

Welcome, from SaRaNg ☺

Get started on **Hyperledger Fabric** local development environment quickly on an **Ubuntu 16** VM image

Note:

This VM has been setup using instructions from: <https://hyperledger.github.io/composer/latest/installing/development-tools.html>

If you want you can setup yourself following the instructions in the above link. Else you can follow through this document to get pre-built VM.

What is in there?

Note: You don't have to install the following. They are already installed and available in the VM.			
1	Operating Systems	16.04 LTS (64-bit)	Through VM image
2	Docker Engine	Version 17.03 or higher	Followed Installing prerequisite instructions on https://hyperledger.github.io/composer/latest/installing/installing-prereqs.html site.
3	Docker-Compose	Version 1.8 or higher	
4	Node	8.9 or higher (note version 9 is not supported)	
5	npm	v5.x	
6	git	2.9.x or higher	
7	Python	2.7.x	https://blogs.msdn.microsoft.com/ipsanders/2017/10/13/install-visual-studio-code-on-ubuntu-16-04-lts/
8	Code editor	I have installed VSCode with extensions for Docker, Hyperledger Composer, React and Solidity	

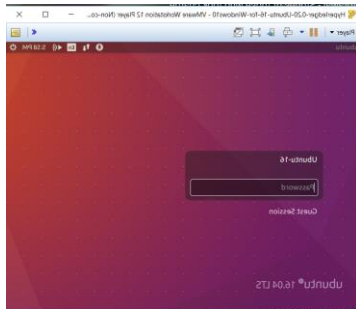
So, as you see this VM can be used for many other purposes such as to practice Docker, Node.JS, Python projects etc. in addition to Hyperledger Fabric.

Steps to setup

1. Download the VM file **Hyperledger-0.20-Ubuntu-16-for-Windows10.rar** from https://drive.google.com/open?id=1-Mcc1LUhf8Pug_MaGm_niKVMu_5VB9iD into a folder in your local drive on Windows.
2. Right click on the **.rar** file and click on **"Extract here"**. This will extract the VM to a directory named **Hyperledger-0.20-Ubuntu-16-for-Windows10**.
3. Open VMware and click on **Open a Virtual Machine**.
4. **Locate Hyperledger-Ubuntu-16.vmx** file in your extracted folder and click Open.
5. Follow along the setup prompt.
6. When prompted "I moved it", **"I copied it"**. Select **"I copied it"**.
7. **Don't** accept to upgrade the VM to higher version at any point of time. Even after it is setup and you reboot next time.
8. It will setup a Virtual machine for you with **Hyperledger** environment pre-built.

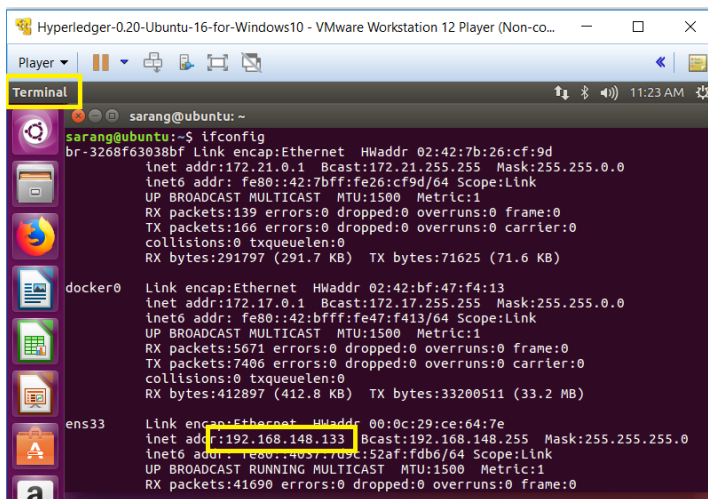
Enter user name/ password as **sarang / sarang** wherever prompted.

9. When prompted to login. Enter password **sarang**. See Pic-1.



Pic-1

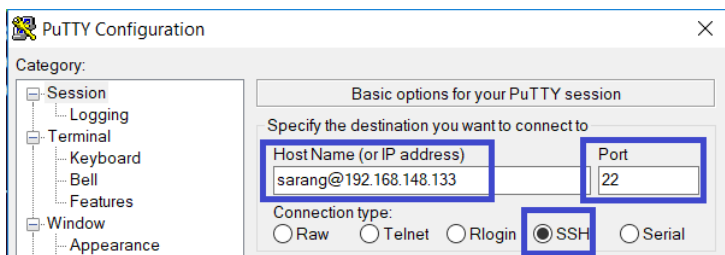
10. Once logged in, open terminal and run **ifconfig** to get your IP addresses. See Pic-2.



Pic-2 (IP will be different than the one highlighted in the pic. Note the one you get as output of **ifconfig**)

If you are comfortable on VM terminal, you can skip step 11 and 12.

11. Login to Putty using the **IP** you found in the previous step. See Pic-3.



Pic-3

12. Enter **sarang** as password when prompted on Putty. See **Pic-4**.

```
sarang@ubuntu: ~
Using username "sarang".
sarang@192.168.148.133's password:
Welcome to Ubuntu 16.04.3 LTS (GNU/Linux 4.10.0-28-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

247 packages can be updated.
11 updates are security updates.

New release '18.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Wed Sep  5 10:53:43 2018 from 192.168.148.1
sarang@ubuntu:~$ bash
sarang@ubuntu:~$
```

Pic-4

Don't run any of the following commands nether as **root** user nor with **sudo** or **su**.

13. Run **docker ps** to ensure that Hyperledger is not already running. See **Pic-5**.

```
sarang@ubuntu: ~
sarang@ubuntu:~$ docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS

```
sarang@ubuntu:~$
```

Pic-5

14. Execute **~/fabric-dev-servers/startFabric.sh** command to start the Hyperledger Fabric environment. See **Pic-6**.

```
2018-09-06 01:34:19.056 UTC [msp/identity] Sign -> DEBU 03f Sign: plaintext: 0A9F070A5B08011A0B089B88C2DC0510...C5742EC4B02F1A080A000A000A000A00
2018-09-06 01:34:19.056 UTC [msp/identity] Sign -> DEBU 040 Sign: digest: 310C64A5A1AB80E42D3520D0764534AC920275978F403996C1E8B80039DA3896
2018-09-06 01:34:19.700 UTC [channelCmd] executeJoin -> INFO 041 Successfully submitted proposal to join channel
sarang@ubuntu:~$
```

Pic-6

15. Execute **docker ps** command now to see you have the following 4 application running in their docker containers. See **Pic-7**.

```
sarang@ubuntu:~/fabric-dev-servers$ docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
a587465dccb2	hyperledger/fabric-peer:1.2.0	"peer node start"	About a minute ago	Up About a minute	0.0.0.0:7051->7051/tcp, 0.0.0.0:7053->7053/tcp
c.com	hyperledger/fabric-couchdb:0.4.10	"tini -- /docker-ent&!"	About a minute ago	Up About a minute	4369/tcp, 9100/tcp, 0.0.0.0:5984->5984/tcp
67e661146c3a	hyperledger/fabric-ca:1.2.0	"sh -c 'fabric-ca-se&!"	About a minute ago	Up About a minute	0.0.0.0:7054->7054/tcp
dc26a53d2752	hyperledger/fabric-orderer:1.2.0	"orderer"	About a minute ago	Up About a minute	0.0.0.0:7050->7050/tcp

```
sarang@ubuntu:~/fabric-dev-servers$
```

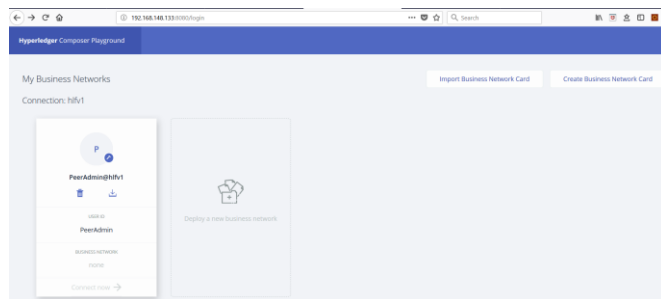
Pic-7

16. Execute **composer-playground**. See **Pic-8**.

```
sarang@ubuntu:~$ composer-playground
info: [Hyperledger-Composer] :loadModule() Loading composer-wallet-filessystem from /home/sarang/.npm/versions/node/v8.11.4/lib/node_modules/composer-p
playground/node_modules/composer-wallet-filessystem
info: [Hyperledger-Composer] :createServer() Playground API started on port 8080
info: [Hyperledger-Composer] :createServer() Client with ID 'D2ntcWt9FNEGdlqrAAAA' on host '::ffff:192.168.148.1' connected
info: [Hyperledger-Composer] :createServer() Client with ID 'YtDbG6t9iy83ulAAAB' on host '::ffff:192.168.148.1' connected
```

Pic-8

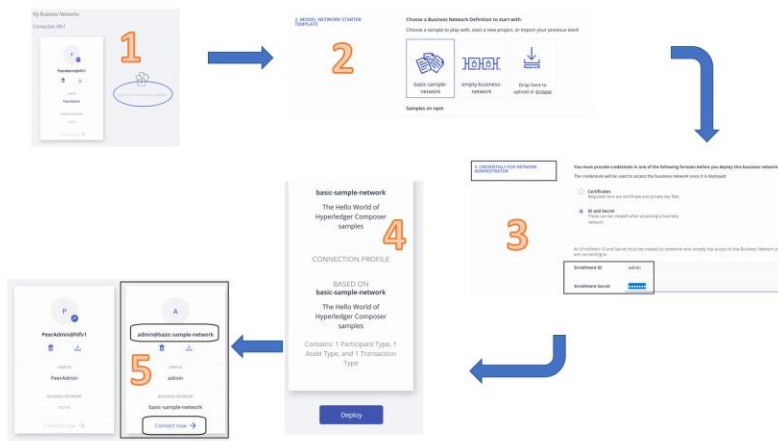
17. Open <http://ip-address:8080/login> in a browser (ip-address is same as the one you found in step-9). See **Pic-9**.



Pic-9

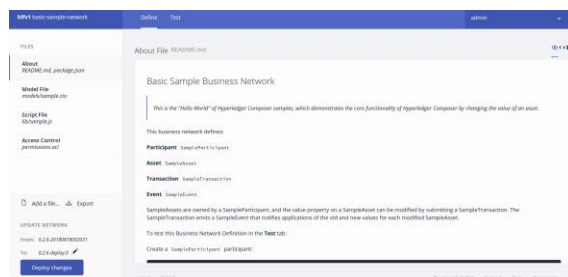
If you are seeing the above on your browser, then **congratulations**. You now have an up and running environment.

18. Follow the steps mentioned in **Pic-10** to create your first **basic-sample-network**.



Pic-10

19. Click on **Connect now** to get to **hlfv1 basic-sample-network** to Define, Change and Test your business network application. See **Pic-11**.



Pic-11

20. You can stop your runtime using
`~/fabric-dev-servers/stopFabric.sh`

21. You can start it again with

`~/fabric-dev-servers/startFabric.sh`

22. To tear down your environment you can run

`~/fabric-dev-servers/teardownFabric.sh`

Note: If you've run the teardown script, the next time you start the runtime, you'll need to create a new PeerAdmin card by running the below commands.

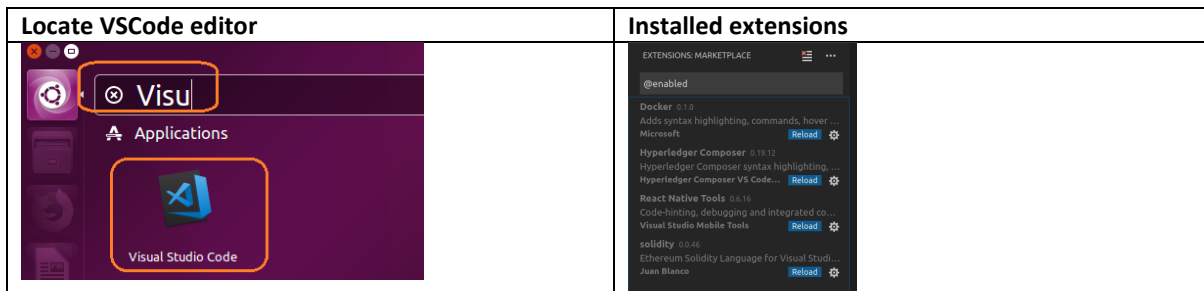
`cd ~/fabric-dev-servers`

`export FABRIC_VERSION=hlfv12`

`./startFabric.sh`

`./createPeerAdminCard.sh`

23. Open VSCode editor. On Ubuntu desktop search for Visual studio. See **Pic-11**.



Where to go from here?

Learn how to use the web app UI with the [Playground Tutorial](#)

Learn how to use the CLI and VSCode tools with the [Developer Tutorial](#)

Thank you, from **SaRaNg** and I hope it has helped 😊