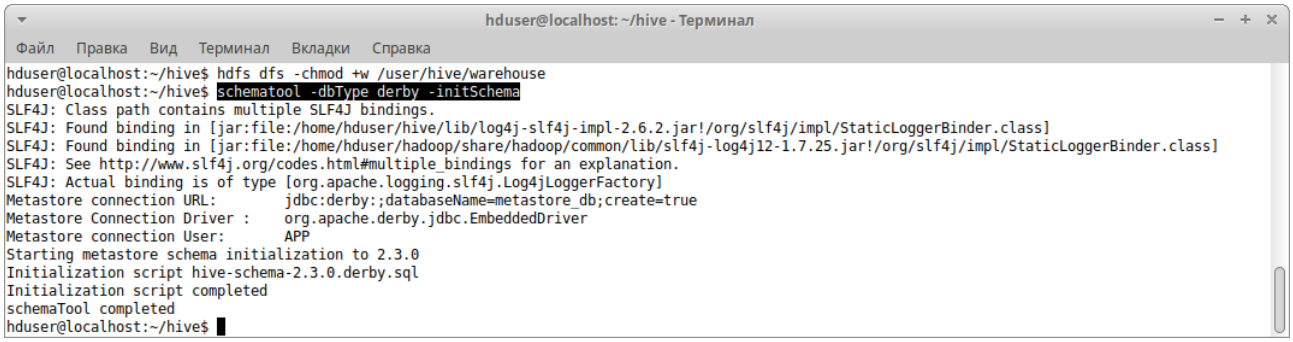
УДАЛЯЕМ КОНТЕЙНЕР И ОБРАЗ
docker rm gbspark
docker rmi img-hdp-spark
docker system prune
Соберите находясь в той же директории
docker build -t img-hdp-spark .
Поднимаем новый контейнер из образа:
docker run -it --name gbspark \
-p 50090:50090 \
-p 50075:50075 \
-p 50070:50070 \
-p 8042:8042 \
-p 8088:8088 \
-p 4040:4040 \
-p 4044:4044 \
-p 8888:8888 \
--hostname localhost \
img-hdp-spark
Стартуем остановленный контейнер:
docker start -i gbspark
Скачиваем и распаковываем дистрибутив:
wget https://apache-mirror.rbc.ru/pub/apache/hive/hive-2.3.9/apache-hive-2.3.9-bin.tar.gz
tar xzf apache-hive-2.3.9-bin.tar.gz
rm apache-hive-2.3.9-bin.tar.gz
mv apache-hive-2.3.9-bin hive
Задаем необходимые переменные окружения:
export HIVE_HOME=/home/hduser/hive
export PATH=$PATH:$HIVE_HOME/bin
Устанавливаем необходимые директории и права:
hdfs dfs -mkdir -p /user/hive/warehouse
hdfs dfs -chmod +w /user/hive/warehouse
Инициализируем метастор:
schematool -dbType derby -initSchema



Создадим файл: vi ~/hive/conf/hive-site.xml **и вставим:**
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>
<configuration>
<property>
<name>hive.server2.enable.doAs</name>
<value>FALSE</value>
<description/>
</property>

</configuration>

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>
<configuration>
        <property>
                <name>hive.server2.enable.doAs</name>
                <value>FALSE</value>
                <description/>
        </property>
</configuration>
~
:wq
```

Проверяем работу:
hive -e 'show tables;'

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка
hduser@localhost:~$ hive -e 'show tables;'
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/home/hduser/hive/lib/log4j-slf4j-impl-2.6.2.jar!/org/s
lf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/home/hduser/hadoop/share/hadoop/common/lib/slf4j-log4j
12-1.7.25.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
SLF4J: Actual binding is of type [org.apache.logging.slf4j.Log4jLoggerFactory]

Logging initialized using configuration in jar:file:/home/hduser/hive/lib/hive-common-2.3
.9.jar!/hive-log4j2.properties Async: true
OK
Time taken: 4.967 seconds
hduser@localhost:~$
```

Запускаем в фоне Hive Server:
hiveserver2 &> /dev/null &
Подключаемся через beeline cli:
beeline -u jdbc:hive2://localhost:10000
Проверяем работу:
0: jdbc:hive2://localhost:10000> **show tables;**

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка
Connected to: Apache Hive (version 2.3.9)
Driver: Hive JDBC (version 1.2.1.spark2)
Transaction isolation: TRANSACTION_REPEATABLE_READ
Beeline version 1.2.1.spark2 by Apache Hive
0: jdbc:hive2://localhost:10000> show tables;
+-----------+--+
| tab_name  |
+-----------+--+
+-----------+--+
No rows selected (1.035 seconds)
0: jdbc:hive2://localhost:10000>
```

Выходим:
0: jdbc:hive2://localhost:10000> **!q**

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка
No rows selected (1.035 seconds)
0: jdbc:hive2://localhost:10000> !q
Closing: 0: jdbc:hive2://localhost:10000
hduser@localhost:~$
```

УСТАНОВКА APACHE ZEPPELIN

Скачиваем и распаковываем дистрибутив:

wget https://artfiles.org/apache.org/zeppelin/zeppelin-0.10.0/zeppelin-0.10.0-bin-all.tgz
tar xzf zeppelin-0.10.0-bin-all.tgz
rm zeppelin-0.10.0-bin-all.tgz
mv zeppelin-0.10.0-bin-all zeppelin

Задаем необходимые переменные окружения: vi ~/.bashrc
export ZEPPELIN_HOME=/home/hduser/zeppelin
export PATH=$PATH:$ZEPPELIN_HOME/bin

НАСТРОЙКА APACHE ZEPPELIN

Создадим файл vi ~/zeppelin/conf/zeppelin-env.sh **и вставим:**

#!/bin/bash
export USE_HADOOP=true
export ZEPPELIN_ADDR=0.0.0.0
export ZEPPELIN_PORT=8888
export SPARK_HOME=/home/hduser/spark
export SPARK_APP_NAME=zeppelin-hduser
export HADOOP_CONF_DIR=/home/hduser/hadoop/etc/hadoop

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка
#!/bin/bash
export USE_HADOOP=true
export ZEPPELIN_ADDR=0.0.0.0
export ZEPPELIN_PORT=8888
export SPARK_HOME=/home/hduser/spark
export SPARK_APP_NAME=zeppelin-hduser
export HADOOP_CONF_DIR=/home/hduser/hadoop/etc/hadoop
:wq
```

Запускаем:

zeppelin-daemon.sh start

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка
hduser@localhost:~$ zeppelin-daemon.sh start
Log dir doesn't exist, create /home/hduser/zeppelin/logs
Pid dir doesn't exist, create /home/hduser/zeppelin/run
Zeppelin start                                             [  OK  ]
hduser@localhost:~$
```

ПРОВЕРКА

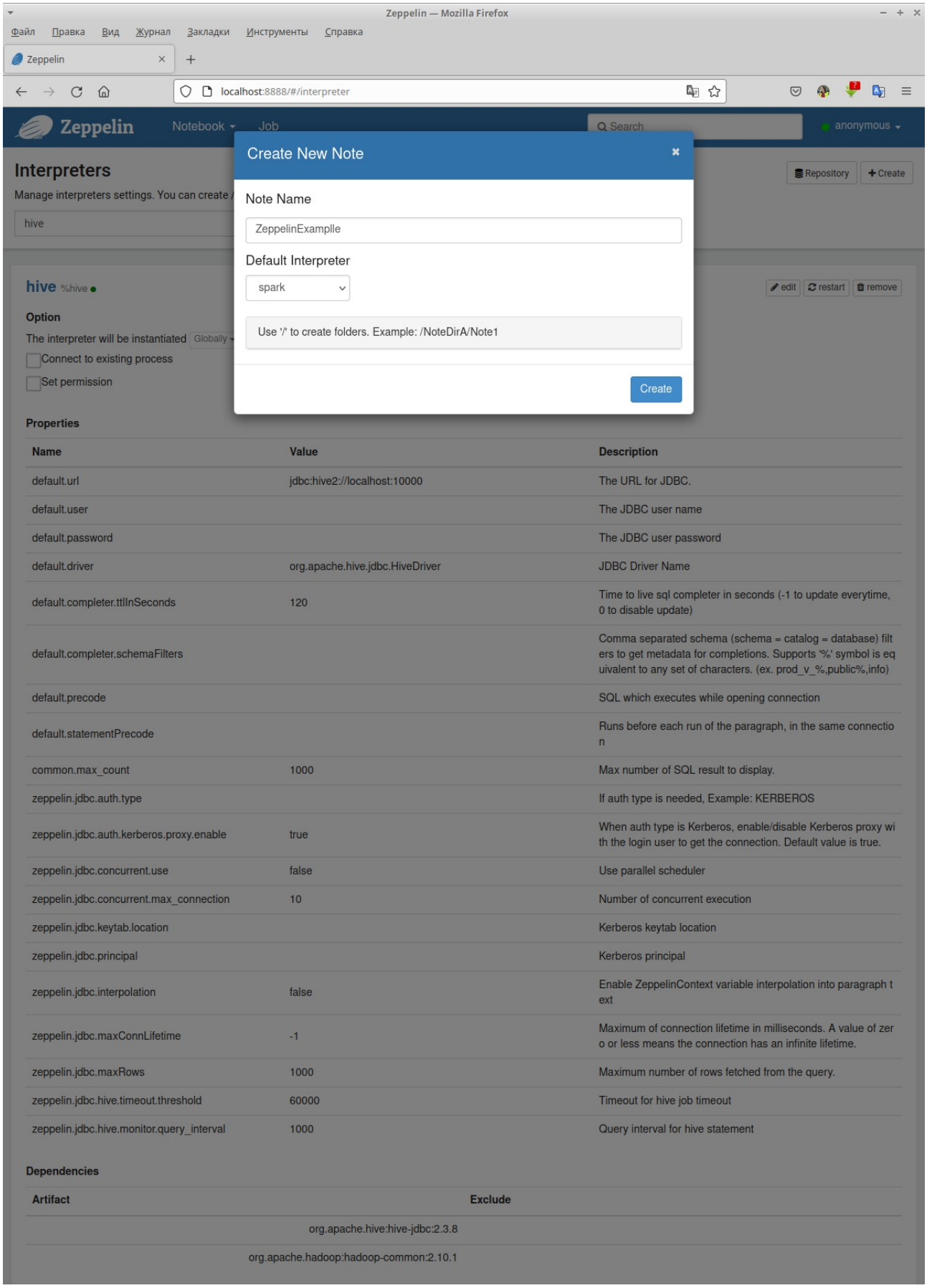
Переходим на http://localhost:8888:

НАСТРОЙКА ИНТЕРПРЕТАТОРА SPARK

spark.master **yarn-cluster**

Create new interpreter Interpreter Name

hive



```
sh
python -m pip install kaggle

sh
export KAGGLE_USERNAME=igortolstikov
export KAGGLE_KEY=fb99c3ad6bf931513798d91567033035
mkdir -p /home/hduser/lego
cd /home/hduser/lego
kaggle datasets files rtatman/lego-database
kaggle datasets download rtatman/lego-database

sh
cd /home/hduser/lego
unzip lego-database.zip
rm lego-database.zip
ls -la

sh
hdfs dfs -put /home/hduser/lego /user/hduser
hdfs dfs -ls /user/hduser/lego

sh
hdfs dfs -cat /user/hduser/lego/colors.csv | head

sh
echo %table
hdfs dfs -cat /user/hduser/lego/colors.csv | \
    awk -F ',' '{ if ($4 == "${is_trans=f,f|t}") print $0 }' | \
    tr ',' '\t' | head -n ${limit=7}

sh
hdfs dfs -cat /user/hduser/lego/themes.csv | head

hive
CREATE TABLE lego_themes(id INT, name STRING, parent_id INT)
    COMMENT 'Information on lego themes'
    ROW FORMAT DELIMITED
    FIELDS TERMINATED BY ','
    STORED AS TEXTFILE
    TBLPROPERTIES("skip.header.line.count"="1")

sh
hdfs dfs -cat /user/hduser/lego/sets.csv | head

hive
CREATE TABLE lego_sets(set_num STRING, name STRING, year INT, theme_id INT, num_parts
INT)
    COMMENT 'Information on lego themes'
    ROW FORMAT DELIMITED
    FIELDS TERMINATED BY ','
    STORED AS TEXTFILE
    TBLPROPERTIES("skip.header.line.count"="1")
```

hive
show tables;

hive
LOAD DATA INPATH '/user/hduser/lego/themes.csv' INTO TABLE lego_themes;
LOAD DATA INPATH '/user/hduser/lego/sets.csv' INTO TABLE lego_sets;

hive
SELECT * FROM lego_themes LIMIT 5;

hive
SELECT year, count(*) as count FROM lego_sets GROUP BY year

sh
hdfs dfs -ls /user/hduser/lego

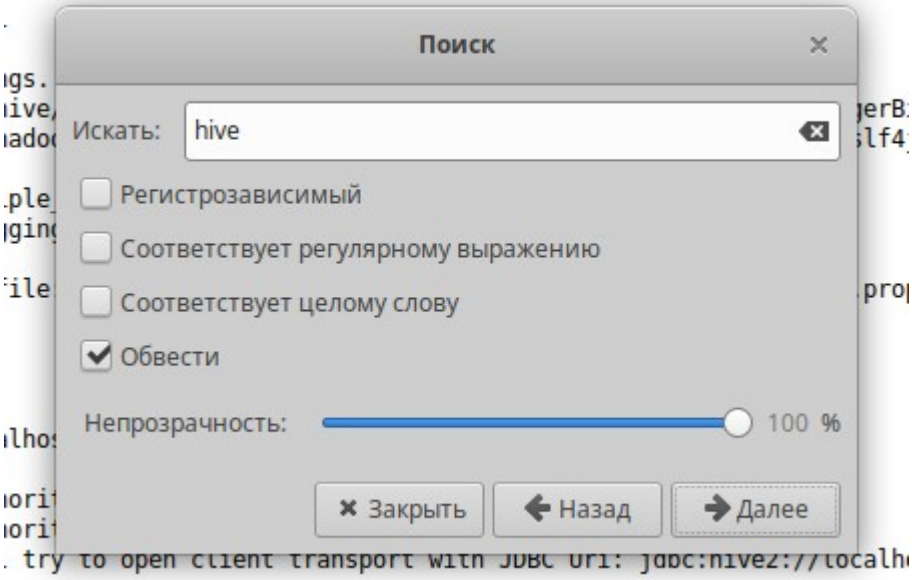
sh
hdfs dfs -ls /user/hive/warehouse

sh
hdfs dfs -cp /user/hive/warehouse/lego_sets/sets.csv /user/hduser/lego/

sh
hdfs dfs -cp /user/hive/warehouse/lego_themes/themes.csv /user/hduser/lego/

sh
hdfs dfs -ls /user/hduser/lego

spark.sql
SELECT * FROM csv.'/user/hduser/lego/sets.csv' LIMIT 10;
mismatched input 'FROM' expecting <EOF>(line 2, pos 9) == SQL == SELECT * FROM csv.'/user/hduser/lego/sets.csv' LIMIT 10 ---------^^^



[1] 1490
kill 1490
jps -m

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка
hduser@localhost:~$ kill 1490
hduser@localhost:~$ jps -m
1920 RemoteInterpreterServer 172.17.0.2 40579 sh-shared_process :
513 SecondaryNameNode
690 ResourceManager
805 NodeManager
4406 Jps -m
1734 ZeppelinServer
328 DataNode
187 NameNode
3036 RemoteInterpreterServer 172.17.0.2 40579 hive-shared_process :
4173 ApplicationMaster --class org.apache.zeppelin.interpreter.remote.RemoteInterpreterServer --jar file:/home/hduser/zeppelin/interp
reter/spark/spark-interpreter-0.10.0.jar --arg 172.17.0.2 --arg 40579 --arg spark-shared_process --arg : --properties-file /tmp/hadoo
p-hduser/nm-local-dir/usercache/hduser/appcache/application_1637951794224_0001/container_1637951794224_0001_01_000001/__spark_conf__/
__spark_conf__.properties
4270 CoarseGrainedExecutorBackend --driver-url spark://CoarseGrainedScheduler@localhost:43743 --executor-id 1 --hostname localhost --
cores 1 --app-id application_1637951794224_0001 --user-class-path file:/tmp/hadoop-hduser/nm-local-dir/usercache/hduser/appcache/appl
ication_1637951794224_0001/container_1637951794224_0001_01_000002/__app__.jar --user-class-path file:/tmp/hadoop-hduser/nm-local-dir/
usercache/hduser/appcache/application_1637951794224_0001/container_1637951794224_0001_01_000002/spark-scala-2.11-0.10.0.jar --user-cl
ass-path file:/tmp/hadoop-hduser/nm-local-dir/usercache/hduser/appcache/application_1637951794224_0001/container_1637951794224_0001_0
1_000002/zeppelin-interpreter-shaded-0.10.0.jar
[1]+  Exit 143                hiveserver2 &> /dev/null
hduser@localhost:~$
```

mismatched input 'FROM' expecting <EOF>(line 2, pos 9)
 == SQL ==
 SELECT * FROM csv.'/user/hduser/lego/sets.csv' LIMIT 10
---------^^^

spark.sql
SELECT _c2 as year, count(*) as count FROM csv.'/user/hduser/lego/sets.csv' LIMIT 10;

mismatched input 'FROM' expecting <EOF>(line 2, pos 38) == SQL == SELECT _c2 as year, count(*) as count FROM csv.'/user/hduser/lego/sets.csv' LIMIT 10

spark
val a=1
val b=2
val c= a+b

~~spark~~
val a=1
val b=2
val c= a+b

```
val df = sqlContext
    .read
    .format("csv")
    .option("header", "true")
    .option("interSchema", "true")
    .load("/user/hduser/lego/sets.csv")

df.printSchema()

df.show()

df.groupBy("year").count.collect
```

```
val rows = df.groupBy("year").count.collect

println("%table")
println("year\tcount")
rows.map{ row => s"${row.getInt(0)}\t${row.getLong(1)}" }.map(println)

val rows = df.groupBy("year").count.collect
val data = rows.map(row => getInt(0) + "\t" + row.getLong(1))
println("%table\n" + "year\tcount\n" + data.mkString("\n"))
```

<console>:27: error: not found: value getInt val data = rows.map(row => getInt(0) + "\t" + row.getLong(1)) ^ <console>:31: error: value mkString is not a member of Array[Nothing] println("%table\n" + "year\tcount\n" + data.mkString("\n"))

```
spark.sql
SELECT year, Count(*) as count FROM lego_sets GROUP BY year
```

Table or view not found: lego_sets; line 2 pos 36