

Module 4: Network Management

Exercise 1: Managing Physical and Logical Network Resources

Objectives

This exercise focuses on enabling you to do the following:

- Create an interface group
- Create a VLAN

Case Study

The IT department at Zarrot Industries uses network trunking and VLANs to maximize efficiency of the IT capital equipment budget.

To optimize the use of the physical network ports of the cluster, you aggregate the network links. You then create the VLAN tags to match the VLANs that are defined in the IT environment and assign them to the aggregated network links.

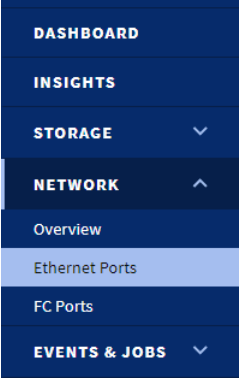
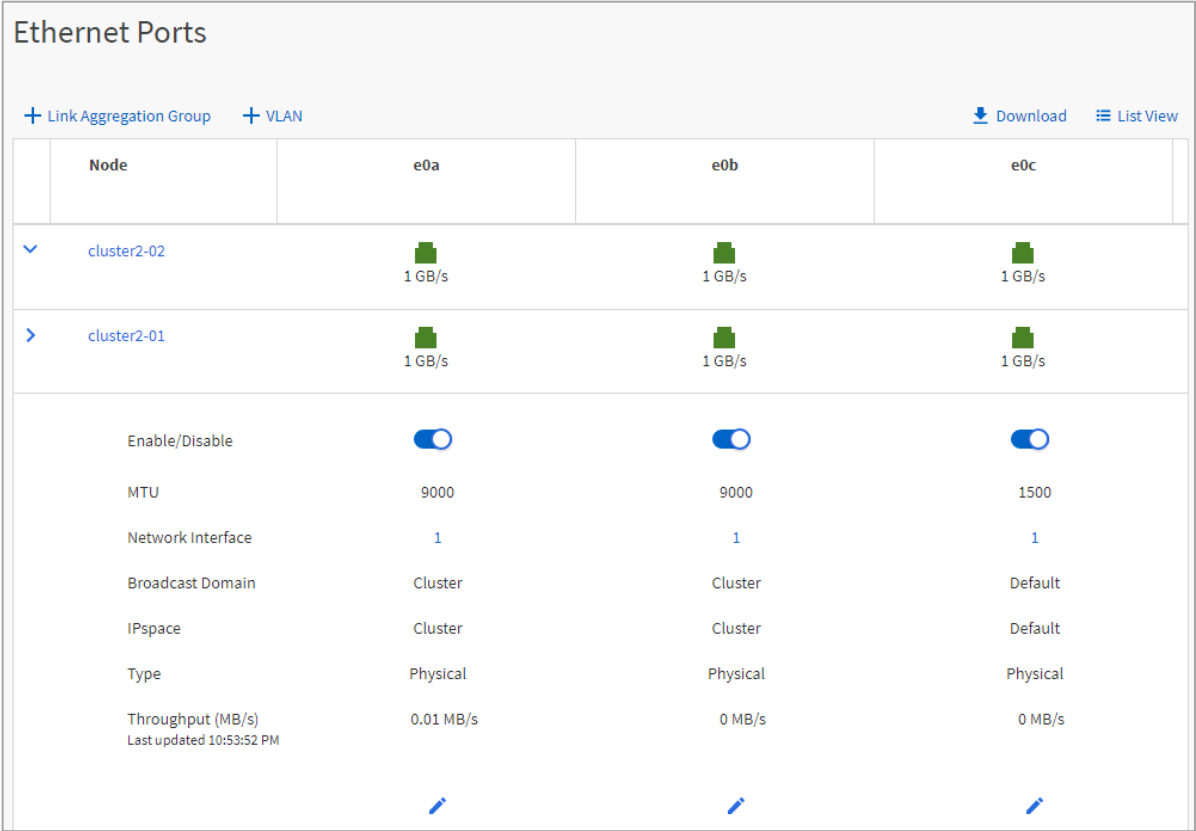
Lab Equipment

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 (cluster2)	cluster2	192.168.0.102	admin (case-sensitive)	Netapp1!

Task 1: Create an Interface Group

Step	Action
1-1	From the Windows Server desktop, use a web browser to access NetApp ONTAP System Manager on cluster2 : https://192.168.0.102
1-2	When the System Manager window opens, enter the following credentials: <ul style="list-style-type: none">• User name: admin• Password: Netapp1!

Step	Action
1-3	<p>From the System Manager menu, select Network, and then click Ethernet Ports.</p> 
1-4	<p>In the Ethernet Ports pane, expand the cluster node cluster2-01:</p> 

Step

Action

1-5

Click **List View** to display information about the Ethernet ports in a different format.

Ethernet Ports

+ Link Aggregation Group







+ VLAN

Search

Download

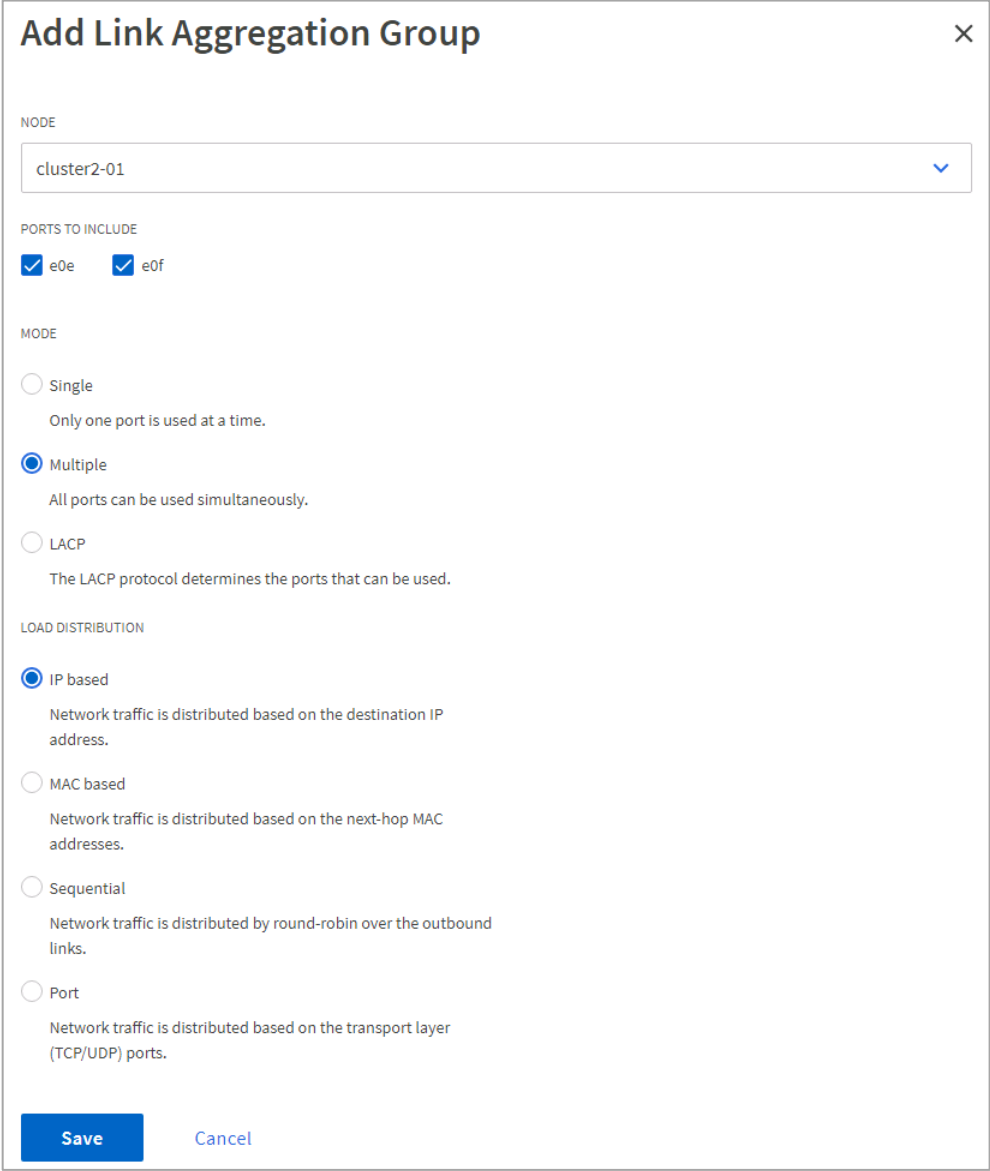
Filter

Group View

Name	Node	MTU	Network Interface	Broadcast Domain	IPspace	Type
 e0a	cluster2-01	9000	1	Cluster	Cluster	Physical
 e0b	cluster2-01	9000	1	Cluster	Cluster	Physical
 e0c	cluster2-01	1500	1	Default	Default	Physical
 e0d	cluster2-01	1500	1	Default	Default	Physical
 e0e	cluster2-01	1500	0	Default	Default	Physical
 e0f	cluster2-01	1500	0	Default	Default	Physical

1-6

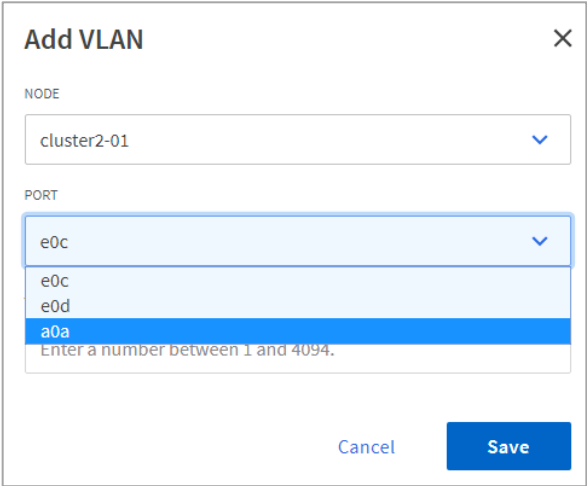
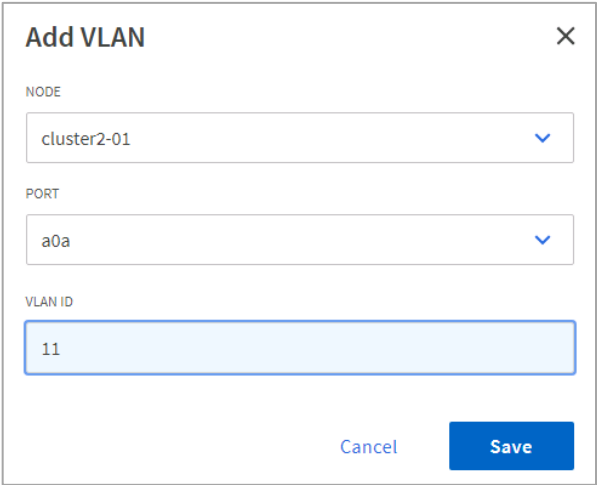
Click **+ Link Aggregation Group**.
































Step	Action
1-7	<p>In the Add Link Aggregation Group dialog box, specify the following settings:</p> <ul style="list-style-type: none"> Node: cluster2-01 (default) Ports to include: <ul style="list-style-type: none"> e0e: <selected> e0f: <selected> Mode: Multiple Load distribution: IP based (default) 
1-8	<p>Answer the following question:</p> <p>Why are Ethernet ports e0c and e0d not included in the ports to include list?</p>

Step	Action																																																																																																		
1-9	Click Save .																																																																																																		
1-10	<p>Use the Ethernet Ports pane to answer the following questions:</p> <p>What name has been automatically assigned to the new link aggregation group?</p> <p>To which broadcast domain and IPspace has the new link aggregation group been assigned?</p> <p>To which broadcast domain and IPspace have ports e0e and e0f been assigned?</p> <div><div>Ethernet Ports</div><div><div><div>+ Link Aggregation Group</div><div>+ VLAN</div></div><div><div>Search</div><div>Download</div><div>Filter</div><div>Group View</div></div></div><table><thead><tr><th>Name</th><th>Node</th><th>MTU</th><th>Network Interface</th><th>Broadcast Domain</th><th>IPspace</th><th>Type</th></tr></thead><tbody><tr><td> a0a</td><td>cluster2-01</td><td>1500</td><td>0</td><td>Default</td><td>Default</td><td>Link Aggregation Group</td></tr><tr><td> e0a</td><td>cluster2-01</td><td>9000</td><td>1</td><td>Cluster</td><td>Cluster</td><td>Physical</td></tr><tr><td> e0b</td><td>cluster2-01</td><td>9000</td><td>1</td><td>Cluster</td><td>Cluster</td><td>Physical</td></tr><tr><td> e0c</td><td>cluster2-01</td><td>1500</td><td>1</td><td>Default</td><td>Default</td><td>Physical</td></tr><tr><td> e0d</td><td>cluster2-01</td><td>1500</td><td>1</td><td>Default</td><td>Default</td><td>Physical</td></tr><tr><td> e0e</td><td>cluster2-01</td><td>1500</td><td>0</td><td></td><td></td><td>Physical</td></tr><tr><td> e0f</td><td>cluster2-01</td><td>1500</td><td>0</td><td></td><td></td><td>Physical</td></tr><tr><td> e0a</td><td>cluster2-02</td><td>9000</td><td>1</td><td>Cluster</td><td>Cluster</td><td>Physical</td></tr><tr><td> e0b</td><td>cluster2-02</td><td>9000</td><td>1</td><td>Cluster</td><td>Cluster</td><td>Physical</td></tr><tr><td> e0c</td><td>cluster2-02</td><td>1500</td><td>1</td><td>Default</td><td>Default</td><td>Physical</td></tr><tr><td> e0d</td><td>cluster2-02</td><td>1500</td><td>0</td><td>Default</td><td>Default</td><td>Physical</td></tr><tr><td> e0e</td><td>cluster2-02</td><td>1500</td><td>0</td><td>Default</td><td>Default</td><td>Physical</td></tr><tr><td> e0f</td><td>cluster2-02</td><td>1500</td><td>0</td><td>Default</td><td>Default</td><td>Physical</td></tr></tbody></table></div>	Name	Node	MTU	Network Interface	Broadcast Domain	IPspace	Type	a0a	cluster2-01	1500	0	Default	Default	Link Aggregation Group	e0a	cluster2-01	9000	1	Cluster	Cluster	Physical	e0b	cluster2-01	9000	1	Cluster	Cluster	Physical	e0c	cluster2-01	1500	1	Default	Default	Physical	e0d	cluster2-01	1500	1	Default	Default	Physical	e0e	cluster2-01	1500	0			Physical	e0f	cluster2-01	1500	0			Physical	e0a	cluster2-02	9000	1	Cluster	Cluster	Physical	e0b	cluster2-02	9000	1	Cluster	Cluster	Physical	e0c	cluster2-02	1500	1	Default	Default	Physical	e0d	cluster2-02	1500	0	Default	Default	Physical	e0e	cluster2-02	1500	0	Default	Default	Physical	e0f	cluster2-02	1500	0	Default	Default	Physical
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1-11	<div></div> <p>There is a delay as the interface group is enabled and the broadcast domain is assigned. Wait for the System Manager UI to refresh (every 15 seconds), or toggle between list view and group view.</p>																																																																																																		
1-12	<div></div> <p>You will not be able to create a VLAN on the new interface group until ONTAP System Manager finishes assigning a broadcast domain to the interface group.</p>																																																																																																		

Task 2: Create a VLAN

Step	Action
2-1	On the Ethernet Ports page, click + VLAN .

Step	Action
2-2	<p>In the Add VLAN dialog box, select port a0a on node cluster2-01 to host the VLAN.</p> 
2-3	<p>Enter 11 for the VLAN ID, then click Save.</p> 
2-4	<p>Repeat Steps 2-1 through 2-3 to create VLANs on port a0a with VLAN IDs of 22 and 33.</p>

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2-5	<p>Use the Ethernet Ports pane to answer the following questions:</p> <p>What names have been automatically assigned to the new VLANs?</p> <p>To which broadcast domain and IPspace have the new VLANs been assigned?</p> <div><div>Ethernet Ports</div><div><div><div>+ Link Aggregation Group</div><div>+ VLAN</div></div><div><div>Search</div><div>Download</div><div>Filter</div><div>Group View</div></div></div><table><thead><tr><th>Name</th><th>Node</th><th>MTU</th><th>Network Interface</th><th>Broadcast Domain</th><th>IPspace</th><th>Type</th></tr></thead><tbody><tr><td> a0a</td><td>cluster2-01</td><td>1500</td><td>0</td><td>Default</td><td>Default</td><td>Link Aggregation Group</td></tr><tr><td> a0a-11</td><td>cluster2-01</td><td>1500</td><td>0</td><td>Default-1</td><td>Default</td><td>VLAN</td></tr><tr><td> a0a-22</td><td>cluster2-01</td><td>1500</td><td>0</td><td>Default-2</td><td>Default</td><td>VLAN</td></tr><tr><td> a0a-33</td><td>cluster2-01</td><td>1500</td><td>0</td><td>Default-3</td><td>Default</td><td>VLAN</td></tr><tr><td> e0a</td><td>cluster2-01</td><td>9000</td><td>1</td><td>Cluster</td><td>Cluster</td><td>Physical</td></tr><tr><td> e0b</td><td>cluster2-01</td><td>9000</td><td>1</td><td>Cluster</td><td>Cluster</td><td>Physical</td></tr><tr><td> e0c</td><td>cluster2-01</td><td>1500</td><td>1</td><td>Default</td><td>Default</td><td>Physical</td></tr><tr><td> e0d</td><td>cluster2-01</td><td>1500</td><td>1</td><td>Default</td><td>Default</td><td>Physical</td></tr><tr><td> e0e</td><td>cluster2-01</td><td>1500</td><td>0</td><td></td><td></td><td>Physical</td></tr><tr><td> e0f</td><td>cluster2-01</td><td>1500</td><td>0</td><td></td><td></td><td>Physical</td></tr></tbody></table></div>	Name	Node	MTU	Network Interface	Broadcast Domain	IPspace	Type	 a0a	cluster2-01	1500	0	Default	Default	Link Aggregation Group	 a0a-11	cluster2-01	1500	0	Default-1	Default	VLAN	 a0a-22	cluster2-01	1500	0	Default-2	Default	VLAN	 a0a-33	cluster2-01	1500	0	Default-3	Default	VLAN	 e0a	cluster2-01	9000	1	Cluster	Cluster	Physical	 e0b	cluster2-01	9000	1	Cluster	Cluster	Physical	 e0c	cluster2-01	1500	1	Default	Default	Physical	 e0d	cluster2-01	1500	1	Default	Default	Physical	 e0e	cluster2-01	1500	0			Physical	 e0f	cluster2-01	1500	0			Physical
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End of exercise