



# Planning a configuration with array LUNs

## ONTAP FlexArray

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# Table of Contents

- Planning a configuration with array LUNs ..... 1
  - Where to find information for configurations with storage arrays ..... 1
  - Stages of implementation for a system using array LUNs ..... 3
  - Planning summary for a V-Series system using native disks ..... 4
  - Planning summary for ONTAP systems using array LUNs ..... 4

# Planning a configuration with array LUNs

For planning an ONTAP configuration with array LUNs, you must verify if the storage array is supported for a particular ONTAP release. In addition, you must check the interoperability and support information to ensure that all the systems meet the requirements for a configuration with array LUNs.

## Related information

[NetApp Support](#)

[NetApp Interoperability Matrix Tool](#)

## Where to find information for configurations with storage arrays

When planning your configuration for using ONTAP systems with storage arrays, you should check various sources for information about array LUN configuration in addition to the product documentation.

Tools available on the NetApp Support Site provide, in a central location, specific information about which features, configurations, and storage array models are supported in particular releases.

## Related information

[NetApp Support](#)

## Limit types for configurations with storage arrays

You must consider certain storage array limits when planning for an ONTAP configuration.

The *Hardware Universe* contains specific limit values for storage arrays and native disks.

The following types of limits apply only to storage arrays and not to native disks:

- Minimum and maximum array LUN size that ONTAP supports
- Minimum size for the array LUN for the root volume
- Spare core array LUN minimum size
- Limits for RAID groups with array LUNs
- Minimum aggregate size for an aggregate of array LUNs
- Maximum number of array LUNs and disks combined, per platform

## Related information

[NetApp Hardware Universe](#)

## Where to find information about ONTAP support for storage arrays

Not all ONTAP releases support the same features, configurations, system models, and storage array models. During your deployment planning, you must check ONTAP support information to verify that your deployment conforms to ONTAP hardware and software requirements for all systems in the deployment.

The following table lists the information sources that contain the details of the hardware and software requirements associated with ONTAP systems:

For information about...	You should look here...
<p>ONTAP working with devices, including the following:</p> <ul style="list-style-type: none"><li>• Supported storage arrays and storage array firmware</li><li>• Supported switches and switch firmware</li><li>• Whether your storage array supports nondisruptive (live) upgrade of the storage array firmware</li><li>• Whether a MetroCluster configuration is supported with your storage array</li></ul>	<p><a href="#">NetApp Interoperability Matrix Tool</a></p>
<p>ONTAP limits for releases and platforms, including the following:</p> <ul style="list-style-type: none"><li>• Minimum and maximum array LUN sizes, including the minimum array LUN size for the root volume and spare core array LUNs</li><li>• Minimum aggregate size for aggregates with array LUNs</li><li>• Supported block size</li><li>• Minimum and maximum capacity</li><li>• Neighborhood limits</li></ul>	<p><a href="#">NetApp Hardware Universe</a></p>
<p>Setting up E-Series storage arrays, including the following:</p> <ul style="list-style-type: none"><li>• Site preparation requirements</li><li>• Cabling instructions</li><li>• SANtricity software installation and configuration instructions</li></ul>	<p>The following E-Series documentation:</p> <ul style="list-style-type: none"><li>• <i>E-Series Storage Systems Site Preparation Guide</i></li><li>• <i>E-Series Storage Systems Hardware Cabling Guide</i></li><li>• <i>SANtricity ES Storage Manager documentation</i></li></ul> <p>You can access these documents from the NetApp Support site.</p> <p><a href="#">NetApp Support</a></p>

For information about...	You should look here...
What is supported for specific storage arrays, including supported configurations	<ul style="list-style-type: none"> <li>• <a href="#">FlexArray virtualization implementation for third-party storage</a></li> <li>• <a href="#">FlexArray virtualization implementation for NetApp E-Series storage</a></li> </ul>

## 32xx system configuration restrictions

There are some restrictions for 32xx systems that do not apply to other models. You must be aware of these while configuring the systems.

The two onboard FC ports labeled 0c and 0d, are not on independent busses. Therefore, they do not provide storage redundancy. Some port failures can cause the system to panic. To configure redundant port pairs, you need to use an FC HBA in an available expansion slot.

## Stages of implementation for a system using array LUNs

Implementing a configuration in which your system uses LUNs from a storage array has two stages: a back-end implementation and a front-end implementation. It is helpful when planning your configuration to understand the high-level tasks in each stage.

### Stage 1: back-end implementation

Setting up the back-end implementation includes all tasks that are required to set up the ONTAP system with a storage array, up to the point where you can install ONTAP software.

Tasks to set up the back-end implementation include the following:

1. Creating and formatting array LUNs
2. Assigning ports
3. Cabling
4. Zoning switches (if applicable)
5. In ONTAP, assigning specific array LUNs to an ONTAP system
6. In ONTAP, providing information to set up an ONTAP system on the network
7. Installing ONTAP software

If an ONTAP system is ordered with disk shelves, the ONTAP software is installed by the factory. In such a configuration, you do not need to create the root volume and install licenses and ONTAP software.

If an ONTAP system is ordered without disk shelves, you need to configure ONTAP before setting up the cluster.

### Stage 2: front-end implementation

Tasks to set up the front-end implementation are the same as for a system using disks, including the following:

- Configuring the ONTAP system for all protocols (NAS, FC, or both)

- Configuring ONTAP features such as SnapVault, SnapMirror, SnapValidator, and Snapshot copies
- Creating volumes and aggregates
- Setting up data protection, including NDMP dumps to tapes

## Planning summary for a V-Series system using native disks

You can install native disk shelves on new or existing V-Series systems. However, you must consider a few additional factors if you plan to install native disk shelves on V-Series systems, compared to installing the disk shelves on FAS systems.

### Additional planning considerations for basic setup on V-Series systems with disks

You must consider the following when determining basic setup and installation requirements for your V-Series system that uses native disks:

- If the V-Series system is ordered with disk shelves, the factory configures the root volume and installs licenses and ONTAP software (just as it does for FAS systems).
- If the V-Series system is not ordered with disk shelves, you must plan to install the ONTAP software and appropriate licenses.
- ONTAP automatically assigns ownership to native disks attached to the V-Series system.

### Additional planning considerations if the V-Series system uses both disks and array LUNs

The following table summarizes additional planning considerations and the location of information to help you with each task.

Planning consideration	Where to find guidelines
Location of the root volume	<a href="#">Location of the root volume</a>
How many disks and array LUNs combined can be assigned without exceeding the supported maximum limit for the V-Series system	<a href="#">NetApp Hardware Universe</a>
FC initiator port usage	<a href="#">Requirements for FC initiator port usage</a>
The type of data that should reside on disks and the type of data that should reside on array LUNs	You must evaluate the type of data that needs to be managed, and then decide whether the data can reside on native disks or array LUNs.

## Planning summary for ONTAP systems using array LUNs

When you plan to use array LUNs with ONTAP systems, you must communicate with the storage array and switch administrators so that the back-end devices are configured to work with ONTAP systems.

The following table summarizes the major planning tasks and the location of information to help you with each task.

Planning task	Where to find information
Determining requirements for setting up your storage array to work with ONTAP	<ul style="list-style-type: none"> <li>• <a href="#">FlexArray virtualization implementation for third-party storage</a></li> <li>• <a href="#">FlexArray virtualization implementation for NetApp E-Series storage</a></li> <li>• <a href="#">NetApp Interoperability Matrix Tool</a></li> </ul>
Guidelines for array LUN use with ONTAP	<a href="#">Planning for ONTAP use of array LUNs</a>
Determining ONTAP limits regarding array LUNs	<a href="#">NetApp Hardware Universe</a>
Determining a LUN security scheme, setting access controls on the storage array and, if switches are deployed, setting zoning on switches	<ul style="list-style-type: none"> <li>• <a href="#">Planning for LUN security on storage arrays</a></li> <li>• <a href="#">Zoning requirements</a></li> </ul>
Determining a port-to-port connectivity scheme between the ONTAP systems and the storage array	<ul style="list-style-type: none"> <li>• <a href="#">Planning a port-to-port connectivity scheme</a></li> <li>• <a href="#">NetApp Interoperability Matrix Tool</a></li> </ul>
Determining which ONTAP system is to “own” which array LUN (disk ownership)	<ul style="list-style-type: none"> <li>• <a href="#">How array LUNs become available for ONTAP storage use</a></li> <li>• <a href="#">Assigning ownership of array LUNs</a></li> </ul>

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