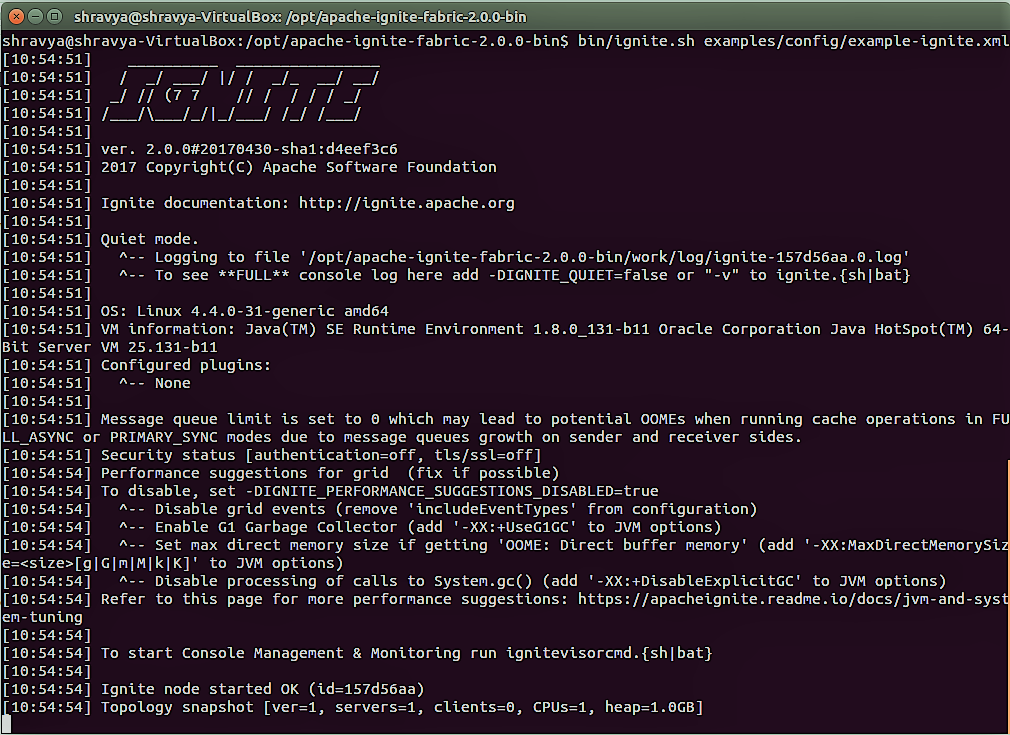
**WORKING WITH APACHE IGNITE**

v2.0.0

The aim of this section of the project is to generate a stream of random messages, store it in an Ignite cache and perform SQL-99 queries on these messages.

**Configuring Ignite**

* To begin with, install JDK(v1.8.0) and Apache ZooKeeper(v3.4.10).
* Download and unzip **apache-ignite-fabric-2.0.0-b1-bin.zip**.
* Set $IGNITE\_HOME to point to this directory.
* Run, **bin/ignite.sh examples/config/example-ignite.xml** to start an Ignite node.
* By default, the node runs as server and a space of 1 GB is allocated to the heap.

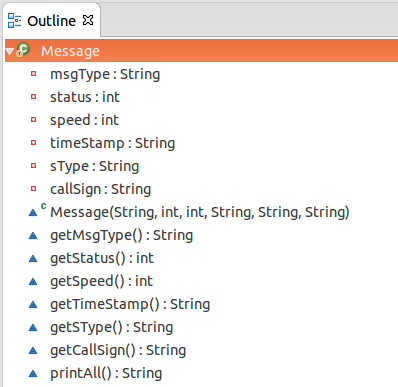


**Creating the Ignite Project**

Dependencies

* Ignite-core : 2.0.0
* Ignite-spring : 2.0.0
* Ignite-indexing : 2.0.0
* Mysql-connector-java : 5.1.42

The Message Class

Create a Java class called Message with the following attributes and member functions. Use the constructor to initialize all the attributes. An object of this class will be passed as value to the key, which is the Message ID (mid:int).

Message Generator Class

This class connects everything together. It generates a stream of 1 million messages. Each attribute of the message is randomly generated, in accordance with the following format -

|  |  |  |
| --- | --- | --- |
| Attribute | Length | Format |
| id (Key) | 9 | MSG000000 - MSG999999 |
| msgType | 6 | Type00 - Type09 |
| status | 2 | 0 - 15 |
| speed | 3 | 0 - 150 |
| timeStamp | 12 | DDHHMMZMONYY (DTG format) |
| sType | 8 | XXXXXXXX |
| callSign | 5 | XXXXX |

Where, X – any alphanumeric character,

DD – date, HH – hour, MM – minute, Z – time zone, MON – month, YY – year.

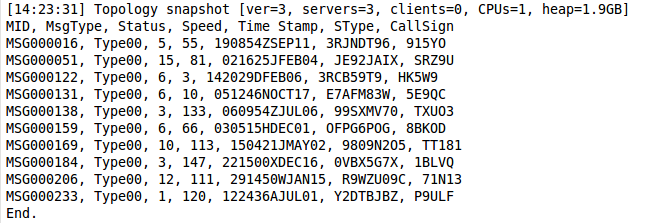
After the generation of a message, it is loaded into the Ignite cache as <String, Message> type. At the end of the program execution, the cache contains 1 million messages as specified.

These are now ready to be queried.

**Queries**

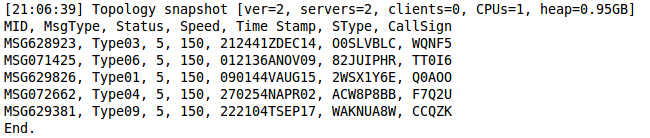
1. To pick first 10 messages with message type "Type00".

SELECT \* FROM Message WHERE msgType='Type00' LIMIT 10



1. To select top 5 fastest messages with status 5.

SELECT \* FROM Message WHERE status=5 ORDER BY speed DESC LIMIT 5



1. To get total number of messages of each type in the year '15.

SELECT msgType, COUNT(timeStamp) FROM Message WHERE timeStamp LIKE '%15' GROUP BY msgType

