

Actifio Tech Brief

Replicating Data to Multiple Object Storage

Introduction

Starting with AGM 9.0.3, Actifio allows you to replicate data captured in a Snapshot pool to one or more object storage defined by an Actifio OnVault Storage Pool. AGM also allows replicate data from the Direct to OnVault storage object to other another OnVault destination.

The ability to replicate data to multiple OnVault object storage allows users:

- data resiliency across multiple geographic locations using various cloud and/or vendors.
- use data for disaster recovery as well as for test/development environments.
- run jobs to replicate to different targets concurrently thereby making the process more efficient?

It is assumed that you are familiar with AGM (Actifio Global Manager) and the process of creating resource profiles and policy templates as well as applying templates to manage an application.

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Creating a Resource Profile

A resource profile defines:

- The Actifio appliance that is identified as the primary (local) appliance.
- Which disk pool to use.
- (Optional) The Actifio appliance that is identified as the remote appliance for remote backup and disaster recovery operations (optional).
- (Optional) The Actifio OnVault pool to send compressed, encrypted, application data to an object store such as Amazon S3, Google Cloud Storage, or Microsoft Azure.

To create a resource profile:

1. From the AGM left-hand navigation, click the SLA Architect icon. The Templates page opens.
2. Click **Profiles** to access the Profiles page, then click the **Create Profile**. The Create Profile page opens with a new (empty) resource profile.
3. In **Profile**, enter a descriptive profile name.

Note: Note: For profile name, enter an alphanumeric text string. Spaces, underscores (_), and dashes (-) are allowed in a name; but do not include special characters.

4. In **Description**, enter a brief description about this resource profile.
5. From the **Primary Appliance** drop-down list, select the appliance that is considered as the primary (local) appliance. This is the VDP appliance that the profile is created for and where data images will reside.
6. From the **Disk Pool** drop-down list, select the disk pool where you want to preserve snapshot images. The disk-pool drop-down displays all Snapshot Pools created during and after the appliance installation.
7. From the **OnVault Pool** drop-down list, select a VDP OnVault Pool to which data will be sent. You can select up to four (4) different target pools or you can keep the **None** if you do not want to configure an OnVault pool.

Note: Note: Each of the OnVault pools that you select as a target must point to different object storage targets (different buckets in case they are in the same platform).

You can select OnVault pools only if the Actifio appliance has defined the OnVault Storage pools. An OnVault Pool can use cloud storage platforms such as: Amazon S3 Storage, Amazon S3 Compatible Storage, Google Nearline Storage, IBM Cloud Object Storage, Microsoft Azure Storage and so on. For details on creating an Actifio OnVault storage pool from the Desktop Domain Manager of the local Actifio appliance, see Configuring Resources and Settings With the Domain Manager in the Actifio Documentation Library located on each Actifio appliance and also on the ActifioNOW customer portal.

8. (Optional) From the **Remote Appliance** drop down list select a remote Actifio CDS or Sky appliance to which data will be used for remote deduplication/replication. You can select this option only if the Actifio appliance is joined with another Actifio appliance.
9. Click **Save Profile** to save the configuration changes.

Snapshot to OnVault Policy

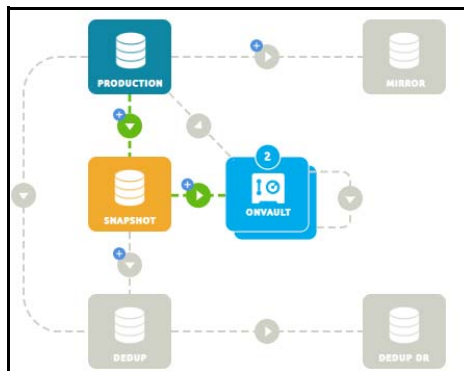
The Snapshot to OnVault policy allows you to send snapshot data to one or more object storage as defined by the OnVault Pool(s). A schedule within the policy is used to send the most recent snapshot taken by the policy template's snapshot policy to object storage. After the initial full backup Snapshot to OnVault policies follow's incremental forever model where only the changes to the data are captured and sent to the object store. Data sent to OnVault Pool storage is not deduplicated.

Sending data to multiple OnVault Pools

You can send snapshot data to multiple OnVault Pools when you want to:

- Use a local object storage for short or medium term data retention and then send the data to a different cloud storage for long term data retention.
- Use multiple cloud object storage targets for resilience across vendors and/or clouds.

When multiple Snapshot to OnVault policies with different target pools are defined for a template, the OnVault icon shows a shadow to indicate there are multiple target pools for this template. It also shows a number corresponding to the number of different target pools to which data will be sent. defined (in the image below, for example, there are two different Snapshot to OnVault policies defined with different target pools.)



Note: Before creating a Snapshot to OnVault policy, you must first create a snapshot policy. You will not be able to save the Snapshot to OnVault template without a snapshot policy in the template.

Creating a Snapshot to OnVault policy

To create a Snapshot to OnVault policy:

1. From the AGM left-hand navigation, click the **SLA Architect** icon. The Templates page opens.
2. Select a template that includes a snapshot policy. The Templates page opens with the selected SLA template.
3. To create a Snapshot to OnVault policy, perform one of the following actions
 - o Click **+ (Plus)** in the arrow between Snapshot and OnVault in the SLA policy map.
 - o Click **+Add** to the right of OnVault in the Policies area of the Templates window.

The Snapshot to OnVault policy configuration panel opens.

4. In **Policy Name**, enter a descriptive name.

Note: For policy name, enter an alphanumeric text string. Spaces, underscores (_), and dashes (-) are allowed in a name; but you cannot include special characters.

- For scheduling, configure the policy frequency and schedule as outlined in the table below.

Policy Setting	Details
Windowed	
On These Days	Configures the frequency of the policy by defining an interval at which images are captured. Based on this interval setting, the job runs once every specified number of days, weeks, months, or years. Click the link to the right of this parameter and modify the Run interval. The schedule is displayed in a calendar view
Except	Defines an exception to the Run schedule. You can specify an Except value of daily, weekly, monthly, or yearly. For example, to skip the daily schedule every Friday, select weekly and select Friday. Click the link to the right of this parameter and modify the exception. The schedule is displayed in a calendar view.
Run once per window	Specifies that the frequency duration for capturing images is once during the specified Run Between time window.
Every	Specifies a repeat frequency duration (minutes or hours) for capturing images during the specified Run Between time window. Example: every 2 hours.
Continuous	
Every	Specifies the time period in which to repeat the image capture.
Starting at	Specific the time of day at which to run the first job in the continuous cycle of image captures.
Both Windowed and Continuous	
Retain For	Specifies the length of time that you intend to retain the image. Example: retain the image for 2 days.

- From the **Priority** drop-down list, you can optionally change the application priority. The default job priority is Medium, but you can change the priority to High or Low.

The SLA scheduler identifies when one or more policies applied to applications are to run, and then initiates a job that places the policy into a queue when the scheduled start time occurs. For each policy type there is a pacing mechanism to ensure that the system is not overwhelmed with running jobs. This pacing mechanism uses job slots to achieve this steady state, which means that even if a job is supposed to start at a particular time it will execute only occur when a job slot is available.

If multiple applications are scheduled to run at the same time with the same job priority, the selection of the application to run is randomized to ensure fairness across all of the applications of the same priority.

- From the **Target Pool** drop-down list, select the OnVault Pool to which the snapshot data should be sent.



Note: *OnVault jobs for the same application sending data to different target pools can with can run concurrently.*

8. Click **Add Policy**. You return to the Templates window.
9. Repeat the process to create another Snapshot to OnVault policy with a different Target Pool.
10. Click **Save Template**.

OnVault to OnVault Policy

The OnVault to OnVault policy allows you to replicate data from the Direct to OnVault pool to a second OnVault destination. A schedule within the policy is used to send incremental changes from one OnVault pool to a second OnVault storage. It allows for the data to be easily available across multiple geographical locations for resiliency hosted by various vendors and clouds. Data replication to a second OnVault storage is supported for Direct to OnVault application type only.

Note: Data that is replicated to the second Actifio OnVault Pool storage is not deduplicated.

Creating a OnVault to OnVault policy

OnVault to OnVault policy:

1. From the AGM left-hand navigation, click the **SLA Architect** icon. The Templates page opens.
2. Click +(Plus) between Production and OnVault, then configure a Direct to OnVault policy using instructions in **Creating a Direct to OnVault Policy**.
3. Next, click the +(Plus) beside OnVault. The OnVault to OnVault configuration panel opens.

The screenshot shows the 'OnVault Replication' configuration panel in the SLA Architect interface. On the left, a 'Policies' list includes 'Direct to OnVault' with a count of 1. The main configuration area is titled 'Create/Edit Policy' and contains the following settings:

- POLICY NAME:** Replicate Objects
- SCHEDULING:** Windowed
- ON THESE DAYS:** Everyday
- EXCEPT:** Never
- WITHIN THIS WINDOW:** 19:00 TO 18:50
- RUN ONCE PER WINDOW:** Checked (green toggle)
- EVERY:** 24 Hour(s)
- RETAIN FOR:** 14 Day(s)
- PRIORITY:** Medium
- SOURCE POOL:** OnVault Pool 1
- TARGET POOL:** OnVault Pool 2

Buttons at the bottom include 'Cancel', 'Update Policy', and 'Advanced Policy Settings'.

4. In **Policy Name**, enter a descriptive name.

Note: For policy name, enter an alphanumeric text string. Spaces, underscores (_), and dashes (-) are allowed in a name; but you cannot include special characters.

5. For scheduling, configure the policy frequency and schedule as outlined in the table below.

Policy Setting	Details
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Windowed

On These Days	Configures the frequency of the policy by defining an interval at which images are captured. Based on this interval setting, the job runs once every specified number of days, weeks, months, or years. Click the link to the right of this parameter and modify the Run interval. The schedule is displayed in a calendar view
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Run once per window	Specifies that the frequency duration for capturing images is once during the specified Run Between time window.
Every	Specifies a repeat frequency duration (minutes or hours) for capturing images during the specified Run Between time window. Example: every 2 hours.

Continuous

Every	Specifies the time period in which to repeat the image capture.
Starting at	Specific the time of day at which to run the first job in the continuous cycle of image captures.

Both Windowed and Continuous

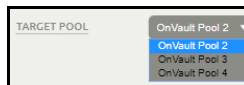
Retain For	Specifies the length of time that you intend to retain the image. Example: retain the image for 2 days.
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- From the **Priority** drop-down list, you can optionally change the application priority. The default job priority is Medium, but you can change the priority to High or Low.

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If multiple applications are scheduled to run at the same time with the same job priority, the selection of the application to run is randomized to ensure fairness across all of the applications of the same priority.

- Verify the **Source Pool** is listed correctly.
- From the **Target Pool** drop-down list, select the OnVault Pool to which the snapshot data should be sent.

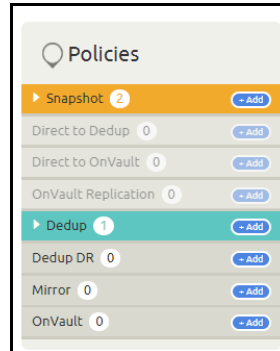


9. Click **Add Policy**. You return to the Templates window.
10. Click **Save Template**.

Viewing Policy details

To view the details of one or more policies in a template:

1. From the left-hand navigation, click the **SLA Architect** icon. The Templates page opens.
2. Select a template that has the policy whose details you want to view. The Policies panel lists all the available policy types along with the number of policies for each type that are in the template.



3. Expand a policy to view the policy details. For example, templates that includes an OnVault or Direct to OnVault policy, the source as well as the target OnVault pools are specified.

