Riak Tools & Cluster Operations

Tools: riak-admin

basho

test

```
## performs a read/write test against the cluster
riak@node:~$ riak-admin test
Successfully completed 1 read/write cycle to
'riak@node.example.com'
```

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js-reload

- Forces the embedded Javascript virtual machines to be restarted

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wait-for-service

```
## useful for scripting to check when backend is ready
riak@node:~$ riak-admin wait-for-service riak_kv riak@<nodename>
```

ringready

```
## checks if all nodes in the cluster agree on the ring state
riak@node:~$ riak-admin ringready
```

transfers

```
## checks for ownership or partition handoff
riak@node:~$ riak-admin transfers

## example output
Active Transfers:
'dev5@127.0.0.1' waiting to handoff 39 partitions
'dev4@127.0.0.1' waiting to handoff 39 partitions
'dev3@127.0.0.1' waiting to handoff 38 partitions
```

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transfer-limit

- Change the handoff_concurrency limit

- Limited from 2-8

- Affects node performance of other ops

- Remember to change it back

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cluster-info

```
## output information from all nodes to /tmp/cluster_info.txt
riak@node:~$ riak-admin cluster_info /tmp/cluster_info.txt

## output information from the current node
riak@node:~$ riak-admin cluster_info /tmp/cluster_info.txt local

## output information from a subset of nodes
riak@node:~$ riak-admin cluster_info /tmp/cluster_info.txt
riak@192.168.1.10 riak@192.168.1.11
```

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member-status

- Prints the current status of all cluster members

ring-status

- Ring ready

- Ownership handoff

- Unreachable nodes

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vnode-status

- Per vnode information

- Backend file information

aae-status

- Exchanges

- Entropy Trees

- Keys Repaired

diag

```
## checks riak configuration and performs some system diagnosis
riak@node:~$ riak-admin diag

## example output
[critical] vm.swappiness is 60, should be no more than 0
[critical] net.core.wmem_default is 229376, should be at least
8388608
[critical] net.core.rmem_default is 229376, should be at least
8388608
[critical] net.core.wmem_max is 131071, should be at least 8388608
[notice] Data directory /var/lib/riak/bitcask is not mounted with
'noatime'. Please remount its disk with the 'noatime' flag to
improve performance.
```

status

- One-minute stats

  - GETs & PUTs: mean, median, 95/99/100%

  - FSM times

  - GET FSM siblings

- Totals

- Erlang CPU & memory statistics

- Miscellaneous information & versions

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top

```
## check cpu, memory usage and message queues in the erlang vm
riak@node:~$ riak-admin top [-interval N] [-sort reductions|
memory|msg_q] [-lines N]
```

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Basic Commands

```
riak-admin { test | ringready | member-status | ring-status |
status }

riak-admin cluster { join | leave | replace | plan | commit }
```

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Tools: riak-debug

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Cluster Operations

Riak Cluster Operations

http://goo.gl/89gx7e

Rolling Restarts

```
riak-admin ringready # should report true
riak-admin transfers # should NOT show pending transfers
riak stop
riak start
riak-admin wait-for-service riak_kv
## move to next node
```

Upgrading Riak

```
riak-admin ringready # should report true
riak-admin transfers # should NOT show pending transfers
riak stop
## install new package
## make any app.config changes
riak start
riak-admin wait-for-service riak_kv
## move to next node
```

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Transfers & Transfer-Limit

- When a node is unavailable, fallbacks are used

- When a node re-joins the ring hinted-handoff transfers occur

- Transfer-limit governs how quickly this happens

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Adding Nodes

```
## configure the new node
riak start
riak-admin cluster join riak@<existing_node>
riak-admin cluster plan
riak-admin cluster commit
## wait for ownership handoff to complete
watch -n 1 "riak-admin transfers"
```

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Removing Nodes

```
## connect to the node being removed
riak-admin cluster leave
## or request another node leave
riak-admin cluster leave riak@node6
## plan and commit
riak-admin cluster plan
riak-admin cluster commit
## wait for ownership handoff to complete
watch -n 1 "riak-admin transfers"
```

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Replacing Nodes

- Backup data directory

- Install and start Riak on new node

- Plan the join of the new node to the cluster

- Plan the replacement of the existing node with the new node

- Plan and commit changes

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Renaming Nodes

- Changing a nodes name or IP address can be done without cluster impact

- Down the first node (node1a)

- Mark down from a different node (node2)

- Edit vm.args and app.config (node1a)

- Rename the ring directory (node1a)

- Start the node and join to cluster (node1b)

- Force replace node1a with node1b

Force-Replace a Node

```
## if a node is completely unresponsive e.g hardware failure
riak-admin cluster force-replace riak@<node4> riak@<node7>
```

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