

Module 10: Cluster Maintenance

Exercise 1: Installing and Configuring Active IQ Config Advisor

In this exercise, you install NetApp Active IQ Config Advisor and view its analysis of the clusters.

Objectives

This exercise focuses on enabling you to do the following:

- Install the Config Advisor tool
- Run Config Advisor reports to check the health of your NetApp ONTAP cluster
- Examine ONTAP cluster log files

Case Study

You have completed the integration of the Dwurgle Enterprises NetApp storage system into the Zarrot Industries IT environment. You believe that all the steps to align the NetApp system with Zarrot Industries norms and best practices have been completed. Install and run the Config Advisor tool to verify that the NetApp system conforms to the configuration best practices.

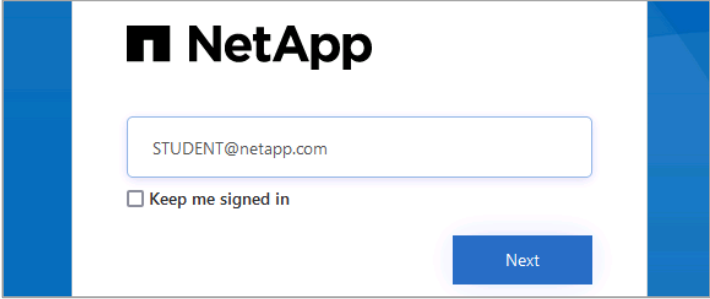

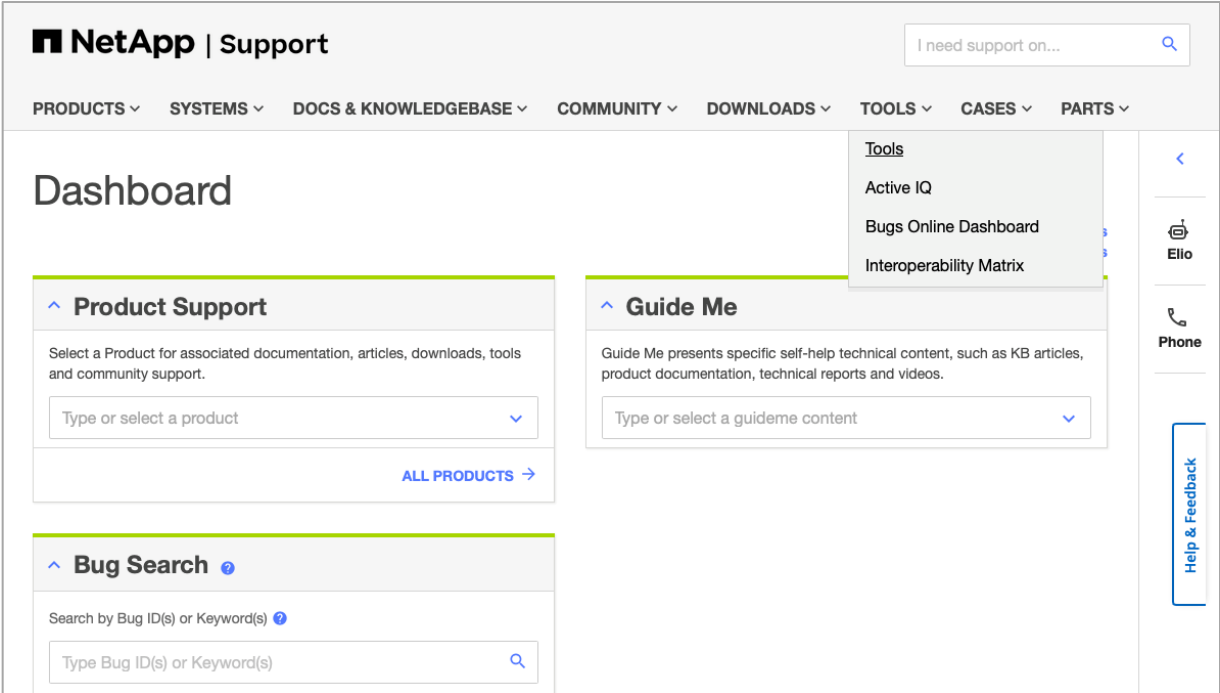
Lab Equipment

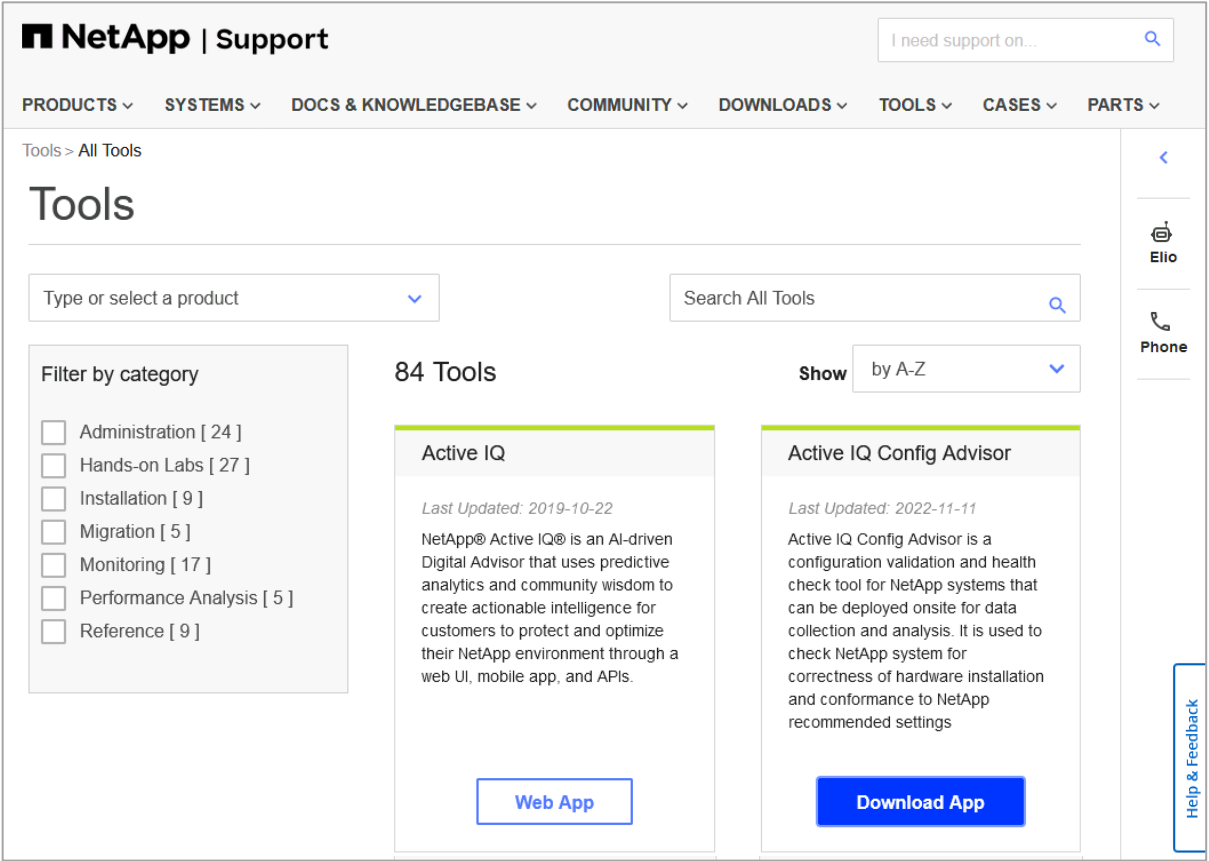
Use the following equipment to complete the exercise:

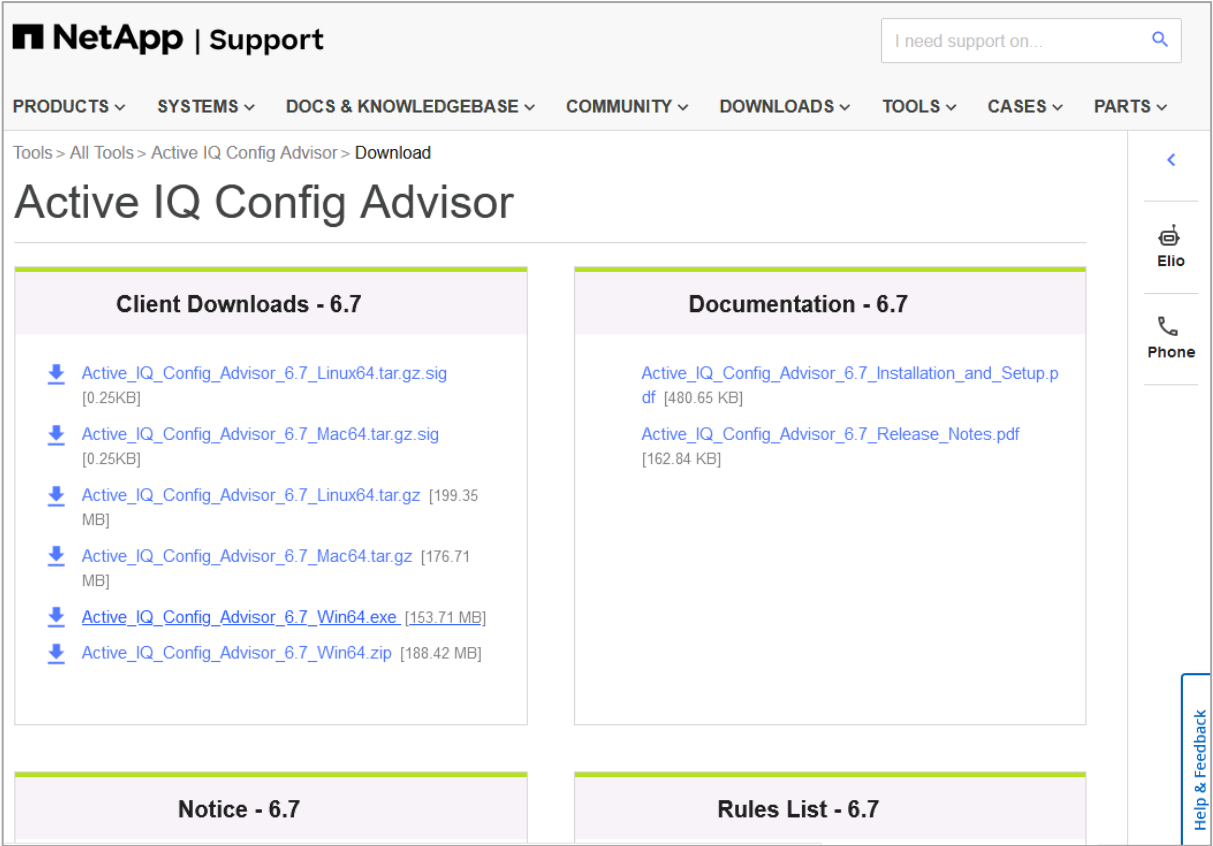
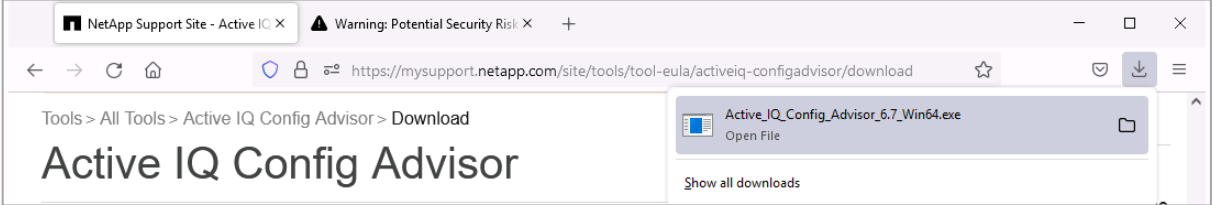

System	Host Name	IP Addresses	User Name	Password
Windows Server	jumphost	192.168.0.5	DEMO\Administrator	Netapp1!
ONTAP cluster-management LIF (cluster1)	cluster1	192.168.0.101	admin (case sensitive)	Netapp1!
ONTAP cluster-management LIF (cluster2)	cluster2	192.168.0.102	admin (case sensitive)	Netapp1!

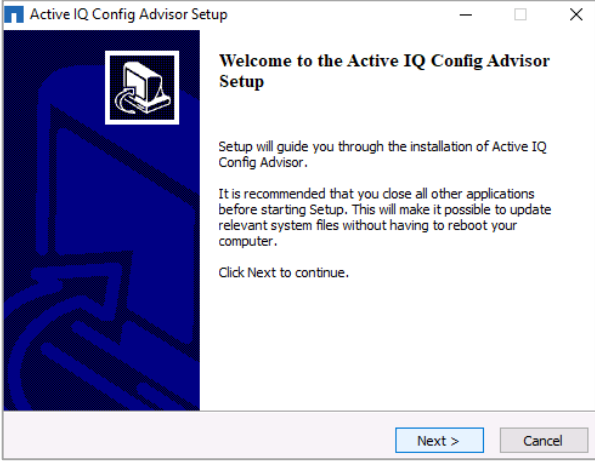
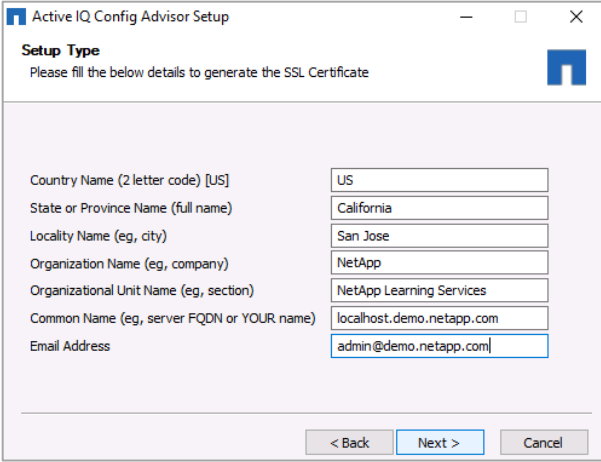
Task 1: Install the Config Advisor Tool

Step	Action
1-1	From your Windows jump host, open the Firefox web browser and go to the NetApp Support Site: https://mysupport.netapp.com

Step	Action
1-2	<p>Use your NetApp credentials to log in to the NetApp Support Site.</p>  <p>The screenshot shows the NetApp login page. It features the NetApp logo at the top. Below the logo is a text input field containing the email address 'STUDENT@netapp.com'. Underneath the input field is a checkbox labeled 'Keep me signed in'. At the bottom right of the login area is a blue button labeled 'Next'.</p>
1-3	<p> If you are unable to download Config Advisor from the NetApp Support Site, you can install the copy in the CourseFiles folder on the Windows host desktop.</p>
1-4	<p>From the Tools menu, select Tools.</p>  <p>The screenshot shows the NetApp Support website dashboard. At the top is the 'NetApp Support' header with a search bar. Below the header is a navigation menu with links for PRODUCTS, SYSTEMS, DOCS & KNOWLEDGEBASE, COMMUNITY, DOWNLOADS, TOOLS, CASES, and PARTS. The 'TOOLS' link is highlighted, and a dropdown menu is open showing options: Tools, Active IQ, Bugs Online Dashboard, and Interoperability Matrix. The main content area is titled 'Dashboard' and contains three sections: 'Product Support' with a product selection dropdown, 'Guide Me' with a guide content dropdown, and 'Bug Search' with a search input field. On the right side of the dashboard, there are links for 'Elio' and 'Phone', and a vertical 'Help & Feedback' button.</p>

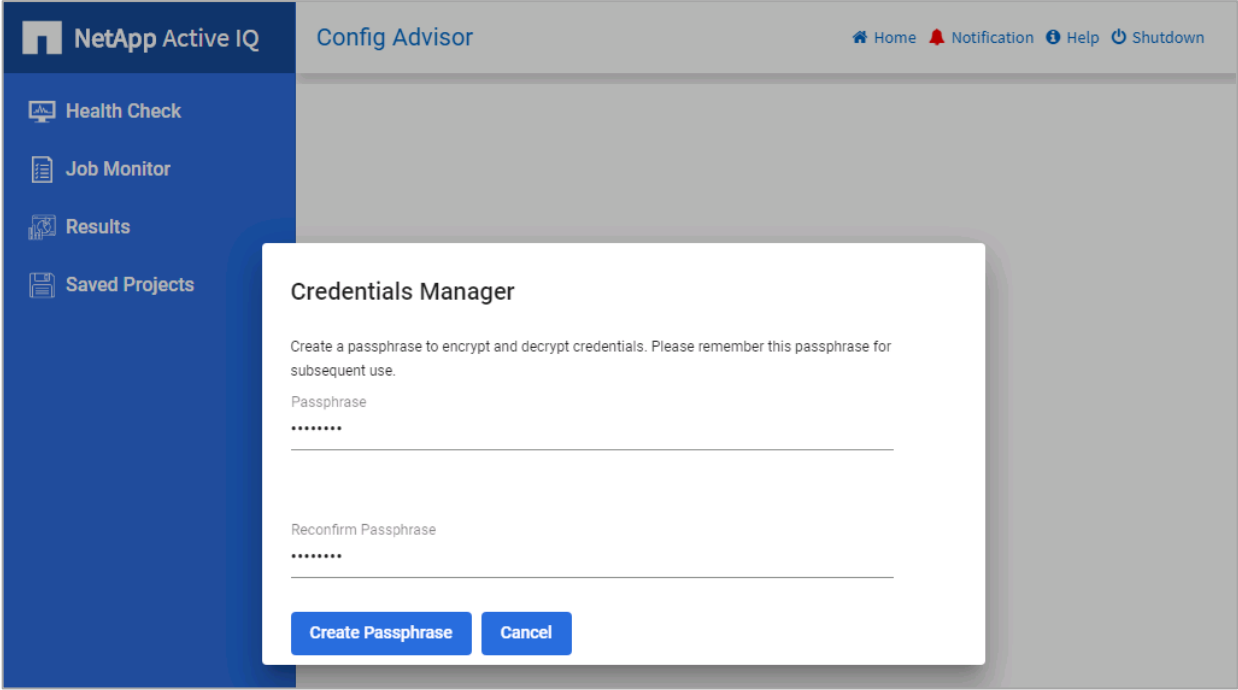
Step	Action
1-5	<p>Locate the current version of Active IQ Config Advisor, and then click Download App.</p>  <p>The screenshot shows the NetApp Support website's 'Tools' section. The page has a navigation bar with links for PRODUCTS, SYSTEMS, DOCS & KNOWLEDGEBASE, COMMUNITY, DOWNLOADS, TOOLS, CASES, and PARTS. Below the navigation bar, there's a search bar and a filter section titled 'Filter by category' with checkboxes for Administration [24], Hands-on Labs [27], Installation [9], Migration [5], Monitoring [17], Performance Analysis [5], and Reference [9]. The main content area displays '84 Tools' and a 'Show by A-Z' dropdown. Two tool cards are visible: 'Active IQ' (last updated 2019-10-22) with a 'Web App' button, and 'Active IQ Config Advisor' (last updated 2022-11-11) with a 'Download App' button. A 'Help & Feedback' link is located in the bottom right corner of the tool cards area.</p>

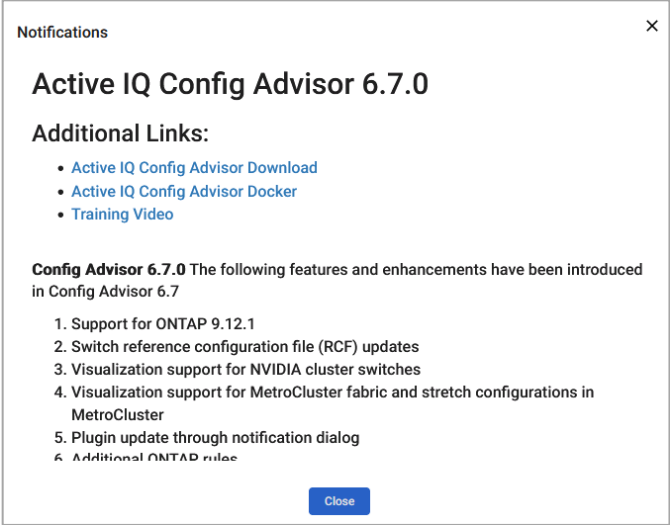
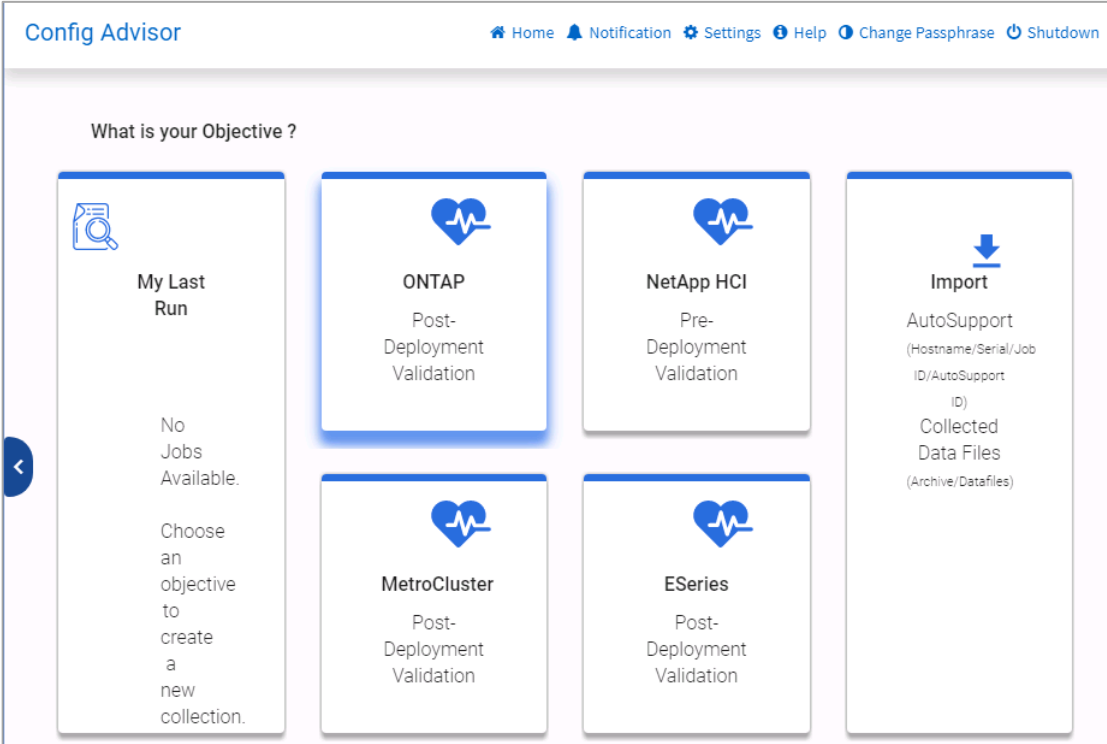
Step	Action
1-6	<p>Agree to the license terms and conditions, and then download the executable (Active_IQ_ConfigAdvisor-6.7_Win64.exe at the time this guide was created).</p> 
1-7	<p>Open the Config Advisor installer program.</p> 
1-8	<p>If prompted with a security warning, click Yes.</p> 

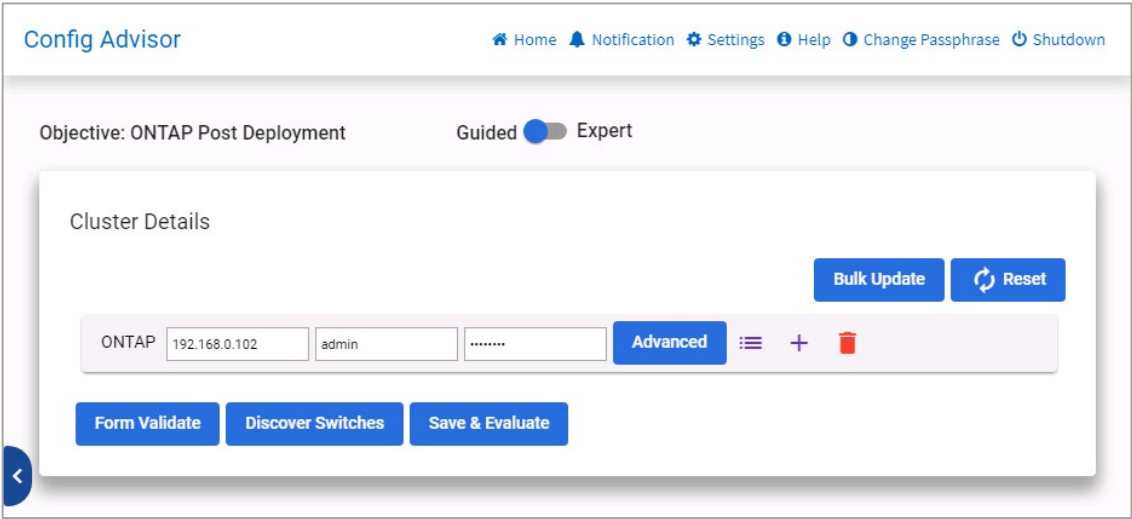
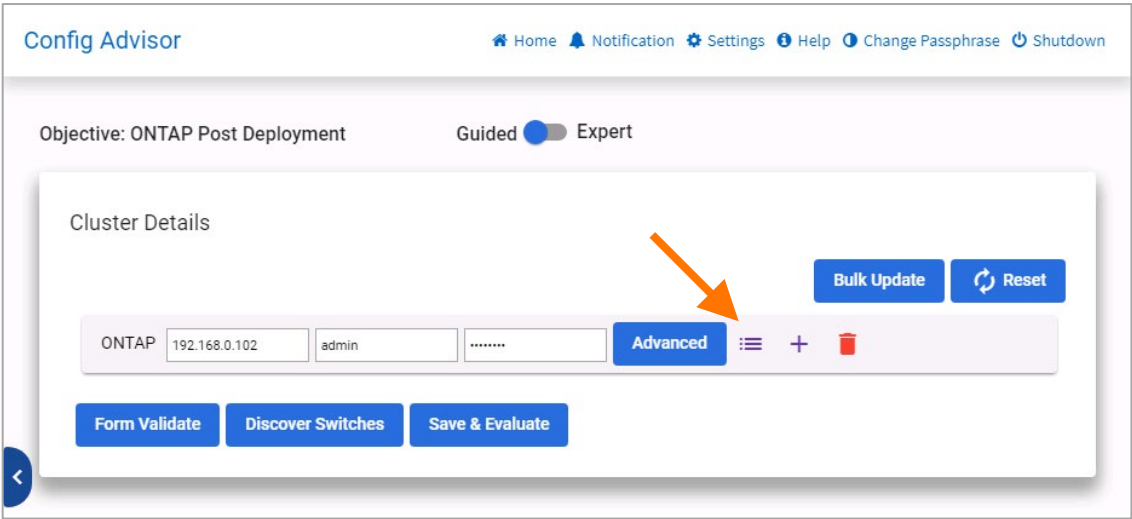
Step	Action
1-9	<p>On the Active IQ Config Advisor installer program Welcome page, click Next.</p> 
1-10	Click I Agree to the license agreement.
1-11	<p>Enter the following information needed to generate an SSL security certificate.</p> <ul style="list-style-type: none"> Country Name (2 letter code) [US]: US State or Province Name (full name): California Locality Name (eg, City): San Jose Organization Name (eg, company): NetApp Organizational Unit Name (eg, section): NetApp Learning Services Common Name (eg, server FQDN or YOUR name): localhost.demo.netapp.com Email Address: admin@demo.netapp.com 
1-12	Click Next .
1-13	Click Install .
1-14	After the installation is completed, dismiss the README window, and then click Finish to close the Active IQ Config Advisor installer program.

Step	Action
1-15	The installer program automatically launches Active IQ Config Advisor.

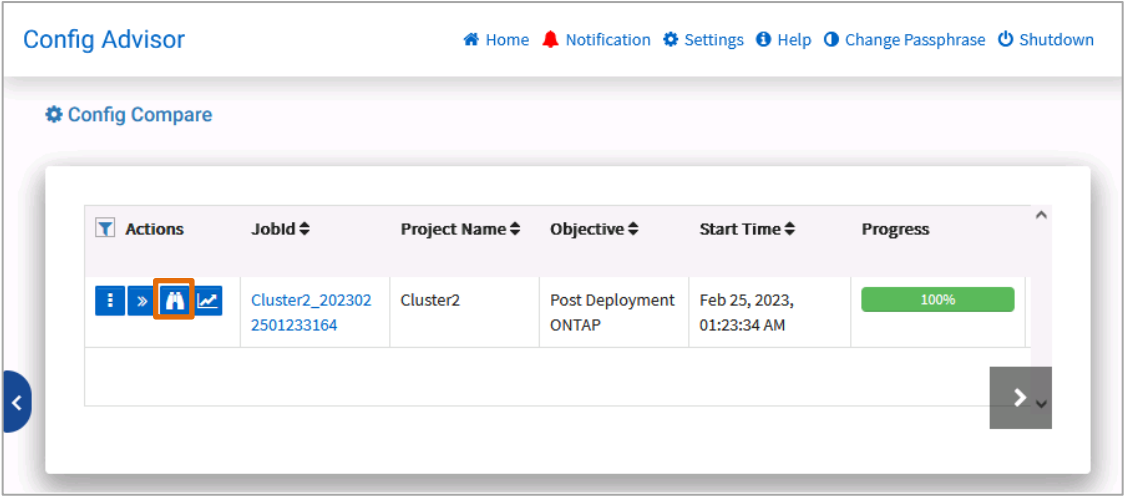
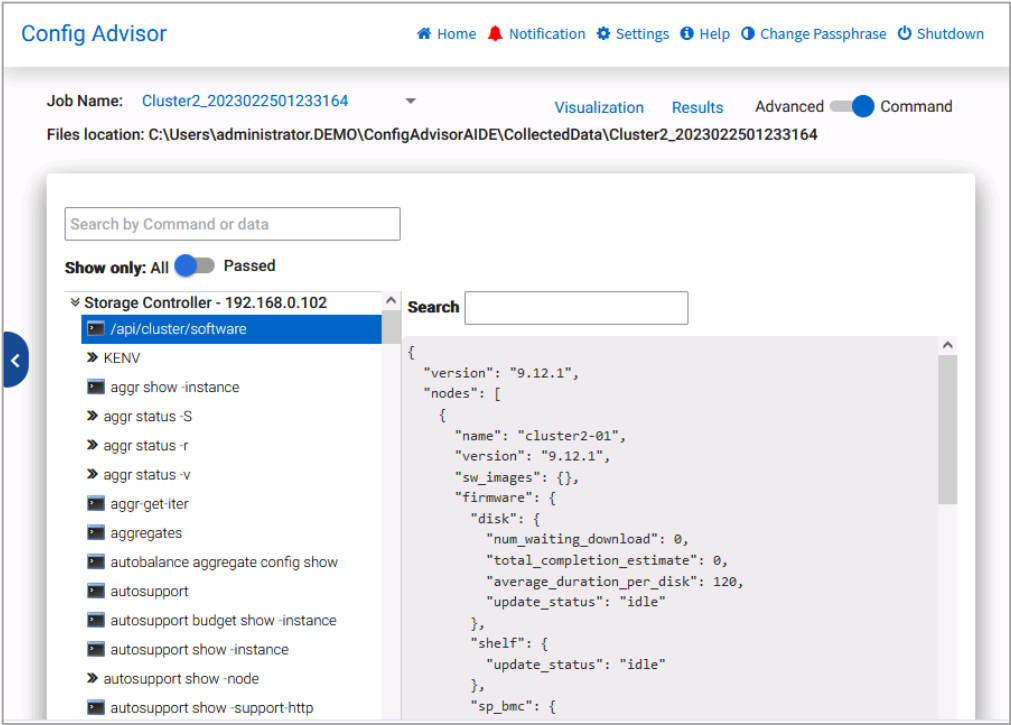
Task 2: Use Config Advisor to Verify Cluster Health

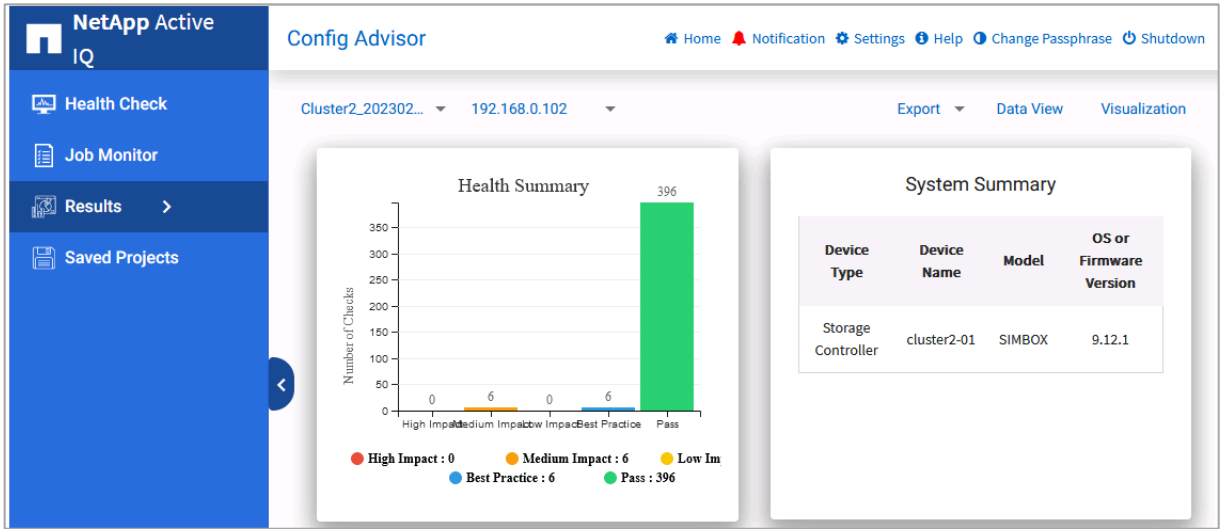

Step	Action
2-1	<p>Run Active IQ Config Advisor on the Windows jump host.</p> <p>If Config Advisor fails to start automatically after installation, then launch the Firefox web browser and connect to the Config Advisor server: https://localhost:8445</p>
2-2	If prompted, accept the risk of trusting a security certificate signed by the Config Advisor server.
2-3	<p>Enter a passphrase for the Credential Manager to use as an encryption key:</p> <ul style="list-style-type: none"> Passphrase: Netapp1! Reconfirm Passphrase: Netapp1! 
2-4	Click Create Passphrase .

Step	Action
2-5	<p>Click Close to dismiss the Active IQ Config Advisor Notifications window.</p> 
2-6	<p>When the Basic Settings page appears, click the Cancel button because you are not permanently setting up Config Advisor.</p>
2-7	<p>On the Config Advisor Health Check tab, click the ONTAP Post-Deployment Validation pane to create a collection.</p> 

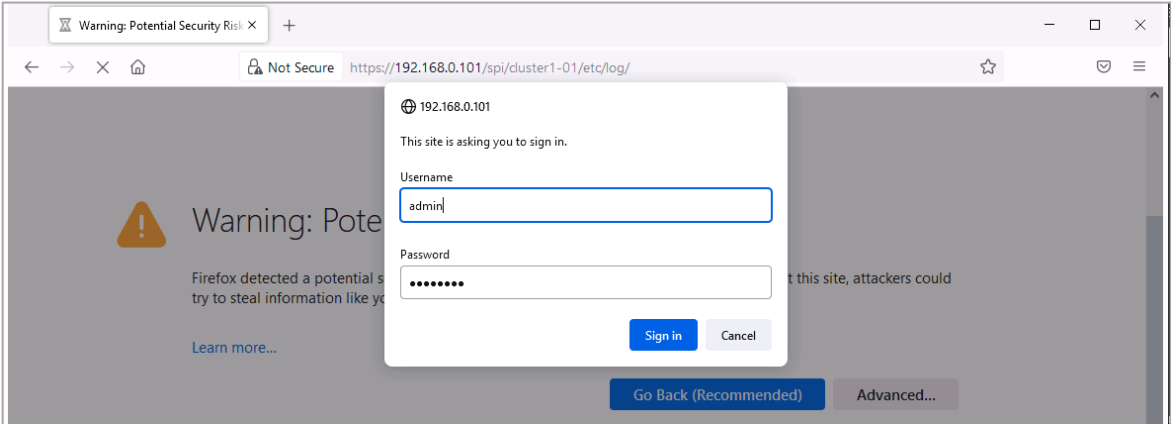
Step	Action
2-8	<p>Enter the following cluster details:</p> <ul style="list-style-type: none"> ONTAP: 192.168.0.102 User: admin (default) Password: Netapp1! 
2-9	<p>Click the View Commands button to view the commands that will be run to gather cluster information.</p> 
2-10	Click Save to close the Commands window.
2-11	Click the Save & Evaluate button.

Step	Action
2-12	<p>Name the project Cluster2, and then click the Save & Evaluate button.</p> <div><div><div><div>Save Job</div><div><div><div>Project Details</div><div>Project Name *</div><div>Cluster2</div><div>Group Name</div><div></div></div><div><div><div><div><input type="checkbox"/> Schedule</div><div>Recurrence Pattern</div><div>Interval</div><div></div></div><div><div>Trigger Every</div><div><div>Hours</div><div>0</div></div><div><div>Minutes</div><div>1</div></div></div><div><div>Occurrence</div><div>1</div></div></div><div><div>Save</div><div>Save & Evaluate</div></div></div></div></div></div></div>
2-13	<p>Click the chevron icon to view the progress of the data collection job.</p> <div><div><div>Config Advisor</div><div><div><div>Home</div><div>Notification</div><div>Settings</div><div>Help</div><div>Change Passphrase</div><div>Shutdown</div></div><div><div>Config Compare</div><div><div><div>Actions</div><div>JobId</div><div>Project Name</div><div>Objective</div><div>Start Time</div><div>Progress</div></div><div><div><div><div><div></div><div></div><div></div><div></div></div><div>Cluster2_2023022501233164</div><div>Cluster2</div><div>Post Deployment ONTAP</div><div>Feb 25, 2023, 01:23:31 AM</div><div><div></div><div></div></div></div><div><div><div></div><div></div></div><div>192.168.0.102</div><div>:</div><div></div><div>33%</div></div></div><div><div><div>Sat Feb 25 01:23:41 2023 :: 192.168.0.102 - Executed system node run -node cluster2-02 df.</div><div>Sat Feb 25 01:23:41 2023 :: 192.168.0.102 - Executed system node run -node cluster2-01 df.</div><div>Sat Feb 25 01:23:41 2023 :: 192.168.0.102 - Executed system node run -node cluster2-02 sysconfig -a.</div><div>Sat Feb 25 01:23:41 2023 :: 192.168.0.102 - Executed system node run -node cluster2-01 sysconfig -a.</div><div>Sat Feb 25 01:23:41 2023 :: 192.168.0.102 - Executed system node run -node cluster2-01 ifconfig -a.</div><div>Sat Feb 25 01:23:41 2023 :: 192.168.0.102 - Executed system node run -node cluster2-02 ifconfig -a.</div><div>Sat Feb 25 01:23:41 2023 :: 192.168.0.102 - Executed system node run -node cluster2-02 sysconfig -v.</div><div>Sat Feb 25 01:23:41 2023 :: 192.168.0.102 - Executed system node run -node cluster2-01 sysconfig -v.</div><div>Sat Feb 25 01:23:41 2023 :: 192.168.0.102 - Executed system node run -node cluster2-02 fcadmin config.</div><div>Sat Feb 25 01:23:41 2023 :: 192.168.0.102 - Executed system node run -node cluster2-01 fcadmin config.</div><div>Sat Feb 25 01:23:41 2023 :: 192.168.0.102 - Executed system node run -node cluster2-01 ifconfig -v.</div><div>Sat Feb 25 01:23:41 2023 :: 192.168.0.102 - Executed system node run -node cluster2-02 storage show disk -a.</div></div><div><div>*displaying latest 100 lines</div></div></div></div></div></div></div></div></div>

Step	Action
2-14	<p>When the data collection is complete, click the binoculars icon to review the raw output from the CLI commands that were run.</p> 
2-15	<p>Explore the raw results of the data-gathering commands.</p>  <pre> { "version": "9.12.1", "nodes": [{ "name": "cluster2-01", "version": "9.12.1", "sw_images": {}, "firmware": { "disk": { "num_waiting_download": 0, "total_completion_estimate": 0, "average_duration_per_disk": 120, "update_status": "idle" }, "shelf": { "update_status": "idle" } }, "sp_bmc": { </pre>

Step	Action																				
2-16	<p>Click the Results menu tab. You can view the tests that have results.</p>  <p>The screenshot shows the NetApp Active IQ Config Advisor interface. The left sidebar has a 'Results' tab selected. The main area displays a 'Health Summary' bar chart and a 'System Summary' table.</p> <p>Health Summary Data:</p> <table><tr><th>Category</th><th>Count</th></tr><tr><td>High Impact</td><td>0</td></tr><tr><td>Medium Impact</td><td>6</td></tr><tr><td>Low Impact</td><td>0</td></tr><tr><td>Best Practice</td><td>6</td></tr><tr><td>Pass</td><td>396</td></tr></table> <p>System Summary Data:</p> <table><tr><th>Device Type</th><th>Device Name</th><th>Model</th><th>OS or Firmware Version</th></tr><tr><td>Storage Controller</td><td>cluster2-01</td><td>SIMBOX</td><td>9.12.1</td></tr></table>	Category	Count	High Impact	0	Medium Impact	6	Low Impact	0	Best Practice	6	Pass	396	Device Type	Device Name	Model	OS or Firmware Version	Storage Controller	cluster2-01	SIMBOX	9.12.1
Category	Count																				
High Impact	0																				
Medium Impact	6																				
Low Impact	0																				
Best Practice	6																				
Pass	396																				
Device Type	Device Name	Model	OS or Firmware Version																		
Storage Controller	cluster2-01	SIMBOX	9.12.1																		
2-17	<p> Physical clusters show a visualization of the cabling, and any cabling issues are included in the analysis.</p>																				
2-18	<p>Explore the Rule Results, and then click Shutdown to exit Config Advisor.</p>																				

Task 3: Examine Cluster Log Files

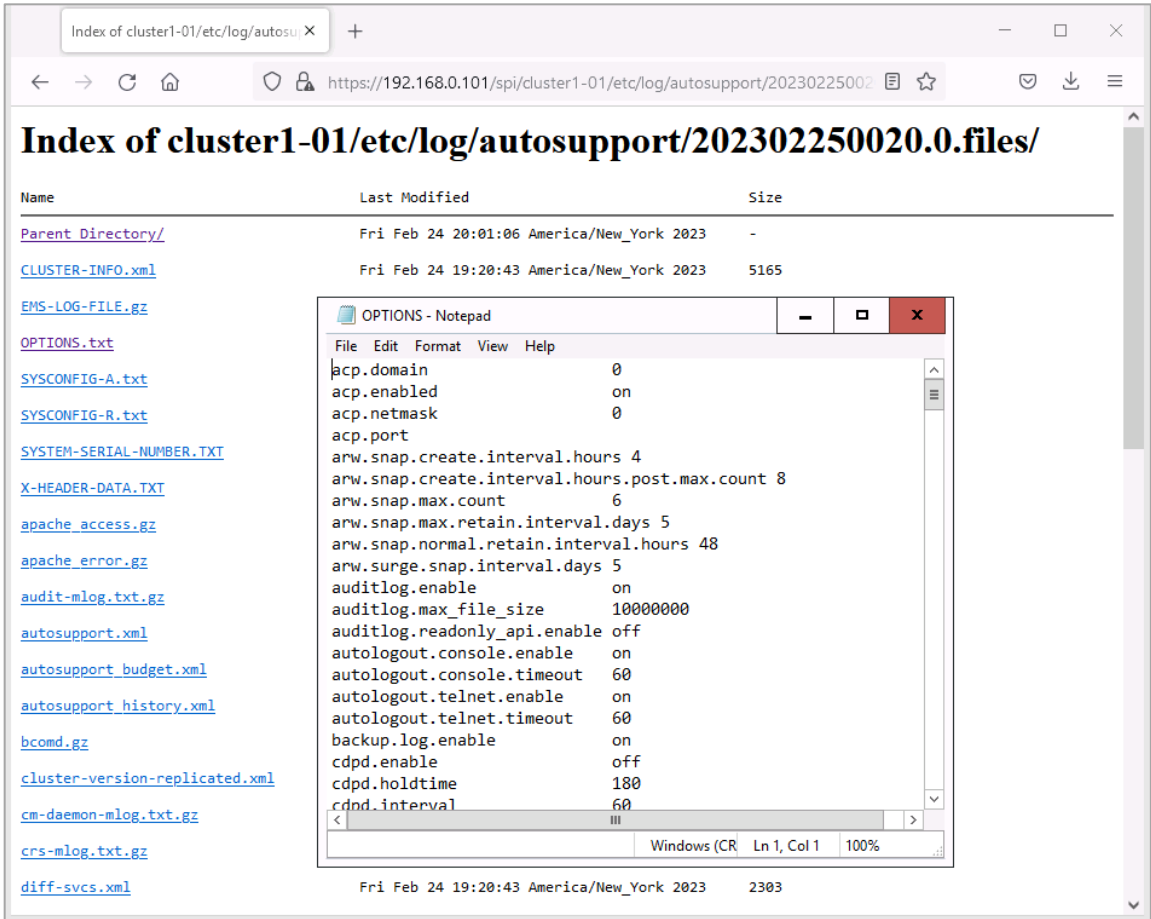
Step	Action
3-1	<p>Use a web browser to view the raw log files for node1 of cluster1: https://192.168.0.101/spi/cluster1-01/etc/log/</p>
3-2	<p>Enter the login details for cluster1.</p>  <p>The screenshot shows a web browser window with a login prompt for 192.168.0.101. The prompt asks for Username and Password. The Username field contains 'admin'.</p>
3-3	<p>Open the autosupport directory.</p>
3-4	<p>Select the most recently created directory, with the name <datetime stamp>.0.files.</p>

Step

Action

3-5

Open the **OPTIONS.txt** file.



The screenshot shows a web browser window with the address bar displaying `https://192.168.0.101/spi/cluster1-01/etc/log/autosupport/202302250020.0.files/`. The page title is "Index of cluster1-01/etc/log/autosupport/202302250020.0.files/". A table lists files and directories:

Name	Last Modified	Size
Parent Directory/	Fri Feb 24 20:01:06 America/New_York 2023	-
CLUSTER-INFO.xml	Fri Feb 24 19:20:43 America/New_York 2023	5165
EMS-LOG-FILE.gz		
OPTIONS.txt		
SYSCONFIG-A.txt		
SYSCONFIG-R.txt		
SYSTEM-SERIAL-NUMBER.TXT		
X-HEADER-DATA.TXT		
apache_access.gz		
apache_error.gz		
audit-mlog.txt.gz		
autosupport.xml		
autosupport_budget.xml		
autosupport_history.xml		
bcomd.gz		
cluster-version-replicated.xml		
cm-daemon-mlog.txt.gz		
crs-mlog.txt.gz		
diff-svcs.xml		

An inset window titled "OPTIONS - Notepad" shows the contents of the **OPTIONS.txt** file:



```

File Edit Format View Help
acd.domain          0
acd.enabled         on
acd.netmask         0
acd.port
arw.snap.create.interval.hours 4
arw.snap.create.interval.hours.post.max.count 8
arw.snap.max.count  6
arw.snap.max.retain.interval.days 5
arw.snap.normal.retain.interval.hours 48
arw.surge.snap.interval.days 5
auditlog.enable     on
auditlog.max_file_size 10000000
auditlog.readonly_api.enable off
autologout.console.enable on
autologout.console.timeout 60
autologout.telnet.enable on
autologout.telnet.timeout 60
backup.log.enable   on
cdpd.enable         off
cdpd.holdtime       180
cdpd.interval       60

```

Task 4: Change the Cluster Admin Password

Step	Action
4-1	Open the PuTTY session to cluster1, and then log in.
4-2	<p>Change the password to Netapp2!:</p> <pre>security login password</pre> <p>Sample output:</p> <pre> Enter your current password: Netapp1! Enter a new password: Netapp2! Enter it again: Netapp2! </pre>
4-3	Do <i>not</i> log out.
4-4	Return to NetApp ONTAP System Manager for cluster1 , and then try to open any page.
4-5	Sign out of System Manager, and then log in with the new password.

Step	Action
4-6	<p>Return to the PuTTY session and reset the password to Netapp1!</p> <p> You might need to use a creative solution. (You can choose to skip this step if you remember the password for the remainder of the course).</p>
4-7	<p>Open a second PuTTY session, and then verify that the new password works before closing the first session.</p> <p> As long as the session remains active, you can reset the password if you have difficulty logging in.</p>

End of exercise