



# **Prepare the nodes for upgrade**

## **ONTAP Systems**

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May 10, 2021

This PDF was generated from [https://docs.netapp.com/us-en/ontap-systems/upgrade-arl-auto-app/preparing\\_the\\_nodes\\_for\\_upgrade.html](https://docs.netapp.com/us-en/ontap-systems/upgrade-arl-auto-app/preparing_the_nodes_for_upgrade.html) on May 12, 2021. Always check docs.netapp.com for the latest.

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# Prepare the nodes for upgrade

You must perform the following steps to prepare the nodes for upgrade.

## Steps

1. Begin the controller replacement process by entering the following command in the ONTAP command line:

```
system controller replace start -nodes <node_names>
```



This command can only be executed at the advanced privilege level: `set -privilege advanced`

You will see the following output:

Warning:

1. Current ONTAP version is 9.8

Before starting controller replacement operation, ensure that the new controllers are running the version 9.8

2. Verify that NVMEM or NVRAM batteries of the new nodes are charged, and charge them if they are not. You need to physically check the new nodes to see if the NVMEM or NVRAM batteries are charged. You can check the battery status either by connecting to a serial console or using SSH, logging into the Service Processor (SP) or Baseboard Management Controller (BMC) for your system, and use the system sensors to see if the battery has a sufficient charge.

Attention: Do not try to clear the NVRAM contents. If there is a need to clear the contents of NVRAM, contact NetApp technical support.

3. If a controller was previously part of a different cluster, run `wipeconfig` before using it as the replacement controller.

Do you want to continue? {y|n}: y

2. Press **y**, you will see the following output:

Controller replacement operation: Prechecks in progress.

Controller replacement operation has been paused for user intervention.

The system runs the following prechecks; record the output of each precheck for use later in the procedure:

Precheck	Description
Cluster Health Check	Checks all the nodes in the cluster to confirm they are healthy.

Precheck	Description
MCC Cluster Check	<p>Checks if the system is a MetroCluster configuration. The operation automatically detects if it is a MetroCluster configuration or not and performs the specific prechecks and verification checks.</p> <p>Only 4-node MetroCluster FC configuration is supported. In the case of 2-node MetroCluster configuration and 4-node MetroCluster IP configuration, the check fails.</p> <p>If the MetroCluster configuration is in switched over state, the check fails.</p>
Aggregate Relocation Status Check	<p>Checks whether an aggregate relocation is already in progress. If another aggregate relocation is in progress, the check fails.</p>
Model Name Check	<p>Checks whether the controller models are supported for this procedure.</p> <p>If the models are not supported, the task fails.</p>
Cluster Quorum Check	<p>Checks that the nodes being replaced are in quorum. If the nodes are not in quorum, the task fails.</p>
Image Version Check	<p>Checks that the nodes being replaced run the same version of ONTAP.</p> <p>If the ONTAP image versions are different, the task fails.</p> <p>The new nodes must have the same version of ONTAP 9.8 installed on them that is installed on the original nodes. If the new nodes have a different version of ONTAP installed, you need to netboot the new controllers after you install them. See the <a href="#">ONTAP 9 Upgrade and Revert/Downgrade Guide</a> for instructions to upgrade ONTAP.</p>
HA Status Check	<p>Checks if both the nodes being replaced are in a high-availability (HA) pair configuration.</p> <p>If storage failover is not enabled for the controllers, the task fails.</p>
Aggregate Status Check	<p>If the nodes being replaced own aggregates for which they are not the home owner, the task fails.</p> <p>The nodes should not own any non-local aggregates.</p>
Disk Status Check	<p>If any nodes being replaced have missing or failed disks, the task fails.</p> <p>If any disks are missing, see the <a href="#">ONTAP 9 Disks and Aggregates Power Guide</a>, the <a href="#">ONTAP 9 Logical Storage Management Guide</a>, and the <a href="#">ONTAP 9 High-Availability Configuration Guide</a> in the <a href="#">ONTAP 9 Documentation Center</a> to configure storage for the HA pair.</p>
Data LIF Status Check	<p>Checks if any of the nodes being replaced have non-local data LIFs.</p> <p>The nodes should not contain any data LIFs for which they are not the home owner. If one of the nodes contains non-local data LIFs, the task fails.</p>
Cluster LIF Status	<p>Checks whether the cluster LIFs are up for both nodes. If the cluster LIFs are down, the task fails.</p>

Precheck	Description
ASUP Status Check	If ASUP notifications are not configured, the task fails. You must enable ASUP before beginning the controller replacement procedure.
CPU Utilization Check	Checks if the CPU utilization is more than 50% for any of the nodes being replaced. If the CPU usage is more than 50% for a considerable period of time, the task fails.
Aggregate Reconstruction Check	Checks if reconstruction is occurring on any data aggregates. If aggregate reconstruction is in progress, the task fails.
Node Affinity Job Check	Checks if any node affinity jobs are running. If node affinity jobs are running, the check fails.

- After the controller replacement operation is started and the prechecks are completed, the operation pauses allowing you to collect output information that you might need later when configuring node3.
- Run the below set of commands as directed by the controller replacement procedure on the system console.

You must run and save the output of the following commands individually:

- `vserver services name-service dns show`
- `network interface show -curr-node <nodename> -role <cluster,intercluster,node-mgmt,cluster-mgmt,data>`
- `network port show -node <node_name> -type physical`
- `service-processor show -node * -instance`
- `network fcp adapter show -node <node_name>`
- `network port ifgrp show`
- `system node show -instance -node <node_name>`
- `run -node <node_name> sysconfig`
- `storage aggregate show -node <node_name>`
- `volume show -node <node_name>`
- `storage array config show -switch <switch_name>`
- `system license show -owner <node_name>`
- `storage encryption disk show`
- `security key-manager backup show`
- `security key-manager external show`
- `security key-manager external show-status`
- `reachability show -detail`



If NetApp Volume Encryption using Onboard Key Manager (OKM) is in use, keep the key-manager passphrase ready to complete the key manager resync later in the procedure.

## Correct aggregate ownership if an ARL precheck fails

If the Aggregate Status Check fails, you must return aggregates owned by the partner node to the home owner node and initiate the precheck process again.

### Steps

1. Return the aggregates currently owned by the partner node to the home owner node by using the following command:

```
storage aggregate relocation start -node <source_node> -destination  
<destination-node> - aggregate-list *
```

2. Verify that neither node1 nor node2 still owns aggregates for which it is the current owner (but not the home owner) by using the following command:

```
storage aggregate show -nodes <node_name> -is-home false -fields owner-  
<name>,home- name,state
```

The following example shows the output of the command when a node is both the current owner and home owner of aggregates:

```
cluster::> storage aggregate show -nodes node1 -is-home true -fields  
owner-name,home-name,state  
aggregate    home-name  owner-name  state  
aggr1        node1      node1      online  
aggr2        node1      node1      online  
aggr3        node1      node1      online  
aggr4        node1      node1      online  
4 entries were displayed.
```

### After you finish

You must restart the controller replacement process by using the following command:

```
system controller replace start -nodes <node_names>
```

## License

When you set up a cluster, the setup wizard prompts you to enter the cluster-base license key. However, some features require additional licenses, which are issued as packages that include one or more features. Each node in the cluster must have its own key for each feature to be used in the cluster.

If you do not have new license keys, currently licensed features in the cluster are available to the new controller. However, using unlicensed features on the controller might put you out of compliance with your license agreement, so you should install the new license key or keys for the new controller after the upgrade is complete.

You can obtain new 2-character license keys for ONTAP 9.8 on the [NetApp Support Site](#). The keys are available in the *My Support* section under *Software licenses*. If the site does not have the license keys you need, you can contact your NetApp sales representative.

For detailed information about licensing, see the [System Administration Reference](#) in the [ONTAP 9 Documentation Center](#).

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