How to run AsterixDB locally on your machine

1. Preparation

You need to check the Java Development Kit (JDK) installation on your machine. You must upgrade your JDK to the latest version (**1.8**) to run AsterixDB.

For Windows users:
a) Start the Command Prompt (How).
b) Execute 'java -version'.
c) If you see 'java version xxxx' that means you have Java properly installed.
d) If you see 'java is not recognized as xxxx', that means you don't have Java installed. Check this to install Java and try again.

For OS X users:
a) Start your terminal.
b) Execute 'java -version'.
c) If you see 'java version xxxx' that means you have Java properly installed.
d) If you see 'command not found java', that means you don't have Java installed. Check this to install Java and try again.

For Linux users:
a) Start your terminal.
b) Execute 'java -version' to make sure Java is properly installed.
c) If you didn't install the Java environment, follow the link to install it.
d) Execute 'echo $JAVA_HOME'.
e) If you see a blank line, that means your environment variable is not set properly. Execute the following command to set it:

> export JAVA_HOME=PATH_TO_YOUR_JAVA_INSTALLATION

f) You can put this command into your configuration file (e.g., .bashrc) to set the path variable automatically everytime you login.
g) Rerun the command in b) and d) to make sure everything is properly configured.
h) openJDK is also OK, but we highly recommend the Oracle JDK.

2. Download an AsterixDB sample cluster

Download the right version of AsterixDB [Link] (Updated on Apr. 21). The filename is **asterix-server-0.9.1-binary-assembly.zip**. The SHA1sum of the binary release is
7a6bc04c8c2e3d7a31b071d7b4c6e1e34012fb6c

You may compare this against the checksum of the downloaded file to make sure that you have pulled the right version [Windows, OSX, Linux]. (This step can be **skipped** if you are certain about your package.)

3. Start an AsterixDB sample cluster

After you download the package, move it to your preferred working directory and unzip it. Please check the download folder if you can't find it. You should see following structure once you're done unzipping the package:

```
asterix-server-0.9.1-SNAPSHOT-binary-assembly
├── LICENSE
├── NOTICE
├── bin
├── etc
├── lib
├── opt
└── repo
```

The scripts used for starting a sample AsterixDB cluster reside in the opt/local/bin directory. You should see 4 scripts files under this (opt/local/bin) directory:

```
bin
├── start-sample-cluster.bat
├── start-sample-cluster.sh
├── stop-sample-cluster.bat
└── stop-sample-cluster.sh
```

For Windows Users:
a) [**Recommended**] Start the Windows Command Prompt and navigate to asterix-server-0.9.1-SNAPSHOT-binary-assembly/opt/local/bin under your working directory. Execute start-sample-cluster.**bat**.

For example, if you downloaded this file and uncompressed it in Downloads folder, you may want to execute the following command. Here, XXX is your username.
cd c:\Users\XXX\Downloads\asterix-server-0.9.1-SNAPSHOT-binary-assembly\opt\local\bin
start-sample-cluster.bat

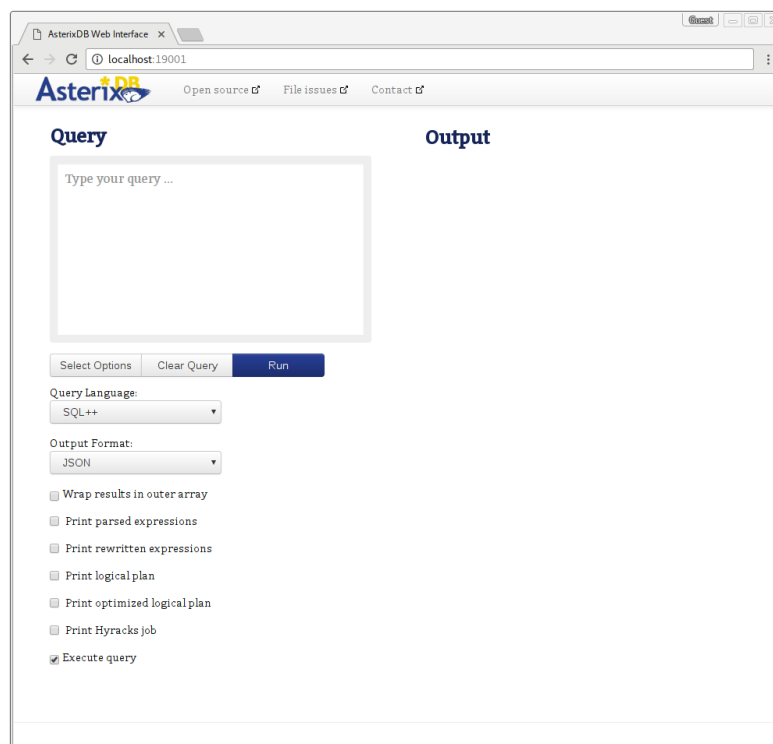b) You can also navigate to this directory using your file browser and double click on start-sample-cluster.bat to start the cluster.
c) By executing the stop-sample-cluster script in the same way, you can shutdown the sample cluster.
Execute stop-sample-cluster.**bat**.

For Linux/OSX Users:
a) Start your terminal.
b) Navigate to asterix-server-0.9.1-SNAPSHOT-binary-assembly/opt/local/bin under your working directory.
c) Execute start-sample-cluster.sh using the following command:
bash start-sample-cluster.sh

Whichever way you start the sample cluster, if everything works properly, you should see the following message printed.
INFO: Starting sample cluster...
INFO: Waiting up to 30 seconds for cluster 127.0.0.1:19002 to be available.
INFO: Cluster started and is ACTIVE.

By executing the stop-sample-cluster script in the same way, you can shutdown the sample cluster.
bash stop-sample-cluster.sh

Note that AsterixDB is designed to run on parallel hardware; the sample cluster is a virtual cluster with two nodes.

4. Access the AsterixDB query interface

After you have started the local cluster, you can access the query interface from your browser at: http://localhost:19001. Our query interface looks like this:

Type the following query into the query box on the left and click the `Run` button to execute the query:

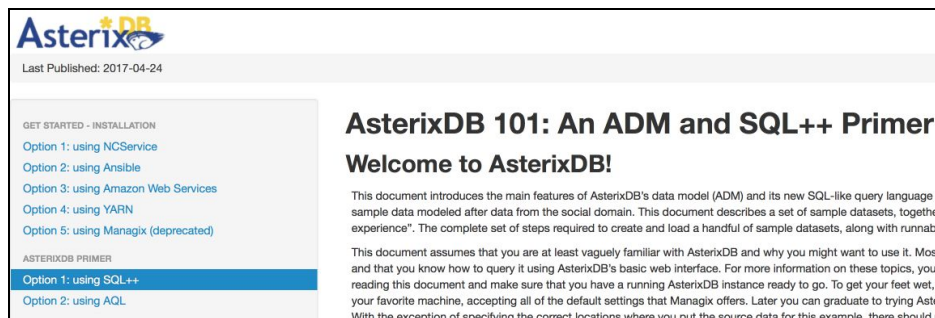SELECT * FROM Metadata.`Dataset`;

You will see the query result in the blank area on the right side. The default query language for AsterixDB is SQL++ (our newer query language). If you want to use AQL for querying, remember to change the `Query Language` option to AQL.
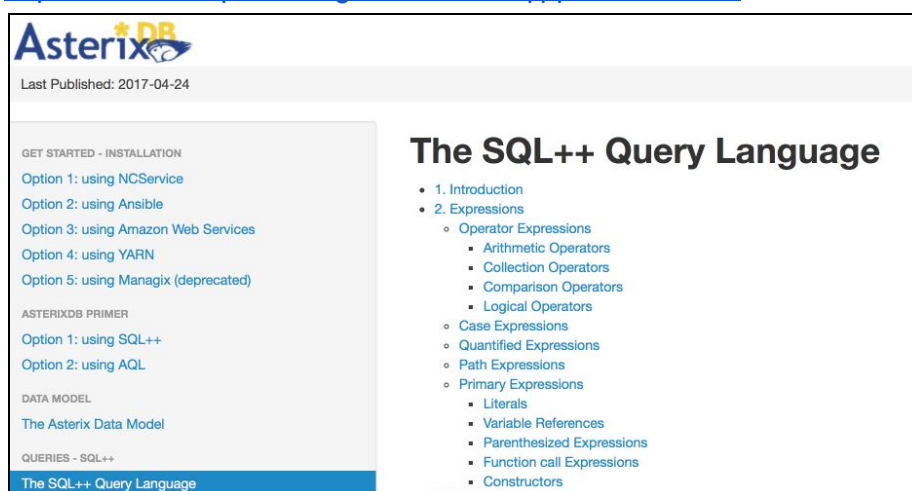
5. Enjoy the ride!

If you are here in the instructions, now you have a mini-cluster running an AsterixDB instance on your machine. There are a lot more interesting features and examples to explore on the Apache AsterixDB website. **Especially, you must read and execute all of the materials covered in The SQL++ Primer before starting the actual homework**. You may also wish to look at The SQL++ Query Language and Builtin Functions while doing the homework problems. We also uploaded the dataset in SQL++ Primer to the class web-page using Insert Statements. Please give them a try and enjoy!

1) AsterixDB 101: SQL++ Primer http://asterixdb.apache.org/docs/0.9.1/sqlpp/primer-sqlpp.html

2) The SQL++ Query Language
http://asterixdb.apache.org/docs/0.9.1/sqlpp/manual.html

3) Builtin Functions

http://asterixdb.apache.org/docs/0.9.1/sqlpp/builtins.html