ONTAP® 9

FC SAN Optimized AFF Setup Guide

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Deciding whether to use the FC SAN Optimized AFF Setup Guide

The procedures described in this document are intended for experienced NetApp SAN storage administrators. You can use this guide to set up and configure your system. If you require additional guidance for configuring your system, you can contact your account representative.
Setting up FC SAN optimized clusters

FC SAN optimized clusters are preconfigured at the factory. Therefore, the setup process differs from the setup process for other NetApp clusters.

Most setup tasks have already been completed according to the latest AFF FC SAN best practices. The cluster, licenses, aggregates, storage virtual machine (SVM), and logical interfaces (LIFs) are preconfigured, and the optimum storage efficiency and performance parameters are set.

Related references

*Factory configuration default values* on page 11
Preparing your cluster to be production-ready

The simplicity of the preconfigured SAN optimized cluster enables you to quickly complete a deployment that is ready for demonstration and testing.

This document provides a high-level summary of the steps that you need to take to prepare your cluster to make it production-ready. The steps provided here assume experienced working knowledge of NetApp and SAN administration.
Setup workflow for AFF

You must complete all steps provided in the printed installation and setup instructions shipped with your AFF system, including cabling the system and logging in to System Manager to complete the SAN setup wizard for AFF.

**Attention:** You must not attempt to run the Node Setup wizard, or the Cluster Setup wizard. You must not change the storage efficiency or performance settings.

**Steps**

1. **Verifying that the hardware setup is complete** on page 7
   You can use the Config Advisor tool to verify that the hardware is set up correctly.

2. **Setting up SAN hosts** on page 8
   You need one or more host computers connected to the cluster. If you want, you can complete all of the host configuration steps in advance.

3. **Zoning the FC switches** on page 8
   ONTAP uses N_Port ID Virtualization (NPIV) for FC data. To connect hosts to the cluster, you must use 16-Gb FC switches and you must zone the FC switches by the WWPNs of the initiator and target ports.

4. **Rescanning disks and verifying connectivity** on page 9
   On the connected hosts, you must discover the new LUNs and make them available to your application. The exact process depends on the host OS and the application in your environment.

5. **Final steps before putting your system into production** on page 9
   The SAN optimized factory configuration is intended for demonstration and testing purposes.

**Verifying that the hardware setup is complete**

You can use the Config Advisor tool to verify that the hardware is set up correctly.

**Steps**

1. Confirm that all components are mounted and cabled.

2. Confirm that FC target ports are cabled to FC switches, using a minimum of two ports per node to fabric A, and two ports per node to fabric B.

3. Confirm that the system is powered on.

4. Download and install the Config Advisor tool.

   **NetApp Downloads: Config Advisor**

   Config Advisor is a configuration validation and health check utility for NetApp systems that runs a series of commands on the hardware and then verifies cabling, configuration, availability, and conformance with NetApp best practice settings.
5. Confirm that your computer is physically connected to the management switch for the cluster and configured with an IP address in the $10.10.10.x/24$ subnet.

6. Run Config Advisor, select the **Clustered Data ONTAP** execution profile, enter the cluster node and switch login information, and then click **Collect Data**.

7. Review the Config Advisor output and resolve any issues reported.

### Setting up SAN hosts

You need one or more host computers connected to the cluster. If you want, you can complete all of the host configuration steps in advance.

**Steps**

1. Using the Interoperability Matrix (IMT), verify that the entire configuration is supported.

   *NetApp Interoperability Matrix Tool*

   Note the Host Utilities version required for your configuration.

2. Install the Host Utilities.

3. Use a supported HBA in the host.

   Using the fastest speed HBA available for your host provides the highest performance from the host to the storage.

4. Enable and configure a supported multipathing (MPIO) solution.

5. Cable the FC initiator ports on the host to the FC switches.

6. Record the WWPN values of the FC initiators associated with each host.

**Related information**

*ONTAP 9 Documentation Center*

### Zoning the FC switches

ONTAP uses N_Port ID Virtualization (NPIV) for FC data. To connect hosts to the cluster, you must use 16-Gb FC switches and you must zone the FC switches by the WWPNs of the initiator and target ports.

**Steps**

1. Create one zone for each initiator port (single initiator zoning).

2. To each zone, add all FC logical interfaces (LIFs) on target ports connected to the same FC switch as the initiator (a minimum of two ports per node).

3. Save and activate the new zones.

**Related information**

*ONTAP concepts*
Rescanning disks and verifying connectivity

On the connected hosts, you must discover the new LUNs and make them available to your application. The exact process depends on the host OS and the application in your environment.

Steps
1. Rescan the disks.
2. Configure the LUNs for use by the application.
3. Read and write data to verify access to the LUNs.
   For detailed instructions, see the Host Utilities for your host operating system.

Related information

NetApp Documentation: Host Utilities (current releases)

Final steps before putting your system into production

The SAN optimized factory configuration is intended for demonstration and testing purposes.

Steps
1. Register the system on the NetApp Support.
   NetApp Support
2. Remove the test LUNs and volumes.
3. Update the password for the cluster admin account.
4. Update the password for the storage virtual machine (SVM) admin account if you intend to keep the SVM.
5. Assign or change passwords for the cluster interconnect switches (if present).
6. Rename the cluster.
7. Change the management IP addresses to fit your network.
8. Configure AutoSupport messages.
9. Configure DNS for your network.
10. Configure NTP for your network.
11. Configure EMS messages.
12. Protect the root volumes.
13. Create production volumes and LUNs.
14. Optionally join additional AFF or FAS system nodes to the cluster.

Note: You can join nodes to the FC SAN optimized cluster, but you cannot add the FC SAN optimized cluster to an existing cluster. You can only join nodes to an existing cluster, you cannot merge clusters.
Related references

Factory configuration default values on page 11

Related information

ONTAP 9 Documentation Center
Factory configuration default values

The factory configures the SAN optimized configuration using values that have been tested and found to be optimal for AFF clusters. Do not modify the performance and space efficiency parameters unless directed by technical support.

<table>
<thead>
<tr>
<th>Object</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster management IP address</td>
<td>10.10.10.10/24</td>
</tr>
<tr>
<td>User name</td>
<td>admin</td>
</tr>
<tr>
<td>Password</td>
<td>netapp!123</td>
</tr>
<tr>
<td>Cluster name</td>
<td>aff</td>
</tr>
<tr>
<td>Node management (each node)</td>
<td>Port: e0m 10.10.10.1 (node 1) 10.10.10.2 (node 2)</td>
</tr>
<tr>
<td>Onboard UTA2 ports</td>
<td>Configured as FC target</td>
</tr>
<tr>
<td></td>
<td>Fabric A: 0e, 0g</td>
</tr>
<tr>
<td></td>
<td>Fabric B: 0f,0h</td>
</tr>
<tr>
<td>storage virtual machine (SVM)</td>
<td>Name = AFF_SAN_DEFAULT_SVM</td>
</tr>
<tr>
<td></td>
<td>-snapshot-policy none</td>
</tr>
<tr>
<td></td>
<td>-ipspace default</td>
</tr>
<tr>
<td></td>
<td>-rootvolume-security-style unix</td>
</tr>
<tr>
<td></td>
<td>storage virtual machine (SVM) management LIF: 10.10.10.100</td>
</tr>
<tr>
<td></td>
<td>storage virtual machine (SVM) management user name: admin</td>
</tr>
<tr>
<td></td>
<td>storage virtual machine (SVM) management password: netapp!123</td>
</tr>
<tr>
<td>FCP service</td>
<td>Created</td>
</tr>
<tr>
<td>FC data LIFs on each node</td>
<td>aff_node-0n_0e_A</td>
</tr>
<tr>
<td></td>
<td>aff_node-0n_0g_A</td>
</tr>
<tr>
<td></td>
<td>aff_node-0n_0f_B</td>
</tr>
<tr>
<td></td>
<td>aff_node-0n_0h_B</td>
</tr>
<tr>
<td></td>
<td>-data-protocol fcp</td>
</tr>
<tr>
<td>Portsets</td>
<td>None</td>
</tr>
<tr>
<td>Object</td>
<td>Default</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Licenses installed</td>
<td><strong>Base cluster</strong>&lt;br&gt;CIFS  &lt;br&gt;FCP  &lt;br&gt;FlexClone  &lt;br&gt;Insight_Balance  &lt;br&gt;iSCSI  &lt;br&gt;NFS  &lt;br&gt;SnapManagerSuite  &lt;br&gt;SnapMirror  &lt;br&gt;SnapProtectApps  &lt;br&gt;SnapRestore  &lt;br&gt;SnapVault</td>
</tr>
<tr>
<td>Disk ownership (all shelves)</td>
<td>Bays 0-11 to node 1&lt;br&gt;Bays 12-23 to node 2</td>
</tr>
<tr>
<td>Root aggregates (first two shelves only)</td>
<td>One root aggregate of 23 disks created on each node with root-data partitioning&lt;br&gt;One hot spare partition per node name = node_0n_aggr0</td>
</tr>
<tr>
<td>Data aggregates (first two shelves only)</td>
<td>One data aggregate of 23 disks created on each node with root-data partitioning&lt;br&gt;-space-nearly-full-threshold-percent 70&lt;br&gt;-space-full-threshold-percent 75&lt;br&gt;One hot spare partition per node name = node_0n_aggr1</td>
</tr>
<tr>
<td>Volume properties (all volumes same size as aggregate and thinly provisioned)</td>
<td>autosize-mode = off&lt;br&gt;snapshot-policy = none&lt;br&gt;fractional-reserve = 0&lt;br&gt;space-guarantee = none</td>
</tr>
<tr>
<td>Volume efficiency policy</td>
<td>-policy default&lt;br&gt;-type scheduled&lt;br&gt;-schedule daily&lt;br&gt;-qos-policy best_effort&lt;br&gt;inline compression on</td>
</tr>
<tr>
<td>SNMP community</td>
<td>-community-name public&lt;br&gt;-type ro&lt;br&gt;options snmp.enable on</td>
</tr>
<tr>
<td>Deduplication</td>
<td>sis.max_active_ops = 1</td>
</tr>
</tbody>
</table>
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