

Module 3: Cluster Management

Exercise 1: Managing ONTAP Clusters

Objectives

This exercise focuses on enabling you to do the following:

- Create a login banner and a message of the day (MOTD)
- Explore licenses
- Configure cluster time and assign a Network Time Protocol (NTP) server


Lab Equipment

Use the following equipment to complete the exercise:

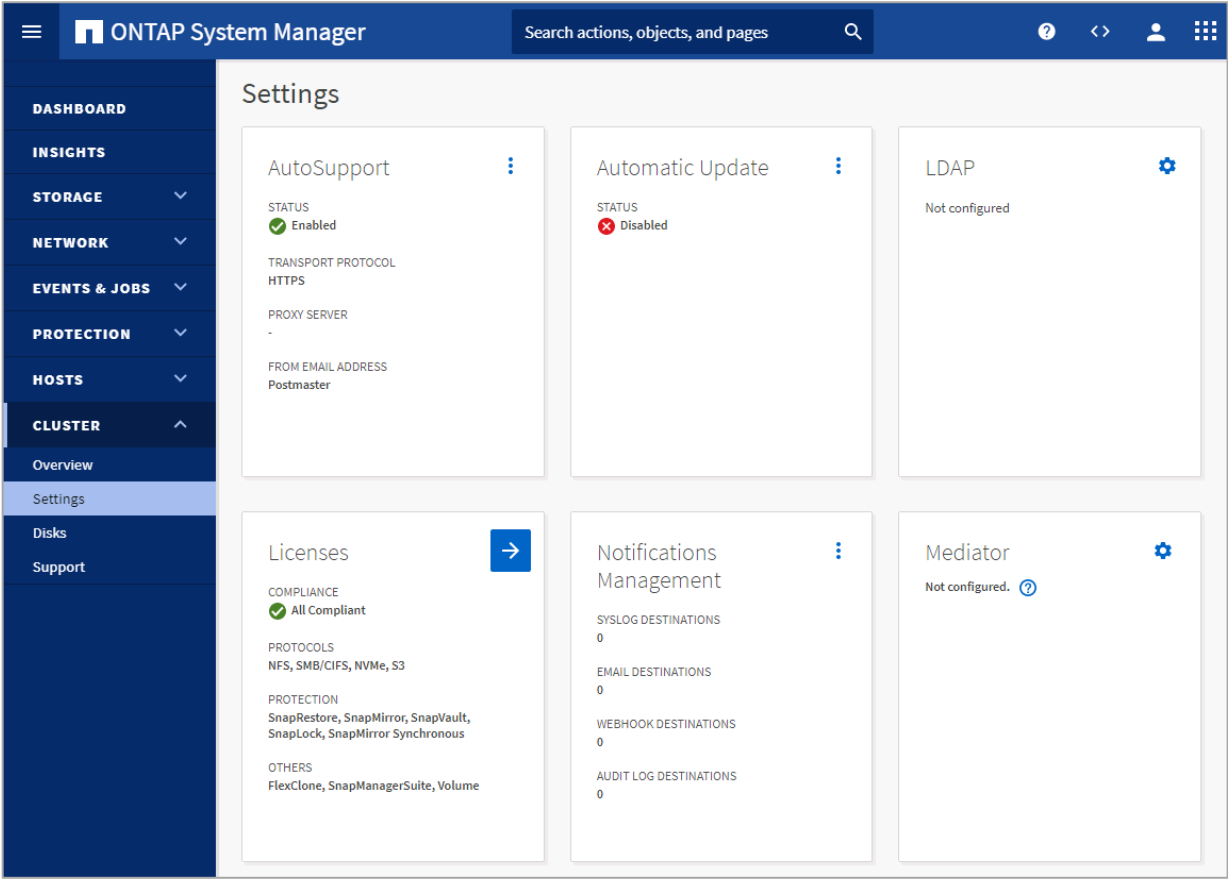
System	Host Name	IP Addresses	User Name	Password
Windows Server	jumphost	192.168.0.5	DEMO\Administrator	Netapp1!
ONTAP cluster-management LIF (cluster1)	cluster1	192.168.0.101	admin (case-sensitive)	Netapp1!
ONTAP cluster-management LIF (cluster2)	cluster2	192.168.0.102	admin (case-sensitive)	Netapp1!
Windows Domain Controller	DC1	192.168.0.253	DEMO\Administrator	Netapp1!


Task 1: Create a Login Banner and MOTD

Step	Action
1-1	Start a PuTTY session with cluster1 .
1-2	<p>View the current cluster-wide login banner:</p> <pre>security login banner show</pre> <p>Sample output:</p> <pre>The login banner has not been configured for the cluster or any data Vserver.</pre>
1-3	<p>Change the clusterwide login banner:</p> <pre>security login banner modify -message "Authorized users ONLY!"</pre>
1-4	<p>View the current clusterwide MOTD:</p> <pre>security login motd show</pre> <p>Sample output:</p> <pre>The message of the day has not been configured for the cluster or any data Vserver.</pre>

Step	Action
1-5	<p>Enter interactive mode to change the login MOTD for the entire cluster1 cluster:</p> <pre>security login motd modify -vserver cluster1</pre> <p>Sample output:</p> <pre>Enter the message of the day for Vserver "cluster1". Max size: 2048. Enter a blank line to terminate input. Press Ctrl-C to abort. 0 1 2 3 4 5 6 7 1234567890123456789012345678901234567890123456789012345678901234567890</pre> <p>NOTE: This command is case-sensitive.</p>
1-6	<p>Enter (or paste) the following case-sensitive text:</p> <pre>##### # Operating System Name = \s # Software Release = \r # Node = \n #####</pre>
1-7	 A blank line is required to exit interactive mode.
1-8	<p>Open a second PuTTY session to cluster1, and then observe the login banner and MOTD.</p> <p>Sample output:</p> <pre>login as: admin Authorized users ONLY! Using keyboard-interactive authentication. Password: Netapp1! Last login time: 2/16/2023 18:38:24 ##### # Operating System Name = Data ONTAP # Software Release = 9.12.1 # Node = cluster1-01 ##### cluster1::></pre>
1-9	<p>Reset the cluster-wide login banner to the default:</p> <pre>security login banner modify -message ""</pre> <p>NOTE: This command is case-sensitive.</p>
1-10	<p>Reset the login MOTD to the default:</p> <pre>security login motd modify -vserver cluster1 -message ""</pre>


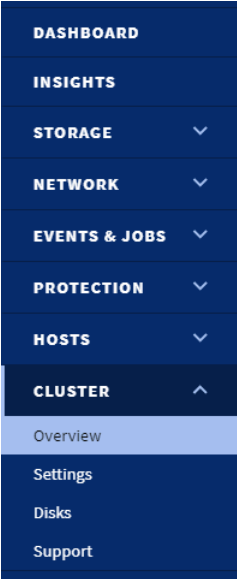
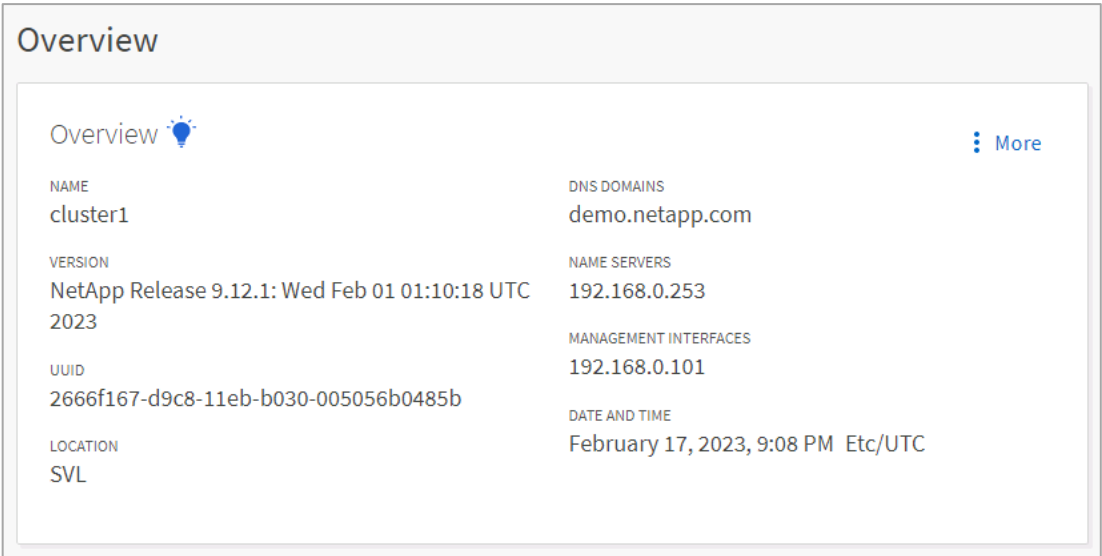

Task 2: Explore Licenses

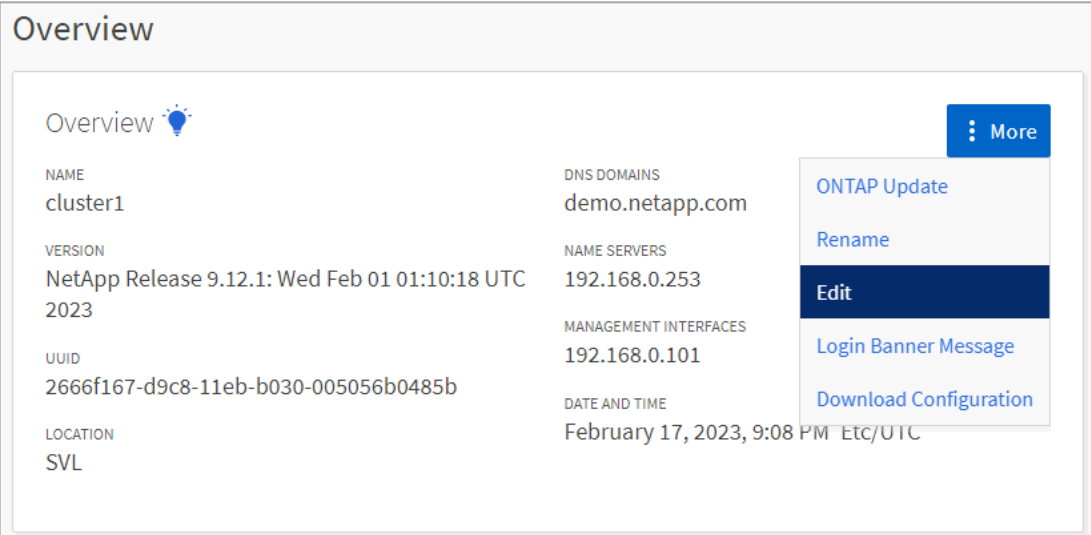
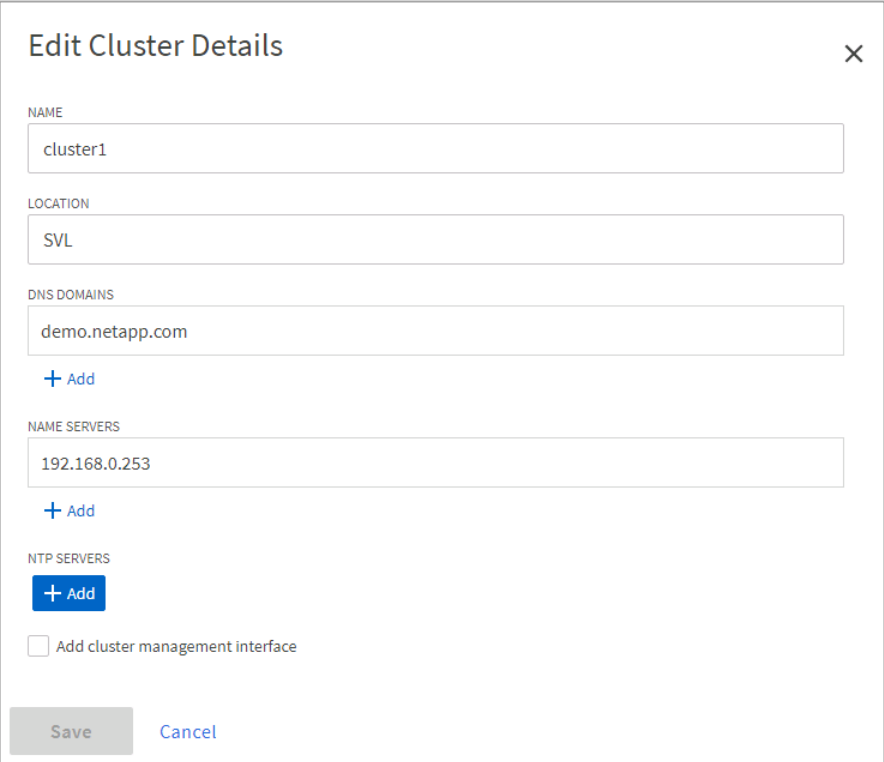
Step	Action
2-1	<p>From the System Manager menu for cluster1, select: Cluster > Settings.</p> 
2-2	<p>Click the arrow in the Licenses panel and explore the licenses that are installed on the cluster.</p>
2-3	<p>Switch back to the cluster management Secure Shell (SSH) PuTTY session and, if necessary, authenticate as admin.</p>
2-4	<p>View the cluster serial ID:</p> <pre>cluster identity show</pre> <p>Sample output:</p> <pre>Cluster UUID: 2666f167-d9c8-11eb-b030-005056b0485b Cluster Name: cluster1 Cluster Serial Number: 1-80-000099 Cluster Location: SVL Cluster Contact:</pre> <p>NOTE: In the sample output, the serial number is 1-80-000099.</p>

Step	Action
2-5	<p>Identify the serial numbers for each system in the cluster:</p> <pre>system node show -fields serialnumber</pre> <p>Sample output:</p> <pre>node serialnumber ----- cluster1-01 70 cluster1-02 71 2 entries were displayed.</pre>
2-6	<p>Navigate to the license hierarchy:</p> <pre>license</pre>
2-7	<p> The prompt indicates that you are in the <code>system license</code> command hierarchy:</p> <pre>cluster1::system license></pre>
2-8	<p>List the available commands:</p> <pre>?</pre> <p>Sample output:</p> <pre>add Add one or more licenses capacity> (DEPRECATED)-The capacity directory clean-up Remove unnecessary licenses delete Delete a license entitlement-risk> The entitlement-risk directory show Display licenses show-aggregates Display status of aggregates leases and license used. show-serial-numbers Display History of Serial Numbers show-status Display license status status> (DEPRECATED)-Display license status update-leases Begin lease reconciliation</pre>
2-9	<p>View the currently licensed packages, and notice the node-locked licenses that are already installed on the cluster:</p> <pre>show</pre>
2-10	<p>List detailed information about the available license packages:</p> <pre>show-status</pre>

Task 3: Configure Cluster Time and Assign an NTP Server

In this task, you synchronize the date and time between the ONTAP clusters and the Windows domain controller.

Step	Action
3-1	 <p>Windows domains must be synchronized to within 5 minutes of all member servers.</p> <p>If the time of the ONTAP cluster is not synchronized with a domain controller, the ONTAP cluster cannot join or remain joined to the Windows domain.</p> <p>Without synchronization, computers in the Windows domain cannot access resources in the ONTAP cluster, and resources in the cluster cannot access the Windows domain.</p>
3-2	<p>From the System Manager menu, for cluster1, select Cluster > Overview.</p> 
3-3	<p>In the Cluster Overview page, note the cluster date and time.</p> 
3-4	 <p>The system date and time for computers in your exercise kit are pre-synchronized. The Windows and Linux systems are set to Pacific Time. The clusters are set to UTC.</p>

Step	Action
3-5	<p>In the Cluster Overview page, select Edit from the More menu.</p>  <p>The screenshot shows the 'Overview' page for a cluster named 'cluster1'. The page displays various details including the version (NetApp Release 9.12.1), UUID, location (SVL), DNS domains (demo.netapp.com), name servers (192.168.0.253), management interfaces (192.168.0.101), and date and time (February 17, 2023, 9:08 PM Etc/UTC). A 'More' menu is open, showing options like 'ONTAP Update', 'Rename', 'Edit' (highlighted), 'Login Banner Message', and 'Download Configuration'.</p>
3-6	<p>Under NTP SERVERS, click Add.</p>  <p>The screenshot shows the 'Edit Cluster Details' dialog box. It contains fields for NAME (cluster1), LOCATION (SVL), and DNS DOMAINS (demo.netapp.com). Under the 'NTP SERVERS' section, there is a text input field containing '192.168.0.253' and a '+ Add' button. At the bottom, there is a checkbox for 'Add cluster management interface' and 'Save' and 'Cancel' buttons.</p>

Step	Action								
3-7	<p>Set the NTP time server to 192.168.0.253, and then click Save.</p> <div><div>Edit Cluster Details</div><div><div>NAME</div><div>cluster1</div></div><div><div>LOCATION</div><div>SVL</div></div><div><div>DNS DOMAINS</div><div>DEMO.NETAPP.COM</div><div>+ Add</div></div><div><div>NAME SERVERS</div><div>192.168.0.253</div><div>+ Add</div></div><div><div>NTP SERVERS</div><div>192.168.0.253</div><div>+ Add</div></div><div><div><input type="checkbox"/> Add cluster management interface</div></div><div><div>Save</div><div>Cancel</div></div></div>								
3-8	<p>From the clustershell, verify the date, time, time zone, and synchronization of the time with your Windows jump host to within 5 minutes:</p> <p>date</p> <p>Note: Time synchronization might take several minutes.</p>								
3-9	<p>Confirm the NTP server settings that you set in System Manager:</p> <p>ntp server show</p> <p>Sample output:</p> <table><tr><th>Server</th><th>Version</th><th>Is Authentication Enabled</th><th>Key ID</th></tr><tr><td>192.168.0.253</td><td>auto</td><td>false</td><td>-</td></tr></table>	Server	Version	Is Authentication Enabled	Key ID	192.168.0.253	auto	false	-
Server	Version	Is Authentication Enabled	Key ID						
192.168.0.253	auto	false	-						
3-10	<p>Repeat steps 3-2 through 3-9 on cluster2.</p>								

End of exercise