

## Summary Doc

This document summarises the various steps that you need to follow to run the entire certification-network project.

If your project is already running, then you need not run the Optional Steps and can directly move to the Mandatory Steps. However, if your Fabric Network is down, then you need to run the Optional Steps to start the network and install and instantiate the chaincode.

### Optional Steps

Open the Terminal and type in the following command:

```
cd workspace/certification-network/network
```

Next, run the following command:

```
./fabricNetwork.sh up
```

When prompted with a question, press Enter.

Next, you need to run the following command:

```
./fabricNetwork.sh install
```

When prompted with a question, press Enter.

### Mandatory Steps

Now you need to start the server. For this, you need to make sure you are inside the application folder in your terminal window. If you are inside the 'network' folder, then you need to enter the following command to go inside the 'application' folder:

```
cd ../application
```

**Note:** Before moving ahead, you need to make sure you comment out the invocation of the `main()` function in each of the following files:

- 1\_addToWallet.js
- 2\_createStudent.js
- 3\_getStudent.js
- 4\_issueCertificate.js
- 5\_verifyCertificate.js

Now, once you are inside the application folder, you need to enter the following command to start the server:

```
node .
```

This command will run the `index.js` file, which is present inside the application directory. You need not provide the name of the file because the entry file for this application has already been mentioned as `index.js` in the `package.json` file provided to you. Hence, you can run this file by simply using the `'node .'` command.

Now, you need to open the front-end interface. For this, you need to go to the following location inside your file explorer:

`workspace/certification-network/application/client`

Open the *index.html* file present at this location by double-clicking on it.

This is how the front-end interface will look:

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## Certification Network

A simple certification application that allows member organizations to issue, verify and view certificates using Hyperledger Fabric Blockchain

Certificate:

Provide path of certificate to use for this user

Private Key:

Provide path of private key to use for this user

Login

Students

#	ID	Name	Email	Action
---	----	------	-------	--------

Certificates

#	ID	Grade	Hash	Action
---	----	-------	------	--------

Now you need to enter the path for the certificate and the private key in the input field.  
The value that needs to be entered in the first input field is:

```
/home/upgrad/workspace/certification-network/network/crypto-config/peerOrganizations/mhrd.certification-network.com/users/Admin@mhrd.certification-network.com/msp/signcerts/Admin@mhrd.certification-network.com-cert.pem
```

The value that needs to be entered in the second input field is:

```
/home/upgrad/workspace/certification-network/network/crypto-config/peerOrganizations/mhrd.certification-network.com/users/Admin@mhrd.certification-network.com/msp/keystore/<nameOfTheFileAtThisLocation>
```

**The last parameter, that is, the name of the file will be different each time you start your network, as this is the private key that gets generated each time you start the Fabric network.**

Next, you need to click on the login button. Once you do so, the front-end interface would look something like this:

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## Certification Network

A simple certification application that allows member organizations to issue, verify and view certificates using Hyperledger Fabric Blockchain

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Welcome, MHRD\_ADMIN

### New Student Account

Student ID:

Student Name:

Student Email:

[Create Student Account](#)

Students				
#	ID	Name	Email	Action
Certificates				
#	ID	Grade	Hash	Action

Now you need to provide the details of the student that you want to create. Once you enter the details and click on the Create Student Account button, a new student will be created. You can see it on the right-hand side of the page.

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## Certification Network

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Welcome, MHRD\_ADMIN


New Student Account

Student ID:

Student Name:

Student Email:

Create Student Account

#	ID	Name	Email	Action
1	0001	Ayush	ayush@gmail.com	

#	ID	Grade	Hash	Action

You can issue a certificate to the student by clicking on the icon displayed in the 'Action' column. Once you do so, the screen would look something like this:

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Welcome, MHRD\_ADMIN


New Student Account

Student ID:

Student Name:

Student Email:

Create Student Account

#	ID	Name	Email	Action
1	0001	Ayush	ayush@gmail.com	

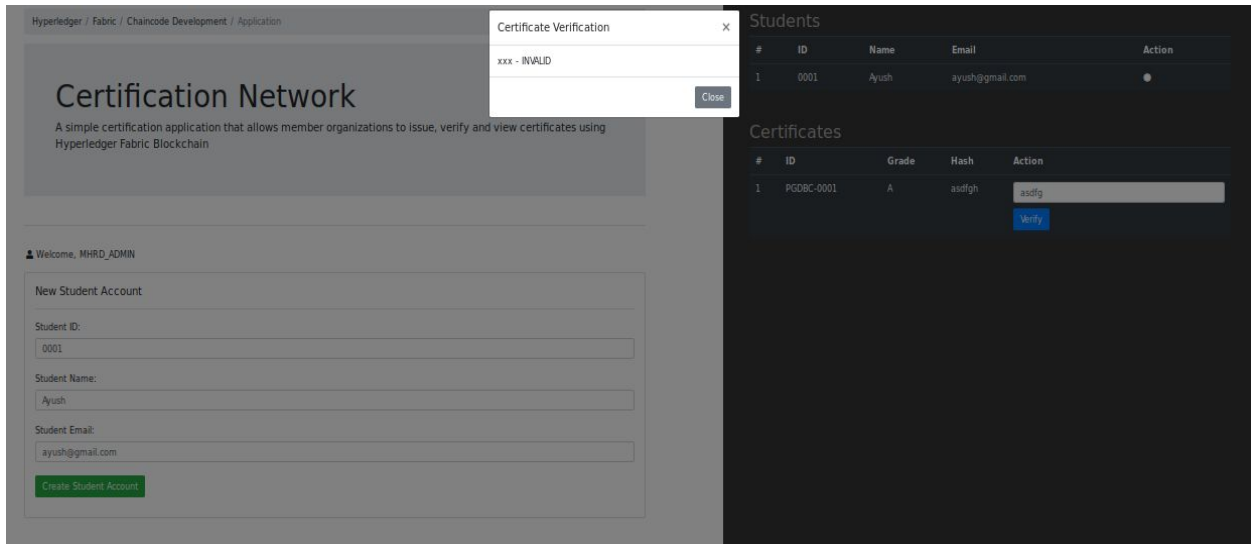
  

#	ID	Grade	Hash	Action
1	PCDBC-0001	A	asdfgh	<input type="text" value="Enter Certificate Hash"/> <input type="button" value="Verify"/>

A new certificate has now been issued to the student.

In the input field next to the hash of the certificate, you can enter the hash of the certificate that the student has brought and test whether it matches the hash of the certificate that was issued.

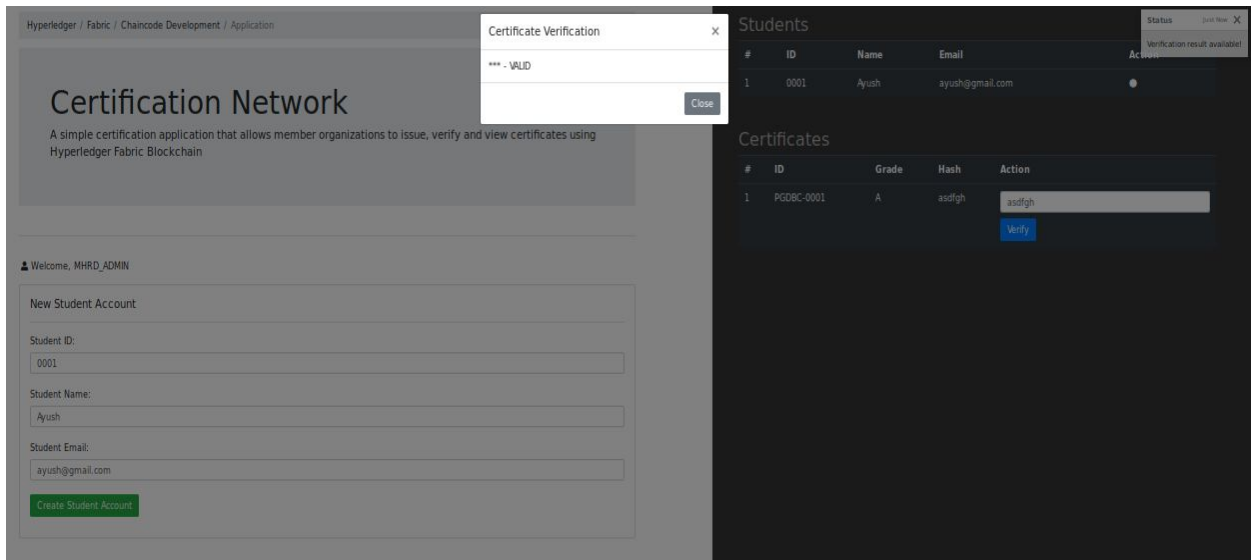
The original hash is 'asdfgh'. Let's say the student provides a certificate whose hash is 'asdfg'. When you enter this hash in the input field and click on Verify, your screen would look something like this:



The screenshot shows the 'Certification Network' application interface. A modal window titled 'Certificate Verification' is open, displaying the message 'xxx - INVALID' and a 'Close' button. The background interface includes a 'New Student Account' form with fields for Student ID (0001), Student Name (Ayush), and Student Email (ayush@gmail.com), and a 'Create Student Account' button. On the right, there are tables for 'Students' and 'Certificates'. The 'Certificates' table shows a single entry with ID PGDBC-0001, Grade A, and Hash asdfgh, with a 'Verify' button next to it.

An alert appears saying that the certificate is invalid, meaning it has been altered.

Now, let's see what happens when you enter the correct hash, that is, 'asdfgh'. When you click on the Verify button, your screen would look something like this:



The screenshot shows the same 'Certification Network' application interface. The 'Certificate Verification' modal window now displays the message '\*\*\* - VALID' and a 'Close' button. The background interface remains the same, including the 'New Student Account' form and the 'Students' and 'Certificates' tables. The 'Certificates' table still shows the entry with ID PGDBC-0001, Grade A, and Hash asdfgh, with a 'Verify' button next to it.