

## Server/Client File Copy Program Manual

### Group 1

#### **NAME**

gprojectS – creates a server for file transfer between a server and client over a network.

gprojectC.c - creates a client for file transfer between a server and client over a network.

#### **SYNOPSIS**

gprojectS [IP ADDRESS] [PORT NUMBER]

gprojectC [IP ADDRESS] [PORT NUMBER] [SEND/RECEIVE] [FILE]

- Note: All arguments are required, and any incorrectly used arguments will cause the command to fail.

#### **DESCRIPTION**

The “gprojectS” command creates a TCP based server and leaves socket open to listen for a client to connect. Allows for file transfer from server-to-client or client-to-server. Allows for clients to repeatedly connect to it.

The “gProjectC” command creates a TCP based client and connects to specified IP/PORT. Based on used arguments, the client will either send a text file to a server, or receive a text file from a server. Only transfer one file every time it is run.

Both commands are meant to be used together, with “gprojectS” being run first.

For [SEND/RECEIVE] argument

- s Sends a text file from client-to-server
- r Receive a text file from server-to-client

#### **ERRORS**

- Server: Something went wrong with socket creation.

This error indicates a failure to create a new socket using the `socket()` system call. Possible causes include insufficient system resources or incorrect usage of the socket function.

- Server: Something went wrong with setting socket options.

This error occurs if there is a problem while setting socket options using `setsockopt()`. It could indicate an invalid option or failure to apply the specified options to the socket.

- Server: Something went wrong with socket binding.

This error occurs when the `bind()` system call fails to associate the socket with the specified address and port. Possible reasons include the address or port being already in use by another process.

- Server: Something went wrong with socket listening.

This error indicates a failure to start listening for incoming connections on the bound socket using the `listen()` system call. Reasons may include a system limitation on the number of pending connections or other networking issues.

- Server: Something went wrong with socket accept.

This error occurs when the `accept()` system call fails to accept an incoming connection request on the listening socket. Possible reasons include network interruptions or invalid arguments passed to `accept()`.

- Server: Something went wrong with receiving message (`recv_msg`).

This error indicates a failure to receive data from the client using the `recv()` system call. Possible causes include network issues or insufficient buffer size for receiving data.

- Server: Something went wrong with sending `resp_msg_buffer`.

This error occurs when the `send()` system call fails to send data to the client. Possible reasons include network interruptions or invalid socket state.

- Server: Something went wrong with receiving message (`data_msg`).

This error indicates a failure to receive data from the client during file transfer using the `recv()` system call. Possible causes include network issues or incorrect handling of data messages.

- Server: Something went wrong with sending `data_msg_buffer`.

This error occurs when the `send()` system call fails to send data to the client during file transfer. Possible reasons include network interruptions or invalid socket state.

- Client: Something went wrong with socket creation.

This error indicates a failure to create a new socket using the `socket()` system call. Possible causes include insufficient system resources or incorrect usage of the socket function.

- Client: Something went wrong with socket connection.

This error occurs when the `connect()` system call fails to establish a connection to the specified server address and port. Possible reasons include network connectivity issues or the server not accepting connections.

- Client: Something went wrong with sending `resp_msg_buffer`.

This error occurs when the `send()` system call fails to send data to the server. Possible causes include network interruptions or invalid socket state.

- Client: Something went wrong with receiving message (`resp_msg`).

This error indicates a failure to receive data from the server using the `recv()` system call. Possible causes include network issues or insufficient buffer size for receiving data.

- Client: Something went wrong with receiving message (`data_msg`).

This error occurs when the `recv()` system call fails to receive data from the server during file transfer. Possible causes include network interruptions or incorrect handling of data messages.

- Client: Something went wrong with sending `data_msg_buffer`.

This error occurs when the `send()` system call fails to send data to the server during file transfer. Possible reasons include network interruptions or invalid socket state.