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## Article

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### Installing Hadoop On Ubuntu

By [Abdul Rasheed Feroz Khan](#) on **Dec 11 2016**

#### Introduction

This article will help you to install Hadoop on your Ubuntu machine.

To surf some very basic articles look at the links below.

1. [What is a Distributed Computing Environment](#)
2. [Why we need a Distributed Computing Environment and Hadoop Ecosystem](#)

#### Requirements

1. [Java](#)
2. [Hadoop](#)

Follow the below steps now.

#### Step 1

Open a new terminal and check if Java is installed on your machine or not.

Terminal – Ctrl + Alt + T

To find the Java Version:

#### Command

```
java -version
```

A terminal window titled 'fero@fero-Inspiron-3542: ~' with a dark purple background. The terminal shows the command 'java -version' and its output: 'java version "1.8.0\_111"', 'Java(TM) SE Runtime Environment (build 1.8.0\_111-b14)', and 'Java HotSpot(TM) Server VM (build 25.111-b14, mixed mode)'. The prompt 'fero@fero-Inspiron-3542:~\$' is visible at the bottom. On the left side of the terminal window, there is a vertical dock with various application icons including a web browser, file manager, and others. The top of the window shows system status icons like network, battery, and the time '9:14 AM'.

So here we have the Java runtime environment on our machine.

## Step 2

Create a user to install Hadoop in your machine. To create a user you should be in a root account.

Login with root account: su

Enter the password of the account after giving su

This is an identical screenshot to the one above, showing a terminal window with the command 'java -version' and its output. The window title is 'fero@fero-Inspiron-3542: ~', and the prompt is 'fero@fero-Inspiron-3542:~\$'. The output shows Java version 1.8.0\_111. The left dock and top status bar are also visible.

For creating a new user: adduser username

(in my case i will name it as hadoop)

Enter the password for the new user. Enter once again to confirm the user. Enter the full name for the user. Enter the room number, work phone, home phone, and other information. Give confirmation once again by giving Y.

```

root@fero-inspiron-3542: /home/fero
fero@fero-inspiron-3542:~$ java -version
java version "1.8.0_111"
Java(TM) SE Runtime Environment (build 1.8.0_111-b14)
Java HotSpot(TM) Server VM (build 25.111-b14, mixed mode)
fero@fero-inspiron-3542:~$ su
Password:
root@fero-inspiron-3542: /home/fero# adduser Hadoop
adduser: Please enter a username matching the regular expression configured
via the NAME_REGEX[SYSTEM] configuration variable. Use the '--force-badname'
option to relax this check or reconfigure NAME_REGEX.
root@fero-inspiron-3542: /home/fero# adduser hadoop
Adding user 'hadoop' ...
Adding new group 'hadoop' (1001) ...
Adding new user 'hadoop' (1001) with group 'hadoop' ...
Creating home directory '/home/hadoop' ...
Copying files from '/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for hadoop
Enter the new value, or press ENTER for the default
Full Name []: hadoop
Room Number []:
Work Phone []:
Home Phone []:
Other []:
Is the information correct? [Y/n] y
root@fero-inspiron-3542: /home/fero#

```

And now you can exit from the root account using exit command.

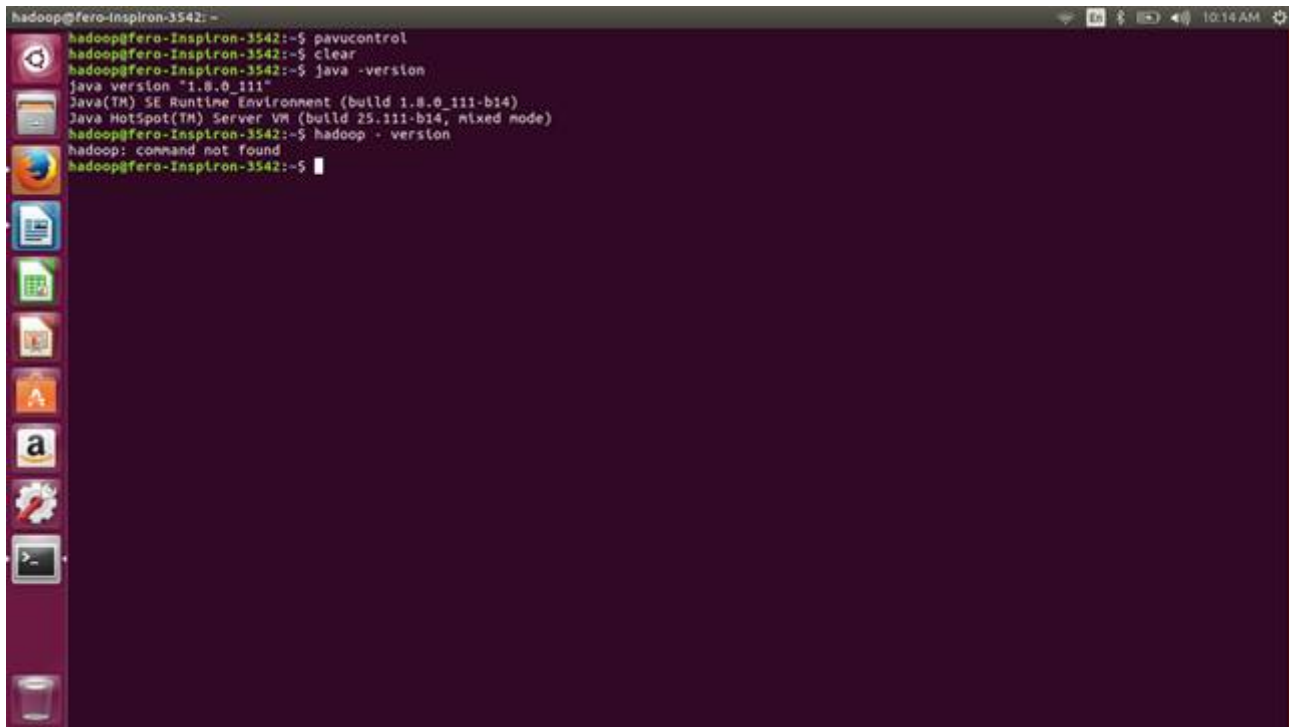
```

fero@fero-inspiron-3542: ~
fero@fero-inspiron-3542:~$ java -version
java version "1.8.0_111"
Java(TM) SE Runtime Environment (build 1.8.0_111-b14)
Java HotSpot(TM) Server VM (build 25.111-b14, mixed mode)
fero@fero-inspiron-3542:~$ su
Password:
root@fero-inspiron-3542: /home/fero# adduser Hadoop
adduser: Please enter a username matching the regular expression configured
via the NAME_REGEX[SYSTEM] configuration variable. Use the '--force-badname'
option to relax this check or reconfigure NAME_REGEX.
root@fero-inspiron-3542: /home/fero# adduser hadoop
Adding user 'hadoop' ...
Adding new group 'hadoop' (1001) ...
Adding new user 'hadoop' (1001) with group 'hadoop' ...
Creating home directory '/home/hadoop' ...
Copying files from '/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for hadoop
Enter the new value, or press ENTER for the default
Full Name []: hadoop
Room Number []:
Work Phone []:
Home Phone []:
Other []:
Is the information correct? [Y/n] y
root@fero-inspiron-3542: /home/fero# exit
exit
fero@fero-inspiron-3542:~$

```

Click on settings at the top right corner you can find the username over there. And now we are in a new user account of Hadoop.

You can also check whether Hadoop is installed on your machine or not by using the below command:  
hadoop -version



```

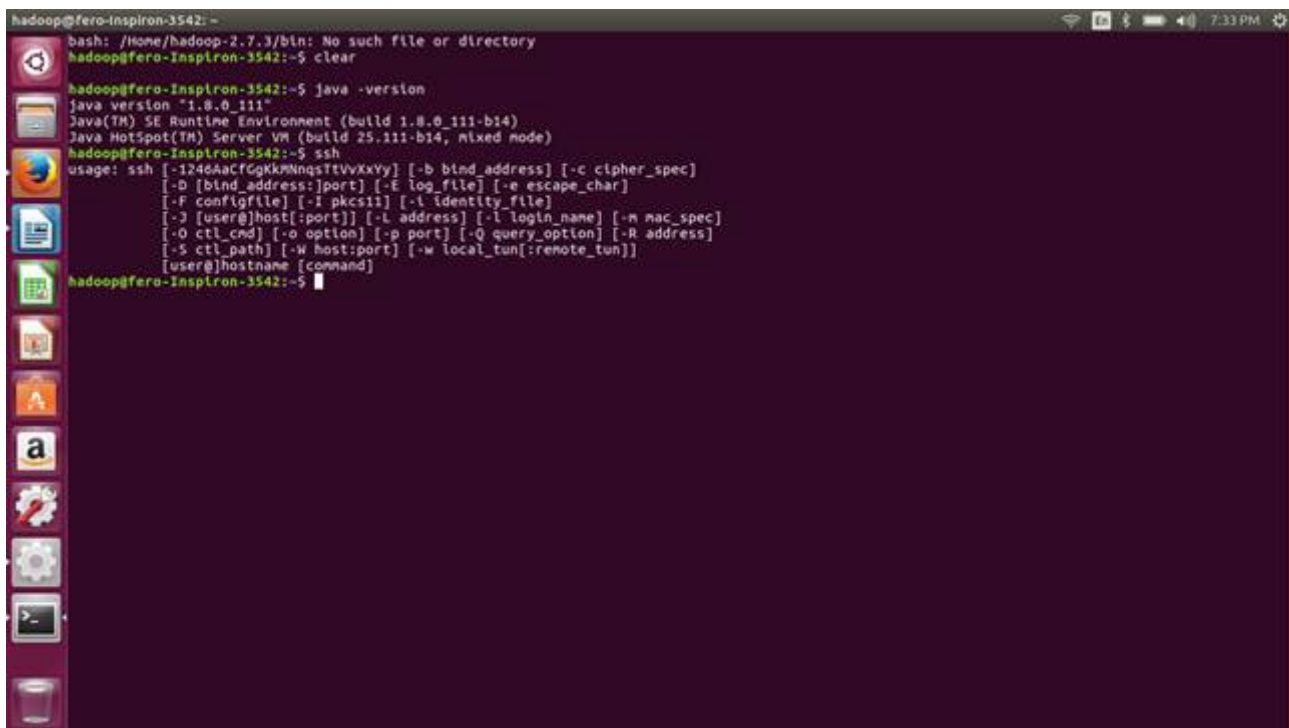
hadoop@fero-Inspiron-3542:~$ pavucontrol
hadoop@fero-Inspiron-3542:~$ clear
hadoop@fero-Inspiron-3542:~$ java -version
java version "1.8.0_111"
Java(TM) SE Runtime Environment (build 1.8.0_111-b14)
Java HotSpot(TM) Server VM (build 25.111-b14, mixed mode)
hadoop@fero-Inspiron-3542:~$ hadoop -version
hadoop: command not found
hadoop@fero-Inspiron-3542:~$

```

Open a terminal and check the Java version now using the below command:

### Command

*java -version*



```

hadoop@fero-Inspiron-3542:~$ bash: /Home/hadoop-2.7.3/bin: No such file or directory
hadoop@fero-Inspiron-3542:~$ clear
hadoop@fero-Inspiron-3542:~$ java -version
java version "1.8.0_111"
Java(TM) SE Runtime Environment (build 1.8.0_111-b14)
Java HotSpot(TM) Server VM (build 25.111-b14, mixed mode)
hadoop@fero-Inspiron-3542:~$ ssh
usage: ssh [-1246AaCfGgKkMNnqsTtVvXxYy] [-b bind_address] [-c cipher_spec]
           [-D [bind_address:]port] [-E log_file] [-e escape_char]
           [-F configfile] [-I pkcs11] [-l identity_file]
           [-J [user@]host[:port]] [-L address] [-l login_name] [-m mac_spec]
           [-O ctl_cmd] [-o option] [-p port] [-Q query_option] [-R address]
           [-S ctl_path] [-w host:port] [-w local_tun[:remote_tun]]
           user@hostname [command]
hadoop@fero-Inspiron-3542:~$

```

### Install SSH

SSH – ssh is a client program added; it's a command that we will be using in Linux to connect with remote machines.

Next we need sshd which will be running on the server and will allow clients to connect to the server.

Use the below command to install ssh:

### Note

you should be a root user

### **Command**

```
sudo apt-get install ssh
```

### **Create and Setup SSH Certificates**

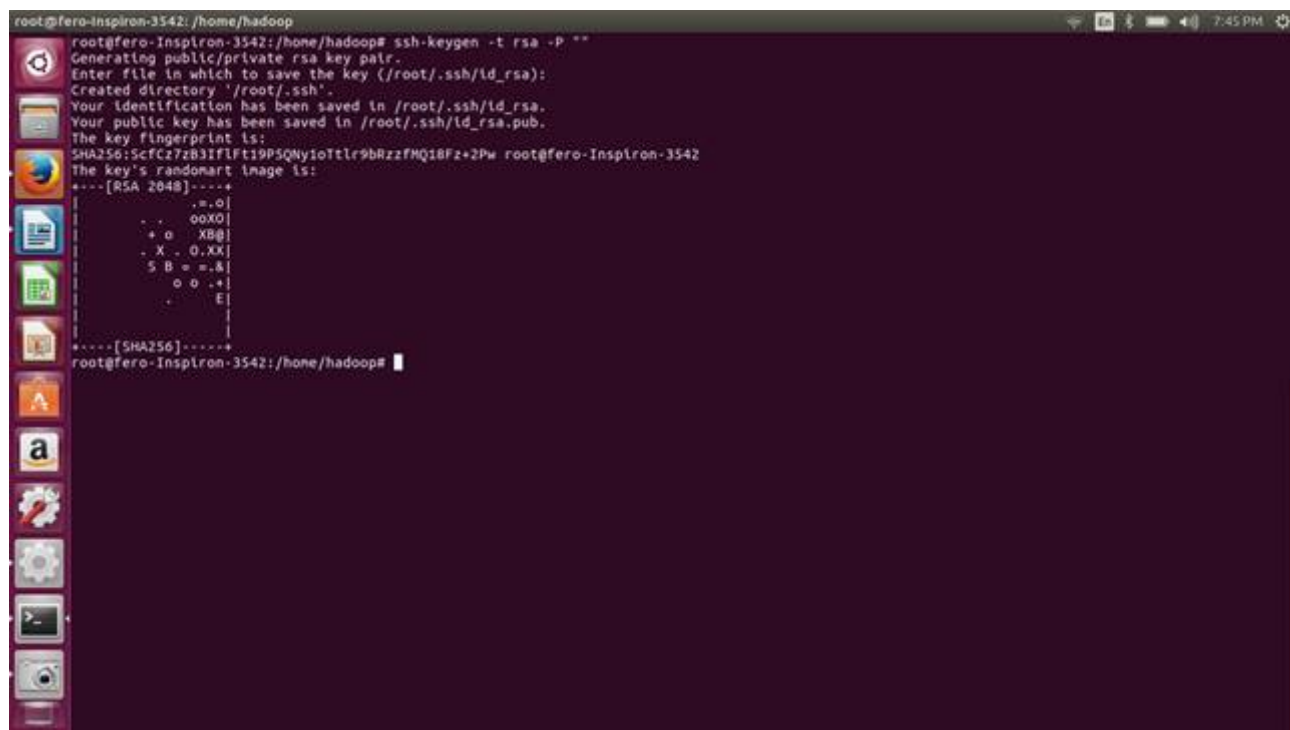
Hadoop need SSH to connect to its local host and nodes. So here we will be allowing SSH to run on the machine with public key authentication. SSH normally needs a password to access its node, here we will be removing it by providing a SSH certificate using the below commands.

### **Command**

```
ssh-keygen -t rsa -P ""
```

### Note

Leave the file name blank over here.



```
root@fero-Inspiron-3542: /home/hadoop
root@fero-Inspiron-3542:/home/hadoop# ssh-keygen -t rsa -P ""
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa):
Created directory '/root/.ssh'.
Your identification has been saved in /root/.ssh/id_rsa.
Your public key has been saved in /root/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:5cfc27z83If1t19P5QMy1oTtlr9bRzzfHQ18Fz+2Pw root@fero-Inspiron-3542
The key's randomart image is:
+---[RSA 2048]-----+
|
|..o
|ooXO
|+o XB@
|X . O.XX
|S B = .&
|o o .+
|..E
+---[SHA256]-----+
root@fero-Inspiron-3542:/home/hadoop#
```

Use the below command now to list out the newly created keys so that hadoop will not ask for any keys further.

### **Command**

```
cat $HOME/.ssh/id_rsa.pub >> $HOME/.ssh/authorized_keys
```

You can now check if the SSH Key works with the help of the below command:

### **Command**

`ssh localhost`

Give "Yes" for connecting.

```
root@fero-Inspiron-3542:~  
root@fero-Inspiron-3542:/home/hadoop# cat $HOME/.ssh/id_rsa.pub >> $HOME/.ssh/authorized_keys  
root@fero-Inspiron-3542:/home/hadoop# ssh localhost  
The authenticity of host 'localhost (127.0.0.1)' can't be established.  
ECDSA key fingerprint is SHA256:8WYqn2R09kn1Lxevrp1MUNDBTTB9jxypoE1HFjPFM7c.  
Are you sure you want to continue connecting (yes/no)? yes  
Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.  
Welcome to Ubuntu 16.10 (GNU/Linux 4.8.0-22-generic i686)  
  
 * Documentation:  https://help.ubuntu.com  
 * Management:    https://landscape.canonical.com  
 * Support:        https://ubuntu.com/advantage  
  
132 packages can be updated.  
45 updates are security updates.  
  
The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/copyright.  
  
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.  
root@fero-Inspiron-3542:~#
```

## Installing Hadoop

Now install Hadoop using the below command, this will download Hadoop to your machine.

### Commands

```
~$ wget http://mirrors.sonic.net/apache/hadoop/common/hadoop-2.6.0/hadoop-2.6.0.tar.gz  
~$ tar xvfz hadoop-2.6.0.tar.gz
```

```
root@fero-Inspiron-3542:~  
root@fero-Inspiron-3542:/home/hadoop# cat $HOME/.ssh/id_rsa.pub >> $HOME/.ssh/authorized_keys  
root@fero-Inspiron-3542:/home/hadoop# ssh localhost  
The authenticity of host 'localhost (127.0.0.1)' can't be established.  
ECDSA key fingerprint is SHA256:8WYqn2R09kn1Lxevrp1MUNDBTTB9jxypoE1HFjPFM7c.  
Are you sure you want to continue connecting (yes/no)? yes  
Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.  
Welcome to Ubuntu 16.10 (GNU/Linux 4.8.0-22-generic i686)  
  
 * Documentation:  https://help.ubuntu.com  
 * Management:    https://landscape.canonical.com  
 * Support:        https://ubuntu.com/advantage  
  
132 packages can be updated.  
45 updates are security updates.  
  
The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/copyright.  
  
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.  
root@fero-Inspiron-3542:~# wget http://mirrors.sonic.net/apache/hadoop/common/hadoop-2.6.0/hadoop-2.6.0.tar.gz  
--2016-12-09 19:51:31-- http://mirrors.sonic.net/apache/hadoop/common/hadoop-2.6.0/hadoop-2.6.0.tar.gz  
Resolving mirrors.sonic.net (mirrors.sonic.net)... 69.12.162.27  
Connecting to mirrors.sonic.net (mirrors.sonic.net)|69.12.162.27|:80... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 195257604 (186M) [application/x-gzip]  
Saving to: 'hadoop-2.6.0.tar.gz'  
  
hadoop-2.6.0.tar.gz      46%[=====] 86.04M  475KB/s  eta 3m 44s
```



```
root@fero-Inspiron-3542: ~#  
hadoop-2.6.0/share/hadoop/mapreduce/lib/avro-1.7.4.jar  
hadoop-2.6.0/share/hadoop/mapreduce/lib/log4j-1.2.17.jar  
hadoop-2.6.0/share/hadoop/mapreduce/lib/gulce-servlet-3.0.jar  
hadoop-2.6.0/share/hadoop/mapreduce/hadoop-mapreduce-examples-2.6.0.jar  
hadoop-2.6.0/share/hadoop/mapreduce/hadoop-mapreduce-client-hs-plugins-2.6.0.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-core-2.6.0-test-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-examples-2.6.0-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-jobclient-2.6.0-test-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-core-2.6.0-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-hs-plugins-2.6.0-test-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-shuffle-2.6.0-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-app-2.6.0-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-app-2.6.0-test-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-common-2.6.0-test-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-examples-2.6.0-test-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-hs-2.6.0-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-hs-plugins-2.6.0-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-jobclient-2.6.0-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-common-2.6.0-sources.jar  
hadoop-2.6.0/share/hadoop/mapreduce/sources/hadoop-mapreduce-client-hs-2.6.0-test-sources.jar  
hadoop-2.6.0/LICENSE.txt  
hadoop-2.6.0/README.txt  
hadoop-2.6.0/bin/  
hadoop-2.6.0/bin/hdfs.cmd  
hadoop-2.6.0/bin/test-container-executor  
hadoop-2.6.0/bin/container-executor  
hadoop-2.6.0/bin/hadoop.cmd  
hadoop-2.6.0/bin/rcc  
hadoop-2.6.0/bin/hdfs  
hadoop-2.6.0/bin/mapred  
hadoop-2.6.0/bin/hadoop  
hadoop-2.6.0/bin/yarn.cmd  
hadoop-2.6.0/bin/mapred.cmd  
hadoop-2.6.0/bin/yarn  
hadoop-2.6.0/include/  
hadoop-2.6.0/include/TemplateFactory.hh  
hadoop-2.6.0/include/StringUtils.hh  
hadoop-2.6.0/include/hdfs.h  
hadoop-2.6.0/include/Pipes.hh  
hadoop-2.6.0/include/SerialUtils.hh  
root@fero-Inspiron-3542:~#
```

Thank you for using C# Corner