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**Introduction**

The primary function of this application will be to allow for instant messaging between users on a server which contains a number of rooms. The admin of a server may create new rooms, and rename them.

**User Nicknames**

Users are each assigned a unique nickname of no more than twenty-four characters and no less than six characters. Each nickname must be chosen by the user and must only contain alphanumeric characters, with no use of punctuation or symbols. (See “Username Message”)

**Generic Error Messages**

There are a number of generic error messages which the system may output.

ERROR\_COMMANDNOTFOUND ERROR\_CONNECTIONDROPPED

ERROR\_OUTOFBOUNDs

**Administrator Commands**

Administrator (Admin) commands are used by either the owner of the server, or a user in the server whom the owner has given admin rights to and not a normal user. Admin commands are denoted by an exclamation mark before the given command and is written in capital letters. For example: !CREATEROOM.

**User Commands**

User commands are available to both users and admins; user commands are denoted by a word written in capital letters. For example: MOVEROOM.

**Connection**

On connection the user must provide the server information. This information takes the form of a Username and password (some servers may not require this information). On connection the server will provide a user message to notify the user that their connection was successful.

The recommended order for this information to be registered is as follows:

1. Username
2. Password
3. User message

Username Message

Command: USERNAME

Parameters: <Nickname>

The USERNAME command is used to set a user’s nickname if they do not have one, or to change the user’s nickname if they already have one.

Error messages:

ERROR\_NICKINUSE

ERROR\_SYMBOLSINUSE ERROR\_NONICKGIVEN

Example:

USERNAME Joe

Save the user’s nickname as “Joe” if still unregistered, or alter the nickname if user already has a nickname in use.

Password Message

Command: !PASSSET

Parameters: <Password>

The !PASSSET command is used for the admin of a server to set a new password, or alter an already existing one. Passwords are restricted to the same constraints as nicknames.

Error messages:

ERROR\_NOPASSGIVEN

ERROR\_SYMBOLSINUSE

Example:

!PASSSET Password

Sets the server password to “Password” if there is currently not a password in use, or alters an already existing password.

Command: PASS

Parameters: <Password>

The PASS command is used for the user to input a server’s password. Note that not all servers may want to set a password. If a password is required for the user to enter the server, the user will be prompted with a “Password Required” message.

Error messages:

ERROR\_WRONGPASSWORD ERROR\_NOPASSGIVEN

ERROR\_SYMBOLSINUSE

Example:

PASS Password

The user has inputted a password, and will either get an error message, or they will enter the server.

Disconnection

Command: !KICK

Parameters<Username>

The !KICK command is used by a server admin to forcibly disconnect a user.

Error messages:

ERROR\_WRONGNICK ERROR\_NONICKGIVEN

Example:

!KICK Joe

The admin has inputted another user’s nickname and will either get an error message or will remove the user from the server.

Command: DISCONNECT

The DISCONNECT command is used by a user to disconnect or leave a server.

**Server**

There are a number of commands a user or admin may use to either traverse the server, or to create and delete rooms within the server.

Rooms

Command: !CREATEROOM

Parameters:<Room Name>

The !CREATEROOM command is used by a server admin to create a new chat room and assign it a name. This name shares the same constraints as a nickname.

Error messages:

ERROR\_SYMBOLSINUSE ERROR\_NONAMEGIVEN

ERROR\_NAMETOOLONG ERROR\_NAMETOOSHORT

Example:

!CREATEROOM Room1

The admin has used the command to create a room called Room1

Command: !DELETEROOM

Parameters:<Room Name>

The !DELETEROOM command is used by a server admin to delete a pre-existing chat room from the server.

Error Messages:

ERROR\_SYMBOLSINUSE ERROR\_NONAMEGIVEN

ERROR\_CHANNELNOTFOUND

Example:

!DELETEROOM Room1

The admin has used the command to delete the room called Room1.

Command: MOVEROOM

Parameters:<Room Name>

The MOVEROOM command is used by a user to change which room they are currently chatting in. The channel name given is the name of the channel the user wishes to be moved to. If the user gives an incorrect channel name, their channel will not be switched.

Error Messages:

ERROR\_NONAMEGIVEN ERROR\_SYMBOLSINUSE

ERROR\_CHANNELNOTFOUND

Example:

MOVEROOM Room2

The user has used the command to change from one room, to a room named Room2.

Mute user

The mute user commands are used to either locally mute, or globally mute a user. A user may locally mute another user, however only an admin may globally mute a user. An admin is not able to globally mute another admin. Re-issuing these commands will also serve to unmute an already muted user.

Command: LOCALMUTE

Parameters: <Username>

The LOCALMUTE command will locally mute another user, allowing their messages to be seen by all users except from the user who issued the LOCALMUTE command.

Error messages:

ERROR\_WRONGNICK ERROR\_NONICKGIVEN

Example:

MUTE Joe

The user has issued the command to locally mute another user named Joe.

Command: !GLOBALMUTE

Parameters: <Username>

The !GLOBALMUTE command is used by admins to mute another user, this command means that the user’s messages will not be seen by any other user, regardless of which room they are currently in.

Error Messages:

ERROR\_WRONGNICK ERROR\_NONICKGIVEN

Example:

!GLOBALMUTE Joe

The admin has issued the command to globally mute the user named Joe.

**Messaging**

Users must be able to send and receive messages through their client, they will be able to do this with a message to their entire server, and they will also be able to send a message only a specific user can see.

Command CHAT

Parameters<Message>

The CHAT command is used to tell the server that the user will be sending a string which will be broadcast to the room. Using the command ENDCHAT will signify to the server that the user has finished sending messages. The commands sent between CHAT and ENDCHAT will all be broadcast to the room.

Error Messages:

ERROR\_NEEDMOREPARAMS

Example:

CHAT Hello World!

ENDCHAT

The user has used the commands to send a Hello World! Message.

Command WHISPER

Parameters <Username, Message>

The WHISPER command is used to send a message directly to another user. The user specifies a nickname, followed by a colon and their message. Only the text sent directly after a WHISPER command will be sent to that user.

Error Messages:

ERROR\_NONICKGIVEN ERROR\_NEEDMOREPARAMS

ERROR\_WRONGNICK

Example:

WHISPER Joe: Hello Joe!

The user has sent the user Joe a message saying Hello Joe!

**References:**

Tools.ietf.org. (2016). *RFC 2812 - Internet Relay Chat: Client Protocol*. [online] Available at: https://tools.ietf.org/html/rfc2812.html# [Accessed 22 Nov. 2016].