Running BigDL (Python) on Spark on your Local Machine

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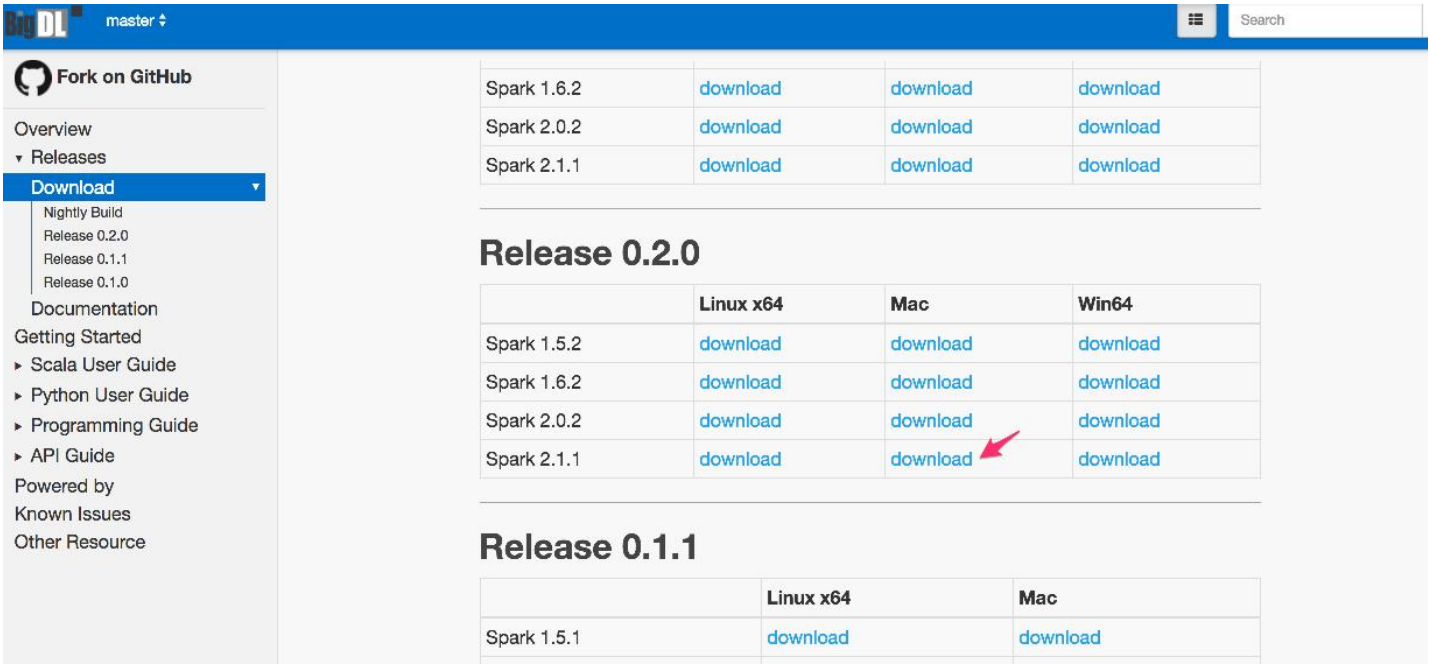
This tutorial will teach you how to set up BigDL on your Mac and run the MNIST digit recognition BigDL Python application.

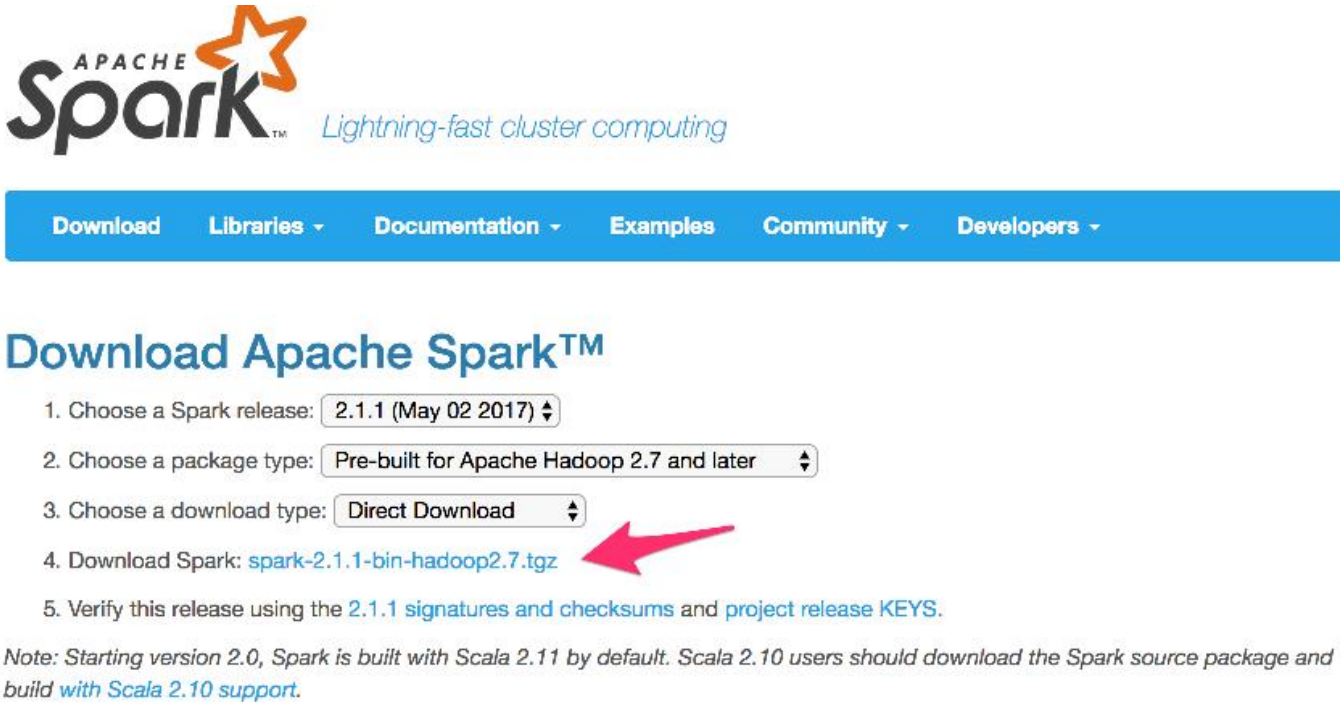
Prerequisites:
-Mac/Linux OS
-Java latest version (if you don't have it run: conda install java)
-Jupyter Notebook (your pyspark driver)
-Python 2.7
-scikit-learn, spicy, numpy, pandas, matplotlib (pip install these in your environment)

STEP 1: Set up your BigDL folder.
Create a new folder to store the necessary bigdl/spark requirements. We are going to put number of things in there:
1) BigDL 0.2.0 Package
2) Spark 2.1.1
3) start_notebook.sh
4) cnn.ipynb
5) utils.py

#1: Download the built BigDL Package under Release 0.2.0, for Spark 2.1.1 here: [https://bigd project.github.io/master/#release-download/](https://bigdl-project.github.io/master/#release-download/). There is a version for Mac and Linux. This ha all BigDL dependencies and python files too.



#2: Download Spark version 2.1.1 here: https://spark.apache.org/downloads.html This unzip into a folder with all spark related contents.



#3: Download this starter script. start_notebook.sh 912 bytes

Note: Remember to change **<path to folder you created>** after the **SPARK_HOME** and **BigDL_HOME** environment variables to the absolute path to your bigdl folder you just created. This is the script that you will run to start a spark session and use BigDL. It sets th correct parameters and environment for your spark session to run BigDL applications.

#4: Download cnn.ipynb here. cnn.ipynb 132.7 KB

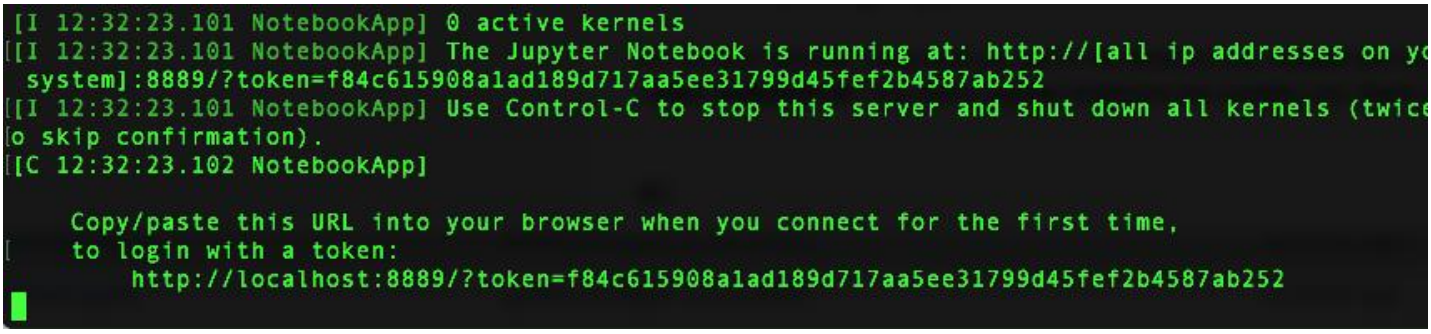
Note: There are more example notebooks in BigDL's tutorial repository. Feel free to clone and download these example notebooks here: https://github.com/intel-analytics/BigDL-Tutorials/tree/branch-0.2/notebooks/neural_networks

#5: Download utils.py here. utils.py 1.2 KB

#6 Verify that all items listed above are in your bigdl folder. You are ready to run your application now.

STEP 2: Run your BigDL application

#1: On your terminal, make sure you are in the directory you created and run the command **./start_notebook.sh**. This starts Jupyter Notebook and creates your Spark Context (sc).



#2: Copy and Paste the URL into your browser to start Jupyter Notebook.
Note: If you need to, change the access permission of start_notebook.sh script using this command: chmod +x <your path>/start_notebook.sh

#3: Run cnn.ipynb file in Jupyter Notebooks **using a kernel that runs Python 2.7**. It should match the output on the BigDL tutorials.
Note: If your default kernel in Jupyter Notebook is Python 3, you have to change it to Python 2. You can create a virtual environment that uses Python 2.7 by following this guid https://uoa-eresearch.github.io/eresearch-cookbook/recipe/2014/11/20/conda/
Note: You can only run **one** .ipynb at a time because you have only one spark session, remember to shutdown the rest. Also make sure your kernel is running Python 2 (Python 3 is still being tested).

Thats it!