

Node tool in cassandra

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nodetool

- ▶ nodetool utility is a command-line interface for monitoring Cassandra and performing routine database operations.
- ▶ Included in the Cassandra distribution, nodetool and is typically run directly from an operational Cassandra node.
- ▶ Supports the most important JMX metrics and operations, and includes other useful commands for Cassandra administration.
- ▶ Utility is commonly used to output a quick summary of the ring and its current state of general health with the status command.
- ▶ Utility provides commands for viewing detailed metrics for tables, server metrics, and compaction statistics.
- ▶ Commands include decommissioning a node, running repair, and moving partitioning tokens.

About the nodetool utility

- ▶ The nodetool utility is a command line interface for managing a cluster.

Command formats

- ▶ **nodetool [options] command [args]**
- ▶ For tarball installations, execute the command from the install_location/bin directory.
- ▶ The repair and rebuild commands can affect multiple nodes in the cluster.
- ▶ Most nodetool commands operate on a single node in the cluster if -h is not used to identify one or more other nodes.
- ▶ If the node from which you issue the command is the intended target, you do not need the -h option to identify the target; otherwise, for remote invocation, identify the target node, or nodes, using -h.

Options in nodetool command

Options		
Short	Long	Description
-h	--host	Hostname or IP address.
-p	--port	Port number.
-pwf	--password-file	Password file path.
-pw	--password	Password.
-u	--username	Remote JMX agent username.

Command List

<i>cfhistograms</i>	<i>getcompactionthreshold</i>	<i>removetoken</i>
<i>cfstats</i>	<i>getendpoints</i>	<i>repair</i>
<i>cleanup</i>	<i>getsstables</i>	<i>ring</i>
<i>clearsnapshot</i>	<i>gossipinfo</i>	<i>scrub</i>
<i>compact</i>	<i>info</i>	<i>setcachecapacity</i>
<i>compactionstats</i>	<i>invalidatekeycache</i>	<i>setcompactionthreshold</i>
<i>decomission</i>	<i>invalidaterowcache</i>	<i>setcompactionthroughput</i>
<i>describering</i>	<i>join</i>	<i>setstreamthroughput</i>
<i>disablegossip</i>	<i>move</i>	<i>snapshot</i>
<i>disablethrift</i>	<i>netstats</i>	<i>statusthrift</i>
<i>drain</i>	<i>rangekeysample</i>	<i>stop</i>
<i>enablegossip</i>	<i>rebuild</i>	<i>tpstats</i>
<i>enablethrift</i>	<i>rebuild_index</i>	<i>upgradesstables</i>
<i>flush</i>	<i>refresh</i>	<i>version</i>

Getting nodetool help

nodetool help

- ▶ Provides a listing of nodetool commands.

nodetool help command name

- ▶ Provides help on a specific command.
- ▶ For example:

nodetool help upgradesstables

Gossip Info

`nodetool gossipinfo`

- Provides the gossip information for the cluster.

`nodetool <options> gossipinfo`

CASSANDRA CLUSTER STATUS

- ▶ For looking into cassandra cluster health or status using node tool, we need to execute below command:
- ▶ `nodetool status`
- ▶ U indicate whether the node is UP.
- ▶ N indicates whether the node is NORMAL.
- ▶ DC/OS cassandra node IP address.
- ▶ Load: the amount of filesystem data under the cassandra data directory and updated every 90 seconds.
- ▶ Tokens: number of tokens set for the node.

—	Address	Load	Tokens	Owns (effective)	Host ID	Rack
UN		23.26 GB	256	21.7%		rac1
UN		20.48 GB	256	19.7%		rac1
UN		21.62 GB	256	19.7%		rac1

Nodetool status

Healthy nodes return the following parameters:

- ▶ The node status is UN (up and normal).
- ▶ The Owns (effective) value should be roughly the same for each node.
- ▶ The percentage of data that each node manages should be similar, which indicates a good data spread across the cluster members and across multiple data centers.
- ▶ For example, in a six node cluster, the ownership should be approximately 50 percent per node.

MONITOR CASSANDRA CLUSTER

SINGLE NODE INFO

If we need to require cluster node stats including:

- ▶ Load
- ▶ Uptime
- ▶ Heap Memory
- ▶ Exceptions Count
- ▶ Key Cache Hit Rate
- ▶ and more, for complete we need to execute below command. But this command gave us the stats of current node in which we are making ssh.

nodetool info

ID	
Gossip active	true
Thrift active	false
Native Transport active	true
Load	22.57 GB
Generation No	1506714058
Uptime (seconds)	1089322
Heap Memory (MB)	1594.28 / 4086.00
Off-Heap Memory (MB)	3.42
Data Center	dc1
Rack	rac1
Exceptions	0
Key Cache	entries 158173, size 56.76 MB, capacity 100 MB, 9092924 hits, 9352093 requests, 0.972 recent hit rate, 14400 save period in seconds
Row Cache	entries 0, size 0 bytes, capacity 0 bytes, 0 hits, 0 requests, NaN recent hit rate, 0 save period in seconds
Counter Cache	entries 0, size 0 bytes, capacity 50 MB, 0 hits, 0 requests, NaN recent hit rate, 7200 save period in seconds
Token	(invoke with -T/--tokens to see all 256 tokens)

MONITOR CLUSTER STATISTICS OF KEYSPACES AND TABLES

- ▶ If required to monitor statistics of all keyspaces and tables like:
- ▶ Read Latency
- ▶ Write Latency
- ▶ Total Disk Used
- ▶ and more. For complete we need to execute below command.

nodetool tablestats // Show stats for all keyspaces and tables

nodetool tablestats // show stats for specific keyspace and tables

Keyspace:

Read Count: 75738

Read Latency: 1.0500195410494073 ms.

Write Count: 34312

Write Latency: 0.12817600256470038 ms.

Pending Flushes: 0

Table:

SSTable count: 6

Space used (live): 3390578917

Space used (total): 3390578917

Space used by snapshots (total): 0

Off heap memory used (total): 423687

SSTable Compression Ratio: 1.003568418469647

Number of keys (estimate): 3967

Memtable cell count: 94

Memtable data size: 11470945

Memtable off heap memory used: 0

Memtable switch count: 75

Local read count: 75738

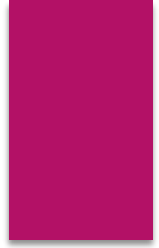
Local read latency: 1.032 ms

Local write count: 34312

Local write latency: 6.078 ms

Pending flushes: 0

and more...



cfstats

- ▶ Displays statistics for every keyspace and column family.

describering

- ▶ Nodetool describering [keyspace]
- ▶ Shows the token ranges for a given keyspace.

nodetool describeclasser

- ▶ Provide the name, snitch, partitioner and schema version of a cluster
- ▶ Describe cluster is typically used to validate the schema after upgrading. If a schema disagreement occurs, check for and resolve schema disagreements.

nodetool describeclasser

- Cluster Information:
- Name: Test Cluster
- Snitch: org.apache.cassandra.locator.DynamicEndpointSnitch
- Partitioner: org.apache.cassandra.dht.Murmur3Partitioner
- Schema versions:
- 65e78f0e-e81e-30d8-a631-a65dff93bf82: [127.0.0.1]