

# Installation Guide for Hyperledger Fabric



Before we begin running our own network on Hyperledger Fabric, we need to set up the development environment for working with Hyperledger Fabric. Follow the steps below to setup the development environment:

## Step1 : Install Curl

Download and Install the latest version of [CURL](#) for your operating system.

For Ubuntu

```
- sudo apt-get install curl.
```

## Step 2 : Install Docker and Docker Compose

Hyperledger dependencies and sample examples are shared using Docker containers, so you need to install them to get started. You need the following versions as per your operating system:

- MacOSX, \*nix, or Windows 10: [Docker](#) Docker version 17.06.2-ce or greater is required.
- Older versions of Windows: [Docker Toolbox](#) - again, Docker version Docker 17.06.2-ce or greater is required.

Use this command

For Ubuntu (Installing the Repository)

### Step 2.1 : First of all we need to update the apt package

Command

```
- sudo apt-get update
```

**Step 2.2 : The next step is to Install packages to allow apt to use repository over HTTPS.**

Command

```
- sudo apt-get install \
    apt-transport-https \
    ca-certificates \
    curl \
    software-properties-common
```

**Step 2.3 : Add Docker's official GPG Key:**

Command

```
- curl -fsSL https://download.docker.com/linux/ubuntu/gpg |
    sudo apt-key add -
```

Now we need to verify if we have the key with a fingerprint

Command

```
- $ sudo apt-key fingerprint 0EBFCD88
    pub 4096R/0EBFCD88 2017-02-22
        Key fingerprint = 9DC8 5822 9FC7 DD38 854A E2D8 8D81
        803C 0EBF CD88
        uid Docker Release (CE deb) <docker@docker.com>
        sub 4096R/F273FCD8 2017-02-22
```

**Step 2.4 : Once you have completed the above steps now we need to setup the stable repository. Use the below command**

Command

```
- sudo add-apt-repository \
    "deb [arch=amd64]
    https://download.docker.com/linux/ubuntu \
    $(lsb_release -cs) \
    stable"
```

## **Step 2.5 : Install Docker-CE**

**Step 2.5.1 : We need to update the apt-package index.**

Command:

```
- sudo apt-get update
```

**Step 2.5.2 : Now we will install the Docker-CE**

Command

```
- sudo apt-get install docker-ce
```

**Step 2.5.3 : You can select the latest version accordingly. Here we are using version 18.03.0 of Docker-CE**

Command

```
- apt-cache madison docker-ce  
  
- docker-ce | 18.03.0~ce-0~ubuntu |  
https://download.docker.com/linux/ubuntu  
xenial/stable amd64 Packages
```

**Step 2.5.4 : We have successfully completed all the steps. Now let's run a sample for the Docker-CE**

Command

```
- sudo docker run hello-world
```

**Step 2.6 : After we have installed Docker-CE successfully, now we have to download Docker Compose using the following commands:**

**Step 2.6.1 : We can download docker-compose repository directly from github repository, using this command**

Command:

```
- sudo curl -L
  https://github.com/docker/compose/releases/download/1.
  21.2/docker-compose-$(uname -s)-$(uname -m) -o
  /usr/local/bin/docker-compose
```

**Step 2.6.2 : Once we have successfully executed the command, we have to give the executables permissions to the binary, by using this command**

Command:

```
- sudo chmod +x /usr/local/bin/docker-compose
```

**Step 2.6.3 : We have successfully installed docker compose. You can check the version using this command**

Command:

```
- docker-compose --version
```

Once installation is successful you can check the versions of docker and docker compose by running the following commands on CLI:

- `docker --version`
- `docker-compose --version`

Note: Installing Docker Toolbox will also install Docker Compose with Docker. Make sure you have the correct versions to work with Hyperledger Fabric.

### **Step 3 : Install Go Programming Language**

Hyperledger components are available in go programming language. Hence you require [Go](#) version 1.9x or greater to run with most components of Hyperledger Fabric.

You also need to setup the Go programming environment variables as the Hyperledger accesses the language through them. You need to setup the following environment variables:

1. `GOPATH=$HOME/go`

2. `PATH=$PATH:$GOPATH/bin`

Installing Go Programming Language in Ubuntu

**Step 3.1 : Let's upgrade our Ubuntu. Use the following command**

Command:

```
- sudo apt-get update.
```

**Step 3.2 : After we have completed our upgradation we can now begin to install Go Programming Language.(Note you can choose the latest version by visiting their [official site](#).**

Command:

```
- sudo curl -O  
https://storage.googleapis.com/golang/go1.9.1.linux-amd64.tar.gz
```

**Step 3.3: Once we have successfully downloaded the packaging, we need to unpack the package.**

Command:

```
- sudo tar -xvf go1.9.1.linux-amd64.tar.gz
```

After the package has been unpacked we need to move it to our local file. Use this command to move it to the user's local directory.

Command:

```
- sudo mv go/usr/local
```

### **Step 3.4 : Now set the Go paths by setting the Go root Value.**

Command:

```
- sudo nano ~/.profile export  
- PATH=$PATH:/usr/local/go/bin
```

(Note: If you choose another path you need to execute the following command)

Command:

```
- export GOROOT=$HOME/go export PATH=$PATH:$GOROOT/bin
```

**Step 3.5 : Now we have completed all the steps. We need to save it and run the following command to refresh our profile.**

Command:

```
- source ~/.profile
```

### **Step 3.6 : Check the version of Go and we can move towards installing NodeJS**

Command:

```
- go version Install Node
```

## **Step 4 : Install NodeJS runtime and NPM**

You will need to have version 8.9x of [Node.js](https://nodejs.org/en/) installed to work on Hyperledger Fabric.

**Step 4.1 : Node.js comes pre-installed in Ubuntu 16.04. If it is not installed we can directly execute the following commands to get it going, First we need to install ppa (i.e Personal Package Archive).**

Commands :

```
- sudo apt-get install curl python-software-properties  
- curl -sL https://deb.nodesource.com/setup_10.x | sudo  
-E bash -
```

## **Step 4.2 : To install NodeJS use the following command**

Command:

```
- sudo apt-get install nodejs
```

## **Step 4.3 : Now check the version**

Command

```
- node -v (for checking NodeJS)  
- npm -v (for checking npm)
```

The above commands will install your version 10.5.0 and npm will be 6.1.0

To begin Installation of the Node.js you will also need to install npm.

```
- Npm install npm@5.6.0 -g
```

Note: You need to confirm the version of npm you will be installing. However if you want to upgrade npm tool you can use the above command.

## **Step 5 : Installing Python**

If you have Ubuntu you don't need to install Python as it comes pre-installed in it otherwise you can download [Python 2.7.0](#). The Fabric node.js requires iterations of Python 2.7.0 in order for npm to run successfully.

### **Steps 5.1 : To Install Python first we need to add its PPA using this command**

Command

```
- sudo add-apt-repository ppa:jonathonf/python-2.7
```

### **Steps 5.2 : We need to update our index and install Python 2.7.0**

Commands :

- `sudo apt-get update`
- `sudo apt-get install python2.7`

### **Step 6 : Installing Windows Build Tools(Required only for Windows Developers)**

For developing over Windows you also need the necessary Visual Studio C++ Build Tools which are freely available and can be installed by running the following command:

- `npm install --global windows-build-tools`

You can also go through the [package](#) and see the dependencies for these build tools.