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| Networking |
| Internet Chat Service |

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| Daniel Jamieson |

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# Introduction

This document will outline an internet protocol for a chat service. The service will provide a communication channel between users, and include multiple users in a single channel. The user that creates the chat room becomes the operator of the channel with administrative control, and has additional commands that other users of the channel do not have. Some additional features of this document may be influenced by sections from the Internet Relay (Kalt, April 2000) online help page.

# Users

Upon joining the server, the client must log in or sign up as a new user in order to access the chat rooms. Usernames must consist of more than 5 characters, but cannot include spaces, ASCII punctuation or symbols, as they may be used for commands and text formatting. The user must have a password that must be a minimum of 8 characters long, which may include special characters.

# Lobby

After logging in, the users appear in the lobby. From here they can join or create a chat room, send a message to a single user, or log out from the main lobby. In the lobby, the client will receive invitations, and be in a global chat room consisting of everyone else in the lobby.

# Sending a Message

While in a chat room, any input sent without the command prefix will be considered a message and broadcast to all other members of the chat room.

# General Client Commands

All commands are prefixed with a full stop, followed immediately by the command without a space. The command is in lower case. For example, the command “Chatroom” would be “.chatroom” followed by a space and appropriate parameters. If the input message is not one of the predefined commands, the server will reply with “Unknown\_Command”.

## Logging In

Before logging in, when client connects to the server, the server will send the message “Log\_In”. If a connected client does not have an account, they will need to create one in order to chat. This can be done using the command “.register Username Password” with the intended username and password. If the username already exists, the server will respond with “Username\_Already\_Taken”. If the password is not long or complex enough, then the server will respond with “Weak\_Password”.

If a connected client already has an account on the server then they can log in using the command “.login Username Password”. If the username does not exist, the server will reply with “Unknown\_Username”. If the password is incorrect, the server will respond with “Incorrect\_Password”. If there are no issues, the server will respond with “Logging\_In”. Attempting to log in at any other instance will prompt the server to reply “Already\_Logged\_In”.

## Creating a chat room

Once logged into the server, the client can then create a chat room. This is accomplished by using the command “.chatroom ChatRoomName”, where ChatRoomName is a single string and can contain any ASCII character. The server will then reply “Creating\_Chatroom”. If the chat room name already exists, the server will respond with “Chatroom\_Already\_Exists”.

## Joining a chat room

In order to join a chat room the client will enter the command “.join ChatRoomName”, where ChatRoomName is the name of the chat room. If the chat room does not exist, the server create chat room. If there are no issues, the server will reply “Joining\_Chatroom”. If a client attempts to join a chat room while in another chat room, they will move chat rooms.

## Sending a private message

To send a private message the client will enter the command “.message Username”, where Username is the name of the user that the client wishes to message. If the user cannot be found, the server will reply with “Unknown\_User”. Otherwise, the server will respond “Message\_Sent”. This command can be used whenever logged in.

## In-chat commands

While in a chat room, the following commands can be used in a message to edit the text output for the other users in the chat room. All commands will change the visual output from the first character after the command prefix(/B/) to the last character before the suffix(/-B/).

/b/ BOLD TEXT /-b/  
/i/ ITALICS TEXT /-i/  
/u/ UNDERLINED Text /-u/

## Leaving a chat room

To leave a chat room, the client will enter “.leave”. The server will then respond with “Leaving\_Chatroom”. If the command is entered outside of a chat room, the server will respond with “Not\_Currently\_In\_Chatroom”.

## Blocking a user

Blocking a user means that the user cannot contact the client. In order to block a user, the client will enter “.block Username”. The server will reply with “User\_Blocked”. If the user can not be found, the server replies with “Unknown\_User”. If the user is already blocked, the server will reply with “User\_Blocked”.

## Logging out

The client can input “.logout” in order to log out. The socket to the client will be shut down. This command can be executed at any time.

# Administrative commands

If any of the administrative commands are used outside of the chat room, the server will reply “Not\_Currently\_In\_Chatroom”.

## Kicking a user out of the chat room

The administrator of the chat room can remove a user from the chat room by entering “.kick Username”. The server will reply with “Kicking\_User” to show request acknowledgement. If the user cannot be found, the server replies with “Unknown\_User”. In order for a removed user to rejoin the chat room, the chat room administrator must re-send an invitation to the user.

## Adding a user to chat room

The administrator can add another user into the private chat room by using the command “.invite Username”. The server will reply with “Inviting\_User” for acknowledgement of request. If the user can not be found, the server replies with “Unknown\_User” This command can only be executed when inside a chat room and will invite the user to the chat room. If the administrator wishes to un-invite the player to the chat room, they will need to enter the command “.uninvite Username”. The server replies with “Uninvited\_User” for acknowledgement of the request.

## Timeout

The administrator can kick a user for a specified amount of time by using the command “.timeout time Username”. The server will reply with “Kicking\_User” to show the server has received the command. Time is measured in seconds. After the time has finished, the user is resent an invite to the chat room.

# References

C. Kalt.(April 2000) Internet Relay Chat: Client Protocol. [Online] Available at <https://tools.ietf.org/html/rfc2812>. [accessed on 28/11/16]