NoSQL Databases
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Tutorial Cassandra Install

Step 1: Pre-requisites

1. Java JDK 8. Download it here:
   https://www.oracle.com/java/technologies/downloads/archive/
   And set environnement variable JAVA_HOME to the root of your JDK folder
   Follow this: https://www.google.com/search?q=install+jdk+and+set+java_home
2. You need Python 2.7 (Note: Python 3.6 doesn't work anymore with Cassandra 3.11)
   If you already have python, verify the version by running on terminal 'python --version'
   else download and install Python 2.7: https://www.python.org/downloads/
   and set new python folder to your PATH variable.
   https://www.google.com/search?q=change+path+variable+for+python

Step 2: Verify Prerequisites

1. On your terminal, run 'python --version' and verify it's Python 2.7.
2. Display JAVA_HOME variable value and verify it's set to your jdk home:
   - On Windows: echo %JAVA_HOME% *(should be something like C:/Program Files/java/jdk1-8)*
   - On Mac: echo $JAVA_HOME *(should be something like /Library/Java/JavaVirtualMachines/jdk1.8.0_65.jdk/Contents/Home)*
   - On Linux: echo $JAVA_HOME *(should be something like /usr/lib/jvm/java-8-openjdk-amd64/)*
3. Display java version. On a terminal run 'java -version'. Should be 1.8

Step 3: Download, Extract and run

1. First download last version of Cassandra: http://cassandra.apache.org/download/
2. Extract it in a folder. We call the path to Cassandra folder: /path/to/cassandra/
3. In a terminal, run:

```
cd /path/to/cassandra/

cd bin
```

4. Run the server (in background):

```
./cassandra -f
```

Only for Windows :

- Use **PowerShell** to run ./cassandra –f
- If an error about **Execution Policies** appears indicating that it is missing rights, execute the following command:

  ```
  Set-ExecutionPolicy -ExecutionPolicy RemoteSigned -Scope CurrentUser
  ```

  (see https://docs.microsoft.com/fr-fr/powershell/module/microsoft.powershell.core/about/about_execution_policies?view=powershell-6)

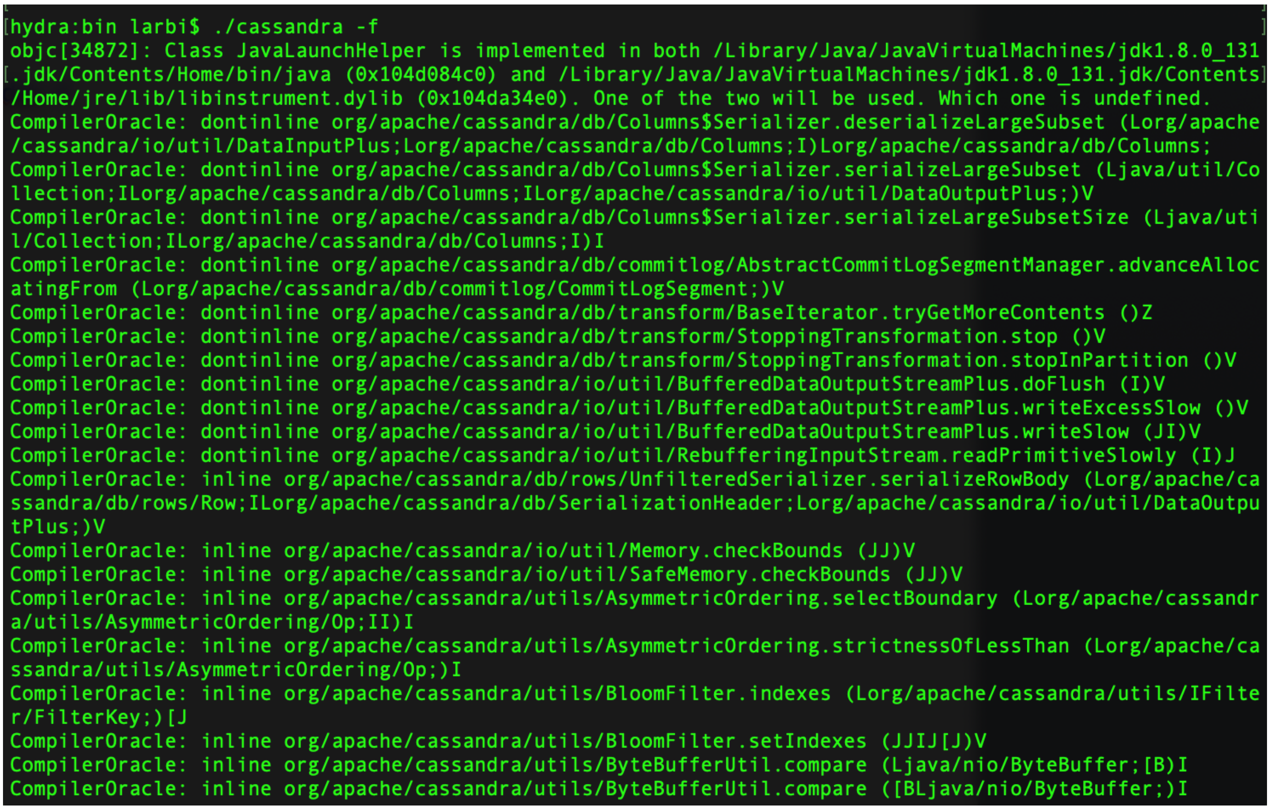
5. Run a shell client, Open a new terminal and run:

```
cd /path/to/cassandra/
cd bin
./cqlsh localhost
```

Note: You can also have client with graphical interface, i.e.: https://www.quora.com/What-is-the-free-GUI-tool-for-Cassandra

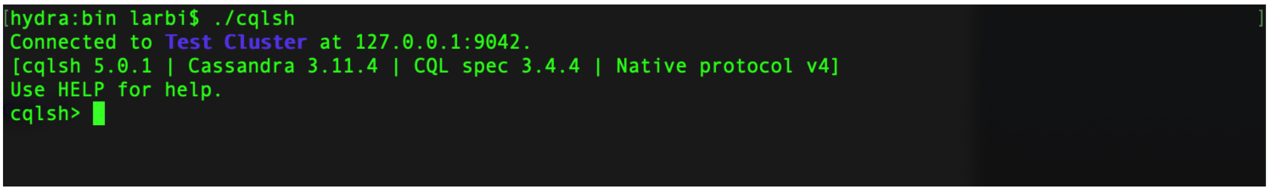
LAUNCHING :

Server launching : $ /bin/cassandra –f



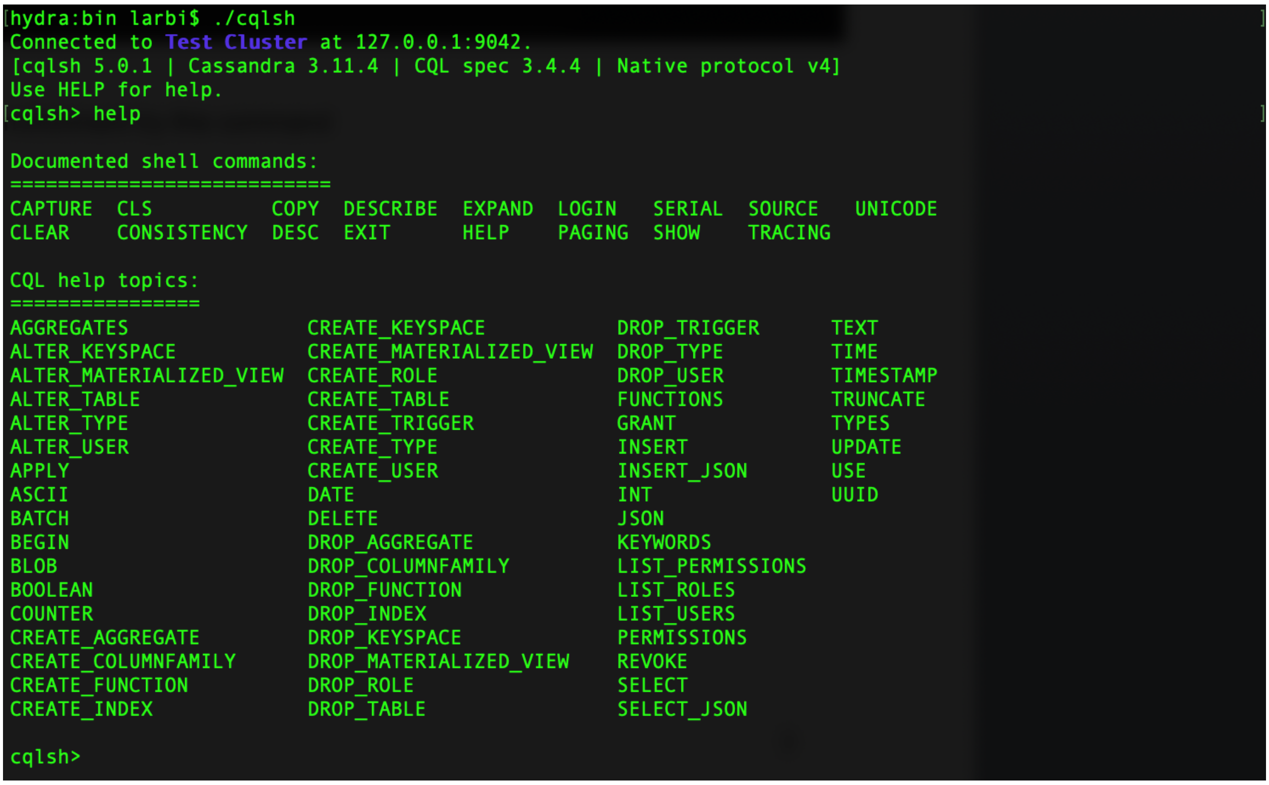
```
[hydra:bin larbi$ ./cassandra -f
objc[34872]: Class JavaLaunchHelper is implemented in both /Library/Java/JavaVirtualMachines/jdk1.8.0_131
[.jdk/Contents/Home/bin/java (0x104d084c0) and /Library/Java/JavaVirtualMachines/jdk1.8.0_131.jdk/Contents
/Home/jre/lib/libinstrument.dylib (0x104da34e0). One of the two will be used. Which one is undefined.
CompilerOracle: dontinline org/apache/cassandra/db/Columns$Serializer.deserializeLargeSubset (Lorg/apache
/cassandra/io/util/DataInputPlus;Lorg/apache/cassandra/db/Columns;I)Lorg/apache/cassandra/db/Columns;
CompilerOracle: dontinline org/apache/cassandra/db/Columns$Serializer.serializeLargeSubset (Ljava/util/Co
llection;ILorg/apache/cassandra/db/Columns;ILorg/apache/cassandra/io/util/DataOutputPlus;)V
CompilerOracle: dontinline org/apache/cassandra/db/Columns$Serializer.serializeLargeSubsetSize (Ljava/uti
l/Collection;ILorg/apache/cassandra/db/Columns;I)I
CompilerOracle: dontinline org/apache/cassandra/db/commitlog/AbstractCommitLogSegmentManager.advanceAlloc
atingFrom (Lorg/apache/cassandra/db/commitlog/CommitLogSegment;)V
CompilerOracle: dontinline org/apache/cassandra/db/transform/BaseIterator.tryGetMoreContents ()Z
CompilerOracle: dontinline org/apache/cassandra/db/transform/StoppingTransformation.stop ()V
CompilerOracle: dontinline org/apache/cassandra/db/transform/StoppingTransformation.stopInPartition ()V
CompilerOracle: dontinline org/apache/cassandra/io/util/BufferedDataOutputStreamPlus.doFlush (I)V
CompilerOracle: dontinline org/apache/cassandra/io/util/BufferedDataOutputStreamPlus.writeExcessSlow ()V
CompilerOracle: dontinline org/apache/cassandra/io/util/BufferedDataOutputStreamPlus.writeSlow (JI)V
CompilerOracle: dontinline org/apache/cassandra/io/util/RebufferingInputStream.readPrimitiveSlowly (I)J
CompilerOracle: inline org/apache/cassandra/db/rows/UnfilteredSerializer.serializeRowBody (Lorg/apache/ca
ssandra/db/rows/Row;ILorg/apache/cassandra/db/SerializationHeader;Lorg/apache/cassandra/io/util/DataOutpu
tPlus;)V
CompilerOracle: inline org/apache/cassandra/io/util/Memory.checkBounds (JJ)V
CompilerOracle: inline org/apache/cassandra/io/util/SafeMemory.checkBounds (JJ)V
CompilerOracle: inline org/apache/cassandra/utils/AsymmetricOrdering.selectBoundary (Lorg/apache/cassandr
a/utils/AsymmetricOrdering/Op;II)I
CompilerOracle: inline org/apache/cassandra/utils/AsymmetricOrdering.strictnessOfLessThan (Lorg/apache/ca
ssandra/utils/AsymmetricOrdering/Op;)I
CompilerOracle: inline org/apache/cassandra/utils/BloomFilter.indexes (Lorg/apache/cassandra/utils/IFilte
r/FilterKey;)[J
CompilerOracle: inline org/apache/cassandra/utils/BloomFilter.setIndexes (JJIJ[J)V
CompilerOracle: inline org/apache/cassandra/utils/ByteBufferUtil.compare (Ljava/nio/ByteBuffer;[B)I
CompilerOracle: inline org/apache/cassandra/utils/ByteBufferUtil.compare ([BLjava/nio/ByteBuffer;)I
```

Client launching : $ /bin/cqlsh



```
[hydra:bin larbi$ ./cqlsh
Connected to Test Cluster at 127.0.0.1:9042.
[cqlsh 5.0.1 | Cassandra 3.11.4 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
cqlsh> █
```

To familiarize yourself with the environment try this command
cqlsh> help



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Use HELP for help.
[cqlsh> help

Documented shell commands:
===========================
CAPTURE  CLS          COPY  DESCRIBE  EXPAND  LOGIN   SERIAL  SOURCE   UNICODE
CLEAR    CONSISTENCY  DESC  EXIT      HELP    PAGING  SHOW    TRACING

CQL help topics:
================
AGGREGATES               CREATE_KEYSPACE           DROP_TRIGGER      TEXT
ALTER_KEYSPACE           CREATE_MATERIALIZED_VIEW  DROP_TYPE         TIME
ALTER_MATERIALIZED_VIEW  CREATE_ROLE               DROP_USER         TIMESTAMP
ALTER_TABLE              CREATE_TABLE              FUNCTIONS         TRUNCATE
ALTER_TYPE               CREATE_TRIGGER            GRANT             TYPES
ALTER_USER               CREATE_TYPE               INSERT            UPDATE
APPLY                    CREATE_USER               INSERT_JSON       USE
ASCII                    DATE                      INT               UUID
BATCH                    DELETE                    JSON
BEGIN                    DROP_AGGREGATE            KEYWORDS
BLOB                     DROP_COLUMNFAMILY         LIST_PERMISSIONS
BOOLEAN                  DROP_FUNCTION             LIST_ROLES
COUNTER                  DROP_INDEX                LIST_USERS
CREATE_AGGREGATE         DROP_KEYSPACE             PERMISSIONS
CREATE_COLUMNFAMILY      DROP_MATERIALIZED_VIEW    REVOKE
CREATE_FUNCTION          DROP_ROLE                 SELECT
CREATE_INDEX             DROP_TABLE                SELECT_JSON

cqlsh>
```

EXAMPLE

CREATE KEYSPACE

```
cqlsh> CREATE KEYSPACE demo
  ... WITH replication = {'class':'SimpleStrategy', 'replication_factor': 3};

cqlsh> USE demo;
cqlsh:demo>
```

CREATE TABLE

```
cqlsh:demo> CREATE TABLE users(
        ... email varchar,
        ... bio varchar,
        ... birthday timestamp,
        ... active boolean,
        ... PRIMARY KEY (email)
        ... );
cqlsh:demo>

cqlsh:demo> CREATE TABLE tweets(email varchar PRIMARY KEY, time_posted timestamp, tweet
varchar);
cqlsh:demo>
```

INSERT DATA

```
cqlsh:demo> INSERT INTO users (email, bio, birthday, active) VALUES ('person@mail.com',
'Student',01011900, true);
cqlsh:demo>
```

QUERYING

```
SELECT * FROM users;
SELECT count(*) from users;
SELECT * FROM users LIMIT 10;
SELECT email FROM users WHERE active = true;
```

DELETE KEYSPACE

```
cqlsh:demo> DROP KEYSPACE demo;
```