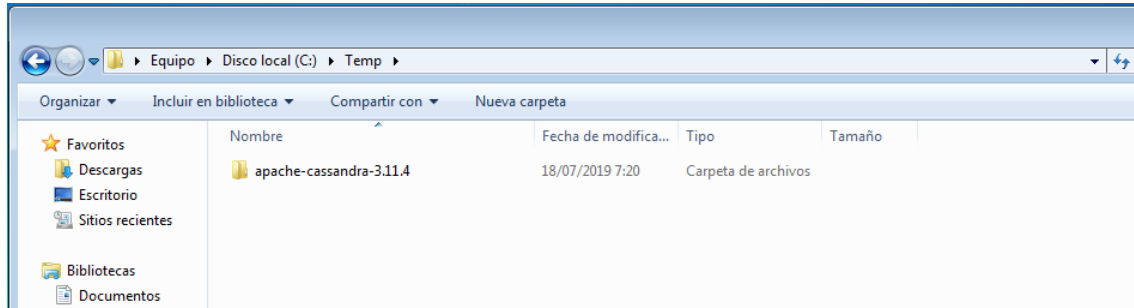


2.- NoSQL - Cassandra

Descargamos el comprimido de Cassandra y lo descomprimos en un directorio



Accedemos al directorio `\bin` de la instalación y ejecutamos `cassandra -f` (foreground), para arrancar el servidor

```
Microsoft Windows [Versión 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. Reservados todos los derechos.

C:\Windows\system32>cd /

C:\>cd Temp

C:\Temp>cd apache-cassandra-3.11.4

C:\Temp\apache-cassandra-3.11.4>cd bin

C:\Temp\apache-cassandra-3.11.4\bin>cassandra -f
```

```
INFO [main] 2019-07-22 21:03:02,617 StorageService.java:1483 - JOINING: Finish
joining ring
INFO [main] 2019-07-22 21:03:02,641 SecondaryIndexManager.java:509 - Executing
pre-join tasks for: CFS{Keyspace='berenjena', ColumnFamily='alumno'}
INFO [main] 2019-07-22 21:03:02,642 SecondaryIndexManager.java:509 - Executing
pre-join tasks for: CFS{Keyspace='berenjena', ColumnFamily='person'}
INFO [main] 2019-07-22 21:03:02,681 StorageService.java:2327 - Node localhost/1
27.0.0.1 state jump to NORMAL
INFO [main] 2019-07-22 21:03:02,963 NativeTransportService.java:75 - Netty usin
g Java NIO event loop
INFO [main] 2019-07-22 21:03:03,113 Server.java:155 - Using Netty Version: [net
ty-buffer=netty-buffer-4.0.44.Final.452812a, netty-codec=netty-codec-4.0.44.Fina
l.452812a, netty-codec-haproxy=netty-codec-haproxy-4.0.44.Final.452812a, netty-c
odec-http=netty-codec-http-4.0.44.Final.452812a, netty-codec-socks=netty-codec-s
ocks-4.0.44.Final.452812a, netty-common=netty-common-4.0.44.Final.452812a, netty
-handler=netty-handler-4.0.44.Final.452812a, netty-tcnative=netty-tcnative-1.1.3
3.Fork26.142ecbb, netty-transport=netty-transport-4.0.44.Final.452812a, netty-tr
ansport-native-epoll=netty-transport-native-epoll-4.0.44.Final.452812a, netty-tr
ansport-rxtx=netty-transport-rxtx-4.0.44.Final.452812a, netty-transport-sctp=net
ty-transport-sctp-4.0.44.Final.452812a, netty-transport-udt=netty-transport-udt-
4.0.44.Final.452812a]
INFO [main] 2019-07-22 21:03:03,115 Server.java:156 - Starting listening for CQ
L clients on localhost/127.0.0.1:9042 (unencrypted)...
INFO [main] 2019-07-22 21:03:03,378 CassandraDaemon.java:556 - Not starting RPC
server as requested. Use JMX (StorageService->startRPCServer()) or nodetool (en
ablethrift) to start it
```

Procedemos a arrancar el cliente, cqlsh.py

```
E:\Temp\apache-cassandra-3.11.4\bin>cqlsh.py
WARNING: console codepage must be set to cp65001 to support utf-8 encoding on Windows platforms.
If you experience encoding problems, change your console codepage with 'chcp 65001' before starting 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.
WARNING: pyreadline dependency missing. Install to enable tab completion.
cqlsh>
```

Creamos un KEYSPACE llamado 'berenjena', que es el contenedor de la información almacenada

```
cqlsh> CREATE KEYSPACE berenjena WITH REPLICATION = { 'class' : 'SimpleStrategy'
, 'replication_factor' : 1 };
```

Y entramos a él con *use*

```
cqlsh> use berenjena;
cqlsh:berenjena>
```

Una vez dentro procedemos a crear una *column family*, que es semejante a una tabla, en este caso con los campos 'nombre', 'apodo', 'apellido' y 'organizacion'

```
cqlsh:berenjena> CREATE TABLE alumnos (
...     nombre text,
...     apodo text,
...     apellido text,
...     organizacion text,
...     PRIMARY KEY (nombre));
cqlsh:berenjena>
```

Y procedemos a insertar valores adicha column family

```
cqlsh:berenjena> INSERT INTO alumnos (nombre, apodo, apellido, organizacion) VALUES ('Dan', 'Programitas', 'Grigore', 'FEI');
cqlsh:berenjena>
```



























































```
cqlsh:berenjena> SELECT * FROM alumnos;

 nombre | apellido | apodo | organizacion
-----+-----+-----+-----
 Svetlana | Makarova | "Rusa" | FEI
  Ismael | Uelasco | "Soopas" | FEI
    Dan | Grigore | "Programitas" | FEI

<3 rows>
cqlsh:berenjena>
```

Diferencias entre Cassandra, MongoDB y Hadoop

Editorial information provided by DB-Engines

Name	Cassandra 	HBase 	MongoDB 
Description	Wide-column store based on ideas of BigTable and DynamoDB 	Wide-column store based on Apache Hadoop and on concepts of BigTable	One of the most popular document stores
Primary database model	Wide column store	Wide column store	Document store
DB-Engines Ranking  	Score 127.00 Rank #10 Overall #1 Wide column stores	Score 57.54 Rank #18 Overall #2 Wide column stores	Score 409.93 Rank #5 Overall #1 Document stores
Website	cassandra.apache.org	hbase.apache.org	www.mongodb.com
Technical documentation	cassandra.apache.org/doc/latest	hbase.apache.org	docs.mongodb.com/manual
Developer	Apache Software Foundation 	Apache Software Foundation 	MongoDB, Inc
Initial release	2008	2008	2009
Current release	3.11.4, February 2019	2.2.0, June 2019	4.0.10, May 2019
License 	Open Source 	Open Source 	Open Source 
Cloud-based only 	no	no	no 
DBaaS offerings (sponsored links) 			MongoDB Atlas : Deploy a fully managed cloud database in minutes.
Implementation language	Java	Java	C++
Server operating systems	BSD Linux OS X Windows	Linux Unix Windows 	Linux OS X Solaris Windows
Data scheme	schema-free	schema-free	schema-free 
Typing 	yes	no	yes 
XML support 	no	no	
Secondary indexes	restricted 		yes
SQL 	SQL-like SELECT, DML and DDL statements (CQL)	no	Read-only SQL queries via the MongoDB Connector for BI
APIs and other access methods	Proprietary protocol  Thrift	Java API RESTful HTTP API Thrift	proprietary protocol using JSON
Supported programming languages	C# C++ Clojure Erlang Go Haskell Java JavaScript  Perl PHP Python Ruby Scala	C C# C++ Groovy Java PHP Python Scala	Actionscript  C C# C++ Clojure  ColdFusion  D  Dart  Delphi  Erlang Go  Groovy  Haskell Java JavaScript Lisp  Lua  MatLab  Perl PHP PowerShell  Prolog  R  Ruby Scala Smalltalk 
Server-side scripts 	no	yes 	JavaScript
Triggers	yes	yes	no
Partitioning methods 	Sharding 	Sharding	Sharding
Replication methods 	selectable replication factor 	selectable replication factor	Master-slave replication
MapReduce 	yes	yes	yes
Consistency concepts 	Eventual Consistency Immediate Consistency 	Immediate Consistency	Eventual Consistency Immediate Consistency 
Foreign keys 	no	no	no 
Transaction concepts 	no 	no	Multi-document ACID Transactions with snapshot isolation
Concurrency 	yes	yes	yes
Durability 	yes	yes	yes 
In-memory capabilities 	no	no	yes 
User concepts 	Access rights for users can be defined per object	Access Control Lists (ACL) 	Access rights for users and roles