



Configure intercluster LIFs

ONTAP 9

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Configure intercluster LIFs

Configure intercluster LIFs on shared data ports

You can configure intercluster LIFs on ports shared with the data network. Doing so reduces the number of ports you need for intercluster networking.

Steps

1. List the ports in the cluster:

```
network port show
```

For complete command syntax, see the man page.

The following example shows the network ports in cluster01:

```
cluster01::> network port show
                                         Speed
                                         (Mbps)
Node    Port      IPspace      Broadcast Domain Link     MTU     Admin/Oper
-----  -----  -----
-----  -----
cluster01-01
    e0a      Cluster      Cluster          up      1500  auto/1000
    e0b      Cluster      Cluster          up      1500  auto/1000
    e0c      Default      Default          up      1500  auto/1000
    e0d      Default      Default          up      1500  auto/1000
cluster01-02
    e0a      Cluster      Cluster          up      1500  auto/1000
    e0b      Cluster      Cluster          up      1500  auto/1000
    e0c      Default      Default          up      1500  auto/1000
    e0d      Default      Default          up      1500  auto/1000
```

2. Create intercluster LIFs on the system SVM:

Option	Description
In ONTAP 9.6 and later:	<pre>network interface create -vserver system_SVM -lif <i>LIF_name</i> -service -policy default-intercluster -home -node <i>node</i> -home-port <i>port</i> -address <i>port_IP</i> -netmask <i>netmask</i></pre>

Option	Description
In ONTAP 9.5 and earlier:	<pre>network interface create -vserver system_SVM -lif <i>LIF_name</i> -role intercluster -home-node <i>node</i> -home -port <i>port</i> -address <i>port_IP</i> -netmask <i>netmask</i></pre>

For complete command syntax, see the man page.

The following example creates intercluster LIFs `cluster01_icl01` and `cluster01_icl02`:

```
cluster01::> network interface create -vserver cluster01 -lif
cluster01_icl01 -service-
policy default-intercluster -home-node cluster01-01 -home-port e0c
-address 192.168.1.201
-netmask 255.255.255.0

cluster01::> network interface create -vserver cluster01 -lif
cluster01_icl02 -service-
policy default-intercluster -home-node cluster01-02 -home-port e0c
-address 192.168.1.202
-netmask 255.255.255.0
```

3. Verify that the intercluster LIFs were created:

Option	Description
In ONTAP 9.6 and later:	<pre>network interface show -service-policy default-intercluster</pre>
In ONTAP 9.5 and earlier:	<pre>network interface show -role intercluster</pre>

For complete command syntax, see the man page.

```

cluster01::> network interface show -service-policy default-intercluster
      Logical      Status      Network          Current
Current Is
Vserver     Interface Admin/Oper Address/Mask      Node      Port
Home
-----
----- 
cluster01
      cluster01_icl01
                  up/up      192.168.1.201/24    cluster01-01  e0c
true
      cluster01_icl02
                  up/up      192.168.1.202/24    cluster01-02  e0c
true

```

4. Verify that the intercluster LIFs are redundant:

Option	Description
In ONTAP 9.6 and later:	network interface show -service-policy default-intercluster -failover
In ONTAP 9.5 and earlier:	network interface show -role intercluster -failover

For complete command syntax, see the man page.

The following example shows that the intercluster LIFs `cluster01_icl01` and `cluster01_icl02` on the `e0c` port will fail over to the `e0d` port.

```

cluster01::> network interface show -service-policy default-intercluster
-failover
      Logical      Home          Failover      Failover
Vserver  Interface   Node:Port    Policy       Group
-----
----- 
cluster01
      cluster01_icl01 cluster01-01:e0c  local-only
192.168.1.201/24
                  Failover Targets: cluster01-01:e0c,
                                         cluster01-01:e0d
      cluster01_icl02 cluster01-02:e0c  local-only
192.168.1.201/24
                  Failover Targets: cluster01-02:e0c,
                                         cluster01-02:e0d

```

Configure intercluster LIFs on dedicated ports

You can configure intercluster LIFs on dedicated ports. Doing so typically increases the available bandwidth for replication traffic.

Steps

1. List the ports in the cluster:

```
network port show
```

For complete command syntax, see the man page.

The following example shows the network ports in `cluster01`:

```
cluster01::> network port show
                                         Speed
(Mbps)
Node   Port      IPspace      Broadcast Domain Link    MTU     Admin/Oper
----- ----- -----
----- -----
cluster01-01
    e0a     Cluster      Cluster      up       1500  auto/1000
    e0b     Cluster      Cluster      up       1500  auto/1000
    e0c     Default      Default      up       1500  auto/1000
    e0d     Default      Default      up       1500  auto/1000
    e0e     Default      Default      up       1500  auto/1000
    e0f     Default      Default      up       1500  auto/1000
cluster01-02
    e0a     Cluster      Cluster      up       1500  auto/1000
    e0b     Cluster      Cluster      up       1500  auto/1000
    e0c     Default      Default      up       1500  auto/1000
    e0d     Default      Default      up       1500  auto/1000
    e0e     Default      Default      up       1500  auto/1000
    e0f     Default      Default      up       1500  auto/1000
```

2. Determine which ports are available to dedicate to intercluster communication:

```
network interface show -fields home-port,curr-port
```

For complete command syntax, see the man page.

The following example shows that ports `e0e` and `e0f` have not been assigned LIFs:

```

cluster01::> network interface show -fields home-port,curr-port
vserver lif           home-port curr-port
-----
Cluster cluster01-01_clus1    e0a      e0a
Cluster cluster01-01_clus2    e0b      e0b
Cluster cluster01-02_clus1    e0a      e0a
Cluster cluster01-02_clus2    e0b      e0b
cluster01
    cluster_mgmt        e0c      e0c
cluster01
    cluster01-01_mgmt1  e0c      e0c
cluster01
    cluster01-02_mgmt1  e0c      e0c

```

3. Create a failover group for the dedicated ports:

```

network interface failover-groups create -vserver system_SVM -failover-group
failover_group -targets physical _or_logical_ports

```

The following example assigns ports e0e and e0f to the failover group intercluster01 on the system SVM cluster01:

```

cluster01::> network interface failover-groups create -vserver cluster01
-failover-group
intercluster01 -targets
cluster01-01:e0e,cluster01-01:e0f,cluster01-02:e0e,cluster01-02:e0f

```

4. Verify that the failover group was created:

```

network interface failover-groups show

```

For complete command syntax, see the man page.

```

cluster01::> network interface failover-groups show
                           Failover
Vserver      Group      Targets
-----
-----  

Cluster          Cluster
                           cluster01-01:e0a, cluster01-01:e0b,
                           cluster01-02:e0a, cluster01-02:e0b
cluster01
                           Default
                           cluster01-01:e0c, cluster01-01:e0d,
                           cluster01-02:e0c, cluster01-02:e0d,
                           cluster01-01:e0e, cluster01-01:e0f
                           cluster01-02:e0e, cluster01-02:e0f
                           intercluster01
                           cluster01-01:e0e, cluster01-01:e0f
                           cluster01-02:e0e, cluster01-02:e0f

```

5. Create intercluster LIFs on the system SVM and assign them to the failover group.

Option	Description
In ONTAP 9.6 and later:	<code>network interface create -vserver <i>system_SVM</i> -lif <i>LIF_name</i> -service -policy default-intercluster -home -node <i>node</i> -home- port <i>port</i> -address <i>port_IP</i> -netmask <i>netmask</i> -failover -group <i>failover_group</i></code>
In ONTAP 9.5 and earlier:	<code>network interface create -vserver <i>system_SVM</i> -lif <i>LIF_name</i> -role intercluster -home-node <i>node</i> -home -port <i>port</i> -address <i>port_IP</i> -netmask <i>netmask</i> -failover-group <i>failover_group</i></code>

For complete command syntax, see the man page.

The following example creates intercluster LIFs `cluster01_icl01` and `cluster01_icl02` in the failover group `intercluster01`:

```

cluster01::> network interface create -vserver cluster01 -lif
cluster01_icl01 -service-
policy default-intercluster -home-node cluster01-01 -home-port e0e
-address 192.168.1.201
-netmask 255.255.255.0 -failover-group intercluster01

cluster01::> network interface create -vserver cluster01 -lif
cluster01_icl02 -service-
policy default-intercluster -home-node cluster01-02 -home-port e0e
-address 192.168.1.202
-netmask 255.255.255.0 -failover-group intercluster01

```

6. Verify that the intercluster LIFs were created:

Option	Description
In ONTAP 9.6 and later:	network interface show -service-policy default-intercluster
In ONTAP 9.5 and earlier:	network interface show -role intercluster

For complete command syntax, see the man page.

```

cluster01::> network interface show -service-policy default-intercluster
          Logical      Status      Network           Current
          Current Is
          Vserver     Interface   Admin/Oper Address/Mask       Node       Port
          Home
  -----
  -----
cluster01
          cluster01_icl01
          up/up        192.168.1.201/24    cluster01-01   e0e
true
          cluster01_icl02
          up/up        192.168.1.202/24    cluster01-02   e0f
true

```

7. Verify that the intercluster LIFs are redundant:

Option	Description
In ONTAP 9.6 and later:	network interface show -service-policy default-intercluster -failover
In ONTAP 9.5 and earlier:	network interface show -role intercluster -failover

For complete command syntax, see the man page.

The following example shows that the intercluster LIFs `cluster01_icl01` and `cluster01_icl02` on the SVM`e0e` port will fail over to the `e0f` port.

```
cluster01::> network interface show -service-policy default-intercluster
-failover
      Logical          Home          Failover          Failover
Vserver  Interface    Node:Port    Policy        Group
-----
cluster01
      cluster01_icl01  cluster01-01:e0e  local-only
intercluster01
      Failover Targets:  cluster01-01:e0e,
                           cluster01-01:e0f
      cluster01_icl02  cluster01-02:e0e  local-only
intercluster01
      Failover Targets:  cluster01-02:e0e,
                           cluster01-02:e0f
```

Configure intercluster LIFs in custom IPspaces

You can configure intercluster LIFs in custom IPspaces. Doing so allows you to isolate replication traffic in multitenant environments.

When you create a custom IPspace, the system creates a system storage virtual machine (SVM) to serve as a container for the system objects in that IPspace. You can use the new SVM as the container for any intercluster LIFs in the new IPspace. The new SVM has the same name as the custom IPspace.

Steps

1. List the ports in the cluster:

```
network port show
```

For complete command syntax, see the man page.

The following example shows the network ports in `cluster01`:

cluster01::> network port show							Speed (Mbps)
Node	Port	IPspace	Broadcast Domain	Link	MTU	Admin/Oper	
<hr/>							
cluster01-01	e0a	Cluster	Cluster	up	1500	auto/1000	
	e0b	Cluster	Cluster	up	1500	auto/1000	
	e0c	Default	Default	up	1500	auto/1000	
	e0d	Default	Default	up	1500	auto/1000	
	e0e	Default	Default	up	1500	auto/1000	
	e0f	Default	Default	up	1500	auto/1000	
cluster01-02	e0a	Cluster	Cluster	up	1500	auto/1000	
	e0b	Cluster	Cluster	up	1500	auto/1000	
	e0c	Default	Default	up	1500	auto/1000	
	e0d	Default	Default	up	1500	auto/1000	
	e0e	Default	Default	up	1500	auto/1000	
	e0f	Default	Default	up	1500	auto/1000	

2. Create custom IPspaces on the cluster:

```
network ipspace create -ipspace ipspace
```

The following example creates the custom IPspace ipspace-IC1:

```
cluster01::> network ipspace create -ipspace ipspace-IC1
```

3. Determine which ports are available to dedicate to intercluster communication:

```
network interface show -fields home-port,curr-port
```

For complete command syntax, see the man page.

The following example shows that ports e0e and e0f have not been assigned LIFs:

```

cluster01::> network interface show -fields home-port,curr-port
vserver lif           home-port curr-port
-----
Cluster cluster01_clus1    e0a      e0a
Cluster cluster01_clus2    e0b      e0b
Cluster cluster02_clus1    e0a      e0a
Cluster cluster02_clus2    e0b      e0b
cluster01
    cluster_mgmt        e0c      e0c
cluster01
    cluster01-01_mgmt1   e0c      e0c
cluster01
    cluster01-02_mgmt1   e0c      e0c

```

4. Remove the available ports from the default broadcast domain:

```
network port broadcast-domain remove-ports -broadcast-domain Default -ports
ports
```

A port cannot be in more than one broadcast domain at a time. For complete command syntax, see the man page.

The following example removes ports `e0e` and `e0f` from the default broadcast domain:

```

cluster01::> network port broadcast-domain remove-ports -broadcast
-domain Default -ports
cluster01-01:e0e,cluster01-01:e0f,cluster01-02:e0e,cluster01-02:e0f

```

5. Verify that the ports have been removed from the default broadcast domain:

```
network port show
```

For complete command syntax, see the man page.

The following example shows that ports `e0e` and `e0f` have been removed from the default broadcast domain:

cluster01::> network port show							Speed (Mbps)
Node	Port	IPspace	Broadcast Domain	Link	MTU	Admin/Oper	
<hr/>							
cluster01-01	e0a	Cluster	Cluster	up	9000	auto/1000	
	e0b	Cluster	Cluster	up	9000	auto/1000	
	e0c	Default	Default	up	1500	auto/1000	
	e0d	Default	Default	up	1500	auto/1000	
	e0e	Default	-	up	1500	auto/1000	
	e0f	Default	-	up	1500	auto/1000	
	e0g	Default	Default	up	1500	auto/1000	
cluster01-02	e0a	Cluster	Cluster	up	9000	auto/1000	
	e0b	Cluster	Cluster	up	9000	auto/1000	
	e0c	Default	Default	up	1500	auto/1000	
	e0d	Default	Default	up	1500	auto/1000	
	e0e	Default	-	up	1500	auto/1000	
	e0f	Default	-	up	1500	auto/1000	
	e0g	Default	Default	up	1500	auto/1000	

6. Create a broadcast domain in the custom IPspace:

```
network port broadcast-domain create -ipspace ipspace -broadcast-domain
broadcast_domain -mtu MTU -ports ports
```

The following example creates the broadcast domain *ipspace-IC1-bd* in the IPspace *ipspace-IC1*:

```
cluster01::> network port broadcast-domain create -ipspace ipspace-IC1
-broadcast-domain
ipspace-IC1-bd -mtu 1500 -ports cluster01-01:e0e,cluster01-01:e0f,
cluster01-02:e0e,cluster01-02:e0f
```

7. Verify that the broadcast domain was created:

```
network port broadcast-domain show
```

For complete command syntax, see the man page.

```

cluster01::> network port broadcast-domain show
IPspace Broadcast
Name      Domain Name    MTU   Port List          Update
                                         Status Details
-----
Cluster Cluster      9000
                           cluster01-01:e0a      complete
                           cluster01-01:e0b      complete
                           cluster01-02:e0a      complete
                           cluster01-02:e0b      complete
Default Default       1500
                           cluster01-01:e0c      complete
                           cluster01-01:e0d      complete
                           cluster01-01:e0f      complete
                           cluster01-01:e0g      complete
                           cluster01-02:e0c      complete
                           cluster01-02:e0d      complete
                           cluster01-02:e0f      complete
                           cluster01-02:e0g      complete
ipspace-IC1
  ipspace-IC1-bd
    1500
                           cluster01-01:e0e      complete
                           cluster01-01:e0f      complete
                           cluster01-02:e0e      complete
                           cluster01-02:e0f      complete

```

8. Create intercluster LIFs on the system SVM and assign them to the broadcast domain:

Option	Description
In ONTAP 9.6 and later:	<pre>network interface create -vserver system_SVM -lif LIF_name -service -policy default-intercluster -home -node node -home-port port -address port_IP -netmask netmask</pre>
In ONTAP 9.5 and earlier:	<pre>network interface create -vserver system_SVM -lif LIF_name -role intercluster -home-node node -home -port port -address port_IP -netmask netmask</pre>

The LIF is created in the broadcast domain that the home port is assigned to. The broadcast domain has a default failover group with the same name as the broadcast domain. For complete command syntax, see the man page.

The following example creates intercluster LIFs `cluster01_icl01` and `cluster01_icl02` in the broadcast domain `ipspace-IC1-bd`:

```
cluster01::> network interface create -vserver ipspace-IC1 -lif
cluster01_icl01 -service-
policy default-intercluster -home-node cluster01-01 -home-port e0e
-address 192.168.1.201
-netmask 255.255.255.0

cluster01::> network interface create -vserver ipspace-IC1 -lif
cluster01_icl02 -service-
policy default-intercluster -home-node cluster01-02 -home-port e0e
-address 192.168.1.202
-netmask 255.255.255.0
```

9. Verify that the intercluster LIFs were created:

Option	Description
In ONTAP 9.6 and later:	<code>network interface show -service-policy default-intercluster</code>
In ONTAP 9.5 and earlier:	<code>network interface show -role intercluster</code>

For complete command syntax, see the man page.

```
cluster01::> network interface show -service-policy default-intercluster
          Logical      Status      Network           Current
          Current Is
          Vserver     Interface   Admin/Oper Address/Mask       Node       Port
          Home
  -----
  -----
  ipspace-IC1
          cluster01_icl01
                  up/up      192.168.1.201/24    cluster01-01  e0e
  true
          cluster01_icl02
                  up/up      192.168.1.202/24    cluster01-02  e0f
  true
```

10. Verify that the intercluster LIFs are redundant:

Option	Description
In ONTAP 9.6 and later:	network interface show -service-policy default-intercluster -failover
In ONTAP 9.5 and earlier:	network interface show -role intercluster -failover

For complete command syntax, see the man page.

The following example shows that the intercluster LIFs `cluster01_icl01` and `cluster01_icl02` on the SVM `e0e` port fail over to the `e0f` port:

```
cluster01::> network interface show -service-policy default-intercluster
-failover
      Logical          Home          Failover          Failover
Vserver  Interface    Node:Port    Policy        Group
-----
ipspace-IC1
      cluster01_icl01  cluster01-01:e0e  local-only
intercluster01
      Failover Targets:  cluster01-01:e0e,
                           cluster01-01:e0f
      cluster01_icl02  cluster01-02:e0e  local-only
intercluster01
      Failover Targets:  cluster01-02:e0e,
                           cluster01-02:e0f
```

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