

# **Configuration Manual**

MSc Research Project Cloud Computing

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#### National College of Ireland

#### **MSc Project Submission Sheet**



#### **School of Computing**

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| Project Title:          | Configuration Manual - FitVault: Fitness data management with permissioned Blockchain Technology |       |             |
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| Lecturer:               | Shreyas Setlur Arun  |       |             |
| Module:                 | Research<br>Project  |       |             |
| Programme:              | MSc. Cloud<br>Computing  | Year: | 2023-24     |
| Student ID:             | 23119489   |       |             |
| Student Name:           | Rohith Nair  |       |             |

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# **Configuration Manual**

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# A. Hardware Specifications

### 1) Processor (CPU)

- a) Chip: Apple M1
- b) Architecture: ARM-based

### 2) Memory (RAM)

a) Size: 8 GB or 16 GB (depending on the configuration)

### 3) Storage

a) Options: 256 GB SSD

### 4) Graphics (GPU)

- a) **Type**: Integrated GPU
- b) **Cores**: 7-core or 8-core GPU (depending on the configuration)
- c) **Performance**: Supports up to one external display with up to 6K resolution at 60Hz

## 5) Operating System

a) macOS: MacOS version 14.5

# **B.** Software Specifications

# 1) Prerequisite2.5

1. Operating systems: Ubuntu Linux 22.03 TS (both 64-bit), or macOS

2. curl tool: The latest version

3. git

- 4. Docker engine: Version 17.06.2-ce or greater
- 5. Docker-compose: Version 1.14 or greater
- 6. Go: Version 1.13.x
- 7. Node: Version 10.21(Node.js version 10 is supported from 10.15.3 and higher)
- 8. npm: Version 6.14.4
- 9. Python: 2.7.x

## 2) Installation

- 1. sudo apt-get install curl
- 2. sudo apt update
- 3. Node Installation using nvm

- a) curl -o- https://raw.githubusercontent.com/nvm-sh/nvm/v0.39.3/install.sh
- b) source ~/.bashrc
- c) nvm list-remote
- d) nvm install v16.19.0
- e) nvm list
- 4. sudo apt-get install npm
- 5. sudo apt-get install python
- 6. Install and Upgrade Docker & Docker Compose
  - a) curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
  - b) sudo add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu \$(lsb release -cs)
  - c) stable"sudo apt-get update
  - d) apt-cache policy docker-ce
  - e) sudo apt-get install -y docker-ce

## 3) Docker Compose

a) sudo curl -L "https://github.com/docker/compose/releases/download/1.26.2/docker-

compose-\$(uname - s)-\$(uname -m)" -o /usr/local/bin/docker-compose

b) sudo chmod +x /usr/local/bin/docker-compose

c) sudo ln -s /usr/local/bin/docker-compose /usr/bin/docker-compose

d) docker-compose --version -->1.26

- e) sudo apt-get upgrade
- f) Run hello-world docker image
- g) docker run hello-world

If you are getting permission error, follow the below steps

- a) sudo groupadd docker
- b) sudo usermod -aG docker \${USER}

Open new command line or restart same one -

- a) Docker run hello-world
- b) If above image run successfully, we are good to go for next step
- c) curl -sL https://deb.nodesource.com/setup\_16.x | sudo bash -
- d) sudo apt-get install -y nodejs

## 4) Verify All Versions

- a) curl -V
- b) npm -v
- c) docker version
- d) docker-compose version
- e) go version
- f) python -V
- g) node -v



**Figure 1 - Hyperledger Fabric all modules** 

## 5) Install Fabric-Sample, Binaries & Docker Images

- a) Latest Images
- b) Install Script -
  - I. curl -sSLO https://raw.githubusercontent.com/hyperledger/fabric/main/scripts/installfabric.sh &&
  - II. chmod +x install-fabric.sh
  - III. ./install-fabric.sh -h
  - IV. ./install-fabric.sh --fabric-version 2.5.5 -c 1.5.7
  - V. export PATH=\$PATH:/home/ubuntu/fabric-samples/bin
  - VI. Run test network in fabric sample
  - VII. ./network.sh createChannel -ca -s couchdb
  - VIII. ./network.sh deployCC

#### Configure remote ssh extension in Vs code

Install 'remote ssh' extension by Microsoft - To connect - ssh ubuntu@<public IP>

```
    ubuntu@instance-20240722-153410:~$ ls
e-contract-main e-contract-main.zip final_proj
e-contract-main-1.zip fabric-samples install-fabric.sh
    ubuntu@instance-20240722-153410:~$
```



#### **Postman Collection**

https://elements.getpostman.com/redirect?entityId=2603130-566b2612-8188-4377-8d96-841c838a96d4&entityType=collection

| Home   | Workspaces ~ API Network ~   | Q. Search Postman  | Opgrade  |
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|  |  | Body       Cookies       Headers (18)       Test Results       Image: Status: 200 DK Time: 337 ms Size: 1.34 KB       Save a         Pretty       Raw       Preview       Visualiza       JSON<  | is example evo   |

Figure 3 - Postman



Figure 4 - Register, Admin UI interface

| mychannel_agreement > 25d68dbe-daa9-40b1-a1fe-cd09de10c2a2   |                        | ↔        | Databases   |           |  |
|--|------------------------|----------|---|-----------|--|
| 17 "updatedAt": "2024-08-07T19:<br>18 "updatedBy": "doctor-50@gmai   | 58:08.6812",<br>l.com" |          | Name  | Size      |  |
| 19 }<br>20 ],<br>21- "comments": [   |                        | مر       | _replicator   | 2.3 KB    |  |
| 2         "fees pending"           2         "fees pending"           2         "contract": This is for 1 month period only",           2         "createds": Tox24-08-07119:30:39.5727",           2         "doc1per: "ogreement",           2         "doc1per: "ogreement",           2         "createds": "ogreement",           2         "document": {           3         "createds": "ogreement",           2         "document": {           4         "createds": "ogreement",           2         "document": {           4         "createds": "ogreement",           2         "document": {           4         "createds": "ogreement",           2         "createds": "document";           3         "createds": "document";           4         "createds": "document";           7         "godrodocume;" cregit,           3         "updotedstredstr: "2024-08-07119:30; 5722",           4         "updotedstredstreements-2:53.omzzonoms.com/org1/03f0f638db3b47ee93c4352ec577772ca7           3         ,           4         "firstParty: "norg1",           *updotedstrei: 1725053800000,         "firstParty: "norg1",           *updotedste: 1725065800000,         "tirty: "https://e- |                        |          | _users  | 2.3 KB    |  |
|  |                        |          | fabricinternal  | 291 bytes |  |
|  |                        |          | mychannel_  | 42.8 KB   |  |
|  |                        |          | mychannel_lifecycle                                       | 2.0 KB    |  |
|  |                        |          | mychannellifecycle\$<br>\$h_implicit_org_\$org1\$m\$s\$p  | 2.6 KB    |  |
|  |                        | <b>②</b> | mychannel_lifecycle\$<br>\$h_implicit_org_\$org2\$m\$s\$p | 2.6 KB    |  |
|  |                        | 8        | mychannel_lifecycle\$<br>\$p_implicit_org_\$org1\$m\$s\$p | 2.5 KB    |  |
|  |                        |          | mychannel_agreement                                       | 13.5 KB   |  |
|  |                        |          | mychannel_lscc  | 0 bytes   |  |

Figure 5 - Hyperledger Fabric Chaincode and CouchDB

## References

Docker, Inc. (2023) *Docker Engine Documentation*. Available at: https://docs.docker.com/engine/ (Accessed: 8 August 2024).

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