Exercise 2: Configuring the SMB Protocol in a Storage VM

In this exercise, you use best practice tools to create a simple SMB server in a storage VM.

Objectives

This exercise focuses on enabling you to do the following:

- Configure a storage VM to host the SMB protocol
- Verify and create SMB shares
- Access SMB shares from a Microsoft Windows client
- Enable NAS file system analytics

Case Study

The IT staff might need quite some time to fully integrate the authentication domain of Dwurgle Enterprises with Zarrot Industries. In the meantime, the easiest way to enable the employees of Dwurgle to access the NetApp system is to use the Dwurgle Windows Active Directory domain to authenticate user identities.

You enable the SMB access protocol on the NAS storage VM.

You create an SMB share and verify that users from the Dwurgle domain can access the share.
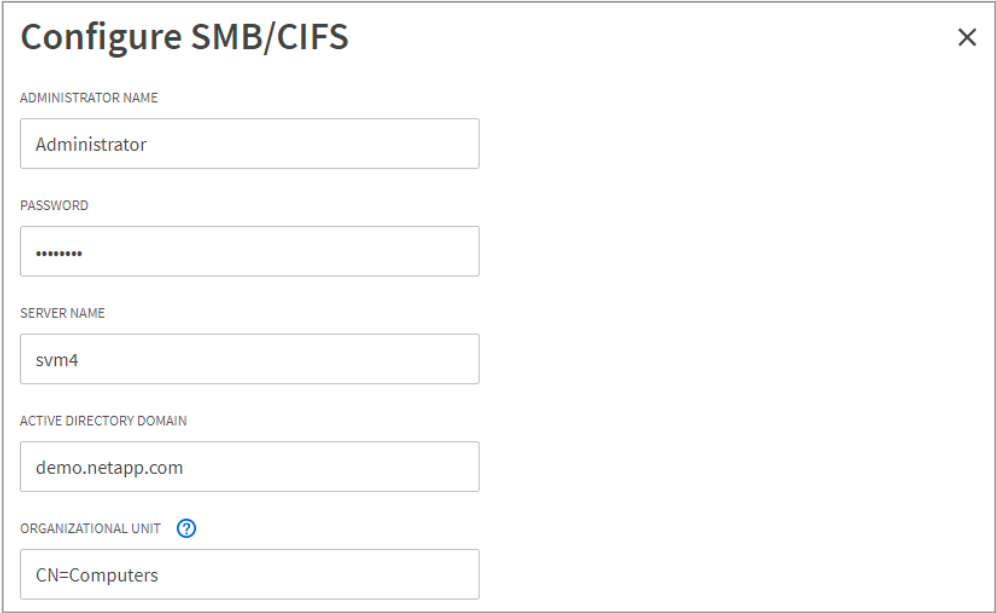
Lab Equipment
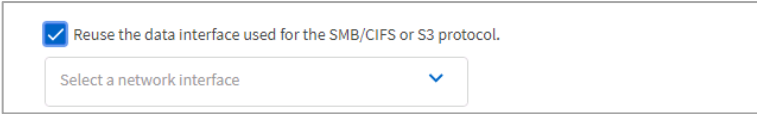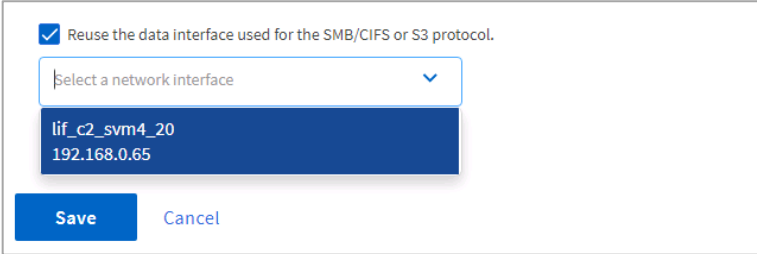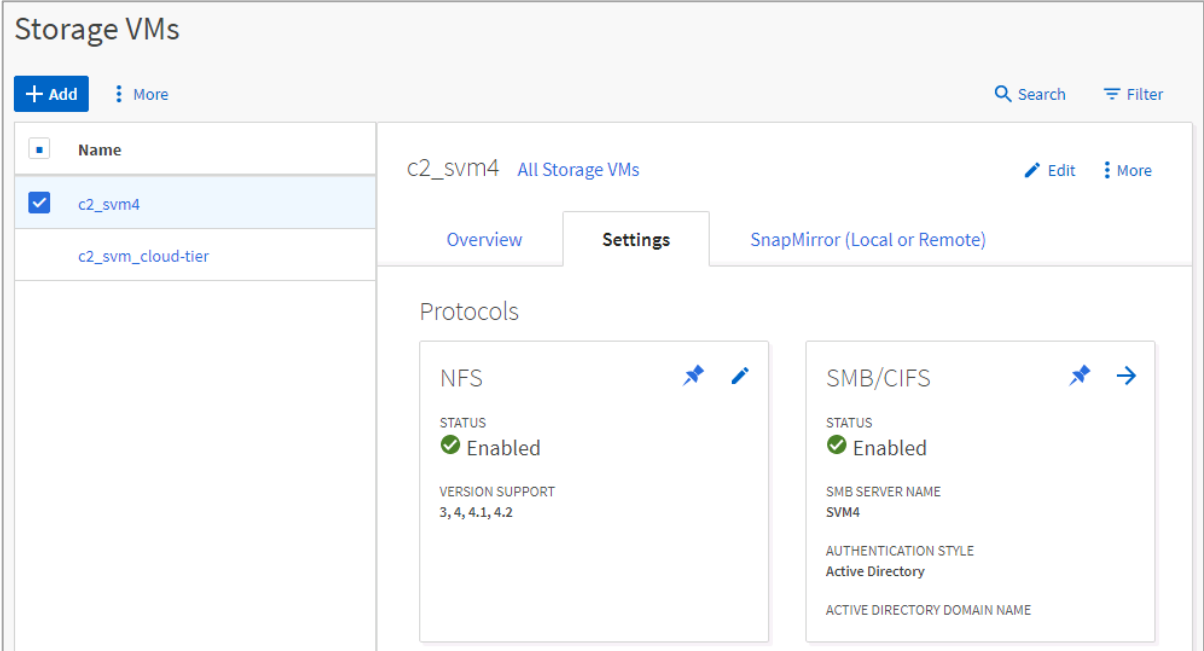
Use the following equipment to complete the exercise:

System	Host Name	IP Addresses	User Name	Password
Windows Server	jumphost	192.168.0.5	DEMO\Administrator	Netapp1!
ONTAP cluster-management LIF (cluster1)	cluster1	192.168.0.101	admin (case-sensitive)	Netapp1!
ONTAP cluster-management LIF (cluster2)	cluster2	192.168.0.102	admin (case-sensitive)	Netapp1!
Windows Server	dc1	192.168.0.253	DEMO\Administrator	Netapp1!

Task 1: Configure a Storage VM to Host the SMB Protocol

Step	Action
1-1	Log in to NetApp ONTAP System Manager for **cluster2**.
1-2	From the System Manager menu, select **Storage > Storage VMs**.
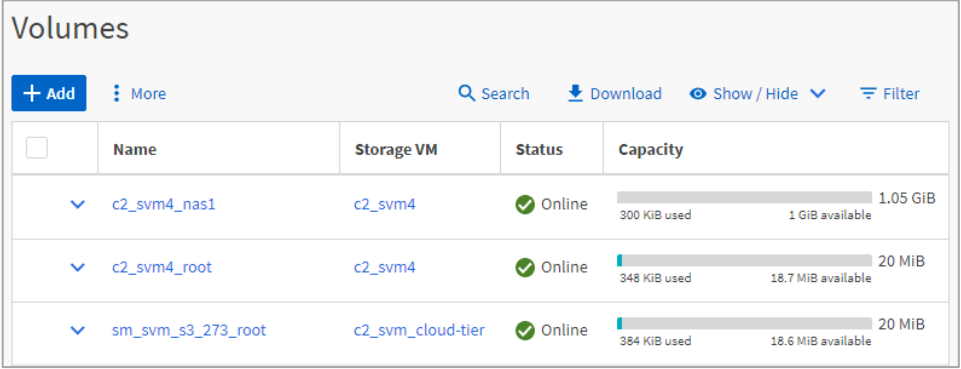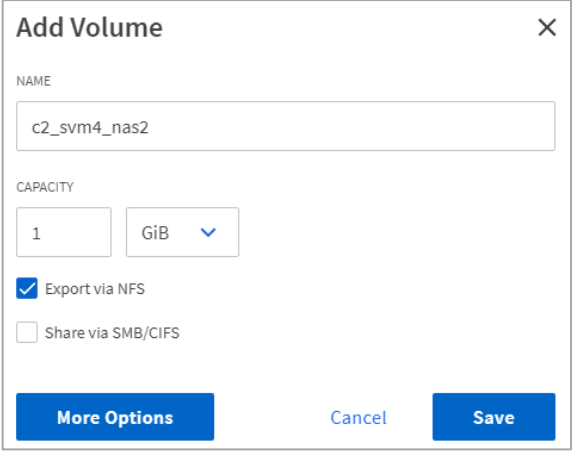
Step	Action
1-3	Click **c2_svm4**.
1-4	On the c2_svm4 details page, click the **Settings** tab.
1-5	In the SMB/CIFS panel, click the gear icon.

Step	Action
1-6	On the Configure SMB/CIFS page, specify the following settings: • Administrator Name: **Administrator** • Password: **Netapp1!** • Server Name: **svm4** • Active Directory Domain: **demo.netapp.com** • Organizational Unit: **CN=Computers** (default) **Configure SMB/CIFS** ✕ ADMINISTRATOR NAME Administrator PASSWORD •••••••• SERVER NAME svm4 ACTIVE DIRECTORY DOMAIN demo.netapp.com ORGANIZATIONAL UNIT ⑦ CN=Computers
1-7	*i* The DNS domain name and NTP servers are inherited from the cluster admin storage VM.
1-8	Change the DNS Details settings as needed for the data storage VM: • DNS Domain: **demo.netapp.com** (default) • Name Servers: **192.168.0.253** (default) DNS DETAILS DOMAINS demo.netapp.com ✛ Add NAME SERVERS 192.168.0.253 ✛ Add

Step	Action
1-9	Select the **Reuse the data interface used for the SMB/CIFS protocol or S3 protocol** checkbox. ☑ Reuse the data interface used for the SMB/CIFS or S3 protocol. Select a network interface ⌄
1-10	Select the logical network interface that you created in the NFS protocol exercise. ☑ Reuse the data interface used for the SMB/CIFS or S3 protocol. Select a network interface ⌄ lif_c2_svm4_20 192.168.0.65 **Save** Cancel
1-11	Review the configuration, and then click **Save**.
1-12	Verify that SMB/CIFS is enabled on the storage VM. **Storage VMs** ➕ **Add** ⋮ More 🔍 Search ⚖ Filter ■ **Name** c2_svm4 All Storage VMs ✏ Edit ⋮ More ☑ c2_svm4 Overview **Settings** SnapMirror (Local or Remote) c2_svm_cloud-tier Protocols NFS 📌 ✏ SMB/CIFS 📌 → STATUS STATUS ✅ Enabled ✅ Enabled VERSION SUPPORT SMB SERVER NAME 3, 4, 4.1, 4.2 SVM4 AUTHENTICATION STYLE Active Directory ACTIVE DIRECTORY DOMAIN NAME

Task 1: Task 2: Create a Data Volume
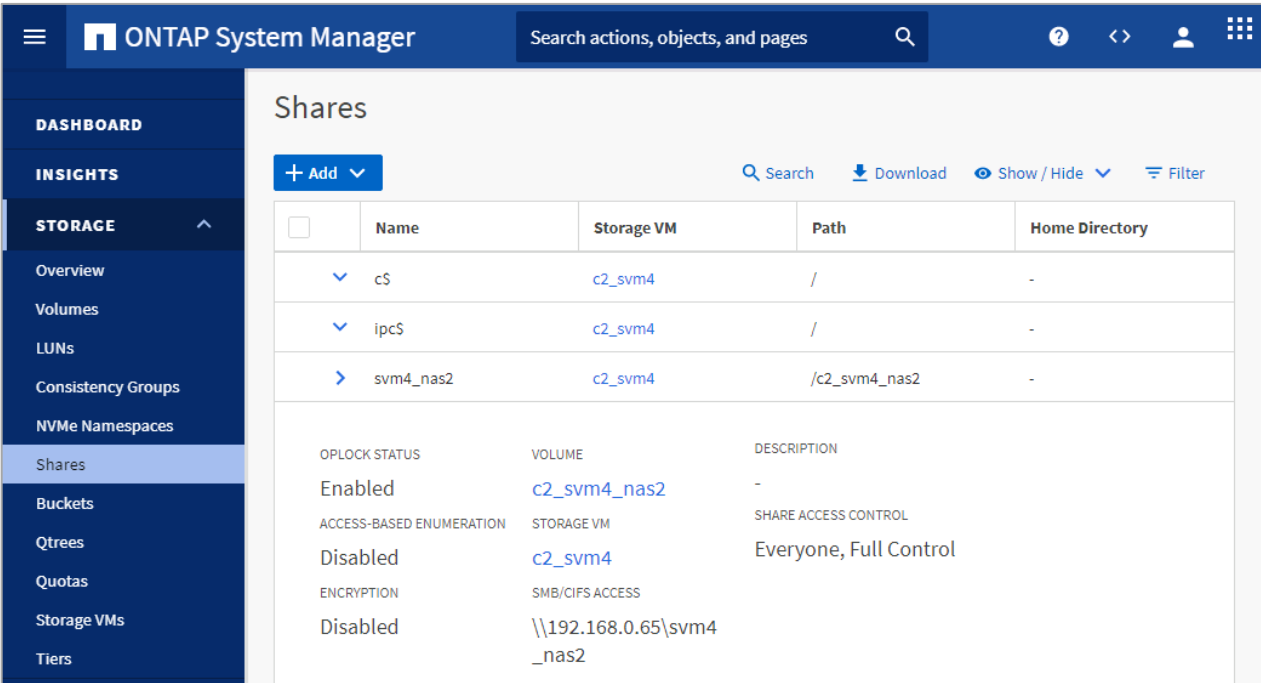
Step	Action
2-1	From the System Manager menu, select **Storage > Volumes**.

Step	Action
2-2	On the Volumes page, click **Add**. **Volumes** + Add ⋮ More 🔍 Search ⬇ Download 👁 Show / Hide ⌄ ≡ Filter |	Name	Storage VM	Status	Capacity
⌄	c2_svm4_nas1	c2_svm4	✅ Online	1.05 GiB — 300 KiB used / 1 GiB available
⌄	c2_svm4_root	c2_svm4	✅ Online	20 MiB — 348 KiB used / 18.7 MiB available
⌄	sm_svm_s3_273_root	c2_svm_cloud-tier	✅ Online	20 MiB — 384 KiB used / 18.6 MiB available	
2-3	In the Add Volume dialog box, specify the following settings: • Name: **c2_svm4_nas2** • Capacity: **1 GiB** • Export via NFS: **\<selected\>** (default) • Share via SMB/CIFS: **\<unselected\>** (default) **Add Volume** ✕ NAME c2_svm4_nas2 CAPACITY 1 GiB ⌄ ☑ Export via NFS ☐ Share via SMB/CIFS **More Options** Cancel **Save**
2-4	Click **More Options**.
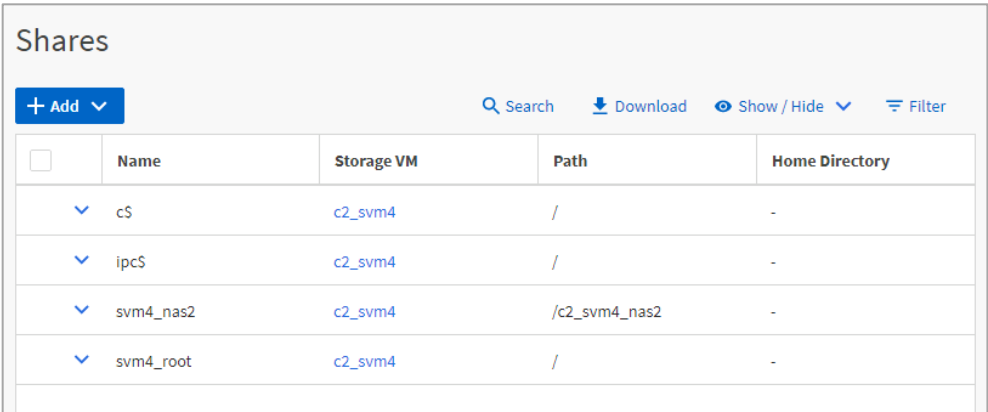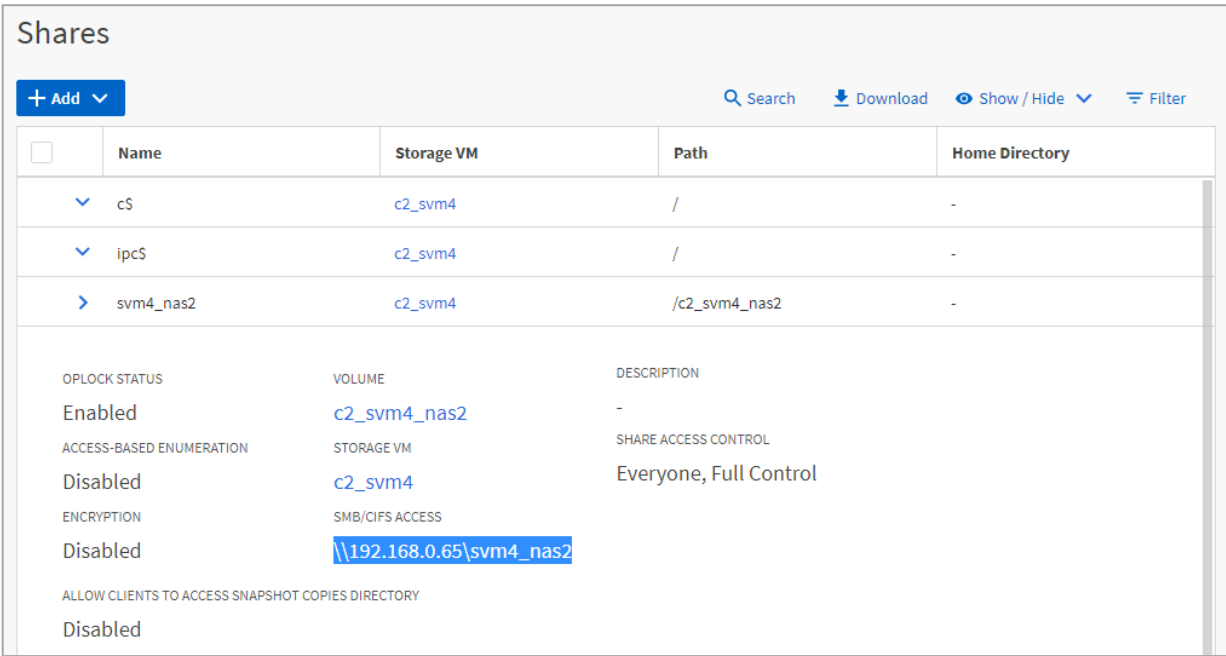
Step	Action
2-5	Scroll to the Access Permissions section, and then specify the following settings: • Export via NFS: **\<selected\>** (default) • Grant Access to Host: **net_192** • Share via SMB/CIFS: **\<selected\>** • Name: **svm4_nas2** • Grant Access to User(s): **Everyone** (default) • Permission: **Full Control** (default) **Access Permissions** ☑ Export via NFS GRANT ACCESS TO HOST net_192 ⌄ Create a new export policy, or select an existing export policy. | Rule Index	Clients	Access Protocols	Read-Only Rule	Read/Wri
---	---	---	---	---
1	192.168.0.0/24	Any	Any	Any	 ☑ Share via SMB/CIFS NAME svm4_nas2 GRANT ACCESS TO USER(S) Everyone PERMISSION Full Control ⌄
2-6	Note the export policy that was assigned to the volume and the client hosts that are granted access.
2-7	Click **Save**.

Step	Action
2-8	On the Volumes page, expand the **c2_svm4_nas2** volume entry and then observe the Mount Path and SMB/CIFS Access values.

Volumes						

Volumes

+ Add   ⋮ More   Q Search   ⬇ Download   👁 Show / Hide ⌄   ≡ Filter

	Name	Storage VM	Status	Capacity	IOPS	Latency (ms)
⌄	c2_svm4_nas1	c2_svm4	✅ Online	444 KiB used 1 GiB available 1.05 GiB	0	0
﹥	c2_svm4_nas2	c2_svm4	✅ Online	264 KiB used 1 GiB available 1.05 GiB	0	0

STATUS
✅ Online

STYLE
FlexVol

SPACE RESERVATION
Thin Provisioned

EXPORT POLICY
⌄ net_192

QUOTA
Off

NFS ACCESS
192.168.0.65:/c2_svm
4_nas2

NFS CLIENTS
(ACTIVE IN PAST 48 HOURS)
-

TIERING POLICY
None

TYPE
Read/Write

SMB/CIFS ACCESS
\\192.168.0.65\svm4_
nas2

STORAGE EFFICIENCY
Disabled

MOUNT PATH
/c2_svm4_nas2

QOS POLICY GROUP
performance-fixed

SNAPSHOT COPIES (LOCAL)

STATUS
🛡 Protected

Snapshot Policy

VOLUME
default

Task 3: Verify and Create SMB Shares
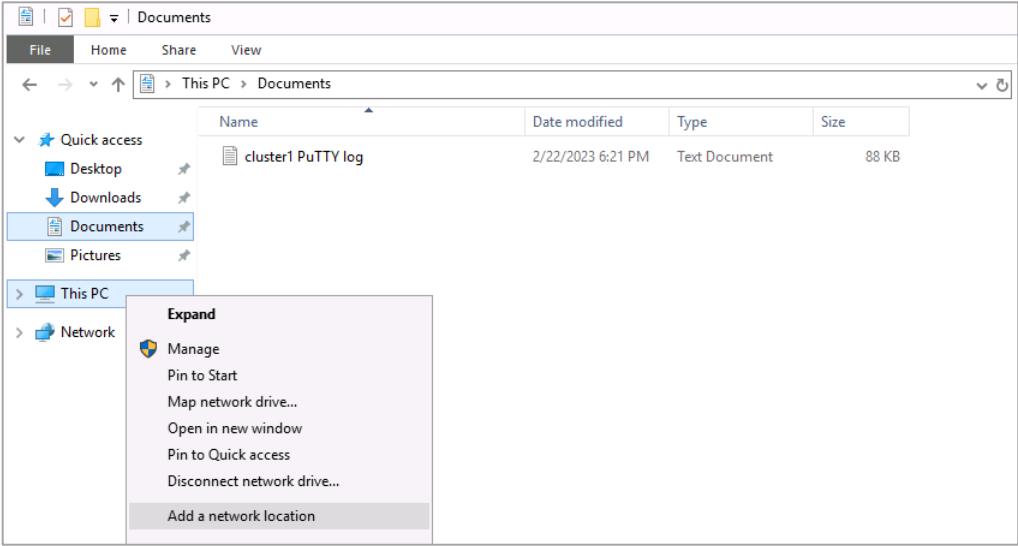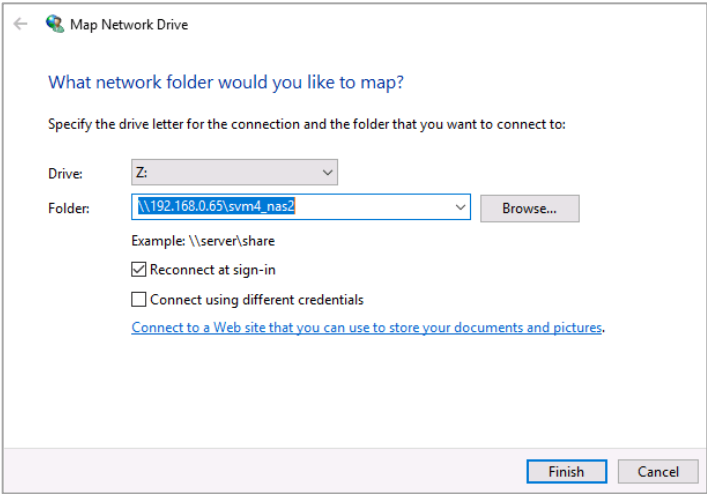
Step	Action
3-1	From the System Manager menu, select **Storage > Shares**.
3-2	Expand the **svm4_nas2** share.

☰ 🅝 ONTAP System Manager   Search actions, objects, and pages   🔍   ❓ <> 👤 ⦙⦙⦙

DASHBOARD

INSIGHTS

STORAGE ⌃

Overview

Volumes

LUNs

Consistency Groups

NVMe Namespaces

Shares

Buckets

Qtrees

Quotas

Storage VMs

Tiers

Shares

+ Add ⌄   Q Search   ⬇ Download   👁 Show / Hide ⌄   ≡ Filter

	Name	Storage VM	Path	Home Directory
⌄	c$	c2_svm4	/	-
⌄	ipc$	c2_svm4	/	-
﹥	svm4_nas2	c2_svm4	/c2_svm4_nas2	-

OPLOCK STATUS
Enabled

ACCESS-BASED ENUMERATION
Disabled

ENCRYPTION
Disabled

VOLUME
c2_svm4_nas2

STORAGE VM
c2_svm4

SMB/CIFS ACCESS
\\192.168.0.65\svm4
_nas2

DESCRIPTION
-

SHARE ACCESS CONTROL
Everyone, Full Control

Step	Action
3-3	On the Shares page, click **Add**, and then select **Share**.
3-4	On the Add Share page, specify the following settings: • Share name: **svm4_root** • Folder name: **/** • Enable Continuous Availability: **<unselected>** (default) • Encrypt data while accessing this share: **<unselected>** (default)
3-5	Click **Save**.

Step	Action
3-6	Confirm the share names.

Shares

	Name	Storage VM	Path	Home Directory
∨	c$	c2_svm4	/	-
∨	ipc$	c2_svm4	/	-
∨	svm4_nas2	c2_svm4	/c2_svm4_nas2	-
∨	svm4_root	c2_svm4	/	-

Step	Action
3-7	Expand the **svm4_nas2** share, and then copy the SMB/CIFS Access path to your clipboard.

Shares

	Name	Storage VM	Path	Home Directory
∨	c$	c2_svm4	/	-
∨	ipc$	c2_svm4	/	-
>	svm4_nas2	c2_svm4	/c2_svm4_nas2	-

OPLOCK STATUS	VOLUME	DESCRIPTION
Enabled	c2_svm4_nas2	-

ACCESS-BASED ENUMERATION
Disabled

STORAGE VM
c2_svm4

SHARE ACCESS CONTROL
Everyone, Full Control

ENCRYPTION
Disabled

SMB/CIFS ACCESS
\\192.168.0.65\svm4_nas2

ALLOW CLIENTS TO ACCESS SNAPSHOT COPIES DIRECTORY
Disabled

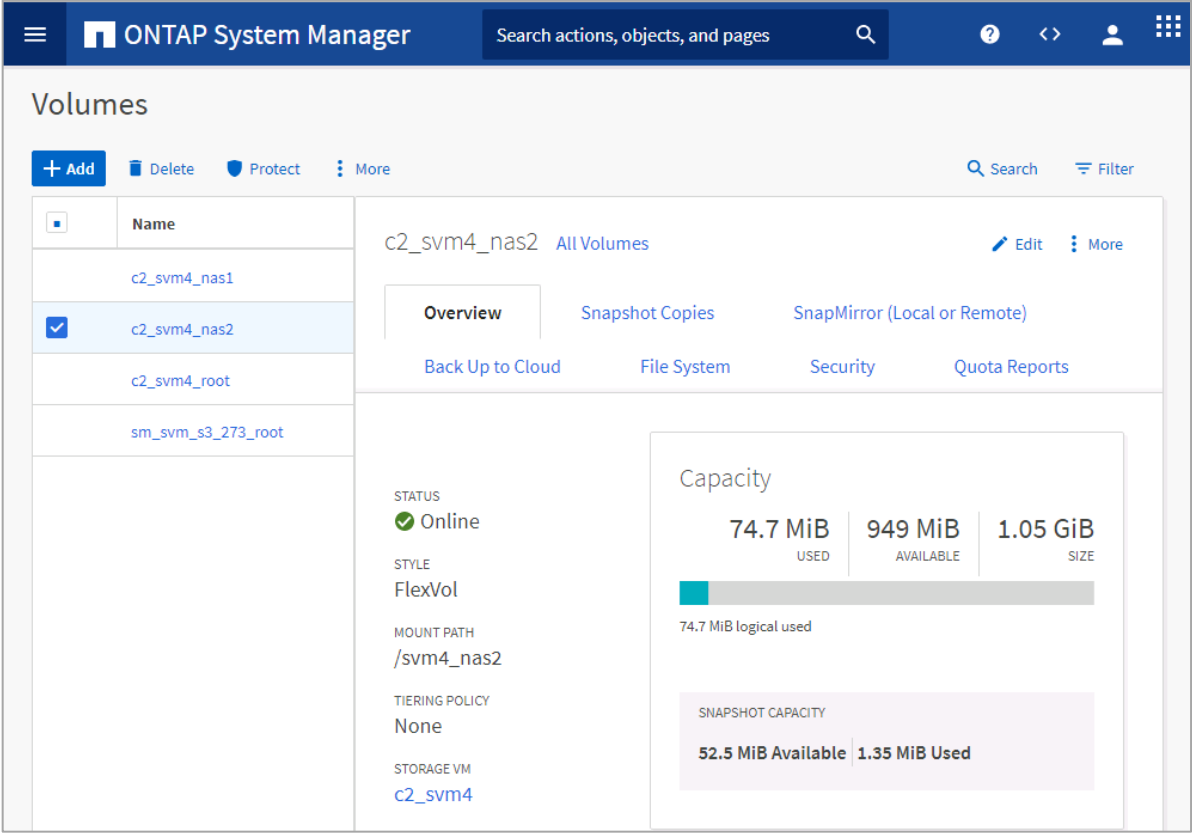## Task 2: Task 4: Access SMB Shares from a Windows Client
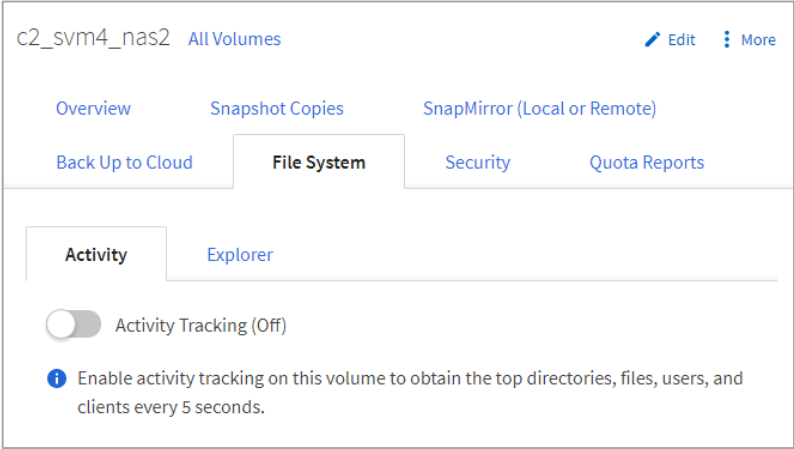
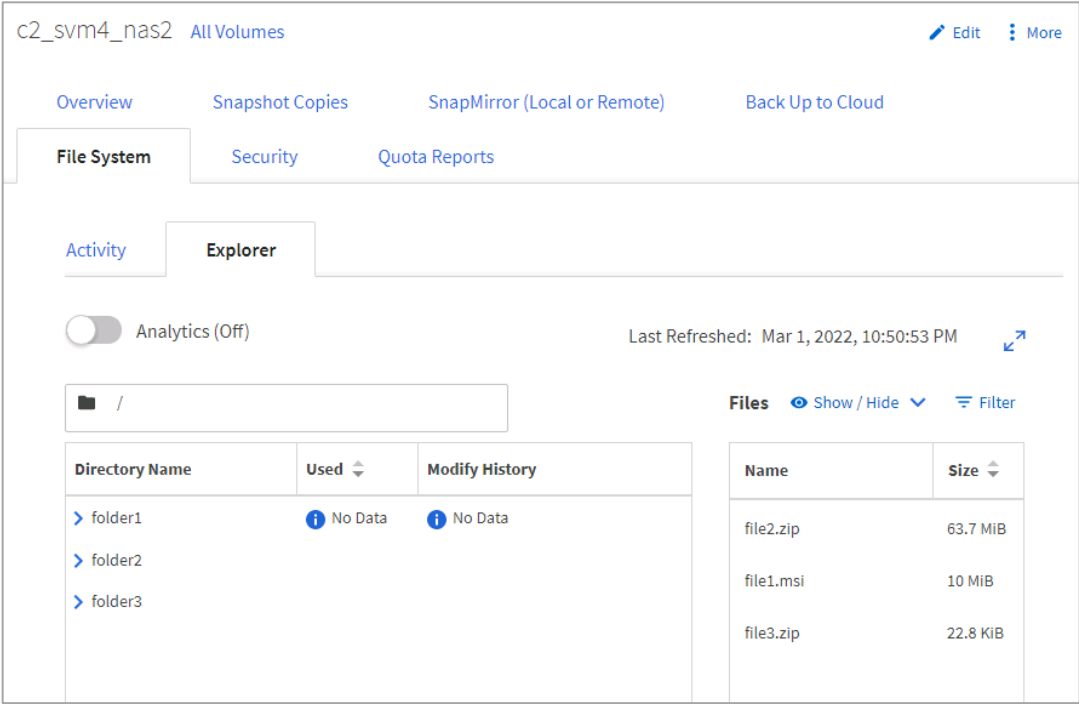| Step	Action
4-1	On Windows Server, in the taskbar, click the folder icon to open File Explorer.
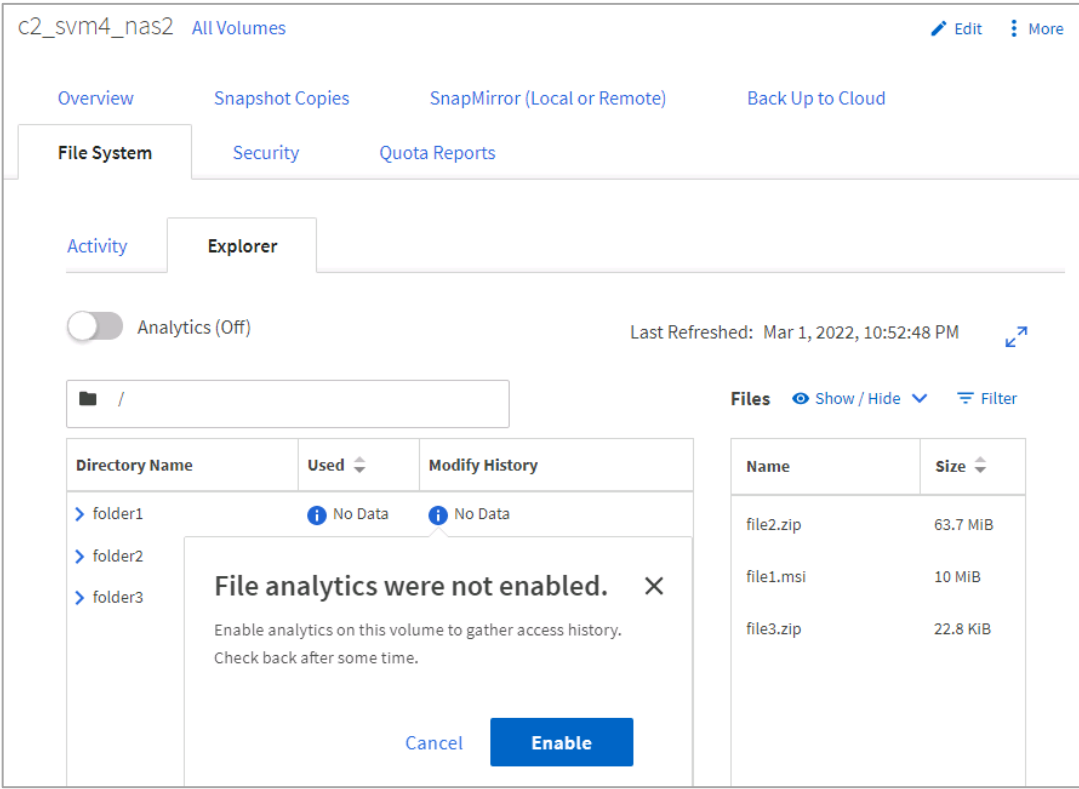
Step	Action
4-2	Right-click **This PC**, and then select **Map network drive**.
4-3	In the Map Network Drive dialog box, specify the following settings: • Drive: **Z** (default) • Folder: **\\192.168.0.65\svm4_nas2** • Reconnect at sign-in: **<selected>** (default) • Connect using different credentials: **<unselected>** (default)
4-4	Click **Finish**.
4-5	When the share folder opens, create files and folders on the share, appending your initials to the file names so that you know that the files are yours. **Note**: You use the files and folders later in the course.
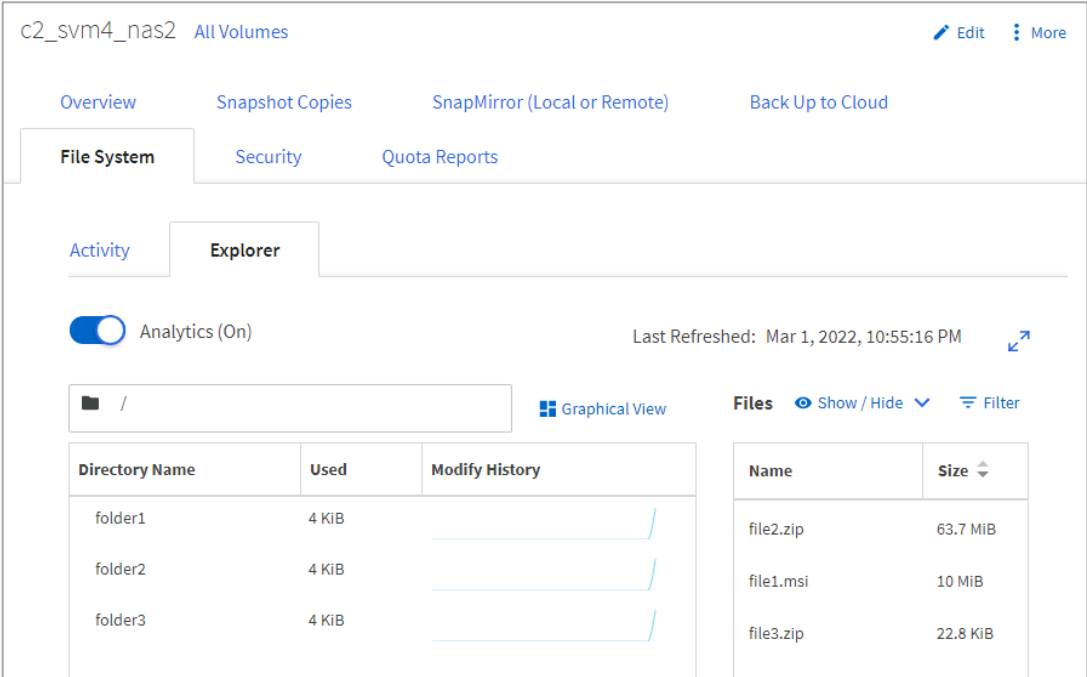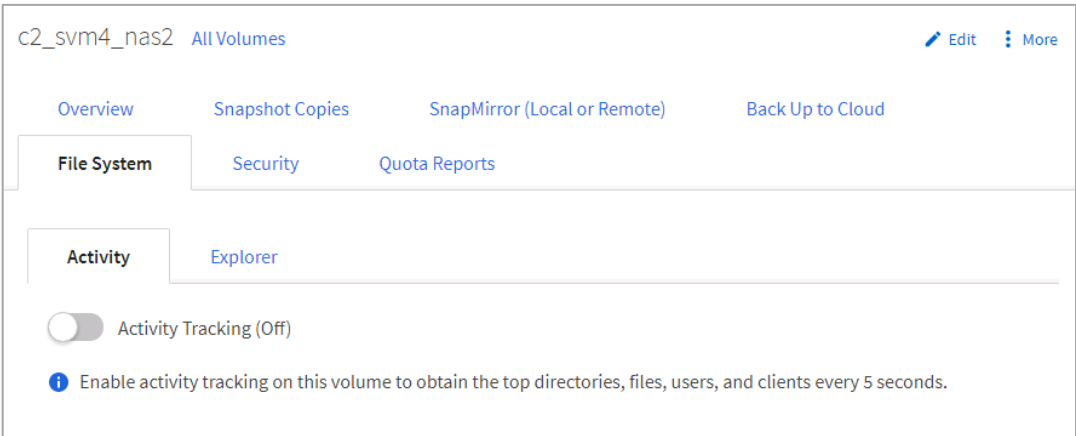
Step	Action
4-6	Map the **svm4_root** share to drive Y. • Drive: **Y** (default) • Folder: **\\192.168.0.65\svm4_root** • Reconnect at sign-in: **\<selected\>** (default) • Connect using different credentials: **\<not selected\>** (default)
4-7	Answer the following question: When the svm4_root share folder opens, what do you see? _____
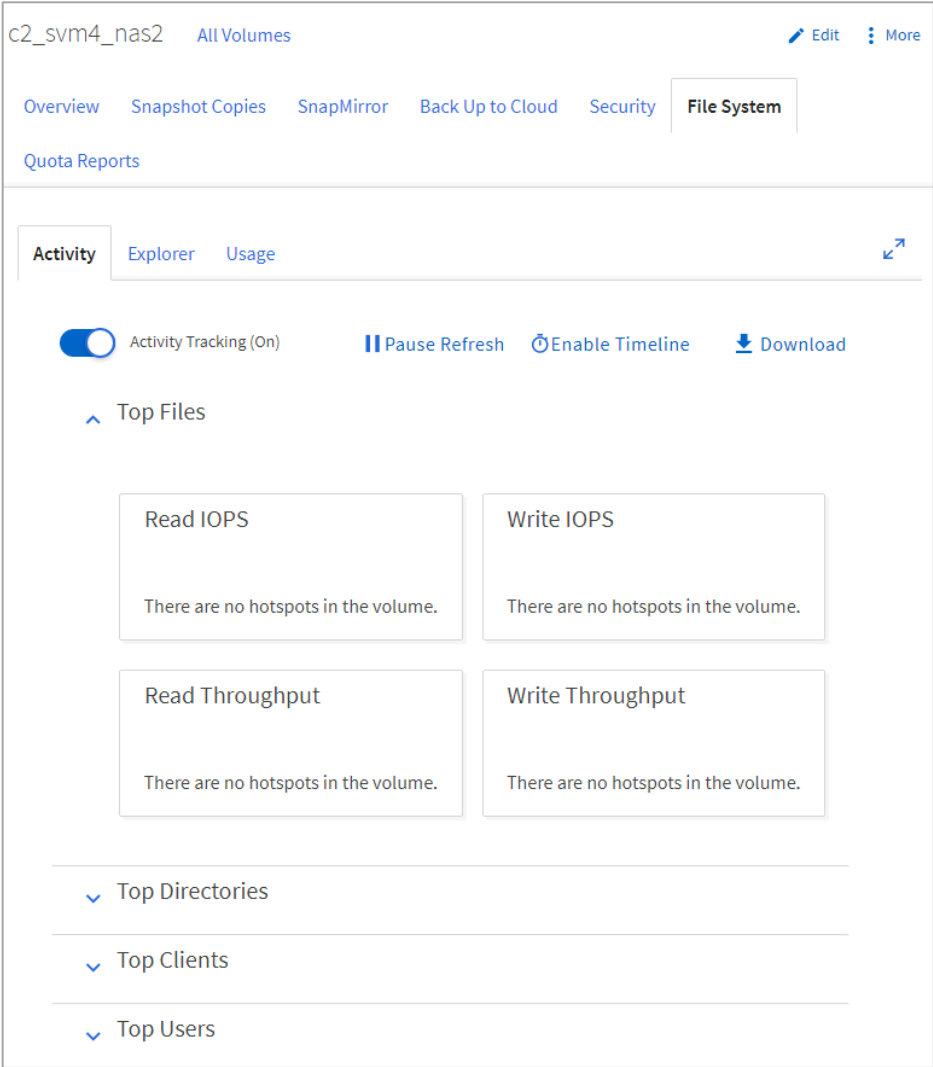
Task 5: Enable NAS File System Analytics

Step	Action
5-1	From the System Manager menu, select **Storage > Volumes**.

Step	Action
5-2	In the Volumes page, select the **c2_svm4_nas2** volume.

Step	Action
5-3	Click the **File System** tab and observe the default setting for Activity Tracking.

Step	Action
5-4	Answer the following question:
	What is the default setting for file system analytics?

Step	Action
5-5	Click the **Explorer** tab and observe the files and folders contained in the NAS volume.
5-6	Hover over the info icon in the Modify History column.
5-7	Click the **Analytics (Off)** toggle button to enable file system analytics.

Step	Action
5-8	Observe the changes to the File System Explorer page.
5-9	Click on the **Activity** tab.

Step	Action
5-10	Click to toggle button to enable tracking of file system activity. c2_svm4_nas2　　All Volumes　　　　　　　　　　　　　　　　✎ Edit　⋮ More Overview　Snapshot Copies　SnapMirror　Back Up to Cloud　Security　**File System** Quota Reports **Activity**　Explorer　Usage 🔘 Activity Tracking (On)　　‖ Pause Refresh　⏱ Enable Timeline　⬇ Download ⌃ Top Files Read IOPS There are no hotspots in the volume. Write IOPS There are no hotspots in the volume. Read Throughput There are no hotspots in the volume. Write Throughput There are no hotspots in the volume. ⌄ Top Directories ⌄ Top Clients ⌄ Top Users
5-11	ⓘ　ONTAP needs to monitor the activity on the file system before it can identify any hot spots and top consumers.

End of exercise