

Module 7: Data Tiering in Cloud Volumes ONTAP

Exercise 1: Tier Backup Data to Azure Blob Storage

In this exercise, you tier data from NetApp Cloud Volumes ONTAP to Azure Blob Storage, which is the object storage in Azure.


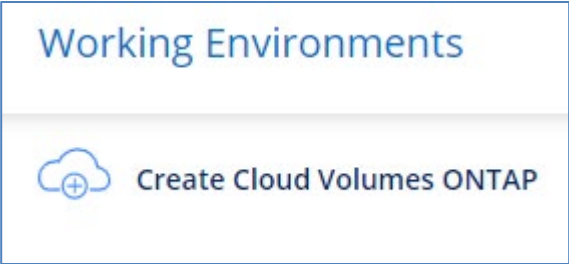
Objectives

This exercise focuses on enabling you to do the following:

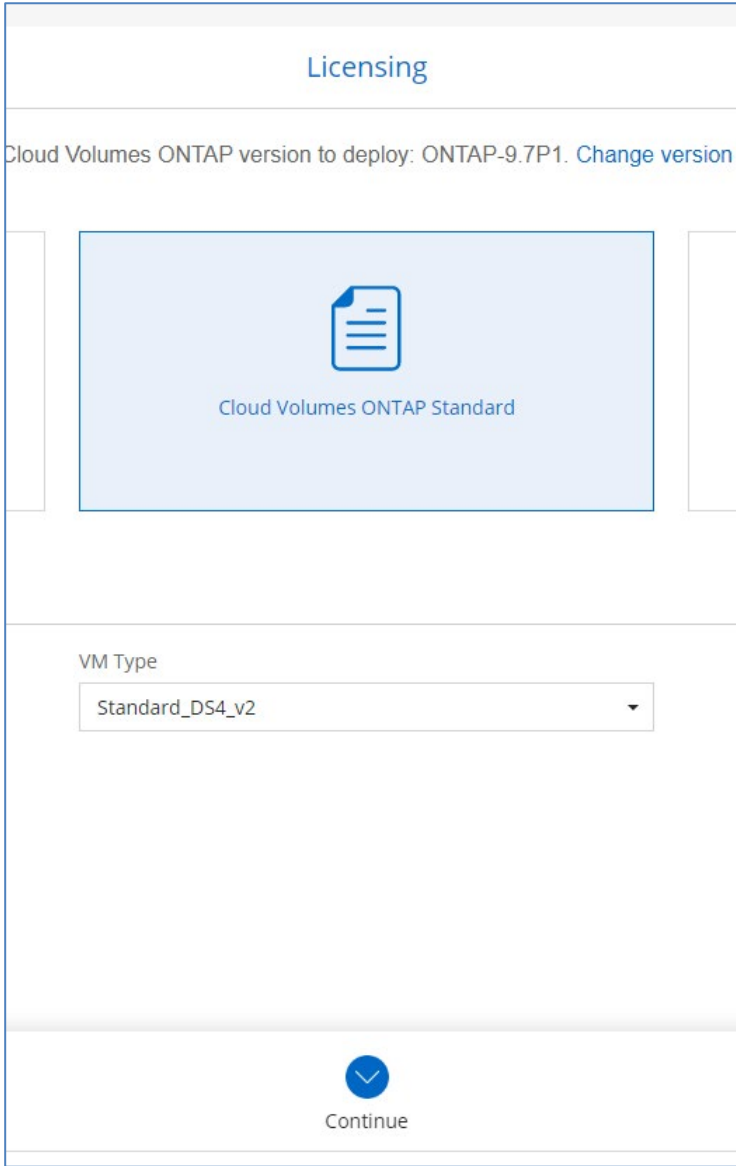

- Use NetApp Cloud Manager to configure data tiering
- Verify that data is tiered to Azure Blob Storage

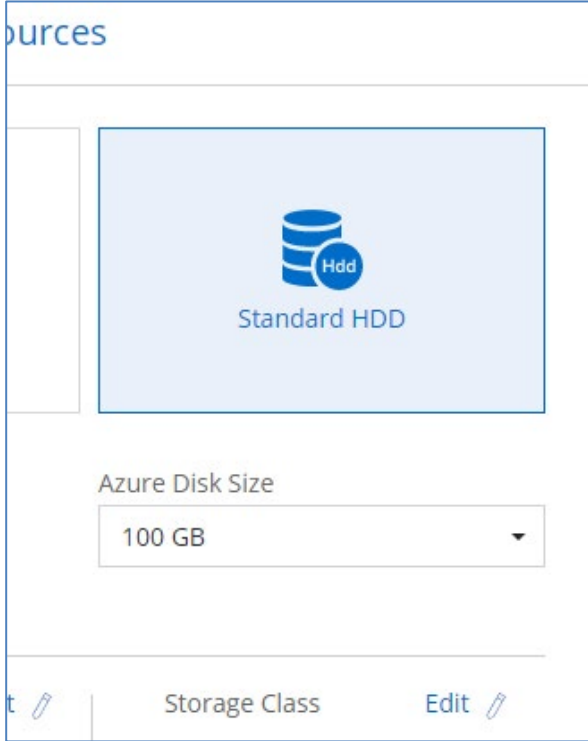
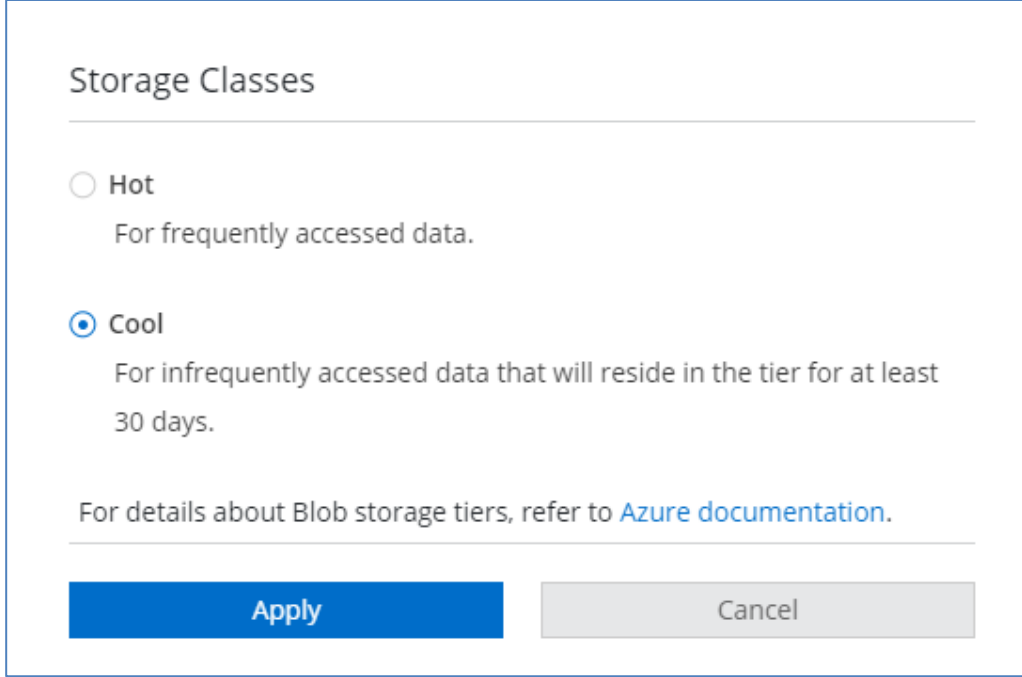
Task 1: Setup an Eligible Cloud Volumes ONTAP for Tiering

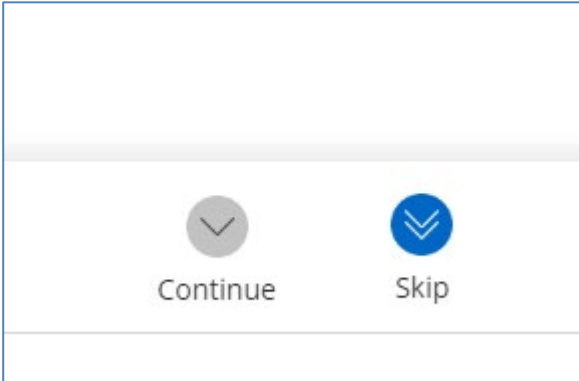
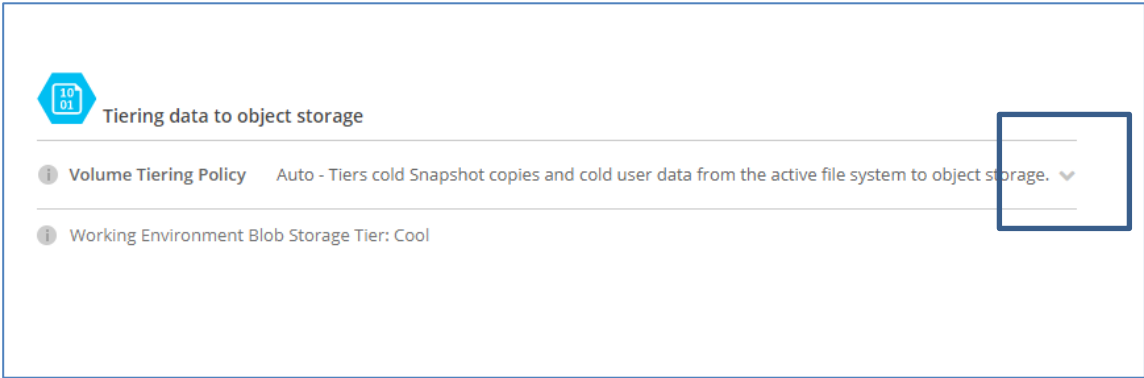
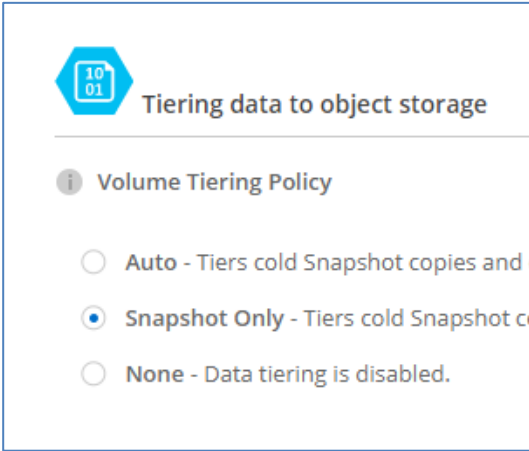
In this task, you setup a Cloud Volumes ONTAP environment to tier to.

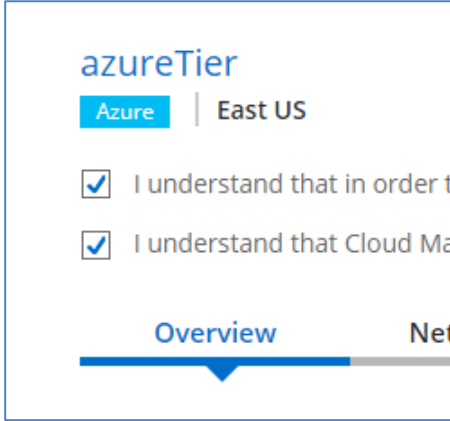
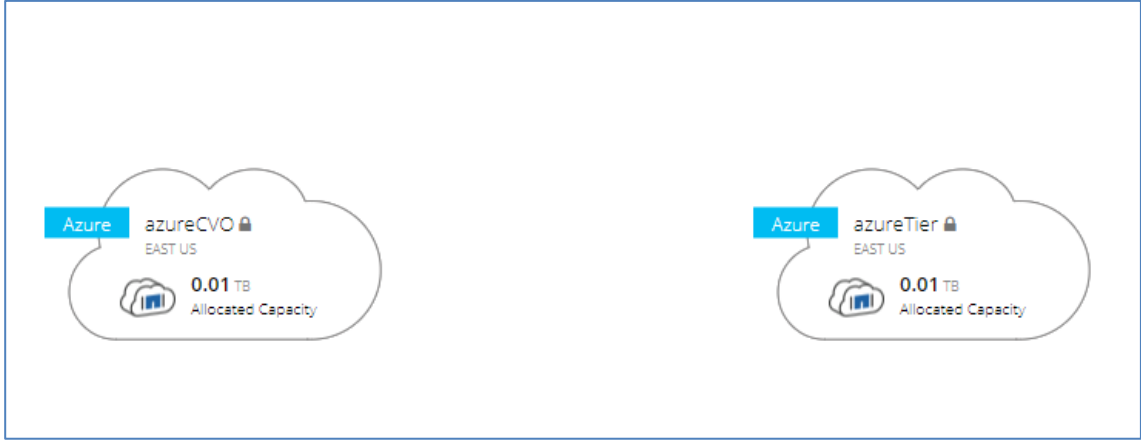
Step	Action
1-1	 The subnet in which Cloud Volumes ONTAP resides must be configured for Private Google Access. Private Google Access enables virtual machine (VM) instances with only internal (private) IP addresses (no external IP addresses) to reach the public IP addresses of Google APIs and services. You enable Private Google Access at the subnet level. When enabled, instances in the subnet that have only private IP addresses (like the Cloud Volumes ONTAP instance in the exercises) can send traffic to Google APIs and services (to a bucket for tiering) through the default route (0.0.0.0/0) with a next hop to the default internet gateway.
1-2	In Cloud Manager, click Create Cloud Volumes ONTAP . 
1-3	In the Define Your Working Environment, do the following: <ul style="list-style-type: none">a. For the Select Provider, choose Microsoft Azure.b. For the Select Type, choose Cloud Volumes ONTAP.c. Click Continue.
1-4	In the Details & Credentials, do the following: <ul style="list-style-type: none">a. For the Working Environment Name (Cluster Name), enter azureTier.b. For the Password and Confirm Password, enter HappyCloud123.c. Click Continue.
1-5	For the Services, leave the defaults and click Continue .

Step	Action
1-6	<p>For the Location & Connectivity, do the following:</p> <ul style="list-style-type: none"> a. Azure Region, choose East US. b. For the VNet, choose NetApp-VNet NetApp-RG. c. For the Subnet, choose BackEnd. (10.2.1.0/24) d. Check the box for “I have verified network connectivity between the Cloud Manager server and the selected VNet.” e. Click Continue.
1-7	In the Cloud Volumes ONTAP License & NetApp Support Site Account, leave Pay-As-You-Go selected. Leave all other entries blank.
1-8	Click Continue .
1-9	For the Preconfigured Packages, select Create my own configuration .

Step	Action
1-10	<p>For the Licensing, choose Cloud Volumes ONTAP Standard. Leave the default VM Type.</p> 
1-11	<p> NOTE: You need Cloud Volumes ONTAP Standard in order to use tiering.</p>
1-12	Click Continue .

Step	Action
1-13	<p>On the Underlying Storage Resources page, do the following:</p> <ol style="list-style-type: none"> For the disk type, choose Standard HDD. For the Azure Disk Size, click the drop down menu and choose 100 GB. For the Storage Class, click Edit.  <p>The screenshot shows the 'Underlying Storage Resources' configuration page. At the top, the title 'Underlying Storage Resources' is partially visible. Below it, there's a large blue box with a database icon and the text 'Standard HDD'. Underneath this, the 'Azure Disk Size' is set to '100 GB' in a dropdown menu. At the bottom, there's a section for 'Storage Class' with an 'Edit' button next to it.</p>
1-14	<p>For the Storage Classes, select Cool, then click Apply.</p>  <p>The screenshot shows a 'Storage Classes' dialog box. It has two radio buttons: 'Hot' (unselected) and 'Cool' (selected). Below 'Hot' is the text 'For frequently accessed data.' Below 'Cool' is the text 'For infrequently accessed data that will reside in the tier for at least 30 days.' At the bottom, there's a link 'For details about Blob storage tiers, refer to Azure documentation.' Below the link are two buttons: 'Apply' (highlighted in blue) and 'Cancel' (grayed out).</p>

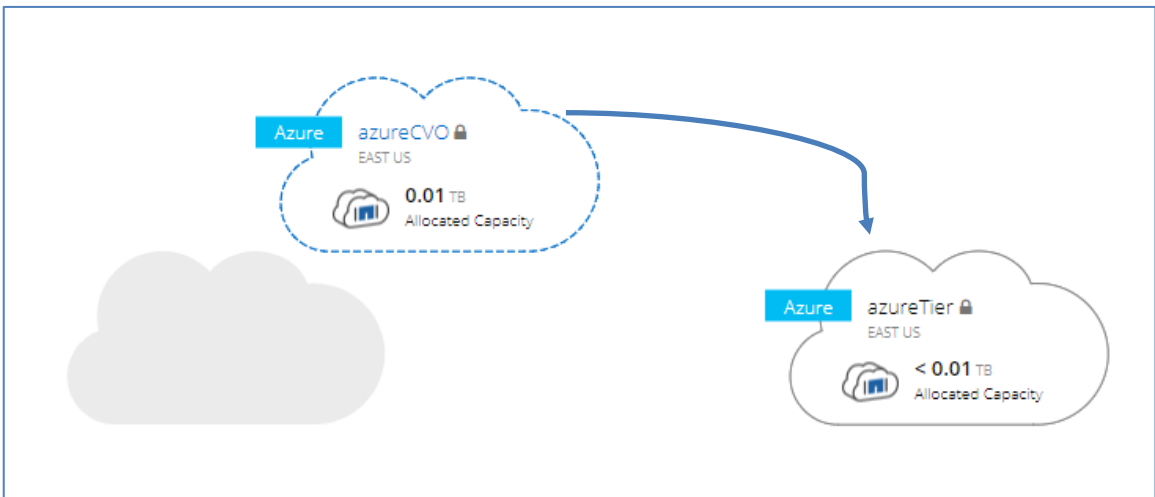
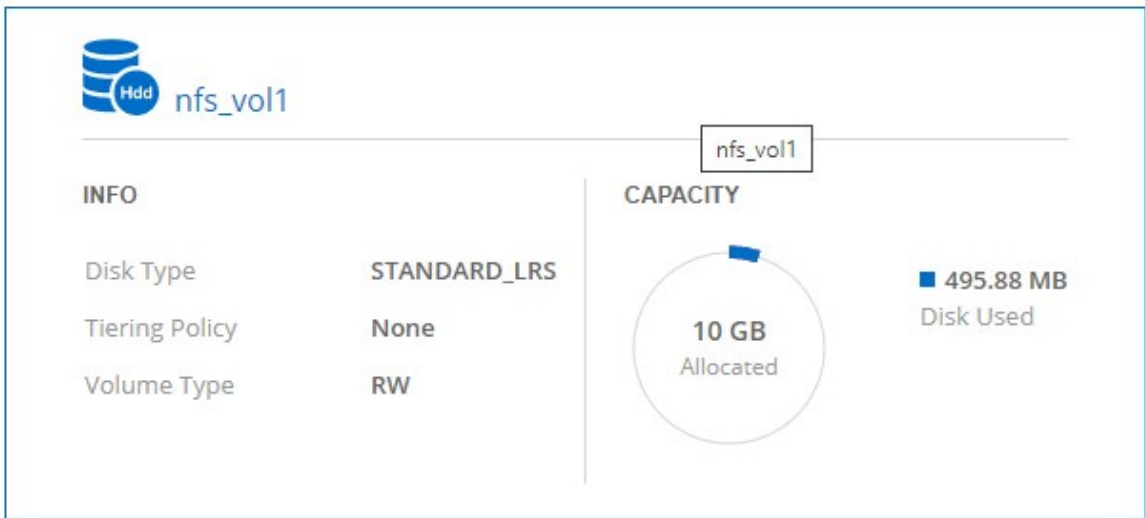
Step	Action
1-15	Click Continue .
1-16	On the Write Speed & WORM, leave the Write Speed to Normal and click Continue .
1-17	On the Create Volume page, click Skip . 
1-18	On the Create Volume - Usage Profile, Disk Type & Tiering Policy, click the drop down for Volume Tiering Policy. 
1-19	In the Volume Tiering Policy, select Snapshot Only . 
1-20	Click Continue .

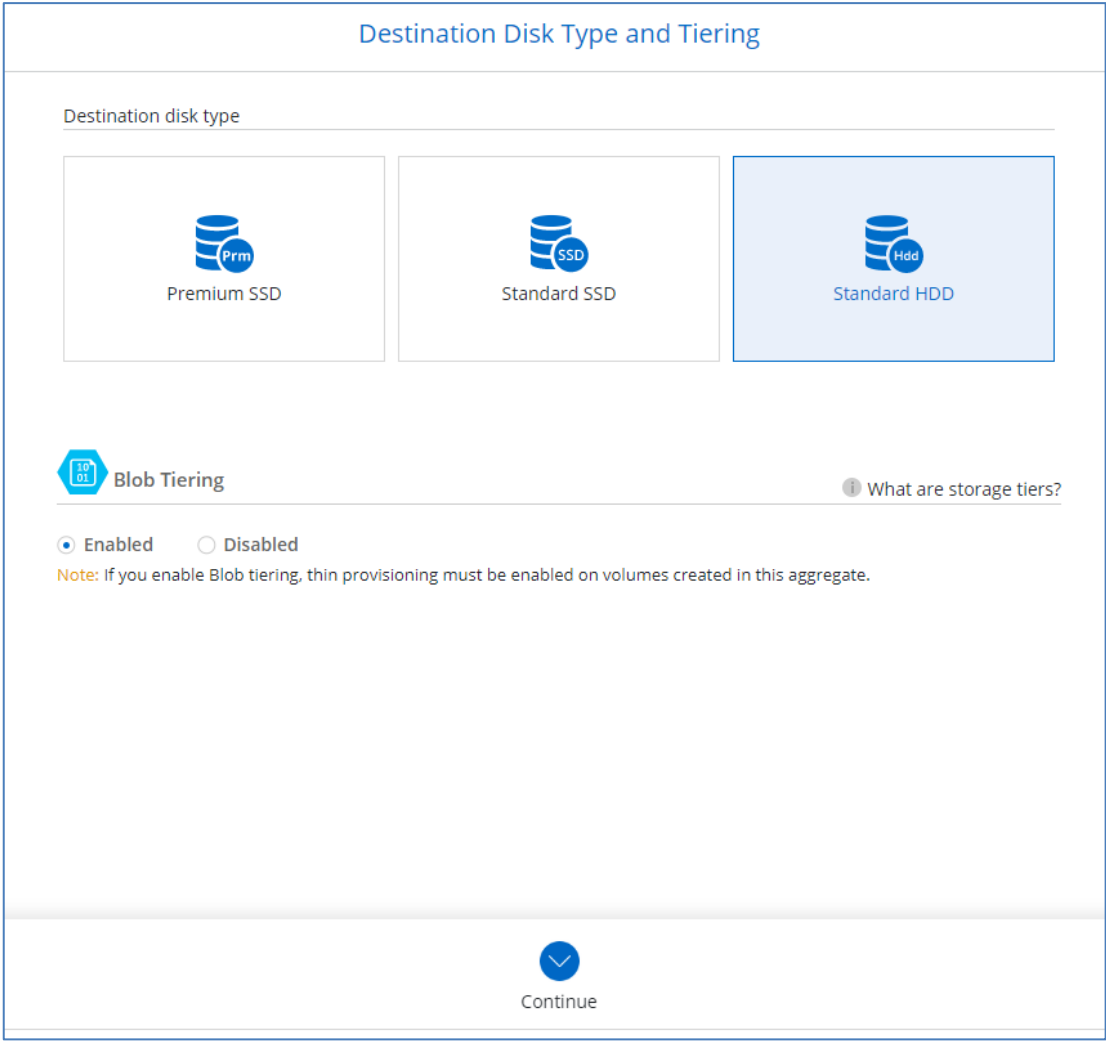
Step	Action
1-21	<p>On Review & Approve, select both I Understand selections and click GO</p> 
1-22	<p>Once the new working environment is finished installing, you should have two working environments, azureCVO and azureTier.</p> 
1-23	

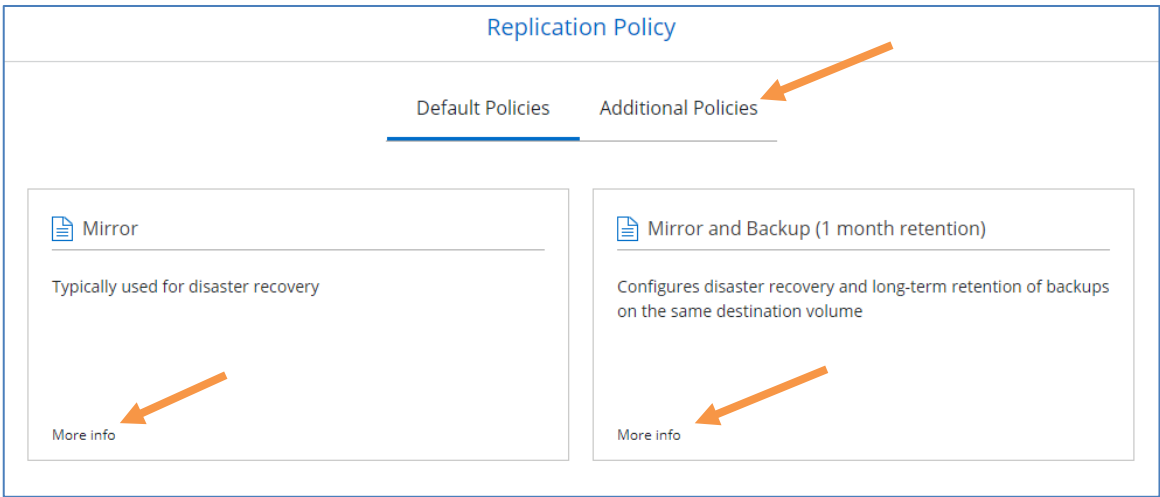
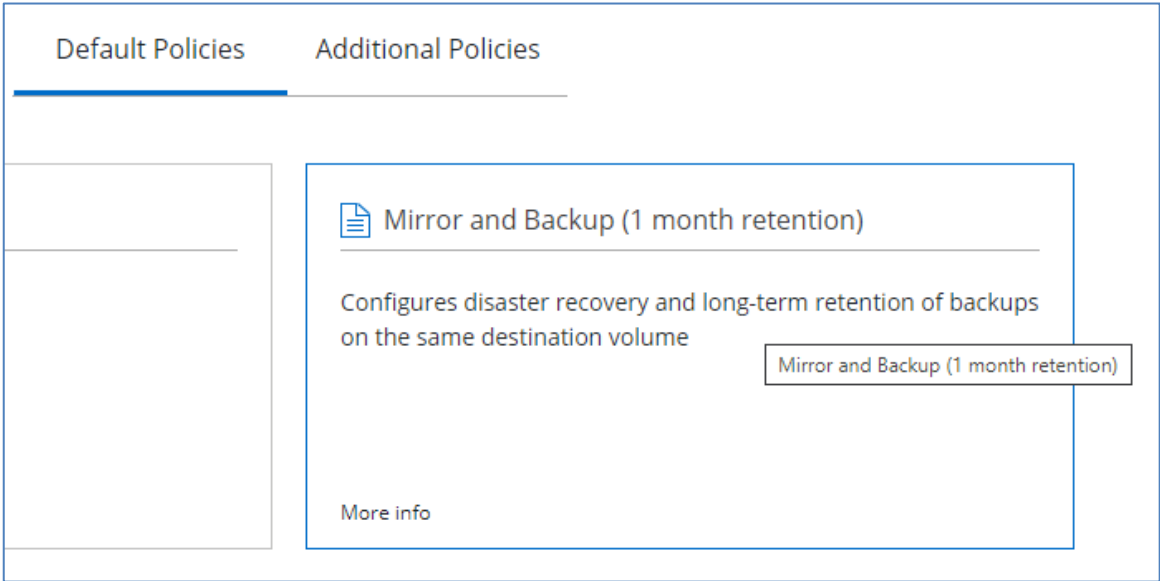
Task 2: Create the Tiering Relationship

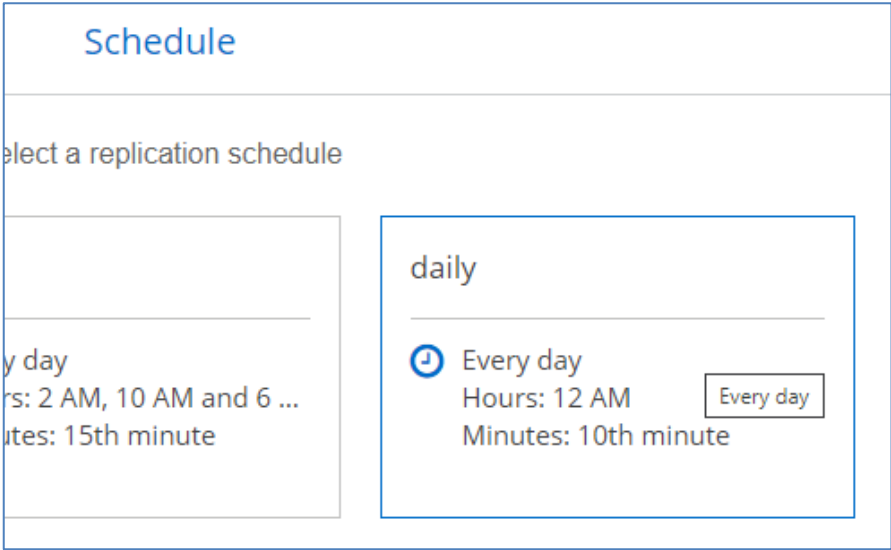
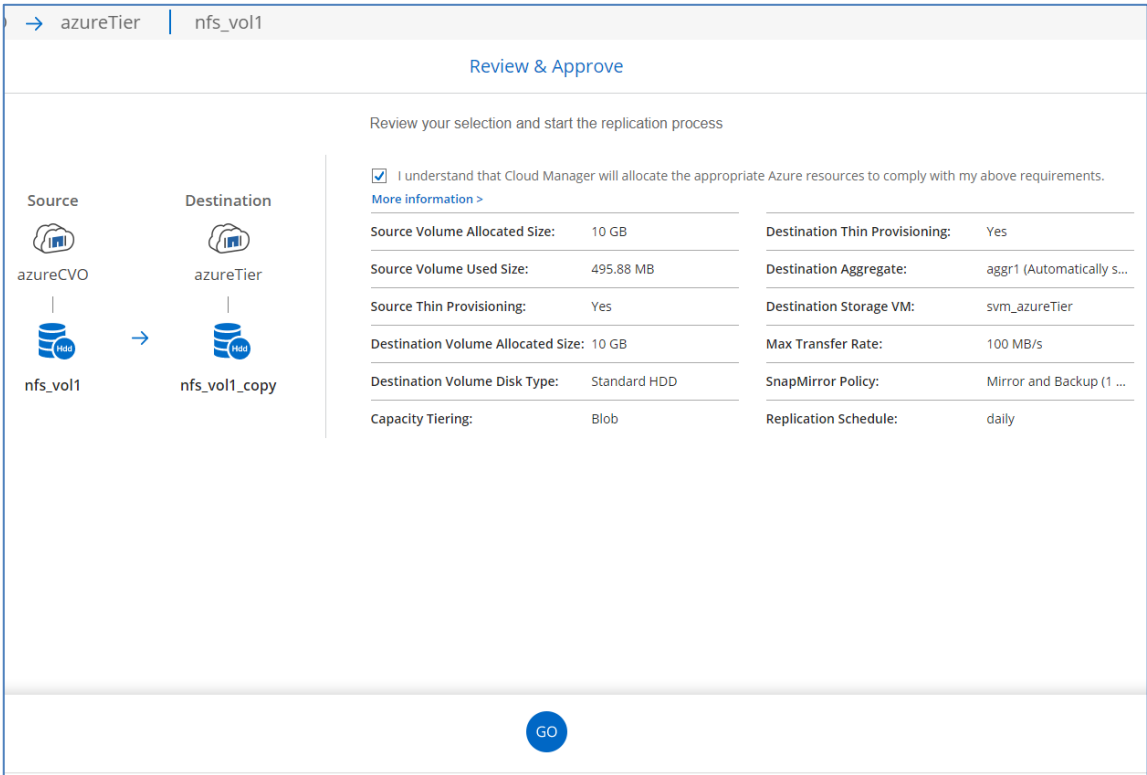
In this task, you configure your tiering relationship between azureCVO and azureTier using SnapMirror technology.

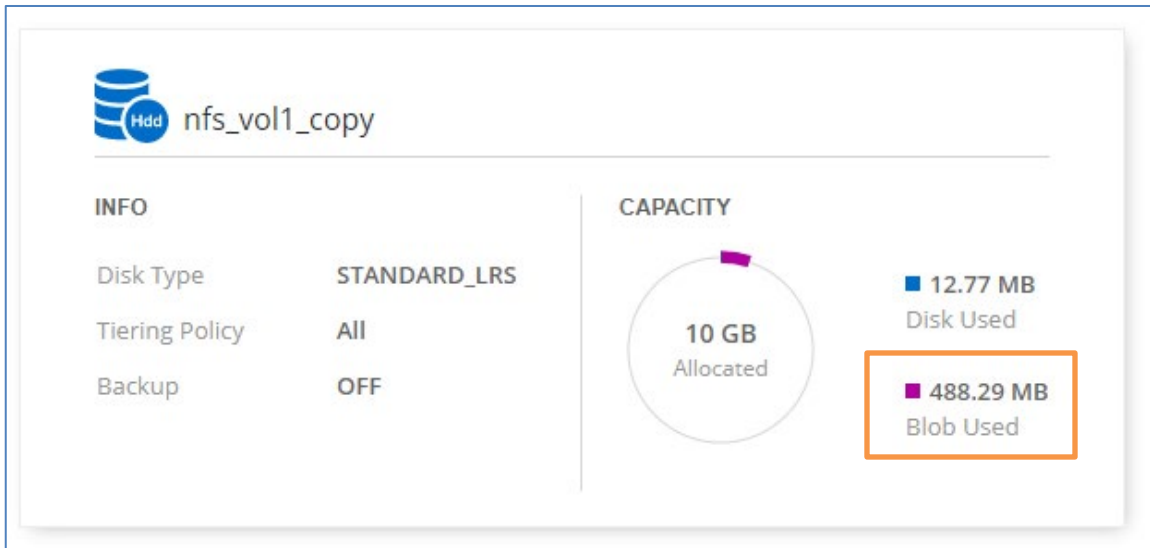
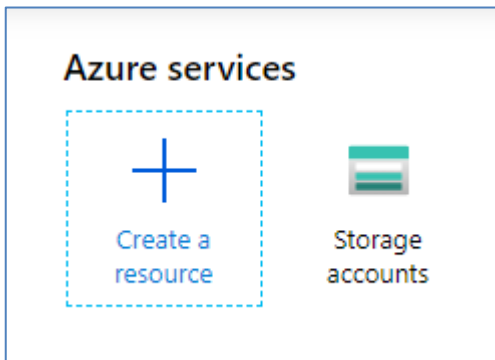
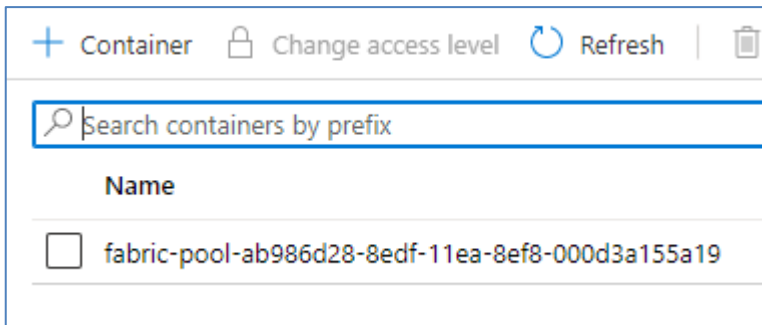
Step	Action
2-1	<p>On your rhel77priv instance, login and remove all files in the /mnt/nfs_vol besides the 500m.test file.</p> <p>Example output:</p> <pre>[demoadmin@rhel77priv nfs_vol1]\$ rm 250m.test</pre>
2-2	<p>Your output should be as follows after removing all files besides the 500m.test file.</p> <pre>[demoadmin@rhel77priv nfs_vol1]\$ ll -h total 491M -rw-rw-r--. 1 demoadmin demoadmin 489M May 5 17:15 500m.test</pre>

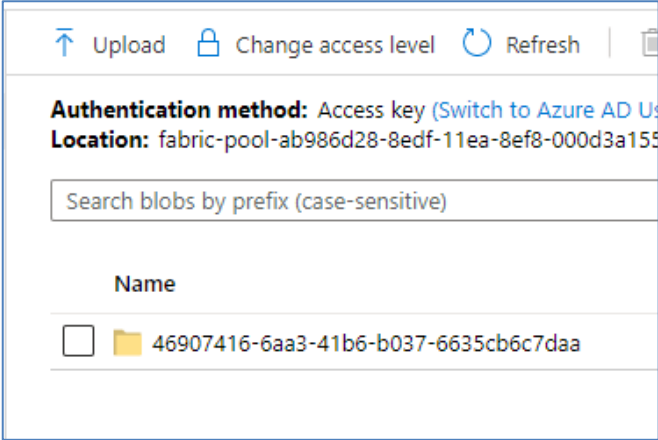

Step	Action
2-3	Return to Cloud Manager, select the Working Environments tab at the top.
2-4	Drag the azureCVO Working Environment on top of azureTier . <div></div>
2-5	For the Source Volume Selection, choose nfs_vol1 . <div></div>

Step	Action
2-6	<p>On the Destination Disk Type and Tiering, Select Standard HDD and Blob Tiering is enabled.</p>  <p>The screenshot shows the 'Destination Disk Type and Tiering' configuration interface. Under 'Destination disk type', there are three options: Premium SSD, Standard SSD, and Standard HDD. Standard HDD is selected and highlighted with a blue border. Below this, the 'Blob Tiering' section shows 'Enabled' selected with a radio button. A note states: 'Note: If you enable Blob tiering, thin provisioning must be enabled on volumes created in this aggregate.' A 'Continue' button is at the bottom.</p>
2-7	Click Continue .
2-8	On the Destination Volume Name, leave the defaults and click Continue .
2-9	On the Max Transfer Rate, leave the default and click Continue .

Step	Action
2-10	<p>On the Replication Policy, take some time to explore the different Policies to choose from by clicking More info.</p>  <p>The screenshot shows the 'Replication Policy' interface. It has two tabs: 'Default Policies' and 'Additional Policies'. Under 'Default Policies', there are two cards. The first card is titled 'Mirror' and describes it as 'Typically used for disaster recovery'. The second card is titled 'Mirror and Backup (1 month retention)' and describes it as 'Configures disaster recovery and long-term retention of backups on the same destination volume'. Both cards have a 'More info' link at the bottom. Orange arrows in the image point to these 'More info' links and the 'Additional Policies' tab.</p>
2-11	<p>Under Default Policies, choose Mirror and Backup (1 month retention).</p>  <p>The screenshot shows the 'Replication Policy' interface with the 'Default Policies' tab selected. The 'Mirror and Backup (1 month retention)' card is highlighted with a blue border. A tooltip is visible over the card, displaying the title 'Mirror and Backup (1 month retention)'. The 'Mirror' card is partially visible on the left.</p>

Step	Action
2-12	<p>Under Schedule, choose daily.</p> 
2-13	<p>On the Review & Approve page, select the check box for I understand, review your details.</p> 
2-14	Click GO .

Step	Action															
2-15	<p>When the relationship has finished, double click on the azureTier Working Environment and note the Blob Used capacity.</p> <div></div>															
2-16	<p>Return to the Azure Portal Home, and click on Storage Accounts.</p> <div></div>															
2-17	<p>Choose one of the two storage accounts for azureTier-rg.</p> <div><table><tr><td><input type="checkbox"/></td><td>ryxdhyisupnwdtx</td><td>Storage account</td><td>StorageV2</td><td>azureCVO-rg</td></tr><tr><td><input type="checkbox"/></td><td>t5sawydellwf2a5</td><td>Storage account</td><td>StorageV2</td><td>azureTier-rg</td></tr><tr><td><input type="checkbox"/></td><td>wed0e8m9xtadywo</td><td>Storage account</td><td>StorageV2</td><td>azureTier-rg</td></tr></table></div>	<input type="checkbox"/>	ryxdhyisupnwdtx	Storage account	StorageV2	azureCVO-rg	<input type="checkbox"/>	t5sawydellwf2a5	Storage account	StorageV2	azureTier-rg	<input type="checkbox"/>	wed0e8m9xtadywo	Storage account	StorageV2	azureTier-rg
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2-18	<p>Click Containers.</p>															
2-19	<p>Find the one that says fabric-pool-xxxx-xxxx...</p> <div></div>															

Step	Action
2-20	<p>Click on your fabric pool.</p> 
2-21	<p>Note: There are several files here. Take a moment to review the information on this page regarding the Access tier, Blob type, Size and Lease state.</p>
2-22	<p>Go back to Cloud Manager, remove the Snapmirror relationship and delete the azureTier Working Environment.</p>
2-23	 <p>By deleting the azureTier Working environment, you also have deleted the Azure Blob.</p>

End of Exercise