



# Managing array LUNs using ONTAP

## ONTAP FlexArray

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# Managing array LUNs using ONTAP

If the storage array administrator wants to make configuration changes to an array LUN after it is assigned to a node, for example to resize it, you might need to perform some activities in ONTAP before it is possible to reconfigure the LUN on the storage array.

## Modifying assignment of spare array LUNs

You can change the ownership of a *spare* array LUN to another node. You might want to do this for load balancing over the nodes.

### Steps

1. At the console of the node that owns the array LUN you want to reassign, enter the following command to see a list of spare array LUNs on the node: `storage disk show -owner local`

The array LUNs owned by the node, both spares and LUNs in aggregates, are listed.

2. Confirm that the LUN you want to reassign to another node is a spare LUN.
3. Enter the following command to assign ownership of the array LUN to another node: `storage disk assign arrayLUNname -owner new_owner_name -force`



The array LUN ownership is not changed if the `-force` option is not used or if the array LUN was already added to an aggregate.

4. Enter the following command to verify that the ownership of the spare array LUN was changed to the other node: `storage disk show -owner local`

The spare array LUN that you changed to the new owner should no longer appear in the list of spares. If the array LUN still appears, repeat the command to change ownership.

5. On the destination node, enter the following command to verify that the spare array LUN whose ownership you changed is listed as a spare owned by the destination node: `storage disk show -owner local`

You must add the array LUN to an aggregate before it can be used for storage.

## Checking the checksum type of spare array LUNs

If you plan to add a spare array LUN to an aggregate by specifying its name, you need to make sure that the checksum type of the array LUN you want to add is the same as the aggregate checksum type.

You cannot mix array LUNs of different checksum types in an array LUN aggregate. The checksum type of the aggregate and the checksum type of the array LUNs added to it must be the same.

If you specify a number of spare array LUNs to be added to an aggregate, by default ONTAP selects array LUNs of the same checksum type as the aggregate.



The checksum type of all newly created aggregates using zoned checksum array LUNS is *advanced zoned checksum (AZCS)*. Zoned checksum type continues to be supported for existing zoned aggregates. Zoned checksum spare array LUNs added to an existing zoned checksum aggregate continue to be zoned checksum array LUNs. Zoned checksum spare array LUNs added to an AZCS checksum type aggregate use the AZCS checksum scheme for managing checksums.

## Step

1. Check the checksum type of the spare array LUNs by entering the following command:

```
storage disk show -fields checksum-compatibility -container-type spare
```

You can add a block checksum array LUN to a block checksum aggregate and a zoned array LUN to an *advanced zoned checksum (AZCS)* aggregate.

## Changing the checksum type of an array LUN

You must change the checksum type of an array LUN if you want to add it to an aggregate that has a different checksum type than the checksum type of the LUN.

### What you'll need

You must have reviewed the tradeoffs between performance in certain types of workloads and storage capacity utilization of each checksum type.

You can also contact your Sales Engineer for details about using checksums.

- You must assign a **zoned** checksum type to an array LUN that you plan to add to an advanced zoned checksum (AZCS) aggregate. When a zoned checksum array LUN is added to an AZCS aggregate, it becomes an advanced zoned checksum array LUN. Similarly, when a zoned checksum array LUN is added to a zoned aggregate, it is a zoned checksum type.
- You cannot modify the checksum of array LUNs while assigning ownership. You can modify the checksum only on already assigned array LUNs.

### Steps

1. Enter the following command to change the checksum type: `storage disk assign -disk disk name -owner owner -c new_checksum_type`

*disk name* is the array LUN whose checksum type you want to change.

*owner* is the node to which the array LUN is assigned.

*new\_checksum\_type* can be block or zoned.

```
storage disk assign -disk EMC-1.1 -owner system147b -c block
```

The checksum type of the array LUN is changed to the new checksum type you specified.

2. Enter the following command to access the nodeshell: `system node run -node node_name`

*node\_name* is the name of this system.

3. Enter the following command to exit the nodeshell: `exit`

## Prerequisites to reconfiguring an array LUN on the storage array

If an array LUN has already been assigned (through ONTAP) to a particular ONTAP system, the information that ONTAP wrote to the array LUN must be removed before the storage administrator attempts to reconfigure the array LUN on the storage array.

When the storage array presents an array LUN to ONTAP, ONTAP collects information about the array LUN (for example, its size) and writes that information to the array LUN. ONTAP cannot dynamically update information that it wrote to an array LUN. Therefore, before the storage array administrator reconfigures an array LUN, you must use ONTAP to change the state of the array LUN to *unused*. The array LUN is unused from the perspective of ONTAP.

While changing the state of the array LUN to unused, ONTAP does the following:

- Terminates I/O operations to the array LUN
- Removes the label for RAID configuration information and the persistent reservations from the array LUN, which makes the array LUN unowned by any ONTAP system

After this process finishes, no ONTAP information remains in the array LUN.

You can do the following after the array LUN's state is changed to unused:

- Remove the mapping of the array LUN to ONTAP and make the array LUN available to other hosts.
- Resize the array LUN or change its composition.

If you want ONTAP to resume using the array LUN after its size or composition is changed, you must present the array LUN to ONTAP again, and assign the array LUN to an ONTAP system again. ONTAP is aware of the new array LUN size or composition.

## Changing array LUN size or composition

Reconfiguring the size or composition of an array LUN must be done on the storage array. If an array LUN has already been assigned to an ONTAP system, you must use ONTAP to change the state of the array LUN to unused before the storage array administrator can reconfigure it.

### What you'll need

The array LUN must be a spare array LUN before you can change its state to unused.

### Steps

1. On the ONTAP system, enter the following command to remove ownership information: `storage disk removeowner -disk arrayLUNname`
2. On the storage array, complete the following steps:
  - a. Unmap (unpresent) the array LUN from the ONTAP systems so that they can no longer see the array LUN.

- b. Change the size or composition of the array LUN.
- c. If you want ONTAP to use the array LUN again, present the array LUN to the ONTAP systems again.

At this point, the array LUN is visible to the FC initiator ports to which the array LUN was presented, but it cannot be used by any ONTAP systems yet.

3. Enter the following command on the ONTAP system that you want to be the owner of the array LUN:

```
storage disk assign -disk arrayLUNname -owner nodename
```

After the ownership information is removed, the array LUN cannot be used by any ONTAP system until the array LUN is assigned again to a system. You can leave the array LUN as a spare or add it to an aggregate. You must add the array LUN to an aggregate before the array LUN can be used for storage.

## Removing one array LUN from use by ONTAP

If the storage array administrator no longer wants to use a particular array LUN for ONTAP, you must remove the information that ONTAP wrote to the LUN (for example, size and ownership) before the administrator can reconfigure the LUN for use by another host.

### What you'll need

If the LUN that the storage array administrator no longer wants ONTAP to use is in an aggregate, you must take the aggregate offline and destroy the aggregate before starting this procedure. Taking an aggregate offline and destroying it changes the data LUN to a spare LUN.

### Step

1. Enter the following command: `storage disk removeowner -disk LUN_name`

*LUN\_name* is the name of the array LUN.

## Preparing array LUNs before removing an ONTAP system from service

You must release the persistent reservations on all array LUNs assigned to an ONTAP system before removing the system from service.

When you assign ONTAP ownership of an array LUN, ONTAP places persistent reservations (ownership locks) on that array LUN to identify which ONTAP system owns the LUN. If you want the array LUNs to be available for use by other types of hosts, you must remove the persistent reservations that ONTAP put on those array LUNs; some arrays do not allow you to destroy a reserved LUN if you do not remove the ownership and persistent reservations that ONTAP wrote to that LUN.

For example, the Hitachi USP storage array does not have a user command for removing persistent reservations from LUNs. If you do not remove persistent reservations through ONTAP before removing the ONTAP system from service, you must call Hitachi technical support to remove the reservations.

Contact technical support for instructions about how to remove persistent reservations from LUNs before removing an ONTAP system from service.

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