Building BigTop using Docker container

Introduction

Build

Sources
- Upstream: https://git.linaro.org/leg/bigdata/bigtop-trunk.git/
- Root upstream: https://github.com/apache/bigtop
- Release-1.2.0 is used in this Wiki

Setup Environment
- Ubuntu 16.04 64bit for AArch64, or CentOS7 64bit for AArch64
- Oracle JDK 1.8.0_111-b14

Pre-Requisites
Oracle JDK 1.8.0_111-b14

Dependencies
maven@v3.0.5, nodejs@v4.2.6, npm@3.5.2, brunch@1.7.10, phantomjs@1.9.8, python>=2.6, python-dev, rpm, yum, g++

Build Steps

Install Pre-requisites

For Ubuntu:
- apt install docker.io ruby git unzip openjdk-8-jre
- sudo apt-get install docker-engine

For Centos:
- sudo docker info
- sudo docker version
- service docker status
- service docker restart
- docker run hello-world
groupadd docker

git clone https://github.com/odpi/bigtop.git

cd bigtop
./gradlew docker-provisioner-destroy
# ./gradlew -Pconfig=vagrantconfig.yaml -Pnum_instances=3 -Prun_smoke_tests=true docker-provisioner
# (cd /tmp/odpi/bigtop-deploy/vm/vagrant-puppet-docker && vagrant
#ssh bigtop1)

1. Prepare the Docker build environment
Using pre-built Docker images

The Dockerfiles to regenerate them are located in ./docker/bigtop-slaves.

#docker pull bigtop/slaves:1.1.0-ubuntu-16.04-aarch64

Start a container with the latest image:

docker run --rm -i -v `pwd`:/ws bigtop/slaves:1.1.0-ubuntu-16.04-aarch64 /bin/bash

Now you are inside your Bigtop Docker environment and you can start building Hadoop packages.

2. Build BigTop RPMs

To build an RPM for a single project use ./gradlew <project name>-rpm. For example to build Spark RPM do:

# Build Spark RPM
cd ~/bigtop
./gradlew spark-rpm

To build all BigTop RPMs use ./gradlew rpm:

# Build all RPMs

To list all gradle tasks run cd ~/bigtop && ./gradlew tasks. Then run ./gradlew spark-rpm.

Jenkins job
3. Download the RPMs

All generated RPMs are stored into `/home/bigtop/bigtop/build/**/rpm/RPMS/**/*.rpm` folders on the docker container.

```
$ ls -lah /home/bigtop/bigtop/build/**/rpm/RPMS/**/*.rpm
  -rw-r--r-- 1 bigtop bigtop 26M May 14 09:40 /home/bigtop/bigtop/build/flume/RPMs/noarch/flume-1.5.2-1.el6.noarch.rpm
  -rw-r--r-- 1 bigtop bigtop 6.2K May 14 09:40 /home/bigtop/bigtop/build/flume/rpm/RPMS/noarch/flume-agent-1.5.2-1.el6.noarch.rpm
```

Copy them to the shared (/rpm) volume to make them accessible by the Docker Host:

```
sudo cp /home/bigtop/bigtop/build/**/rpm/RPMS/**/*.rpm /rpm
```

Now you can copy them from the Docker Host into a local folder (default boot2docker password: tcuser):

```
scp -rp docker@<Docker Host IP>/rpm/*.rpm <Your Local Folder>
```

Note: Make sure you check the RPM dependencies before you install them. When you install the RPMs on your own Hadoop distro you may need to use the `rpm` with the `--nodeps` option to prevent dragging nonrequired dependencies.