

docker start -i gbhdp

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка
igoreigor-MS-7808:~$ docker start -i gbhdp
* Starting OpenBSD Secure Shell server sshd
Starting namenodes on [localhost]
localhost: Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.
localhost: starting namenode, logging to /home/hduser/hadoop/logs/hadoop-hduser-namenode-localhost.out
localhost: Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.
localhost: starting datanode, logging to /home/hduser/hadoop/logs/hadoop-hduser-datanode-localhost.out
Starting secondary namenodes [0.0.0.0]
0.0.0.0: Warning: Permanently added '0.0.0.0' (ECDSA) to the list of known hosts.
0.0.0.0: starting secondarynamenode, logging to /home/hduser/hadoop/logs/hadoop-hduser-secondarynamenode-localhost.out
starting yarn daemons
starting resourcemanager, logging to /home/hduser/hadoop/logs/yarn--resourcemanager-localhost.out
localhost: Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.
localhost: starting nodemanager, logging to /home/hduser/hadoop/logs/yarn-hduser-nodemanager-localhost.out
hduser@localhost:~$
```

wget https://apache-mirror.rbc.ru/pub/apache/spark/spark-2.4.8/spark-2.4.8-bin-hadoop2.7.tgz

```
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localhost: Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.
localhost: starting nodemanager, logging to /home/hduser/hadoop/logs/yarn-hduser-nodemanager-localhost.out
hduser@localhost:~$ wget https://apache-mirror.rbc.ru/pub/apache/spark/spark-2.4.8/spark-2.4.8-bin-hadoop2.7.tgz
--2021-11-24 17:42:55-- https://apache-mirror.rbc.ru/pub/apache/spark/spark-2.4.8/spark-2.4.8-bin-hadoop2.7.tgz
Resolving apache-mirror.rbc.ru (apache-mirror.rbc.ru)... 80.68.250.216
Connecting to apache-mirror.rbc.ru (apache-mirror.rbc.ru)[80.68.250.216]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 235899716 (225M) [application/octet-stream]
Saving to: 'spark-2.4.8-bin-hadoop2.7.tgz'

spark-2.4.8-bin-hadoop2.7.tgz      100%[=====>] 224.97M  37.5MB/s   in 6.1s

2021-11-24 17:43:01 (37.0 MB/s) - 'spark-2.4.8-bin-hadoop2.7.tgz' saved [235899716/235899716]

hduser@localhost:~$
```

tar xzf spark-2.4.8-bin-hadoop2.7.tgz

```
hduser@localhost: ~ - Терминал
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spark-2.4.8-bin-hadoop2.7.tgz      100%[=====>] 224.97M  37.5MB/s   in 6.1s

2021-11-24 17:43:01 (37.0 MB/s) - 'spark-2.4.8-bin-hadoop2.7.tgz' saved [235899716/235899716]

hduser@localhost:~$ tar xzf spark-2.4.8-bin-hadoop2.7.tgz
hduser@localhost:~$ ls
MapReduce-1.0-SNAPSHOT.jar  hadoop  ppkm  spark-2.4.8-bin-hadoop2.7  spark-2.4.8-bin-hadoop2.7.tgz
hduser@localhost:~$
```

mv spark-2.4.8-bin-hadoop2.7 spark

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка
hduser@localhost:~$ tar xzf spark-2.4.8-bin-hadoop2.7.tgz
hduser@localhost:~$ ls
MapReduce-1.0-SNAPSHOT.jar  hadoop  ppkm  spark-2.4.8-bin-hadoop2.7  spark-2.4.8-bin-hadoop2.7.tgz
hduser@localhost:~$ rm spark-2.4.8-bin-hadoop2.7.tgz
hduser@localhost:~$ ls
MapReduce-1.0-SNAPSHOT.jar  hadoop  ppkm  spark-2.4.8-bin-hadoop2.7
hduser@localhost:~$ mv spark-2.4.8-bin-hadoop2.7 spark
hduser@localhost:~$ ls
MapReduce-1.0-SNAPSHOT.jar  hadoop  ppkm  spark
hduser@localhost:~$
```

Редактирование в vim .bashrc:

export SPARK_HOME=/home/hduser/spark

export PATH=\$PATH:\$SPARK_HOME/bin

export HADOOP_CONF_DIR=\$HADOOP_HOME/etc/hadoop

```
hduser@localhost: ~ - Терминал
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if [ -f /usr/share/bash-completion/bash_completion ]; then
    . /usr/share/bash-completion/bash_completion
elif [ -f /etc/bash_completion ]; then
    . /etc/bash_completion
fi
fi
export SPARK_HOME=/home/hduser/spark
export PATH=$PATH:$SPARK_HOME/bin
export HADOOP_CONF_DIR=$HADOOP_HOME/etc/hadoop
:wq
```

echo \$PATH

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка

hduser@localhost:~/spark$ cd ..
hduser@localhost:~$ export SPARK_HOME=/home/hduser/spark
hduser@localhost:~$ export PATH=$PATH:$SPARK_HOME/bin
hduser@localhost:~$ export HADOOP_CONF_DIR=$HADOOP_HOME/etc/hadoop
hduser@localhost:~$ vim .bashrc
hduser@localhost:~$ vim .bashrc
hduser@localhost:~$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/home/hduser/hadoop/bin:/home/hduser/hadoop/s
bin:/home/hduser/.local/bin:/home/hduser/spark/bin
hduser@localhost:~$
```

Запускаем приложение:

spark-submit

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка

hduser@localhost:~$ spark-submit
Usage: spark-submit [options] <app jar | python file | R file> [app arguments]
Usage: spark-submit --kill [submission ID] --master [spark://...]
Usage: spark-submit --status [submission ID] --master [spark://...]
Usage: spark-submit run-example [options] example-class [example args]

Options:
  --master MASTER_URL      spark://host:port, mesos://host:port, yarn,
                           k8s://https://host:port, or local (Default: local[*]).
  --deploy-mode DEPLOY_MODE Whether to launch the driver program locally ("client") or
                           on one of the worker machines inside the cluster ("cluster")
                           (Default: client).
  --class CLASS_NAME       Your application's main class (for Java / Scala apps).
  --name NAME              A name of your application.
  --jars JARS              Comma-separated list of jars to include on the driver
                           and executor classpaths.
  --packages               Comma-separated list of maven coordinates of jars to include
                           on the driver and executor classpaths. Will search the local
                           maven repo, then maven central and any additional remote
                           repositories given by --repositories. The format for the
                           coordinates should be groupId:artifactId:version.
  --exclude-packages       Comma-separated list of groupId:artifactId, to exclude while
                           resolving the dependencies provided in --packages to avoid
                           dependency conflicts.
  --repositories           Comma-separated list of additional remote repositories to
                           search for the maven coordinates given with --packages.
  --py-files PY_FILES      Comma-separated list of .zip, .egg, or .py files to place
                           on the PYTHONPATH for Python apps.
  --files FILES            Comma-separated list of files to be placed in the working
                           directory of each executor. File paths of these files
                           in executors can be accessed via SparkFiles.get(fileName).

  --conf, -c PROP=VALUE    Arbitrary Spark configuration property.
  --properties-file FILE    Path to a file from which to load extra properties. If not
                           specified, this will look for conf/spark-defaults.conf.

  --driver-memory MEM      Memory for driver (e.g. 1000M, 2G) (Default: 1024M).
  --driver-java-options    Extra Java options to pass to the driver.
  --driver-library-path    Extra library path entries to pass to the driver.
  --driver-class-path      Extra class path entries to pass to the driver. Note that
                           jars added with --jars are automatically included in the
                           classpath.

  --executor-memory MEM    Memory per executor (e.g. 1000M, 2G) (Default: 1G).
  --proxy-user NAME        User to impersonate when submitting the application.
                           This argument does not work with --principal / --keytab.

  --help, -h              Show this help message and exit.
  --verbose, -v           Print additional debug output.
  --version,              Print the version of current Spark.

Cluster deploy mode only:
  --driver-cores NUM       Number of cores used by the driver, only in cluster mode
                           (Default: 1).

Spark standalone or Mesos with cluster deploy mode only:
  --supervise              If given, restarts the driver on failure.
  --kill SUBMISSION_ID     If given, kills the driver specified.
  --status SUBMISSION_ID   If given, requests the status of the driver specified.

Spark standalone and Mesos only:
  --total-executor-cores NUM Total cores for all executors.

Spark standalone and YARN only:
  --executor-cores NUM     Number of cores per executor. (Default: 1 in YARN mode,
                           or all available cores on the worker in standalone mode)

YARN-only:
  --queue QUEUE_NAME       The YARN queue to submit to (Default: "default").
  --num-executors NUM      Number of executors to launch (Default: 2).
                           If dynamic allocation is enabled, the initial number of
                           executors will be at least NUM.
  --archives ARCHIVES      Comma separated list of archives to be extracted into the
                           working directory of each executor.
  --principal PRINCIPAL    Principal to be used to login to KDC, while running on
                           secure HDFS.
  --keytab KEYTAB          The full path to the file that contains the keytab for the
                           principal specified above. This keytab will be copied to
                           the node running the Application Master via the Secure
                           Distributed Cache, for renewing the login tickets and the
                           delegation tokens periodically.

hduser@localhost:~$
```

ls -la

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка
hduser@localhost:~$ ls -la
total 64
drwxr-xr-x  1 hduser hduser 4096 Nov 24 17:56 .
drwxr-xr-x  1 root   root   4096 Nov 22 20:40 ..
-rw-r--r--  1 hduser hduser  508 Nov 22 23:38 .bash_history
-rw-r--r--  1 hduser hduser  220 Apr  4 2018 .bash_logout
-rw-r--r--  1 hduser hduser 3889 Nov 24 17:56 .bashrc
drwx----- 2 hduser hduser 4096 Nov 22 20:43 .cache
-rw-r--r--  1 hduser hduser  807 Apr  4 2018 .profile
drwx----- 2 hduser hduser 4096 Nov 22 20:40 .ssh
-rw-r--r--  1 hduser hduser   0 Nov 22 20:40 .sudo_as_admin_successful
-rw-r--r--  1 hduser hduser 1124 Nov 24 17:56 .viminfo
-rw-rw-r--  1 hduser hduser 4441 Nov 22 22:32 MapReduce-1.0-SNAPSHOT.jar
drwxr-xr-x  1 hduser hduser 4096 Nov 22 20:43 hadoop
drwxr-xr-x  2 hduser hduser 4096 Jan  1 1970 ppsm
drwxr-xr-x 13 hduser hduser 4096 May  8 2021 spark
hduser@localhost:~$
```

ls spark/

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка
drwxr-xr-x 13 hduser hduser 4096 May  8 2021 spark
hduser@localhost:~$ ls spark/
LICENSE  R        RELEASE  conf  examples  kubernetes  python  yarn
NOTICE   README.md bin      data  jars      licenses    sbin
hduser@localhost:~$
```

ls spark/jars/

```

hduser@localhost:~$ ls spark/jars/
JavaEWAH-0.3.2.jar
RoaringBitmap-0.7.45.jar
ST4-4.0.4.jar
activation-1.1.1.jar
aircompressor-0.10.jar
antlr-2.7.7.jar
antlr-runtime-3.4.jar
antlr4-runtime-4.7.jar
aopalliance-1.0.jar
aopalliance-repackaged-2.4.0-b34.jar
apache-log4j-extras-1.2.17.jar
apacheds-ii8n-2.0.0-M15.jar
apacheds-kerberos-codec-2.0.0-M15.jar
api-asn1-api-1.0.0-M20.jar
api-util-1.0.0-M20.jar
arpack_combined_all-0.1.jar
arrow-format-0.10.0.jar
arrow-memory-0.10.0.jar
arrow-vector-0.10.0.jar
automaton-1.11-8.jar
avro-1.8.2.jar
avro-ipc-1.8.2.jar
avro-mapred-1.8.2-hadoop2.jar
bonecp-0.8.0.RELEASE.jar
breeze-macros_2.11-0.13.2.jar
breeze_2.11-0.13.2.jar
calcite-avatica-1.2.0-incubating.jar
calcite-core-1.2.0-incubating.jar
calcite-linq4j-1.2.0-incubating.jar
chill-java-0.9.3.jar
chill_2.11-0.9.3.jar
commons-beanutils-1.9.4.jar
commons-cli-1.2.jar
commons-codec-1.10.jar
commons-collections-3.2.2.jar
commons-compiler-3.0.16.jar
commons-compress-1.20.jar
commons-configuration-1.6.jar
commons-crypto-1.0.0.jar
commons-dbc-1.4.jar
commons-digester-1.8.jar
commons-httpclient-3.1.jar
commons-io-2.4.jar
commons-lang-2.6.jar
commons-lang3-3.5.jar
commons-logging-1.1.3.jar
commons-math3-3.4.1.jar
commons-net-3.1.jar
commons-pool-1.5.4.jar
compress-lzf-1.0.3.jar
core-1.1.2.jar
curator-client-2.7.1.jar
curator-framework-2.7.1.jar
curator-recipes-2.7.1.jar
datanucleus-api-jdo-3.2.6.jar
datanucleus-core-3.2.10.jar
datanucleus-rdbms-3.2.9.jar
derby-10.12.1.1.jar
eigenbase-properties-1.1.5.jar
flatbuffers-1.2.0-3f79e055.jar
generex-1.0.2.jar
gson-2.2.4.jar
guava-14.0.1.jar
guice-3.0.jar
guice-servlet-3.0.jar
hadoop-annotations-2.7.3.jar
hadoop-auth-2.7.3.jar
hadoop-client-2.7.3.jar
hadoop-common-2.7.3.jar
hadoop-hdfs-2.7.3.jar
hadoop-mapreduce-client-app-2.7.3.jar
hadoop-mapreduce-client-common-2.7.3.jar
hadoop-mapreduce-client-core-2.7.3.jar
hadoop-mapreduce-client-jobclient-2.7.3.jar
hadoop-mapreduce-client-shuffle-2.7.3.jar
hadoop-yarn-api-2.7.3.jar
hadoop-yarn-client-2.7.3.jar
hadoop-yarn-common-2.7.3.jar
hadoop-yarn-server-common-2.7.3.jar
hadoop-yarn-server-web-proxy-2.7.3.jar
hive-beeline-1.2.1.spark2.jar
hive-cli-1.2.1.spark2.jar
hive-exec-1.2.1.spark2.jar
hive-jdbc-1.2.1.spark2.jar
hive-metastore-1.2.1.spark2.jar
hk2-api-2.4.0-b34.jar
hk2-locator-2.4.0-b34.jar
hk2-utils-2.4.0-b34.jar
hppc-0.7.2.jar
htrace-core-3.1.0-incubating.jar
httpclient-4.5.6.jar
httpcore-4.4.10.jar
ivy-2.4.0.jar
jackson-annotations-2.6.7.jar
jackson-core-2.6.7.jar
jackson-core-asl-1.9.13.jar
jackson-databind-2.6.7.3.jar
jackson-dataformat-yaml-2.6.7.jar
jackson-jaxrs-1.9.13.jar
jackson-mapper-asl-1.9.13.jar
jackson-module-jaxb-annotations-2.6.7.jar
jackson-module-paranamer-2.7.9.jar
jackson-module-scala_2.11-2.6.7.1.jar
jackson-xc-1.9.13.jar
janino-3.0.16.jar
javassist-3.18.1-GA.jar
javax.annotation-api-1.2.jar
javax.inject-1.jar
javax.inject-2.4.0-b34.jar
javax.servlet-api-3.1.0.jar
javax.ws.rs-api-2.0.1.jar
javolution-5.5.1.jar
jaxb-api-2.2.2.jar
jcl-over-slf4j-1.7.16.jar
jdo-api-3.0.1.jar
jersey-client-2.22.2.jar
jersey-common-2.22.2.jar
jersey-container-servlet-2.22.2.jar
jersey-container-servlet-core-2.22.2.jar
jersey-guava-2.22.2.jar
jersey-media-jaxb-2.22.2.jar
jersey-server-2.22.2.jar
jetty-6.1.26.jar
jetty-util-6.1.26.jar
jline-2.14.6.jar
joda-time-2.9.3.jar
jodd-core-3.5.2.jar
jpam-1.1.jar
json4s-ast_2.11-3.5.3.jar
json4s-core_2.11-3.5.3.jar
json4s-jackson_2.11-3.5.3.jar
json4s-scalap_2.11-3.5.3.jar
jsp-api-2.1.jar
jsr305-1.3.9.jar
jta-1.1.jar
jtransforms-2.4.0.jar
jul-to-slf4j-1.7.16.jar
kryo-shaded-4.0.2.jar
kubernetes-client-4.6.1.jar
kubernetes-model-4.6.1.jar
kubernetes-model-common-4.6.1.jar
leveldbjni-all-1.8.jar
libfb303-0.9.3.jar
libthrift-0.9.3.jar
log4j-1.2.17.jar
logging-interceptor-3.12.0.jar
lz4-java-1.4.0.jar
machinist_2.11-0.6.1.jar
macro-compat_2.11-1.1.1.jar
mesos-1.4.0-shaded-protobuf.jar
metrics-core-3.1.5.jar
metrics-graphite-3.1.5.jar
metrics-json-3.1.5.jar
metrics-jvm-3.1.5.jar
minlog-1.3.0.jar
netty-3.9.9.Final.jar
netty-all-4.1.47.Final.jar
objenesis-2.5.1.jar
okhttp-3.12.0.jar
okio-1.15.0.jar
opencsv-2.3.jar
orc-core-1.5.5-nohive.jar
orc-mapreduce-1.5.5-nohive.jar
orc-shims-1.5.5.jar
oro-2.0.8.jar
osgi-resource-locator-1.0.1.jar
paranamer-2.8.jar
parquet-column-1.10.1.jar
parquet-common-1.10.1.jar
parquet-encoding-1.10.1.jar
parquet-format-2.4.0.jar
parquet-hadoop-1.10.1.jar
parquet-hadoop-bundle-1.6.0.jar
parquet-jackson-1.10.1.jar
protobuf-java-2.5.0.jar
py4j-0.10.7.jar
pyrolite-4.13.jar
scala-compiler-2.11.12.jar
scala-library-2.11.12.jar
scala-parser-combinators_2.11-1.1.0.jar
scala-reflect-2.11.12.jar
scala-xml_2.11-1.0.5.jar
shapeless_2.11-2.3.2.jar
shims-0.7.45.jar
slf4j-api-1.7.16.jar
slf4j-log4j12-1.7.16.jar
snakeyaml-1.15.jar
snappy-0.2.jar
snappy-java-1.1.8.2.jar
spark-catalyst_2.11-2.4.8.jar
spark-core_2.11-2.4.8.jar
spark-graphx_2.11-2.4.8.jar
spark-hive-thriftserver_2.11-2.4.8.jar
spark-hive_2.11-2.4.8.jar
spark-kubernetes_2.11-2.4.8.jar
spark-kvstore_2.11-2.4.8.jar
spark-launcher_2.11-2.4.8.jar
spark-mesos_2.11-2.4.8.jar
spark-mllib-local_2.11-2.4.8.jar
spark-mllib_2.11-2.4.8.jar
spark-network-common_2.11-2.4.8.jar
spark-network-shuffle_2.11-2.4.8.jar
spark-repl_2.11-2.4.8.jar
spark-sketch_2.11-2.4.8.jar
spark-sql_2.11-2.4.8.jar
spark-streaming_2.11-2.4.8.jar
spark-tags_2.11-2.4.8-tests.jar
spark-tags_2.11-2.4.8.jar
spark-unsafe_2.11-2.4.8.jar
spark-yarn_2.11-2.4.8.jar
spire-macros_2.11-0.13.0.jar
spire_2.11-0.13.0.jar
stax-api-1.0-2.jar
stax-api-1.0.1.jar
stream-2.7.0.jar
stringtemplate-3.2.1.jar
super-csv-2.2.0.jar
univocity-parsers-2.7.3.jar
validation-api-1.1.0.Final.jar
xbean-asm6-shaded-4.8.jar
xercesImpl-2.9.1.jar
xmlenc-0.52.jar
xz-1.5.jar
zjsonpatch-0.3.0.jar
zookeeper-3.4.6.jar
zstd-jni-1.4.4-3.jar
hduser@localhost:~$

```


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Spark Project Core

License	Apache 2.0
Categories	Distributed Computing
HomePage	http://spark.apache.org/
Date	(May 15, 2021)
Files	jar (8.8 MB) View All
Repositories	Central
Used By	1,865 artifacts
Scala Target	Scala 2.12 (View all targets)

Note: There is a new version for this artifact

New Version 3.2.0

Maven Gradle Gradle (Short) Gradle (Kotlin) SBT Ivy Grape Leiningen

Builder

```
implementation group: 'org.apache.spark', name: 'spark-core_2.12', version: '2.4.8'
```

☐ Include comment with link to declaration

One-click export to any 3D app

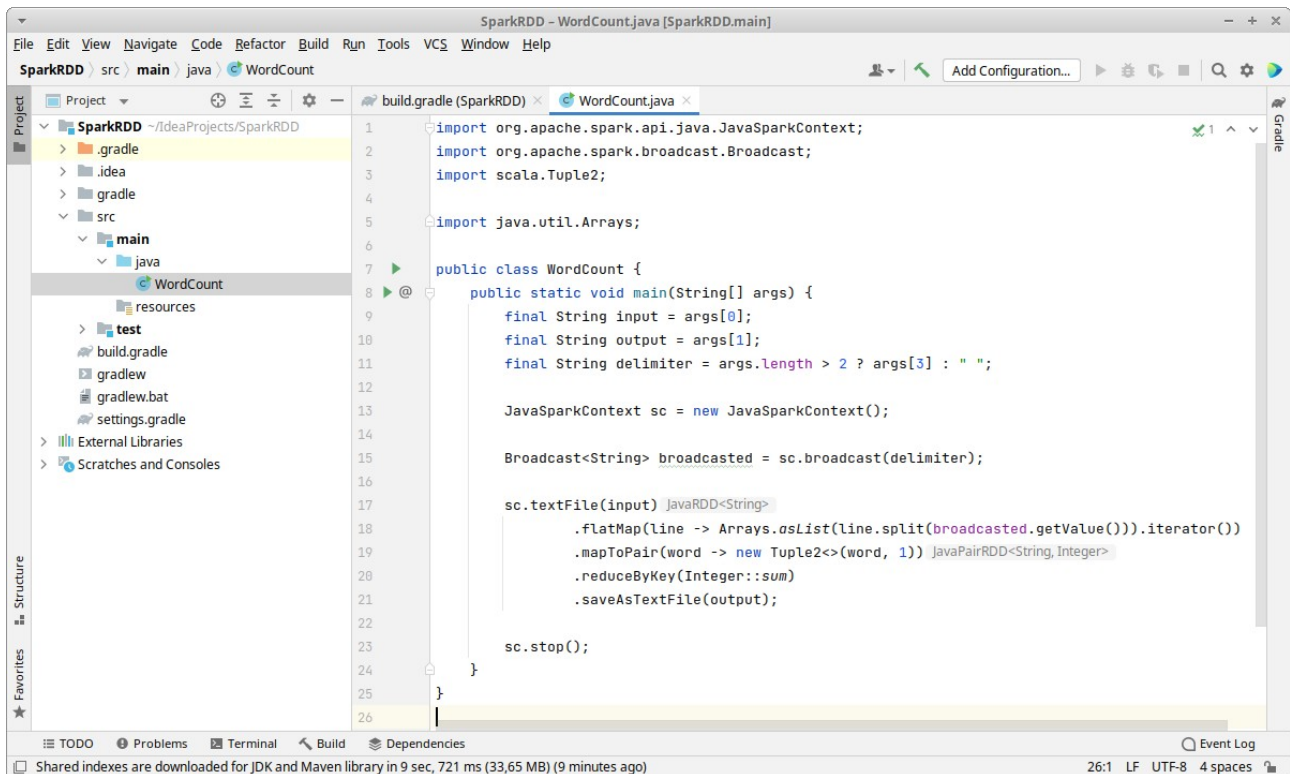
Ads by Google

Send feedback

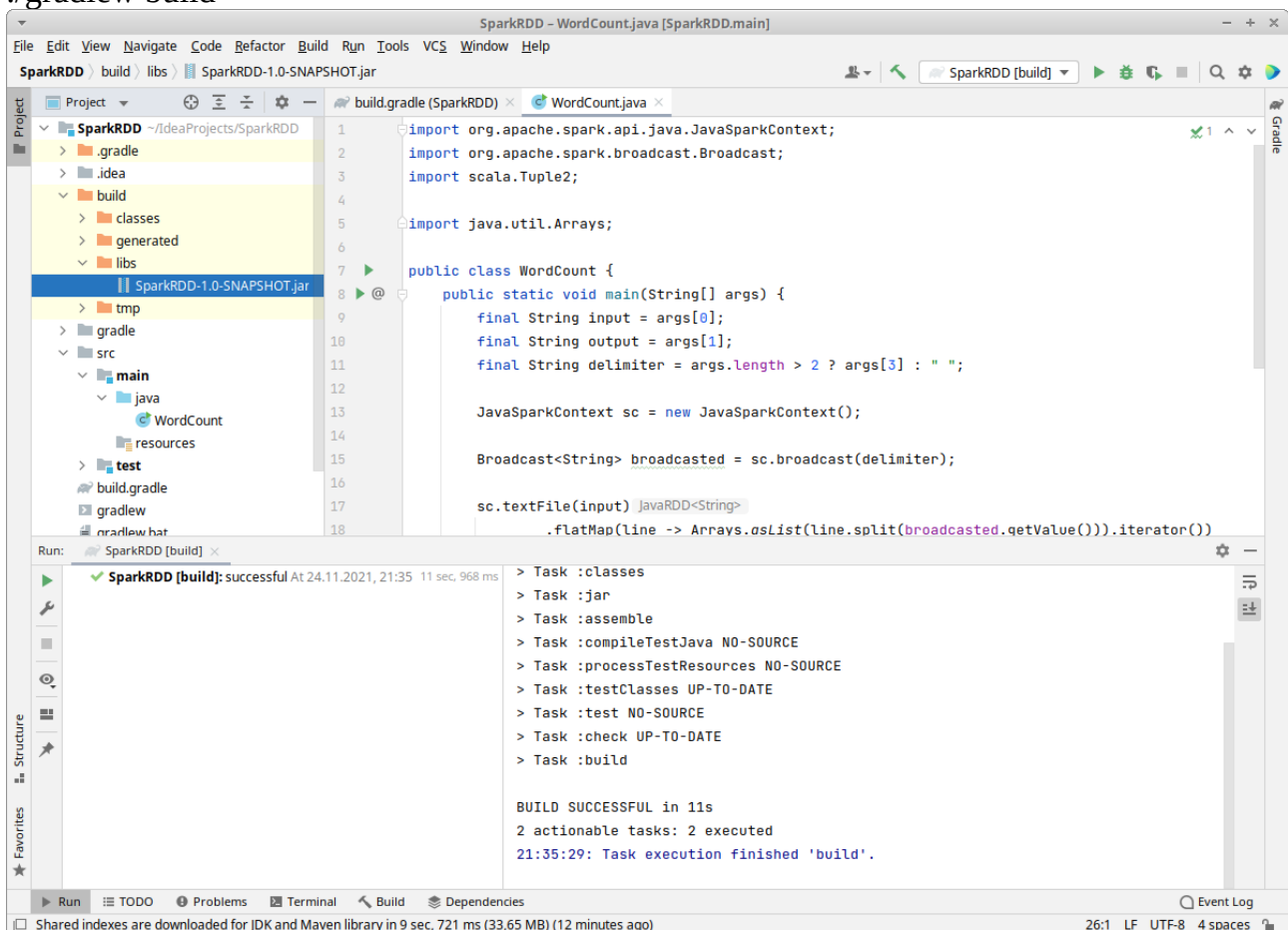
Why this ad? ⓘ

HERO WARS

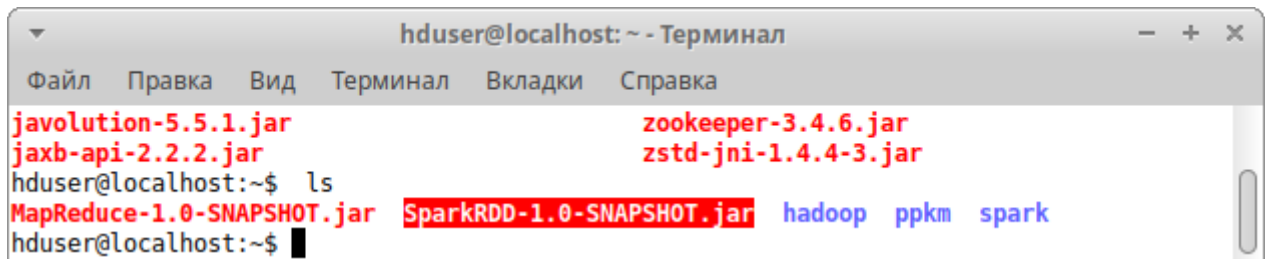
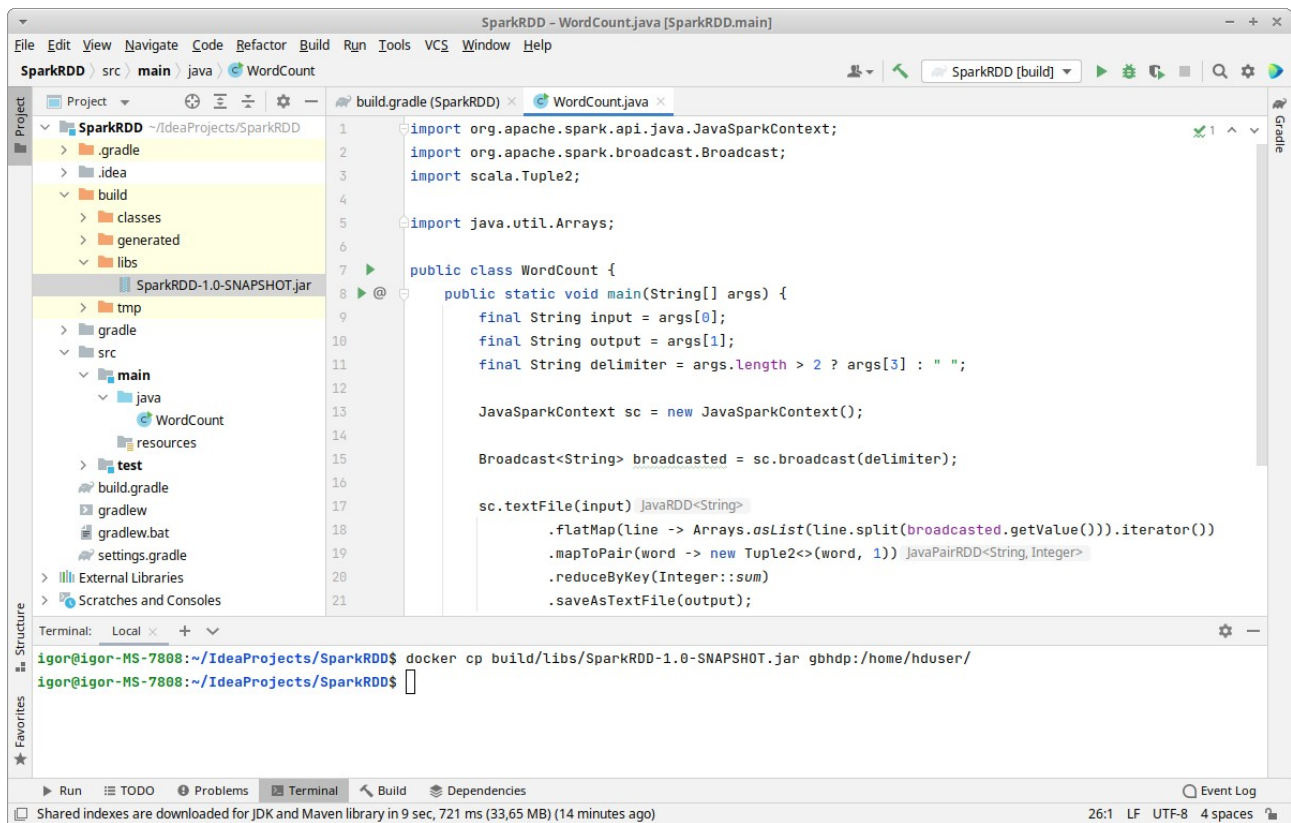
Создадим WordCount.java:



./gradlew build



docker cp build/libs/SparkRDD-1.0-SNAPSHOT.jar gbhdp:/home/hduser/



JAVA WORD COUNT: ЗАПУСК
Запускаем приложение:


```
hduser@localhost:~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка

hduser@localhost:~$ spark-submit \
> --class WordCount \
> --master yarn \
> --deploy-mode cluster \
> SparkRDD-1.0-SNAPSHOT.jar \
> /user/hduser/ppkm/ppkm_dataset.csv /user/hduser/ppkm-rdd-out
21/11/24 18:41:08 WARN util.Utils: Your hostname, localhost resolves to a loopback address: 127.0.0.1; using 172.17.0.2 instead (on interface eth0)
21/11/24 18:41:08 WARN util.Utils: Set SPARK_LOCAL_IP if you need to bind to another address
21/11/24 18:41:09 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
21/11/24 18:41:09 INFO client.RMProxy: Connecting to ResourceManager at /0.0.0.0:8032
21/11/24 18:41:10 INFO yarn.Client: Requesting a new application from cluster with 1 NodeManagers
21/11/24 18:41:10 INFO yarn.Client: Verifying our application has not requested more than the maximum memory capability of the cluster (2048 MB per container)
21/11/24 18:41:10 INFO yarn.Client: Will allocate AM container, with 1408 MB memory including 384 MB overhead
21/11/24 18:41:10 INFO yarn.Client: Setting up container launch context for our AM
21/11/24 18:41:10 INFO yarn.Client: Setting up the launch environment for our AM container
21/11/24 18:41:10 INFO yarn.Client: Preparing resources for our AM container
21/11/24 18:41:10 WARN yarn.Client: Neither spark.yarn.jars nor spark.yarn.archive is set, falling back to uploading libraries under SPARK_HOME.
21/11/24 18:41:12 INFO yarn.Client: Uploading resource file:/tmp/spark-8b54a891-d3df-4ff8-b32f-caf25f54af5a/_spark_libs_2089933854880916409.zip -> hdfs://localhost:9000/user/hduser/.sparkStaging/application_1637774987878_0001/_spark_libs_2089933854880916409.zip
21/11/24 18:41:13 INFO yarn.Client: Uploading resource file:/home/hduser/SparkRDD-1.0-SNAPSHOT.jar -> hdfs://localhost:9000/user/hduser/.sparkStaging/application_1637774987878_0001/SparkRDD-1.0-SNAPSHOT.jar
21/11/24 18:41:13 INFO yarn.Client: Uploading resource file:/tmp/spark-8b54a891-d3df-4ff8-b32f-caf25f54af5a/_spark_conf_2289161166840616666.zip -> hdfs://localhost:9000/user/hduser/.sparkStaging/application_1637774987878_0001/_spark_conf_.zip
21/11/24 18:41:13 INFO spark.SecurityManager: Changing view acls to: hduser
21/11/24 18:41:13 INFO spark.SecurityManager: Changing modify acls to: hduser
21/11/24 18:41:13 INFO spark.SecurityManager: Changing view acls groups to:
21/11/24 18:41:13 INFO spark.SecurityManager: Changing modify acls groups to:
21/11/24 18:41:13 INFO spark.SecurityManager: SecurityManager: authentication disabled; ui acls disabled; users with view permissions: Set(hduser); groups with view permissions: Set(); users with modify permissions: Set(hduser); groups with modify permissions: Set()
21/11/24 18:41:14 INFO yarn.Client: Submitting application application_1637774987878_0001 to ResourceManager
21/11/24 18:41:15 INFO impl.YarnClientImpl: Submitted application application_1637774987878_0001
21/11/24 18:41:16 INFO yarn.Client: Application report for application_1637774987878_0001 (state: ACCEPTED)
21/11/24 18:41:16 INFO yarn.Client:
client token: N/A
diagnostics: AM container is launched, waiting for AM container to Register with RM
ApplicationMaster host: N/A
ApplicationMaster RPC port: -1
queue: default
start time: 1637779274948
final status: UNDEFINED
tracking URL: http://localhost:8088/proxy/application_1637774987878_0001/
user: hduser
21/11/24 18:41:17 INFO yarn.Client: Application report for application_1637774987878_0001 (state: ACCEPTED)
21/11/24 18:41:18 INFO yarn.Client: Application report for application_1637774987878_0001 (state: ACCEPTED)
21/11/24 18:41:19 INFO yarn.Client: Application report for application_1637774987878_0001 (state: ACCEPTED)
21/11/24 18:41:20 INFO yarn.Client: Application report for application_1637774987878_0001 (state: ACCEPTED)
21/11/24 18:41:21 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:21 INFO yarn.Client:
client token: N/A
diagnostics: N/A
ApplicationMaster host: localhost
ApplicationMaster RPC port: 44291
queue: default
start time: 1637779274948
final status: UNDEFINED
tracking URL: http://localhost:8088/proxy/application_1637774987878_0001/
user: hduser
21/11/24 18:41:22 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:23 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:24 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:25 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:26 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:27 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:28 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:29 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:30 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:31 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:32 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:33 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:34 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:35 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:36 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:37 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:38 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:39 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:40 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:41 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:42 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:43 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:44 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:45 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:46 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:47 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:48 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:49 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:50 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:51 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:52 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:53 INFO yarn.Client: Application report for application_1637774987878_0001 (state: RUNNING)
21/11/24 18:41:54 INFO yarn.Client: Application report for application_1637774987878_0001 (state: FINISHED)
21/11/24 18:41:54 INFO yarn.Client:
client token: N/A
diagnostics: N/A
ApplicationMaster host: localhost
ApplicationMaster RPC port: 44291
queue: default
start time: 1637779274948
final status: SUCCEEDED
tracking URL: http://localhost:8088/proxy/application_1637774987878_0001/
user: hduser
21/11/24 18:41:54 INFO util.ShutdownHookManager: Shutdown hook called
21/11/24 18:41:54 INFO util.ShutdownHookManager: Deleting directory /tmp/spark-d266697e-66c1-4021-beb8-ad7cf3938f6d
21/11/24 18:41:54 INFO util.ShutdownHookManager: Deleting directory /tmp/spark-8b54a891-d3df-4ff8-b32f-caf25f54af5a
hduser@localhost:~$
```

<http://localhost:8088/cluster>

Cluster Metrics

Apps Submitted	Apps Pending	Apps Running	Apps Completed	Container
1	0	0	1	0

Cluster Nodes Metrics

Active Nodes	Decommissioning Nodes	Decommissioned Nodes
1	0	0

Scheduler Metrics

Scheduler Type	Scheduling Resource Type
Capacity Scheduler	[<name=memory-mb default-unit=Mi type=COUNTABLE>, <name=vcores default-unit= type=COUNTABLE]

Show 20 entries

ID	User	Name	Application Type	Queue	Application Priority	StartTime	LaunchTime	FinishTime	St
application_1637774987878_0001	hduser	WordCount	SPARK	default	0	Wed Nov 24 21:41:14 +0300 2021	Wed Nov 24 21:41:15 +0300 2021	Wed Nov 24 21:41:53 +0300 2021	FIN

Showing 1 to 1 of 1 entries

Смотрим результат:

```
$ hdfs dfs -ls /user/hduser/ppkm-rdd-out
```

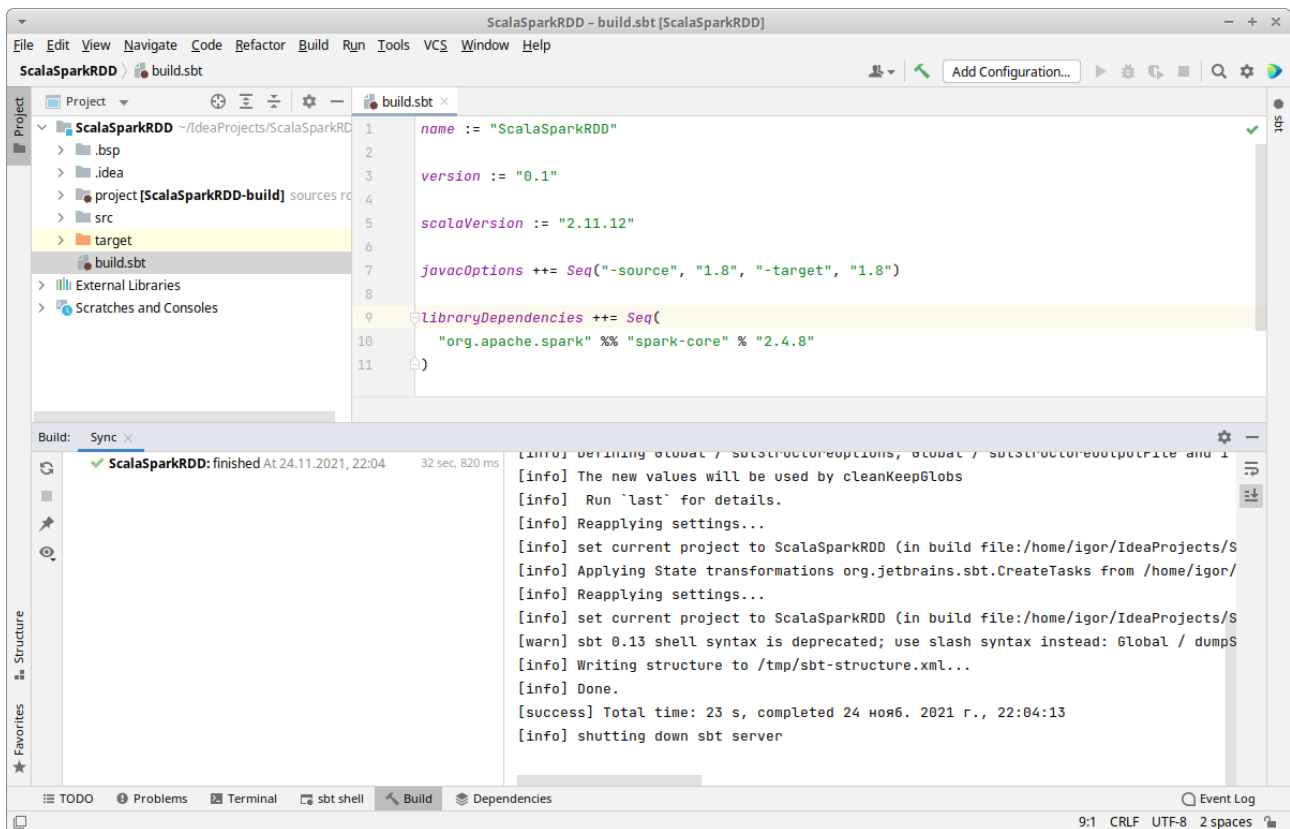
```
$ hdfs dfs -cat /user/hduser/ppkm-rdd-out/*
```

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка

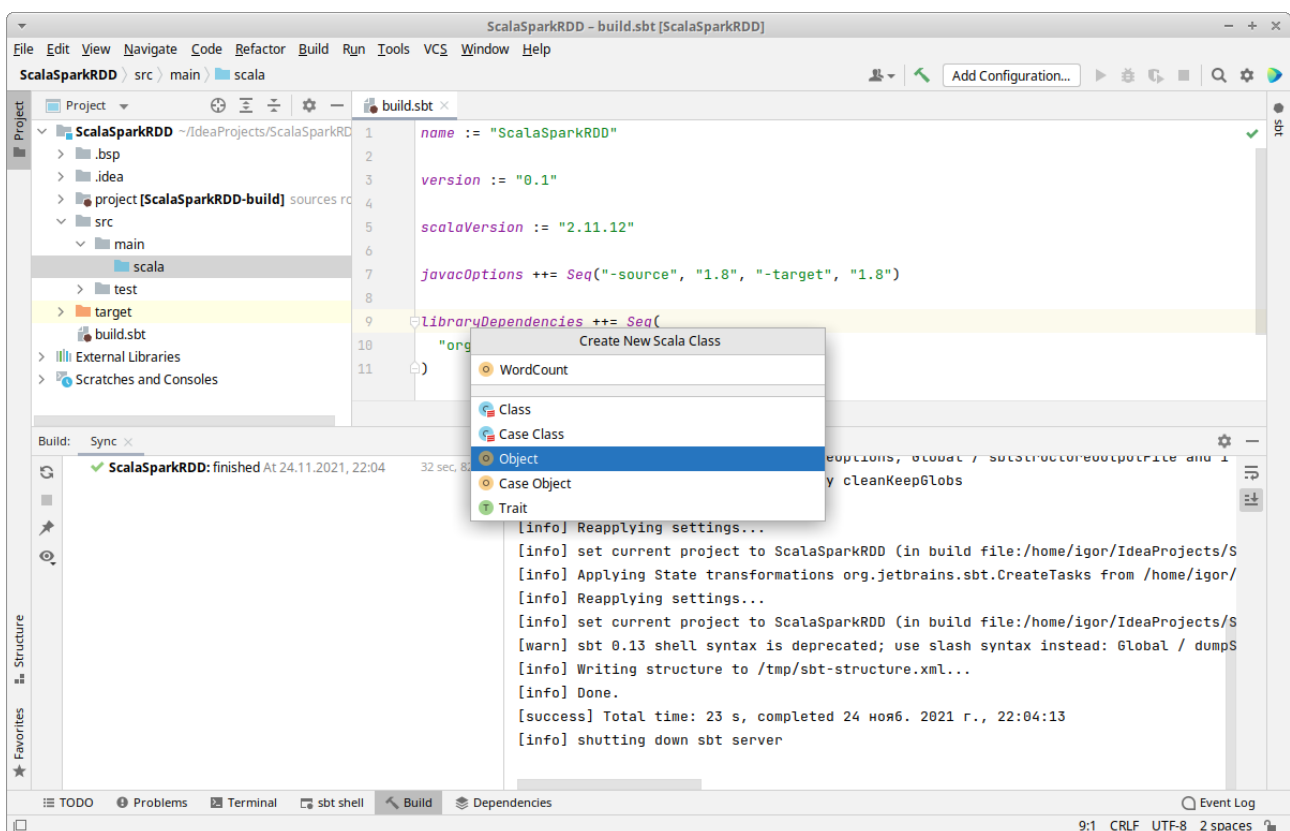
(https://t.co/YM3sB4c68t,1)
(#JogjaElingLanWaspada,21)
(TOLONG,1)
(Kembali,1)
(amin...salam,1)
(#PPKMikro,34)
(Hahaha,1)
(supaya,3)
(dg,3)
(pemberlakuan,4)
(mulu,,1)
(salahnya,1)
(DAN,1)
(buka,3)
(Munir,1)
(sudah,9)
hduser@localhost:~$ hdfs dfs -ls /user/hduser/ppkm-rdd-out
Found 3 items
-rw-r--r--  1 hduser supergroup          0 2021-11-24 18:41 /user/hduser/ppkm-rdd-out/_SUCCESS
-rw-r--r--  1 hduser supergroup    15037 2021-11-24 18:41 /user/hduser/ppkm-rdd-out/part-00000
-rw-r--r--  1 hduser supergroup    15694 2021-11-24 18:41 /user/hduser/ppkm-rdd-out/part-00001
hduser@localhost:~$
```

SCALA WORD COUNT: ПРОЕКТ В IDEA

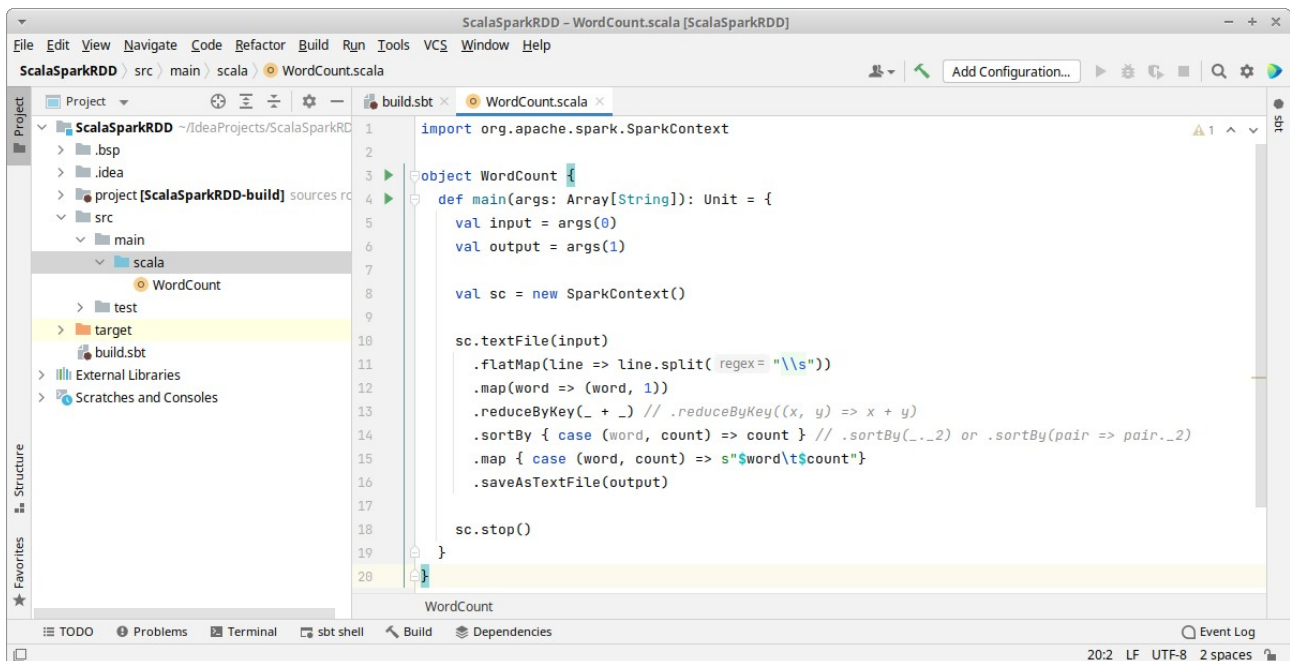
Добавим в build.sbt зависимость на Apache Spark:



SCALA WORD COUNT: КОД



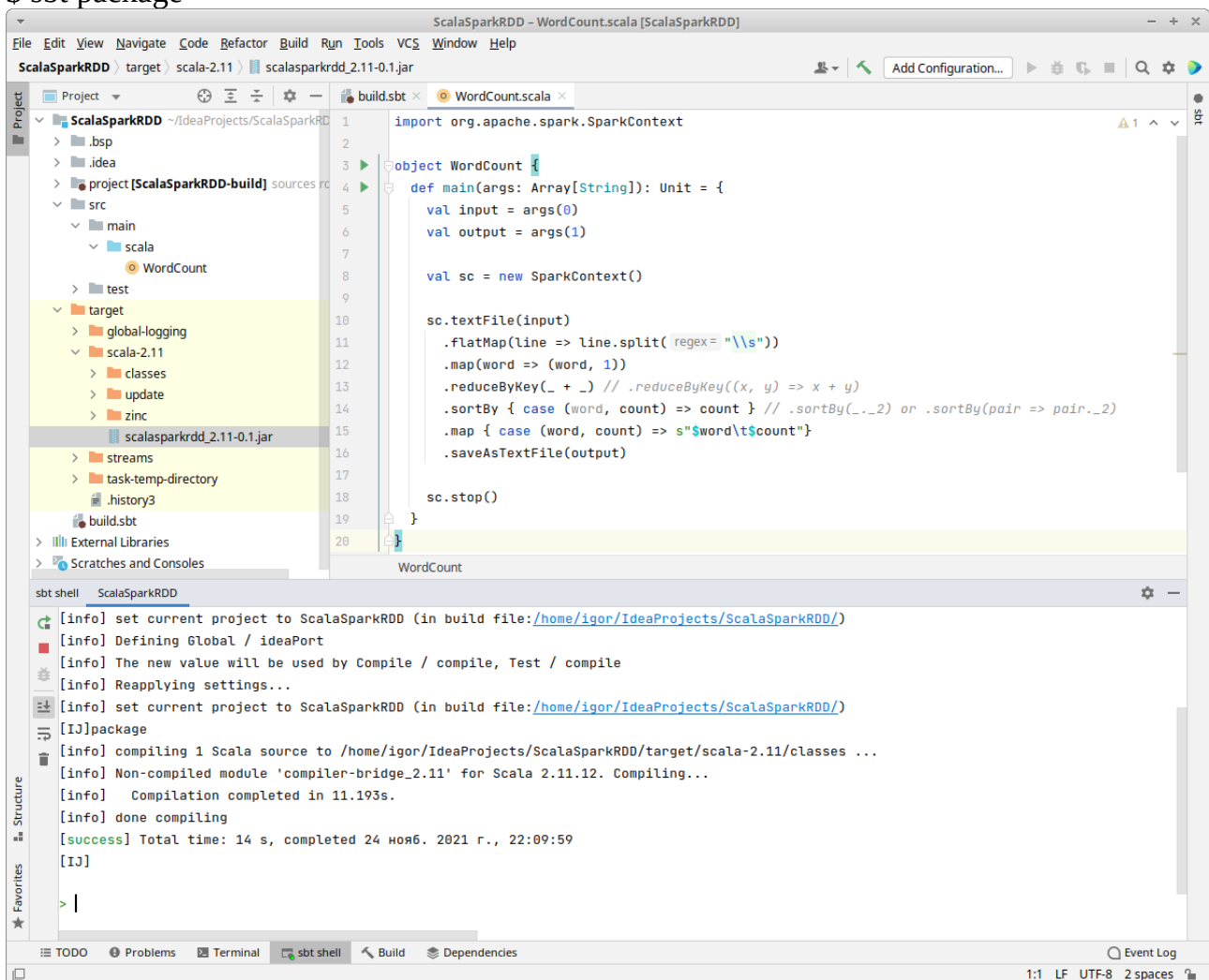
Создадим `WordCount.scala`:



SCALA WORD COUNT: СБОРКА И ДОСТАВКА

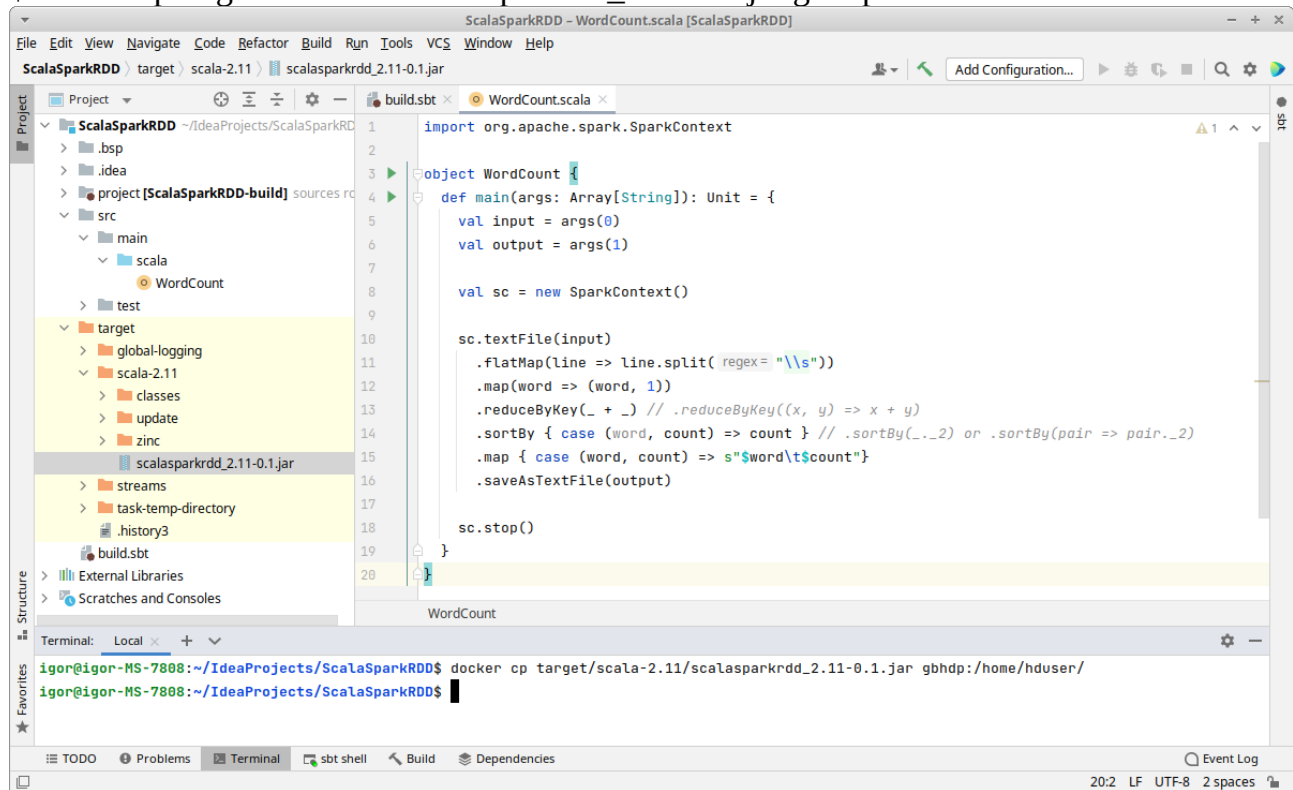
Соберем jar:

\$ sbt package

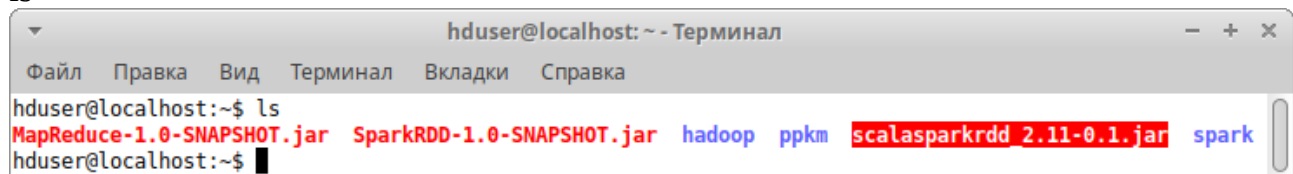


Перенесем его на кластер:

\$ docker cp target/scala-2.11/scalasparkrdd_2.11-0.1.jar gbhdp:/home/hduser/



ls



spark-submit --class WordCount --master yarn --deploy-mode cluster scalasparkrdd_2.11-0.1.jar /user/hduser/ppkm /user/hduser/scala-ppkm-rdd-scala

```
hduser@localhost:~ - Терминал
Файл Правка Вид Терминал Вкладки Справка
hduser@localhost:~$ spark-submit --class WordCount --master yarn --deploy-mode cluster scalasparkrdd_2.11-0.1.jar /user/hd
user/ppkm /user/hduser/scala-ppkm-rdd-scala
21/11/24 19:21:12 WARN util.Utils: Your hostname, localhost resolves to a loopback address: 127.0.0.1; using 172.17.0.2 in
stead (on interface eth0)
21/11/24 19:21:12 WARN util.Utils: Set SPARK_LOCAL_IP if you need to bind to another address
21/11/24 19:21:12 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java
classes where applicable
21/11/24 19:21:13 INFO client.RMProxy: Connecting to ResourceManager at /0.0.0.0:8032
21/11/24 19:21:13 INFO yarn.Client: Requesting a new application from cluster with 1 NodeManagers
21/11/24 19:21:13 INFO yarn.Client: Verifying our application has not requested more than the maximum memory capability of
the cluster (2048 MB per container)
21/11/24 19:21:13 INFO yarn.Client: Will allocate AM container, with 1408 MB memory including 384 MB overhead
21/11/24 19:21:13 INFO yarn.Client: Setting up container launch context for our AM
21/11/24 19:21:13 INFO yarn.Client: Setting up the launch environment for our AM container
21/11/24 19:21:13 INFO yarn.Client: Preparing resources for our AM container
21/11/24 19:21:13 WARN yarn.Client: Neither spark.yarn.jars nor spark.yarn.archive is set, falling back to uploading libra
ries under SPARK_HOME.
21/11/24 19:21:15 INFO yarn.Client: Uploading resource file:/tmp/spark-f3f1e7e9-dc5d-4619-950b-318a8fddd3e7/_spark_libs
1924761034981937149.zip -> hdfs://localhost:9000/user/hduser/.sparkStaging/application_1637774987878_0002/_spark_libs_19
24761034981937149.zip
21/11/24 19:21:16 INFO yarn.Client: Uploading resource file:/home/hduser/scalasparkrdd_2.11-0.1.jar -> hdfs://localhost:90
00/user/hduser/.sparkStaging/application_1637774987878_0002/scalasparkrdd_2.11-0.1.jar
21/11/24 19:21:16 INFO yarn.Client: Uploading resource file:/tmp/spark-f3f1e7e9-dc5d-4619-950b-318a8fddd3e7/_spark_conf_
5472250497676915062.zip -> hdfs://localhost:9000/user/hduser/.sparkStaging/application_1637774987878_0002/_spark_conf_.z
ip
21/11/24 19:21:16 INFO spark.SecurityManager: Changing view acls to: hduser
21/11/24 19:21:16 INFO spark.SecurityManager: Changing modify acls to: hduser
21/11/24 19:21:16 INFO spark.SecurityManager: Changing view acls groups to:
21/11/24 19:21:16 INFO spark.SecurityManager: Changing modify acls groups to:
21/11/24 19:21:16 INFO spark.SecurityManager: SecurityManager: authentication disabled; ui acls disabled; users with view
permissions: Set(hduser); groups with view permissions: Set(); users with modify permissions: Set(hduser); groups with m
odify permissions: Set()
21/11/24 19:21:17 INFO yarn.Client: Submitting application application_1637774987878_0002 to ResourceManager
21/11/24 19:21:17 INFO impl.YarnClientImpl: Submitted application application_1637774987878_0002
21/11/24 19:21:18 INFO yarn.Client: Application report for application_1637774987878_0002 (state: ACCEPTED)
21/11/24 19:21:18 INFO yarn.Client:
client token: N/A
diagnostics: AM container is launched, waiting for AM container to Register with RM
ApplicationMaster host: N/A
ApplicationMaster RPC port: -1
queue: default
start time: 1637781677242
final status: UNDEFINED
tracking URL: http://localhost:8088/proxy/application_1637774987878_0002/
user: hduser
21/11/24 19:21:19 INFO yarn.Client: Application report for application_1637774987878_0002 (state: ACCEPTED)
21/11/24 19:21:20 INFO yarn.Client: Application report for application_1637774987878_0002 (state: ACCEPTED)
21/11/24 19:21:21 INFO yarn.Client: Application report for application_1637774987878_0002 (state: ACCEPTED)
21/11/24 19:21:22 INFO yarn.Client: Application report for application_1637774987878_0002 (state: ACCEPTED)
21/11/24 19:21:23 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:23 INFO yarn.Client:
client token: N/A
diagnostics: N/A
ApplicationMaster host: localhost
ApplicationMaster RPC port: 32891
queue: default
start time: 1637781677242
final status: UNDEFINED
tracking URL: http://localhost:8088/proxy/application_1637774987878_0002/
user: hduser
21/11/24 19:21:24 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:25 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:26 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:27 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:28 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:29 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:30 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:31 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:32 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:33 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:34 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:35 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:36 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:37 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:38 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:39 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:40 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:41 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:42 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:43 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:44 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:45 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:46 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:47 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:48 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:49 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:50 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:51 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:52 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:53 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:54 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:55 INFO yarn.Client: Application report for application_1637774987878_0002 (state: RUNNING)
21/11/24 19:21:56 INFO yarn.Client: Application report for application_1637774987878_0002 (state: FINISHED)
21/11/24 19:21:56 INFO yarn.Client:
client token: N/A
diagnostics: N/A
ApplicationMaster host: localhost
ApplicationMaster RPC port: 32891
queue: default
start time: 1637781677242
final status: SUCCEEDED
tracking URL: http://localhost:8088/proxy/application_1637774987878_0002/
user: hduser
21/11/24 19:21:56 INFO util.ShutdownHookManager: Shutdown hook called
21/11/24 19:21:56 INFO util.ShutdownHookManager: Deleting directory /tmp/spark-f3f1e7e9-dc5d-4619-950b-318a8fddd3e7
21/11/24 19:21:56 INFO util.ShutdownHookManager: Deleting directory /tmp/spark-dac682d9-dd1e-4986-993d-19f86b0378f8
hduser@localhost:~$
```

doop All Applications — Mozilla Firefox

Файл Правка Вид Журнал Закладки Инструменты Справка

All Applications x +

localhost:8088/cluster

All Applicat

Cluster Metrics

Apps Submitted	Apps Pending	Apps Running	Apps Completed	Containers Running
2	0	1	1	2

Cluster Nodes Metrics

Active Nodes	Decommissioning Nodes	Decommissioned Nodes
1	0	0

Scheduler Metrics

Scheduler Type	Scheduling Resource Type
Capacity Scheduler	[<name=memory-mb default-unit=Mi type=COUNTABLE>, <name=vcores default-unit= type=COUNTABLE>]

Show 20 entries

ID	User	Name	Application Type	Queue	Application Priority	StartTime	LaunchTime	FinishTime	State	FinalStatus
application_1637774987878_0002	hduser	WordCount	SPARK	default	0	Wed Nov 24 22:21:17 +0300 2021	Wed Nov 24 22:21:17 +0300 2021	N/A	RUNNING	UNDEFINED
application_1637774987878_0001	hduser	WordCount	SPARK	default	0	Wed Nov 24 21:41:14 +0300 2021	Wed Nov 24 21:41:15 +0300 2021	Wed Nov 24 21:41:53 +0300 2021	FINISHED	SUCCEEDED

Showing 1 to 2 of 2 entries

Смотрим результат:

\$ hdfs dfs -ls /user/hduser/scala-ppkm-rdd-scala

hduser@localhost: ~ - Терминал

Файл Правка Вид Терминал Вкладки Справка

```
hduser@localhost:~$ hdfs dfs -ls /user/hduser/scala-ppkm-rdd-scala
Found 3 items
-rw-r--r-- 1 hduser supergroup          0 2021-11-24 19:21 /user/hduser/scala-ppkm-rdd-scala/_SUCCESS
-rw-r--r-- 1 hduser supergroup    19229 2021-11-24 19:21 /user/hduser/scala-ppkm-rdd-scala/part-000000
-rw-r--r-- 1 hduser supergroup    7026 2021-11-24 19:21 /user/hduser/scala-ppkm-rdd-scala/part-000001
hduser@localhost:~$
```

\$ hdfs dfs -cat /user/hduser/scala-ppkm-rdd-scala/*

```
hduser@localhost: ~ - Терминал
Файл  Правка  Вид  Терминал  Вкладки  Справка
22      11
banyak  11
hingga  11
guna    11
tidak   11
gara    11
kembali 11
aja     12
rakyat  12
kesehatan 12
dukung  12
lagi    12
Desa    12
Masker  12
sampai  12
ini     13
kebijakan 13
kita    13
bisa    13
diperpanjang 13
protokol 14
itu     15
pak     15
penyebaran 15
dari    16
ppkm    16
2021.   16
orang   16
mikro   18
mulai   19
atau    19
#ppkmmikro 19
masyarakat 20
covid   20
netral,RT 21
https://t.co/R0oMoqoBGC 21
Pemberlakukan 21
#COVID-19 21
Pengumuman 21
#JogjaElingLanWaspada 21
Mikro. 22
Covid-19 23
@humas_jogja: 25
#JogjaIstimewa 25
Maret 26
untuk 27
yang 27
ada 29
Berbasis 30
perpanjangan 32
#PPKMikro 34
Pembatasan 36
Masyarakat 38
Kegiatan 39
yg 41
Mikro 55
di 56
PPKM 74
dan 84
hduser@localhost:~$
```