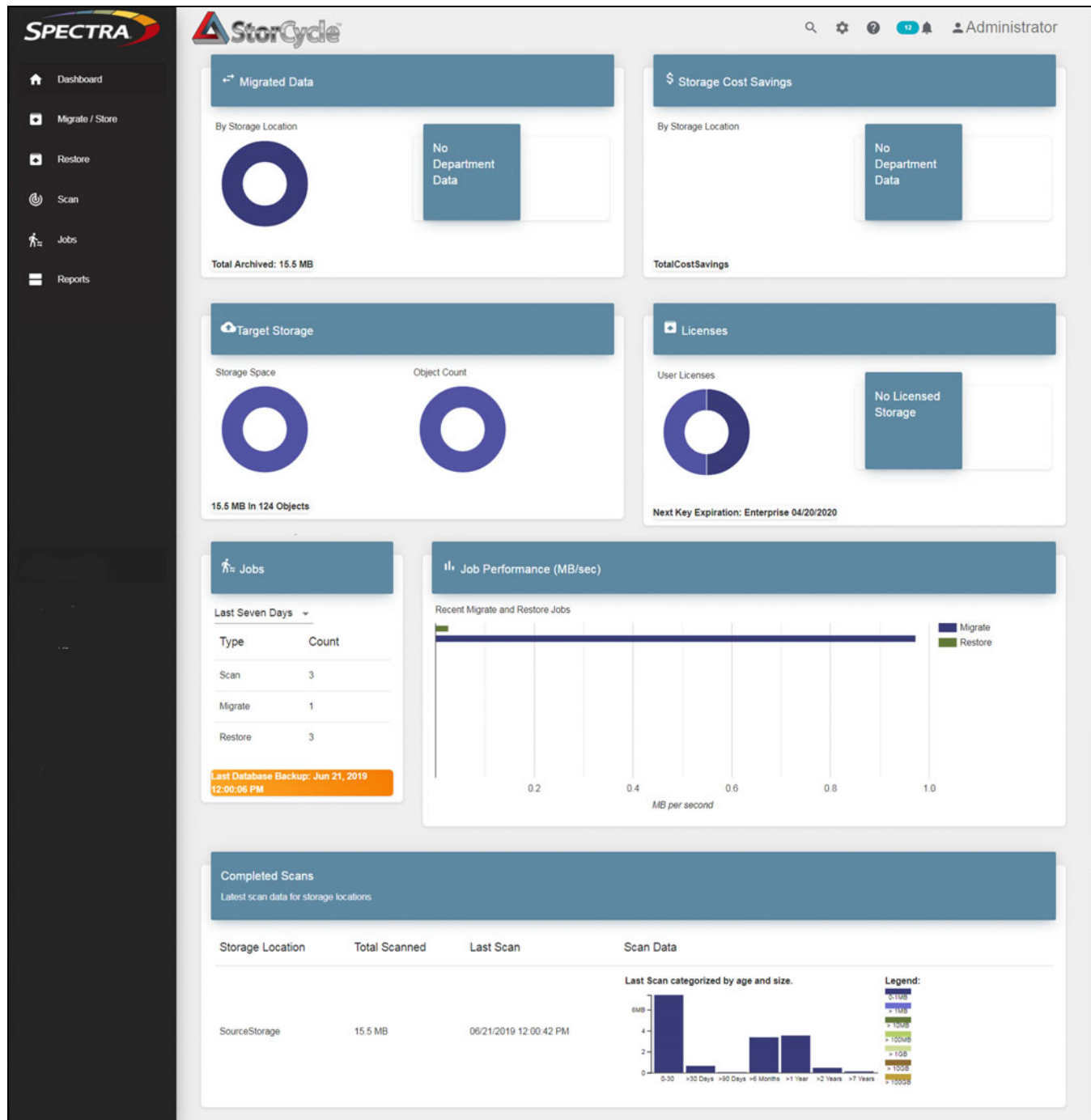
## Monitoring the Spectra StorCycle Solution

This section provides instructions for monitoring the Spectra StorCycle solution.

<b>Task</b>	
Dashboard	page 99
System Messages	page 102
View Message Details	page 103
Mark Messages as Read	page 103
Logs	page 104
Download a Log Set	page 104
Create a Log Set	page 105
Delete Logs	page 105
Reports	page 108
Settings and Configuration Reports	page 109
Jobs and Status Reports	page 113
Catalog Reports	page 117

# DASHBOARD

View the Dashboard by clicking Dashboard in the taskbar.



**Figure 63** The Dashboard. *//need better//*

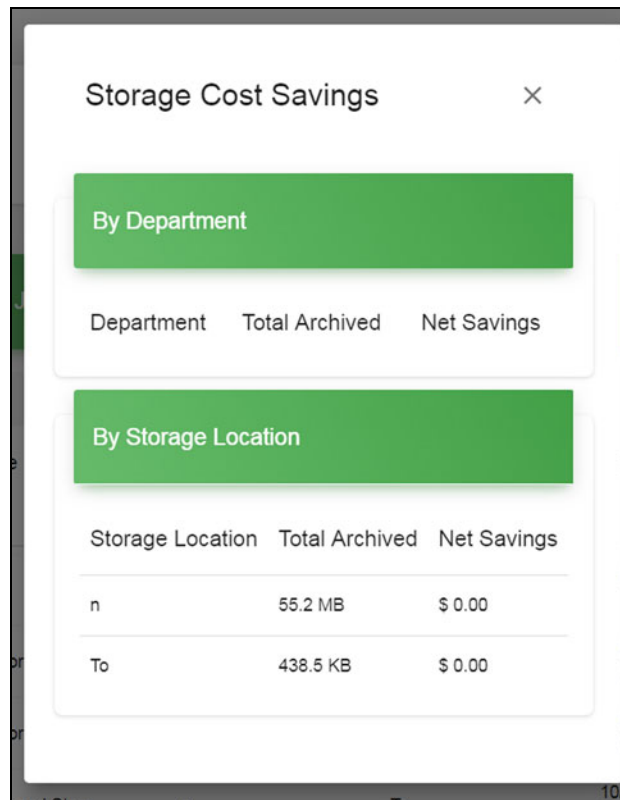
*//This section is still under construction.//*

The upper left pane displays the used space in all storage locations. Click the Information icon to see the breakdown of the age and size of the files in each storage location based on the last scan. This information is also displayed at the bottom of the dashboard.



**Figure 64** The Storage Usage pop-up. //NEED/

The upper right pane displays the money saved by transferring data from high cost primary storage to lower cost secondary storage. If Cost/TB is not entered for storage locations (see [Configure Storage on page 25](#)), this section displays zero cost savings. Click the Information icon to see the cost savings per storage location.



**Figure 65** The Storage Cost Savings pop-up.   
/need//

The center of the dashboard provides information about finished scan, migrate / store, and restore jobs.

The bottom of the dashboard displays graphs showing the breakdown of the age and size of the files in each storage location based on the last scan.

## SYSTEM MESSAGES

System messages provide important information about the Spectra StorCycle solution operation. Reviewing the messages is the first step in troubleshooting.

To have messages sent by email to users, see [Configure Users on page 77](#).

To view messages, click the Message icon (a bell) in the toolbar.

Severity	Message	Created	Category	Read	Detail
i	Scan Job Scan_201906211156-1 Started	06/21/2019 11:56:43 AM	Started	No	
i	Scan Job Scan_201906211156-1 Completed	06/21/2019 11:56:44 AM	Completed	No	
i	Scan Job Scan_201906211157-1 Started	06/21/2019 11:57:30 AM	Started	No	
i	Scan Job Scan_201906211157-1 Completed	06/21/2019 11:57:30 AM	Completed	No	

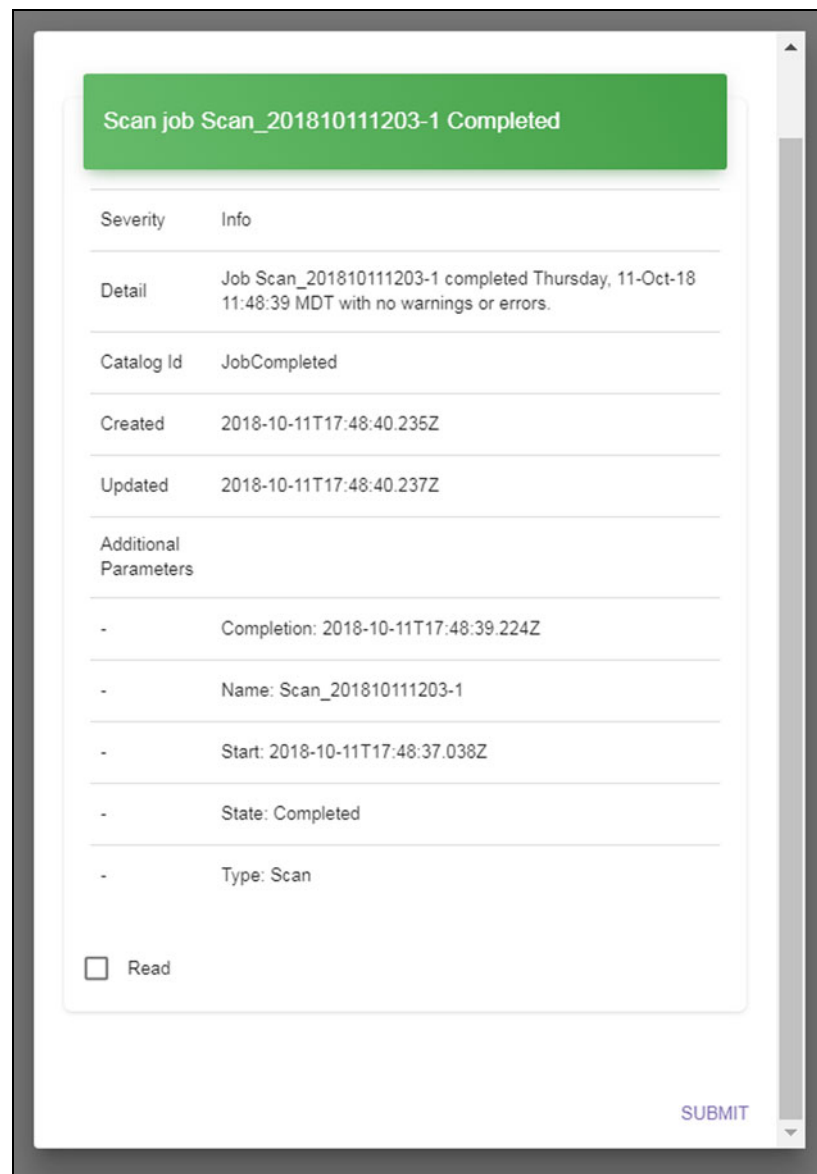
**Figure 66** The Messages screen.

The messages are categorized as:

- **Info** - An event such as a job starting or completing occurred.
- **Warning** - The program detected conditions that may affect operation. Determine the cause of the problem and remedy it as soon as possible.
- **Error** - An error occurred that impacts the operation of the program. Determine the cause of the error and remedy it as soon as possible.

## View Message Details

To see more detail about a message, click the icon to the right of the message. The Message Details screen displays.



**Figure 67** The Message Details dialog box.

## Mark Messages as Read

To mark an individual message as read, select the **Read** check box at the bottom of the Message Details screen and click **Submit**.

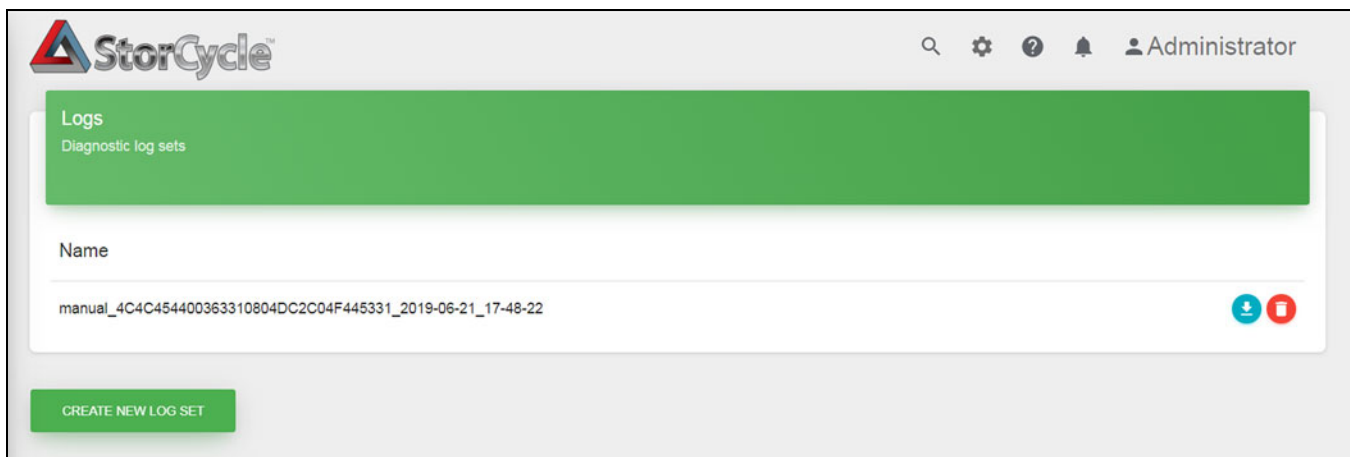
To mark all messages as read, click **Mark All As Read** on the Messages screen.

## LOGS

The Spectra StorCycle solution automatically writes event information into three different log files for troubleshooting purposes. When one of the log files reaches 10 MB in size, the log file text is written to a timestamped file and the existing log file is cleared. Up to ten, 10 MB files of each type are stored on the server. 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.

Click the Settings icon and then select **Logs**. The Logs screen displays showing the currently saved log sets.



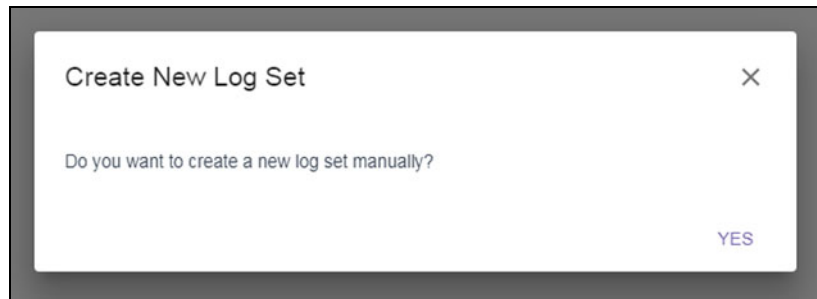
**Figure 68** The Logs screen.

### Download a Log Set

Click the download icon next to the log set that you want to download. The log set begins downloading to your host computer.

## Create a Log Set

1. Click **Create New Log Set**. The Create New Log Set dialog box displays.



**Figure 69** The Create New Log Set dialog box.

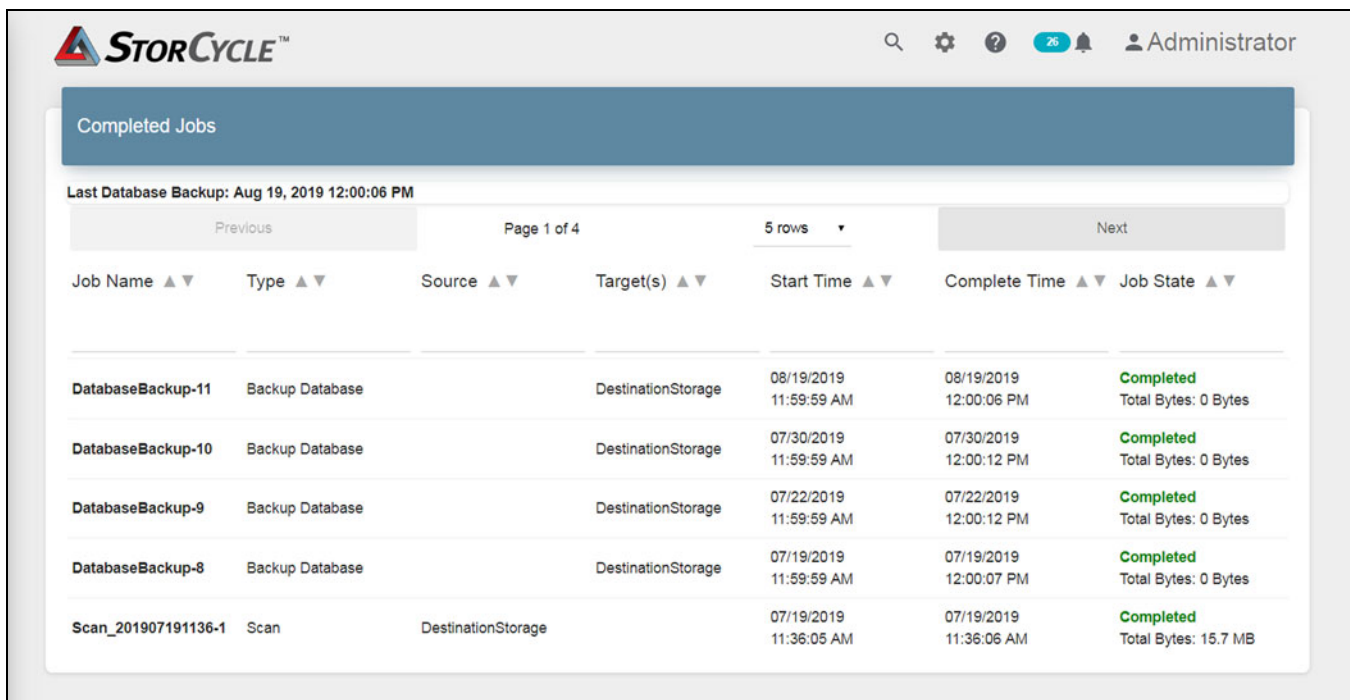
2. Click **Yes**. A new log set is collected immediately.

## Delete Logs

To delete a log set, click the Delete icon (red circle with a trash can) next to the log set that you want to delete.

## JOBS

Select **Jobs** to display the Completed Jobs screen.



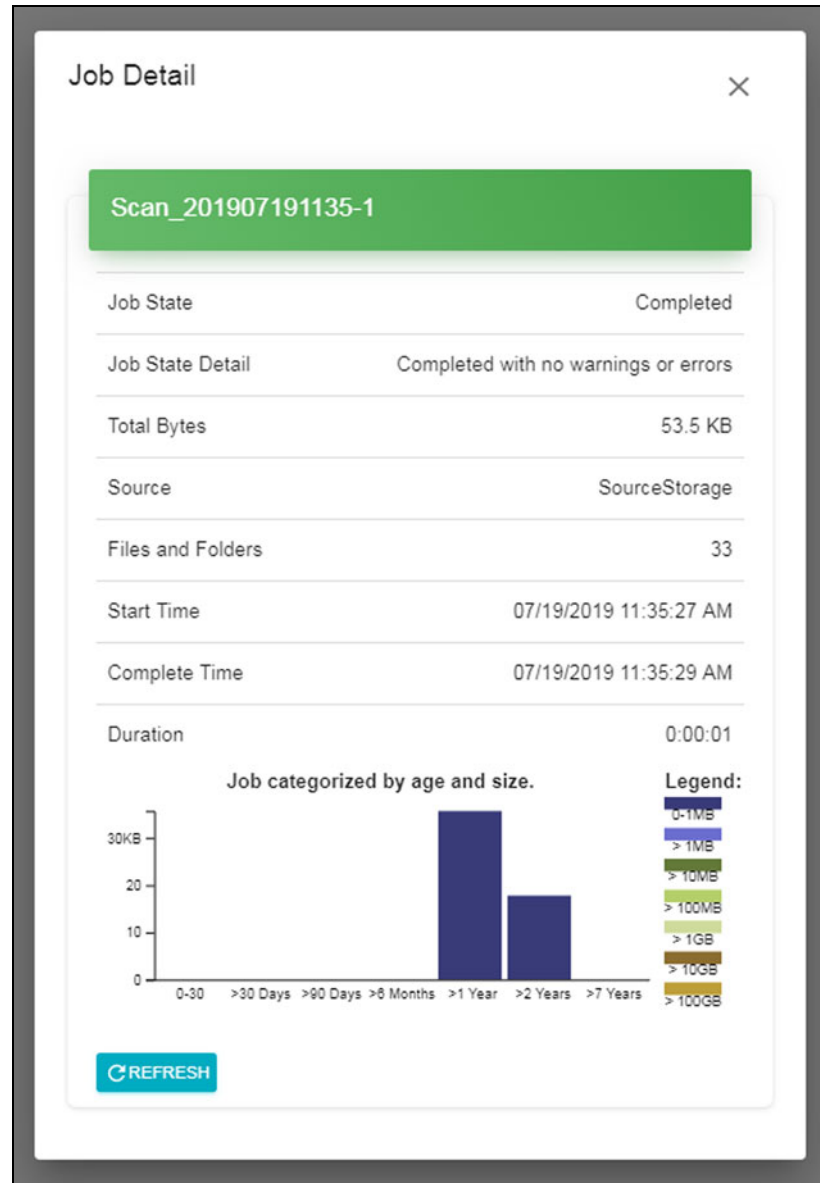
**Figure 70** The Completed Jobs screen.



The dashboard displays the following information:

Heading	Description
<b>Job Name</b>	The name of the job. The name uses the Project name defined when configuring the project and a number indicating how many times the project was run.
<b>Type</b>	The type of job that was run. Values include Backup Database, Scan, Migrate / Store, and Restore.
<b>Source</b>	The storage location used as the source for the job.
<b>Target(s)</b>	The storage location(s) used as the target(s) for the job.
<b>Start Time</b>	The date and time the job started.
<b>Complete Time</b>	The date and time the job completed.
<b>Job State</b>	The status of the job. Values include Completed, Failed, <b>Canceled</b> , <b>??</b> .

Click the Job Name or the Job Status to display the Job Details dialog box.



**Figure 71** The Job Detail dialog box for a scan job.

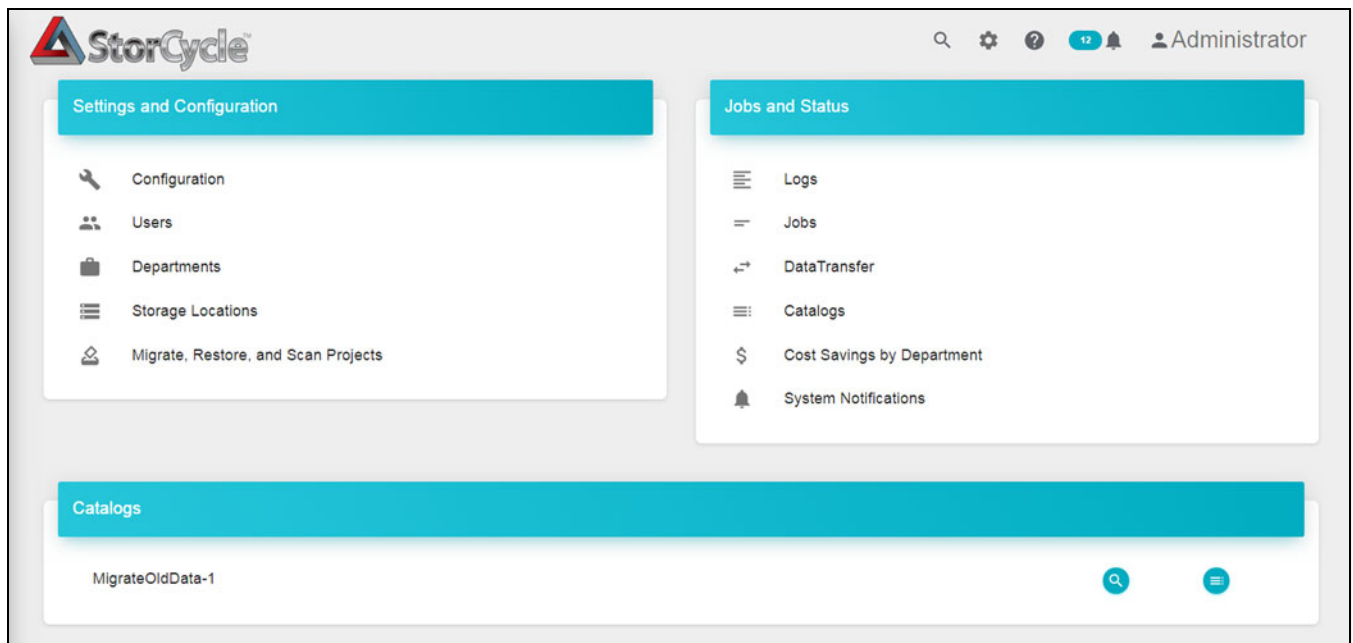
The information presented in the Job Detail dialog box varies depending on the job type, and can include the following.

Heading	Description
<b>Job State</b>	The status of the job. Values include Completed, Failed, Canceled, ??.
<b>Job State Detail</b>	Whether a job completed with warnings, errors, or neither.
<b>Total Bytes</b>	The number of bytes of data that were processed.
<b>Source</b>	The storage location used as the source for the job.
<b>Target(s)</b>	The storage location(s) used as the target(s) for the job.
<b>Files and Folders</b>	The number of files and folders that were processed.

Heading	Description
<b>Start Time</b>	The date and time the job started.
<b>Complete Time</b>	The date and time the job completed.
<b>Duration</b>	How long the job took to complete in the format <i>hh:mm:ss</i> , where <i>hh</i> is the number of hours, <i>mm</i> is the number of minutes, and <i>ss</i> is the number of seconds.
<b>Catalog</b>	The name of the catalog containing the information about the migrated / stored data.

## REPORTS

This section is under construction.



**Figure 72** The Reports screen.

# Settings and Configuration Reports

## Configuration

REPORTS X

Configuration

ABOUT

-- Project Name	Spectra StorCycle
-- Major Version	2
-- Minor Version	0
-- Patch Level	0
-- Commit Hash	4a5f19f557137c4e5bc65d9b9e5e37d432b2aa8
-- Build Date	2019-06-19T16:43:18Z
-- Build Number	26

ACTIVEDIRECTORY

-- Domain	
-- Logon Server	
-- TLS	true
-- Port	636
-- Allow Anyone to Restore	

SMTP

-- Server	
-- Port	
-- Authentication	Plain
-- User Name	
-- From Address	

SERVER

-- Currency	USD
-- Mount Scan Interval	4h0m0s
-- Scan File Age Criterion	ModifiedTime
-- Session Timeout	8h0m0s
-- BlackPearl Time to Delay Before Remove	72h0m0s
-- Physical Placement Polling Interval	1m0s

KEY\_625X35T3DMQM47X

-- Key	625X35T3DMQM47X
-- Description	Neo Enterprise
-- Expires	2020-04-21T00:00:00Z
-- Source Shares	Unlimited
-- Users	Unlimited

SSLCERTIFICATE

-- Subject	CN=Spectra StorCycle,OU=Spectra StorCycle,O=SpectraLogic
-- Issuer	CN=Spectra StorCycle,OU=Spectra StorCycle,O=SpectraLogic
-- Not Before	2019-06-21T17:19:58Z
-- Not After	2029-06-18T17:19:58Z

REFRESH
SAVE AS CSV
SAVE AS JSON

**Figure 73**

## Users

REPORTS ×

Users

Name	Full Name	Role
Administrator	System administrator	Administrator
MickeyMouse	Mikey Mouse	StorageManager
DonaldDuck	Donald Duck	Administrator

↻ REFRESH
☰ SAVE AS CSV
↔ SAVE AS JSON

**Figure 74**

## Departments

REPORTS ×

Departments

Name	ID	Description	Track Costs
MagicKingdon	7YJHR45QBCE46QHPYRM6JT0JE8		true

↻ REFRESH
☰ SAVE AS CSV
↔ SAVE AS JSON

**Figure 75**

## Storage Locations

REPORTS ×

Storage Locations

Name	Description	Type	Path	Bytes Available	Bytes Used	Cost per TB	Last Scan	BlackPearl Data Port	Bucket
SourceStorage		NAS	\\localhost\c\$\StorCycleSource	0	0	--	2019-06-21T18:00:42.772Z	--	
DestinationStorage		NAS	\\localhost\c\$\StorCycleDestination	0	0	--	--	--	

↻ REFRESH
☰ SAVE AS CSV
↔ SAVE AS JSON

**Figure 76**

## Migrate, Restore, and Scan Projects

REPORTS ×

Migrate, Restore, and Scan Projects

Project	Description	Type	Source	Targets	Schedule	Last Run	Next Run	Excl Direc
DatabaseBackup		Backup Database		DestinationStorage	Daily	2019-06-25T18:00:09.563Z	2019-06-26T18:00:00Z	
Scan_201906211156	Scan share: SourceStorage	Scan	SourceStorage		Now	2019-06-21T17:56:43.342Z		
Scan_201906211157	Scan share: SourceStorage	Scan	SourceStorage		Now	2019-06-21T17:57:30.234Z		
Scan_201906211200	Scan share: SourceStorage	Scan	SourceStorage		Now	2019-06-21T18:00:42.49Z		
MigrateOldData		Store	SourceStorage	DestinationStorage	Now	2019-06-21T18:44:02.387Z		
Restore_201906211424	Restore from manifest	Restore HTML Links	DestinationStorage		Now	2019-06-21T20:24:47.516Z		
Restore_201906211425	Restore from manifest	Restore HTML Links	DestinationStorage		Now	2019-06-21T20:26:37.752Z		

◀  ▶

REFRESH
SAVE AS CSV
SAVE AS JSON

**Figure 77**

# Jobs and Status Reports

## Logs

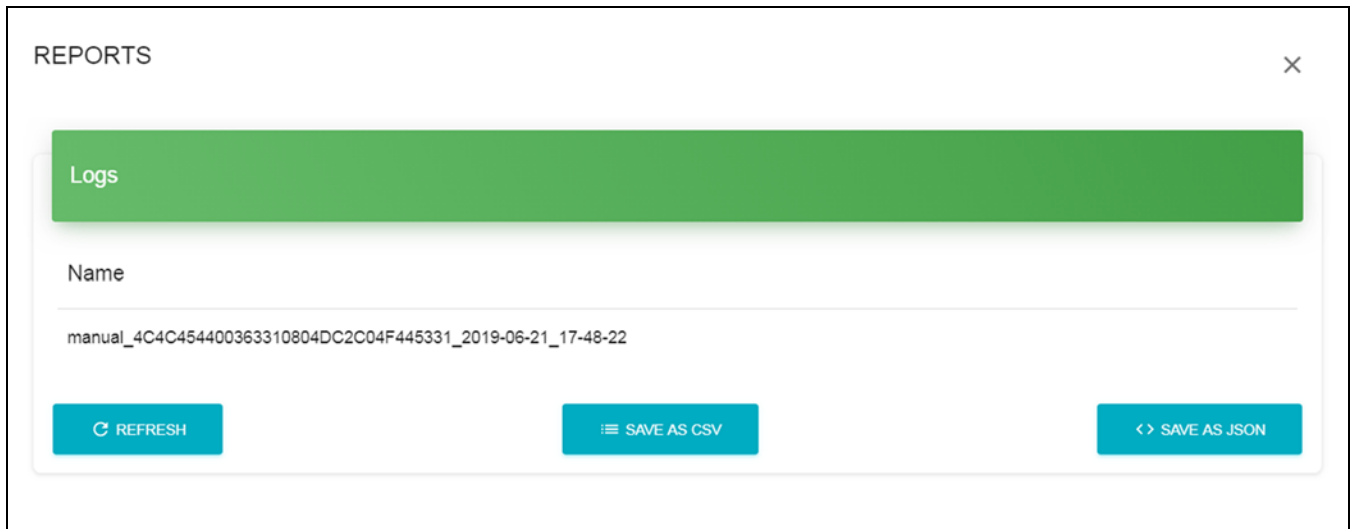


Figure 78



## Jobs

REPORTS ×

Jobs

Name	Total Files	Total Bytes	Status	Start Time	CompletionTime
DatabaseBackup-2	0	0	Completed	2019-06-25T17:59:59.779Z	2019-06-25T18:00:09.563Z
Restore_201906211425-1	1	0	Completed	2019-06-21T20:26:37.755Z	2019-06-21T20:26:37.79Z
Restore_201906211424-1	2	0	Completed	2019-06-21T20:24:47.547Z	2019-06-21T20:24:47.968Z
Restore_MigrateOldData-1_201906211336-1	1	6610	Completed	2019-06-21T19:41:52.189Z	2019-06-21T19:41:52.432Z
MigrateOldData-1	124	16287061	Completed	2019-06-21T18:44:04.659Z	2019-06-21T18:44:20.64Z
Scan_201906211200-1	122	16287061	Completed	2019-06-21T18:00:42.489Z	2019-06-21T18:00:42.798Z
DatabaseBackup-1	0	0	Completed	2019-06-21T17:59:59.983Z	2019-06-21T18:00:06.132Z
Scan_201906211157-1	23	21552	Completed	2019-06-21T17:57:30.233Z	2019-06-21T17:57:30.804Z
Scan_201906211156-1	23	21552	Completed	2019-06-21T17:56:43.255Z	2019-06-21T17:56:44.371Z

REFRESH
SAVE AS CSV
SAVE AS JSON

**Figure 79**

## Data Transfer

REPORTS ×

DataTransfer

Name	Type	Source	Department	Targets	Total Files	Total Bytes	Status	Start Time	Comple
Restore_MigrateOldData-1_201906211336-1	Restore	SourceStorage		--	1	6610	Completed	2019-06-21T19:41:52.189Z	2019-06-21T19:41:52.189Z
MigrateOldData-1	Store	SourceStorage		DestinationStorage	124	16287061	Completed	2019-06-21T18:44:04.659Z	2019-06-21T18:44:04.659Z

◀ | ▶

REFRESH
SAVE AS CSV
SAVE AS JSON

Figure 80

## Catalogs

REPORTS ×

Catalogs

Name	Description	Type	Created By	Created Time
MigrateOldData-1		Archive		2019-06-21T18:44:04.47Z

REFRESH
SAVE AS CSV
SAVE AS JSON

Figure 81

## Cost Savings by Department

REPORTS ×

Cost Savings by Department

Department	Total Archived	Objects Archived	Net Savings (\$)
MagicKingdon	0 Bytes	0	0.00

↻ REFRESH
☰ SAVE AS CSV
↔ SAVE AS JSON

Figure 82

## System Messages

REPORTS ×

System Notifications

Severity	Message	Category	Detail	Read	Created	Updated
Info	Scan Job Scan_201906211156-1 Started	Started	Job Scan_201906211156-1 started Friday, 21-Jun-19 11:56:43 MDT	No	2019-06-21T17:56:43.673Z	2019-06-21T17:56:43.781Z
Info	Scan Job Scan_201906211156-1 Completed	Completed	Job Scan_201906211156-1 Completed Friday, 21-Jun-19 11:56:44 MDT with no warnings or errors. 23 files completed, totalling 21 KiB.	No	2019-06-21T17:56:44.408Z	2019-06-21T17:56:44.607Z
Info	Scan Job Scan_201906211157-1 Started	Started	Job Scan_201906211157-1 started Friday, 21-Jun-19 11:57:30 MDT	No	2019-06-21T17:57:30.235Z	2019-06-21T17:57:30.236Z
Info	Scan Job Scan_201906211157-1 Completed	Completed	Job Scan_201906211157-1 Completed Friday, 21-Jun-19 11:57:30 MDT with no warnings or errors. 23 files completed, totalling 21 KiB.	No	2019-06-21T17:57:30.805Z	2019-06-21T17:57:30.806Z
Info	Database Backup Job DatabaseBackup-2 Started	Started	Job DatabaseBackup-2 started Tuesday, 25-Jun-19 11:59:59 MDT	No	2019-06-25T18:00:00.39Z	2019-06-25T18:00:00.456Z

↻ REFRESH
☰ SAVE AS CSV
↔ SAVE AS JSON

Figure 83

# Catalog Reports

## Catalog Detail

REPORTS ×

Catalog Detail

Name	MigrateOldData-1
Description	
Created Time	2019-06-21T18:44:04.47Z
Updated Time	2019-06-21T18:44:04.471Z
Type	Archive
Created By	
Project	MigrateOldData

↻ REFRESH ≡ SAVE AS CSV <> SAVE AS JSON

**Figure 84**

## Catalog File Listing

REPORTS ×

Catalog File Listing

Name	Path
StorCycleSource	\\localhost\$\StorCycleSource
UnderstandingSpectraS3_review.pdf__94928fc7ccf2564fa5c2a14dbe3cbaa4	\\localhost\$\StorCycleSource\UnderstandingSpectraS3_review.pdf__94928fc7ccf2564fa5c2a14dbe3cbaa4
Verde-FirmwareHistory_review.pdf__69897d003de8864496a5f5ded5f5deeb3	\\localhost\$\StorCycleSource\Verde-FirmwareHistory_review.pdf__69897d003de8864496a5f5ded5f5deeb3
BlackPearl-FirmwareHistory-Kelly_review.pdf__59b214a5ec83bc40b1f360e372e7c37c	\\localhost\$\StorCycleSource\BlackPearl-FirmwareHistory-Kelly_review.pdf__59b214a5ec83bc40b1f360e372e7c37c
MultiExporterChanges_review.pdf__35ab81f93f09924c8c448489d2fe3d87	\\localhost\$\StorCycleSource\MultiExporterChanges_review.pdf__35ab81f93f09924c8c448489d2fe3d87
90990123_A_BlackPearl-Troubleshooting_review.pdf__69eff40ab116704f812bf3edc143aebc	\\localhost\$\StorCycleSource\90990123_A_BlackPearl-Troubleshooting_review.pdf__69eff40ab116704f812bf3edc143aebc
NewStorageLocation-SpectraNAS.png	\\localhost\$\StorCycleSource\June2019\NewStorageLocation-SpectraNAS.png
NewStorageLocation.png	\\localhost\$\StorCycleSource\June2019\NewStorageLocation.png
NewStorageLocationDetails.png	\\localhost\$\StorCycleSource\June2019\NewStorageLocationDetails.png
SMTPDashboard.png	\\localhost\$\StorCycleSource\June2019\SMTPDashboard.png
Storage Dashboard.png	\\localhost\$\StorCycleSource\June2019\Storage Dashboard.png
Thumbs.db	\\localhost\$\StorCycleSource\June2019\Thumbs.db
UsersDashboard.png	\\localhost\$\StorCycleSource\June2019\UsersDashboard.png

REFRESH
SAVE AS CSV
SAVE AS JSON

**Figure 85**

# CHAPTER 9

## Troubleshooting

This section provides troubleshooting information.

Task	

This is a list of topics to make sure to include in the Troubleshooting chapter.

- For active Migrate / Store jobs that are canceled, StorCycle will leave the migrate / store job in whatever completion state it was in when the job cancellation command was received. No rollback will occur.
- Migrate / Restore jobs allow for up to 10,000 files to fail transferring without the job failing. After 10,000 failed files, the entire remaining job fails.
- When database backup to two targets fails for one target, but succeeds for the other, job is marked as failed - no indication of success to one target
- Program data is kept when you uninstall the program.
- Daylights savings time is not handled by the product as everything in the server is in UTC. So a scheduled job runs an hour earlier or later in local time than the original scheduled time depending on the time of year.

- The user running the StorCycle service must be able to reach and have permission to access all of the storage locations in the StorCycle environment. Include how to change the authenticated user of the StorCycle service in a Windows server 2016 environment.
- The StorCycle permissions must allow read-write access to all of the hosts, else the product will not be able to migrate or restore files.
- Network bandwidth to targets and how this affects performance.
- How to look at logs?
- Regenerating HTML links

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