

Secure Encrypted Channel and Micro-transaction readme

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Environment

Ubuntu 20.04.1 LTS (on Windows 10 WSL)

How to compile

In terminal, under the Server / Client file directory,

1. Type in **make** command
2. If success, the **server** / **client** binary file should appear in the same directory

How to execute

In terminal, after successful compilation,

1. Type in **./server** / **./client** command
2. Follow the instructions on the screen
3. After setting up, the application is ready to go

New Features

Secure encrypted connection

- Server-Client, Client-Client connection are now protected under the SSL protocol
- Client private key and self-signed X509 certificate are generated in runtime

Micro-transaction feature

- Client can now trade with each other with a maximum amount of 20,000 per transfer
 - Exceptions : negative amount, non-login payee, non-exist payee, insufficient balance
- Transaction Process (Suppose $A \rightarrow B$) :
 1. A sends request message to both server and B
 2. B receives message and print out
 3. Server receives request and process the transaction, 2 conditions :
 - Transaction Success : Print "Transaction Success \n Current Balance: **<Balance of A>** \n"
 - Transaction Fail: Print "Transaction Failed \n"

References

Dynamically generate key and X509 certificate:

<https://stackoverflow.com/questions/256405/programmatically-create-x509-certificate-using-openssl>

OpenSSL establish SSL connection:

<http://neokentblog.blogspot.com/2012/10/openssl-ssl.html>