

# **Volume disaster recovery**

System Manager Classic

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# **Volume disaster recovery**

# Volume disaster recovery overview

You can quickly activate a destination volume after a disaster and then reactivate the source volume in ONTAP using the ONTAP System Manager classic interface (ONTAP 9.7 and earlier).

Use this procedure if you want to perform volume-level disaster recovery in the following way:

- You are working with clusters running ONTAP 9.
- You are a cluster administrator.
- You have configured the SnapMirror relationship following Volume disaster recovery preparation
- The cluster administrator of the source cluster has declared that the data in the source volume is unavailable due to events such as virus infection leading to data corruption or accidental deletion of data.
- You want to use System Manager, not the ONTAP command-line interface or an automated scripting tool.
- You want to use the System Manager classic interface for ONTAP 9.7 and earlier releases, not the ONTAP System Manager UI for ONTAP 9.7 and later.
- You want to use best practices, not explore every available option.
- You do not want to read a lot of conceptual background.

## Other ways to do this in ONTAP

To perform these tasks with	See this content
The redesigned System Manager (available with ONTAP 9.7 and later)	Serve data from a SnapMirror destination
The ONTAP command line interface	Activate the destination volume

# Volume disaster recovery workflow

The volume disaster recovery workflow includes activating the destination volume, configuring the destination volume for data access, and reactivating the original source volume.



Additional information is available to help you to manage the volume-level disaster recovery relationships and provides other methods of disaster recovery to protect the availability of your data resources.

• Volume backup using SnapVault

Describes how to quickly configure backup vault relationships between volumes that are located in different ONTAP clusters.

• Volume restore management using SnapVault

Describes how to quickly restore a volume from a backup vault in ONTAP.

## Activate the destination volume

When the source volume is unable to serve data due to events such as data corruption, accidental deletion or an offline state, you must activate the destination volume to provide data access until you recover the data on the source volume. Activation involves stopping future SnapMirror data transfers and breaking the SnapMirror relationship.

#### Verify the status of the source volume

When the source volume is unavailable, you must verify that the source volume is offline and then identify the destination volume that must be activated for providing data access.

#### About this task

You must perform this task from the **source** cluster.

#### Steps

- 1. Navigate to the Volumes window.
- 2. Select the source volume, and then verify that the source volume is offline.
- 3. Identify the destination volume in the SnapMirror relationship.
  - Beginning with ONTAP 9.3: Double-click the source volume to view the details, and then click **PROTECTION** to identify the destination volume in the SnapMirror relationship and the name of the SVM that contains the volume.

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	Dverview St	hapshiets Copies Data Prote	coon Storage Efficiency Perform	hance						
	ð Refieih									¢
	Health	Destination SVM	Destination Volume	Destination Clu.	Relationsh	Transfer 5_	туре	Lag	Time	Pelicy
	0	1092	vol_mimor_01_012_018	manner2	Snapreimored	ide -	Version-Revible		(0)(0)	MirorAlfsraps.

• ONTAP 9.2 or earlier: Click the **Data Protection** tab at the bottom of the Volumes page to identify the destination volume in the SnapMirror relationship and the name of the SVM that contains the volume.

Name T	Aggregate T	Sta	tus T	Thin 9	T019	% Used	т	Availabl T	Total Sp	Stor	age _ T	is Volu	Ť	Encrypted	T 🔳
svm1_svm1_root	aggr2	•	Online	No		5		970.48 MB	1 G8	Dise	bled	No		No	-
svm1_vol123_vault	aggr2	•	Online	No		5		121.35 MB	128.02 MB	Ene	bled	No		No	
Vol1	aggr3	0	Offline	-NA-		.NA.		-NA-	-NA-	Dise	bled	No		No	
svm2_root	aggr1	0	Online	No		5		971.12 MB	1 68	Disa	bled	No		No	-
Destination St.	Destination Vo	213	is Healthy		Relatio	inship St.	Tr	ansfer Status	Туре	-1)	Lag Time	e ()	Poli	cy .	ins,
sym1	volt		Ves.		Snapm	irrored	id	le	Mirror		7 day(s)	12 hr(s)	DPD	efault	14
															*
Details	Space All	oca	tion	Snapsh	ot Coni	es   0	toras	ze Efficiency	Data Prot	ectio	n Vol	ume Mos	e De	t Perform	mance

### Break the SnapMirror relationship

You must quiesce and break the SnapMirror relationship to activate the destination volume. After quiescing, future SnapMirror data transfers are disabled.

#### Before you begin

The destination volume must be mounted on the destination SVM namespace.

#### About this task

You must perform this task from the **destination** cluster.

#### Steps

- 1. Depending on the System Manager version that you are running, perform one of the following steps:
  - ONTAP 9.4 or earlier: Click **Protection > Relationships**.
  - Beginning with ONTAP 9.5: Click **Protection > Volume Relationships**.
- 2. Select the SnapMirror relationship between the source and the destination volumes.
- 3. Click **Operations** > **Quiesce** to disable future data transfers.
- 4. Select the confirmation check box, and then click **Quiesce**.

The quiesce operation might take some time; you must not perform any other operation on the SnapMirror relationship until the transfer status is displayed as <code>Quiesced</code>.

- 5. Click **Operations** > **Break**.
- 6. Select the confirmation check box, and then click **Break**.

B	reak	×
	Breaks the relationship permanently and converts the destination volume type from DP to RW. To recreate the relationship perform the resync operation.	
	Are you sure you want to break the relationship?	
	Source: cluster-2://source_SVM/Vol1	
	Destination: cluster-1://dest_SVM/source_SVM_Vol1_mirror	
	OK to break the selected relationship	
	Break Cancel	

The SnapMirror relationship is in Broken Off state.

Source Sto T	Souro	e Vol T	Destinatio_	T	Destinatio_	۲	Is Healthy	Ŧ	Relationsh T	Transfer St.	T	Relationship	Lag Time		Policy Name T	Policy Type	T
sum1	tvm1_	root	svm1_svm1_	ten 1	svm2		• Yes		Snepmirrored	ldle		Mirror	26 min(s)		DPDefault.	Asynchronou	ur_ =
svm1	vait		m_thov_times	n	svm2		• ves		Broken Off	ide		Mittor	None		DPDefault	Asynchronou	n ,
Source Locar	tion:	svml.vo	41			h Hi	ealthy:		Oves			Transfer Status		Idle			1
Destination		svm2:sv	m1_vol1_mirro	ê.	à	Reis	tionship Sta	te.	Broken D	a.	- ji	Current Transfer	Туре	Non	ie .		
Location.						Nep	work Compre	essio	n Not Appli	cable		Current Transfer	Error	Nor	ie		
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Date Transfe	r Rate	Unimite	ed									Labort Engenetica			unimur Unders?	r. +6.41 11+6	
Lag Time		None										Patient auglishing	copy.	D44	a-00#0981#1bd#,	2149622820.20	617-4
•														1			)

#### Verify the destination volume status

After breaking the SnapMirror relationship, you must verify that the destination volume has read/write access and that the destination volume settings match the settings of the source volume.

#### About this task

You must perform this task from the **destination** cluster.

#### Steps

- 1. Navigate to the **Volumes** window.
- 2. Select the destination volume from the **Volumes** list, and then verify that the destination volume type is rw, which indicates read/write access.
- 3. Verify that the volume settings such as thin provisioning, deduplication, compression, and autogrow on the destination volume match the settings of the source volume.

You can use the volume settings information that you noted after creating the SnapMirror relationship to verify the destination volume settings.

4. If the volume settings do not match, modify the settings on the destination volume as required:

- a. Click Edit.
- b. Modify the general settings, storage efficiency settings, and advanced settings for your environment, as required.
- c. Click Save and Close.

dit Volume							×
General Storag	e Efficiency	Advanced					
Name:	vol123						
Security style:	Mixed		*				
🗹 Configure UNIX pe	ermissions (Opt	tional)			Read	Write	Execute
Owner						<b>V</b>	<b>V</b>
Group							<b>V</b>
Others							<b>V</b>
Thin Provisioned							
When a volume is space is allocated thin provisioned	thin provision as data is writi volumes and L	ied, space for ten to the vol UNs.	the volu ume. Th	ime is not alloc e unused aggre	ated in advan gate space is a	ce. Instea Ivailable 1	d, to other
Tell me more about T	hin Provisionir	ng					
				Save	Save and Cl	ose	Cancel

- d. Verify that the columns in the **Volumes** list are updated with the appropriate values.
- 5. Enable Snapshot copy creation for the destination volume.
  - a. Depending on your ONTAP version, navigate to the **Configure Volume Snapshot Copies** page in one of the following ways:

Beginning with ONTAP 9.3: Select the destination volume, and then click **Actions > Manage Snapshots > Configure**.

ONTAP 9.2 or earlier: Select the destination volume, and then click **Snapshot Copies > Configure**.

b. Select the Enable scheduled Snapshot Copies check box, and then click OK.

🕜 S	inapshot Reser ake Snapshot d	ve (%): irectory (.snap	5 (*) shot) visible		
V Er	isibility of .snap nable scheduled - <b>Snapshot Po</b> Select a Snap	ishot directory I Snapshot Cop Ilicies and Sc Dishot policy the	on this volume at the client n bies <b>hedules</b> at has desired schedules for	nount points. Snapshot copies:	
	Snapshot Pol	icy: Selected Snap	default Noshot Policy:	•	
	Schedul	Retained S	Schedule	SnapMirror Label	
	hourly	6	Advance cron - {Minu	-	
	daily	2	Daily - Run at 0 hour 1	daily	
	weekly	2	On weekdays - Sund	weekly	
T	Current Timez	zone: ut Snapshot ci	US/Pacific onfigurations		

## Configure the destination volume for data access

After activating the destination volume, you must configure the volume for data access. NAS clients and SAN hosts can access the data from the destination volume until the source volume is reactivated.

#### About this task

You must perform this task from the **destination** cluster.

#### Procedure

- NAS environment:
  - a. Mount the NAS volumes to the namespace using the same junction path that the source volume was mounted to in the source SVM.
  - b. Apply the appropriate ACLs to the CIFS shares at the destination volume.
  - c. Assign the NFS export policies to the destination volume.
  - d. Apply the quota rules to the destination volume.
  - e. Redirect clients to the destination volume by performing the necessary steps such as changing the DNS name resolution.

- f. Remount the NFS and CIFS shares on the clients.
- SAN environment:
  - a. Map the LUNs to the appropriate initiator group to make the LUNs in the volume available to the SAN clients.
  - b. For iSCSI, create iSCSI sessions from the SAN host initiators to the SAN LIFs.
  - c. On the SAN client, perform a storage re-scan to detect the connected LUNs.

#### What to do next

You should resolve the problem that caused the source volume to become unavailable. You must bring the source volume back online when possible, and then resynchronize and reactivate the source volume.

#### **Related information**

#### **ONTAP 9 Documentation Center**

## Reactivate the source volume

When the source volume becomes available, you must resynchronize the data from the destination volume to the source volume, update any modifications after the resynchronization operation, and activate the source volume.

#### Resynchronize the source volume

When the source volume is online, you must resynchronize the data between the destination volume and the source volume to replicate the latest data from the destination volume.

#### Before you begin

The source volume must be online.

#### About this task

You must perform the task from the destination cluster.

The following image shows that the data is replicated from the active destination volume to the read-only source volume:



#### Steps

- 1. Depending on the System Manager version that you are running, perform one of the following steps:
  - ONTAP 9.4 or earlier: Click **Protection > Relationships**.
  - Beginning with ONTAP 9.5: Click **Protection > Volume Relationships**.

- 2. Select the SnapMirror relationship between the source and destination volumes.
- 3. Make a note of the transfer schedule and the policy configured for the SnapMirror relationship.
- 4. Click **Operations > Reverse Resync**.
- 5. Select the confirmation check box, and then click **Reverse Resync**.

Reverse Resyn	c	×
Reverse r source int common S	resynchronizing the relationship deletes the current relationship and converts the to a destination volume. Data in the source volume that is newer than the data in the Gnapshot copy is deleted.	
Are you	sure you want to reverse resync the relationship?	
Before reverse	resyncing	
Source:	cluster-2://source_SVM/Vol1	
Destination:	cluster-1://dest_SVM/source_SVM_Vol1_mirror	
After reverse r	esyncing	
Source:	cluster-1://dest_SVM/source_SVM_Vol1_mirror	
Destination:	cluster-2://source_SVM/Vol1	
OK to reve	rse resync the relationship	
	Reverse Resync Cancel	

Beginning with ONTAP 9.3, the SnapMirror policy of the relationship is set to MirrorAllSnapshots and the mirror schedule is set to None.

If you are running ONTAP 9.2 or earlier, the SnapMirror policy of the relationship is set to DPDefault and the mirror schedule is set to None.

- 6. On the source cluster, specify a SnapMirror policy and schedule that match the protection configuration of the original SnapMirror relationship:
  - a. Depending on the System Manager version that you are running, perform one of the following steps:
    - ONTAP 9.4 or earlier: Click **Protection > Relationships**.
    - Beginning with ONTAP 9.5: Click Protection > Volume Relationships.
  - b. Select the SnapMirror relationship between the resynchronized source volume and the destination volume, and then click **Edit**.
  - c. Select the SnapMirror policy and schedule, and then click OK.

#### Update the source volume

After resynchronizing the source volume, you might want to ensure that all the latest changes are updated on the source volume before activating the source volume.

#### About this task

You must perform this task from the **source** cluster.

#### Steps

- 1. Depending on the System Manager version that you are running, perform one of the following steps:
  - ONTAP 9.4 or earlier: Click **Protection > Relationships**.
  - Beginning with ONTAP 9.5: Click **Protection > Volume Relationships**.
- 2. Select the SnapMirror relationship between the source and the destination volumes, and then click **Operations > Update**.
- 3. Perform an incremental transfer from the recent common Snapshot copy between the source and destination volumes.
  - Beginning with ONTAP 9.3: Select the As per policy option.
  - ONTAP 9.2 or earlier: Select the On demand option.
- 4. **Optional:** Select **Limit transfer bandwidth to** in order to limit the network bandwidth used for transfers, and then specify the maximum transfer speed.
- 5. Click Update.
- 6. Verify that the transfer status is Idle and last transfer type is Update in the Details tab.

Relations	hips													
🐼 Create 😭	Ect 🗙 Deleta	🗟 Operations •	· D Refres	h]										
Source Sto. T	Source Vol., Y	Destinatio	Destinatio.	Ŧ	Is Healthy 1	T I	Relationsh., T	Transfer St T	Relationship	Lag Time		Policy Name T	Policy Type	T III
sum1	sym1_root	synt_synt_r_	pum2		O Vet	3	Snapmirrored	idle	Mircor	44 min(s)		OPDetault	Asynchronou	L. A
sumt	vol123	sum1_vol123	svm2		• Ves	-	Snapmirrored	idie	Veult	4 hr(s) 56 m	in	XDPDefault	Vault	
sym2	symt_volt_m_	volt	tmve.		@ Yes	1	Snapmimored	Idle	Mirrot	2 min(s)		OPDefault	Asynchronou	
Source Locat Destination Location: Source Cluste Destination ( Transfer Sche Data Transfer Leg Time	ion: svm2:sv svm1:vo m dutter- Duster duster- idule: None Rate: Unimits 2 min(s)	mt_uott_mirtor At I		Relat Netw Ratio	sitthy: Bonship State vork Compress 2	ion	Ves. Sneptrivito Not Applic	red able	Transfer Status Current Transfi Current Transfer E Lest Transfer E Lest Transfer 7 Latest Snapsho Latest Snapsho	er Type: er Error mot: y <b>pe:</b> ie Timestamp: ie Timestamp:	Nor Nor Nor Nor Dp 027 Sna 544	t ne he 22/2017 16:47:18 spenirror.2005(fet le:0080951s1bda	-e600-11e6. _2149622807.20	1. 1.
Details	L	Policy Details	1	5nap	pshot Copies		l.				_			1

#### Reactivate the source volume

After resynchronizing the data from the destination volume to the source volume, you must activate the source volume by breaking the SnapMirror relationship. You should then resynchronize the destination volume to protect the reactivated source volume.

#### About this task

Both the break and reverse resync operations are performed from the **source** cluster.

The following image shows that the source and destination volumes are read/write when you break the SnapMirror relationship. After the reverse resync operation, the data is replicated from the active source volume to the read-only destination volume.



#### Steps

- 1. Depending on the System Manager version that you are running, perform one of the following steps:
  - ONTAP 9.4 or earlier: Click **Protection > Relationships**.
  - Beginning with ONTAP 9.5: Click **Protection > Volume Relationships**.
- 2. Select the SnapMirror relationship between the source and the destination volumes.
- 3. Click **Operations > Quiesce**.
- 4. Select the confirmation check box, and then click Quiesce.
- 5. Click **Operations > Break**.
- 6. Select the confirmation check box, and then click **Break**.

eak		
Breaks th To recrea	e relationship permanently and converts the destination volume type from DP to RW. te the relationship perform the resync operation.	
Are you	sure you want to break the relationship?	
Source:	cluster-1://dest_SVM/source_SVM_Vol1_mirror	
Destination:	cluster-2://source_SVM/Vol1	

- 7. Click **Operations > Reverse Resync**.
- 8. Select the confirmation check box, and then click **Reverse Resync**.

Reverse re source into common S	esynchronizing the relationship deletes the current relationship and converts the o a destination volume. Data in the source volume that is newer than the data in the napshot copy is deleted.	
Are you	sure you want to reverse resync the relationship?	1
Before reverse	resyncing	
Source:	cluster-1://dest_SVM/source_SVM_Vol1_mirror	
Destination:	cluster-2://source_SVM/Vol1	
After reverse re	esyncing _	
Source:	cluster-2://source_SVM/Vol1	
Destination:	cluster-1://dest_SVM/source_SVM_Vol1_mirror	
🕑 OK to rever	se resync the relationship	

Beginning with ONTAP 9.3, the SnapMirror policy of the relationship is set to MirrorAllSnapshots and the SnapMirror schedule is set to None.

If you are running ONTAP 9.2 or earlier, the SnapMirror policy of the relationship is set to DPDefault and the SnapMirror schedule is set to None.

- 9. Navigate to the source volume in the volumes page, and verify that the SnapMirror relationship you created is listed and the relationship state is Snapmirrored.
- 10. On the destination cluster, specify a SnapMirror policy and schedule that match the protection configuration of the original SnapMirror relationship for the new SnapMirror relationship:
  - a. Depending on the System Manager version that you are running, perform one of the following steps:
    - ONTAP 9.4 or earlier: Click **Protection > Relationships**.
    - Beginning with ONTAP 9.5: Click Protection > Volume Relationships.
  - b. Select the SnapMirror relationship between the reactivated source and the destination volumes, and then click **Edit**.
  - c. Select the SnapMirror policy and schedule, and then click OK.

#### Results

The source volume has read/write access and is protected by the destination volume.

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