Set up a cluster with Fibre Channel nodes

Element Software

NetApp
November 12, 2025

This PDF was generated from https://docs.netapp.com/us-en/element-software/setup/concept_setup_fc_configure_a_fibre_channel_node.html on November 12, 2025. Always check docs.netapp.com for the latest.

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Set up a cluster with Fibre Channel nodes

Configure a Fibre Channel node

Fibre Channel nodes enable you to connect the cluster to a Fibre Channel network fabric. Fibre Channel nodes are added in pairs, and operate in active-active mode (all nodes actively process traffic for the cluster). Clusters running Element software version 9.0 and later support up to four nodes; clusters running previous versions support a maximum of two nodes.

You must ensure that the following conditions are met before you configure a Fibre Channel node:

- At least two Fibre Channel nodes are connected to Fibre Channel switches.
- All SolidFire Fibre Channel ports should be connected to your Fibre Channel fabric. The four SolidFire Bond10G network connections should be connected in one LACP bond group at the switch level. This will enable the best overall performance from the Fibre Channel systems.
- Review and validate all best practices for Fibre Channel clusters included in this NetApp Knowledge Base article.

  SolidFire FC cluster best practice

Network and cluster configuration steps are the same for Fibre Channel nodes and storage nodes.

When you create a new cluster with Fibre Channel nodes and SolidFire storage nodes, the worldwide port name (WWPN) addresses for the nodes are available in the Element UI. You can use the WWPN addresses to zone the Fibre Channel switch.

WWPNs are registered in the system when you create a new cluster with nodes. In the Element UI, you can find the WWPN addresses from the WWPN column of the FC Ports tab, which you access from the Cluster tab.

Find more information

Add Fibre Channel nodes to a cluster

Create a new cluster with Fibre Channel nodes

Create a new cluster with Fibre Channel nodes

You can create a new cluster after you have configured the individual Fibre Channel nodes. When you create a cluster, a cluster administrator user account is automatically created for you. The cluster administrator has permission to manage all cluster attributes and can create other cluster administrator accounts.

During new node configuration, 1G or 10G Management IP (MIP) addresses are assigned to each node. You must use one of the node IP addresses created during configuration to open the Create a New Cluster page. The IP address you use depends on the network you have chosen for cluster management.

What you'll need

You have configured the individual Fibre Channel nodes.

Steps

1. In a browser window, enter a node MIP address.
2. In Create a New Cluster, enter the following information:
   - Management VIP: Routable virtual IP on the 1GbE or 10GbE network for network management tasks.
   - iSCSI (storage) VIP: Virtual IP on the 10GbE network for storage and iSCSI discovery.

     You cannot change the SVIP after you create the cluster.

   - User name: The primary Cluster Admin user name for authenticated access to the cluster. You must save the user name for future reference.

     You can use uppercase and lowercase letters, special characters, and numbers for the user name.

   - Password: Password for authenticated access to the cluster. You must save the user name for future reference. Two-way data protection is enabled by default. You cannot change this setting.
3. Read the End User License Agreement, and click **I Agree**.
4. **Optional**: In the Nodes list, ensure that the check boxes for nodes that should not be included in the cluster are not selected.
5. Click **Create Cluster**.

   The system might take several minutes to create the cluster depending on the number of nodes in the cluster. On a properly configured network, a small cluster of five nodes should take less than one minute. After the cluster is created, the Create a New Cluster window is redirected to the MVIP URL address for the cluster and displays the web UI.

Find more information

- SolidFire and Element Software Documentation
- NetApp Element Plug-in for vCenter Server

Add Fibre Channel nodes to a cluster

You can add Fibre Channel nodes to a cluster when more storage is needed or during cluster creation. Fibre Channel nodes require initial configuration when they are first powered on. After the node is configured, it appears in the list of pending nodes and you can add it to a cluster.

The software version on each Fibre Channel node in a cluster must be compatible. When you add a Fibre Channel node to a cluster, the cluster installs the cluster version of Element on the new node as needed.

Steps

1. Select **Cluster** > **Nodes**.
2. Click **Pending** to view the list of pending nodes.
3. Do one of the following:
   - To add individual nodes, click the **Actions** icon for the node you want to add.

- To add multiple nodes, select the check box of the nodes to add, and then **Bulk Actions**.

> If the node you are adding has a different version of Element than the version running on the cluster, the cluster asynchronously updates the node to the version of Element running on the cluster master. After the node is updated, it automatically adds itself to the cluster. During this asynchronous process, the node will be in a pendingActive state.

4. Click **Add**.

   The node appears in the list of active nodes.

Find more information

- SolidFire and Element Software Documentation
- NetApp Element Plug-in for vCenter Server

Set up zones for Fibre Channel nodes

When you create a new cluster with Fibre Channel nodes and SolidFire storage nodes, the worldwide port name (WWPN) addresses for the nodes are available in the web UI. You can use the WWPN addresses to zone the Fibre Channel switch.

WWPNs are registered in the system when you create a new cluster with nodes. In the Element UI, you can find the WWPN addresses from the WWPN column of the FC Ports tab, which you access from the Cluster tab.

Find more information

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Create a volume access group for Fibre Channel clients

Volume access groups enable communication between Fibre Channel clients and volumes on a SolidFire storage system. Mapping Fibre Channel client initiators (WWPN) to the volumes in a volume access group enables secure data I/O between a Fibre Channel network and a SolidFire volume.

You can also add iSCSI initiators to a volume access group; this gives the initiators access to the same volumes in the volume access group.

Steps

1. Click **Management** > **Access Groups**.
2. Click **Create Access Group**.
3. Enter a name for the volume access group in the **Name** field.
4. Select and add the Fibre Channel initiators from the **Unbound Fibre Channel Initiators** list.

> You can add or delete initiators at a later time.

5. **Optional:** Select and add an iSCSI initiator from the **Initiators** list.
6. To attach volumes to the access group, perform the following steps:
    a. Select a volume from the **Volumes** list.
    b. Click **Attach Volume**.
7. Click **Create Access Group**.

Find more information

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- NetApp Element Plug-in for vCenter Server

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