



# **metrocluster interconnect commands**

ONTAP 9.10.1 commands

NetApp  
February 11, 2024

# Table of Contents

- metrocluster interconnect commands . . . . . 1
  - metrocluster interconnect adapter modify . . . . . 1
  - metrocluster interconnect adapter show . . . . . 1
  - metrocluster interconnect mirror show . . . . . 6
  - metrocluster interconnect mirror multipath show . . . . . 9

# metrocluster interconnect commands

## metrocluster interconnect adapter modify

Modify MetroCluster interconnect adapter settings

**Availability:** This command is available to *cluster* administrators at the *advanced* privilege level.

### Description

The `metrocluster interconnect adapter modify` command enables you to modify settings of the MetroCluster interconnect adapter.

### Parameters

**-node {<nodename>|local} - Node Name (privilege: advanced)**

This parameter specifies the node name.

**-is-ood-enabled {true|false} - Is Out-of-Order Delivery Enabled? (privilege: advanced)**

This parameter specifies the out-of-order delivery setting on the adapter.

### Examples

The following example enables out-of-order delivery for the port 'fcvi\_device\_0' on the node 'clusA-01':

```
clusA::*> metrocluster interconnect adapter modify -node clusA-01 -adapter  
-port-name fcvi_device_0 -is-ood-enabled true
```

## metrocluster interconnect adapter show

Display MetroCluster interconnect adapter information

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `metrocluster interconnect adapter show` command displays interconnect adapter information for the nodes in a MetroCluster configuration.

This command displays the following details about the local node and the HA partner node:

- Node: This field specifies the name of the node in the cluster.
- Adapter Name: This field specifies the name of the interconnect adapter.
- Adapter Type: This field specifies the type of the interconnect adapter.
- Link Status: This field specifies the physical link status of the interconnect adapter.
- Is OOD Enabled: This field specifies the out-of-order delivery status of the interconnect adapter.

- IP Address: This field specifies the IP address assigned to the interconnect adapter.
- Port Number: This field specifies the port number of the interconnect adapter.

## Parameters

**{ [-fields <fieldname>,...]**

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `-fields ?` to display the fields to specify.

**| [-connectivity ]**

Displays the connectivity information from all the interconnect adapters to the connected nodes.

**| [-switch ]**

Displays details of switches connected to all the interconnect adapters.

**| [-connectivity-hidden ] (privilege: advanced)**

Displays additional connectivity information (IP address, Area ID, Port ID) from all the interconnect adapters to the connected nodes.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-node {<nodename>|local}] - Node Name**

Displays information only about the interconnect adapters that are hosted by the specified node.

**[-adapter <text>] - Adapter**

Displays information only about the interconnect adapters that match the specified name.

**[-port-name <text>] - Port Name**

Displays information only about the interconnect adapters that host the specified port name.

**[-type <text>] - Adapter Type**

Displays information only about the interconnect adapters that match the specified adapter type.

**[-physical-status <text>] - Physical Status**

Displays information only about the interconnect adapters that match the specified physical status.

**[-wwn <text>] - Adapter Port World Wide Name**

Displays information only about the interconnect adapters that match the specified world wide name.

**[-address <text>] - IP Address**

Displays information only about the interconnect adapters that match the specified IP address.

**[-firmware-version <text>] - Firmware Version**

Displays information only about the interconnect adapters that match the specified firmware version.

**[-link-speed <text>] - Link Speed**

Displays information only about the interconnect adapters that match the specified link speed.

**[-link-speed-neg-type <text>] - Link Speed Negotiation Type**

Displays information only about the interconnect adapters that match the specified negotiated link speed type.

**[-switch-name <text>] - Switch Name**

Displays information only about the interconnect adapters that are connected to the specified switch.

**[-switch-model <text>] - Switch Model**

Displays information only about the interconnect adapters that are connected to the switch with the specified model.

**[-switch-wwn <text>] - Switch WWName**

Displays information only about the interconnect adapters that are connected to the switch with the specified world wide name.

**[-switch-vendor <text>] - Switch Vendor**

Displays information only about the interconnect adapters that are connected to the switch with the specified vendor.

**[-switch-status <text>] - Switch Status**

Displays information only about the interconnect adapters that are connected to the switch with the specified operational status.

**[-switch-port-number <text>] - Switch Port Number**

Displays information only about the interconnect adapters that are connected to the switch with the specified port number.

**[-switch-port-wwpn <text>] - Switch Port WWPN**

Displays information only about the interconnect adapters that are connected to the switch with the specified word wide port name.

**[-remote-adapter-name-list <text>,...] - Remote Adapter Name List**

Displays information only about the interconnect adapters that are connected to the specified remote adapters.

**[-remote-adapter-wwn-list <text>,...] - Remote Adapter WWName List**

Displays information only about the interconnect adapters that are connected to the remote adapters with the specified world wide names.

**[-remote-adapter-address-list <text>,...] - Remote Adapter IP Address List**

Displays information only about the interconnect adapters that are connected to the remote adapters with the specified IP addresses.

**[-remote-adapter-port-id-list <Hex Integer>,...] - Remote Adapter Port ID List**

Displays information only about the interconnect adapters that are connected to the remote adapters with the specified port IDs.

**[-remote-adapter-domain-id-list <integer>,...] - Remote Adapter Domain ID List**

Displays information only about the interconnect adapters that are connected to the remote adapters with the specified domain IDs.

**[`-remote-adapter-area-id-list <integer>,...`] - Remote Adapter Area ID List**

Displays information only about the interconnect adapters that are connected to the remote adapters with the specified Area IDs.

**[`-remote-partner-system-id-list <integer>,...`] - Remote Partner System ID List**

Displays information only about the interconnect adapters that are connected to the remote nodes with the specified System IDs.

**[`-remote-partner-name-list {<nodename>|local}`] - Remote Partner Name List**

Displays information only about the interconnect adapters that are connected to the specified remote nodes.

**[`-is-ood-enabled {true|false}`] - Is Out-of-Order Delivery Enabled?**

Displays information only about the interconnect adapters that match the specified out-of-order delivery setting.

## Examples

The following example shows the output of the command during normal operation (neither cluster is in switchover state):

```
clusA::> metrocluster interconnect adapter show
```

	Node	Adapter	Type	Link Status	Is OOD Enabled?	IP Address	Port
Number							
	clusA-01	cxgb3_0	iWARP	Up	false	10.0.1.1	c0a
	clusA-01	cxgb3_0	iWARP	Down	false	10.0.2.1	c0b
	clusA-01	fcvi_device_0	FC-VI	Up	false	1.0.0.1	1a
	clusA-01	fcvi_device_1	FC-VI	Up	false	2.0.0.3	1b
	clusA-02	cxgb3_0	iWARP	Up	false	10.0.1.2	c0a
	clusA-02	cxgb3_0	iWARP	Down	false	10.0.2.2	c0b
	clusA-02	fcvi_device_0	FC-VI	Up	false	1.0.1.1	1a
	clusA-02	fcvi_device_1	FC-VI	Up	false	2.0.1.3	1b

The following example shows the output of the command after MetroCluster switchover is performed:

```
clusA::> metrocluster interconnect adapter show
```

	Node	Adapter	Type	Link Status	Is OOD Enabled?	IP Address	Port
Number							
	clusA-01	cxgb3_0	iWARP	Up	false	10.0.1.1	c0a
	clusA-01	cxgb3_0	iWARP	Down	false	10.0.2.1	c0b
	clusA-01	fcvi_device_0	FC-VI	Down	false	1.0.0.1	1a
	clusA-01	fcvi_device_1	FC-VI	Down	false	2.0.0.3	1b
	clusA-02	cxgb3_0	iWARP	Up	false	10.0.1.2	c0a
	clusA-02	cxgb3_0	iWARP	Down	false	10.0.2.2	c0b
	clusA-02	fcvi_device_0	FC-VI	Down	false	1.0.1.1	1a
	clusA-02	fcvi_device_1	FC-VI	Down	false	2.0.1.3	1b

The following example shows the output of the command with connectivity field during normal operation (neither cluster is in switchover state):

```
clusA::> metrocluster interconnect adapter show -connectivity -node local  
-type FC-VI
```

```
Adapter Name: fcvi_device_0
```

```
WWName: 21:00:00:24:ff:32:01:68
```

```
PortNo: 1a
```

```
Remote Adapters:
```

Adapter Name	Partner Node Name	World Wide Name	PortId
fcvi_device_0	clusA-01	21:00:00:24:ff:32:01:80	65536
fcvi_device_0	clusB-01	21:00:00:24:ff:32:01:54	131072
fcvi_device_0	clusB-02	21:00:00:24:ff:32:01:60	131328

```
Adapter Name: fcvi_device_1
```

```
WWName: 21:00:00:24:ff:32:01:69
```

```
PortNo: 1b
```

```
Remote Adapters:
```

Adapter Name	Partner Node Name	World Wide Name	PortId
fcvi_device_1	clusA-01	21:00:00:24:ff:32:01:81	196608
fcvi_device_1	clusB-01	21:00:00:24:ff:32:01:55	262144
fcvi_device_1	clusB-02	21:00:00:24:ff:32:01:61	262400

The following example shows the output of the command with connectivity field after MetroCluster switchover is performed.

```
clusA::> metrocluster interconnect adapter show -connectivity -node local
-type FC-VI
Adapter Name: fcvi_device_0
                WWName: 21:00:00:24:ff:32:01:68
                PortNo: 1a

Remote Adapters:
Adapter Name Partner Node Name World Wide Name      PortId
-----
fcvi_device_0
clusA-01      21:00:00:24:ff:32:01:80  65536
Adapter Name: fcvi_device_1
                WWName: 21:00:00:24:ff:32:01:69
                PortNo: 1b

Remote Adapters:
Adapter Name Partner Node Name World Wide Name      PortId
-----
fcvi_device_1
clusA-01      21:00:00:24:ff:32:01:81  196608
```

## metrocluster interconnect mirror show

Display MetroCluster interconnect mirror information

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `metrocluster interconnect mirror show` command displays NVRAM mirror information for the nodes configured in a MetroCluster.

This command displays the following details about the local node and the HA partner node:

- Node: This field specifies the name of the node in the cluster.
- Partner Name: This field specifies the name of the partner node.
- Partner Type: This field specifies the type of the partner.
- Mirror Admin Status: This field specifies the administrative status of the NVRAM mirror between partner nodes.
- Mirror Oper Status: This field specifies the operational status of the NVRAM mirror between partner nodes.
- Adapter: This field specifies the name of the interconnect adapter used for NVRAM mirroring.
- Type: This field specifies the type of the interconnect adapter used for NVRAM mirroring.
- Status: This field specifies the physical status of the interconnect adapter used for NVRAM mirroring.



## Parameters

**{ [-fields <fieldname>,...]**

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `-fields ?` to display the fields to specify.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-node {<nodename>|local}] - Node Name**

If this parameter is specified, mirror details of the specified node are displayed.

**[-partner-type {HA|DR|AUX}] - Partner Type**

If this parameter is specified, mirror details of the specified partner type are displayed.

**[-adapter <text>] - Adapter**

If this parameter is specified, mirror details of the specified adapter are displayed.

**[-type <text>] - Adapter Type**

If this parameter is specified, mirror details of the specified adapter type are displayed.

**[-status <text>] - Status**

If this parameter is specified, mirror details of the adapter with the specified status are displayed.

**[-mirror-oper-status {unknown|online|offline}] - Mirror Operational Status**

If this parameter is specified, only mirror details with the specified operational status are displayed.

**[-partner-name <text>] - Partner Name**

If this parameter is specified, mirror details of the specified partner are displayed.

**[-mirror-admin-status {enabled|disabled}] - Mirror Administrative Status**

If this parameter is specified, only mirror details with the specified administrative status are displayed.

## Examples

The following example shows the output of the command during normal operation (neither cluster is in switchover state):

```
clusA::> metrocluster interconnect mirror show
```

			Mirror	Mirror				
		Partner	Admin	Oper				
Node	Partner	Name	Type	Status	Status	Adapter	Type	Status
----	-----	-----	-----	-----	-----	-----	-----	-----
clusA-01								
	clusA-02		HA	enabled	online			
						cxgb3_0	iWARP	Up
						cxgb3_0	iWARP	Up
	clusB-01		DR	enabled	online			
						fcvi_device_0		
							FC-VI	Up
						fcvi_device_1		
							FC-VI	Up
clusA-02								
	clusA-01		HA	enabled	online			
						cxgb3_0	iWARP	Up
						cxgb3_0	iWARP	Up
	clusB-02		DR	enabled	online			
						fcvi_device_0		
							FC-VI	Up
						fcvi_device_1		
							FC-VI	Up

The following example shows the output of the command after MetroCluster switchover is performed:

```
clusA::> metrocluster interconnect mirror show
```

			Mirror	Mirror				
		Partner	Admin	Oper				
Node	Partner	Name	Type	Status	Status	Adapter	Type	Status
----	-----	-----	-----	-----	-----	-----	-----	-----
clusA-01								
	clusA-02		HA	enabled	online			
						cxgb3_0	iWARP	Up
						cxgb3_0	iWARP	Up
	clusB-01		DR	disabled	offline			
						fcvi_device_0		
							FC-VI	Up
						fcvi_device_1		
							FC-VI	Up
clusA-02								
	clusA-01		HA	enabled	online			
						cxgb3_0	iWARP	Up
						cxgb3_0	iWARP	Up
	clusB-02		DR	disabled	offline			
						fcvi_device_0		
							FC-VI	Up
						fcvi_device_1		
							FC-VI	Up

## metrocluster interconnect mirror multipath show

Display multipath information

**Availability:** This command is available to *cluster* administrators at the *admin* privilege level.

### Description

The `metrocluster interconnect mirror multipath show` command displays the NVRAM mirror multipath policy for the nodes configured in a MetroCluster.

This command displays the following details about the local node and the HA partner node:

- **Node:** This field specifies the name of the node in the cluster.
- **Multipath Policy:** This field specifies the multipath policy used for NVRAM mirroring.

## Parameters

**{ [-fields <fieldname>,...]**

If you specify the `-fields <fieldname>`, ... parameter, the command output also includes the specified field or fields. You can use `'-fields ?'` to display the fields to specify.

**| [-instance ] }**

If you specify the `-instance` parameter, the command displays detailed information about all fields.

**[-node {<nodename>|local}] - Node Name**

If this parameter is specified, mirror details of the specified node are displayed.

**[-multipath-policy {no-mp|static-map|dynamic-map|round-robin}] - Multipath Policy**

If this parameter is specified, nodes with the specified multipath policy are displayed.

## Examples

The following example shows the output of the command:

```
clusA::> metrocluster interconnect mirror multipath show
Node           Multipath Policy
-----
clusA-1        static-map
clusA-2        static-map
```

## Copyright information

Copyright © 2024 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.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

## 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.