

Module 0: Welcome

Exercise 1: Checking the Exercise Equipment

In this exercise, you familiarize yourself with your equipment and verify that licenses are installed.

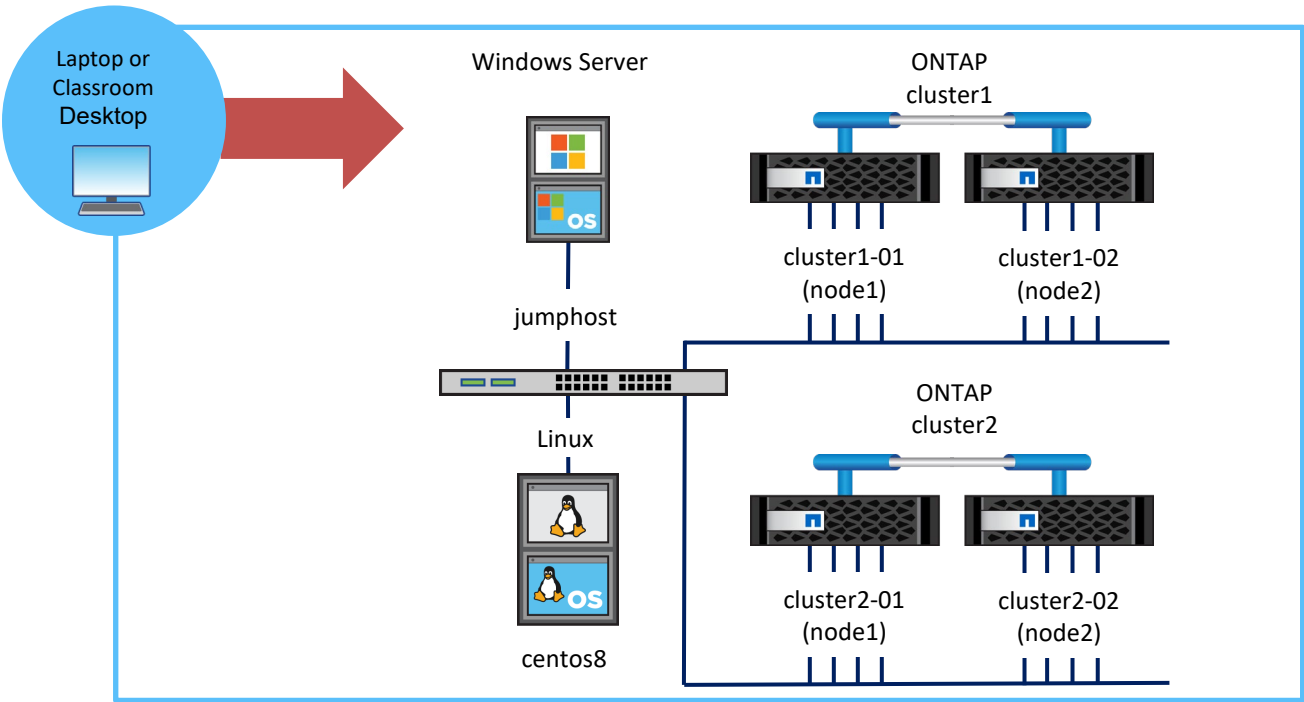
Objectives

This exercise focuses on enabling you to do the following:

- Connect to your NetApp ONTAP cluster
- Configure PuTTY saved sessions
- Verify that required license codes are installed

Lab Equipment

When you use the connection information that your instructor assigns to you, you first connect through Remote Desktop Connection to a Windows Server. From this Windows desktop, you connect to the other servers in your exercise environment.








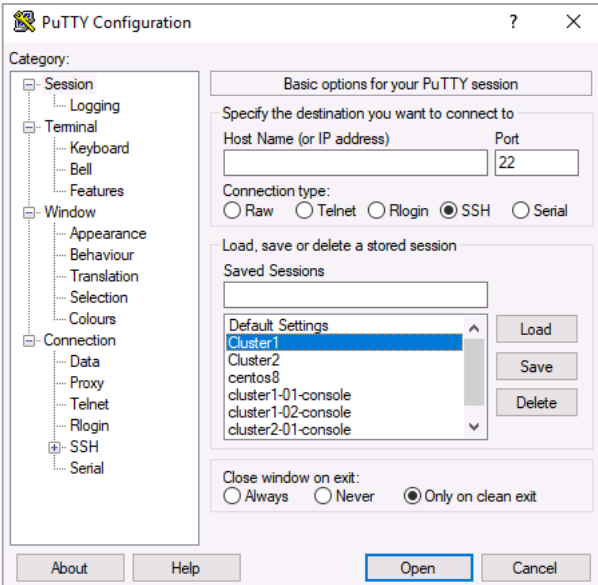

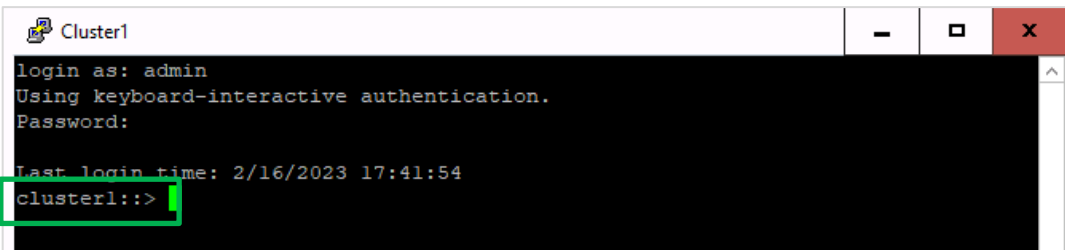
System	Host Name	IP Addresses	User Name	Password
Windows Server 2019 Datacenter	jumphost	192.168.0.5	DEMO\Administrator	Netapp1!
CentOS 8.5 Server	centos8	192.168.0.21	root (case sensitive)	Netapp1!




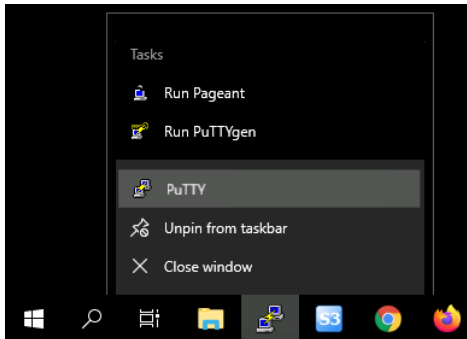
ONTAP cluster-management LIF (cluster1)	cluster1	192.168.0.101	admin (case sensitive)	Netapp1!
node1 (cluster1)	cluster1-01	192.168.0.111	admin (case sensitive)	Netapp1!
node2 (cluster1)	cluster1-02	192.168.0.112	admin (case sensitive)	Netapp1!
ONTAP cluster-management LIF (cluster2)	cluster2	192.168.0.102	admin (case sensitive)	Netapp1!
node1 (cluster2)	cluster2-01	192.168.0.121	admin (case sensitive)	Netapp1!
Node2 (cluster2)	cluster2-02	192.168.0.122	admin (case sensitive)	Netapp1!
Windows Server 2019 Datacenter	dc1	192.168.0.253	DEMO\Administrator	Netapp1!

Task 1: Connect to Your ONTAP Cluster

In this task, you familiarize yourself with the Windows Server desktop. You connect to the ONTAP cluster and verify the health of the cluster.

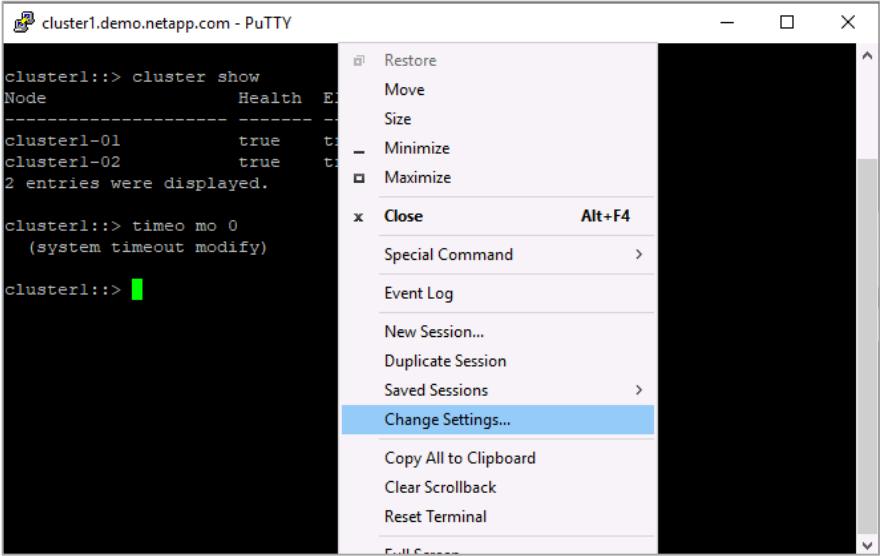
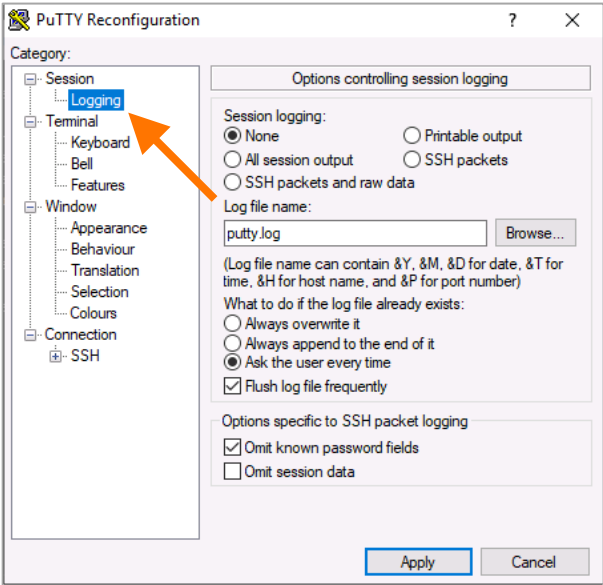
Step	Action
1-1	<p>Verify that you see the Start page of your assigned Windows Server.</p> 
1-2	<p> Your desktop might look slightly different.</p>
1-3	<p>Verify that you see the desktop and that the taskbar contains the PuTTY program.</p> 

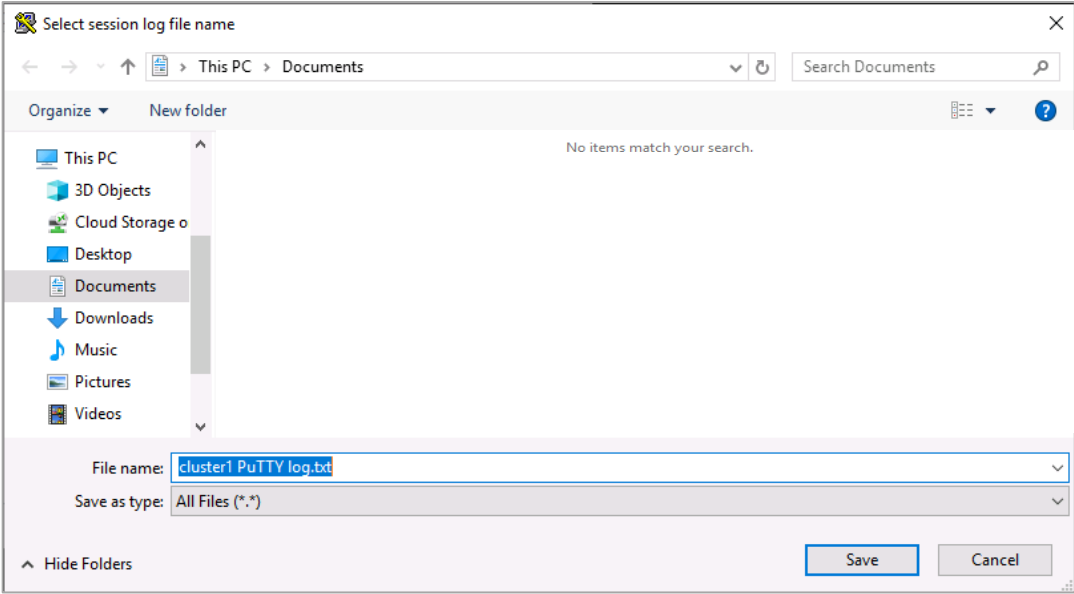
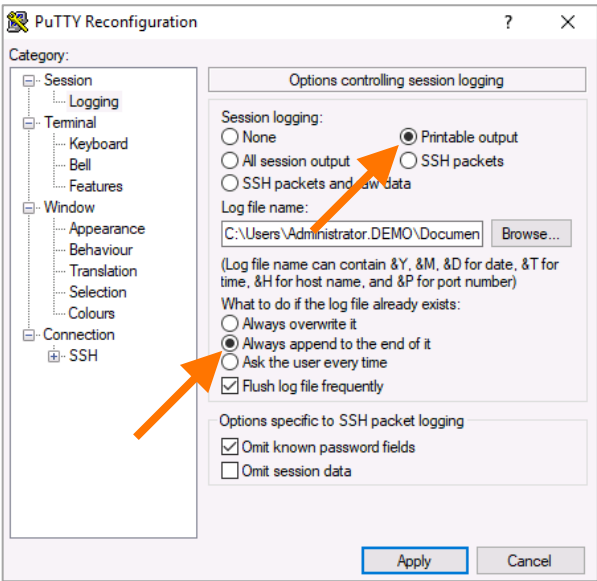
Step	Action
1-4	<p> To connect to the ONTAP cluster UI, you browse to the NetApp ONTAP System Manager URL, which is built in to the ONTAP software.</p> <p>To connect to the ONTAP cluster CLI, you use PuTTY, which is a UI for the Telnet and Secure Shell (SSH) protocols.</p>
1-5	<p>Double-click the PuTTY shortcut.</p> 
1-6	<p>In the PuTTY Configuration dialog box, in the Saved Sessions list, double-click Cluster1.</p> 
1-7	<p> You can also connect to the ONTAP cluster CLI by connecting to either node in the cluster: cluster-01 (node 1) or cluster1-02 (node 2).</p>
1-8	<p>At the ONTAP cluster login prompt, provide the following credentials:</p> <ul style="list-style-type: none"> login as: admin Password: Netapp1! <p>The ONTAP cluster CLI prompt and cursor appear:</p> 

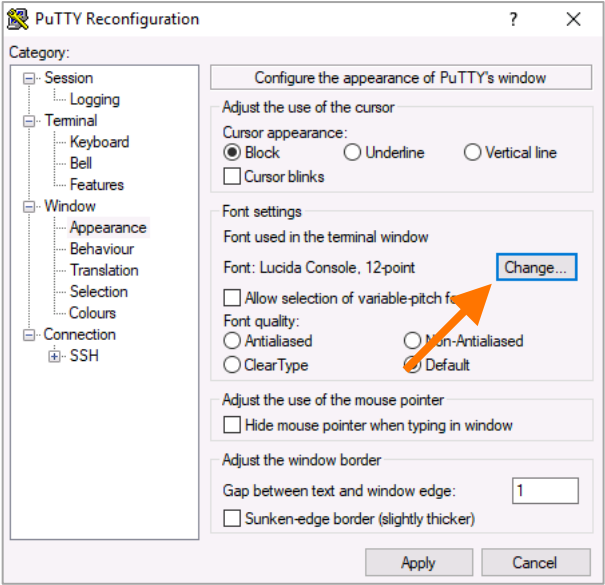
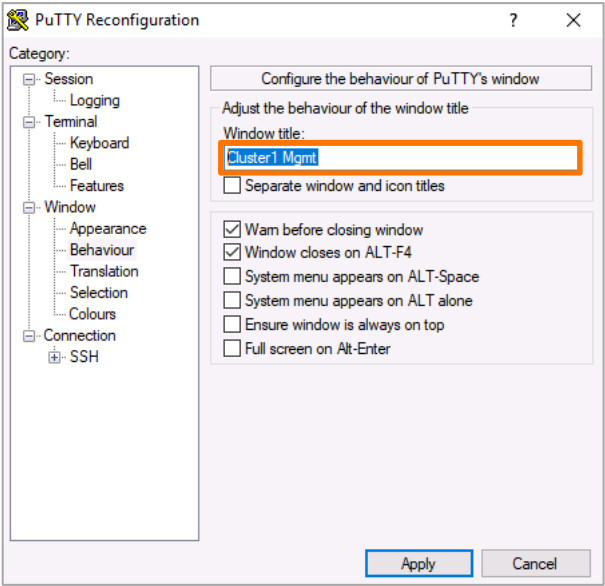
Step	Action										
1-9	<div></div> <div>If you have any difficulty logging in to the ONTAP cluster CLI, see this table and verify that you are using the correct username and password in the correct case (both are case-sensitive).</div> <table><tr><th>System</th><th>Host Name</th><th>IP Address</th><th>User Name</th><th>Password</th></tr><tr><td>ONTAP cluster-management LIF</td><td>cluster1</td><td>192.168.0.101</td><td>admin (case-sensitive)</td><td>Netapp1!</td></tr></table>	System	Host Name	IP Address	User Name	Password	ONTAP cluster-management LIF	cluster1	192.168.0.101	admin (case-sensitive)	Netapp1!
System	Host Name	IP Address	User Name	Password							
ONTAP cluster-management LIF	cluster1	192.168.0.101	admin (case-sensitive)	Netapp1!							
1-10	<div>Verify that both nodes of the ONTAP cluster are healthy and eligible:</div> <div><code>cluster show</code></div> <div>Sample output:</div> <div><pre>cluster1::> cluster show Node Health Eligibility ----- cluster1-01 true true cluster1-02 true true 2 entries were displayed.</pre></div>										
1-11	<div></div> <div>If the Health or Eligibility of either node is listed as <code>false</code>, alert your instructor.</div> <div><pre>cluster4::> cluster show Node Health Eligibility ----- cluster4-01 true true cluster4-02 false false 2 entries were displayed.</pre></div>										
1-12	<div>Configure the display to work well in PuTTY:</div> <div><code>rows 0</code></div>										
1-13	<div>Use the following credentials to repeat Steps 1-5 through 1-10 for the cluster2 selection in PuTTY:</div> <div><ul style="list-style-type: none">login as: <code>admin</code>Password: <code>Netapp1!</code></div>										
1-14	<div></div> <div>You right-click the PuTTY icon for the menu to open an extra PuTTY window.</div> <div></div>										

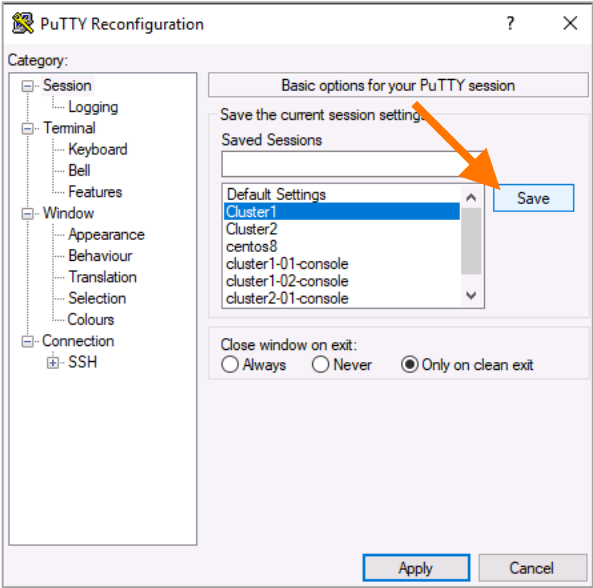

Task 2: Configure PuTTY Saved Sessions

In this task, you improve the readability of the text and configure session logging.

Step	Action
2-1	<p>In the PuTTY window for cluster1, right-click in the window title bar, and select Change Settings from the menu.</p> 
2-2	<p>In the Category list, select Session > Logging.</p> 
2-3	<p>In the “Options controlling session logging” section, select Printable output.</p>

Step	Action
2-4	<p>In the “Log file name” section, click Browse, navigate to the Documents folder, name the log file “cluster1 PuTTY log.txt”, and then click Save.</p> 
2-5	<p>In the “What to do if the log file already exists” section, select Always append to the end of it.</p> 
2-6	<p>In the Category list, select Window > Appearance.</p>


Step	Action
2-7	<p>In the “Font settings” section, click Change, and then change the font to Lucida Console, 11-point or larger.</p> 
2-8	<p>In the Category list, select Window > Behavior.</p>
2-9	<p>In the “Window title” field, enter “Cluster1 Mgmt.”</p> 

Step	Action
2-10	<p>In the Category list, select Session, and then click Save to save your changes.</p> 
2-11	Click Apply .
2-12	Exit the PuTTY session for cluster1 and reopen the session again, and log in again.
2-13	<p>On your jump host, navigate to the Documents folder, and then open the PuTTY log.</p> <p>You should see two timestamps, indicating that the log is appending rather than overwriting.</p>
2-14	<p> Depending on how frequently you use the CLI, but at least once each year, you should rename the current log file by appending the month, quarter, or year to the file name.</p> <p>You should create unique log files for maintenance events, to simplify troubleshooting and to include with change control documentation.</p>
2-15	Repeat Steps 2-1 through 2-11 to revise the cluster2 saved session.

Task 3: Verify that Required License Codes Are Installed

Many advanced features of the ONTAP cluster require licenses to work. In later exercises, you use several licensed features of the ONTAP cluster. In this task, you verify that the necessary licenses are preinstalled.

Step	Action																																																																																																																
3-1	<div>In the cluster1 CLI, enter the following command:</div> <div>system license show</div> <div><pre>cluster1::> license show</pre><p>Serial Number: 1-81-000000000000000000000070 Owner: cluster1-01 Installed License: Legacy Key Capacity: -</p><table><tr><th>Package</th><th>Type</th><th>Description</th><th>Expiration</th></tr><tr><td>NFS</td><td>license</td><td>NFS License</td><td>-</td></tr><tr><td>CIFS</td><td>license</td><td>CIFS License</td><td>-</td></tr><tr><td>SnapRestore</td><td>license</td><td>SnapRestore License</td><td>-</td></tr><tr><td>SnapMirror</td><td>license</td><td>SnapMirror License</td><td>-</td></tr><tr><td>FlexClone</td><td>license</td><td>FlexClone License</td><td>-</td></tr><tr><td>SnapVault</td><td>license</td><td>SnapVault License</td><td>-</td></tr><tr><td>SnapLock</td><td>license</td><td>SnapLock License</td><td>-</td></tr><tr><td>SnapManagerSuite</td><td>license</td><td>SnapManagerSuite License</td><td>-</td></tr><tr><td>VE</td><td>license</td><td>Volume Encryption License</td><td>-</td></tr><tr><td>SnapMirror_Sync</td><td>license</td><td>SnapMirror Synchronous License</td><td>-</td></tr><tr><td>NVMe_oF</td><td>license</td><td>NVMe-oF License</td><td>-</td></tr><tr><td>MT_EK_MGMT</td><td>license</td><td>Multi-tenant Encryption License</td><td>-</td></tr><tr><td>S3</td><td>license</td><td>S3 License</td><td>-</td></tr></table><p>Serial Number: 1-81-000000000000000000000071 Owner: cluster1-02 Installed License: Legacy Key Capacity: -</p><table><tr><th>Package</th><th>Type</th><th>Description</th><th>Expiration</th></tr><tr><td>NFS</td><td>license</td><td>NFS License</td><td>-</td></tr><tr><td>CIFS</td><td>license</td><td>CIFS License</td><td>-</td></tr><tr><td>SnapRestore</td><td>license</td><td>SnapRestore License</td><td>-</td></tr><tr><td>SnapMirror</td><td>license</td><td>SnapMirror License</td><td>-</td></tr><tr><td>FlexClone</td><td>license</td><td>FlexClone License</td><td>-</td></tr><tr><td>SnapVault</td><td>license</td><td>SnapVault License</td><td>-</td></tr><tr><td>SnapLock</td><td>license</td><td>SnapLock License</td><td>-</td></tr><tr><td>SnapManagerSuite</td><td>license</td><td>SnapManagerSuite License</td><td>-</td></tr><tr><td>VE</td><td>license</td><td>Volume Encryption License</td><td>-</td></tr><tr><td>SnapMirror_Sync</td><td>license</td><td>SnapMirror Synchronous License</td><td>-</td></tr><tr><td>NVMe_oF</td><td>license</td><td>NVMe-oF License</td><td>-</td></tr><tr><td>MT_EK_MGMT</td><td>license</td><td>Multi-tenant Encryption License</td><td>-</td></tr><tr><td>S3</td><td>license</td><td>S3 License</td><td>-</td></tr></table><p>26 entries were displayed.</p></div>	Package	Type	Description	Expiration	NFS	license	NFS License	-	CIFS	license	CIFS License	-	SnapRestore	license	SnapRestore License	-	SnapMirror	license	SnapMirror License	-	FlexClone	license	FlexClone License	-	SnapVault	license	SnapVault License	-	SnapLock	license	SnapLock License	-	SnapManagerSuite	license	SnapManagerSuite License	-	VE	license	Volume Encryption License	-	SnapMirror_Sync	license	SnapMirror Synchronous License	-	NVMe_oF	license	NVMe-oF License	-	MT_EK_MGMT	license	Multi-tenant Encryption License	-	S3	license	S3 License	-	Package	Type	Description	Expiration	NFS	license	NFS License	-	CIFS	license	CIFS License	-	SnapRestore	license	SnapRestore License	-	SnapMirror	license	SnapMirror License	-	FlexClone	license	FlexClone License	-	SnapVault	license	SnapVault License	-	SnapLock	license	SnapLock License	-	SnapManagerSuite	license	SnapManagerSuite License	-	VE	license	Volume Encryption License	-	SnapMirror_Sync	license	SnapMirror Synchronous License	-	NVMe_oF	license	NVMe-oF License	-	MT_EK_MGMT	license	Multi-tenant Encryption License	-	S3	license	S3 License	-
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Step	Action
3-2	<p>Verify that the following required license codes are installed:</p> <ul style="list-style-type: none"> • NFS • CIFS • S3 • NVME-oF • iSCSI (on cluster2 only) • SnapRestore • SnapMirror • FlexClone • VE (restricted export)
3-3	 If any of the licenses are not installed, inform your instructor.
3-4	Repeat Steps 3-1 and 3-2 for cluster2.

End of exercise