



# **Configure All SAN Array software**

## **ONTAP 9**

NetApp  
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# Configure All SAN Array software

## All SAN Array software configuration overview

The NetApp All SAN Arrays (ASAs) are available beginning with ONTAP 9.7. ASAs are all-flash SAN-only solutions built on proven AFF NetApp platforms.

The ASA platforms are available in two-node switched or switchless clusters, can be configured for FC or iSCSI, and use symmetric active-active for multipathing. All paths are active/optimized so in the event of a storage failover, the host does not need to wait for the ALUA transition of the failover paths to resume I/O. This reduces time to failover.

### Related information

[NetApp Technical Report 4515: ONTAP AFF All SAN Array Systems](#)

[NetApp Technical Report 4080: Best Practices for Scalable SAN ONTAP 9](#)

## Set up an ASA

All SAN Arrays (ASAs) follow the same setup procedure as non-ASA systems.

System Manager guides you through the procedures necessary to initialize your cluster, create a local tier, configure protocols, and provision storage for your ASA. See the steps to [Configure ONTAP](#).

## ASA host settings and utilities

Host settings for setting up All SAN Arrays (ASAs) are the same as those for all other SAN hosts.

You can download the [NetApp Host Utilities software](#) for your specific hosts from the support site.

## Ways to identify an ASA system

You can identify an ASA system using System Manager or using the ONTAP command line interface (CLI).

From the System Manager dashboard, click **Cluster > Overview** and then select the system node. The **PERSONALITY** is displayed as **All SAN Array**.

From the CLI, you can use the `san config show` command. The "All SAN Array" value returns as true for ASA systems.

## All SAN Array configuration limits and support

You should use the tested and supported maximum configuration limits established for AFF All SAN Array (ASA) controllers.

For reliable operations, you should not exceed the current tested and supported limits listed in [NetApp Hardware Universe](#).

## ASA configuration limits

Beginning with ONTAP 9.9.1 AFF ASA controllers can support up to 12 nodes for non-MetroCluster IP

configurations and up to 8 nodes for MetroCluster IP configurations.

Also beginning with ONTAP 9.9.1, NVMe-oF protocol is supported on all AFF ASA controllers except those configured for MetroCluster. Metrocluster configurations do not support NVMe-oF.

## Support for persistent ports

Beginning with ONTAP 9.8, persistent ports are enabled by default on All SAN Arrays (ASAs) that are configured to use the FC protocol. Persistent ports are only available for FC and require zone membership identified by World Wide Port Name (WWPN).

Persistent ports reduce the impact of takeovers by creating a shadow LIF on the corresponding physical port of the HA partner. When a node is taken over, the shadow LIF on the partner node assumes the identity of the original LIF, including the WWPN. Before the status of path to the taken over node is changed to faulty, the shadow LIF appears as an Active/Optimized path to the host MPIO stack, and I/O is shifted. This reduces I/O disruption because the host always sees the same number of paths to the target, even during storage failover operations.

For persistent ports, the following FCP port characteristics should be identical within the HA pair:

- FCP port counts
- FCP port names
- FCP port speeds
- FCP LIF WWPN-based zoning

If any of these characteristics are not identical within the HA pair, the following EMS message is generated:

```
EMS : scsiblade.lif.persistent.ports.fcp.init.error
```

For more information on persistent ports, see [NetApp Technical Report 4080: Best Practices for Scalable SAN ONTAP 9](#).

## Support for NVMe-oF protocol

Beginning with ONTAP 9.9.1, All SAN Arrays support NVMe-oF protocol.

Beginning with ONTAP 9.12.1, 4-node MetroCluster IP configurations support NVMe/FC. MetroCluster configurations are not supported for NVMe prior to 9.12.1.

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