National College of Ireland

Configuration Manual

MSc Research Project
Cloud Computing

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MSc Project Submission Sheet

School of Computing

Student Name:	Praveer Gupta		
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Configuration Manual

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1 Introduction

This document explains the local system configuration, pre-requisites, softwares and any other supporting tools / technologies used in the setup and implementation of the proposed solution.

2 Local System Configuration

The proposed solution was set up and implemented on a local machine. The configuration and system details for the local machine are given below:

3 Pre-Requisites

The following pre-requisites had to be installed on our local machine prior to the installation of Hyperledger Fabric test network (Hyperledger, 2022). Please note that the following steps

are applicable for MacOS machine. For the installation of pre-requisites on machines with other operating systems, please visit the official documentation website for Hyperledger Fabric at the following link.
https://hyperledger-fabric.readthedocs.io/en/latest/prereqs.html

3.1 Homebrew

1. Homebrew was installed using the following command which helps in managing the installation of pre-requisites on a MacOS machine.
   $ /bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install.sh)"

```
gollum@Macbook-Pro ~ /bin/bash -c "$(curl -fsSL https://raw.githubuserconte
nt.com/Homebrew/install/master/install.sh)"
```

```
gollum@Macbook-Pro ~ brew --version
Homebrew 3.6.13
Homebrew/homebrew-core (git revision 06437517ecc; last commit 2022-12-04)
Homebrew/homebrew-cask (git revision 3c522a6028; last commit 2022-12-04)
```

3.2 Git

1. Install Git with following command:
   $ brew install git

```
gollum@Macbook-Pro ~
gollum@Macbook-Pro ~ git --version
git version 2.38.1
```

3.3 cURL

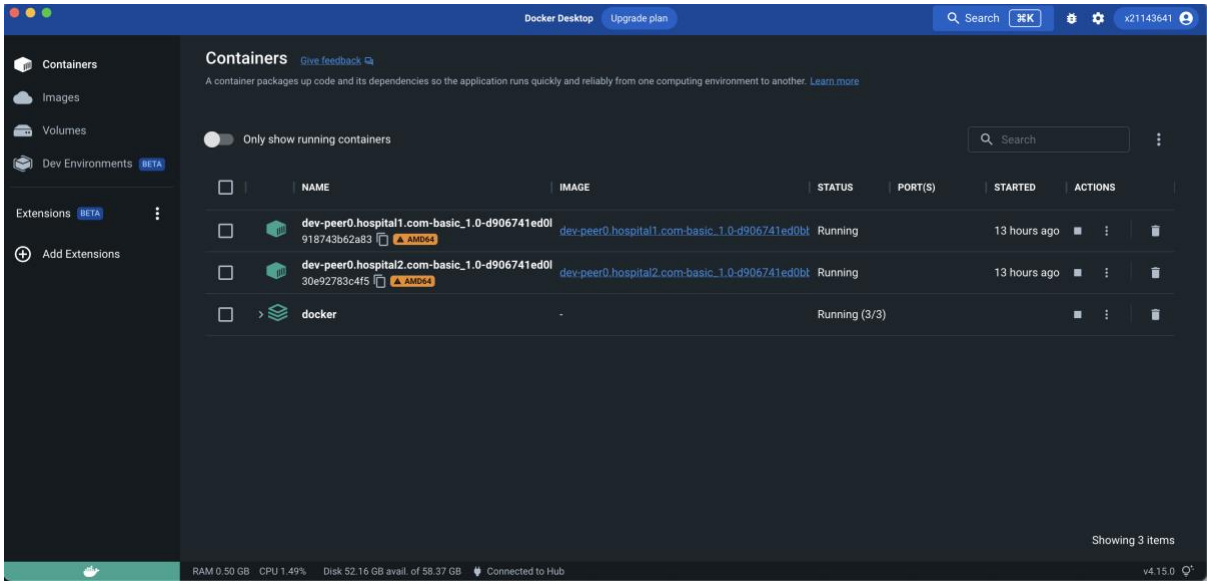
1. Install cURL with following command
   $ brew install curl

```
gollum@Macbook-Pro ~ curl --version
curl 7.84.0 (x86_64-apple-darwin22.0) libcurl/7.84.0 (SecureTransport) LibreSSL/
3.3.6 zlib/1.2.11 nghttp2/1.47.0
Release-Date: 2022-06-27
Protocols: dict file ftp ftps gopher gophers http https imap imaps ldap ldaps mq
tt pop3 pop3s rtsp smb smbs smtp smtps telnet tftp
Features: alt-svc AsynchDNS GSS-API HSTS HTTP2 HTTPS-proxy IPv6 Kerberos Largefi
le libz MultiSSL NTLM NTLM_WB SPNEGO SSL threadsafe UnixSockets
```

3.4 Docker Desktop

1. Install the latest version of Docker Desktop for Mac from the following link
   https://www.docker.com/products/docker-desktop/
2. Start the docker desktop once the installation is finished

```
gollum@Macbook-Pro ~ docker --version
Docker version 20.10.21, build baeda1f
gollum@Macbook-Pro ~ docker-compose --version
Docker Compose version 2.14.0
```



3.5 Go

1. Install Go using the following command
   $ brew install go@1.13

```
gollum@Macbook-Pro ~ go version
go version go1.13 darwin/amd64
```

3.6 JQ

1. Install JQ using the following command
   $ brew install JQ

```
gollum@Macbook-Pro ~ jq --version
jq-1.6
```

4 Installation Steps

Once the pre-requisites have been installed on your local machine, follow the steps given below to configure and install the proposed solution.

1. Clone the git repository using the following command
   $ https://github.com/praveergupta1/Research_PermissionedBlock.git
2. Start the Docker Desktop
3. Open a terminal window
4. Navigate to the project root folder

5. Install the Hyperledger Fabric binaries and images using the following command. Please note that this step requires Internet connection and might take a few minutes depending on the network bandwidth and system configuration.

```
gollum@Macbook-Pro ~
gollum@Macbook-Pro ~ curl -sSL https://bit.ly/2ysbOFE | bash -s
```

6. From the terminal, modify the working directory using the following command, assuming you are in project code's root directory already.

```
gollum@Macbook-Pro ~
gollum@Macbook-Pro ~ cd fabric-samples/pdm-network
```

7. Execute the following command which will bring the network up. This network will have the two organizations, i.e., Hospital1 and Hospital2. Each organization will have 1 peer node (peer0) and 1 Orderer.
   $ ./network.sh createChannel -ca -s couchdb

```
gollum@Macbook-Pro ~
gollum@Macbook-Pro ~ ./network.sh createChannel -ca -s couchdb
```

8. Use the following command which will deploy and instantiate the chaincode
   $ ./network.sh deployCC

```
gollum@Macbook-Pro ~
gollum@Macbook-Pro ~ ./network.sh deployCC
```

4.1 Set-up the Hyperledger Fabric SDK

1. Change the working directory to SDK using the following commands
   $ cd ..
   $ cd sdk
2. Install node modules using the following command
   $ npm install
3. Execute the following commands which will the register the administrators for both the organizations, i.e. Hospital1 and Hospital2.
   $ node registerHospital1Admin.js
   $ node registerHospital2Admin.js

4.2 Start the Backend Server

The following command will start the backend server

1. Change the working directory to client using the following commands
   $ cd ..
   $ cd client
2. Install node modules using the following command
   $ npm install
3. Execute the following command to start the backend server
   $ node clientApp.js

4.3 Setup and start the Front End

Follow the below instructions to setup and start the front-end

1. Change the working directory to pdm using the following command
   $ cd ..
   $ cd pdm
2. Install node modules using the following command
   $ npm install
3. Execute the following command which will package and build the front-end. It will automatically open the homepage of the web application on your default browser (as a localhost)
   $ ng serve -o

References

Hyperledger, 2022. *Prerequisites - hyperledger-fabricdocs main documentation.* [Online] Available at: https://hyperledger-fabric.readthedocs.io/en/latest/prereqs.html [Accessed November 2022].