

# Installing Apache Spark and Python

## Windows

1. Install a JDK (Java Development Kit) from <http://www.oracle.com/technetwork/java/javase/downloads/index.html> . Keep track of where you installed the JDK; you'll need that later.
2. Download a **pre-built** version of Apache Spark from <https://spark.apache.org/downloads.html>
3. If necessary, download and install WinRAR so you can extract the .tgz file you downloaded. <http://www.rarlab.com/download.htm>
4. Extract the Spark archive, and copy its **contents** into **C:\spark** after creating that directory. You should end up with directories like c:\spark\bin, c:\spark\conf, etc.
5. Download winutils.exe from <https://sundog-spark.s3.amazonaws.com/winutils.exe> and move it into a **C:\winutils\bin** folder that you've created. (note, this is a 64-bit application. If you are on a 32-bit version of Windows, you'll need to search for a 32-bit build of winutils.exe for Hadoop.)
6. Open the the **c:\spark\conf** folder, and make sure "File Name Extensions" is checked in the "view" tab of Windows Explorer. Rename the log4j.properties.template file to log4j.properties. Edit this file (using Wordpad or something similar) and change the error level from INFO to ERROR for `log4j.rootCategory`
7. Right-click your Windows menu, select Control Panel, System and Security, and then System. Click on "Advanced System Settings" and then the "Environment Variables" button.
8. Add the following new USER variables:
  - a. SPARK\_HOME c:\spark
  - b. JAVA\_HOME (the path you installed the JDK to in step 1, for example C:\Program Files\Java\jdk1.8.0\_101)
  - c. HADOOP\_HOME c:\winutils
9. Add the following paths to your PATH user variable:  
**%SPARK\_HOME%\bin**  
**%JAVA\_HOME%\bin**
10. Close the environment variable screen and the control panels.
11. Install the latest **Enthought Canopy** from <https://store.enthought.com/downloads/#default>
12. Test it out!
  - a. Open up a Windows command prompt in administrator mode.
  - b. Enter **cd c:\spark** and then **dir** to get a directory listing.
  - c. Look for a text file we can play with, like README.md or CHANGES.txt
  - d. Enter **pyspark**
  - e. At this point you should have a >>> prompt. If not, double check the steps above.
  - f. Enter **rdd = sc.textFile("README.md")** (or whatever text file you've found)
  - g. Enter **rdd.count()**
  - h. You should get a count of the number of lines in that file! Congratulations, you just ran your first Spark program!
  - i. Hit **control-D** to exit the spark shell, and close the console window
  - j. You've got everything set up! Hooray!

## MacOS

1. Install Apache Spark using Homebrew.
  - a. Install Homebrew if you don't have it already by entering this from a terminal prompt:  
`/usr/bin/ruby -e "$(curl -fsSL`  
<https://raw.githubusercontent.com/Homebrew/install/master/install>)"
  - b. Enter **brew install apache-spark**
  - c. Create a log4j.properties file via  
`cd /usr/local/Cellar/apache-spark/2.0.0/libexec/conf`  
`cp log4j.properties.template log4j.properties`  
(substituted 2.0.0 for the version actually installed)
  - d. Edit the log4j.properties file and change the log level from INFO to ERROR on log4j.rootCategory.
2. Install the latest **Enthought Canopy** from <https://store.enthought.com/downloads/#default>
3. Test it out!
  - a. Open up a Windows command prompt in administrator mode.
  - b. Enter **cd c:\spark** and then **dir** to get a directory listing.
  - c. Look for a text file we can play with, like README.md or CHANGES.txt
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  - i. Hit **control-D** to exit the spark shell, and close the console window
  - j. You've got everything set up! Hooray!

## Linux

1. Install Java, Scala, and Spark according to the particulars of your specific OS. A good starting point is [http://www.tutorialspoint.com/apache\\_spark/apache\\_spark\\_installation.htm](http://www.tutorialspoint.com/apache_spark/apache_spark_installation.htm) (but be sure to install Spark 2.0 or newer)
2. Install the latest **Enthought Canopy** from <https://store.enthought.com/downloads/#default>
3. Test it out!
  - a. Open up a Windows command prompt in administrator mode.
  - b. Enter **cd c:\spark** and then **dir** to get a directory listing.
  - c. Look for a text file we can play with, like README.md or CHANGES.txt
  - d. Enter **pyspark**
  - e. At this point you should have a >>> prompt. If not, double check the steps above.
  - f. Enter **rdd = sc.textFile("README.md")** (or whatever text file you've found)
  - g. Enter **rdd.count()**
  - h. You should get a count of the number of lines in that file! Congratulations, you just ran your first Spark program!
  - i. Hit **control-D** to exit the spark shell, and close the console window
  - j. You've got everything set up! Hooray!

