Starting the server:

java Server server_port number_of_consecutive_failed_attempts

example：Java Server 6789 3

Starting the Client

java Client server_IP server_port client_udp_server_port

example：Java Client 127.0.0.1 6789 8000

Once a server starts, it will wait for the connection of clients.

When a client connects to the server. The server starts a new thread to serve the client.

The new tread has two status “login” and “command”. For “login” status, it indicates the client has not logged on while for “command” status, the client has logged in and is able to give commands.

After logging in, the client is able to issue commands. The server will identify if the command is valid. If so, it will carry out related operations and returns the client the result(“success or fail”).

Joining phase.

The client will offer credentials, if the username does not exist, the server will register it in “credentials.txt” and directly log in. If the username exists, the server will check if the password is correct.

Block mechanism

After the client log on, the client will receive the allowed unsuccessful attempts. The server has a list for blocked accounts. Whenever an account is blocked due to multiple unsuccessful attempts, the server will record the account and the current time in the list. Next time if the account would like to log again, the server will check if the it has passed 10 seconds from the time it was blocked. If so, the server would allow the client to continue logging operation.

EDG

The server will identify the EDG command and check if it is correctly used by client. If so, the client will be allowed to generate the data by receiving message ”EDGing”(in the code for communication not for display), otherwise the server returns ”EDGerror”

UED

The server will identify the UED command and check if it is correctly used by client. If so, the client will upload the file by receiving message ”UEDing”, otherwise the server returns ” UEDerror”

SCS

The server will identify the SCS command and check if it is correctly used by client and if the file to be calculated exist. If so, the client would upload the file data to server and receive the result after receiving message ”SCSing”, otherwise the server returns ” SCSerror”.

DTE

The server will identify the DTE command and check if it is correctly used by client. If so, the client would receive the message “DTEing” and then receive and display the DTE results from server(not exist/ success).

AED

The server will identify the AED command and check if it is correctly used by client. If so, the client will read and display the result from server after receiving the message ”AEDing” from

server.

UVF

The server will identify the UVF command and check if it is correctly used by client. If so, the server would provide the client “UVFing” message along with the UDP port and IP of its destination client to transfer a file. The presenter client would start transferring with receivers’ address after receiving “UVFing”. Each client has a thread listening to the UDP connection.