

VMware Cloud Director Availability On-premises Guides

Guide #14

Migration and Failover tasks

You can find the most up-to-date technical documentation on the VMware website at: <https://docs.vmware.com/>

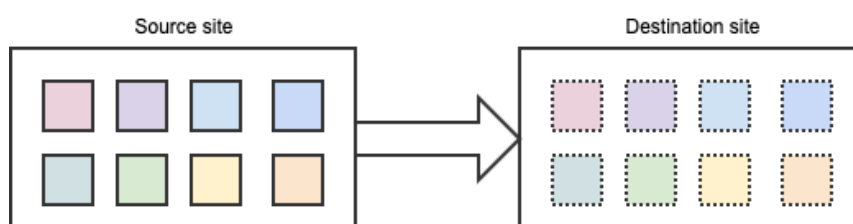
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What is a Migration

The purpose of the migration is to move workloads from one site to another. Migrate a vApp or a virtual machine to a remote organization, and run the workload in the destination site, by configuring a migration. The original workload is running in the source site, until you perform a migrate task. After performing a successful migration to the destination site, you can power on the source virtual machine in the destination site. Configuring a new migration is like configuring a protection, without providing the RPO and the migration synchronizes the workloads every 24 hours. For a migration, you cannot have more than one instance.

When you are ready to move the workloads to the destination site, perform a migrate task. In the destination site, a new virtual machine is built by using replicated data from the source virtual machine. During the migrate task, the source virtual machine is powered off. In the **Migrate task wizard**, you can select to automatically power on the migrated virtual machine after a successful migration, or you can select to power on the migrated virtual machine sometime later.

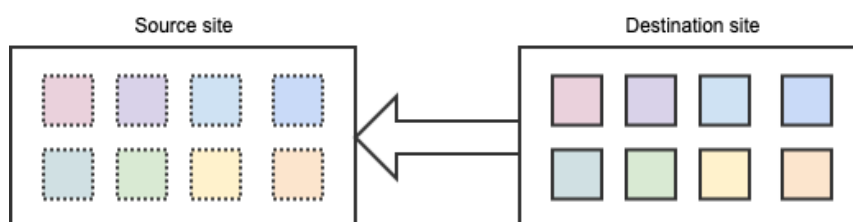
The following figure shows workloads in the source site, configured with a migration in the destination site. The workloads are still running in the source site while replicating the data in the destination site. In the figure, the running workloads are shown as surrounded by a solid line and the replicated data as surrounded by a dotted line.



After migrating the workloads, they reside in the destination site, shown in the figure as surrounded by a solid line. The original workloads are powered off in the source site, shown in the figure as surrounded by a dashed line. You can delete the migration as no longer needed. As a result, after migration the migrated workloads are running in the destination site and the original workloads are left powered off in the source site.



Optionally, you can configure the migrated vApps and virtual machines with new protections to the original source site and use the original workloads as seed to reduce the initial replication traffic from the destination site.



Note: You can migrate a regular protection. If your workloads are currently protected in a remote site, but you changed your mind and want to move the workloads, you can migrate vApps and virtual machines by using the already existing replications. It is not necessary to create a new migration for this task.

Differences between Migration and Failover

While the migration is for planned move of workloads, use failover to move the workloads in case of emergency or any disaster in the source site. Like the migrate tasks, performing a failover task creates new vApps and virtual machines in the destination site. The failover tasks do not touch the source workloads as they are not accessible, for example in case of disaster.

The most significant difference between the migrate and failover tasks is that when performing a migrate task, before creating virtual machines in the destination site, an additional synchronization occurs.

- When performing a migration, the replication occurs while the virtual machines are running. The next step is to power off the source virtual machines and perform a new synchronization. After synchronizing the powered off workload, starts the creation of the vApps and virtual machines. The additional synchronization of the powered off workload guarantees that no data can be lost.
- When performing a failover it is possible to incur data loss. This depends on the RPO and the moment a disaster strike. For example, if the RPO is 1 hour, meaning that the workload is synchronized every hour, and if disaster strikes 30 minutes after the last sync, then all changes after the last sync are lost.

Configure new Migration

To create new migration, navigate to **Outgoing Replications** or to **Incoming replications**, depending in which direction to migrate the workloads. From the **All Actions** menu, select **New Migration** or select the new migration button.

The screenshot displays the VMware vSphere Client interface. The left sidebar shows the navigation menu with 'Replications' expanded and 'Outgoing Replications' selected. The main area shows the 'Outgoing Replications' page. A table lists outgoing replications with columns for 'vApp / VM', 'Recovery state', and 'Recovery state'. Two rows are visible, both showing 'Not started'. An 'ALL ACTIONS' dropdown menu is open, showing various actions. The 'New migration' option is highlighted with an orange box.

vApp / VM	Recovery state	Recovery state
vm-003	Not started	Not started
vApp-001	Not started	Not started

ALL ACTIONS

- New protection
- New migration
- Settings
 - Replication settings
 - vApp Settings
 - Network settings
 - Disk settings
 - Change owner
 - Change storage policy
- Instances
 - Sync
 - Pause
 - Resume
- Recovery
 - Migrate
 - Failover
 - Test
- Delete replication

Outgoing Migration

Follow the **New Outgoing Replication** wizard.

1. In the **vCenter VMs** page, select one or more virtual machines from your vCenter Server to migrate to the cloud site and click **Next**.

New Outgoing Migration

- 1 vCenter VMs
- 2 Destination VDC and Storage policy
- 3 Settings
- 4 Ready to complete

vCenter VMs

Select VMs to replicate from: 192.168.1.10

☐ Group VMs to a single vApp

<input type="checkbox"/>	VM	CPU	Memory	Disk capacity
<input type="checkbox"/>	vm-001	1	2.00 GB	16.00 GB
<input checked="" type="checkbox"/>	vm-002	1	2.00 GB	16.00 GB
<input checked="" type="checkbox"/>	vm-003	1	2.00 GB	16.00 GB
<input type="checkbox"/>	vm-01-C6Zq	1	4.00 GB	10.00 GB

☒ 2 [DESELECT ALL](#)

Items per page: 20 1 - 4 of 4 results

[CANCEL](#) [NEXT](#)

2. In the **Destination VDC and Storage policy** page, select the destination virtual data center and storage policy and click **Next**.

New Outgoing Migration

- 1 vCenter VMs
- 2 Destination VDC and Storage policy
- 3 Settings
- 4 Ready to complete

Destination VDC and Storage policy

Select a virtual data center from CLOUD-01 to be used as replication target: [REFRESH](#)

	Name	Used CPU	Used memory	Used storage	VMs	Quota	Ongoing replications
<input checked="" type="radio"/>	ovdc01	0 M	0.00 B	14.00 GB	1	100	0

Storage policy

Select the new storage policy placement for the recovered VMs

	Name	Encryption capability	Used	Limit
<input checked="" type="radio"/>	NFS	No	14.00 GB	Unlimited

[CANCEL](#) [BACK](#) [NEXT](#)

3. In the **Settings** page, you can set a time to start the synchronization. If you keep this option deselected, the synchronization starts immediately after completing the wizard. Also, you can exclude disks from the migration, select Placement Policy or configure seed if available. Click **Next**.

New Outgoing Migration

- 1 vCenter VMs
- 2 Destination VDC and Storage policy
- 3 Settings**
- 4 Ready to complete

Settings

Compress replication traffic

☒ Enabling compression will reduce network traffic at the expense of CPU.

Delay start synchronization ⓘ

☒ Set time that is convenient for the first synchronization.

11/24/2021 4:31 PM ⓘ

VDC VM placement policy ⓘ

Select ▾

Exclude disks

☐ Save disk space on the target site by excluding disks that are not necessary.

Configure Seed VMs

☐ Use an older copy of the protected VMs on the target site to reduce the data traffic.

CANCEL BACK NEXT

4. In the **Ready To Complete** page, review the migration details and click **Finish**.

New Outgoing Migration

- 1 vCenter VMs
- 2 Destination VDC and Storage policy
- 3 Settings
- 4 Ready to complete**

Ready to complete

Verify the selected settings before clicking Finish:

VMs	2 VMs
Source site	My-On-Premise
Destination Site	CLOUD-01
Destination VDC	ovdc01
Storage policy	NFS
VDC VM placement policy	None
Sync time	No delay

CANCEL BACK FINISH

Incoming Migration

Follow the **New Incoming Migration** wizard.

1. In the **Cloud vApps and VMs** page, select one or more cloud virtual machines to migrate to your vCenter Server and click **Next**.

New Incoming Migration

1 Cloud vApps and VMs

2 Settings

3 Ready to complete

Cloud vApps and VMs

EXPAND ALL VAPP VM MORE

vApp / VM	Encrypted	CPUs	Memory	VDC	State
> <input checked="" type="checkbox"/> vApp... (1 VMs)	N/A	1	4096	ovdc01	Ready

1 VMs DESELECT ALL

Items per page 20 1 - 1 of 1 results

CANCEL NEXT

2. In the **Settings** page, you can set a time to start the synchronization. If you keep this option deselected, the synchronization starts immediately after completing the wizard. Also, you can exclude disks from the migration or configure seed if available. Click **Next**.

New Incoming Migration

1 Cloud vApps and VMs

2 Settings

3 Ready to complete

Settings

Compress replication traffic

☒ Enabling compression will reduce network traffic at the expense of CPU.

Delay start synchronization ⓘ

☐ Set time that is convenient for the first synchronization.

Exclude disks

☐ Save disk space on the target site by excluding disks that are not necessary.

Configure Seed VMs

☐ Use an older copy of the protected VMs on the target site to reduce the data traffic.

CANCEL BACK NEXT

3. In the **Ready To Complete** page, review the migration details and click **Finish**.

New Incoming Migration


1 Cloud vApps and VMs

2 Settings

3 Ready to complete

Ready to complete

Verify the selected settings before clicking Finish:

VMs	 vm-01
Source site	CLOUD-01
Destination Site	My-On-Premise
Sync time	No delay

CANCEL

BACK

FINISH

Perform Migration

1. To perform migration, under **Outgoing Replications** or **Incoming Replications**, select a **Migration**. As described above, you can also select a **Protection** to perform a migration task.

vm

vSphere Client

Menu

Search in all environments

Cloud Provider DR and Migration

INSTANCE 192.168.2.11:443

My-On-Premise

Replications

Outgoing Replications

Incoming Replications

Replication Tasks

Emergency Recovery

Source Replications

System

Settings

Outgoing Replications

ALL ACTIONS

Show details

STATUS

TOPOLOGY

INSTANCES

RESOURCES

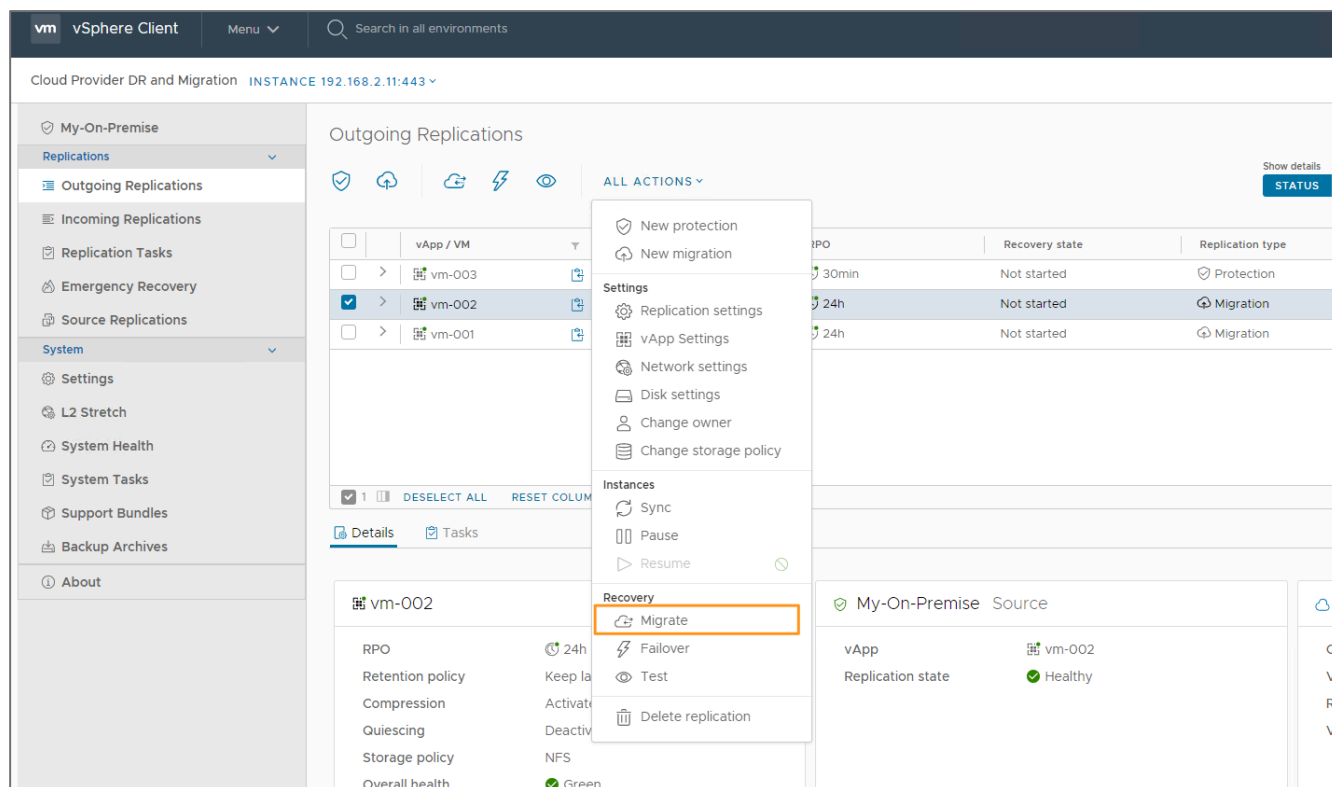
Grouping

VAPP

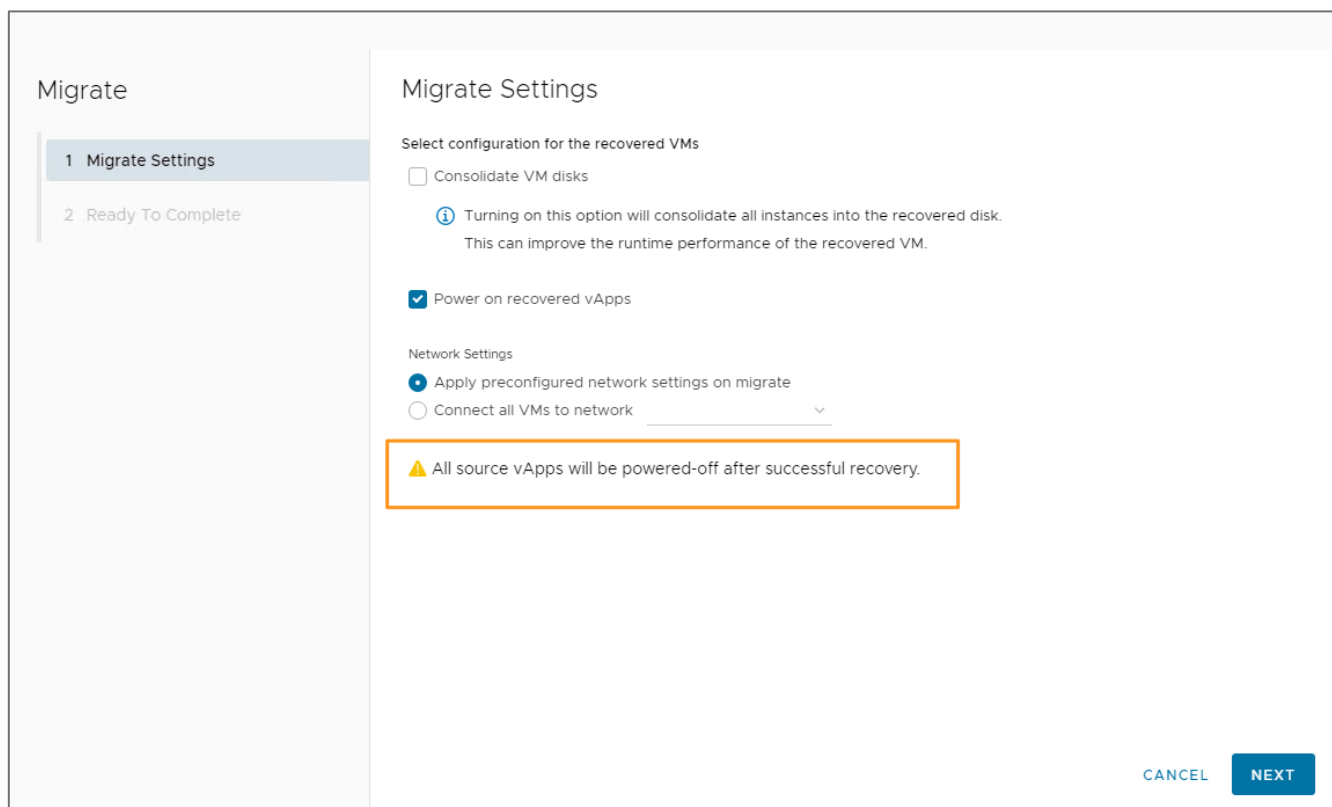
VM

	vApp / VM	SLA profile	RPO	Recovery state	Replication type	Overall health	Last changed
	vm-003	Gold	30min	Not started	Protection	Green	11/24/2021, 4:45:45 PM
	vm-002	N/A	24h	Not started	Migration	Green	11/24/2021, 4:45:21 PM
	vm-001	N/A	24h	Not started	Migration	Green	11/24/2021, 4:44:59 PM

- From the **All Actions** menu, select **Migrate** and follow the **Migrate** wizard.



- In the **Migrate Settings** page, select whether to consolidate the VM disks and whether to power on the migrated workloads. Select to apply preconfigured network settings or select another network for the newly created virtual machines. Click **Next**.



4. In the **Ready To Complete** page, review the details and click **Finish**.

Migrate

1 Migrate Settings

2 Ready To Complete

Ready To Complete

The migration workflow will execute the following steps:

• Sync (if the source VM is ON)

• Power off source VM (if needed)

• Sync (after source VM is off)

• Import the VM in the target site

Verify the selected settings before proceeding:

Recovered vApps

vm-002

Recovery site

CLOUD-01

Recovery network

Preconfigured network settings

Power on recovered vApps

Activated

Consolidate VM disks




Deactivated

CANCEL

BACK

FINISH

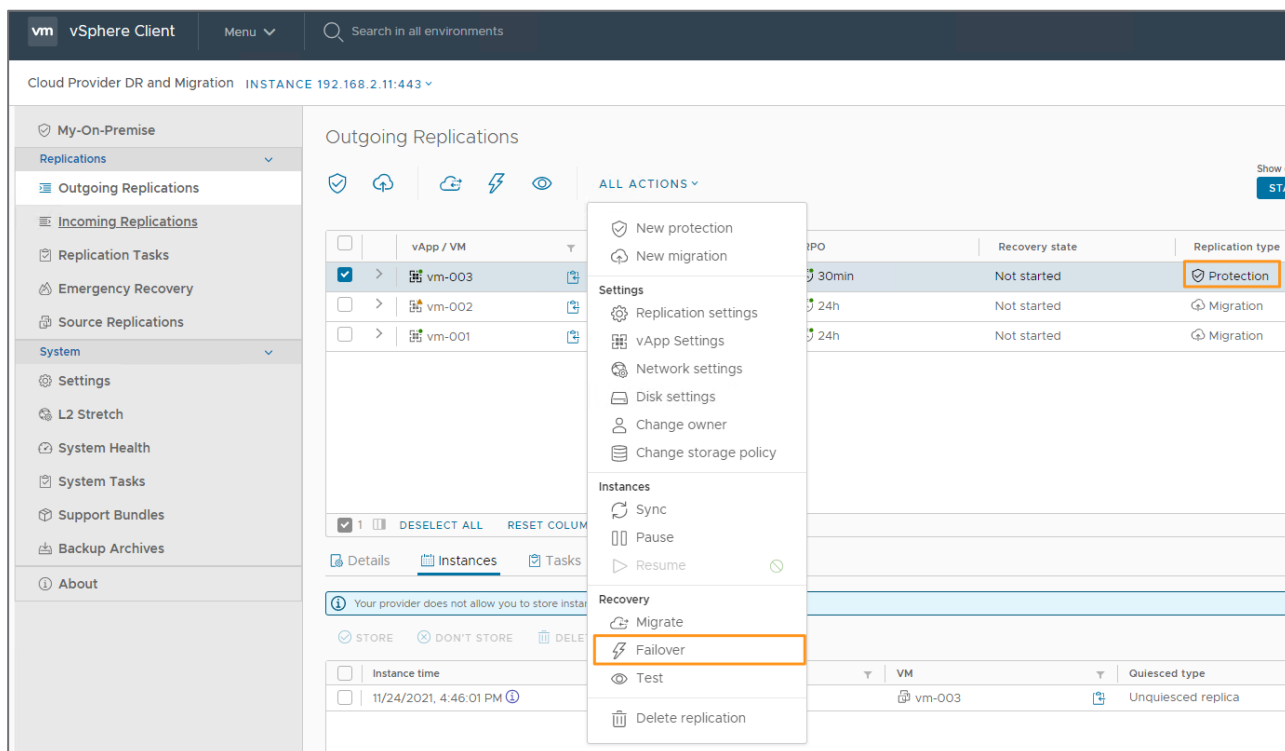
5. You can delete the migration in the replications view. The source virtual machine is powered off. Now you can choose to delete the source virtual machine or to keep it, if you plan to configure new protection by using the original source virtual machine as seed.

Summary	Monitor	Configure	Permissions	VMs	Updates
Virtual Machines	VM Templates	vApps	VM Folders		
Name ↑	State	Status	Provis		
 vm-001	Powered On	✓ Normal	16 GB		
 vm-002	Powered Off	✓ Normal	34.59		
 vm-003	Powered On	✓ Normal	34.08		

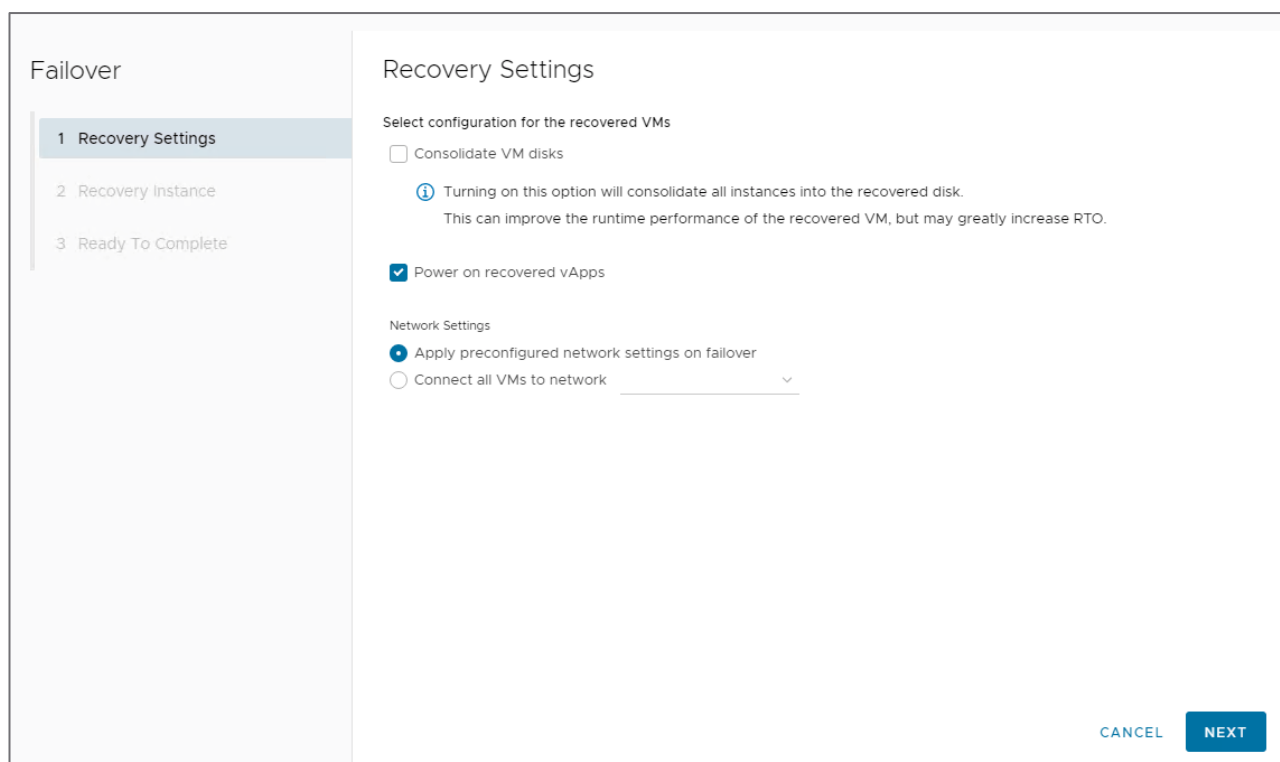
Perform Failover

As described above, you can perform migration for both migrations and protections. You can perform failover only for protections.

1. To perform failover, select one or more protections and from the **All Actions** menu select **Failover**.



2. In the **Recovery Settings** page, select whether to consolidate the VM disks and whether to power on the workloads. Select to apply preconfigured network settings or select another network for the newly created virtual machines. Click **Next**.



3. In the **Recovery Instance** page, if the replication is configured to keep more than one instance, you can select from which one to create the new virtual machine. Click **Next**.

The screenshot shows the 'Recovery Instance' page of the Failover wizard. On the left, a sidebar titled 'Failover' contains three steps: '1 Recovery Settings', '2 Recovery Instance' (which is highlighted), and '3 Ready To Complete'. The main area is titled 'Recovery Instance' and contains the instruction 'Select recovery point in time.' Below this, there is a list of virtual machines, with 'vm-003' selected. To the right of the list is a timeline visualization with a blue dot indicating the selected recovery point. The timeline has several vertical lines representing time points: 11/24/2021, 4:46:01 PM; 11/24/2021, 4:50:02 PM; 11/24/2021, 4:54:03 PM; 11/24/2021, 4:58:04 PM; 11/24/2021, 5:02:05 PM; and 11/24/2021, 5:06:06 PM. At the bottom right, there are three buttons: 'CANCEL', 'BACK', and 'NEXT'.

4. In the **Ready To Complete** page, review the details and click **Finish**.

The screenshot shows the 'Ready To Complete' page of the Failover wizard. On the left, the 'Failover' sidebar now highlights '3 Ready To Complete'. The main area is titled 'Ready To Complete' and contains the instruction 'Verify the selected settings before proceeding:'. Below this, there is a table of settings to be verified:

Recovered vApps	vm-003
Recovery site	CLOUD-01
Recovery network	Preconfigured network settings
Synchronize VM changes	Manually selected instance
Power on recovered vApps	Activated
Consolidate VM disks	Deactivated

At the bottom right, there are three buttons: 'CANCEL', 'BACK', and 'FINISH'.

The **Recovery state** of the new replication changes to **Fail-Over** and in the **Last changed** column you can monitor the progress.

Outgoing Replications

ALL ACTIONS ▾

STATUS TOPOLOGY INSTANCES RESOURCES VAPP VM

	vApp / VM	SLA profile	RPO	Recovery state	Replication type	Overall health	Last changed
<input checked="" type="checkbox"/>	> vm-003	Gold	30min	Failed-Over	Protection	Green	Failover 53%
<input type="checkbox"/>	> vm-002	N/A	24h	Not started	Migration	Yellow	11/24/2021, 4:45:21 PM
<input type="checkbox"/>	> vm-001	N/A	24h	Not started	Migration	Green	11/24/2021, 4:44:59 PM

5. The failover completes when the **Recovery state** of the new replication changes to **Failed-Over**.

Outgoing Replications

ALL ACTIONS ▾

STATUS TOPOLOGY INSTANCES RESOURCES VAPP VM

	vApp / VM	SLA profile	RPO	Recovery state	Replication type	Overall health	Last changed
<input checked="" type="checkbox"/>	> vm-003	Gold	30min	Failed-Over	Protection	Green	11/24/2021, 5:08:18 PM
<input type="checkbox"/>	> vm-002	N/A	24h	Not started	Migration	Yellow	11/24/2021, 4:45:21 PM
<input type="checkbox"/>	> vm-001	N/A	24h	Not started	Migration	Green	11/24/2021, 4:44:59 PM

6. Now you can configure the protection in the opposite direction by using **Reverse** from the **All Actions** menu.

vm vSphere Client Menu ▾ Search in all environments

Cloud Provider DR and Migration INSTANCE 192.168.2.11:443 ▾

My-On-Premise

Replications ▾

Outgoing Replications

Incoming Replications

Replication Tasks

Emergency Recovery

Source Replications

System ▾

Settings

L2 Stretch

System Health

System Tasks

Support Bundles

Backup Archives

About

Outgoing Replications

ALL ACTIONS ▾

vm-003

vm-002

vm-001

1 DESELECT ALL RESET COLUMN

Details Instances Tasks

Your provider does not allow you to store instances

STORE DON'T STORE DELETE

Instance time

New protection

New migration

Settings

Replication settings

vApp Settings

Network settings

Disk settings

Change owner

Change storage policy

Instances

Sync

Pause

Resume

Recovery

Migrate

Failover

Test

Reverse

Delete replication

No preserved instances



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