

Apache Storm - Installation

Let us now see how to install Apache Storm framework on your machine. There are three major steps here –

- Install Java on your system, if you don't have it already.
- Install ZooKeeper framework.
- Install Apache Storm framework.

Step 1 – Verifying Java Installation

Use the following command to check whether you have Java already installed on your system.

```
$ java -version
```

If Java is already there, then you would see its version number. Else, download the latest version of JDK.

Step 1.1 – Download JDK

Download the latest version of JDK by using the following link – www.oracle.com

The latest version is JDK 8u 60 and the file is "**jdk-8u60-linux-x64.tar.gz**".
Download the file on your machine.

Step 1.2 – Extract files

Generally files are being downloaded onto the **downloads** folder. Extract the tar setup using the following commands.

```
$ cd /go/to/download/path  
$ tar -zxf jdk-8u60-linux-x64.gz
```

Step 1.3 – Move to opt directory

To make Java available to all users, move the extracted java content to “/usr/local/java” folder.

```
$ su
password: (type password of root user)
$ mkdir /opt/jdk
$ mv jdk-1.8.0_60 /opt/jdk/
```

Step 1.4 – Set path

To set path and JAVA_HOME variables, add the following commands to ~/.bashrc file.

```
export JAVA_HOME=/usr/jdk/jdk-1.8.0_60
export PATH=$PATH:$JAVA_HOME/bin
```

Now apply all the changes in to the current running system.

```
$ source ~/.bashrc
```

Step 1.5 – Java Alternatives

Use the following command to change Java alternatives.

```
update-alternatives --install /usr/bin/java java /opt/jdk/jdk1.8.0_60/bin/java 100
```

Step 1.6

Now verify the Java installation using the verification command (**java -version**) explained in Step 1.

Step 2 – ZooKeeper Framework Installation

Step 2.1 – Download ZooKeeper

To install ZooKeeper framework on your machine, visit the following link and download the latest version of ZooKeeper <http://zookeeper.apache.org/releases.html>

As of now, the latest version of ZooKeeper is 3.4.6 (ZooKeeper-3.4.6.tar.gz).

Step 2.2 – Extract tar file

Extract the tar file using the following commands –

```
$ cd opt/  
$ tar -zxf zookeeper-3.4.6.tar.gz  
$ cd zookeeper-3.4.6  
$ mkdir data
```

Step 2.3 – Create configuration file

Open configuration file named "conf/zoo.cfg" using the command "vi conf/zoo.cfg" and setting all the following parameters as starting point.

```
$ vi conf/zoo.cfg  
tickTime=2000  
dataDir=/path/to/zookeeper/data  
clientPort=2181  
initLimit=5  
syncLimit=2
```

Once the configuration file has been saved successfully, you can start the ZooKeeper server.

Step 2.4 – Start ZooKeeper Server

Use the following command to start the ZooKeeper server.

```
$ bin/zkServer.sh start
```

After executing this command, you will get a response as follows –

```
$ JMX enabled by default  
$ Using config: /Users/./zookeeper-3.4.6/bin/./conf/zoo.cfg
```

```
$ Starting zookeeper ... STARTED
```

Step 2.5 – Start CLI

Use the following command to start the CLI.

```
$ bin/zkCli.sh
```

After executing the above command, you will be connected to the ZooKeeper server and get the following response.

```
Connecting to localhost:2181
```

```
.....
```

```
.....
```

```
.....
```

```
Welcome to ZooKeeper!
```

```
.....
```

```
.....
```

```
WATCHER::
```

```
WatchedEvent state:SyncConnected type: None path:null
```

```
[zk: localhost:2181(CONNECTED) 0]
```

Step 2.6 – Stop ZooKeeper Server

After connecting the server and performing all the operations, you can stop the ZooKeeper server by using the following command.

```
bin/zkServer.sh stop
```

You have successfully installed Java and ZooKeeper on your machine. Let us now see the steps to install Apache Storm framework.

Step 3 – Apache Storm Framework Installation

Step 3.1 Download Storm

To install Storm framework on your machine, visit the following link and download the latest version of Storm <http://storm.apache.org/downloads.html>

As of now, the latest version of Storm is "apache-storm-0.9.5.tar.gz".

Step 3.2 – Extract tar file

Extract the tar file using the following commands –

```
$ cd opt/  
$ tar -zxf apache-storm-0.9.5.tar.gz  
$ cd apache-storm-0.9.5  
$ mkdir data
```

Step 3.3 – Open configuration file

The current release of Storm contains a file at "conf/storm.yaml" that configures Storm daemons. Add the following information to that file.

```
$ vi conf/storm.yaml  
storm.zookeeper.servers:  
- "localhost"  
storm.local.dir: "/path/to/storm/data(any path)"  
nimbus.host: "localhost"  
supervisor.slots.ports:  
- 6700  
- 6701  
- 6702  
- 6703
```

After applying all the changes, save and return to terminal.

Step 3.4 – Start the Nimbus

```
$ bin/storm nimbus
```

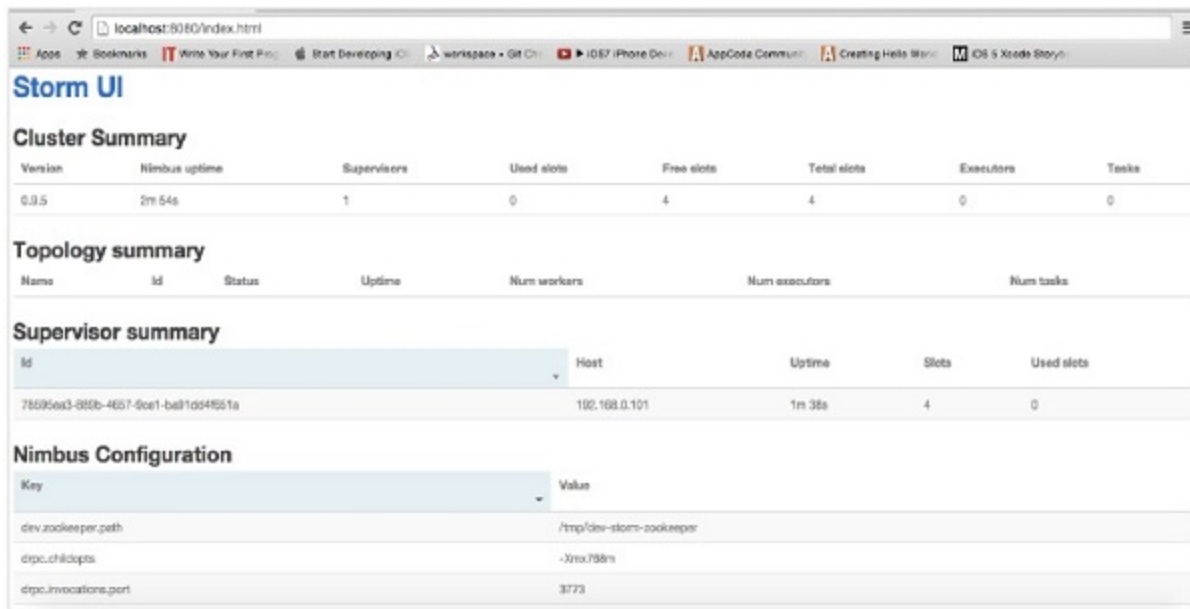
Step 3.5 – Start the Supervisor

```
$ bin/storm supervisor
```

Step 3.6 Start the UI

```
$ bin/storm ui
```

After starting Storm user interface application, type the URL **http://localhost:8080** in your favorite browser and you could see Storm cluster information and its running topology. The page should look similar to the following screenshot.



The screenshot shows the Storm UI web interface in a browser window. The address bar shows 'localhost:8080/index.html'. The page title is 'Storm UI'. The main content is divided into several sections:

- Cluster Summary**: A table with 8 columns: Version, Nimbus uptime, Supervisors, Used slots, Free slots, Total slots, Executors, and Tasks. The data row shows: 0.9.5, 2m 54s, 1, 0, 4, 4, 0, 0.
- Topology summary**: A table with 7 columns: Name, Id, Status, Uptime, Num workers, Num executors, and Num tasks. It is currently empty.
- Supervisor summary**: A table with 5 columns: Id, Host, Uptime, Slots, and Used slots. It shows one supervisor with Id '78595ea3-885b-4657-9ce1-ba91d94851a', Host '192.168.0.101', Uptime '1m 38s', Slots '4', and Used slots '0'.
- Nimbus Configuration**: A table with 2 columns: Key and Value. It shows three configuration items: 'dev.zookeeper.path' with value '/tmp/dev-storm-zookeeper', 'drpc.childopts' with value '-Xmx768m', and 'drpc.invocations.port' with value '3773'.

Version	Nimbus uptime	Supervisors	Used slots	Free slots	Total slots	Executors	Tasks
0.9.5	2m 54s	1	0	4	4	0	0

Name	Id	Status	Uptime	Num workers	Num executors	Num tasks
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Id	Host	Uptime	Slots	Used slots
78595ea3-885b-4657-9ce1-ba91d94851a	192.168.0.101	1m 38s	4	0

Key	Value
dev.zookeeper.path	/tmp/dev-storm-zookeeper
drpc.childopts	-Xmx768m
drpc.invocations.port	3773