

Debugging SSTables in 3.0 with sstabledump

sstabledump

This tool outputs the contents of the specified SSTable in the JSON format.

Depending on your task, you may wish to flush the table to disk (using [nodetool flush](#)) before dumping its contents.

```
sstabledump [options] sstable_file
```

Generate a small SSTable for a table that represents stock ticker data

```
cqlsh

-- Create the schema
CREATE KEYSPACE IF NOT EXISTS ticker WITH REPLICATION = { 'class' : 'SimpleStrategy', 'replication_factor' : 1 };

USE ticker;

CREATE TABLE IF NOT EXISTS symbol_history (
    symbol    text,
    year      int,
    month     int,
    day       int,
    volume    bigint,
    close     double,
    open      double,
    low       double,
    high      double,
    idx       text static,
    PRIMARY KEY ((symbol, year), month, day)
) with CLUSTERING ORDER BY (month desc, day desc);

-- Insert some records
INSERT INTO symbol_history (symbol, year, month, day, volume, close, open, low, high, idx)
VALUES ('CORP', 2015, 12, 31, 1054342, 9.33, 9.55, 9.21, 9.57, 'NYSE') USING TTL 604800;

INSERT INTO symbol_history (symbol, year, month, day, volume, close, open, low, high, idx)
VALUES ('CORP', 2016, 1, 1, 1055334, 8.2, 9.33, 8.02, 9.35, 'NASDAQ') USING TTL 604800;

INSERT INTO symbol_history (symbol, year, month, day, volume, close, open, low, high)
VALUES ('CORP', 2016, 1, 4, 1054342, 8.54, 8.2, 8.2, 8.65) USING TTL 604800;

INSERT INTO symbol_history (symbol, year, month, day, volume, close, open, low, high)
VALUES ('CORP', 2016, 1, 5, 1054772, 8.73, 8.54, 8.44, 8.75) USING TTL 604800;

-- Update a column value
UPDATE symbol_history USING TTL 604800 set close = 8.55 where symbol = 'CORP' and year = 2016 and month = 1 and day = 4;
```

Flush memtables to disk as SSTables

```
nodetool flush
```

Generate some tombstones

set a column value to null and delete an entire row to generate some tombstones

```
-- Set column value to null
USE ticker;
UPDATE symbol_history SET high = null WHERE symbol = 'CORP' and year = 2016 and month = 1 and day = 1;

-- Delete an entire row
DELETE FROM symbol_history WHERE symbol = 'CORP' and year = 2016 and month = 1 and day = 5;
```

Flush again to generate a new SSTable

```
nodetool flush
```

Perform a major compaction yielding a single SSTable

```
nodetool compact ticker
```

sstabledump

```
sstabledump /var/lib/cassandra/data/ticker/symbol_history-ee07f100592511e8b578f36b98b5be6e/mc-3-big-Data.db
[
  {
    "partition" : {
      "key" : [ "CORP", "2016" ],
      "position" : 0
    },
    "rows" : [
      {
        "type" : "static_block",
        "position" : 67,
        "cells" : [
          { "name" : "idx", "value" : "NASDAQ", "tstamp" : "2018-05-16T16:26:51.731809Z", "ttl" : 604800, "expires_at" : "2018-05-23T16:26:51Z", "expired" : false }
        ]
      },
      {
        "type" : "row",
        "position" : 67,
        "clustering" : [ 1, 5 ],
        "deletion_info" : { "marked_deleted" : "2018-05-16T16:27:32.188177Z", "local_delete_time" : "2018-05-16T16:27:32Z" },
        "cells" : [ ]
      },
      {
        "type" : "row",
        "position" : 67,
        "clustering" : [ 1, 4 ],
        "liveness_info" : { "tstamp" : "2018-05-16T16:26:51.746925Z", "ttl" : 604800, "expires_at" : "2018-05-23T16:26:51Z", "expired" : false },
        "cells" : [
          { "name" : "close", "value" : 8.55, "tstamp" : "2018-05-16T16:27:02.349768Z" },
          { "name" : "high", "value" : 8.65 },
          { "name" : "low", "value" : 8.2 },
          { "name" : "open", "value" : 8.2 },
          { "name" : "volume", "value" : 1054342 }
        ]
      },
      {
        "type" : "row",
        "position" : 143,
        "clustering" : [ 1, 1 ],
        "liveness_info" : { "tstamp" : "2018-05-16T16:26:51.731809Z", "ttl" : 604800, "expires_at" : "2018-05-23T16:26:51Z", "expired" : false },
        "cells" : [
          { "name" : "close", "value" : 8.2 },
          { "name" : "high", "value" : 9.33 },
          { "name" : "low", "value" : 9.55 },
          { "name" : "open", "value" : 9.33 },
          { "name" : "volume", "value" : 1055334 }
        ]
      }
    ]
  },
  {
    "partition" : {
      "key" : [ "CORP", "2015" ],
      "position" : 207
    },
    "rows" : [
      {
        "type" : "static_block",
        "position" : 316,
        "cells" : [
          { "name" : "idx", "value" : "NYSE", "tstamp" : "2018-05-16T16:26:51.709104Z", "ttl" : 604800, "expires_at" : "2018-05-23T16:26:51Z", "expired" : false }
        ]
      },
      {
        "type" : "row",
        "position" : 316,
        "clustering" : [ 12, 31 ],
        "liveness_info" : { "tstamp" : "2018-05-16T16:26:51.709104Z", "ttl" : 604800, "expires_at" : "2018-05-23T16:26:51Z", "expired" : false },
        "cells" : [
          { "name" : "close", "value" : 9.33 },
          { "name" : "high", "value" : 9.57 },
          { "name" : "low", "value" : 9.21 },
          { "name" : "open", "value" : 9.55 },
          { "name" : "volume", "value" : 1054342 }
        ]
      }
    ]
  }
]
```

Internal Representation Format

```
sstabledump /var/lib/cassandra/data/ticker/symbol_history-ee07f100592511e8b578f36b98b5be6e/mc-3-big-Data.db -d
[CORP:2016]@0 Row[info=[ts=-9223372036854775808] ]: STATIC | [idx=NASDAQ ts=1526488011731809 ttl=604800 ldt=1527092811]
[CORP:2016]@0 Row[info=[ts=-9223372036854775808] del=deletedAt=1526488052 188177, localDeletion=1526488052 ]: 1, 5 |
[CORP:2016]@67 Row[info=[ts=1526488011746925 ttl=604800, let=1527092811] ]: 1, 4 | [close=8.55 ts=1526488022349768 ttl=604800 ldt=1527092822], [high=8.65 ts=1526488011746925 ttl=604800 ldt=1527092811], [low=8.2 ts=1526488011746925 ttl=604800 ldt=1527092811], [open=8.2 ts=1526488011746925 ttl=604800 ldt=1527092811], [volume=1054342 ts=1526488011746925 ttl=604800 ldt=1527092811]
[CORP:2016]@143 Row[info=[ts=1526488011731809 ttl=604800, let=1527092811] ]: 1, 1 | [close=8.2 ts=1526488011731809 ttl=604800 ldt=1527092811], [high=<tombstone> ts=1526488045368374 ldt=1526488045], [low=8.02 ts=1526488011731809 ttl=604800 ldt=1527092811], [open=9.33 ts=1526488011731809 ttl=604800 ldt=1527092811], [volume=1055334 ts=1526488011731809 ttl=604800 ldt=1527092811]
[CORP:2015]@207 Row[info=[ts=-9223372036854775808] ]: STATIC | [idx=NYSE ts=1526488011709104 ttl=604800 ldt=1527092811]
[CORP:2015]@207 Row[info=[ts=1526488011709104 ttl=604800, let=1527092811] ]: 12, 31 | [close=9.33 ts=1526488011709104 ttl=604800 ldt=1527092811], [high=9.57 ts=1526488011709104 ttl=604800 ldt=1527092811], [low=9.21 ts=1526488011709104 ttl=604800 ldt=1527092811], [open=9.55 ts=1526488011709104 ttl=604800 ldt=1527092811], [volume=1054342 ts=1526488011709104 ttl=604800 ldt=1527092811]
```