

Protocol Documentation

The communication between server and client is based on TCP protocol. It follows the following protocol:

1. Client connects to the server, then it sends his username and password for login process.
2. If either username isn't found or the password doesn't match the expected password:
 1. Server sends the message "login failed, try again" to client.
 2. Go back to step 1.
3. Else if username and password are correct
 1. Server sends the message "login successful" to client.
 2. Client sends commands to the server in the form of command type followed by the command content (if any).
 3. Server responds by the response to that command followed by a special character (PROTOCOL_RES_END) to indicate end of response.

Client sends commands to the server according to the following:

1. Client keeps track of history_idx which is:
 1. -1 if user is typing the command manually.
 2. Index of history user has requested using up or down arrow keys. history_idx is 0-indexed from the end of history.
2. Client gets user input command through terminal.
3. If user hits the up or down arrow keys within entering the command:
 1. Client sends a protocol command type to read from history (called PROTOCOL_CMD_READ_FROM_HISTORY) to the server.
 2. Client increments history_idx in case of up key. decrements history_idx in case of down key.
 3. Client sends the history_idx to read the command at this index.
 4. If server has some command in the history at that history_idx, server sends it to the client (followed by PROTOCOL_RES_END).
 5. Else, server sends nothing (followed by PROTOCOL_RES_END). Then client should remodify the history_idx.
4. Once the user hits enter:
 1. If the command is "exit", client sends a protocol command type to exit (called PROTOCOL_CMD_EXIT) to the server. And connection terminates.
 2. Else, Client sends a protocol command type to read from history (called PROTOCOL_CMD_EXECUTE_SHELL_CMD) to the server.
 3. Client sends the entered command to be executed.
 4. Server sends the command result or error as a response to the client (followed by PROTOCOL_RES_END).