

Configure broadcast domains (cluster administrators only)

ONTAP System Manager

NetApp

December 16, 2020

This PDF was generated from https://docs.netapp.com/us-en/ontap/networking-app/configure_broadcast_domains_@cluster_administrators_only_@_overview.html on December 16, 2020. Always check docs.netapp.com for the latest.



Table of Contents

- Configure broadcast domains (cluster administrators only) 1
 - Overview 1
 - Example of using broadcast domains 1
 - Add or remove ports from a broadcast domain 2
 - Split broadcast domains 2
 - Merge broadcast domains 3
 - Change the MTU value for ports in a broadcast domain 3
 - Display broadcast domains 4
 - Delete a broadcast domain 5

Configure broadcast domains (cluster administrators only)

Overview

Broadcast domains are intended to group network ports that belong to the same layer 2 network. The ports in the group can then be used by a storage virtual machine (SVM) for data or management traffic.

A broadcast domain resides in an IPspace. During cluster initialization, the system creates two default broadcast domains:

- The "Default" broadcast domain contains ports that are in the "Default" IPspace.

These ports are used primarily to serve data. Cluster management and node management ports are also in this broadcast domain.

- The "Cluster" broadcast domain contains ports that are in the "Cluster" IPspace.

These ports are used for cluster communication and include all cluster ports from all nodes in the cluster.

The system creates additional broadcast domains in the Default IPspace when necessary. The "Default" broadcast domain contains the home-port of the management LIF, plus any other ports that have layer 2 reachability to that port. Additional broadcast domains are named "Default-1", "Default-2", and so forth.

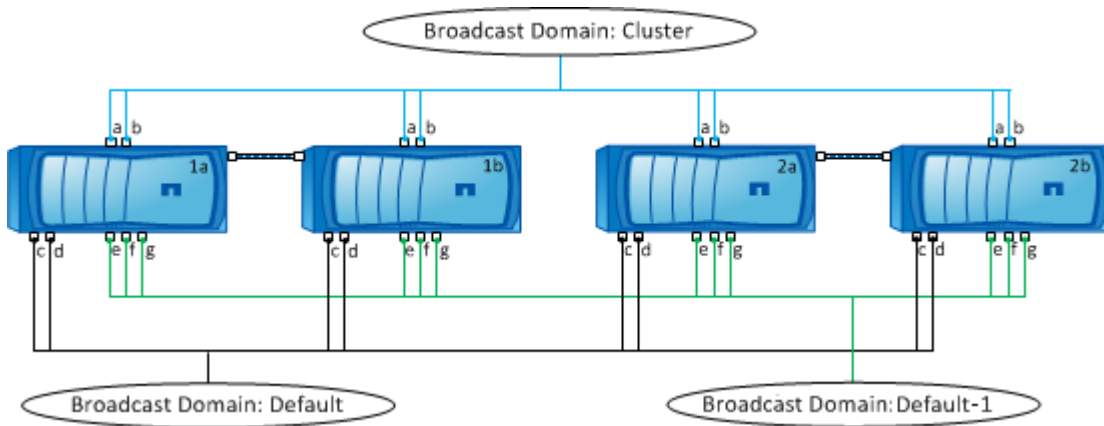
Example of using broadcast domains

A broadcast domain is a set of network ports in the same IPspace that also has layer 2 reachability to one another, typically including ports from many nodes in the cluster.

The illustration shows the ports assigned to three broadcast domains in a four-node cluster:

- The "Cluster" broadcast domain is created automatically during cluster initialization, and it contains ports a and b from each node in the cluster.
- The "Default" broadcast domain is also created automatically during cluster initialization, and it contains ports c and d from each node in the cluster.
- The system automatically creates any additional broadcast domains during cluster initialization based on layer 2 network reachability. These additional broadcast domains are named Default-1,

Default-2, and so forth.



A failover group of the same name and with the same network ports as each of the broadcast domains is created automatically. This failover group is automatically managed by the system, meaning that as ports are added or removed from the broadcast domain, they are automatically added or removed from this failover group.

Add or remove ports from a broadcast domain

Broadcast domains are automatically created during the cluster create or join operation. You do not need to manually remove ports from broadcast domains.

If network port reachability has changed, either through physical network connectivity or switch configuration, and a network port belongs in a different broadcast domain, see the following topic:

[Repair port reachability](#)

Split broadcast domains

If network port reachability has changed, either through physical network connectivity or switch configuration, and a group of network ports previously configured in a single broadcast domain has become partitioned into two different reachability sets, you can split a broadcast domain to synchronize the ONTAP configuration with the physical network topology.

To determine if a network port broadcast domain is partitioned into more than one reachability set, use the `network port reachability show -details` command and pay attention to which ports do not have connectivity to one another ("Unreachable ports"). Typically, the list of unreachable ports defines the set of ports that should be split into another broadcast domain, after you have verified that the physical and switch configuration is accurate.

Step

Split a broadcast domain into two broadcast domains:

```
network port broadcast-domain split -ip-space <ip-space_name> -broadcast-domain  
<broadcast_domain_name> -new-broadcast-domain <broadcast_domain_name> -ports  
<node:port,node:port>
```

- **ip-space_name** is the name of the ip-space where the broadcast domain resides.
- **-broadcast-domain** is the name of the broadcast domain that will be split.
- **-new-broadcast-domain** is the name of the new broadcast domain that will be created.
- **-ports** is the node name and port to be added to the new broadcast domain.

Merge broadcast domains

If network port reachability has changed, either through physical network connectivity or switch configuration, and two group of network ports previously configured in multiple broadcast domains now all share reachability, then merging two broadcast domains can be used to synchronize the ONTAP configuration with the physical network topology.

To determine if multiple broadcast domains belong to one reachability set, use the "network port reachability show -details" command and pay attention to which ports that are configured in another broadcast domain actually have connectivity to one another ("Unexpected ports"). Typically, the list of unexpected ports defines the set of ports that should be merged into the broadcast domain after you have verified that the physical and switch configuration is accurate.

Step

Merge the ports from one broadcast domain into an existing broadcast domain:

```
network port broadcast-domain merge -ip-space <ip-space_name> -broadcast-domain  
<broadcast_domain_name> -into-broadcast-domain <broadcast_domain_name>
```

- **ip-space_name** is the name of the ip-space where the broadcast domains reside.
- **-broadcast-domain** is the name of the broadcast domain that will be merged.
- **-into-broadcast-domain** is the name of the broadcast domain that will receive additional ports.

Change the MTU value for ports in a broadcast domain

You can modify the MTU value for a broadcast domain to change the MTU value for all ports in that broadcast domain. This can be done to support topology changes

that have been made in the network.

Before you begin

The MTU value must match all the devices connected to that layer 2 network except for the e0M port handling management traffic.

About this task

Changing the MTU value causes a brief interruption in traffic over the affected ports. The system displays a prompt that you must answer with y to make the MTU change.

Step

Change the MTU value for all ports in a broadcast domain:

```
network port broadcast-domain modify -broadcast-domain <broadcast_domain_name> -mtu <mtu_valu> [-ipSPACE <ipSPACE_name>]
```

- **broadcast_domain** is the name of the broadcast domain.
- **mtu** is the MTU size for IP packets; 1500 and 9000 are typical values.
- **ipSPACE** is the name of the IPspace in which this broadcast domain resides. The "Default" IPspace is used unless you specify a value for this option. The following command changes the MTU to 9000 for all ports in the broadcast domain bcast1:

```
network port broadcast-domain modify -broadcast-domain <Default-1> -mtu < 9000 >  
Warning: Changing broadcast domain settings will cause a momentary data-serving interruption.  
Do you want to continue? {y|n}: <y>
```

Display broadcast domains

You can display the list of broadcast domains within each IPspace in a cluster. The output also shows the list of ports and the MTU value for each broadcast domain.

Step

Display the broadcast domains and associated ports in the cluster:

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

The following command displays all the broadcast domains and associated ports in the cluster:

```

network port broadcast-domain show
IPspace Broadcast
Name      Domain Name  MTU    Port List
-----
Cluster Cluster      9000
          cluster-1-01:e0a    complete
          cluster-1-01:e0b    complete
          cluster-1-02:e0a    complete
          cluster-1-02:e0b    complete
Default Default      1500
          cluster-1-01:e0c    complete
          cluster-1-01:e0d    complete
          cluster-1-02:e0c    complete
          cluster-1-02:e0d    complete
          bcast1      1500
          cluster-1-01:e0e    complete
          cluster-1-01:e0f    complete
          cluster-1-01:e0g    complete
          cluster-1-02:e0e    complete
          cluster-1-02:e0f    complete
          cluster-1-02:e0g    complete

```

The following command displays the ports in the bcast1 broadcast domain that have an update status of error, which indicate that the port could not be updated properly:

```

network port broadcast-domain show -broadcast-domain bcast1 -port-update-status error
IPspace Broadcast
Name      Domain Name  MTU    Port List
-----
Default bcast1      1500
          cluster-1-02:e0g    error

```

For more information, see the command man page [ONTAP 9 commands](#).

Delete a broadcast domain

If you no longer need a broadcast domain, you can delete it. This moves the ports associated with that broadcast domain to the "Default" IPspace.

Before you begin

There must be no subnets, network interfaces, or SVMs associated with the broadcast domain you want to delete.

About this task

- The system-created "Cluster" broadcast domain cannot be deleted.
- All failover groups related to the broadcast domain are removed when you delete the broadcast domain.

Step

Delete a broadcast domain:

```
network port broadcast-domain delete -broadcast-domain <broadcast_domain_name> [-ipSPACE <ipSPACE_name>]
```

The following command deletes broadcast domain Default-1 in IPspace ipSPACE1:

```
network port broadcast-domain delete -broadcast-domain <Default-1> -ipSPACE <ipSPACE1>
```


Copyright Information

Copyright © 2020 NetApp, Inc. All rights reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means-graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system-without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

RESTRICTED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

Trademark Information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.