Using SwiftStack Storage as a Long Term Archive for Rubrik
# Introduction

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Introduction

Enterprises are shedding complex, legacy multi-tiered solutions for simplified data management purpose-built for cloud. Reduce the complexity by 70%+ with a converged software platform that is radically simple to use.

Rubrik Cloud Data Management delivers data protection, search, analytics, compliance, and copy data management for hybrid cloud enterprises. With Rubrik, enterprises leveraging SwiftStack can deliver near-zero recovery time objectives (RTOs), achieve up to 50% in immediate hard savings, and unleash unprecedented simplicity from deployment to daily management.

Together, Rubrik and SwiftStack unlock cost-effective and scalable data archival across hybrid cloud environments. Long-term data retention is automated by simply moving a slider in the same policy engine as your backup and replication schedules. Archived files are instantly accessible, even in the cloud. Time and costs are saved with automated policies versus offloading data to tape. World-class security is attained, with data being sent to the cloud using military-standard encryption in-flight and at-rest.

In this example, Rubrik stores a copy of the data on-premises in the near term and in SwiftStack for for the long term. SwiftStack policies replicate the data offsite to protect against a major disaster like fire, flood, theft, etc. This end-to-end solution is completely driven by policies, so once it is configured, it operates in a fully automated fashion.

This solution replaces the need to ship tapes or other portable storage solutions offsite for disaster recovery purposes. Instead, it leverages your other data centers or remote locations for additional protection. If you do not have another usable location, SwiftStack can replicate the data to a bucket in Amazon Web Services or Google Cloud Platform. Unlike traditional storage solutions, getting your data to another region with SwiftStack is as simple as configuring a policy. SwiftStack’s clusters present a single namespace across multiple regions, so Rubrik will always see SwiftStack as a single storage target no matter if the data is physically local, in a remote region, or even the public cloud.
In Rubrik, an archival policy defines how long to retain data within the local cluster before moving the data to an archival location for long term storage. An archival policy is optional for different data sources being protected—allowing for some data to be archived and some not.

When available, the Rubrik cluster uses an encrypted connection to transfer data to an archival location. The Rubrik cluster deduplicates, compresses, and, when supported by the archival location, encrypts all data that is stored at the archival location. The Rubrik cluster also stores all necessary metadata on the archival location.
Solution Architecture

This how-to guide walks through the steps necessary to connect Rubrik to a SwiftStack cluster so it can use it as a long-term archive. It assumes Rubrik already has access to the data sources that need to be protected and that SwiftStack is already configured/deployed.

Example Design

This is an example design to help you visualize how Rubrik + SwiftStack can handle your entire backup and recovery workflow.

Details of this example include the following:

- All data is initially backed up to storage in each Rubrik appliance and is kept there for a defined amount of time. A common time frame would be 30 days, which would service most restore operations.
- Immediately, the data would also be written to SwiftStack so the data can be protected offsite, where SwiftStack automatically replicates the data to another geographic region.
- Data is retained on SwiftStack as long as required by your business practices. Sometimes this is as little as 12 months or as long as many years.
- Since Rubrik manages where the data is located, when a restore needs to be performed, it will pull the data from its local storage or directly from SwiftStack.
- All data placement and retention times are automated and determined by policy.
- This example ensures you have at least 3 copies of your data protected across multiple physical locations.
Multi-Region Cluster

To achieve automatic offsite protection of the data Rubrik is managing, the SwiftStack cluster will be spread across two or more sites. Even if the cluster includes three or more sites, a storage policy can be configured to use two specific sites, onsite and offsite, which is ideal for this backup and recovery use case.

In this example, four 12 drive nodes are placed in each region. For this multi-region storage policy, when data is written in one region, it will immediately be replicated to the other region, with the write being acknowledged once it is stored in each region. To scale this example, simple add additional nodes (or drives if free bays exist) to each region.

Network Design

With SwiftStack being distributed, scale-out storage, the network design is critical for optimal operation and performance. SwiftStack is designed to use up to three different networks for different types of traffic:

- **Outward-facing Network** - This front-facing network is for API access from applications utilizing the storage, in this case, Rubrik.
- **Cluster-facing Network** - This internal network is for communication between nodes in the cluster. Traffic on this network is not encrypted, so this network must be otherwise secured (private).
- **Replication Network** - This optional internal network is used to separate the data replication traffic from the cluster-facing network. Replication traffic exists when data is redistributed throughout the cluster—such as when a drive failure occurs, capacity is added or removed, or when using write affinity in a multi-region cluster.

As an application utilizing SwiftStack storage, Rubrik will need to be connected to the same network as SwiftStack’s Outward-facing Network.

Minimum Supported Versions and Solution Limits

This solution requires these minimum versions of the product utilized:
How-To Guide: Long Term Archive for Rubrik

- Rubrik version 3.4.x or later
- SwiftStack version 6.5.x or later

As part of this solution development and testing, virtual machines up to 4TB in size were successfully backed up, archived, and restored.
Configuring SwiftStack

This how-to guide assumes that a SwiftStack cluster is fully configured, operational, and accessible from the network to which the Rubrik appliance is connected. For information about initial setup and other SwiftStack options not documented in this guide, please see https://www.swiftstack.com/docs/.

This guide will cover specific configuration changes that will need to be made before connecting Rubrik to SwiftStack storage.

Enable S3 API Support

Rubrik communicates with with SwiftStack using the S3 API. To enable S3 API support, if not already enabled, follow these steps:

Step 1: In the SwiftStack Controller, navigate to Manage > Middleware.

![Available SwiftStack Middleware](image)

Step 2: Click on S3 API Support in the list.

Step 3: Check the Enabled box and click Submit.
Step 4: Click **Deploy Config to Cluster** to apply the changes.

Create a User Account for Rubrik

It is recommended that you create a unique account for your Rubrik archives to logically isolate these data containers/buckets from containers/buckets used by other applications.

To create a new user:

Step 1: In the **SwiftStack Controller**, navigate to **Manage > Users & Accounts**.

Step 2: In the **Manage Swift Users** page, click **Create New User**.

Step 3: Enter a **username** and **password** for this new account.

Step 4: The new user will now be displayed under **Existing Users**. Click on **Deploy Changes**.

Step 5: Click **Deploy Config to Cluster** to apply the changes.

Gather Account Credentials

Now that an account has been created for Rubrik, you will enter information about it into the Rubrik user interface later in this guide. To gather this information:
Step 1: In the **SwiftStack Controller**, navigate to **Manage > Users & Accounts**.

![Manage Users and Accounts](image)

Step 2: Under **Existing Swift Users**, the user you just created will be listed along with its **S3Key**.

Step 3: The only additional piece of information Rubrik needs is the **Cluster API Hostname**, like `https://cloud.yourname.com`.

![Basic Cluster Info](image)

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<tr>
<th>Rubrik Needs</th>
<th>SwiftStack Equivalent</th>
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<tbody>
<tr>
<td>Access Key</td>
<td>User Name</td>
</tr>
<tr>
<td>Secret Key</td>
<td>S3Key</td>
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Setting the Default Storage Policy

Rubrik will automatically create the containers/buckets in SwiftStack that will hold the archive data. Rubrik does not specify the SwiftStack storage policy that should be used for these containers/buckets, so you will want to set the default storage policy to the one that is optimal for this use case.

Step 1: In the **SwiftStack Controller**, navigate to **Manage > Policies**.

![Manage Policies for Cluster Demo Cluster](image)

Step 2: Here you can create a new storage policy for this use case or use an existing storage policy. For the storage policy that Rubrik will use, click **Default** for that policy and then **Submit**.

Step 3: Click **Deploy Config to Cluster** to apply the changes.

For additional information about storage policies and instructions on how to create them, please refer to the [storage policies section of the SwiftStack documentation](#).
Configuring Rubrik

This how-to guide assumes that a Rubrik appliance is fully configured, operational, and can access the SwiftStack cluster from the network to which it is connected.

This guide will cover specific configuration changes that will need to be made before the integration of the Rubrik system with SwiftStack.

Increase Rubrik S3 Upload Segment Size

If you will be archiving large (over 1TB) virtual machines or data sources to SwiftStack, you will need to increase the “S3 upload segment size” from Rubrik to SwiftStack. This reduces the number of segments in a multi-part object upload, reducing the time it takes to finalize the object when finished.

This is currently not an end user configurable parameter and needs to be adjusted by the Rubrik support team. Please open a ticket with Rubrik support to increase the “S3 upload segment size” from 500MB to 1GB.

Add an Archive Location

Rubrik first protects the source data locally and then copies it to an archive location, in this case SwiftStack.

Step 1: In the Rubrik user interface, click the + icon in the upper right and then Archive Locations in the menu.

Step 2: Click the + icon to add an archive location.
Step 3: For Type, select **Object Store**.

Step 4: For **Object Storage Vendor**, select **S3 Compatible**.

Step 5: Enter the account credentials you gathered from SwiftStack in the previous section into the **Access Key**, **Secret Key**, and **Host Name** fields.

Step 6: Enter a prefix that you would like to see as part of the bucket name into the **Bucket Prefix** field. Each container/bucket that Rubrik creates in SwiftStack will have this prefix so that they are easy to identify and manage. Note that the prefix name cannot contain capital letters, but numbers are allowed.

Step 7: Enter the **Number of Buckets** you would like Rubrik to use on SwiftStack. SwiftStack has a conservative soft limit of 10 million objects per container/bucket, so using multiple buckets will reduce the number of objects in each of them. When determining this number, keep in mind that Rubrik stores all data for a source (VM, database, etc.) in a single bucket, so if you only have 5 VMs to protect, there's no reason to set this number larger than 5. When needing to protect many sources, you can calculate the number of objects Rubrik will store on SwiftStack using this equation:

\[
(Number \ of \ sources \times \ number \ of \ recovery \ points \times \ 10 \ objects) / 10M = \text{number of buckets needed}
\]

Note: The number of buckets used for an archive location can be changed at a later date and SwiftStack seamlessly scales to store and serve more data.
Step 8: Give this location an **Archive Location Name**.

Step 9: If encrypting the data on this archive location, enter the **RSA Key** to be used.

Step 10: Click **Add** to create this new archive location.

You will now see an archive location in Rubrik.

Creating a new SLA Domain with Archiving

SLA domains in Rubrik determine how the data for a specific source, or set of sources, should be handled.

To create a new SLA domain that utilizes SwiftStack as an archive location:

Step 1: In the left navigation, click **SLA Domains** and then **Local Domains**.
Step 2: Click the + icon in the upper right to create a new SLA Domain.

Step 3: Enter an **SLA Domain Name**.

Step 4: Enter **Service Level Agreement** details to determine frequency that snapshots will be taken and the timeframe for which they need to be retained.

Step 5: Scroll down and check **Enable Archiving**.
Step 6: Check **Enable Instant Archive** if you would like the data to be immediately copied to SwiftStack. This setting is optimal when using a multi-region SwiftStack cluster to automatically replicate the data offsite to protect against a major disaster.

Step 7: Adjust the slider to set the timeframe that the data should be kept in the local Rubrik cluster.

Step 8: Click **Create SLA Domain** or **Update SLA Domain**.

This new SLA Domain can now be assigned to the sources that need to be protected.
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Manage Protection

Assign an SLA Domain to the selected objects.

- Search SLA domains
- Bronze
- Gold
- Gold_Archive
- Silver

- Do Not Protect
  The selected objects will be excluded from all SLA assignments.

Submit
Conclusion

Congratulations! Your Rubrik environment is now configured to archive data to SwiftStack, allowing you to protect more data while being compliant with your retention policies—with a fully automated solution from end-to-end.

If you have any questions about this solution or would like any assistance with design and implementation, please feel free to contact us. We’re here to help.

Phone - (415) 625-0293
Email - contact@swiftstack.com
Chat - Just go to swiftstack.com and look for the chat pop-up in the bottom right