# ONTAP_Snapmirror_Restore

In this lab you will set up a vault relationship between two volumes in two different clusters.
You will restore a file from the destination volume.

Prerequisites:
. Two clusters are peered **(ONTAP_Cluster_Peering)**
. Two SVMs are peered **(ONTAP_SVM_Peering)**
. Export policy to export that allows writing to an NFS client **(ONTAP_NFS_SVM)**
. NFS client that can access the source volume

This is what we will do:
1. Create a source volume in the source SVM c1_nfs
2. Create a destination volume in the destination SVM c2_nfs of the type DP
3. Create a snapmirror policy in the destination SVM called nfs_vault
   Add a rule to the nfs_vault policy with retention of **10** and label **5min**
   Add a rule to the nfs_vault policy with retention of **2** and label **hourly**
4. Create a snapshot policy on the source SVM called vaultsource_pol with the following settings:
   -schedule1 5min -count1 1 -snapmirror-label1 5min
   -schedule2 hourly -count2 1 -snapmirror-label2 hourly
5. Connect the new snapshot policy to the source volume
6. Create a mountpoint on linux and mount the source volume
7. On the linux client, write a file to the volume.
8. Create a snapmirror relationship between the source and destination volume of the type XDP and with the (snapmirror) policy nfs_vault
9. Initialize the relationship
10. List the snapshot on the destination volume
11. From the linux client remove the file you created earlier
12. From cluster1 restore the file from an existing snapshot that was replicated to cluster2
13. From the linux client, has the file been restored?
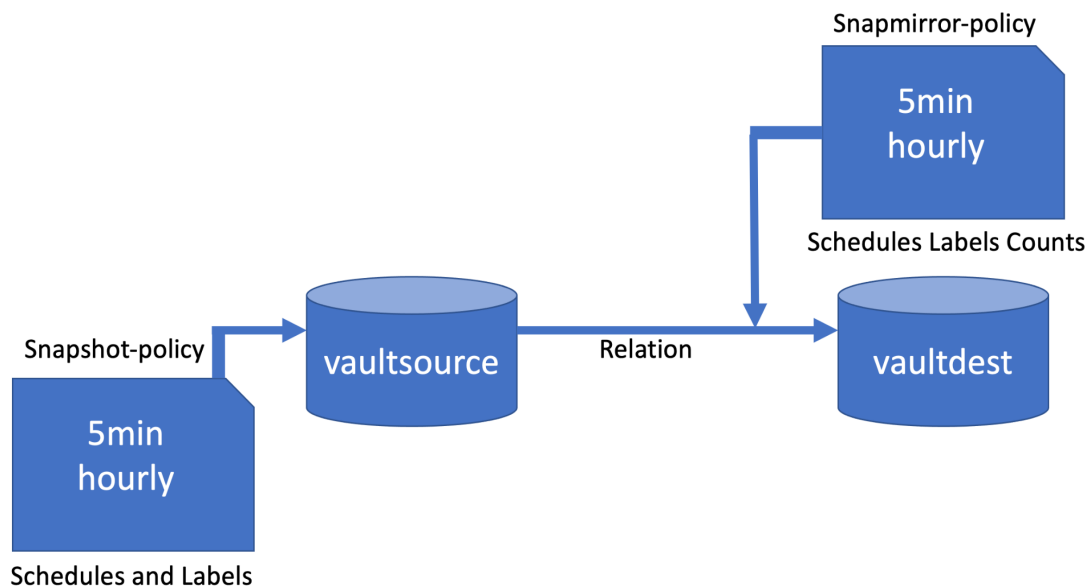
Commands

\# 1. Create a source volume in the Source SVM c1_nfs
cluster1::>
 **vol create -vserver c1_nfs -volume vaultsource -aggregate n1_data -size 1g -state online \
-junction-path /vaultsource**

\# 2. Create a destination volume in the destination SVM c2_nfs of the type DP
cluster2::>
 vol create -vserver c2_nfs -volume vaultdest -aggregate n1_data -size 1g -type dp

\# 3. Create a snapmirror policy in the destination SVM called nfs_vault
    Add a rule to the nfs_vault policy with retention of **10** and label **5min**
    Add a rule to the nfs_vault policy with retention of **2** and label **hourly**
cluster2::>
snapmirror policy create -vserver c2_nfs -policy nfs_vault
**snapmirror policy add-rule -vserver c2_nfs -policy nfs_vault -snapmirror-label 5min \
-keep 10**
**snapmirror policy add-rule -vserver c2_nfs -policy nfs_vault -snapmirror-label hourly \
-keep 2**

\# 4. Create a snapshot policy on the source SVM called vaultsource_pol with the following
    settings:
              -schedule1 5min -count1 1 -snapmirror-label1 5min
              -schedule2 hourly -count2 1 -snapmirror-label2 hourly

cluster1::>
**snapshot policy create -policy vaultsource_pol -enabled true -schedule1 5min -count1 1 \
-snapmirror-label1 5min -schedule2 hourly -count2 1 -snapmirror-label2 hourly -vserver \
c1_nfs**

\# 5. Connect the new snapshot policy to the source volume
cluster1::>
vol modify -vserver c1_nfs -volume vaultsource -snapshot-policy vaultsource_pol

\# 6. Create a mountpoint on linux and mount the source volume
Linux:
mkdir /mnt/vaultsource
mount 192.168.4.209:/vaultsource /mnt/vaultsource

\# 7. On the linux client, write a file to the volume.
Linux:
echo content > /mnt/vaultsource/file1

9. Create a snapmirror relationship between the source and destination volume of the type XDP and with the (snapmirror) policy nfs_vault and a schedule of 5 minutes
cluster2::>
**snapmirror create -source-path c1_nfs:vaultsource -destination-path c2_nfs:vaultdest \
-type XDP -policy nfs_vault -schedule 5min**

10. Initialize the relationship
cluster2::>
snapmirror initialize -destination-path c2_nfs:vaultdest

11. After some time, list the snapshots on the destination volume. There should be a snapmirror snapshot that was created during the baseline transfer. There should also be one 5min snapshot and maybe an hourly snapshot (depending on at what time you set up the snapshot policy on the source.)

cluster2::>
snapshot show -vserver c2_nfs -volume vaultdest

Vserver	Volume	Snapshot	Size	Total%	Used%
c2_nfs	vaultdest				
		hourly.2022-07-21_1505	208KB	0%	37%
		5min.2022-07-21_1505	208KB	0%	37%

12. On the linux client remove the file you created earlier
Linux:
cd /mnt/vaultsource
rm file1

13. On cluster1, restore the file using **snapmirror restore**
cluster1::>
**snapmirror restore -destination-path c1_nfs:vaultsource -source-path c2_nfs:vaultdest \
-source-snapshot 5min.2022-07-21_1505 -file-list /file1,@/file1**

14. On the linux client, check that the file has been restored.
Linux:
ls
file1