Renaming Nodes

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Single Node Clusters

For a single-node development cluster, renaming a Riak node is quite simple:

1. Stop the node with `riak stop`
2. Edit the node's `vm.args` configuration file and set the `-name` argument to the new name
3. Change IP addresses in `app.config` if necessary. Specifically, set `pb_ip`, `http`, `https`, and `cluster_mgr` parameters to the new address.
4. Delete the contents of the node's `ring` directory. The location of the ring directory is the value for the `ring_state_dir` key within the `app.config` file.
5. Start Riak on the node with `riak start`

Multi-Node Clusters

For multinode clusters, a rename is a slightly more complex procedure; however, it is very similar to the process for renaming a single node.

Previous to Riak version 1.2, a cluster node's IP address could be changed the `riak-admin reip` command, which involves downtime for the entire cluster.

As of Riak version 1.2, that method has been superseded by `riak-admin cluster force-replace` which is safer and does not require cluster wide downtime.

The following example describes reconfiguring node IP addresses with the new `riak-admin cluster force-replace` method.

Example Scenario

For this example scenario, Riak is operating in a cluster of 5 nodes with the following network configuration:

- `riak@10.1.42.11` on `node1.localdomain` → IP address changing to 192.168.17.11
- `riak@10.1.42.12` on `node2.localdomain` → IP address changing to 192.168.17.12
- `riak@10.1.42.13` on `node3.localdomain` → IP address changing to 192.168.17.13
- `riak@10.1.42.14` on `node4.localdomain` → IP address changing to 192.168.17.14
- `riak@10.1.42.15` on `node5.localdomain` → IP address changing to 192.168.17.15

The above list shows the network configuration details for our 5 nodes, including the Erlang node name value, the node's fully qualified domain name, and the new IP address each node will be configured to use.

The nodes in our example cluster are currently configured to use the *10.1.42.* private subnetwork range. Our goal for this example will be to configure the nodes to instead use the private subnetwork *192.168.17.* and do so in a rolling fashion without interrupting cluster operation.

Process

This process can be accomplished in three phases. The details and steps required of each phase are presented in the following section.

1. Down the node to be reconfigured
2. Reconfigure node to use new address
3. Repeat previous steps on each node

Down the Node

Stop Riak on `node1.localdomain`:

```
riak stop
```

The output should look like this:

```
Attempting to restart script through sudo -H -u riak
ok
```

From the `node2.localdomain` node, mark `riak@10.1.42.11` down:

```
riak-admin down riak@10.1.42.11
```

Successfully marking the node down should produce output like this:

```
Attempting to restart script through sudo -H -u riak
Success: "riak@10.1.42.11" marked as down
```

This step informs the cluster that `riak@10.1.42.11` is offline and ring-state transitions should be allowed. While we're executing the `riak-admin down` command from `node2.localdomain` in this example, the command can be executed from any currently running node.

Reconfigure Node to Use New Address

Reconfigure `node1.localdomain` to listen on the new private IP addresses *192.168.17.11* by following these steps:

1. Edit the node's `vm.args` configuration file and set the `-name` argument as follows:

   ```
   -name riak@192.168.17.11
   ```

2. Change IP addresses to *192.168.17.11* in `app.config` as appropriate. Specifically, set `pb`, `http`, `https`, and `cluster_mgr` parameters to the new address.

3. Rename the node's `ring` directory. The location of the ring directory is the value for the `ring_state_dir` key within the `app.config` file. You may rename it to whatever you like, as it will only be used as a backup during the node renaming process.

4. Start Riak on `node1.localdomain`. riak start

5. Join the node back into the cluster.

   ```
   riak-admin cluster join riak@10.1.42.12
   ```

   Successful staging of the join request should have output like this:

   ```
   Attempting to restart script through sudo -H -u riak
   Success: staged join request for 'riak@192.168.17.11' to
   ```

6. Use `riak-admin cluster force-replace` to change all ownership references from `riak@10.1.42.11` to `riak@192.168.17.11`:

   ```
   riak-admin cluster force-replace riak@10.1.42.11 riak@19
   ```

Successful force replacement staging output looks like this:

```
Attempting to restart script through sudo -H -u riak
Success: staged forced replacement of 'riak@10.1.42.11'
```

7. Review the new changes with `riak-admin cluster plan:`

```
riak-admin cluster plan
```

Example output:

```
Attempting to restart script through sudo -H -u riak
============================== Staged Changes =============
Action         Nodes(s)
-----------------------------------------------------------
join           'riak@192.168.17.11'
force-replace  'riak@10.1.42.11' with 'riak@192.168.17.1
-----------------------------------------------------------

WARNING: All of 'riak@10.1.42.11' replicas will be lost

NOTE: Applying these changes will result in 1 cluster tr

###############################################################
                         After cluster transition 1/1
###############################################################

================================ Membership ===============
Status     Ring    Pending    Node
-----------------------------------------------------------
valid      20.3%      --      'riak@192.168.17.11'
valid      20.3%      --      'riak@10.1.42.12'
valid      20.3%      --      'riak@10.1.42.13'
valid      20.3%      --      'riak@10.1.42.14'
valid      18.8%      --      'riak@10.1.42.15'
-----------------------------------------------------------
```

```
Valid:5 / Leaving:0 / Exiting:0 / Joining:0 / Down:0

Partitions reassigned from cluster changes: 13
13 reassigned from 'riak@10.1.42.11' to 'riak@192.168.17
```

Note: When using the `riak-admin force-replace` command, you will always get a warning message like: `WARNING: All of 'riak@10.1.42.11' replicas will be lost`. Since we didn't delete any data files and we are replacing the node with itself under a new name, we will not lose any replicas.

8. Commit the new changes to the cluster with `riak-admin cluster commit`:

```
riak-admin cluster commit
```

Output from the command should resemble this example:

```
Attempting to restart script through sudo -H -u riak
Cluster changes committed
```

9. Check that the node is participating in the cluster and functioning as expected:

```
riak-admin member-status
```

Output should resemble this example:

```
Attempting to restart script through sudo -H -u riak
============================== Membership ===============
Status     Ring    Pending    Node
---------------------------------------------------------
valid      20.3%      --      'riak@192.168.17.11'
valid      20.3%      --      'riak@10.1.42.12'
valid      20.3%      --      'riak@10.1.42.13'
valid      20.3%      --      'riak@10.1.42.14'
valid      18.8%      --      'riak@10.1.42.15'
---------------------------------------------------------
```

```
Valid:5 / Leaving:0 / Exiting:0 / Joining:0 / Down:0
```

10. Monitor hinted handoff transfers to ensure they have finished with the `riak-admin transfers` command.

11. Clean up by deleting the renamed `ring` directory once all previous steps have been successfully completed.

Repeat previous steps on each node

Repeat the steps above for each of the the remaining nodes in the cluster.

Use *riak@192.168.17.11* as the target node for further `riak-admin cluster join` commands issued from subsequently reconfigured nodes to join those nodes to the cluster.

```
riak-admin cluster join riak@192.168.17.11
```

A successful join request staging produces output similar to this example:

```
Attempting to restart script through sudo -H -u riak
Success: staged join request for 'riak@192.168.17.12' to 'riak@1
```

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