

How to setup environment for Deep learning with Deeplearning4j ?

Setup environment for Deep learning with Deeplearning4j

In this tutorial, we shall see how to Setup environment for Deep Learning with Deeplearning4j and import dl4j-examples from Git to IntelliJ IDEA to start working on Deep Learning.

Following are the steps :

1. Install Java.
2. Install Apache Maven.
3. Download IntelliJ IDEA Community Edition.
4. Install Git.
5. Start hands-on with dl4j-examplesClone – Git project “dl4j-examples”. – Build the project using Maven. – Import built project to IntelliJ IDEA as Maven.

Skip any of the above steps if you have already installed. Also, it is recommended to update the software to the latest available versions.

Install Java

[A step-by-step guide to install java.](#)

Install Apache Maven

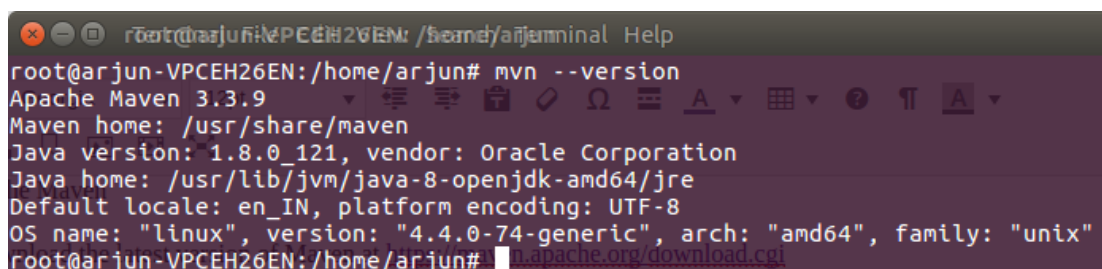
Step 1 : Download the latest version of Maven at [<https://maven.apache.org/download.cgi>]

Step 2 : Install Maven following the instructions at [<https://maven.apache.org/install.html>]

Step 3 : Verify if maven is installed using the command

```
mvn -version
```

The result would be as shown in the below screenshot :



```
root@arjun-VPCEH26EN: /home/arjun# mvn --version
Apache Maven 3.3.9
Maven home: /usr/share/maven
Java version: 1.8.0_121, vendor: Oracle Corporation
Java home: /usr/lib/jvm/java-8-openjdk-amd64/jre
Default locale: en_IN, platform encoding: UTF-8
OS name: "linux", version: "4.4.0-74-generic", arch: "amd64", family: "unix"
root@arjun-VPCEH26EN: /home/arjun#
```

Check Maven installation using the command “mvn -version”

Download IntelliJ IDEA Community Edition

1. Download the latest version of IntelliJ IDEA from [<https://www.jetbrains.com/idea/download/>]
2. Extract the downloaded package and go into the folder where bin, lib, plugin, etc., folders are present. An installation guide, "Install-Linux-tar.txt" (for Linux installation), is present in the location. [A similar name would be present for other Operating Systems].
3. Follow the instructions present in the setup guide.

Install Git

Instructions for installing Git are available at <https://git-scm.com/book/en/v2/Getting-Started-Installing-Git>

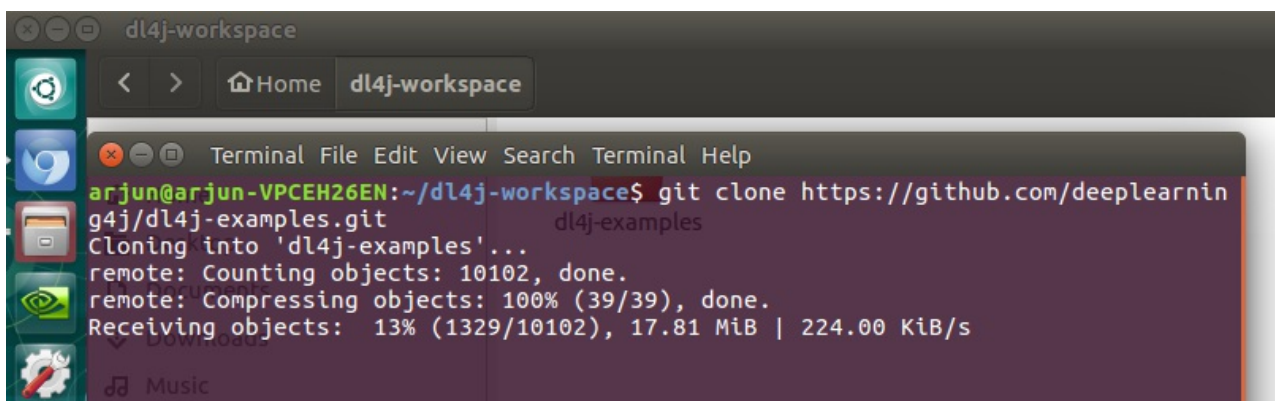
Working with dl4j-examples

Step 1

Create a new directory for working with dl4j projects. Say "dl4j-workspace". And execute the following git command to download the dl4j-examples from the git repository.

```
$ git clone https://github.com/deeplearning4j/dl4j-examples.git
```

Following screenshot shows download in progress for dl4j-examples :



Clone dl4j-examples from Git

Step 2

Once the download is completed, go to the folder dl4j-examples and build the project using the following command

```
$ mvn clean install
```

Note : Make sure the JAVA_HOME path variable is pointing to the JRE of the latest JDK available in your machine.

When the command "`mvn clean install`" is run, the result is as shown in the below screenshot :

```
root@arjun-VPCEH26EN: /home/arjun/dl4j-workspace/dl4j-examples
arjun@arjun-VPCEH26EN:~$ echo $JAVA_HOME
/usr/lib/jvm/default-java/jre
arjun@arjun-VPCEH26EN:~$ cd /home/arjun/dl4j-workspace/
arjun@arjun-VPCEH26EN:~/dl4j-workspace$ sudo su
[sudo] password for arjun:
root@arjun-VPCEH26EN:/home/arjun/dl4j-workspace# clear
Once download is completed, go to the folder dl4j-examples and build the project using the following command
root@arjun-VPCEH26EN:/home/arjun/dl4j-workspace# cd dl4j-examples/
root@arjun-VPCEH26EN:/home/arjun/dl4j-workspace/dl4j-examples# mvn clean install
[INFO] Scanning for projects...
```

mvn clean install

It takes some time for Maven to download all the artifacts mentioned in the pom file and build the project.

Note : Make sure your Java installation has got JavaFX. In case not, you would get a COMPILE ERROR. Try installing JavaFX by executing the following command and try “mvn clean install” again.

```
sudo apt-get install openjfx
```

Once the “mvn clean install” command is successful, you should see the BUILD SUCCESS as seen in the below screenshot :

```
[INFO] Reactor Summary:
[INFO] DeepLearning4j Examples Parent ..... SUCCESS [ 3.269 s]
[INFO] DeepLearning4j Examples ..... SUCCESS [02:05 min]
[INFO] dl4j-spark-examples ..... SUCCESS [ 1.431 s]
[INFO] dl4j-spark ..... SUCCESS [06:20 min]
[INFO] datavec-examples ..... SUCCESS [01:03 min]
[INFO] DeepLearning4j CUDA special examples ..... SUCCESS [43:37 min]
[INFO] nd4j-examples ..... SUCCESS [ 27.210 s]
[INFO] Reinforcement Learning4j Examples ..... SUCCESS [12:33 min]
[INFO] arbiter-examples ..... SUCCESS [01:18 min]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 01:07 h
[INFO] Finished at: 2017-05-01T10:48:04+05:30
[INFO] Final Memory: 79M/619M
[INFO] -----
root@arjun-VPCEH26EN:/home/arjun/dl4j-workspace/dl4j-examples#
```

dl4j-examples BUILD SUCCESS

Step 3

Start IntelliJ IDEA.



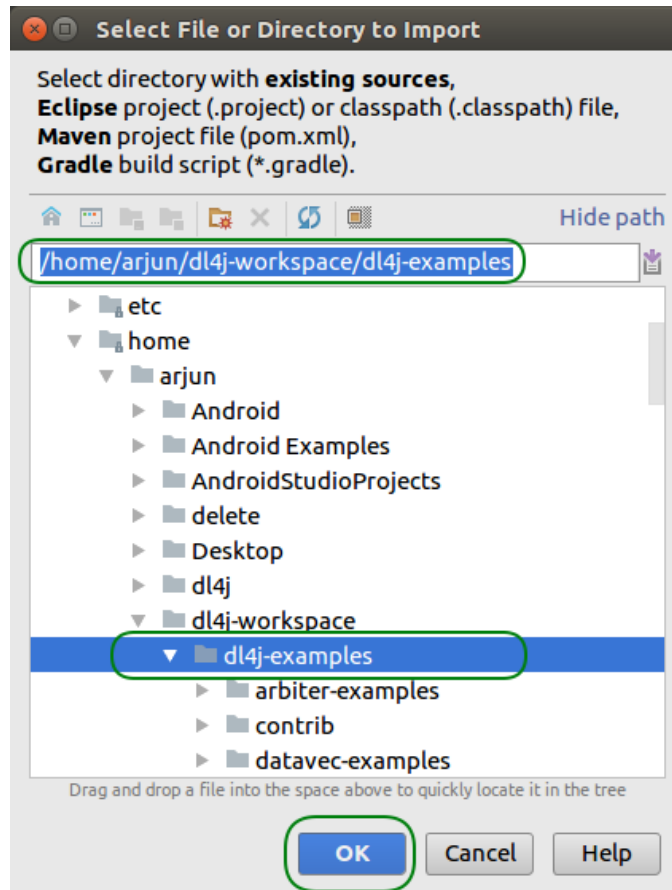
Start IntelliJ IDEA

- Click on Import Project



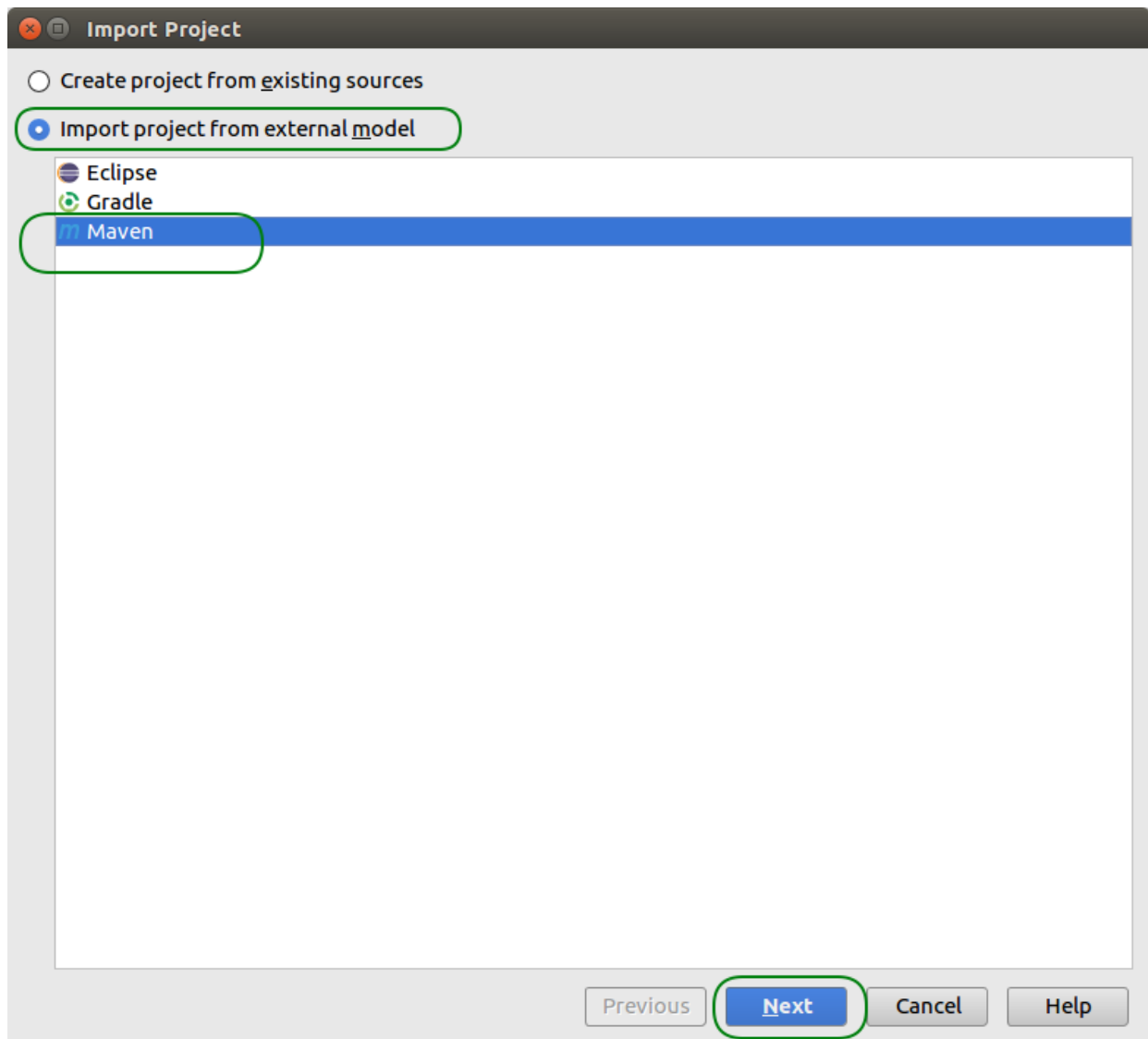
Import Project

- Choose the project folder. Click OK.



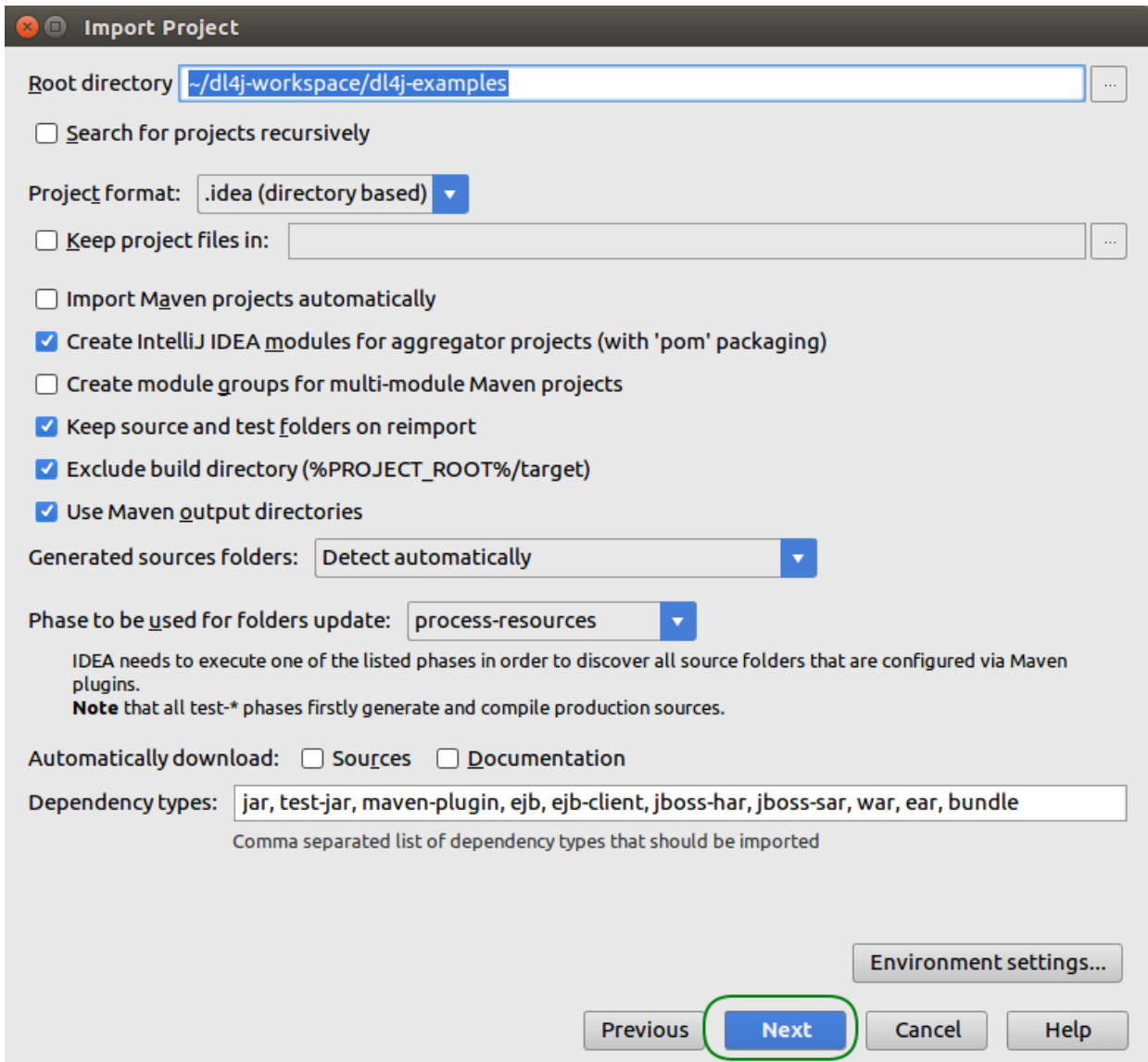
Choose Project Folder

- Import Project as Maven model. Click Next.



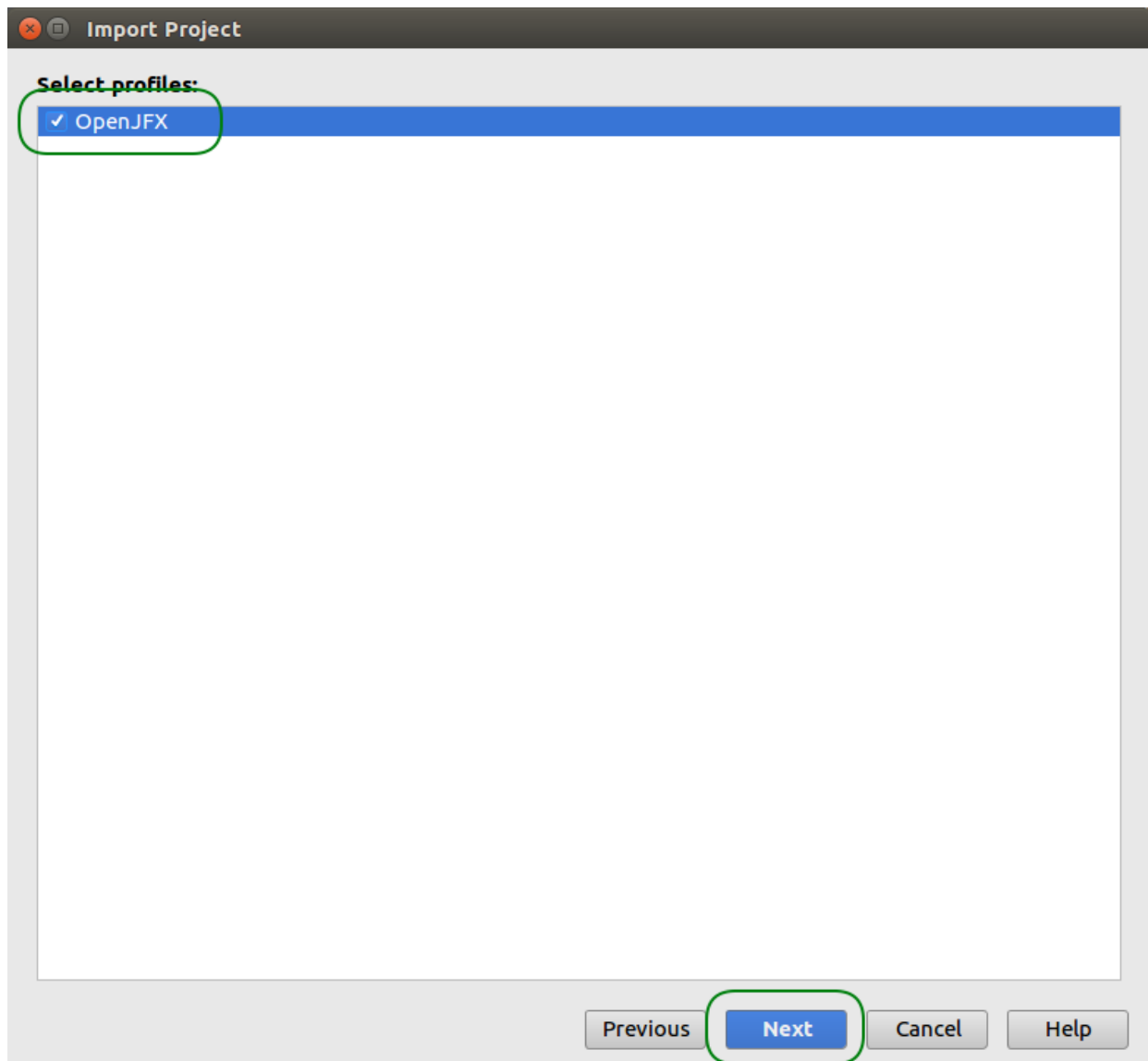
Import project as Maven

- Project configuration. Keep defaults and Click on Next.



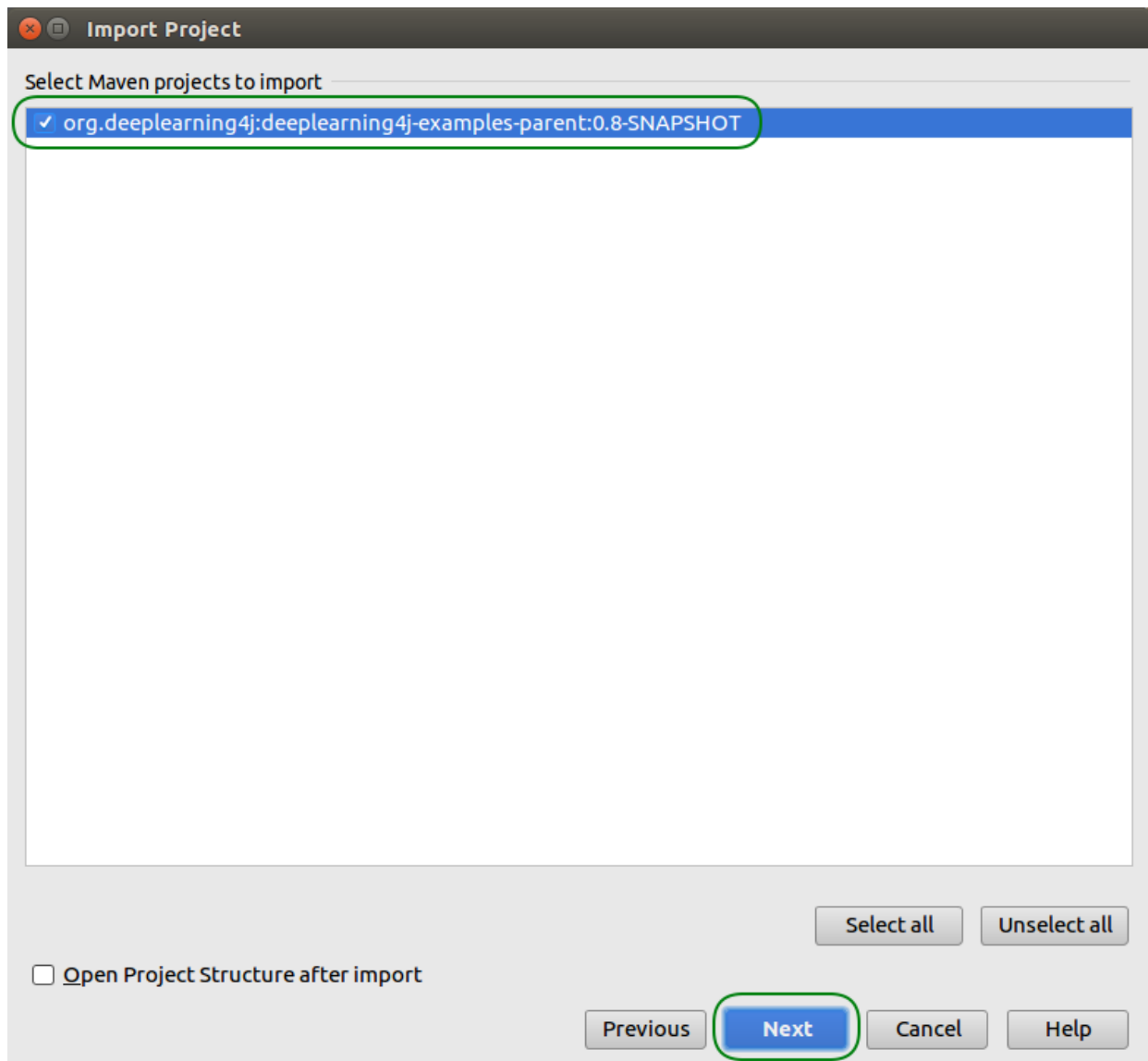
Project Configuration

- Select Profile – OpenJFX. Click Next.



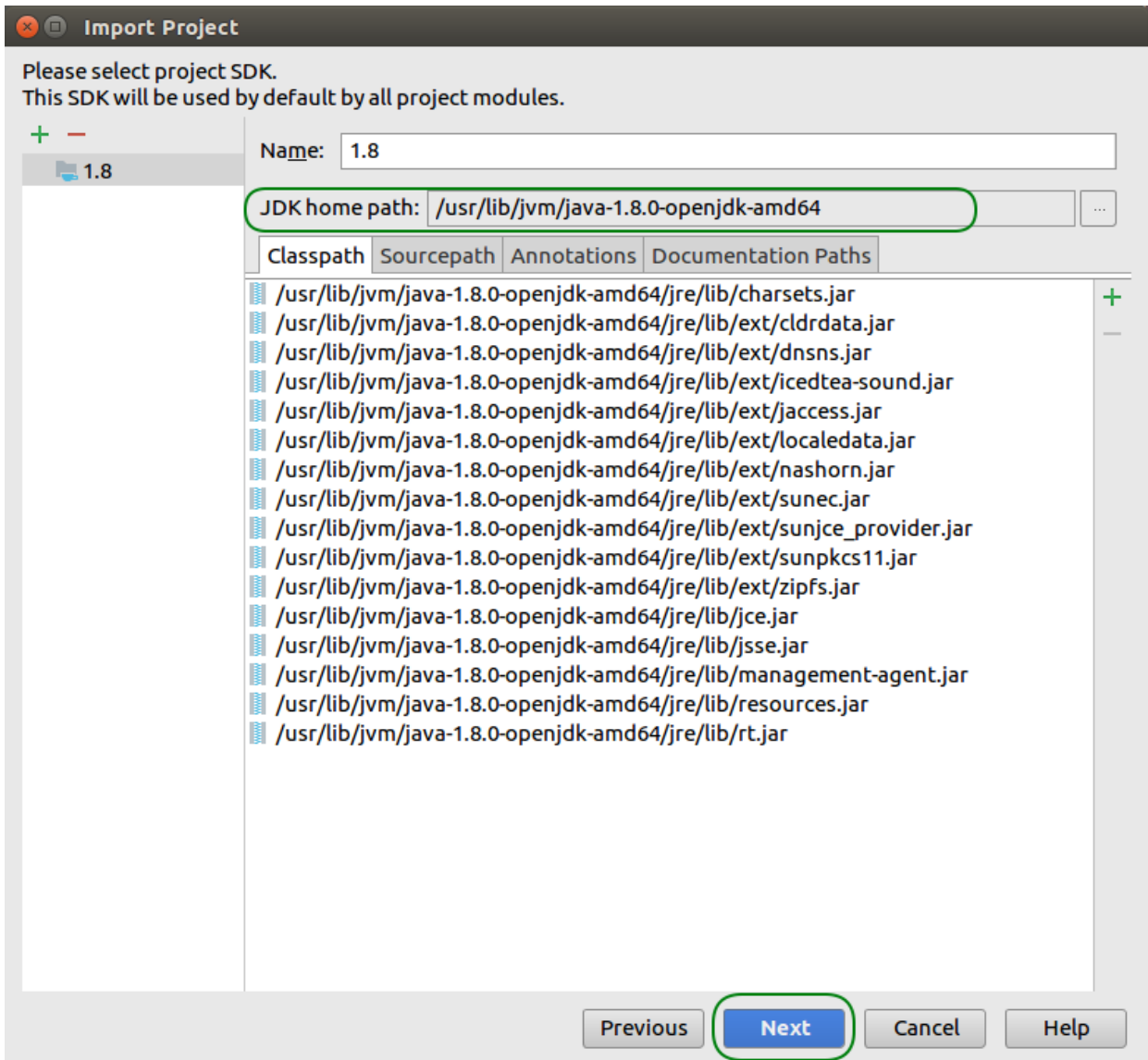
OpenJFX Profile

- Select the Maven projects in the project folder. Click Next.



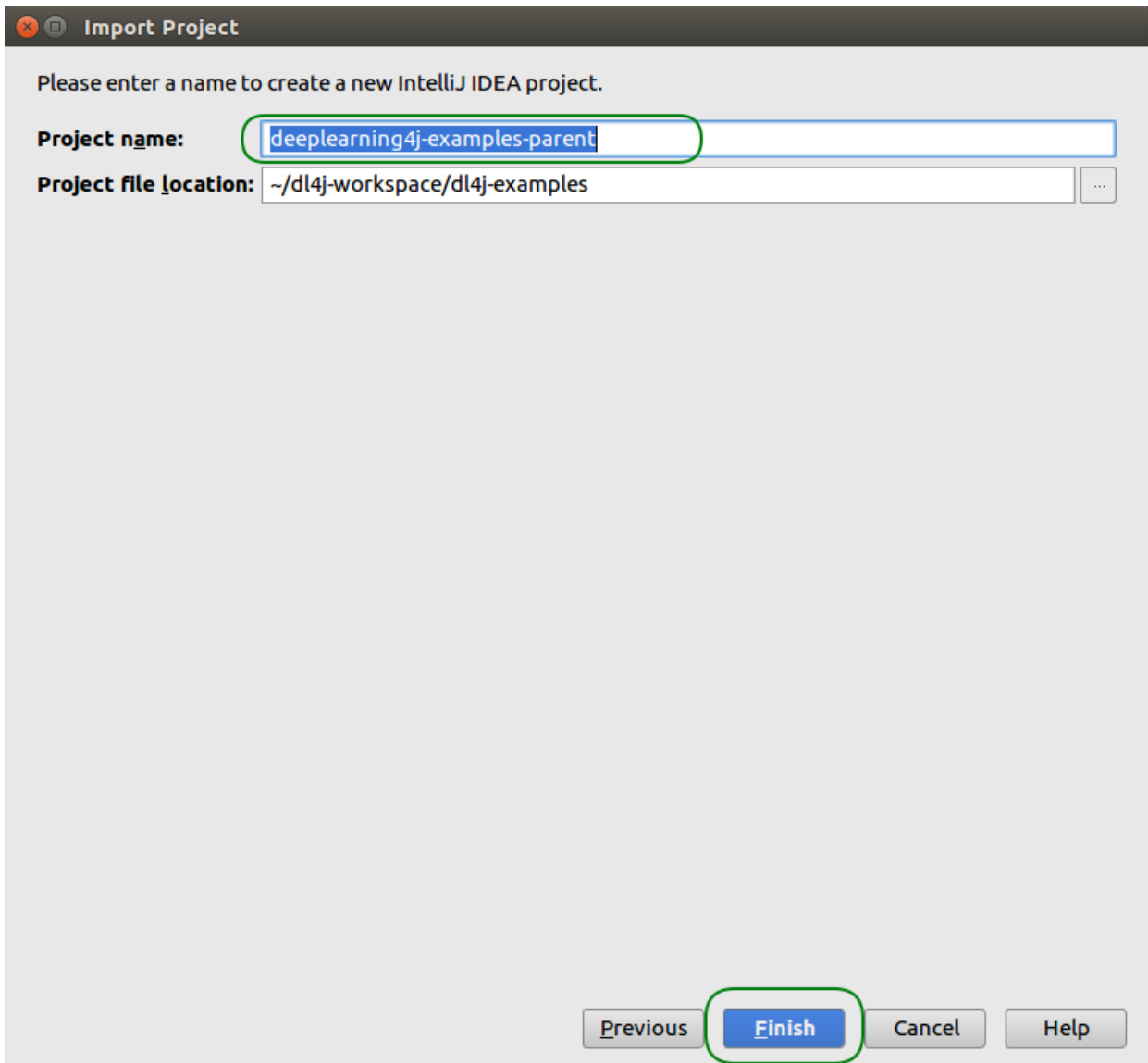
Select Maven Projects from the project folder

- Select project SDK. Click Next.



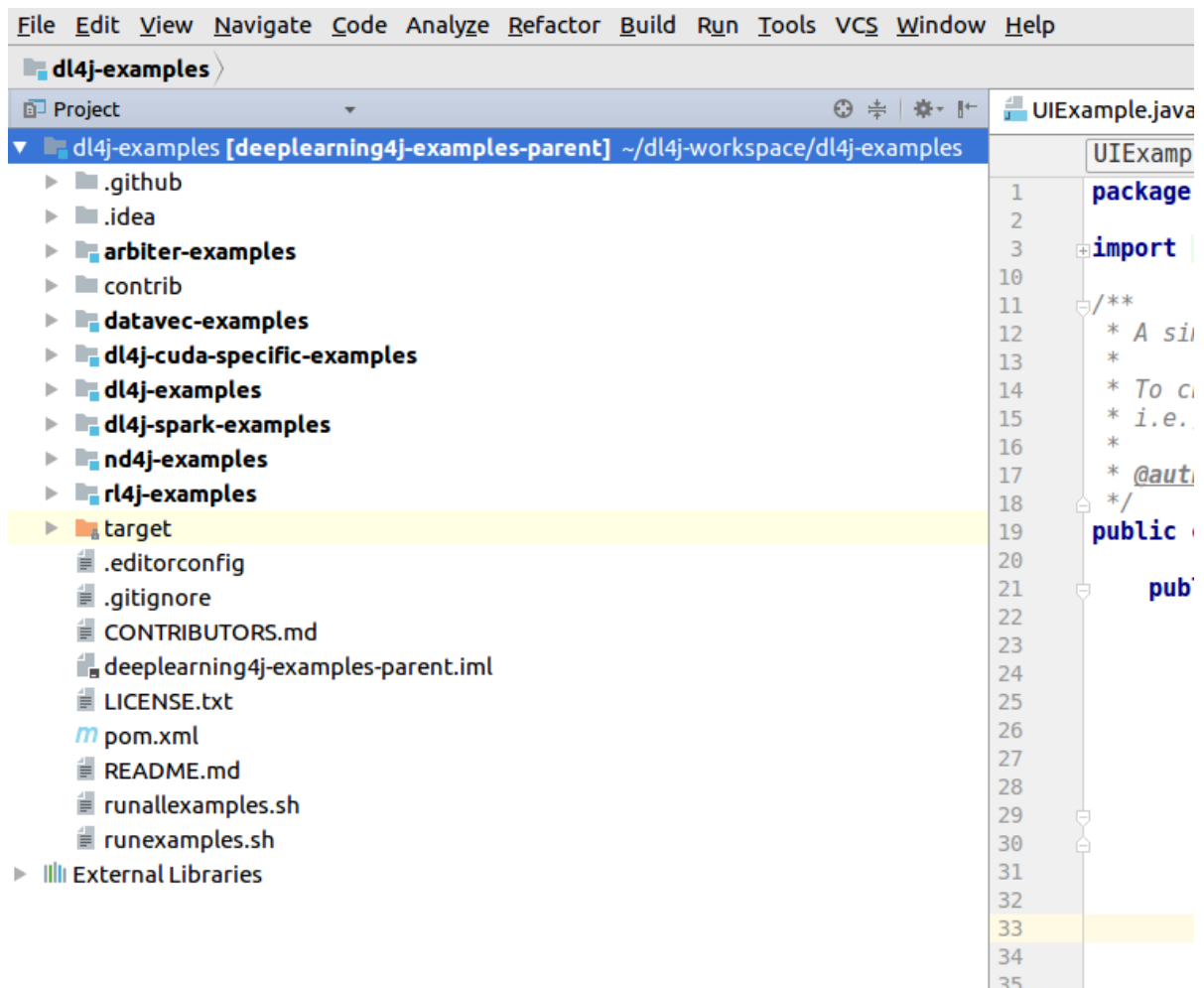
Select SDK for Project

- The final step, give a name to the project. Click Finish.



Give Project Name

- It takes some time for IntelliJ to index the resources in the project. And the project structure would look something like in the following screenshot.



dl4j examples Project Structure

The project “dl4j-examples” is successfully setup.

Reference

Following is the official link of deeplearning4j quick start.

[\[https://deeplearning4j.org/quickstart\]](https://deeplearning4j.org/quickstart)

Conclusion

In this Deep Learning tutorial, we have seen how to setup environment for Deep learning with Deeplearning4j and import the Git project “dl4j-examples” to IntelliJ IDEA.

Machine Learning Tutorials

Machine Learning Algorithms

- Important considerations while working with a Machine Learning Algorithm

- Decision Tree

- Random Forest

Deep Learning

DeepLearning4j

- Setup Environment & dl4j-examples