# NetApp

# Configure peer relationships

ONTAP 9

NetApp
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## Create ONTAP cluster peer relationships

Before you can protect your data by replicating it to a remote cluster for data backup and disaster recovery purposes, you should create a cluster peer relationship between the local and remote cluster.

**About this task**

This procedure applies to FAS, AFF, and ASA systems. If you have an ASA r2 system (ASA A1K, ASA A90, ASA A70, ASA A50, ASA A30, ASA A20, or ASA C30), follow these steps to create set up snapshot replication. ASA r2 systems provide a simplified ONTAP experience specific to SAN-only customers.

Several default protection policies are available. You must have created your protection policies if you want to use custom policies.

**Before you begin**

If you are using the ONTAP CLI, you must have created intercluster LIFs on every node in the clusters being peered using one of the following methods:

- Configure intercluster LIFs on shared data ports
- Configure intercluster LIFs on dedicated data ports
- Configure intercluster LIFs in custom IPspaces

**Steps**

Perform this task using ONTAP System Manager or the ONTAP CLI.

**System Manager**

1. In the local cluster, click **Cluster > Settings**.

2. In the **Intercluster Settings** section, click **Add Network Interfaces** and enter the IP address and subnet mask to add intercluster network interfaces for the cluster.

   Repeat this step on the remote cluster.

3. In the remote cluster, click **Cluster > Settings**.

4. Click ⋮ in the **Cluster Peers** section and select **Generate Passphrase**.

5. Select the remote ONTAP cluster version.

6. Copy the generated passphrase.

7. In the local cluster, under **Cluster peers**, click ⋮ and select **Peer cluster**.

8. In the **Peer cluster** window, paste the passphrase and click **Initiate cluster peering**.

**CLI**

1. On the destination cluster, create a peer relationship with the source cluster:

```
cluster peer create -generate-passphrase -offer-expiration
<MM/DD/YYYY HH:MM:SS|1...7days|1...168hours> -peer-addrs
<peer_LIF_IPs> -initial-allowed-vserver-peers <svm_name|*> -ipspace
<ipspace>
```

If you specify both `-generate-passphrase` and `-peer-addrs`, only the cluster whose intercluster LIFs are specified in `-peer-addrs` can use the generated password.

You can ignore the `-ipspace` option if you are not using a custom IPspace. Learn more about `cluster peer create` in the ONTAP command reference.

If you are creating the peering relationship in ONTAP 9.6 or later and you do not want cross-cluster peering communications to be encrypted, you must use the `-encryption-protocol-proposed none` option to disable encryption.

The following example creates a cluster peer relationship with an unspecified remote cluster, and pre-authorizes peer relationships with SVMs `vs1` and `vs2` on the local cluster:

```
cluster02::> cluster peer create -generate-passphrase -offer
-expiration 2days -initial-allowed-vserver-peers vs1,vs2

                      Passphrase: UCa+6lRVICXeL/gq1WrK7ShR
                Expiration Time: 6/7/2017 08:16:10 EST
   Initial Allowed Vserver Peers: vs1,vs2
             Intercluster LIF IP: 192.140.112.101
               Peer Cluster Name: Clus_7ShR (temporary generated)

Warning: make a note of the passphrase - it cannot be displayed
again.
```

The following example creates a cluster peer relationship with the remote cluster at intercluster LIF IP addresses 192.140.112.103 and 192.140.112.104, and pre-authorizes a peer relationship with any SVM on the local cluster:

```
cluster02::> cluster peer create -generate-passphrase -peer-addrs
192.140.112.103,192.140.112.104 -offer-expiration 2days -initial
-allowed-vserver-peers *

                      Passphrase: UCa+6lRVICXeL/gq1WrK7ShR
                Expiration Time: 6/7/2017 08:16:10 EST
   Initial Allowed Vserver Peers: vs1,vs2
             Intercluster LIF IP: 192.140.112.101,192.140.112.102
               Peer Cluster Name: Clus_7ShR (temporary generated)

Warning: make a note of the passphrase - it cannot be displayed
again.
```

The following example creates a cluster peer relationship with an unspecified remote cluster, and pre-authorizes peer relationships with SVMs vs1 and vs2 on the local cluster:

```
cluster02::> cluster peer create -generate-passphrase -offer
-expiration 2days -initial-allowed-vserver-peers vs1,vs2

                      Passphrase: UCa+6lRVICXeL/gq1WrK7ShR
                Expiration Time: 6/7/2017 08:16:10 EST
   Initial Allowed Vserver Peers: vs1,vs2
             Intercluster LIF IP: 192.140.112.101
               Peer Cluster Name: Clus_7ShR (temporary generated)

Warning: make a note of the passphrase - it cannot be displayed
again.
```

2. On source cluster, authenticate the source cluster to the destination cluster:

```
cluster peer create -peer-addrs <peer_LIF_IPs> -ipspace <ipspace>
```

Learn more about `cluster peer create` in the ONTAP command reference.

The following example authenticates the local cluster to the remote cluster at intercluster LIF IP addresses 192.140.112.101 and 192.140.112.102:

```
cluster01::> cluster peer create -peer-addrs
192.140.112.101,192.140.112.102

Notice: Use a generated passphrase or choose a passphrase of 8 or
more characters.
        To ensure the authenticity of the peering relationship, use
a phrase or sequence of characters that would be hard to guess.

Enter the passphrase:
Confirm the passphrase:

Clusters cluster02 and cluster01 are peered.
```

Enter the passphrase for the peer relationship when prompted.

3. Verify that the cluster peer relationship was created:

```
cluster peer show -instance
```

```
cluster01::> cluster peer show -instance

                              Peer Cluster Name: cluster02
                  Remote Intercluster Addresses: 192.140.112.101,
192.140.112.102
              Availability of the Remote Cluster: Available
                            Remote Cluster Name: cluster2
                            Active IP Addresses: 192.140.112.101,
192.140.112.102
                            Cluster Serial Number: 1-80-123456
                  Address Family of Relationship: ipv4
            Authentication Status Administrative: no-authentication
                Authentication Status Operational: absent
                              Last Update Time: 02/05 21:05:41
                    IPspace for the Relationship: Default
```

4. Check the connectivity and status of the nodes in the peer relationship:

```
cluster peer health show
```

```
cluster01::> cluster peer health show
Node        cluster-Name                    Node-Name
            Ping-Status                     RDB-Health Cluster-Health
Avail…
---------- -------------------------- --------- ---------------
--------
cluster01-01
            cluster02                   cluster02-01
            Data: interface_reachable
            ICMP: interface_reachable true      true
true
                                        cluster02-02
            Data: interface_reachable
            ICMP: interface_reachable true      true
true
cluster01-02
            cluster02                   cluster02-01
            Data: interface_reachable
            ICMP: interface_reachable true      true
true
                                        cluster02-02
            Data: interface_reachable
            ICMP: interface_reachable true      true
true
```

## Other ways to do this in ONTAP

| To perform these tasks with… | See this content… |
|---|---|
| System Manager Classic (available with ONTAP 9.7 and earlier) | Volume disaster recovery preparation overview |

# Create ONTAP intercluster SVM peer relationships

You can use the `vserver peer create` command to create a peer relationship between SVMs on local and remote clusters.

**Before you begin**

• The source and destination clusters must be peered.

- You must have "pre-authorized" peer relationships for the SVMs on the remote cluster.

  For more information, see Creating a cluster peer relationship.

**About this task**

You can "pre-authorize" peer relationships for multiple SVMs by listing the SVMs in the `-initial-allowed -vserver` option when you create a cluster peer relationship. For more information, see Creating a cluster peer relationship.

**Steps**

1. On the data protection destination cluster, display the SVMs that are pre-authorized for peering:

   `vserver peer permission show`

   ```
   cluster02::> vserver peer permission show
   Peer Cluster          Vserver               Applications
   -------------------   --------------------  --------------------
   cluster02             vs1,vs2               snapmirror
   ```

2. On the data protection source cluster, create a peer relationship to a pre-authorized SVM on the data protection destination cluster:

   `vserver peer create -vserver local_SVM -peer-vserver remote_SVM`

   Learn more about `vserver peer create` in the ONTAP command reference.

   The following example creates a peer relationship between the local SVM `pvs1` and the pre-authorized remote SVM `vs1`:

   ```
   cluster01::> vserver peer create -vserver pvs1 -peer-vserver vs1
   ```

3. Verify the SVM peer relationship:

   `vserver peer show`

   ```
   cluster01::> vserver peer show
                Peer        Peer                                    Peering
   Remote
   Vserver      Vserver     State       Peer Cluster      Applications
   Vserver
   -----------  ----------- ----------- ----------------- --------------
   ---------
   pvs1         vs1         peered      cluster02         snapmirror
   vs1
   ```

# Add ONTAP intercluster SVM peer relationships

If you create an SVM after configuring a cluster peer relationship, you will need to add a peer relationship for the SVM manually. You can use the `vserver peer create` command to create a peer relationship between SVMs. After the peer relationship has been created, you can run `vserver peer accept` on the remote cluster to authorize the peer relationship.

**Before you begin**

The source and destination clusters must be peered.

**About this task**

You can create a peer relationships between SVMs in the same cluster for local data backup. Learn more about `vserver peer create` in the ONTAP command reference.

Administrators occasionally use the `vserver peer reject` command to reject a proposed SVM peer relationship. If the relationship between SVMs is in the `rejected` state, you must delete the relationship before you can create a new one. Learn more about `vserver peer reject` in the ONTAP command reference.

**Steps**

1. On the data protection source cluster, create a peer relationship with an SVM on the data protection destination cluster:

   ```
   vserver peer create -vserver local_SVM -peer-vserver remote_SVM -applications
   snapmirror|file-copy|lun-copy -peer-cluster remote_cluster
   ```

   The following example creates a peer relationship between the local SVM$_{pvs1}$ and the remote SVM$_{vs1}$

   ```
   cluster01::> vserver peer create -vserver pvs1 -peer-vserver vs1
   -applications snapmirror -peer-cluster cluster02
   ```

   If the local and remote SVMs have the same names, you must use a *local name* to create the SVM peer relationship:

   ```
   cluster01::> vserver peer create -vserver vs1 -peer-vserver
   vs1 -applications snapmirror -peer-cluster cluster01
   -local-name cluster1vs1LocallyUniqueName
   ```

2. On the data protection source cluster, verify that the peer relationship has been initiated:

   ```
   vserver peer show-all
   ```

   Learn more about `vserver peer show-all` in the ONTAP command reference.

   The following example shows that the peer relationship between SVM$_{pvs1}$ and SVM$_{vs1}$ has been initiated:

```
cluster01::> vserver peer show-all
            Peer        Peer                    Peering
  Vserver   Vserver     State       Peer Cluster Applications
  --------  --------    ---------   ------------- ------------
  pvs1      vs1         initiated   Cluster02      snapmirror
```

3. On the data protection destination cluster, display the pending SVM peer relationship:

`vserver peer show`

Learn more about `vserver peer show` in the ONTAP command reference.

The following example lists the pending peer relationships for `cluster02`:

```
cluster02::> vserver peer show

                    Peer            Peer
  Vserver           Vserver         State
  -----------       -----------     ------------
  vs1               pvs1            pending
```

4. On the data protection destination cluster, authorize the pending peer relationship:

`vserver peer accept -vserver local_SVM -peer-vserver remote_SVM`

Learn more about `vserver peer accept` in the ONTAP command reference.

The following example authorizes the peer relationship between the local SVM `vs1` and the remote SVM `pvs1`:

```
cluster02::> vserver peer accept -vserver vs1 -peer-vserver pvs1
```

5. Verify the SVM peer relationship:

`vserver peer show`

```
cluster01::> vserver peer show
            Peer        Peer                         Peering
Remote
Vserver     Vserver     State        Peer Cluster     Applications
Vserver
----------- ----------- ------------ ---------------- --------------
---------
pvs1        vs1         peered       cluster02        snapmirror
vs1
```