

# Chat Server

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This is a simple chat server designed to run easily on every Unix based device.

Server is developed to run stand alone on a remote computer, flawlessly and without any maintenance whatsoever.

Client is multiplatform. We provide Gtk based User Interface that can run easily on both MacOs and any Linux Distro you prefer. We developed also a very simple android app for Client just for showing purpose. As long as it is followed the simple protocol we designed in Client-Server communication, it can be easy to develop your own client that meets your needs.

All compiling instructions and needed dependencies are completely described in our Readme on Github.

## Chatting Protocol Explained

First, you need to compile and run the Server on a remote computer. For testing purpose, we used to host Server on Aws (Amazon Web Server) machine, but for the exam we will be running Server on our Raspberry Pi 4B model.

The server, as soon as it starts, connects to our PostgreSQL Database (privately hosted on the Raspberry), that stores Usernames, Passwords and Messages history, and waits for a Client to connect.

When a Client is connected, it is asked to input username and password. For project design is not possible for a new user to sign up: they can be only added by server administrator, in order to keep the Chat Server secure and private. If username and password are correct, an acknowledge is sent to Client that starts to wait for a complete list of online users from the Server. If there is only one user online, Server keeps sending to that Client *You are Alone* message until another Client is online and available.

The Client can now choose to chat to someone by just typing the corresponding number shown in the list. If the target Client agrees, a brief message history between the Clients is sent by Server, and the regular chat can start. If the chat request is declined, the Client can choose another user or quit the Server.

If a Client wants to quit the Chat Server, it should be typed `_QUIT_` and immediately the interface will be closed. If the Client was chatting to someone, the other Client is immediately notified of the disconnection.

If a Client wants to change interlocutor, it should be typed `_LIST_` and a list with all available online clients will be shown, and it will be possible a new pick.