



Cluster and SVM peering workflow

System Manager Classic

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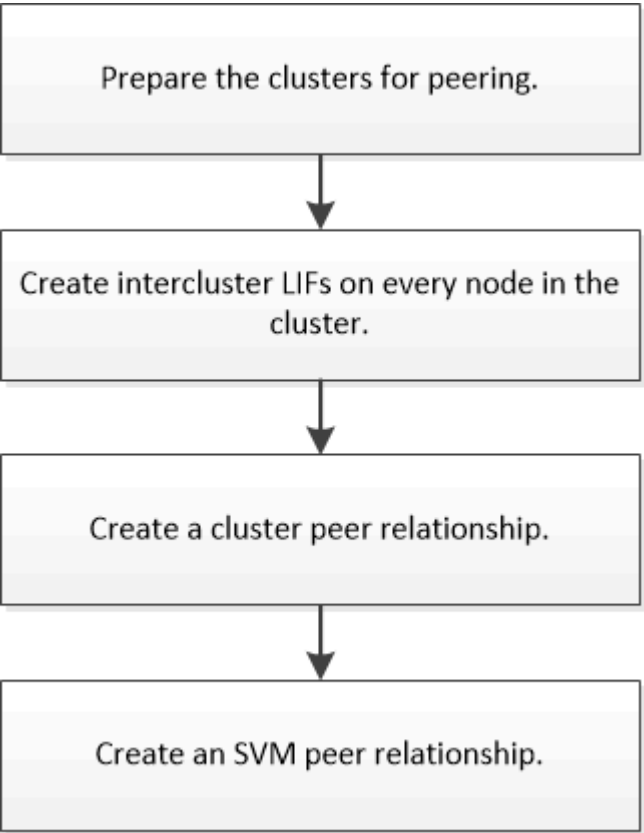
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Cluster and SVM peering workflow

Setting up a peering relationship involves preparing each cluster for peering, creating intercluster logical interfaces (LIFs) on each node of each cluster, setting up a cluster peer relationship, and then setting up an SVM peering relationship.



If you are running ONTAP 9.2 or earlier, you create an SVM peering relationship while creating a data protection relationship between the source volume and the destination volume.

Prepare for cluster peering

Before creating a cluster peering relationship, you must verify that the time on each cluster is synchronized with an external Network Time Protocol (NTP) server, and determine the subnets, ports, and passphrases that you want to use.

Steps

1. If you are running ONTAP 9.2 or earlier, determine the passphrase that you want to use for each cluster peer relationship.

The passphrase must include at least eight characters.

| For the relationship between... | The passphrase is... |
|---------------------------------|----------------------|
| Cluster A and Cluster B | |

Starting with ONTAP 9.3, you can generate the passphrase from the remote cluster while creating the

cluster peer relationship.

Creating a cluster peer relationship (starting with ONTAP 9.3)

2. Identify the subnets, IP addresses, and ports that you will use for intercluster LIFs.

By default, the IP address is automatically selected from the subnet. If you want to specify the IP address manually, you must ensure that the IP address either is already available in the subnet or can be added to the subnet later. Information about subnets is available in the Network tab.

The following table assumes that each cluster has four nodes. If a cluster has more than four nodes, you can record the ports on another piece of paper.

| | Cluster A | Cluster B |
|---|-----------|-----------|
| Subnet (ONTAP 9.2 or earlier) | | |
| IP address (starting with ONTAP 9.3, optional for ONTAP 9.2 or earlier) | | |
| Node 1 port | | |
| Node 2 port | | |
| Node 3 port | | |
| Node 4 port | | |

Configure peer relationships (starting with ONTAP 9.3)

A peer relationship defines the network connections that enable clusters and SVMs to exchange data securely. ONTAP 9.3 simplifies the way that you configure peer relationships between clusters and between SVMs.

Create intercluster LIFs(starting with ONTAP 9.3)

Creating intercluster logical interfaces (LIFs) enables the cluster network to communicate with a node. You must create an intercluster LIF within each IPspace that will be used for peering, on each node in each cluster for which you want to create a peer relationship.

About this task

For example, if you have a four-node cluster that you want to peer with cluster X over IPspace A, and peer with cluster Y over IPspace Y, then you need a total of eight intercluster LIFs; Four on IPspace A (one per node), and four on IPspace Y (one per node).

You must perform this procedure on both clusters for which you want to create a peer relationship.

Steps

1. Click **Configuration > Advanced Cluster Setup**.
2. In the **Setup Advanced Cluster Features** window, click **Proceed** next to the **Cluster Peering** option.
3. Select an IPspace from the **IPspace** list.
4. Enter the IP address, port, network mask, and gateway details of each node.

Intercluster LIF Details per Node

IPspace: Default

| | IP Address | Port | Netmask | Gateway (Optional) | |
|-------------------|------------|------|---------------|--------------------|--|
| st50-vsim-ucsl03a | 10.53.32.1 | e0d | 255.255.240.0 | | <input checked="" type="checkbox"/> Use same net...and gateway |
| st50-vsim-ucsl03b | 10.53.32.2 | e0d | | | |

5. Click **Submit and Continue**.

What to do next

You should enter the cluster details in the Cluster Peering window to continue with cluster peering.

Create a cluster peer relationship (starting with ONTAP 9.3)

You can create a cluster peer relationship between two clusters by providing a system-generated passphrase and the IP addresses of the intercluster LIFs of the remote cluster.

About this task

Beginning in ONTAP 9.6, cluster peering encryption is enabled by default on all newly created cluster peering relationships. Cluster peering encryption must be enabled manually for peering relationship created prior to upgrading to ONTAP 9.6. Cluster peering encryption is not available for clusters running ONTAP 9.5 or earlier. Therefore, both clusters in the peering relationship must be running ONTAP 9.6 in order to enable cluster peering encryption.

Cluster peering encryption uses the Transport Security Layer (TLS) to secure cross-cluster peering communications for ONTAP features such as SnapMirror and FlexCache.

Steps


1. In the **Target Cluster Intercluster LIF IP addresses** field, enter the IP addresses of the intercluster LIFs of the remote cluster.
2. Generate a passphrase from the remote cluster.
 - a. Specify the management address of the remote cluster.
 - b. Click **Management URL** to launch ONTAP System Manager on the remote cluster.
 - c. Log in to the remote cluster.
 - d. In the **Cluster Peers** window, click **Generate Peering Passphrase**.
 - e. Select the IPspace, validity of the passphrase, and SVM permissions.

You can allow all of the SVMs or selected SVMs for peering. When a SVM peer request is generated, the permitted SVMs are automatically peered with the source SVMs without requiring you to accept the peer relationship from the remote SVMs.

f. Click **Generate**.

The passphrase information is displayed.

Generate Peering Passphrase

 Passphrase generated successfully

Use the following information for peering based on the IPspace "Default":

Intercluster LIF IP Address 172.21.91.12

Passphrase Q57k+laFYJzdIV9UMPXvHgWd

Passphrase Validity Valid Until Mon Nov... America/New_Y

SVM Permissions All

Email passphrase details

Copy passphrase details

Done

g. Click **Copy passphrase details** or **Email passphrase details**.

h. Click **Done**.

3. In the source cluster, enter the generated passphrase that you obtained in Step [#STEP_F18C02A36D1D445CA930399D2E9AAB0A](#).

4. Click **Initiate Cluster Peering**.

The cluster peer relationship is successfully created.

5. Click **Continue**.

What to do next

You should specify the SVM details in the SVM Peering window to continue with the peering process.

Create SVM peer relationship

The storage virtual machine (SVM) peering enables you to establish a peer relationship between two SVMs for data protection.

Steps

1. Select the initiator SVM.
2. Select the target SVM from the list of permitted SVMs.
3. Click **Initiate SVM Peering**.
4. Click **Continue**.

What to do next

You can view the intercluster LIFs, cluster peer relationship, and SVM peer relationship in the Summary window.

Configure peer relationships (ONTAP 9.2 and earlier)

A peer relationship defines network connections that enable clusters and SVMs to exchange data securely. You must create a cluster peer relationship before you can create an SVM peer relationship.

Create intercluster interfaces on all nodes (ONTAP 9.2 or earlier)

Clusters communicate with each other through logical interfaces (LIFs) that are dedicated to intercluster communication. You must create an intercluster LIF within each IPspace that will be used for peering, on each node in each cluster for which you want to create a peer relationship.

Before you begin

You must have identified the subnet and ports, and optionally the IP addresses, that you plan to use for the intercluster LIFs.

About this task

You must perform this procedure on both clusters for which you want to create a peer relationship. For example, if you have a four-node cluster that you want to peer with cluster X over IPspace A, and peer with cluster Y over IPspace Y, then you need a total of eight intercluster LIFs; Four on IPspace A (one per node), and four on IPspace Y (one per node).

Steps

1. Create an intercluster LIF on one node of the source cluster:
 - a. Navigate to the **Network Interfaces** window.
 - b. Click **Create**.

The Create Network Interface dialog box is displayed.

- c. Enter a name for the intercluster LIF.

You can use "icl01" for the intercluster LIF on the first node, and "icl02" for the intercluster LIF on the second node.

- d. Select **Intercluster Connectivity** as the interface role.
- e. Select the IPspace.

- f. In the **Add Details** dialog box, select **Using a subnet** from the **Assign IP Address** drop-down list, and then select the subnet that you want to use for intercluster communication.

By default, the IP address is automatically selected from the subnet after you click **Create**. If you do not want to use the IP address that is automatically selected, you must manually specify the IP address that the node uses for intercluster communication.

- g. If you want to manually specify the IP address that the node uses for intercluster communication, select **Use this IP Address**, and type the IP address.

You must ensure that the IP address that you want to use either is already available in the subnet or can be added to the subnet later.

- h. In the **Ports** area, click the node that you are configuring, and select the port that you want to use for this node.
- i. If you decided not to share ports for intercluster communication with data communication, confirm that the selected port displays “0” in the **Hosted Interface Count** column.

Specify the following details to add a new network interface for data and management access of the chosen SVM.

Name:

Interface Role:
☐ Serves Data
☒ Intercluster Connectivity

SVM:

Protocol Access:
☐ CIFS ☐ ISCSI
☐ NFS ☐ FC/FCoE

Management Access:
☐ Enable Management Access

Subnet:

☒ The IP address is selected from this subnet.
☐ Use this IP Address:

Port:


| Ports or Adapters | Hosted Interface Count | Speed |
|-------------------|------------------------|-----------|
| clusterA-node1 | | |
| e0c | 3 | 1000 Mbps |
| e0d | 0 | 1000 Mbps |
| e0e | 0 | 1000 Mbps |

- j. Click **Create**.

2. Repeat Step [#STEP_E3AF9C0B3C474E49A20489FF21727472](#) for each node in the cluster.


Each node in the cluster has an intercluster LIF.

3. Make a note of the IP addresses of the intercluster LIFs so that you can use them later when you create peer relationships with other clusters:

- a. In the **Network Interfaces** window, in the **Role** column, click  , clear the **All** check box, and then select **Intercluster**.

The Network Interfaces window displays only intercluster LIFs.

- b. Note down the IP addresses that are listed in the **IP Addresses/WWPN** column, or leave the **Network Interfaces** window open so that you can retrieve the IP addresses later.

You can click the column display icon () to hide the columns that you do not want to view.

Results

All of the nodes in each cluster have intercluster LIFs that can all communicate with each other.

Create a cluster peer relationship (ONTAP 9.2 or earlier)

You can create a cluster peer relationship between two clusters by entering a predetermined passphrase and the IP addresses of the intercluster LIFs of the remote cluster, and then verifying that the relationship was created successfully.

Before you begin

- You must know the IP addresses of all of the intercluster LIFs of the clusters that you want to peer.
- You must know the passphrase that you will use for each peer relationship.

About this task

You must perform this procedure on each cluster.

Steps

1. From the source cluster, create a cluster peer relationship with the destination cluster.
 - a. Click the **Configurations** tab.
 - b. In the **Cluster Settings** pane, click **Cluster Peers**.
 - c. Click **Create**.

The Create Cluster Peer dialog box is displayed.

- d. In the **Details of the remote cluster to be peered** area, specify the passphrase that both peers will use to ensure an authenticated cluster peer relationship.
- e. Enter the IP addresses of all of the intercluster LIFs of the destination cluster (one per node) separated by commas.

Create Cluster Peer

For a cluster to communicate with another cluster in a peer relationship, enter a passphrase and the intercluster IP addresses of the peer cluster.
[Tell me more about cluster peering](#)

Details of the local cluster

? **Cluster Name:** clusterA

? **Intercluster IP Addresses:**

| | |
|----------------|--------------|
| clusterA-node1 | 10.53.52.120 |
| clusterA-node2 | 10.53.52.121 |

Details of the remote cluster to be peered

? **Passphrase:**

.....

? **Intercluster IP Addresses:**

10.238.14.33,10.238.14.36

f. Click **Create**.

The authentication status is pending because only one cluster has been configured.

2. Switch to the destination cluster, and then create a cluster peer relationship with the source cluster:

- Click the **Configurations** tab.
- In the **Cluster Settings** pane, click **Cluster Peers**.
- Click **Create**.

The Create Cluster Peer dialog box is displayed.

- In the **Details of the remote cluster to be peered** area, specify the same passphrase that you specified in step #STEP_36B845A20DD84114916BBE2844EEE1F2 and the IP addresses of the intercluster LIFs of the source cluster, and then click **Create**.

Create Cluster Peer

For a cluster to communicate with another cluster in a peer relationship, enter a passphrase and the intercluster IP addresses of the peer cluster.
[Tell me more about cluster peering](#)

Details of the local cluster

? **Cluster Name:** clusterB

? **Intercluster IP Addresses:**

| | |
|----------------|--------------|
| clusterB-node1 | 10.238.14.33 |
| clusterB-node2 | 10.238.14.36 |

Details of the remote cluster to be peered

? **Passphrase:**

.....

? **Intercluster IP Addresses:**

10.53.52.120,10.53.52.121

3. From the **Cluster Peers** window of the destination cluster, confirm that the source cluster is available and that the authentication status is ok.

Cluster Peers

'Availability' and 'Authentication Status' information might be stale for up to several minutes.

Create
 Modify Passphrase
 Modify Peer Network Parameters
 Delete
 Refresh

| Peer Cluster | Availability | Authentication Status |
|--------------|--------------|-----------------------|
| clusterA | available | ok |

You might have to click **Refresh** to view the updated information.

The two clusters are in a peer relationship.

4. Switch to the source cluster, and confirm that the destination cluster is `available` and that the authentication status is `ok`.

You might have to click **Refresh** to view the updated information.

What to do next

Create an SVM peer relationship between the source and destination SVMs while creating a data protection relationship between the source volume and the destination volume.

[Volume backup using SnapVault](#)

[Volume disaster recovery preparation](#)

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