



## **metrocluster commands**

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# metrocluster commands

## metrocluster configure

Configure MetroCluster and start DR mirroring for the node and its DR group

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

### Description

The `metrocluster configure` command creates a MetroCluster configuration on either all the nodes in both MetroCluster clusters or solely on nodes in a DR group. The command configures a HA partner, DR partner, and a DR auxiliary partner for the nodes and also starts NVRAM mirroring between the configured DR partner nodes.

In MetroCluster, a DR group is a group of four nodes, two in each of the MetroCluster clusters:

- In the local cluster, a node and its HA partner,
- In the peer cluster, a node and its HA partner. These nodes are DR partners to the nodes in the local cluster.

In a two node MetroCluster configuration, a DR group is a group of two nodes, one in each of the MetroCluster clusters.

There can be several DR groups in the MetroCluster configuration. MetroCluster provides synchronous DR protection to all data sets belonging to nodes within a properly configured DR group.

Without the `-node` parameter, the `metrocluster configure` command configures all the DR groups in both the MetroCluster clusters.

With the `-node`mynode` parameter, the command configures both the *mynode* node and its HA partner node from the local cluster, and its DR partner and DR auxiliary partner from the peer cluster.

Before running the `metrocluster configure` command, the aggregates and Vservers on each node must be prepared for the MetroCluster configuration. Each node should have:

- At least one non-root, mirrored aggregate of size greater than 10GB. This non-root aggregate should not have any volumes in it.
- No other non-root aggregates. Any other non-root, unmirrored aggregates and volumes should be deleted.
- No Vservers other than Vservers of type "node" or "admin." Any Vservers that are not of type "node" or "admin" should be deleted.
- A mirrored and healthy root aggregate.

After the command is successful all nodes in the local and remote clusters will have HA, DR, and DR auxiliary partners and NVRAM mirroring between the DR partners will be turned on. The same conditions apply before running the `metrocluster configure-node`mynode` command, except that only one DR group is configured.

For a MetroCluster over IP configuration, the `metrocluster configuration-settings` commands must be completed before using the `metrocluster configure` command. The commands required to be completed are:

- [metrocluster configuration-settings dr-group create](#)
- [metrocluster configuration-settings interface create](#)
- [metrocluster configuration-settings connection connect](#)

## Parameters

### **[`-node-name` {<nodename>|local}] - Node to Configure**

This optional parameter specifies the name of a single node in the local cluster. The command creates MetroCluster configuration on the local node specified by this parameter and the three other nodes belonging to the same DR group.

### **[`-refresh` {true|false}] - Refresh Configuration**

This optional parameter specifies if the node partner configuration steps should be done again. Not specifying this parameter will cause the MetroCluster configuration to continue using the current node partner information.

### **[`-allow-with-one-aggregate` {true|false}] - Override the Two Data Aggregates Requirement**

This optional parameter specifies if MetroCluster configuration should be allowed with only one data aggregate in each cluster. This option has no effect if two or more aggregates are present.

## Examples

The following example shows the creation of the MetroCluster configuration for a single DR group:

```

clusA::> metrocluster show
  Cluster                               Configuration State   Mode
  -----                               -
-----
  Local: clusA                           not-configured        -
  Remote: clusB                           not-configured        -
clusA::> metrocluster node show
DR                               Configuration   DR
Group Cluster Node              State           Mirroring Mode
-----
-      clusA   clusA-01          ready to configure  -           -
                clusA-02          ready to configure  -           -
                clusA-03          ready to configure  -           -
                clusA-04          ready to configure  -           -

4 entries were displayed.
clusA::> metrocluster configure -node clusA-01
[Job 45] Job succeeded: Configure is successful
clusA::> metrocluster show
  Cluster                               Configuration State   Mode
  -----                               -
-----
  Local: clusA                           partially-configured  normal
  Remote: clusB                           partially-configured  normal
clusA::> metrocluster node show
DR                               Configuration   DR
Group Cluster Node              State           Mirroring Mode
-----
-----
-      clusA   clusA-03          ready to configure  -           -
                clusA-04          ready to configure  -           -

1      clusA   clusA-01          configured          enabled          normal
                clusA-02          configured          enabled          normal
                clusB   clusB-01          configured          enabled          normal
                clusB   clusB-02          configured          enabled          normal

6 entries were displayed.

```

The following example shows the creation of the MetroCluster configuration for all DR groups:

```
clusA::> metrocluster show
```

Cluster	Configuration State	Mode
-----	-----	
Local: clusA	not-configured	-
Remote: clusB	not-configured	-

```
clusA::> metrocluster node show
```

DR	Configuration	DR
Group Cluster Node	State	Mirroring Mode
-----	-----	-----
- clusA clusA-01	ready to configure	- -
clusA-02	ready to configure	- -
clusA-03	ready to configure	- -
clusA-04	ready to configure	- -

4 entries were displayed.

```
clusA::> metrocluster configure
```

[Job 45] Job succeeded: Configure is successful

```
clusA::> metrocluster show
```

Cluster	Configuration State	Mode
-----	-----	
Local: clusA	configured	normal
Remote: clusB	configured	normal

```
clusA::> metrocluster node show
```

DR	Configuration	DR
Group Cluster Node	State	Mirroring Mode
-----	-----	-----
1 clusA clusA-01	configured	enabled normal
clusA-02	configured	enabled normal
clusB clusB-01	configured	enabled normal
clusB-02	configured	enabled normal
2 clusA clusA-03	configured	enabled normal
clusA-04	configured	enabled normal
clusB clusB-03	configured	enabled normal
clusB-04	configured	enabled normal

8 entries were displayed.

## Related Links

- [metrocluster configuration-settings dr-group create](#)
- [metrocluster configuration-settings interface create](#)
- [metrocluster configuration-settings connection connect](#)

# metrocluster heal

Heal DR data aggregates and DR root aggregates

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

## Description

The `metrocluster heal` command heals DR data aggregates and DR root aggregates in preparation for a DR switchback. You must issue this command twice to complete the two phases of the healing process: first to heal the aggregates by resynchronizing the mirrored plexes and then to heal the root aggregates by switching them back to the disaster site. The DR partner nodes must be powered off and remote disk shelves must be powered on before running this command.

## Parameters

### **-phase {aggregates|root-aggregates} - MetroCluster Healing Phase**

This parameter specifies the healing phase. The first phase, *aggregates*, heals aggregates by resynchronizing mirrored plexes. The second phase, *root-aggregates*, heals the root aggregates of partner nodes. Healing root aggregates switches them back to the disaster site, allowing the site to boot up.

### **[-override-vetoes <true>] - Override All Soft Vetoes**

This optional parameter overrides almost all heal operation soft vetoes. If this optional parameter is set to true, the system overrides subsystem soft vetoes that might prevent the heal operation. Hard vetoes cannot be overridden and can still prevent the switchback operation.

## Examples

The following example performs the healing of both the aggregates and root aggregates:

```
cluster1::> metrocluster heal -phase aggregates
[Job 136] Job succeeded: Heal Aggregates is successful
cluster1::> metrocluster heal -phase root-aggregates
[Job 137] Job succeeded: Heal Root Aggregates is successful
```

# metrocluster modify

Modify MetroCluster configuration options

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

## Description

The `metrocluster modify` command modifies MetroCluster parameters for nodes in the MetroCluster configuration.

## Parameters

### **{ -auto-switchover-failure-domain <MetroCluster AUSO Failure Domain> - Cluster Level AUSO Option**

This parameter specifies the configuration of automatic switchover. Modifying `auto-switchover-failure-domain` is not supported on a MetroCluster over IP configuration.

The parameter values are:

- `auso-on-cluster-disaster` - triggers an unplanned switchover if all nodes in a DR cluster are down.
- `auso-on-dr-group-disaster` - triggers an unplanned switchover if both nodes of a DR group are down.
- `auso-disabled` - automatic switchover is disabled.

On a MetroCluster over IP configuration, `auto-switchover-failure-domain` is set to `auso-disabled`; otherwise, it is set to `auso-on-cluster-disaster`.

A change to the parameter affects only the local cluster where the `metrocluster modify` command is used.

### **| -enable-unmirrored-aggr-deployment {true|false} - Enable or Disable Unmirrored Aggregate Deployment**

Enable or disable unmirrored aggregates deployment

### **| -node-name {<nodename>|local} - Node to Change the Option On }**

This parameter is used to specify the node in the cluster for which the parameter needs to be modified.

### **[-automatic-switchover-onfailure <true>] - Node Level AUSO Option }**

This parameter is used to enable automatic switchover on node failures. The `automatic-switchover-onfailure` parameter is not supported on a MetroCluster over IP configuration.

All nodes in a MetroCluster configuration must have this option enabled to enable automatic switchover on failure.

## Examples

The following example shows the output of Metrocluster modification done on a node:



```
clusA::*> metrocluster modify -node-name clusA-01 -node-object-limit on
[Job 168] Job succeeded: Modify is successful
clusA::*> metrocluster modify -node-name clusA-01 -automatic-switchover
-onfailure false
[Job 308] Job succeeded: Modify is successful
clusA::> metrocluster modify -auto-switchover-failure-domain auto-on-
cluster-disaster
[Job 308] Job succeeded: Modify is successful
```

## metrocluster remove-dr-group

Remove a DR group from a MetroCluster configuration with multiple DR groups

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

### Description

The `metrocluster remove-dr-group` command removes a DR group from a MetroCluster configuration with multiple DR groups.

The command removes the local nodes in the identified DR group from the MetroCluster configuration. The command must be repeated on the partner cluster to remove the remote nodes in the identified DR group.

A DR group cannot be removed when the MetroCluster configuration has only a single DR group. Two or more DR groups must be configured. The command does not allow a user from unconfiguring the entire MetroCluster. Contact technical support to unconfigure the entire MetroCluster.

The following preparation steps must be completed on the local and partner clusters before removing a DR group.

- Move all data volumes to another DR group.
- Move all MDV\_CRS metadata volumes to another DR group.
- Delete all MDV\_aud metadata volumes that may exist in the DR group to be removed.
- Delete all data aggregates in the DR group to be removed. Root aggregates are not deleted.
- Migrate all data LIFs to home nodes in another DR group.
- Migrate the cluster management LIF to a home node in another DR group. Node management and inter-cluster LIFs are not migrated.
- Transfer epsilon to a node in another DR group.

The command is vetoed if the preparation steps are not completed on the local and partner clusters.

### Parameters

**-dr-group-id <integer> - DR Group ID**

This parameter identifies the DR group to be removed.

## Examples

```
cluster_A::*> metrocluster remove-dr-group -dr-group-id 1
```

Warning: Nodes in the DR group that are removed from the MetroCluster configuration will lose their disaster recovery protection.

Local nodes "node\_A1, node\_A2" will be removed from the MetroCluster configuration. You must repeat the operation on the partner cluster "cluster\_B" to remove the remote nodes in the DR group.

Do you want to continue? {y|n}: y

Info: The following preparation steps must be completed on the local and partner clusters before removing a DR group.

1. Move all data volumes to another DR group.
2. Move all MDV\_CRS metadata volumes to another DR group.
3. Delete all MDV\_aud metadata volumes that may exist in the DR group to be removed.
4. Delete all data aggregates in the DR group to be removed. Root aggregates are not deleted.
5. Migrate all data LIFs to home nodes in another DR group.
6. Migrate the cluster management LIF to a home node in another DR group. Node management and inter-cluster LIFs are not migrated.
7. Transfer epsilon to a node in another DR group.

The command is vetoed if the preparation steps are not completed on the local and partner clusters.

Do you want to continue? {y|n}: y

```
[Job 80] Job succeeded: Remove DR Group is successful.
```

## metrocluster show

Display MetroCluster configuration information

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

### Description

The `metrocluster show` command displays configuration information for the pair of clusters configured in MetroCluster.

This command displays the following details about the local cluster and the DR partner cluster:

- Configuration State: This field specifies the configuration state of the cluster.
- Mode: This field specifies the operational mode of the cluster.
- AUSO Failure Domain: This field specifies the AUSO failure domain of the cluster.

## Parameters

### **[`-periodic-check-status` ]**

If this option is used the MetroCluster periodic check status is displayed.

## Examples

The following example shows the output of the command before MetroCluster configuration is done:

```
clusA::> metrocluster show
Cluster                               Entry Name                               State
-----                               -
Local: clusA
      Configuration State  not-configured
      Mode                 -
      AUSO Failure Domain  -
Remote: clusB
      Configuration State  not-configured
      Mode                 -
      AUSO Failure Domain  -
```

The following example shows the output of the command after MetroCluster configuration is done only for some DR groups:

```
clusA::> metrocluster show
Cluster                               Entry Name                               State
-----                               -
Local: clusA
      Configuration State  partially-configured
      Mode                 -
      AUSO Failure Domain  -
Remote: clusB
      Configuration State  partially-configured
      Mode                 -
      AUSO Failure Domain  -
```

The following example shows the output of the command after MetroCluster configuration is done:

```
clusA::> metrocluster show
Cluster                               Entry Name                               State
-----                               -
Local: clusA
      Configuration State  configured
      Mode                 normal
      AUSO Failure Domain  auso-on-cluster-disaster
Remote: clusB
      Configuration State  configured
      Mode                 normal
      AUSO Failure Domain  auso-on-cluster-disaster
```

The following example shows the output of the command in switchover mode:

```
clusA::> metrocluster show
Cluster                               Entry Name                               State
-----                               -
Local: clusA
      Configuration State  configured
      Mode                 switchover
      AUSO Failure Domain  auso-on-cluster-disaster
Remote: clusB
      Configuration State  not-reachable
      Mode                 -
      AUSO Failure Domain  not-reachable
```

The following example shows the output of the command when `-periodic-check-status` option is used:

```
clusA::> metrocluster show -periodic-check-status
Cluster                               Periodic Check Enabled
-----                               -
Local: clusA                          true
Remote: clusB                          true
```

## metrocluster switchback

Switch back storage and client access

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

## Description

The `metrocluster switchback` command initiates the switchback of storage and client access from nodes in the DR site to their home nodes. The home nodes and storage shelves must be powered on and reachable by nodes in the DR site. The `xref:{relative_path}metrocluster-heal.html[metrocluster heal]`-phase``_aggregates_``` and `xref:{relative_path}metrocluster-heal.html[metrocluster heal]`-phase``_root-aggregates_``` commands must have successfully completed before running the `metrocluster switchback` command.

## Parameters

### `[-f, -override-vetoes <true>]` - Override All Soft Vetoes

This optional parameter overrides all switchback operation soft vetoes. If this optional parameter is used, the system overrides subsystem soft vetoes that might prevent the switchback operation. Hard vetoes cannot be overridden and can still prevent the switchover operation.

### `[-simulate <true>]` - Simulate Switchback

If this optional parameter is used, the system runs a simulation of the switchback operation to make sure all the prerequisites for the operation are met. This parameter cannot be used with switchback operations performed for switching back left-behind aggregates or for retrying a partially successful switchback.

## Examples

The following is an example of how to start the switchback operation.

```
clusA::> metrocluster switchback
```

## Related Links

- [metrocluster heal](#)

# metrocluster switchover

Switch over storage and client access

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

## Description

The `metrocluster switchover` command initiates the switchover of storage and client access from the source cluster to the disaster recovery (DR) site. This command is to be used after a disaster that renders all the nodes in the source cluster unreachable and powered off. It can also be used for negotiated switchover when the outage of the source cluster is anticipated as in cases such as disaster recovery testing or a site going offline for maintenance. If a switchover operation previously failed on certain nodes on the DR site then issuing the command retries the operation on all of those nodes.

## Parameters

### { [-simulate <true>] - Simulate Negotiated Switchover

If this optional parameter is used, the system runs a simulation of the negotiated switchover operation to make sure all the prerequisites for the operation are met. This parameter cannot be used with switchover with the `-forced-on-disaster` parameter.

### { [-controller-replacement <true>] - Indicate Controller Replacement

If this optional parameter is used, the nodes in the DR site will be halted during the negotiated switchover operation, to facilitate controller replacement.

### | [-forced-on-disaster <true>] - Force Switchover on Disaster

This optional parameter forces a switchover on disaster. This parameter should be used if all the nodes on the disaster stricken site are powered off and unreachable. In the absence of this parameter, the command attempts to perform a negotiated switchover operation.

### [-force-nvfail-all <true>] - Sets in-nvfailed-state on All Volumes

If this parameter is used, the switchover command will set the `in-nvfailed-state` parameter to true for all volumes being switched over and will set the `-dr-force-nvfail` parameter to true for any volumes that do not already have it enabled. This parameter has no effect when performing a negotiated switchover.

### [-retry-failed-nodes <Node name>,... ] - Nodes to Switchover }

This optional parameter takes the list of nodes that previously failed the switchover operation and it retries the switchover operation on each of the nodes. This parameter is applicable only for a switchover with the `-forced-on-disaster` parameter.

### [-override-vetoes <true>] - Override All Soft Vetoes

This optional parameter overrides all switchover operation soft vetoes. If this parameter is used, the system overrides all subsystem soft vetoes that might prevent the switchover operation. Hard vetoes cannot be overridden and can still prevent the switchover operation.

## Examples

When a disaster strikes one site, the `metrocluster switchover` command is issued on the disaster recovery site as follows:

```

cluster1::> metrocluster switchover -forced-on-disaster true

Warning: MetroCluster switchover is a Disaster Recovery operation that
could
    cause some data loss. The cluster on the other site must either
be
    prevented from serving data or be simply powered off (nodes and
disk
    shelves)
    The following nodes ( cluster1-01 cluster1-02 ) will participate
in
    the switchover operation
Do you want to continue? {y|n}: y
Queued job. Use 'metrocluster operation show' to check status of the DR
operation.
cluster1::> metrocluster operation show
    Operation: switchover
        State: successful
    Start time: 10/3/2013 22:11:47
    End time: 10/3/2013 22:11:53
    Errors: -

```

## metrocluster check commands

### metrocluster check disable-periodic-check

#### Disable Periodic Check

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

#### Description

The `metrocluster check disable-periodic-check` command disables the periodic checking of the MetroCluster configuration.

After this command is run, the MetroCluster Check job will be prevented from periodically checking the configuration for errors.

#### Parameters

#### Examples

```
clusA::> metrocluster check disable-periodic-check
```

## metrocluster check enable-periodic-check

### Enable Periodic Check

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

### Description

The `metrocluster check enable-periodic-check` command enables the periodic checking of the MetroCluster configuration.

After this command is run, the MetroCluster Check job will be able to run in the background and periodically check the configuration for errors.

### Parameters

### Examples

```
clusA::> metrocluster check enable-periodic-check
```

## metrocluster check run

### Check the MetroCluster setup

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

### Description

The `metrocluster check run` command performs checks on the MetroCluster configuration and reports configuration errors if any.

To run this command, at least one DR group needs to be configured. The command checks the following parts of the configuration:

Node Configuration:

- `node-reachable`: This check verifies that the node is reachable.
- `metrocluster-ready`: This check verifies that the node is ready for MetroCluster configuration.
- `local-ha-partner`: This check verifies that the HA partner node is in the same cluster.
- `ha-mirroring-on`: This check verifies that HA mirroring for the node is configured.
- `symmetric-ha-relationship`: This check verifies that the relationship between the node and its HA partner is symmetric.
- `remote-dr-partner`: This check verifies that the DR partner node is in the remote cluster.
- `dr-mirroring-on`: This check verifies that DR mirroring for the node is configured.
- `symmetric-dr-relationship`: This check verifies that the relationship between the node and its DR partner is symmetric.
- `remote-dr-auxiliary-partner`: This check verifies that the DR auxiliary partner node is in the remote cluster.



- `symmetric-dr-auxiliary-relationship`: This check verifies that the relationship between the node and its DR auxiliary partner is symmetric.
- `storage-failover-enabled`: This check verifies that storage failover is enabled.
- `has-intercluster-lif`: This check verifies that the node has an intercluster LIF.
- `node-object-limit`: This check verifies that the node object limit option for the node is turned on.

#### Aggregate Configuration:

- `mirroring-status`: This check verifies that the aggregate is mirrored.
- `disk-pool-allocation`: This check verifies that the disks belonging to this aggregate have been correctly allocated to the right pools.

At the end of the check the command displays a summary of the results. This summary output can be viewed again by running `metrocluster check show`. If any of the rows in this output show any warnings more details can be viewed by running the `metrocluster check show` command for that component.

### Parameters

#### `[-skip-dr-simulation {true|false}] - Skip the DR Readiness Checks`

If this optional parameter is set to true, the switchover and switchback simulations are not run.

### Examples

The following example shows the execution of the command when there are no warnings:

```
clusA::> metrocluster check run

      Last Checked On: 4/9/2014 20:11:46
Component              Result
-----
nodes                   ok
clusters                 ok
lifs                     ok
config-replication      ok
aggregates               ok

5 entries were displayed.
Command completed. Use the "metrocluster check show -instance" command or
sub-commands in "metrocluster check" directory for detailed results.
```

The following example shows the execution of the command when there are some warnings:

```

clusA::> metrocluster check run
Last Checked On: 4/9/2014 20:11:46
Component          Result
-----
nodes              warning
clusters           ok
lifs               ok
config-replication ok
aggregates         ok
5 entries were displayed.
Command completed. Use the "metrocluster check show -instance" command or
sub-commands in "metrocluster check" directory for detailed results.

```

## Related Links

- [metrocluster check show](#)

## metrocluster check show

Show the results of the last instance of MetroCluster check

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

## Description

The `metrocluster check show` command displays the results of the [metrocluster check run](#) command.

This command displays the high-level verification results for each of the components. If there are any errors for a component, running the show command for that component (for example [metrocluster check node show](#) or [metrocluster check aggregate show](#) ) will display more information about the warning.



Please note that this command does not run the checks but only displays the results of checks. To look at the latest results, run the [metrocluster check run](#) command and then run this command.

## 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.

**[-timestamp <MM/DD/YYYY HH:MM:SS>] - Time of Check**

This is the time at which the [metrocluster check run](#) command was last run in this cluster and these results were produced. If this parameter is specified, only rows with this timestamp will be displayed.

**[-component <MetroCluster Check Components>] - Name of the Component**

This is the name of the component. If this parameter is specified, only rows with this component will be displayed.

**[-result {ok|warning|not-run|not-applicable}] - Result of the Check**

This is the result of the check for the component. If this parameter is specified, only rows with this result will be displayed.

**[-additional-info <text>] - Additional Information/Recovery Steps**

This is the additional info for the verification for this component. This field will have detailed information about the warning and recovery steps. If this parameter is specified, only rows with this additional info will be displayed.

**Examples**

The following example shows the execution of the command when there are no warnings:

```
clusA::> metrocluster check show
cked On: 4/9/2014 20:11:46
t          Result
-----
nodes      ok
clusters  ok
lifs       ok
config-replication ok
aggregates ok
connections ok
s were displayed.
```

The following example shows the execution of the command when there are some warnings:

```
clusA::> metrocluster check show
cked On: 4/9/2014 20:11:46
t          Result
-----
nodes      warning
clusters  ok
lifs       ok
config-replication ok
aggregates ok
connections ok
s were displayed.
```

The following example shows the execution of the command with -instance option:

```

clusA::> metrocluster check show -instance
Time of Check: 4/9/2014 20:12:36
      Name of the Component: nodes
      Result of the Check: warning
  Additional Information/Recovery Steps:
Time of Check: 4/9/2014 20:12:36
      Name of the Component: cluster
      Result of the Check: ok
  Additional Information/Recovery Steps:
Time of Check: 4/9/2014 20:12:36
      Name of the Component: lifs
      Result of the Check: ok
  Additional Information/Recovery Steps:
Time of Check: 4/9/2014 20:12:36
      Name of the Component: config-replication
      Result of the Check: ok
  Additional Information/Recovery Steps:
Time of Check: 4/9/2014 20:12:36
      Name of the Component: aggregates
      Result of the Check: warning
  Additional Information/Recovery Steps:
Time of Check: 4/9/2014 20:12:36
      Name of the Component: connections
      Result of the Check: ok
  Additional Information/Recovery Steps:
6 entries were displayed.

```

## Related Links

- [metrocluster check run](#)
- [metrocluster check node show](#)
- [metrocluster check aggregate show](#)

## metrocluster check aggregate show

Show results of MetroCluster check for aggregates

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

### Description

The `metrocluster check aggregate show` command displays the results of aggregate checks performed by the [metrocluster check run](#) command.

The command verifies the following aspects of the configuration of all aggregates in MetroCluster:

- `mirroring-status`: This check verifies that the aggregate is mirrored.
- `disk-pool-allocation`: This check verifies that the disks belonging to this aggregate have been correctly allocated to the right pools.

Additional information about the warnings (if any) and recovery steps can be viewed by running the command with the `-instance` option.

## 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 <Node name>] - Node Name**

This is the name of the node for which the check was run. If this parameter is specified, only rows with this node will be displayed.

**[-aggregate <aggregate name>] - Name of the Aggregate**

This is the name of the aggregate for which the check was run. If this parameter is specified, only rows with this aggregate will be displayed.

**[-check <MetroCluster Aggregate Check>] - Type of Check**

This is the type of the check performed. If this parameter is specified, only rows with this check will be displayed.

**[-cluster <Cluster name>] - Name of Cluster**

This is the name of the cluster the node belongs to. If this parameter is specified, only rows with this cluster will be displayed.

**[-result {ok|warning|not-run|not-applicable}] - Result of the Check**

This is the result of the check. If this parameter is specified, only rows with this result will be displayed.

**[-additional-info <text>,...] - Additional Information/Recovery Steps**

This is additional information about the check. This field has more information and recovery steps for the warning. If this parameter is specified, only rows with this additional info will be displayed.

## Examples

The following example shows the execution of the command in a MetroCluster configuration with two nodes per cluster:

```
clusA::> metrocluster check aggregate show
```

```
Last Checked On: 4/9/2014 20:11:46
```

Node	Aggregate	Check	Result
clusA-01	a1_required_data_aggr	mirroring-status	ok
		disk-pool-allocation	ok
	aggr0_a1	mirroring-status	ok
		disk-pool-allocation	ok
clusA-02	a2_required_data_aggr	mirroring-status	ok
		disk-pool-allocation	ok
	aggr0_a2	mirroring-status	ok
		disk-pool-allocation	ok
clusB-01	b1_required_data_aggr	mirroring-status	ok
		disk-pool-allocation	ok
	aggr0_b1	mirroring-status	ok
		disk-pool-allocation	ok
clusB-02	aggr0_b2	mirroring-status	ok
		disk-pool-allocation	ok
	b2_required_data_aggr	mirroring-status	ok
		disk-pool-allocation	ok

```
16 entries were displayed.
```

The following example shows the execution of the command with `-instance` option:

```
clusA::> metrocluster check aggregate show -instance
```

```
Node Name: clusA-01
```

```
    Name of the Aggregate: a1_required_data_aggr_1
```

```
        Type of Check: mirroring-status
```

```
    Name of Cluster: clusA
```

```
    Result of the Check: ok
```

```
Additional Information/Recovery Steps: -
```

```
Node Name: clusA-01
```

```
    Name of the Aggregate: a1_required_data_aggr_1
```

```
        Type of Check: disk-pool-allocation
```

```

        Name of Cluster: clusA
        Result of the Check: ok
Additional Information/Recovery Steps: -
Node Name: clusA-01
        Name of the Aggregate: a1_required_data_aggr_2
        Type of Check: mirroring-status
        Name of Cluster: clusA
        Result of the Check: ok
Additional Information/Recovery Steps: -
Node Name: clusA-01
        Name of the Aggregate: a1_required_data_aggr_2
        Type of Check: disk-pool-allocation
        Name of Cluster: clusA
        Result of the Check: ok
Additional Information/Recovery Steps: -
Node Name: clusA-01
        Name of the Aggregate: aggr0_a1
        Type of Check: mirroring-status
        Name of Cluster: clusA
        Result of the Check: warning
Additional Information/Recovery Steps: Root aggregate "aggr0_a1" is un-
mirrored. Root aggregates should be mirrored in a MetroCluster
configuration.
Node Name: clusA-01
        Name of the Aggregate: aggr0_a1
        Type of Check: disk-pool-allocation
        Name of Cluster: clusA
        Result of the Check: ok
Additional Information/Recovery Steps: -
Node Name: clusB-01
        Name of the Aggregate: aggr0_b1
        Type of Check: mirroring-status
        Name of Cluster: clusB
        Result of the Check: ok
Additional Information/Recovery Steps: -
Node Name: clusB-01
        Name of the Aggregate: aggr0_b1
        Type of Check: disk-pool-allocation
        Name of Cluster: clusB
        Result of the Check: ok
Additional Information/Recovery Steps: -
Node Name: clusB-01
        Name of the Aggregate: b1_required_data_aggr_1
        Type of Check: mirroring-status
        Name of Cluster: clusB
        Result of the Check: ok

```

```

Additional Information/Recovery Steps: -
Node Name: clusB-01
    Name of the Aggregate: b1_required_data_aggr_1
    Type of Check: disk-pool-allocation
    Name of Cluster: clusB
    Result of the Check: ok
Additional Information/Recovery Steps: -
Node Name: clusB-01
    Name of the Aggregate: b1_required_data_aggr_2
    Type of Check: mirroring-status
    Name of Cluster: clusB
    Result of the Check: ok
Additional Information/Recovery Steps: -
Node Name: clusB-01
    Name of the Aggregate: b1_required_data_aggr_2
    Type of Check: disk-pool-allocation
    Name of Cluster: clusB
    Result of the Check: ok
Additional Information/Recovery Steps: -
12 entries were displayed.

```

## Related Links

- [metrocluster check run](#)

## metrocluster check cluster show

Show results of MetroCluster check for the cluster components

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

### Description

The `metrocluster check cluster show` command displays the results of cluster checks performed by the [metrocluster check run](#) command.

The command displays the results of the following cluster configuration checks:

- `negotiated-switchover-ready`: This check verifies that the cluster is ready for a negotiated switchover operation.
- `switchback-ready`: This check verifies that the cluster is ready for a switchback operation.
- `job-schedules`: This check verifies that the job schedules between the local and remote clusters are consistent.
- `licenses`: This check verifies that the licenses between the local and remote clusters are consistent.
- `periodic-check-enabled`: This check verifies that the periodic MetroCluster Check Job is enabled.
- `onboard-key-management`: This check verifies that the Onboard Key Management hierarchies are consistent.



- external-key-management: This check verifies that the External Key Management configurations are consistent.

Additional information about the warnings (if any) and recovery steps can be viewed by running the command with the `-instance` parameter.

## 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.

**[-check {negotiated-switchover-ready|switchback-ready|job-schedules|licenses|periodic-check-enabled|onboard-key-management|external-key-management}] - Type of Check**

This is the type of the check performed. If this parameter is specified, only rows with this check will be displayed.

**[-cluster <Cluster name>] - Cluster Name**

This is the name of the cluster the check results apply to. If this parameter is specified, only rows matching the specified cluster will be displayed.

**[-result {ok|warning|not-run|not-applicable}] - Result of the Check**

This is the result of the check. If this parameter is specified, only rows with this result will be displayed.

**[-additional-info <text>] - Additional Information/Recovery Steps**

This is additional information about the check. This field has more information and recovery steps for the warning. If this parameter is specified, only rows with this additional info will be displayed.

## Examples

The following example shows the execution of the command in a MetroCluster configuration:

```
clusA::> metrocluster check cluster show
```

```
Last Checked On: 11/29/2018 17:15:00
```

Cluster	Check	Result
-----		
clusA	negotiated-switchover-ready	not-applicable
	switchback-ready	not-applicable
	job-schedules	ok
	licenses	ok
	periodic-check-enabled	ok
	onboard-key-management	ok
	external-key-management	ok
clusB	negotiated-switchover-ready	not-applicable
	switchback-ready	not-applicable
	job-schedules	ok
	licenses	ok
	periodic-check-enabled	ok
	onboard-key-management	ok
	external-key-management	ok

```
14 entries were displayed.
```

The following example shows the execution of the command with the `-instance` parameter:

```
clusA::> metrocluster check cluster show -instance
```

```
Type of Check: negotiated-switchover-ready
```

```
Cluster Name: clusA
```

```
Result of the Check: not-applicable
```

```
Additional Information/Recovery Steps: Disaster recovery readiness checks  
are not performed as part of periodic metrocluster check. To run these  
checks, use the "metrocluster check run" command.
```

```
Type of Check: switchback-ready
```

```
Cluster Name: clusA
```

```
Result of the Check: not-applicable
```

```
Additional Information/Recovery Steps: Disaster recovery readiness checks  
are not performed as part of periodic metrocluster check. To run these  
checks, use the "metrocluster check run" command.
```

```
Type of Check: job-schedules
```

```
Cluster Name: clusA
```

```
Result of the Check: ok
```

```
Additional Information/Recovery Steps:
```

```
Type of Check: licenses
```

```
Cluster Name: clusA
Result of the Check: ok
Additional Information/Recovery Steps:
Type of Check: periodic-check-enabled
Cluster Name: clusA
Result of the Check: ok
Additional Information/Recovery Steps:
Type of Check: onboard-key-management
Cluster Name: clusA
Result of the Check: ok
Additional Information/Recovery Steps:
Type of Check: external-key-management
Cluster Name: clusA
Result of the Check: ok
Additional Information/Recovery Steps:
Type of Check: negotiated-switchover-ready
Cluster Name: clusB
Result of the Check: not-applicable
Additional Information/Recovery Steps: Disaster recovery readiness checks
are not performed as part of periodic metrocluster check. To run these
checks, use the "metrocluster check run" command.
Type of Check: switchback-ready
Cluster Name: clusB
Result of the Check: not-applicable
Additional Information/Recovery Steps: Disaster recovery readiness checks
are not performed as part of periodic metrocluster check. To run these
checks, use the "metrocluster check run" command.
Type of Check: job-schedules
Cluster Name: clusB
Result of the Check: ok
Additional Information/Recovery Steps:
Type of Check: licenses
Cluster Name: clusB
Result of the Check: ok
Additional Information/Recovery Steps:
Type of Check: periodic-check-enabled
Cluster Name: clusB
Result of the Check: ok
Additional Information/Recovery Steps:
Type of Check: onboard-key-management
Cluster Name: clusB
Result of the Check: ok
Additional Information/Recovery Steps:
Type of Check: external-key-management
Cluster Name: clusB
Result of the Check: ok
```

Additional Information/Recovery Steps:  
14 entries were displayed.

## Related Links

- [metrocluster check run](#)

## metrocluster check config-replication show-aggregate-eligibility

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

## Description

The `metrocluster check config-replication show-aggregate-eligibility` command displays the MetroCluster configuration replication aggregate eligibility.

## 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.

**[-aggregate <aggregate name>] - Aggregate**

This is the aggregate name. If this parameter is specified, only rows with this aggregate will be displayed.

**[-hosted-configuration-replication-volumes <volume name>,...] - Currently Hosted Configuration Replication Volumes**

This is the list of the configuration replication volumes hosted on this aggregate. If this parameter is specified, only rows with these configuration replication volumes will be displayed.

**[-is-eligible-to-host-additional-volumes {true|false}] - Eligibility to Host Another Configuration Replication Volume**

This is the eligibility of the aggregate to host additional configuration replication volumes. If this parameter is specified, only rows with this eligibility will be displayed.

**[-comment <text>] - Comment for Eligibility Status**

This is a comment regarding the eligibility of the aggregate to host configuration replication volumes. If this parameter is specified, only rows with this comment will be displayed.

## Examples

The following example shows the execution of the command in a MetroCluster configuration with thirteen aggregates in the cluster:

```

clusA::metrocluster check config-replication> show-aggregate-eligibility
Aggregate      Hosted Config Replication Vols      Eligible to
Comments                                             Host Addl Vols
-----
-----
a0             -                                     false
Root Aggregate
a1             MDV_CRS_1bc7134a5ddf11e3b63f123478563412_A true
a2             MDV_CRS_1bc7134a5ddf11e3b63f123478563412_B true
a3             -                                     false
Unable to determine available space of aggregate
a4             -                                     false
Non-Local Aggregate
a5             -                                     false
Non-Home Aggregate
a6             -                                     false
Unable to determine mirror configuration
a7             -                                     false
Mirror configuration does not match requirement
a8             -                                     false
Disallowed Aggregate
a9             -                                     false
Insufficient Space - 10GB required
a10            -                                     false
Aggregate Offline
a11            -                                     false
Inconsistent Aggregate
a12            -                                     false
Aggregate Full
13 entries were displayed.

```

## metrocluster check config-replication show-capture-status

Display MetroCluster capture status information

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

### Description

The `metrocluster check config-replication show-capture-status` command indicates whether or not a configuration change that would prevent a negotiated switchover is currently being captured for replication.

## Examples

The following example shows the execution of the command in a MetroCluster configuration when capture is not in progress:

```
cluster1::*> metrocluster check config-replication show-capture-status
Is Capture in Progress: false
```

## metrocluster check config-replication show

Display MetroCluster config-replication status information

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

### Description

The `metrocluster check config-replication show` command displays the results of MetroCluster configuration replication.

The command verifies the following aspects of MetroCluster configuration replication :

- **Enabled:** Verifies that MetroCluster configuration replication is enabled on the cluster.
- **Running:** Verifies that MetroCluster configuration replication is running on the cluster.
- **Remote Heartbeat:** Verifies that the MetroCluster configuration replication heartbeat with the remote cluster is healthy.
- **Last Heartbeat Sent:** Prints the timestamp of the last MetroCluster configuration replication heartbeat sent to the remote cluster.
- **Last Heartbeat Received:** Prints the timestamp of the last MetroCluster configuration replication heartbeat received from the remote cluster.
- **Storage Status:** Verifies that MetroCluster configuration replication storage is healthy.
- **Storage In Use:** Prints the location of MetroCluster configuration replication storage.
- **Storage Remarks:** Prints the underlying root cause for non healthy MetroCluster configuration storage.
- **Vserver Streams:** Verifies that MetroCluster configuration replication Vserver streams are healthy.
- **Cluster Streams:** Verifies that MetroCluster configuration replication Cluster streams are healthy.

Additional information about the warnings (if any) and recovery steps can be viewed by running the command with the `-instance` option.

### Parameters

**[`-instance` ]**

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

## Examples

The following example shows the output of `metrocluster check config-replication show`:

```

clusA::metrocluster check config-replication> show
      Enabled: true
      Running: true
      Remote Heartbeat: ok
      Last Heartbeat Sent: 12/12/2013 14:24:59
      Last Heartbeat Received: 12/12/2013 14:25:00
      Storage Status: ok
      Storage In Use: Cluster-wide Volume:
MDV_CRS_1bc7134a5ddf11e3b63f123478563412_A
      Storage Remarks: -
      Vserver Streams: ok
      Cluster Streams: ok

```

## metrocluster check connection show

Display the check results of connections for nodes in a MetroCluster over IP configuration

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

### Description

The `metrocluster check connection show` command displays the check results of connections for nodes in a MetroCluster over IP configuration.

### Parameters

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

If you specify the `-fields <fieldname>,...` parameter, the command displays only the fields that you specify.

**| [-instance ] }**

If this parameter is specified, the command displays detailed information about all entries.

**[-dr-group-id <integer>] - DR Group ID**

If this parameter is specified, the command displays information for the matching DR group.

**[-cluster-uuid <UUID>] - Cluster UUID**

If this parameter is specified, the command displays information for the matching cluster specified by uuid.

**[-cluster <Cluster name>] - Cluster Name**

If this parameter is specified, the command displays information for the matching cluster.

**[-node-uuid <UUID>] - Node UUID**

If this parameter is specified, the command displays information for the matching node specified by uuid.

**[-node <text>] - Node Name**

If this parameter is specified, the command displays information for the matching nodes.

**[-home-port {<netport>|<ifgrp>}] - Home Port**

If this parameter is specified, the command displays information for the matching home-port.

**[-relationship-type <Roles of MetroCluster Nodes>] - Relationship Role Type**

If this parameter is specified, the command displays information for the matching relationship-type.

**[-source-address <IP Address>] - Source Network Address**

If this parameter is specified, the command displays information for the matching source address.

**[-destination-address <IP Address>] - Destination Network Address**

If this parameter is specified, the command displays information for the matching destination address.

**[-partner-cluster-uuid <UUID>] - Partner Cluster UUID**

If this parameter is specified, the command displays information for the matching partner-cluster-uuid.

**[-partner-node-uuid <UUID>] - Partner Node UUID**

If this parameter is specified, the command displays information for the matching partner-node-uuid.

**[-partner-node <text>] - Partner Node Name**

If this parameter is specified, the command displays information for the matching partner-node.

**[-partner-type <text>] - Partner Relationship Type**

If this parameter is specified, the command displays information for the matching partner-type.

**[-config-state <text>] - Configuration State**

If this parameter is specified, the command displays information for the matching config-state.

**[-config-error-info <text>] - Configuration Error Information**

If this parameter is specified, the command displays information for the matching config-error-info.

**[-check-result {ok|warning|not-run|not-applicable}] - Check Connection Result**

If this parameter is specified, the command displays information for the matching check-result.

**[-check-ping-error-info <text>] - Check Connection Ping Error Info**

If this parameter is specified, the command displays information for the matching check-ping-error-info.

**[-check-mtu-size-error-info <text>] - Check Connection MTU Size Error Info**

If this parameter is specified, the command displays information for the matching check-mtu-size-error-info.

**[-check-storage-error-info <text>] - Check Connection Storage Error Info**

If this parameter is specified, the command displays information for the matching check-storage-error-info.

## Examples

The following example shows the output of the `metrocluster check connection show` command:

```
clusA::> metrocluster check connection show
DR                Source                Destination
```



```

Group Cluster Node      Network Address Network Address Partner Type Config
State
-----
-----
1      cluster-A
      node-A1
      Home Port: e0f
      10.140.113.214  10.140.113.216  HA Partner
completed
      Check Result: ok
      Home Port: e0f
      10.140.113.214  10.140.113.218  DR Partner
completed
      Check Result: ok
      Home Port: e0f
      10.140.113.214  10.140.113.249  DR Auxiliary
completed
      Check Result: ok
      Home Port: e0g
      10.140.113.215  10.140.113.217  HA Partner
completed
      Check Result: ok
      Home Port: e0g
      10.140.113.215  10.140.113.248  DR Partner
completed
      Check Result: ok
      Home Port: e0g
      10.140.113.215  10.140.113.25   DR Auxiliary
completed
      Check Result: ok
      node-A2
      Home Port: e0f
      10.140.113.216  10.140.113.214  HA Partner
completed
      Check Result: ok
      Home Port: e0f
      10.140.113.216  10.140.113.249  DR Partner
completed
      Check Result: ok
      Home Port: e0f
      10.140.113.216  10.140.113.218  DR Auxiliary
completed
      Check Result: ok
      Home Port: e0g
      10.140.113.217  10.140.113.215  HA Partner
completed

```

```

    Check Result: ok
      Home Port: e0g
        10.140.113.217  10.140.113.25  DR Partner
completed

    Check Result: ok
      Home Port: e0g
        10.140.113.217  10.140.113.248  DR Auxiliary
completed

    Check Result: ok
cluster-B
    node-B1
      Home Port: e0f
        10.140.113.218  10.140.113.249  HA Partner
completed

    Check Result: ok
      Home Port: e0f
        10.140.113.218  10.140.113.214  DR Partner
completed

    Check Result: ok
      Home Port: e0f
        10.140.113.218  10.140.113.216  DR Auxiliary
completed

    Check Result: ok
      Home Port: e0g
        10.140.113.248  10.140.113.25  HA Partner
completed

    Check Result: ok
      Home Port: e0g
        10.140.113.248  10.140.113.215  DR Partner
completed

    Check Result: ok
      Home Port: e0g
        10.140.113.248  10.140.113.217  DR Auxiliary
completed

    Check Result: ok
node-B2
      Home Port: e0f
        10.140.113.249  10.140.113.218  HA Partner
completed

    Check Result: ok
      Home Port: e0f
        10.140.113.249  10.140.113.216  DR Partner
completed

    Check Result: ok
      Home Port: e0f
        10.140.113.249  10.140.113.214  DR Auxiliary

```

```

completed
    Check Result: ok
        Home Port: e0g
            10.140.113.25    10.140.113.248    HA Partner
completed
    Check Result: ok
        Home Port: e0g
            10.140.113.25    10.140.113.217    DR Partner
completed
    Check Result: ok
        Home Port: e0g
            10.140.113.25    10.140.113.215    DR Auxiliary
completed
    Check Result: ok
24 entries were displayed.

```

## metrocluster check lif repair-placement

Repair LIF placement for the sync-source Vserver LIFs in the destination cluster

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

### Description

The `metrocluster check lif repair-placement` command reruns LIF placement for those LIFs displayed by the `metrocluster check lif show` command. This command is expected to be run after the admin manually rectifies the LIF placement failures displayed in the `metrocluster check lif show` command output. The command is successful if the LIF placement rerun does not encounter any LIF placement failure. This is to be confirmed by subsequent running of the `metrocluster check lif show`.

### Parameters

#### **-vserver <Vserver Name> - sync-source Vserver Name**

This is the name of the sync source Vserver that has LIF placement failures as reported by the `metrocluster check lif show` command. This input ensures that the command is run on the specified Vserver.

#### **[-lif <lif-name>] - Logical Interface Name**

This is the Logical Interface name that belongs to the sync source Vserver that has a LIF placement failure in the destination cluster as reported by the `metrocluster check lif show` command. This input ensures that the command is run on the specified LIF only.

### Examples

The following example shows the execution of the command with a sync source Vserver and a LIF specified:

```
clusA::> metrocluster check lif repair-placement -vserver vs1.example.com
-lif fcplif1
Command completed. Run the "metrocluster check lif show" command for
results.

clusA::> metrocluster check lif repair-placement -vserver vs1.example.com
-lif iscsilif1
Command completed. Run the "metrocluster check lif show" command for
results.
```

The following example shows the execution of the command with only a sync-source Vserver specified:

```
clusA::> metrocluster check lif repair-placement -vserver vs1.example.com

Command completed. Run the "metrocluster check lif show" command for
results.

clusA::>
```

## Related Links

- [metrocluster check lif show](#)

## metrocluster check lif show

Show results of MetroCluster check results for the data LIFs

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

### Description

The `metrocluster check lif show` command displays the LIF placement failures in the MetroCluster configuration.

The command verifies the following aspects of the LIF placements of all the data LIFs in Metrocluster:

- `lif-placed-on-dr-node`: This check verifies that the LIF is placed on DR partner node.
- `port-selection`: This check verifies that the LIF is placed on correct port.

The LIF placement failures are mostly fabric/network connectivity issues that require manual intervention. Once the connectivity issues are resolved manually, the admin is expected to run [metrocluster check lif repair-placement](#) command to resolve the LIF placement issues for the sync source Vserver.

Additional information about the warnings (if any) and recovery steps can be viewed by running the command with the `-instance` option.

## 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.

**[-cluster <Cluster name>] - Name of the Cluster**

This is the name of the cluster the LIF belongs to. If this parameter is specified, only rows with this cluster will be displayed.

**[-vserver <text>] - Name of the Vserver**

This is the name of the Vserver in the MetroCluster configuration

**[-lif <lif-name>] - Name of the Lif**

This is the name of the LIF.

**[-check <MetroCluster LIF placement Check>] - Description**

This is the type of the check performed. If this parameter is specified, only rows with this check will be displayed.

**[-result {ok|warning|not-run|not-applicable}] - Result of the Check**

This is the result of the check performed. If this parameter is specified, only rows with this result will be displayed.

**[-additional-info <text>] - Additional Information/Recovery Steps**

This is additional information about the check. This field has more information and recovery steps for the warning. If this parameter is specified, only rows with this additional info will be displayed.

## Examples

The following example shows the execution of the command in a MetroCluster configuration with two nodes per cluster:

```

clusA::>metrocluster check lif show
Cluster          Vserver      LIF          Check          Result
-----
ClusA            vs1          a_data1      lif-placed-on-dr-node ok
                port-selection ok
                a_data1_inet6
                lif-placed-on-dr-node ok
                port-selection ok
ClusA            vs2-mc       b_data1      lif-placed-on-dr-node ok
                port-selection
warning
                b_data1_inet6
                lif-placed-on-dr-node ok
                port-selection
warning
ClusB            vs1-mc       a_data1      lif-placed-on-dr-node
warning
                port-selection ok
                a_data1_inet6
                lif-placed-on-dr-node
warning
                port-selection ok
ClusB            vs2          b_data1      lif-placed-on-dr-node ok
                port-selection ok
                b_data1_inet6
                lif-placed-on-dr-node ok
                port-selection ok

16 entries were displayed.

```

## Related Links

- [metrocluster check lif repair-placement](#)

## metrocluster check node show

Show results of MetroCluster check for nodes

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

## Description

The `metrocluster check node show` command displays the results of node checks performed by the [metrocluster check run](#) command.

The command displays the results of the following node configuration checks:

- `node-reachable`: This check verifies that the node is reachable.

- `metrocluster-ready`: This check verifies that the node is ready for MetroCluster configuration.
- `local-ha-partner`: This check verifies that the HA partner node is in the same cluster.
- `ha-mirroring-on`: This check verifies that HA mirroring for the node is configured.
- `ha-mirroring-op-state`: This check verifies that the HA mirroring operation is online.
- `symmetric-ha-relationship`: This check verifies that the relationship between the node and its HA partner is symmetric.
- `remote-dr-partner`: This check verifies that the DR partner node is in the remote cluster.
- `dr-mirroring-on`: This check verifies that DR mirroring for the node is configured.
- `dr-mirroring-op-state`: This check verifies that the DR mirroring operation is online.
- `symmetric-dr-relationship`: This check verifies that the relationship between the node and its DR partner is symmetric.
- `remote-dr-auxiliary-partner`: This check verifies that the DR auxiliary partner node is in the remote cluster.
- `symmetric-dr-auxiliary-relationship`: This check verifies that the relationship between the node and its DR auxiliary partner is symmetric.
- `storage-failover-enabled`: This check verifies that storage failover is enabled.
- `has-intercluster-lif`: This check verifies that the node has an intercluster LIF.
- `node-object-limit`: This check verifies that the node object limit option for the node is turned on.
- `automatic-uso`: This check verifies that the automatic USO option for the node is enabled.

Additional information about the warnings (if any) and recovery steps can be viewed by running the command with the `-instance` parameter.

## 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 <Node name>] - Node Name**

This is the name of the node for which the check was run. If this parameter is specified, only rows with this node will be displayed.

**[-check <MetroCluster Node Check>] - Type of Check**

This is the type of the check performed. If this parameter is specified, only rows with this check will be displayed.

**[-cluster <Cluster name>] - Cluster Name**

This is the name of the cluster the node belongs to. If this parameter is specified, only rows with this cluster will be displayed.

**[-result {ok|warning|not-run|not-applicable}] - Result of the Check**

This is the result of the check. If this parameter is specified, only rows with this result will be displayed.

## **[-additional-info <text>] - Additional Information/Recovery Steps**

This is additional information about the check. This field has more information and recovery steps for the warning. If this parameter is specified, only rows with this additional info will be displayed.

### **Examples**

The following example shows the execution of the command in a MetroCluster configuration with two nodes per cluster:

```
clusA::> metrocluster check node show

Last Checked On: 9/12/2016 13:47:00

Node                Check                Result
-----
clusA-01
    node-reachable           ok
    metrocluster-ready       ok
    local-ha-partner         ok
    ha-mirroring-on          warning
    ha-mirroring-op-state    ok
    symmetric-ha-relationship warning
    remote-dr-partner        ok
    dr-mirroring-on          ok
    dr-mirroring-op-state    ok
    symmetric-dr-relationship ok
    remote-dr-auxiliary-partner ok
    symmetric-dr-auxiliary-relationship warning
    storage-failover-enabled ok
    has-intercluster-lif     ok
    node-object-limit        ok
    automatic-uso            ok

clusA-02
    node-reachable           ok
    metrocluster-ready       ok
    local-ha-partner         ok
    ha-mirroring-on          warning
    ha-mirroring-op-state    ok
    symmetric-ha-relationship warning
    remote-dr-partner        ok
    dr-mirroring-on          ok
    dr-mirroring-op-state    ok
    symmetric-dr-relationship ok
    remote-dr-auxiliary-partner ok
    symmetric-dr-auxiliary-relationship warning
    storage-failover-enabled ok
    has-intercluster-lif     ok
```



```

clusB-01
node-object-limit      ok
automatic-uso         ok

node-reachable        ok
metrocluster-ready    ok
local-ha-partner      ok
ha-mirroring-on      warning
ha-mirroring-op-state ok
symmetric-ha-relationship warning
remote-dr-partner     ok
dr-mirroring-on       ok
dr-mirroring-op-state ok
symmetric-dr-relationship ok
remote-dr-auxiliary-partner ok
symmetric-dr-auxiliary-relationship warning
storage-failover-enabled ok
has-intercluster-lif  ok
node-object-limit      ok
automatic-uso         ok

clusB-02
node-reachable        ok
metrocluster-ready    ok
local-ha-partner      ok
ha-mirroring-on      warning
ha-mirroring-op-state ok
symmetric-ha-relationship warning
remote-dr-partner     ok
dr-mirroring-on       ok
dr-mirroring-op-state ok
symmetric-dr-relationship ok
remote-dr-auxiliary-partner ok
symmetric-dr-auxiliary-relationship warning
storage-failover-enabled ok
has-intercluster-lif  ok
node-object-limit      ok
automatic-uso         ok

64 entries were displayed.

```

The following example shows the execution of the command with the `-instance` parameter:

```

clusA::> metrocluster check node show -instance
Node Name: clusA-01
           Type of Check: node-reachable
           Cluster Name: clusA
           Result of the Check: ok

```

Additional Information/Recovery Steps:

Node Name: clusA-01

Type of Check: metrocluster-ready

Cluster Name: clusA

Result of the Check: ok

Additional Information/Recovery Steps:

Node Name: clusA-01

Type of Check: local-ha-partner

Cluster Name: clusA

Result of the Check: ok

Additional Information/Recovery Steps:

Node Name: clusA-01

Type of Check: ha-mirroring-on

Cluster Name: clusA

Result of the Check: warning

Additional Information/Recovery Steps: Node's HA mirroring is not active.  
Enable it on using "storage failover" commands.

Node Name: clusA-01

Type of Check: ha-mirroring-op-state

Cluster Name: clusA

Result of the Check: ok

Additional Information/Recovery Steps:

Node Name: clusA-01

Type of Check: symmetric-ha-relationship

Cluster Name: clusA

Result of the Check: warning

Additional Information/Recovery Steps: Partner not found. Check if node  
"clusA-01's HA partner" is configured in MetroCluster.

Node Name: clusA-01

Type of Check: remote-dr-partner

Cluster Name: clusA

Result of the Check: ok

Additional Information/Recovery Steps:

Node Name: clusA-01

Type of Check: dr-mirroring-on

Cluster Name: clusA

Result of the Check: ok

Additional Information/Recovery Steps:

Node Name: clusA-01

Type of Check: dr-mirroring-op-state

Cluster Name: clusA

Result of the Check: ok

Additional Information/Recovery Steps:

Node Name: clusA-01

Type of Check: symmetric-dr-relationship

Cluster Name: clusA

```

                Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusA-01
                Type of Check: remote-dr-auxiliary-partner
                Cluster Name: clusA
                Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusA-01
                Type of Check: symmetric-dr-auxiliary-relationship
                Cluster Name: clusA
                Result of the Check: warning
Additional Information/Recovery Steps: Partner not found. Check if node
"clusA-01's DR auxiliary partner" is configured in MetroCluster.
Node Name: clusA-01
                Type of Check: storage-failover-enabled
                Cluster Name: clusA
                Result of the Check: warning
Additional Information/Recovery Steps: Node's storage failover is
disabled. Enable using "storage failover" commands.
Node Name: clusA-01
                Type of Check: has-intercluster-lif
                Cluster Name: clusA
                Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusA-01
                Type of Check: node-object-limit
                Cluster Name: clusA
                Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusB-01
                Type of Check: node-reachable
                Cluster Name: clusB
                Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusB-01
                Type of Check: metrocluster-ready
                Cluster Name: clusB
                Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusB-01
                Type of Check: local-ha-partner
                Cluster Name: clusB
                Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusB-01
                Type of Check: ha-mirroring-on

```

```

Cluster Name: clusB
Result of the Check: warning
Additional Information/Recovery Steps: Node's HA mirroring is not active.
Enable it on using "storage failover" commands.
Node Name: clusB-01
Type of Check: ha-mirroring-op-state
Cluster Name: clusB
Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusB-01
Type of Check: symmetric-ha-relationship
Cluster Name: clusB
Result of the Check: warning
Additional Information/Recovery Steps: Partner not found. Check if node
"clusB-01's HA partner" is configured in MetroCluster.
Node Name: clusB-01
Type of Check: remote-dr-partner
Cluster Name: clusB
Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusB-01
Type of Check: dr-mirroring-on
Cluster Name: clusB
Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusB-01
Type of Check: dr-mirroring-op-state
Cluster Name: clusB
Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusB-01
Type of Check: symmetric-dr-relationship
Cluster Name: clusB
Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusB-01
Type of Check: remote-dr-auxiliary-partner
Cluster Name: clusB
Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusB-01
Type of Check: symmetric-dr-auxiliary-relationship
Cluster Name: clusB
Result of the Check: warning
Additional Information/Recovery Steps: Partner not found. Check if node
"clusB-01's DR auxiliary partner" is configured in MetroCluster.

```

```

Node Name: clusB-01
                Type of Check: storage-failover-enabled
                Cluster Name: clusB
                Result of the Check: warning
Additional Information/Recovery Steps: Node's storage failover is
disabled. Enable using "storage failover" commands.
Node Name: clusB-01
                Type of Check: has-intercluster-lif
                Cluster Name: clusB
                Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusB-01
                Type of Check: node-object-limit
                Cluster Name: clusB
                Result of the Check: ok
Additional Information/Recovery Steps:
Node Name: clusB-01
                Type of Check: automatic-uso
                Cluster Name: clusB
                Result of the Check: ok
Additional Information/Recovery Steps:
32 entries were displayed.

```

## Related Links

- [metrocluster check run](#)

## metrocluster check volume show

Show results of the MetroCluster check for volumes

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

### Description

The `metrocluster check volume show` command displays the results of volume checks performed by the [metrocluster check run](#) command.

The command displays the results of the following volume configuration checks:

- **unmirrored-flexgroups:** This check looks for flexgroups residing on unmirrored aggregates.
- **mixed-flexgroups:** This check looks for flexgroups residing on a mix of mirrored and unmirrored aggregates.

Additional information about the warnings, if any, and recovery steps can be viewed by running the command with the `-instance` parameter.

## 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.

**[-vserver <vserver name>] - Vserver Name**

This is the name of the vservers that contains the volume that the check results apply to. If this parameter is specified, only rows matching the specified cluster will be displayed.

**[-volume <volume name>] - Volume Name**

This is the name of the volume that the check results apply to. If this parameter is specified, only rows matching the specified volume will be displayed.

**[-check <MetroCluster Volume Check>] - Type of Check**

This is the type of the check performed. If this parameter is specified, only rows with this check will be displayed.

**[-result {ok|warning|not-run|not-applicable}] - Result of the Check**

This is the result of the check. If this parameter is specified, only rows with this result will be displayed.

**[-additional-info <text>,...] - Additional Information/Recovery Steps**

This is additional information about the check. This field has more information and recovery steps for the warning. If this parameter is specified, only rows with this additional info will be displayed.

## Examples

The following example shows the execution of the command in a MetroCluster configuration:

```
clusA::~* > metrocluster check volume show
```

```
Last Checked On: 7/25/2018 10:04:07
```

Vserver	Volume	Check
Result		
-----		
vs1	unMirr	unmirrored-volumes
warning		
vs2	vs2UnMirrA	unmirrored-volumes
warning		

2 entries were displayed.

```
clusA::~* > metrocluster check volume show -instance
```

```
Vserver Name: vs1
```

```
Volume Name: unMirr
```

```
Type of Check: unmirrored-volumes
```

```
Result of the Check: warning
```

```
Additional Information/Recovery Steps: FlexGroup "unMirr" resides on unmirrored aggregates. Parts of the FlexGroup may not be available after an un-planned switchover.
```

```
Vserver Name: vs2
```

```
Volume Name: vs2UnMirrA
```

```
Type of Check: unmirrored-volumes
```

```
Result of the Check: warning
```

```
Additional Information/Recovery Steps: FlexGroup "vs2UnMirrA" resides on unmirrored aggregates. Parts of the FlexGroup may not be available after an un-planned switchover.
```

```
2 entries were displayed.
```

```
clusA::~ >
```

## Related Links

- [metrocluster check run](#)

## metrocluster config-replication commands

### metrocluster config-replication cluster-storage-configuration modify

Modify MetroCluster storage configuration information

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

## Description

The `metrocluster config-replication cluster-storage-configuration modify` command modifies the configuration of storage used for configuration replication.

## Parameters

### `[-disallowed-aggregates <aggregate name>, ...]` - Disallowed Aggregates

Use this parameter to set the list of storage aggregates that are not available to host storage for configuration replication.

## Examples

The following example disallows two aggregates named `aggr1` and `aggr2`:

```
cluster1::*> metrocluster config-replication cluster-storage-configuration
modify -disallowed-aggregates aggr1,aggr2
```

## metrocluster config-replication cluster-storage-configuration show

Display MetroCluster storage configuration information

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

## Description

The `metrocluster config-replication cluster-storage-configuration show` command shows details of the configuration of the storage used for configuration replication.

The information displayed is the following:

- Disallowed Aggregates - The list of storage aggregates that are configured as not allowed to host storage areas.
- Auto-Repair - Displays `true` if the automatic repair of storage areas used by configuration replication is enabled.
- Auto-Recreate - Displays `true` if the automatic recreation of storage volumes used by configuration replication is enabled.
- Use Mirrored Aggregate - Displays `true` if storage areas for configuration replication are to be hosted on a mirrored aggregate.

## Examples

The following is an example of the `metrocluster config-replication cluster-storage-configuration show` command:



```

cluster1::*> metrocluster config-replication cluster-storage-configuration
show
Disallowed Aggregates: -
    Auto-Repair: true
    Auto-Recreate: true
Use Mirrored Aggregate: true

```

## metrocluster config-replication resync-status show

### Display MetroCluster Configuration Resynchronization Status

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

#### Description

The `metrocluster config-replication resync-status show` command displays the state of the configuration synchronization operation between the two clusters in the MetroCluster configuration.

This command displays the following details about the local cluster and the peer cluster:

- **Source:** This is the source side whose configuration is being replicated to the destination side.
- **Destination:** This is the destination side where the configuration is being replicated to from the source side.
- **State:** This is the state of the synchronization operation.
- **% Complete:** This is completion percentage of the operation.

#### Examples

The following example shows the output of the command when synchronization is in progress:

```

clusterA::> metrocluster config-replication resync-status show
      Source                Destination                State                %
Complete
-----
clusterA                clusterB                complete            -
clusterB                clusterA                complete            -

```

The following example shows the output of the command when synchronization from clusB to clusA is in progress:

```

clusA::> metrocluster config-replication resync-status show
      Source                Destination                State                %
Complete
-----
-----
      clusterA                clusterB                complete                -
      clusterB                clusterA                messaging                95

```

## metrocluster configuration-settings commands

### metrocluster configuration-settings show-status

Display the configuration settings status for a MetroCluster setup

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

#### Description

The `metrocluster configuration-settings show-status` command displays the configuration settings status for nodes in a MetroCluster setup. If a DR group has not been created, then status for nodes in the local cluster only are displayed.

#### Parameters

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

If you specify the `-fields <fieldname>,...` parameter, the command displays only the fields that you specify.

**| [-instance ] }**

If this parameter is specified, the command displays detailed information about all entries.

**[-cluster-uuid <UUID>] - Cluster UUID**

If this parameter is specified, the command displays detailed information about all nodes in the cluster matching the specified `cluster-uuid`.

**[-cluster <Cluster name>] - Cluster Name**

If this parameter is specified, the command displays detailed information about all the nodes in the specified cluster.

**[-node <text>] - Node Name**

If this parameter is specified, the command displays information for the matching nodes.

**[-configuration-status <text>] - Configuration Settings Status**

If this parameter is specified, the command displays detailed information about all nodes with the specified configuration status.

## **[-config-error-info <text>] - Configuration Error Information**

If this parameter is specified, the command displays detailed information about all nodes with the specified configuration error information.

### **Examples**

The following example shows the display of MetroCluster setup status:

```
Nodes do not have a valid platform-specific personality value (equivalent to HAOSC parameter on non-Apollo platforms) for a MetroCluster setup.
```

```
clusA::> metrocluster configuration-settings show-status
```

```
Cluster                Node                Configuration Settings
Status
-----
```

```
clusA                A1                not a MetroCluster setup
                    A2                not a MetroCluster setup
```

```
2 entries were displayed.
```

```
MetroCluster setup uses FC links rather than IP
```

```
xref:{relative_path}clusA::> metrocluster configuration-settings show-status
```

```
Cluster                Node                Configuration Settings
Status
-----
```

```
clusA                A1                not applicable for FC and
SAS
                    A2                not applicable for FC and
SAS
```

```
2 entries were displayed.
```

```
Output of the command when MetroCluster setup uses IP links and before
```

```
`"metrocluster configuration-settings dr-group create"` command is run:
```

```
clusA::> metrocluster configuration-settings show-status
```

```
Cluster                Node                Configuration Settings
Status
-----
```

```
clusA                A1                ready for DR group create
                    A2                ready for DR group create
```

```
2 entries were displayed.
```

```
Output of the command after `"metrocluster configuration-settings dr-group create"` command is run:
```

```
clusA::> metrocluster configuration-settings show-status
```

```
Cluster                Node                Configuration Settings
Status
-----
```

```

-----
clusA
      A1      ready for interface create
      A2      ready for interface create
clusB
      B1      ready for interface create
      B2      ready for interface create

```

4 entries were displayed.

Output of the command after `metrocluster configuration-settings interface create` command is run for every node:

```

clusA::> metrocluster configuration-settings show-status
Cluster      Node      Configuration Settings
Status
-----

```

```

-----
clusA
      A1      ready for next interface
create
      A2      ready for connection connect
clusB
      B1      ready for connection connect
      B2      ready for connection connect

```

4 entries were displayed.

Output of the command after `metrocluster configuration-settings connection connect` command is run:

```

usA::> metrocluster configuration-settings show-status
Cluster      Node      Configuration Settings
Status
-----

```

```

-----
clusA
      A1      completed
      A2      completed
clusB
      B1      completed
      B2      completed

```

4 entries were displayed.

Output of the command after `metrocluster configuration-settings connection connect` command is run and there are connection errors:

```

clusA::> metrocluster configuration-settings show-status
Cluster      Node      Configuration Settings
Status
-----

```

```

-----
clusA
      A1      connection error
      A2      completed

```

```
clusB          B1          connection error
               B2          completed
```

4 entries were displayed.

## metrocluster configuration-settings calibration measure

### Measure latency and bandwidth values

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

### Description

The `metrocluster configuration-settings calibration measure` command measures the bandwidth and latency between local and remote nodes in a MetroCluster over IP configuration.

This command should not be run when the MetroCluster configuration is under a heavy load. Bandwidth measurements will attempt to fully saturate network connections to the remote cluster and may disrupt the quality of service.

### Examples

The following example shows the output for the calibration measure command in MetroCluster over IP configurations:

```
clusA::*> metrocluster configuration-settings calibration measure
Warning: This operation will attempt to fully saturate the network
connection to
    the remote cluster for measuring bandwidth. This may disrupt
        performance and should not be run when MetroCluster is under
heavy
    load. Do you want to continue? {y|n}: y
    Measuring latency and bandwidth between node "A1" (10.140.113.214) and
node "B1" (10.140.113.26) over port "e0f".
    Measuring latency and bandwidth between node "A1" (10.140.113.215) and
node "B1" (10.140.113.27) over port "e0g".
    Measuring latency and bandwidth between node "A2" (10.140.113.216) and
node "B2" (10.140.113.25) over port "e0f".
    Measuring latency and bandwidth between node "A2" (10.140.113.217) and
node "B2" (10.140.113.28) over port "e0g".
    Measurements complete. Use the "metrocluster configuration-settings
calibration show" command to display the results.
```

## metrocluster configuration-settings calibration show

Display the calibration measurements for local nodes in MetroCluster over IP

## configuration

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

### Description

The `metrocluster configuration-settings calibration show` command shows the bandwidth and latency between local and remote nodes in a MetroCluster over IP configuration.

### 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.

**[-calibration-id <integer>] - Calibration ID**

This field specifies Calibration ID.

**[-subnet <IP Address>] - IP Subnet**

This field specifies subnet.

**[-node-uuid <UUID>] - Node UUID**

This field specifies UUID of the node.

**[-home-port {<netport>|<ifgrp>}] - Home Port**

This field specifies name of the port used to measure latency and bandwidth.

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

This field specifies name of the node.

**[-collection-time <MM/DD/YYYY HH:MM:SS>] - Collection Time of Sample**

This field specifies collection time of sample.

**[-source-address <IP Address>] - Source Network Address**

This field specifies IP address of the port on the node.

**[-destination-address <IP Address>] - Destination Network Address**

This field specifies IP address of the port on the partner node.

**[-latency <double>] - Latency in ms**

This field specifies latency in ms.

**[-bandwidth <double>] - Bandwidth in Mb/s**

This field specifies bandwidth in Mb/s.

## Examples

The following example shows the output for the calibration show command in MetroCluster over IP configurations:

```
clusA::*> metrocluster configuration-settings calibration show
          Home Latency Bandwidth
ID Subnet      Node      Port (ms)  (Mb/s)  Collection Time
-----
1  172.21.96.0  A1
          e0f  0.341  764      8/6/2019
16:20:07
          e0g  0.311  629      8/6/2019
16:20:22
          A2
          e0f  0.307  1265     8/6/2019
16:20:36
          e0g  0.307  1063     8/6/2019
16:20:50
4 entries were displayed.
```

## metrocluster configuration-settings connection check

Check the network connections between partner nodes

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

### Description

The `metrocluster configuration-settings connection check` command checks the settings of a MetroCluster over IP configuration.

This command is used for MetroCluster configurations that are connected through IP links.

## Examples

The following example shows the output for the check command in MetroCluster over IP configurations:

```
clusA:*> metrocluster configuration-settings connection check
[Job 68] Job succeeded: Connect is successful.

Begin connection check.
Start checking the partner cluster.
    Check partner cluster: PASS.
Start checking the configuration settings.
    Check configuration settings: PASS.
Start pinging the network endpoints from cluster "clusA".
    Ping network endpoints: PASS.
Start pinging the network endpoints from cluster "clusB".
    Ping network endpoints: PASS.
Start checking the network MTU sizes from cluster "clusA".
    Check network MTU sizes: PASS.
Start checking the network MTU sizes from cluster "clusB".
    Check network MTU sizes: PASS.
Start checking the network subnets from cluster "clusA".
    Check network subnets: PASS.
Start checking the network subnets from cluster "clusB".
    Check network subnets: PASS.
Start checking the storage daemons on cluster "clusA".
    Check storage daemons: PASS.
Start checking the storage daemons on cluster "clusB".
    Check storage daemons: PASS.
End of connection check.
```

## metrocluster configuration-settings connection connect

Configure the network connections between partner nodes

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

### Description

The `metrocluster configuration-settings connection connect` command configures the connections that mirror NV logs and access remote storage between partner nodes in a MetroCluster setup.

This command is used for MetroCluster setups that are connected through IP links. MetroCluster setups that are connected through FC links will configure the FC connections automatically.

The `metrocluster configuration-settings` commands are run in the following order to set up MetroCluster:

- `metrocluster configuration-settings dr-group create` ,
- `metrocluster configuration-settings interface create` ,
- `metrocluster configuration-settings connection connect` .



Before this command is run

- The DR groups must have been configured. Run the `metrocluster configuration-settings dr-group show` command to verify that every node is partnered in a DR group.
- The network logical interfaces must have been configured on every node. Use the `metrocluster configuration-settings interface show` command to verify that every node has network logical interfaces configured to mirror NV logs and access remote storage.

After this command completes successfully, every node will:

- Have NV log mirroring configured and mirroring disabled. NV log mirroring will be enabled by the `metrocluster configure` command.
- Have access to remote storage. Use the `storage disk show -pool Pool1` command to view the remote disks that are hosted on DR partner nodes.

The DR groups and network logical interfaces that were configured by the `metrocluster configuration-settings` commands cannot be deleted after the connections have been configured. The `metrocluster configuration-settings connection disconnect` command must be run to remove the connections before the DR groups and network logical interfaces can be deleted.

## Parameters

## Examples

The following example shows configuration of connections in a MetroCluster over IP setup:

```
clusA::> metrocluster configuration-settings connection connect
[Job 269] Job succeeded: Connect is successful.
clusA::> metrocluster configuration-settings connection show
DR
Group Cluster Node      Source          Destination
State                               Network Address Network Address Partner Type Config
-----
1      clusA A1
      Home Port: e0f
      10.140.113.214  10.140.113.216  HA Partner
completed
      Home Port: e0f
      10.140.113.214  10.140.113.218  DR Partner
completed
      Home Port: e0f
      10.140.113.214  10.140.113.249  DR Auxiliary
completed
      Home Port: e0g
      10.140.113.215  10.140.113.217  HA Partner
```

```

completed
    Home Port: e0g
    10.140.113.215  10.140.113.248  DR Partner
completed
    Home Port: e0g
    10.140.113.215  10.140.113.25   DR Auxiliary
completed
    A2
    Home Port: e0f
    10.140.113.216  10.140.113.214  HA Partner
completed
    Home Port: e0f
    10.140.113.216  10.140.113.249  DR Partner
completed
    Home Port: e0f
    10.140.113.216  10.140.113.218  DR Auxiliary
completed
    Home Port: e0g
    10.140.113.217  10.140.113.215  HA Partner
completed
    Home Port: e0g
    10.140.113.217  10.140.113.25   DR Partner
completed
    Home Port: e0g
    10.140.113.217  10.140.113.248  DR Auxiliary
completed
    clusB B2
    Home Port: e0f
    10.140.113.249  10.140.113.218  HA Partner
completed
    Home Port: e0f
    10.140.113.249  10.140.113.216  DR Partner
completed
    Home Port: e0f
    10.140.113.249  10.140.113.214  DR Auxiliary
completed
    Home Port: e0g
    10.140.113.25   10.140.113.248  HA Partner
completed
    Home Port: e0g
    10.140.113.25   10.140.113.217  DR Partner
completed
    Home Port: e0g
    10.140.113.25   10.140.113.215  DR Auxiliary
completed
    B1

```

```

        Home Port: e0f
        10.140.113.218  10.140.113.249  HA Partner
completed

        Home Port: e0f
        10.140.113.218  10.140.113.214  DR Partner
completed

        Home Port: e0f
        10.140.113.218  10.140.113.216  DR Auxiliary
completed

        Home Port: e0g
        10.140.113.248  10.140.113.25   HA Partner
completed

        Home Port: e0g
        10.140.113.248  10.140.113.215  DR Partner
completed

        Home Port: e0g
        10.140.113.248  10.140.113.217  DR Auxiliary
completed
24 entries were displayed.
clusA::> metrocluster configuration-settings show-status
Cluster          Node          Configuration Settings
Status
-----
clusA
                A1          completed
                A2          completed
clusB
                B1          completed
                B2          completed
4 entries were displayed.

```

## Related Links

- [metrocluster configuration-settings dr-group create](#)
- [metrocluster configuration-settings interface create](#)
- [metrocluster configuration-settings dr-group show](#)
- [metrocluster configuration-settings interface show](#)
- [metrocluster configure](#)
- [storage disk show](#)
- [metrocluster configuration-settings connection disconnect](#)

## metrocluster configuration-settings connection disconnect

Tear down the network connections between partner nodes

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

## Description

The `metrocluster configuration-settings connection disconnect` command removes the connections between nodes in a DR group that are used to mirror NV logs and access remote storage.

This command cannot be run if a node in the DR group has remote disks assigned to the node. The assigned ownership of remote disks can be removed by running the `storage disk removeowner` command.

The `metrocluster configuration-settings` commands are run in the following order to remove MetroCluster over IP configuration:

- `metrocluster configuration-settings connection disconnect`,
- `metrocluster configuration-settings interface delete`,
- `metrocluster configuration-settings dr-group delete`.

## Parameters

**-dr-group-id <integer> - DR Group ID**

This parameter identifies the DR group to be disconnected.

## Examples

The following example illustrates removal of connections in a four-node MetroCluster setup:

```
clusA::> metrocluster configuration-settings connection disconnect -dr
-group-id 1
[Job 270] Job succeeded: Disconnect is successful.

clusA::> metrocluster configuration-settings show-status
Cluster          Node          Configuration Settings
Status
-----
clusA
                A1          ready for connection connect
                A2          ready for connection connect
clusB
                B1          ready for connection connect
                B2          ready for connection connect
4 entries were displayed.
clusA::> metrocluster configuration-settings connection show
DR              Source          Destination
Group Cluster Node   Network Address Network Address Partner Type Config
State
-----
```

```

1      clusA A1
      Home Port: e0f
      10.140.113.214  10.140.113.216  HA Partner
disconnected
      Home Port: e0f
      10.140.113.214  10.140.113.218  DR Partner
disconnected
      Home Port: e0f
      10.140.113.214  10.140.113.249  DR Auxiliary
disconnected
      Home Port: e0g
      10.140.113.215  10.140.113.217  HA Partner
disconnected
      Home Port: e0g
      10.140.113.215  10.140.113.248  DR Partner
disconnected
      Home Port: e0g
      10.140.113.215  10.140.113.25  DR Auxiliary
disconnected
      A2
      Home Port: e0f
      10.140.113.216  10.140.113.214  HA Partner
disconnected
      Home Port: e0f
      10.140.113.216  10.140.113.249  DR Partner
disconnected
      Home Port: e0f
      10.140.113.216  10.140.113.218  DR Auxiliary
disconnected
      Home Port: e0g
      10.140.113.217  10.140.113.215  HA Partner
disconnected
      Home Port: e0g
      10.140.113.217  10.140.113.25  DR Partner
disconnected
      Home Port: e0g
      10.140.113.217  10.140.113.248  DR Auxiliary
disconnected
      clusB B2
      Home Port: e0f
      10.140.113.249  10.140.113.218  HA Partner
disconnected
      Home Port: e0f
      10.140.113.249  10.140.113.216  DR Partner
disconnected
      Home Port: e0f

```

```

10.140.113.249 10.140.113.214 DR Auxiliary
disconnected
Home Port: e0g
10.140.113.25 10.140.113.248 HA Partner
disconnected
Home Port: e0g
10.140.113.25 10.140.113.217 DR Partner
disconnected
Home Port: e0g
10.140.113.25 10.140.113.215 DR Auxiliary
disconnected
B1
Home Port: e0f
10.140.113.218 10.140.113.249 HA Partner
disconnected
Home Port: e0f
10.140.113.218 10.140.113.214 DR Partner
disconnected
Home Port: e0f
10.140.113.218 10.140.113.216 DR Auxiliary
disconnected
Home Port: e0g
10.140.113.248 10.140.113.25 HA Partner
disconnected
Home Port: e0g
10.140.113.248 10.140.113.215 DR Partner
disconnected
Home Port: e0g
10.140.113.248 10.140.113.217 DR Auxiliary
disconnected
24 entries were displayed.

```

## Related Links

- [storage disk removeowner](#)
- [metrocluster configuration-settings interface delete](#)
- [metrocluster configuration-settings dr-group delete](#)

## metrocluster configuration-settings connection show

Display the connections between partner nodes in a MetroCluster setup

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

## Description

The `metrocluster configuration-settings connection show` command displays the connection configuration information between the nodes in a MetroCluster setup.

## Parameters

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

If you specify the `-fields <fieldname>,...` parameter, the command displays only the fields that you specify.

**| [-instance ] }**

If this parameter is specified, the command displays detailed information about all entries.

**[-dr-group-id <integer>] - DR Group ID**

If this parameter is specified, the command displays information for the matching DR group.

**[-cluster-uuid <UUID>] - Cluster UUID**

If this parameter is specified, the command displays information for the matching cluster specified by uuid.

**[-cluster <Cluster name>] - Cluster Name**

If this parameter is specified, the command displays information for the matching cluster.

**[-node-uuid <UUID>] - Node UUID**

If this parameter is specified, the command displays information for the matching node specified by uuid.

**[-node <text>] - Node Name**

If this parameter is specified, the command displays information for the matching nodes.

**[-home-port {<netport>|<ifgrp>}] - Home Port**

If this parameter is specified, the command displays information for the matching home-port.

**[-relationship-type <Roles of MetroCluster Nodes>] - Relationship Role Type**

If this parameter is specified, the command displays information for the matching relationship-type.

**[-source-address <IP Address>] - Source Network Address**

If this parameter is specified, the command displays information for the matching source address.

**[-destination-address <IP Address>] - Destination Network Address**

If this parameter is specified, the command displays information for the matching destination address.

**[-partner-cluster-uuid <UUID>] - Partner Cluster UUID**

If this parameter is specified, the command displays information for the matching partner-cluster-uuid.

**[-partner-node-uuid <UUID>] - Partner Node UUID**

If this parameter is specified, the command displays information for the matching partner-node-uuid.

**[-partner-node <text>] - Partner Node Name**

If this parameter is specified, the command displays information for the matching partner-node.

### **[-partner-type <text>] - Partner Relationship Type**

If this parameter is specified, the command displays information for the matching partner-type.

### **[-config-state <text>] - Configuration State**

If this parameter is specified, the command displays information for the matching config-state.

### **[-config-error-info <text>] - Configuration Error Information**

If this parameter is specified, the command displays information for the matching config-error-info.

## **Examples**

The following example shows the output of `metrocluster configuration-settings connection connect` command:

```
Output of the command before the connections are established using the
xref:{relative_path}metrocluster-configuration-settings-connection-
connect.html[metrocluster configuration-settings connection connect]
command:
clusA::> metrocluster configuration-settings connection show
DR
Group Cluster Node      Source          Destination
State           Network Address Network Address Partner Type Config
-----
-----
1      clusA A1
      Home Port: e0f
      10.140.113.214  10.140.113.216  HA Partner
disconnected
      Home Port: e0f
      10.140.113.214  10.140.113.218  DR Partner
disconnected
      Home Port: e0f
      10.140.113.214  10.140.113.249  DR Auxiliary
disconnected
      Home Port: e0g
      10.140.113.215  10.140.113.217  HA Partner
disconnected
      Home Port: e0g
      10.140.113.215  10.140.113.248  DR Partner
disconnected
      Home Port: e0g
      10.140.113.215  10.140.113.25   DR Auxiliary
disconnected
      A2
      Home Port: e0f
      10.140.113.216  10.140.113.214  HA Partner
disconnected
      Home Port: e0f
```



```

10.140.113.216 10.140.113.249 DR Partner
disconnected
Home Port: e0f
10.140.113.216 10.140.113.218 DR Auxiliary
disconnected
Home Port: e0g
10.140.113.217 10.140.113.215 HA Partner
disconnected
Home Port: e0g
10.140.113.217 10.140.113.25 DR Partner
disconnected
Home Port: e0g
10.140.113.217 10.140.113.248 DR Auxiliary
disconnected
clusB B2
Home Port: e0f
10.140.113.249 10.140.113.218 HA Partner
disconnected
Home Port: e0f
10.140.113.249 10.140.113.216 DR Partner
disconnected
Home Port: e0f
10.140.113.249 10.140.113.214 DR Auxiliary
disconnected
Home Port: e0g
10.140.113.25 10.140.113.248 HA Partner
disconnected
Home Port: e0g
10.140.113.25 10.140.113.217 DR Partner
disconnected
Home Port: e0g
10.140.113.25 10.140.113.215 DR Auxiliary
disconnected
B1
Home Port: e0f
10.140.113.218 10.140.113.249 HA Partner
disconnected
Home Port: e0f
10.140.113.218 10.140.113.214 DR Partner
disconnected
Home Port: e0f
10.140.113.218 10.140.113.216 DR Auxiliary
disconnected
Home Port: e0g
10.140.113.248 10.140.113.25 HA Partner
disconnected

```

```

Home Port: e0g
10.140.113.248 10.140.113.215 DR Partner
disconnected
Home Port: e0g
10.140.113.248 10.140.113.217 DR Auxiliary
disconnected
24 entries were displayed.
Output of the command after the connections are established using the
xref:{relative_path}metrocluster-configuration-settings-connection-
connect.html[metrocluster configuration-settings connection connect]
command:
clusA::> metrocluster configuration-settings connection show
DR                               Source           Destination
Group Cluster Node   Network Address Network Address Partner Type Config
State
-----
1      clusA A1
Home Port: e0f
10.140.113.214 10.140.113.216 HA Partner
completed
Home Port: e0f
10.140.113.214 10.140.113.218 DR Partner
completed
Home Port: e0f
10.140.113.214 10.140.113.249 DR Auxiliary
completed
Home Port: e0g
10.140.113.215 10.140.113.217 HA Partner
completed
Home Port: e0g
10.140.113.215 10.140.113.248 DR Partner
completed
Home Port: e0g
10.140.113.215 10.140.113.25  DR Auxiliary
completed
A2
Home Port: e0f
10.140.113.216 10.140.113.214 HA Partner
completed
Home Port: e0f
10.140.113.216 10.140.113.249 DR Partner
completed
Home Port: e0f
10.140.113.216 10.140.113.218 DR Auxiliary
completed

```

```

Home Port: e0g
10.140.113.217 10.140.113.215 HA Partner
completed

Home Port: e0g
10.140.113.217 10.140.113.25 DR Partner
completed

Home Port: e0g
10.140.113.217 10.140.113.248 DR Auxiliary
completed
clusB B2

Home Port: e0f
10.140.113.249 10.140.113.218 HA Partner
completed

Home Port: e0f
10.140.113.249 10.140.113.216 DR Partner
completed

Home Port: e0f
10.140.113.249 10.140.113.214 DR Auxiliary
completed

Home Port: e0g
10.140.113.25 10.140.113.248 HA Partner
completed

Home Port: e0g
10.140.113.25 10.140.113.217 DR Partner
completed

Home Port: e0g
10.140.113.25 10.140.113.215 DR Auxiliary
completed
B1

Home Port: e0f
10.140.113.218 10.140.113.249 HA Partner
completed

Home Port: e0f
10.140.113.218 10.140.113.214 DR Partner
completed

Home Port: e0f
10.140.113.218 10.140.113.216 DR Auxiliary
completed

Home Port: e0g
10.140.113.248 10.140.113.25 HA Partner
completed

Home Port: e0g
10.140.113.248 10.140.113.215 DR Partner
completed

Home Port: e0g
10.140.113.248 10.140.113.217 DR Auxiliary

```

```
completed
24 entries were displayed.
```

## Related Links

- [metrocluster configuration-settings connection connect](#)

## metrocluster configuration-settings dr-group create

Create a DR group in a MetroCluster over IP setup

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

### Description

The `metrocluster configuration-settings dr-group create` command partners the nodes that will comprise a DR group in a MetroCluster setup.

This command is used for MetroCluster setups that are connected through IP links. MetroCluster setups that are connected through FC links will configure DR groups automatically and do not require the `metrocluster configuration-settings` commands.

The `metrocluster configuration-settings` commands are run in the following order to set up MetroCluster:

- `metrocluster configuration-settings dr-group create` ,
- [metrocluster configuration-settings interface create](#) ,
- [metrocluster configuration-settings connection connect](#) .

Before running this command, cluster peering must be configured between the local and partner clusters. Run the `cluster peer show` command to verify that peering is available between the local and partner clusters.

This command configures a local node and a remote node as DR partner nodes. The command also configures the HA partner of the local node and the HA partner of the remote node as the other DR partner nodes in the DR group.

### Parameters

**-partner-cluster <Cluster name> - Partner Cluster Name**

Use this parameter to specify the name of the partner cluster.

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

Use this parameter to specify the name of a node in the local cluster.

**-remote-node <text> - Remote Node Name**

Use this parameter to specify the name of a node in the partner cluster that is to be the DR partner of the specified local node.

## Examples

The following example shows the creation of the MetroCluster DR group:

```
clusA::> metrocluster configuration-settings dr-group create -partner
-cluster clusB -local-node A1 -remote-node B1
[Job 268] Job succeeded: DR Group Create is successful.

clusA::> metrocluster configuration-settings dr-group show
DR Group ID Cluster Node DR Partner Node
-----
-----
1 clusA
A1 B1
A2 B2
clusB
B2 A2
B1 A1

4 entries were displayed.
clusA::> metrocluster configuration-settings show-status
Cluster Node Configuration Settings
Status
-----
-----
clusA
A1 ready for interface create
A2 ready for interface create
clusB
B1 ready for interface create
B2 ready for interface create

4 entries were displayed.
```

## Related Links

- [metrocluster configuration-settings interface create](#)
- [metrocluster configuration-settings connection connect](#)
- [cluster peer show](#)

## metrocluster configuration-settings dr-group delete

Delete a DR group in a MetroCluster over IP setup

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

## Description

The `metrocluster configuration-settings dr-group delete` command deletes a DR group and its node partnerships that were configured using the [metrocluster configuration-settings dr-group create](#) command.

This command cannot be run if the [metrocluster configuration-settings interface create](#) command has configured a network logical interface on a network port provisioned for MetroCluster. The [metrocluster configuration-settings interface delete](#) command must then be run to delete the network logical interfaces on every node in the DR group.

The `metrocluster configuration-settings` commands are run in the following order to remove the MetroCluster over IP configuration:

- [metrocluster configuration-settings connection disconnect](#) ,
- [metrocluster configuration-settings interface delete](#) ,
- `metrocluster configuration-settings dr-group delete` .

## Parameters

**-dr-group-id <integer> - Dr group Id**

This parameter identifies the DR group to be deleted.

## Examples

The following example shows the deletion of the MetroCluster DR group:

```

clusA::> metrocluster configuration-settings dr-group delete -dr-group-id
1

Warning: This command deletes the existing DR group relationship. Are you
sure
        you want to proceed ? {y|n}: y
[Job 279] Job succeeded: DR Group Delete is successful.

clusA::> metrocluster configuration-settings dr-group show
No DR groups exist.

clusA::> metrocluster configuration-settings show-status
Cluster          Node          Configuration Settings
Status
-----
clusA
                A1          ready for DR group create
                A2          ready for DR group create
clusB
                B1          ready for DR group create
                B2          ready for DR group create

4 entries were displayed.

```

## Related Links

- [metrocluster configuration-settings dr-group create](#)
- [metrocluster configuration-settings interface create](#)
- [metrocluster configuration-settings interface delete](#)
- [metrocluster configuration-settings connection disconnect](#)

## metrocluster configuration-settings dr-group show

Display the DR groups in a MetroCluster over IP setup

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

### Description

The `metrocluster configuration-settings dr-group show` command displays the DR groups and their nodes in the MetroCluster over IP setup.

### Parameters

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

If you specify the `-fields <fieldname>,...` parameter, the command displays only the fields that you

specify.

**[*-instance* ] }**

If this parameter is specified, the command displays detailed information about all entries.

**[*-dr-group-id* <integer>] - DR Group ID**

If this parameter is specified, the command displays information for the matching DR group.

**[*-cluster-uuid* <UUID>] - Cluster UUID**

If this parameter is specified, the command displays information for the matching cluster uuid.

**[*-cluster* <Cluster name>] - Cluster Name**

If this parameter is specified, the command displays information for the specified cluster.

**[*-node-uuid* <UUID>] - Node UUID**

If this parameter is specified, the command displays information for the matching nodes uuid.

**[*-node* <text>] - Node Name**

If this parameter is specified, the command displays information for the matching nodes.

**[*-dr-partner-node-uuid* <UUID>] - DR Partner Node UUID**

If this parameter is specified, the command displays information for the matching DR partner node uuid.

**[*-dr-partner-node* <text>] - DR Partner Node Name**

If this parameter is specified, the command displays information for the matching DR partner nodes.

## Examples

The following example illustrates the display of DR group configuration in a four-node MetroCluster setup:

```
clusA::> metrocluster configuration-settings dr-group show
DR Group ID Cluster                               Node                DR Partner Node
-----
1          clusA
           A1                B1
           A2                B2
           clusB
           B2                A2
           B1                A1
4 entries were displayed.
```

## metrocluster configuration-settings interface create

Create a MetroCluster interface

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



## Description

The `metrocluster configuration-settings interface create` command configures the network logical interfaces that will be used on a node in a MetroCluster setup to mirror NV logs and access remote storage.

This command is used for MetroCluster setups that are connected through IP links. MetroCluster setups that are connected through FC links do not require the user to provision network logical interfaces to mirror NV logs and access remote storage.

The `metrocluster configuration-settings` commands are run in the following order to set up MetroCluster:

- `metrocluster configuration-settings dr-group create` ,
- `metrocluster configuration-settings interface create` ,
- `metrocluster configuration-settings connection connect` .

Before running this command , the node's DR group must be configured using the `metrocluster configuration-settings dr-group create` command. Run the `metrocluster configuration-settings dr-group show` command to verify that the node's DR group has been configured.

## Parameters

### **-cluster-name <Cluster name> - Cluster Name**

Use this parameter to specify the name of the local or partner cluster.

### **-home-node <text> - Home Node**

Use this parameter to specify the home node in the cluster which hosts the interface.

### **-home-port {<netport>|<ifgrp>} - Home Port**

Use this parameter to specify the home port provisioned for MetroCluster.

### **-address <IP Address> - Network Address**

Use this parameter to specify the network address to be assigned to the home port.

### **-netmask <Contiguous IP Mask> - Netmask**

Use this parameter to specify the network mask to be assigned to the interface.

### **[-gateway <IP Address>] - Gateway**

Use this parameter to specify the gateway to be assigned for the routed network.

### **[-vlan-id <integer>] - Virtual LAN ID**

Use this parameter to specify the VLAN id.

## Examples

This example shows configuring logical interface on MetroCluster IP capable port:

```
clusA::> metrocluster configuration-settings interface create -cluster
-name clusA -home-node A1 -home-port e0f -address 10.140.113.214 -netmask
```

255.255.192.0

[Job 281] Job succeeded: Interface Create is successful.

clusA::> metrocluster configuration-settings interface show

DR

Config

Group	Cluster	Node	Network Address	Netmask	Gateway
-------	---------	------	-----------------	---------	---------

State

1	clusA	A1	Home Port: e0f	10.140.113.214	255.255.192.0	-
---	-------	----	----------------	----------------	---------------	---

completed

Output after configuring all the interfaces:

clusA::> metrocluster configuration-settings interface show

DR

Config

Group	Cluster	Node	Network Address	Netmask	Gateway
-------	---------	------	-----------------	---------	---------

State

1	clusA	A1	Home Port: e0f	10.140.113.214	255.255.192.0	-
---	-------	----	----------------	----------------	---------------	---

completed

			Home Port: e0g	10.140.113.215	255.255.192.0	-
--	--	--	----------------	----------------	---------------	---

completed

		A2	Home Port: e0f	10.140.113.216	255.255.192.0	-
--	--	----	----------------	----------------	---------------	---

completed

			Home Port: e0g	10.140.113.217	255.255.192.0	-
--	--	--	----------------	----------------	---------------	---

completed

clusB B2

			Home Port: e0f	10.140.113.249	255.255.192.0	-
--	--	--	----------------	----------------	---------------	---

completed

			Home Port: e0g	10.140.113.25	255.255.192.0	-
--	--	--	----------------	---------------	---------------	---

completed

B1

			Home Port: e0f	10.140.113.218	255.255.192.0	-
--	--	--	----------------	----------------	---------------	---

completed

Home Port: e0g  
10.140.113.248 255.255.192.0 -

completed

8 entries were displayed.

clusA::> metrocluster configuration-settings show-status

Cluster	Node	Configuration	Settings
-----			
clusA			
	A1	ready for connection	connect
	A2	ready for connection	connect
clusB			
	B1	ready for connection	connect
	B2	ready for connection	connect

4 entries were displayed.

clusA::> metrocluster configuration-settings connection show

DR	Source	Destination	
Group	Cluster	Node	Network Address Network Address Partner Type Config
State			
-----			
1	clusA	A1	
		Home Port: e0f	
		10.140.113.214	10.140.113.216 HA Partner
disconnected		Home Port: e0f	
		10.140.113.214	10.140.113.218 DR Partner
disconnected		Home Port: e0f	
		10.140.113.214	10.140.113.249 DR Auxiliary
disconnected		Home Port: e0g	
		10.140.113.215	10.140.113.217 HA Partner
disconnected		Home Port: e0g	
		10.140.113.215	10.140.113.248 DR Partner
disconnected		Home Port: e0g	
		10.140.113.215	10.140.113.25 DR Auxiliary
disconnected		A2	
		Home Port: e0f	

```

10.140.113.216 10.140.113.214 HA Partner
disconnected
Home Port: e0f
10.140.113.216 10.140.113.249 DR Partner
disconnected
Home Port: e0f
10.140.113.216 10.140.113.218 DR Auxiliary
disconnected
Home Port: e0g
10.140.113.217 10.140.113.215 HA Partner
disconnected
Home Port: e0g
10.140.113.217 10.140.113.25 DR Partner
disconnected
Home Port: e0g
10.140.113.217 10.140.113.248 DR Auxiliary
disconnected
clusB B2
Home Port: e0f
10.140.113.249 10.140.113.218 HA Partner
disconnected
Home Port: e0f
10.140.113.249 10.140.113.216 DR Partner
disconnected
Home Port: e0f
10.140.113.249 10.140.113.214 DR Auxiliary
disconnected
Home Port: e0g
10.140.113.25 10.140.113.248 HA Partner
disconnected
Home Port: e0g
10.140.113.25 10.140.113.217 DR Partner
disconnected
Home Port: e0g
10.140.113.25 10.140.113.215 DR Auxiliary
disconnected
B1
Home Port: e0f
10.140.113.218 10.140.113.249 HA Partner
disconnected
Home Port: e0f
10.140.113.218 10.140.113.214 DR Partner
disconnected
Home Port: e0f
10.140.113.218 10.140.113.216 DR Auxiliary
disconnected

```

```

Home Port: e0g
10.140.113.248 10.140.113.25 HA Partner
disconnected
Home Port: e0g
10.140.113.248 10.140.113.215 DR Partner
disconnected
Home Port: e0g
10.140.113.248 10.140.113.217 DR Auxiliary
disconnected
24 entries were displayed.

```

## Related Links

- [metrocluster configuration-settings dr-group create](#)
- [metrocluster configuration-settings connection connect](#)
- [metrocluster configuration-settings dr-group show](#)

## metrocluster configuration-settings interface delete

Delete a MetroCluster interface

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

### Description

The `metrocluster configuration-settings interface delete` command deletes the network logical interface that was configured on a network port provisioned for MetroCluster.

This command cannot be run if the [metrocluster configuration-settings connection connect](#) command has set up the connections between the nodes in a DR group. The [metrocluster configuration-settings connection disconnect](#) command must then be run to remove the connections.

The `metrocluster configuration-settings` commands are run in the following order to remove the MetroCluster over IP configuration:

- [metrocluster configuration-settings connection disconnect](#) ,
- `metrocluster configuration-settings interface delete` ,
- [metrocluster configuration-settings dr-group delete](#) .

### Parameters

**-cluster-name <Cluster name> - Cluster Name**

Use this parameter to specify the name of the local or partner cluster.

**-home-node <text> - Home Node**

Use this parameter to specify the home node in the cluster which hosts the interface.

## **-home-port {<netport>|<ifgrp>} - Home Port**

Use this parameter to specify the home port provisioned for MetroCluster.

## **Examples**

The following example shows the deletion of interface in a MetroCluster setup:

```
clusA::> metrocluster configuration-settings interface delete -cluster
-name clusA -home-node A1 -home-port e0f
[Job 271] Job succeeded: Interface Delete is successful.

clusA::> metrocluster configuration-settings interface show
DR
Config
Group Cluster Node      Network Address Netmask      Gateway
State
-----
1      clusA A1
      Home Port: e0g
      10.140.113.215 255.255.192.0 -
completed
      A2
      Home Port: e0f
      10.140.113.216 255.255.192.0 -
completed
      Home Port: e0g
      10.140.113.217 255.255.192.0 -
completed
      clusB B2
      Home Port: e0f
      10.140.113.249 255.255.192.0 -
completed
      Home Port: e0g
      10.140.113.25  255.255.192.0 -
completed
      B1
      Home Port: e0f
      10.140.113.218 255.255.192.0 -
completed
      Home Port: e0g
      10.140.113.248 255.255.192.0 -
completed
7 entries were displayed.

clusA::> metrocluster configuration-settings show-status
```

```

Cluster          Node          Configuration Settings
Status
-----
clusA
                A1          ready for next interface
create
                A2          ready for connection connect
clusB
                B1          ready for connection connect
                B2          ready for connection connect
4 entries were displayed.
Output of the command after deleting all the interfaces:
clusA::> metrocluster configuration-settings interface show
No interfaces exist.

clusA::> metrocluster configuration-settings show-status
Cluster          Node          Configuration Settings
Status
-----
clusA
                A1          ready for interface create
                A2          ready for interface create
clusB
                B1          ready for interface create
                B2          ready for interface create
4 entries were displayed.

```

## Related Links

- [metrocluster configuration-settings connection connect](#)
- [metrocluster configuration-settings connection disconnect](#)
- [metrocluster configuration-settings dr-group delete](#)

## metrocluster configuration-settings interface show

Display the network logical interfaces provisioned for MetroCluster

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

## Description

The `metrocluster configuration-settings interface show` command displays the network logical interfaces that were provisioned for MetroCluster.

## Parameters

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

If you specify the `-fields <fieldname>,...` parameter, the command displays only the fields that you specify.

**| [-instance ] }**

If this parameter is specified, the command displays detailed information about all entries.

**[-dr-group-id <integer>] - DR Group ID**

If this parameter is specified, the command displays information for the matching DR group.

**[-cluster-uuid <UUID>] - Cluster UUID**

If this parameter is specified, the command displays information for the matching cluster specified by uuid.

**[-cluster <Cluster name>] - Cluster Name**

If this parameter is specified, the command displays information for the matching cluster..

**[-node-uuid <UUID>] - Node UUID**

If this parameter is specified, the command displays information for the matching nodes uuid.

**[-node <text>] - Node Name**

If this parameter is specified, the command displays information for the matching nodes.

**[-home-port {<netport>|<ifgrp>}] - Home Port**

If this parameter is specified, all interfaces with home-port set to this value are displayed.

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

If this parameter is specified, the command displays information for the matching network address.

**[-netmask <Contiguous IP Mask>] - Netmask**

If this parameter is specified, all interfaces with netmask set to this value are displayed.

**[-gateway <IP Address>] - Gateway**

If this parameter is specified, all interfaces with gateway set to this value are displayed.

**[-config-state <text>] - Configuration State**

If this parameter is specified, all interfaces with this field set to the specified value are displayed.

**[-config-error-info <text>] - Configuration Error Information**

If this parameter is specified, all interfaces with this field set to the specified value are displayed.

**[-vlan-id <integer>] - Virtual LAN ID**

If this parameter is specified, all interfaces with vlan-id set to this value are displayed.

## Examples

The following example illustrates display of logical interfaces configured in a four-node MetroCluster setup:



```

clusA::> metrocluster configuration-settings interface show
DR
Config
Group Cluster Node      Network Address Netmask      Gateway
State
-----
1      clusA A1
      Home Port: e0f
      10.140.113.214 255.255.192.0 -
completed
      Home Port: e0g
      10.140.113.215 255.255.192.0 -
completed
      A2
      Home Port: e0f
      10.140.113.216 255.255.192.0 -
completed
      Home Port: e0g
      10.140.113.217 255.255.192.0 -
completed
      clusB B2
      Home Port: e0f
      10.140.113.249 255.255.192.0 -
completed
      Home Port: e0g
      10.140.113.25  255.255.192.0 -
completed
      B1
      Home Port: e0f
      10.140.113.218 255.255.192.0 -
completed
      Home Port: e0g
      10.140.113.248 255.255.192.0 -
completed
8 entries were displayed.

```

## metrocluster configuration-settings mediator add

Configure the network connections between the Mediator and MetroCluster nodes

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

## Description

The `metrocluster configuration-settings mediator add` command configures the connection between the mediator and all the nodes in a MetroCluster configuration.

Before this command is run MetroCluster should be configured on all the clusters.

Mediator username and password are required to successfully add the mediator.

After this command completes successfully, every node will:

- Have a connection with the mediator.
- The mediator disks will be assigned to the nodes in the MetroCluster configuration.
- AUSO will be enabled.

## Parameters

### **-mediator-address <IP Address> - Mediator IP Address**

Specifies the IP address of the mediator to which the nodes in the MetroCluster configuration will be connected.

## Examples

The following example connects the nodes to the mediator in a MetroCluster configuration over IP setup:

```
clusA::> metrocluster configuration-settings mediator add -mediator
-address 10.234.133.115
    Adding mediator and enabling Automatic Unplanned Switchover. It
might take a few minutes to complete.
    Please enter the username for the mediator: mediatoradmin
    Please enter the password for the mediator:
    Confirm the mediator password:
    Creating mediator mailboxes...
    Setting up connections to mediator from all nodes in the
clusters...
    Setting mediator mailbox from all nodes in the cluster...
    Enabling Automatic Unplanned Switchover for all nodes in the
cluster...
    Successfully added mediator.
```

## **metrocluster configuration-settings mediator remove**

Tear down connections between the Mediator and MetroCluster nodes

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

## Description

The `metrocluster configuration-settings mediator remove` command removes the connection between the mediator and all the nodes in a MetroCluster configuration.

Mediator username and password are required to successfully remove the mediator.

## Parameters

**[-dr-group-id <integer>] - DR Group Id**

Specifies the Disaster Recovery Group Identifier for which the mediator connections need to be removed.

## Examples

The following example removes the connections between the nodes and the mediator in a MetroCluster configuration over IP setup:

```
clusA::> metrocluster configuration-settings mediator remove
  Removing the mediator and disabling Automatic Unplanned Switchover.
It may take a few minutes to complete.
  Please enter the username for the mediator: mediatoradmin
  Please enter the password for the mediator:
  Confirm the mediator password:
  Disabling Automatic Unplanned Switchover for all nodes in the
cluster...
  Removing mediator mailboxes...
  Performing final cleanup...
  Successfully removed the mediator.
```

## metrocluster configuration-settings mediator show

Display the nodes connected to the mediator

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

## Description

The `metrocluster configuration-settings mediator show` command displays the connection status of the nodes with the Mediator in a MetroCluster configuration.

## 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.

**[*-mediator-address* <IP Address>] - Mediator IP Address**

Specifies the IP address of the mediator to which the nodes in the MetroCluster configuration are connected.

**[*-port* <integer>] - Mediator port number**

Specifies the port of the mediator to which the nodes in the MetroCluster configuration are connected.

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

Specifies the nodes in the MetroCluster configuration which are connected to the mediator.

**[*-reachable* {true|false}] - Connection Status of the Mediator**

Specifies the connection status of the nodes with the mediator in the MetroCluster configuration.

**[*-configured* {true|false}] - Mediator Configuration Status**

Specifies the configuration status of the nodes with the mediator in the MetroCluster configuration.

## Examples

The following example shows the mediator connection status in a MetroCluster configuration over IP setup:

```
cluster1_node_01::*> metrocluster configuration-settings mediator show
      Mediator IP      Port      Node      Configuration
Connection
      Status
-----
10.234.217.168
          31784      cluster1_node_01      true      true
          cluster1_node_02      true      true
          cluster2_node_01      true      true
          cluster2_node_02      true      true
```

## 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**

This parameter specifies the node name.

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

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 ]**

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 Number	Adapter	Type	Link Status	Is OOD Enabled?	IP Address	Port
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 Number	Adapter	Type	Link Status	Is OOD Enabled?	IP Address	Port
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

```

Node	Partner	Name	Partner Type	Mirror		Adapter	Type	Status
				Admin Status	Oper 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
```

Node	Partner	Name	Partner Type	Mirror		Adapter	Type	Status
				Admin Status	Oper 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
```

# metrocluster node commands

## metrocluster node show

Display MetroCluster node configuration information

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

### Description

The `metrocluster node show` command displays configuration information for the nodes in the MetroCluster configuration.

### 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.

**| [-partners ]**

If this option is used the MetroCluster node partnership view will be displayed.

**| [-instance ] }**

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

**[-dr-group-id <integer>] - DR Group ID**

If this parameter is specified, all nodes belonging to the specified DR group are displayed.

**[-cluster <Cluster name>] - Cluster Name**

If this parameter is specified, all nodes belonging to the specified cluster are displayed.

**[-node <Node name>] - Node Name**

If this parameter is specified, the specified node is displayed.

**[-ha-partner <Node name>] - HA Partner Name**

If this parameter is specified, the node with the specified HA partner is displayed.

**[-dr-cluster <Cluster name>] - DR Cluster Name**

If this parameter is specified, all nodes belonging to the specified cluster are displayed.

**[-dr-partner <Node name>] - DR Partner Name**

If this parameter is specified, the node with the specified DR partner is displayed.

**[-dr-auxiliary <Node name>] - DR Auxiliary Name**

If this parameter is specified, the node with the specified DR auxiliary partner is displayed.

**[-node-uuid <UUID>] - Node UUID**

If this parameter is specified, the node with the specified Uuid is displayed.

**[-ha-partner-uuid <UUID>] - HA Partner UUID**

If this parameter is specified, the nodes with the specified HA partner is displayed.

**[-dr-partner-uuid <UUID>] - DR Partner UUID**

If this parameter is specified, the node with the specified DR partner is displayed.

**[-dr-auxiliary-uuid <UUID>] - DR Auxiliary UUID**

If this parameter is specified, the node with the specified DR auxiliary partner is displayed.

**[-node-cluster-uuid <UUID>] - Node Cluster UUID**

If this parameter is specified, all nodes belonging to the specified cluster are displayed.

**[-ha-partner-cluster-uuid <UUID>] - HA Partner Cluster UUID**

If this parameter is specified, all nodes whose HA partner belong to the specified cluster are displayed.

**[-dr-partner-cluster-uuid <UUID>] - DR Partner Cluster UUID**

If this parameter is specified, all nodes whose DR partner belong to the specified cluster are displayed.

**[-dr-auxiliary-cluster-uuid <UUID>] - DR Auxiliary Cluster UUID**

If this parameter is specified, all nodes whose DR auxiliary partner belong to the specified cluster are displayed.

**[-node-systemid <integer>] - Node System ID**

If this parameter is specified, all nodes with the specified system ID are displayed.

**[-ha-partner-systemid <integer>] - HA Partner System ID**

If this parameter is specified, all nodes with an HA partner with the specified system ID are displayed.

**[-dr-partner-systemid <integer>] - DR Partner System ID**

If this parameter is specified, all nodes with a DR partner with the specified system ID are displayed.

**[-dr-auxiliary-systemid <integer>] - DR Auxiliary System ID**

If this parameter is specified, all nodes with a DR auxiliary partner with the specified system ID are displayed.

**[-dr-mirroring-state <text>] - State of DR Mirroring Config**

If this parameter is specified, all nodes with this field set to the specified value are displayed. This field specifies if the NVRAM mirroring to the DR partner is enabled through the [metrocluster configure](#) command. This field needs to be set to "enabled" for the DR mirroring to be active.

**[-configuration-state <text>] - Configuration State of Node**

If this parameter is specified, all nodes with this field set to the specified value are displayed.

**[-additional-configuration-info <text>] - Additional Configuration Info**

If this parameter is specified, all nodes with this field set to the specified value are displayed.

**[-dr-operation-state <text>] - DR Operation State**

If this parameter is specified, all nodes with this field set to the specified value are displayed.

**[-dr-operation-time <integer>] - Time to Complete Operation (secs)**

If this parameter is specified, all nodes with this field set to the specified value are displayed.

**[-node-object-limit {on|off}] - Specifies if the Node Object Limits are Enforced**

If this parameter is specified, all nodes with this field set to the specified value are displayed.

**[-node-ha-partner <text>] - Node and its HA Partner**

If this parameter is specified, all nodes with this field set to the specified value are displayed.

**[-automatic-uso {true|false}] - Automatic USO**

If this parameter is specified, all nodes with this field set to the specified value are displayed.

**[-mccip-node {true|false}] - MCC-IP Node**

If this parameter is specified, all nodes with this field set to the specified value are displayed.

## Examples

The following example shows the output of the command before the MetroCluster configuration is done:



```

clusA::> metrocluster node show
DR
Group Cluster Node Configuration State DR
Mirroring Mode
-----
-----
-      clusA  clusA-01  ready to configure  -      -
                    clusA-02  ready to configure  -      -
                    clusA-03  ready to configure  -      -
                    clusA-04  ready to configure  -      -

4 entries were displayed.
clusA::> metrocluster node show -partners
Node (HA Partner) DR Partner (DR Auxiliary)
-----
-----
Cluster:                clusA -
clusA-01 (-) - (-)
clusA-02 (-) - (-)
clusA-03 (-) - (-)
clusA-04 (-) - (-)

4 entries were displayed.

```

The following example shows the output of the command when some DR groups in the MetroCluster configuration are not yet configured:

```

clusA::> metrocluster node show
DR
Group Cluster Node Configuration State DR Mirroring Mode
-----
-----
-----
-      clusA  clusA-03  ready to configure  -      -
              clusA-04  ready to configure  -      -
1      clusA  clusA-01  configured          enabled  normal
              clusA-02  configured          enabled  normal
              clusB  clusB-01  configured          enabled  normal
              clusB  clusB-02  configured          enabled  normal
6 entries were displayed.
clusA::> metrocluster node show -partners
Node (HA Partner) DR Partner (DR Auxiliary)
-----
-----
Cluster:                clusA -
                        clusA-03 (-) - (-)
                        clusA-04 (-) - (-)
Cluster:                clusA clusB
                        clusA-01 (clusA-02) clusB-01 (clusB-02)
                        clusA-02 (clusA-01) clusB-02 (clusB-01)
Cluster:                clusB clusA
                        clusB-01 (clusB-02) clusA-01 (clusA-02)
                        clusB-02 (clusB-01) clusA-02 (clusA-01)
6 entries were displayed.

```

The following example shows the output of the command after after all DR groups in the MetroCluster configuration are configured:

```

clusA::> metrocluster node show
DR
Group Cluster Node Configuration State DR Mirroring Mode
-----
-----
-----
1 clusA clusA-01 configured enabled normal
  clusA clusA-02 configured enabled normal
  clusB clusB-01 configured enabled normal
  clusB clusB-02 configured enabled normal
2 clusA clusA-03 configured enabled normal
  clusA clusA-04 configured enabled normal
  clusB clusB-03 configured enabled normal
  clusB clusB-04 configured enabled normal

8 entries were displayed.
clusA::> metrocluster node show -partners
Node (HA Partner) DR Partner (DR Auxiliary)
-----
-----
Cluster: clusA clusB
clusA-01 (clusA-02) clusB-01 (clusB-02)
clusA-02 (clusA-01) clusB-02 (clusB-01)
Cluster: clusB clusA
clusB-01 (clusB-02) clusA-01 (clusA-02)
clusB-02 (clusB-01) clusA-02 (clusA-01)
Cluster: clusA clusB
clusA-03 (clusA-04) clusB-03 (clusB-04)
clusA-04 (clusA-03) clusB-04 (clusB-03)
Cluster: clusB clusA
clusB-03 (clusB-04) clusA-03 (clusA-04)
clusB-04 (clusB-03) clusA-04 (clusA-03)

8 entries were displayed.

```

## Related Links

- [metrocluster configure](#)

# metrocluster operation commands

## metrocluster operation show

Display details of the last MetroCluster operation

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

## Description

The `metrocluster operation show` command displays information about the most recent MetroCluster operation run on the local cluster.

This command will display information about all MetroCluster commands except for the commands in the `metrocluster check` directory. This command will not display any information after MetroCluster has been completely unconfigured using the `metrocluster unconfigure` command.

## Examples

The following example shows the output of `metrocluster operation show` after running a [metrocluster configure](#) command was successful:

```
clusA::> metrocluster operation show
      Operation: configure
      State: successful
Start time: 2/15/2013 18:22:46
      End time: 2/15/2013 18:25:18
      Errors: -
```

## Related Links

- [metrocluster configure](#)

## metrocluster operation history show

Display details of all MetroCluster operations

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

## Description

The `metrocluster operation history show` command displays information about all the MetroCluster operations run on the local cluster.

This command will display information about all MetroCluster commands except for the commands in the `metrocluster check` directory. This command will not display any information after MetroCluster has been completely unconfigured using the `metrocluster unconfigure` command.

## 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.

**[-operation-uuid <UUID>] - Identifier for the Operation**

This is the UUID of the operation. If this parameter is specified, only the operation with this UUID is displayed.

**[-cluster <Cluster name>] - Cluster Where the Command Was Run**

This is the name of the cluster where the command was run. If this parameter is specified, only the operations that were run in this cluster are displayed.

**[-node-name <Node name>] - Node Where the Command Was run**

This is the name of the node where the command was run. If this parameter is specified, only the operations that were run on this node are displayed.

**[-operation <MetroCluster Operation Name>] - Name of the Operation**

This is the name of the operation. If this parameter is specified, only the operations with this name are displayed.

**[-start-time <MM/DD/YYYY HH:MM:SS>] - Start Time**

This is the time the operation started execution. If this parameter is specified, only the operations that were started at this time are displayed.

**[-state <MetroCluster Operation state>] - State of the Operation**

This is the state of the operation. If this parameter is specified, only the operations that are in this state are displayed.

**[-end-time <MM/DD/YYYY HH:MM:SS>] - End Time**

This is the time the operation completed. If this parameter is specified, only the operations that completed at this time are displayed.

**[-error-list <text>,...] - Error List For the Operation**

This is the list of errors that were encountered during an operation's execution. If this parameter is specified, only the operations that have the matching errors are displayed.

**[-job-id <integer>] - Identifier for the Job**

This is the job id for the operation. If this parameter is specified, only the operation that has the matching job id displayed.

**[-additional-info <text>] - Additional Info for Auto Heal**

This is the completion status of the auto heal aggregates and auto heal root aggregates phases when processing switchover with auto heal.

## Examples

The following example shows the output of `metrocluster operation history show` after some MetroCluster operations have been performed:

```
clusA::> metrocluster operation history show
Operation          State          Start time      End time
-----
configure         successful     2/15/2013 18:22:46
                  2/15/2013 18:25:18
configure         failed        2/15/2013 18:13:45
                  2/15/2013 18:13:45
2 entries were displayed.
```

## metrocluster transition commands

### metrocluster transition disable

#### Disable Transition

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

#### Description

The `metrocluster transition disable` command is used to end the transition from a MetroCluster FC to a MetroCluster IP configuration. The command clears the setting for transition mode on the local and partner clusters.

#### Examples

The following example shows how to disable the transition mode:

```
clusA::> metrocluster transition disable
clusA::> metrocluster transition show-mode
Transition Mode
-----
not-enabled
```

### metrocluster transition enable

#### Enable Transition

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

#### Description

The `metrocluster transition enable` command is used to start the transition from a MetroCluster FC to a MetroCluster IP configuration. The command sets the transition mode on the local and partner cluster.

## Parameters

### **-transition-mode <Mode For FC To Ip Transition> - Transition Mode**

This parameter specifies the setting for the transition-mode.

### **[-force {true|false}] - Force enable**

This optional parameter forces the setting for the transition-mode.

## Examples

The following example shows how to enable the non-disruptive transition mode:

```
clusA::> metrocluster transition enable transition-mode non-disruptive
clusA::> metrocluster transition show-mode
Transition Mode
-----
non-disruptive
```

The following example shows how to enable the disruptive transition mode:

```
clusA::> metrocluster transition enable transition-mode disruptive
clusA::> metrocluster transition show-mode
Transition Mode
-----
disruptive
```

## metrocluster transition show-mode

Display the transition mode

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

### Description

The `metrocluster transition show-mode` command is used to display the current setting of transition.

### Examples

The following example shows the output of the command when transition is not enabled:

```
clusA::> metrocluster transition show-mode
Transition Mode
-----
not-enabled
```

The following example shows the output of the command when non-disruptive transition is enabled:

```
clusA::> metrocluster transition show-mode
Transition Mode
-----
non-disruptive
```

The following example shows the output of the command when disruptive transition is enabled:

```
clusA::> metrocluster transition show-mode
Transition Mode
-----
disruptive
```

## metrocluster vsver commands

### metrocluster vsver recover-from-partial-switchback

Recover vservers from partial switchback

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

#### Description

The `metrocluster vsver recover-from-partial-switchback` command executes the necessary steps needed for a Vserver to be in healthy state after partial completion of the Switchback.

#### Parameters

#### Examples

```
cluster::> metrocluster vsver recover-from-partial-switchback
```

### metrocluster vsver recover-from-partial-switchover

Recover vservers from partial switchover

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

#### Description

The `metrocluster vsver recover-from-partial-switchover` command executes the necessary steps needed for a Vserver to be in healthy state after partial completion of the Switchover.

#### Parameters



## Examples

```
cluster::> metrocluster vserver recover-from-partial-switchover
```

## metrocluster vserver resync

Resynchronize Vserver with its partner Vserver

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

### Description

The `metrocluster vserver resync` command resynchronizes the Vserver with its partner Vserver

### Parameters

**-cluster <Cluster name> - Cluster Name**

Name of the cluster where the Vserver belongs

**-vserver <vserver> - Vserver**

Name of the Vserver to be resynchronized

## Examples

```
cluster::> metrocluster vserver resync -cluster clus1 -vserver vs1
```

## metrocluster vserver show

Display MetroCluster Vserver relationships

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

### Description

The `metrocluster vserver show` command displays configuration information for all pairs of Vservers in MetroCluster.

### Parameters

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

The command output includes the specified field or fields

**| [-creation-time ]**

Shows the last configuration modification time on the Vserver

**| [-instance ] }**

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

**[-cluster <Cluster name>] - Cluster Name**

Name of the cluster where the Vserver belongs

**[-vserver <vserver>] - Vserver**

Name of the Vserver

**[-partner-vserver <vserver>] - Partner Vserver**

Name of the partner Vserver

**[-configuration-state {healthy|unhealthy|degraded|pending-setup|syncing|replication-paused|pending-switchback}] - Configuration State**

Configuration states include:

- *healthy*
- *unhealthy*
- *degraded* indicates that Vservers are not in sync
- *syncing* indicates that the Vserver configuration is being synchronized
- *replication-paused* indicates that the configuration replication was manually paused
- *pending-setup* indicates that partner Vserver creation is pending

**[-corrective-action <text>] - Corrective Action**

Corrective action which can be followed to successfully create the partner Vserver

**[-creation-time-of-last-applied-change <MM/DD/YYYY HH:MM:SS>] - Creation Time on the Source**

Last configuration modification time on the Vserver

**[-failed-row <smdb-row-op>] - Failed Row**

Failed replication row

**[-failed-object <text>] - Failed Object**

Displays the failed object name

**[-failed-reason <text>] - Failed Replication Reason**

Failed replication reason

**[-out-of-sync <>true>] - Is Out of Sync**

Indicates that the Vserver configuration replication is not in sync

**[-config-resume-time <MM/DD/YYYY HH:MM:SS>] - Configuration Resume Time**

Displays the resume time of the Vserver configuration replication

**[-irrecoverable-apply-failed-reason <text>] - Reason for Failure**

Reason for the replication failure

## Examples

The following example shows the output of the command when partner Vservers are created

```
clusA::> metrocluster vserver show
Cluster: clusA
Configuration
Vserver
State
Partner
Vserver
-----
-----
clusA clusB
healthy vs1 vs1-mc
Cluster: clusB
Configuration
Vserver
State
Partner
Vserver
-----
-----
clusB clusA
healthy
3 entries were displayed.
```

The following example shows the output of the command when the partner Vserver creation is pending

```
clusA::> metrocluster vserver show
Cluster: clusA
Configuration
Vserver
State
Partner
Vserver
-----
-----
clusA clusB
healthy vs1 -
pending-setup
Corrective Action: Create Ipspace ips1 on the partner cluster.
2 entries were displayed.
```

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