



Verify the node4 installation

ONTAP Systems

Barb Einarsen, Amanda Stroman, Paula Carrigan
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Table of Contents

Verify the node4 installation	1
Restore network configuration on node4	3

Verify the node4 installation

You must verify that the physical ports from node2 map correctly to the physical ports on node4. This will allow node4 to communicate with other nodes in the cluster and with the network after the upgrade.

About this task

Capture information about the ports on the new nodes the [Hardware Universe](#). You will use the information later in this section.

Physical port layout might vary, depending on the model of the nodes. When the new node boots up, ONTAP will try to determine which ports should host cluster LIFs in order to automatically come into quorum.

If the physical ports on node2 do not map directly to the physical ports on node4, the subsequent section [Restore network configuration on node4](#) must be used to repair network connectivity.

After you install and boot node4, you must verify that it is installed correctly. You must wait for node4 to join quorum and then resume the relocation operation.

At this point in the procedure, the operation will have paused as node4 joins quorum.

Steps

1. Verify that node4 has joined quorum by using the following command:

```
cluster show -node node4 -fields health
```

The output of the `health` field should be `true`.

2. Verify that node4 is part of the same cluster as node3 and that it is healthy by using the following command:

```
cluster show
```

3. Switch to advanced privilege mode by using the following command:

```
set advanced
```

4. Check the status of the controller replacement operation and verify that it is in a paused state and in the same state it was in before node2 was halted to perform the physical tasks of installing new controllers and moving cables by using the following commands:

```
system controller replace show
```

```
system controller replace show-details
```

5. If you are working on a MetroCluster system, verify that the replaced controller is configured correctly for the MetroCluster configuration; the MetroCluster configuration should be in a healthy state. Refer to [Verify the health of the MetroCluster configuration](#).

Reconfigure the intercluster LIFs on MetroCluster node node4, and check cluster peering to restore communication between the MetroCluster nodes before proceeding to Step 6.

Check the MetroCluster node status by using the following command:

```
metrocluster node show
```

6. Resume the controller replacement operation by using the following command.

```
system controller replace resume
```

7. Controller replacement will pause for intervention with the following message:

```
Cluster::*> system controller replace show
Node                Status                Error-Action
-----
Node2(now node4)    Paused-for-intervention    Follow the instructions
given in
Node2                Step Details

Step Details:
-----
To complete the Network Reachability task, the ONTAP network
configuration must be
manually adjusted to match the new physical network configuration of the
hardware.
This includes:
1. Re-create the interface group, if needed, before restoring VLANs. For
detailed
commands and instructions, refer to the "Re-creating VLANs, ifgrps, and
broadcast
domains" section of the upgrade controller hardware guide for the ONTAP
version
running on the new controllers.
2. Run the command "cluster controller-replacement network displaced-
vlangs show"
to check if any VLAN is displaced.
3. If any VLAN is displaced, run the command "cluster controller-
replacement
network displaced-vlangs restore" to restore the VLAN on the desired
port.
2 entries were displayed.
```



In this guide, section *Re-creating VLANs, ifgrps, and broadcast domains* has been renamed *Restoring network configuration on node4*.

8. With the controller replacement in a paused state, proceed to the next section of this document to restore network configuration on the node.

Restore network configuration on node4

After you confirm that node4 is in quorum and can communicate with node3, verify that node2's VLANs, interface groups and broadcast domains are seen on node4. Also, verify that all node4 network ports are configured in their correct broadcast domains.

About this task

For more information on creating and re-creating VLANs, interface groups, and broadcast domains, see the [ONTAP 9.8 Network Management](#).

Steps

1. List all the physical ports that are on upgraded node2 (referred to as node4) by using the following command:

```
network port show -node node4
```

All physical network ports, VLAN ports and interface group ports on the node are displayed. From this output you can see any physical ports that have been moved into the **Cluster** broadcast domain by ONTAP. You can use this output to aid in deciding which ports should be used as interface group member ports, VLAN base ports or standalone physical ports for hosting LIFs.

2. List the broadcast domains on the cluster by using the following command:

```
broadcast-domain show
```

3. List network port reachability of all ports on node4 by using the following command:

```
network port reachability show
```

The output from the command looks similar to the following example:

```
clusterA::*> reachability show -node node2_node4
(network port reachability show)
Node          Port          Expected Reachability    Reachability Status
-----
node2_node4
          a0a          Default:Default          no-reachability
          a0a-822        Default:822              no-reachability
          a0a-823        Default:823              no-reachability
          e0M            Default:Mgmt              ok
          e0a            Cluster:Cluster           misconfigured-
reachability
          e0b            Cluster:Cluster           no-reachability
          e0c            Cluster:Cluster           no-reachability
          e0d            Cluster:Cluster           no-reachability
          e0e            Cluster:Cluster           ok
          e0e-822        -                          no-reachability
          e0e-823        -                          no-reachability
          e0f            Default:Default           no-reachability
          e0f-822        Default:822              no-reachability
          e0f-823        Default:823              no-reachability
          e0g            Default:Default           misconfigured-
reachability
          e0h            Default:Default           ok
          e0h-822        Default:822              ok
          e0h-823        Default:823              ok
18 entries were displayed.
```

In the above example, node2_node4 is just booted after controller replacement. It has several ports that have no reachability and are pending a reachability scan.

4. Repair the reachability for each of the ports on node4 with a reachability status other than `ok`. Run the following command, first on any physical ports, then on any VLAN ports, one at a time:

```
network port reachability repair -node <node_name> -port <port_name>
```

The output looks like the following example:

```
Cluster ::> reachability repair -node node2_node4 -port e0h
```

```
Warning: Repairing port "node2_node4: e0h" may cause it to move into a
different broadcast domain, which can cause LIFs to be re-homed away
from the port. Are you sure you want to continue? {y|n}:
```

A warning message, as shown above, is expected for ports with a reachability status that might be different from the reachability status of the broadcast domain where it is currently located.

Review the connectivity of the port and answer **y** or **n** as appropriate.

Verify that all physical ports have their expected reachability by using the following command:

```
network port reachability show
```

As the reachability repair is performed, ONTAP attempts to place the ports in the correct broadcast domains. However, if a port's reachability cannot be determined and does not belong to any of the existing broadcast domains, ONTAP will create new broadcast domains for these ports.

5. If interface group configuration does not match the new controller physical port layout, modify it by using the following steps.

- a. You must first remove physical ports that should be interface group member ports from their broadcast domain membership. You can do this by using the following command:

```
network      port      broadcast-domain      remove-ports      -broadcast-domain  
<broadcast_domain_name> -ports <node_name:port_name>
```

- b. Add a member port to an interface group by using the following command:

```
network port ifgrp add-port -node <node_name> - ifgrp <ifgrp> -port  
<port_name>
```

- c. The interface group is automatically added to the broadcast domain about a minute after the first member port is added.
 - d. Verify that the interface group was added to the appropriate broadcast domain by using the following command:

```
network port reachability show -node <node_name> -port <ifgrp>
```

If the interface group's reachability status is not **ok**, assign it to the appropriate broadcast domain by using the following command:

```
network      port      broadcast-domain      add-ports      -broadcast-domain  
<broadcast_domain_name> -ports <node:port>
```

6. Assign appropriate physical ports to the **Cluster** broadcast domain by using the following steps:

- a. Determine which ports have reachability to the **Cluster** broadcast domain by using the following command:

```
network port reachability show -reachable-broadcast-domains Cluster:Cluster
```

- b. Repair any port with reachability to the **Cluster** broadcast domain, if its reachability status is not **ok** by using the following command:

```
network port reachability repair -node <node_name> -port <port_name>
```

7. Move the remaining physical ports into their correct broadcast domains by using one of the following commands:

```
network port reachability repair -node <node_name> -port <port_name>
```

```
network port broadcast-domain remove-port
```

```
network port broadcast-domain add-port
```

Verify that there are no unreachable or unexpected ports present. Check the reachability status for all physical ports by using the following command and examining the output to ensure the status is **ok**:

```
network port reachability show -detail
```

8. Restore any VLANs that might have become displaced by using the following steps:

- a. List displaced VLANs by using the following command:

```
displaced- vlans show
```

Output like the following should display:

```
Cluster::*> displaced-vlans show
(cluster controller-replacement network displaced-vlans show)
      Original
Node   Base Port   VLANs
-----
Node1  a0a           822, 823
      e0e           822, 823
```

- b. Restore VLANs that were displaced from their previous base ports by using the following command:

```
displaced- vlans restore
```

The following is an example of restoring VLANs that have been displaced from interface group a0a back onto the same interface group:

```
Cluster::*> displaced-vlans restore -node node2_node4 -port a0a
-destination-port a0a
```

The following is an example of restoring displaced VLANs on port e0e to e0h:

```
Cluster::*> displaced-vlans restore -node node2_node4 -port e0e
-destination-port e0h
```

When a VLAN restore is successful, the displaced VLANs are created on the specified destination port. The VLAN restore fails if the destination port is a member of an interface group, or if the destination port is down.

Wait about one minute for newly restored VLANs to be placed into their appropriate broadcast

domains.

- c. Create new VLAN ports as needed for VLAN ports that are not in the `displaced- vlans show` output but should be configured on other physical ports.

9. Delete any empty broadcast domains after all port repairs have been completed by using the following command.

```
broadcast-domain delete -broadcast-domain <broadcast_domain_name>
```

10. Verify port reachability by using the following command:

```
network port reachability show
```

When all ports are correctly configured and added to the correct broadcast domains, the `network port reachability show` command should report the reachability status as `ok` for all connected ports, and the status as `no-reachability` for ports with no physical connectivity. If any ports report a status other than these two, perform the reachability repair and add or remove ports from their broadcast domains as instructed in [Step 4](#).

11. Verify that all ports have been placed into broadcast domains by using the following command:

```
network port show
```

12. Verify that all ports in the broadcast domains have the correct maximum transmission unit (MTU) configured by using the following command:

```
network port broadcast-domain show
```

13. Restore LIF home ports, specifying the Vserver(s) and LIF(s) home ports, if any, that need to be restored by using the following command:

- a. List any LIFs that are displaced by using the following command:

```
displaced-interface show
```

- b. Restore LIF home ports by using the following command:

```
displaced-interface      restore-home-node      -node      <node_name>      -vserver  
<vserver_name > - lif-name <LIF_name>
```

14. Verify that all LIFs have a home port and are administratively up by using the following command:

```
network interface show -fields home- port,status-admin
```

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