

IRC Client/Server Protocol Documentation

Protocol Flow

The IRC protocol design specifies a command-response paradigm where an IRC client will issue commands to the IRC server and the IRC server will send a response to the client. Note that not all responses to a particular client will be triggered by a command from that client.

General Packet Format

There are two defined packet formats. One for the command packet sent from the client to the server and another for the response packet sent from the server to the client. These are described here. The format of the data for specific commands will be described in a later section.

Command Packet Format

The format for the command packets is as follows.

Bytes	Data
0	Command code
1-5	Length ($n-6$)
6- n	Data

Where:

Command code – A valid command code from a supported IRC command. This is formatted as an ascii character.

Length – The length of the command packet not including the command code and length fields. This is formatted as an ascii string padded on the left, as necessary, with zeros.

Data – Command specific data.

Response Packet Format

The format for the response packets is as follows:

Bytes	Data
0	Command Code

1-5	Length ($n-6$)
6	Response Code
7- n	Data

Where:

Command code – A valid command code from a supported IRC command. This is formatted as an ascii character.

Length – The length of the command packet not including the command code and length fields. This is formatted as an ascii string padded on the left, as necessary, with zeros.

Response Code – A code indicating whether the command executed with success (0) or failure (4). This is formatted as an ascii character.

Data – Command specific data.

Supported Commands

LOGIN

The LOGIN command is indicated by a command code of 1.

The *data* in the command packet is the desired username.

There is no *data* in the response packet when the Response Code is 0.

The *data* in the response packet is a message indicating the error when the Response Code is 4.

Upon successful completion of the LOGIN command processing, the client is registered on the server with the specified username. The response packet indicating success will be sent to the requesting client.

If LOGIN command processing fails, there will be no change to the state of the server and a response packet indicating the failure will be sent to the requesting client.

LOGOUT

The LOGOUT command is indicated by a command code of 2.

This command is not valid before LOGIN.

There is no *data* in the command packet.

There is no response packet returned for LOGOUT.

Upon successful completion of the LOGOUT command processing, the client is no longer registered on the server.

LOGOUT command processing should not fail.

ADD_CHANNEL

The ADD_CHANNEL command is indicated by a command code of 3.

This command is not valid before LOGIN.

The *data* in the command packet is the desired channel name.

The *data* in the response packet is the channel name when the Response Code is 0.

The *data* in the response packet is a message indicating the failure when the Response Code is 4.

Upon successful completion of the ADD_CHANNEL command processing, the server will have a new channel with the specified name. Only one channel with a given name can exist on the server at any one time. The server will send a response packet indicating success to the requesting client.

If ADD_CHANNEL command processing fails, there is no change to the state of the server. The server will send a response packet indicating the failure to the requesting client.

JOIN_CHANNEL

The JOIN_CHANNEL command is indicated by a command code of 4.

This command is not valid before LOGIN.

The *data* in the command packet is the channel name the user is attempting to join

The *data* in the response packet is the channel name when the Response Code is 0.

The *data* in the response packet is a message indicating the failure when the Response Code is 4.

Upon successful completion of the JOIN_CHANNEL command processing, the client will be registered to receive messages from the specified channel on the server. The server will send a response packet indicating success to the requesting client.

If JOIN_CHANNEL command processing fails, there is no change to the state of the server. The server will send a response packet indicating the failure to the requesting client.

LEAVE_CHANNEL

The LEAVE_CHANNEL command is indicated by a command code of 5.

This command is not valid before LOGIN.

The *data* in the command packet is the channel name the user is attempting to leave.

The *data* in the response packet is the channel name when the Response Code is 0.

The *data* in the response packet is a message indicating the failure when the Response Code is 4.

Upon successful completion of the LEAVE_CHANNEL command processing, the client will no longer be registered to receive messages from the specified channel on the server. The server will send a response packet indicating success to the requesting client.

If LEAVE_CHANNEL processing fails, there is no change to the state of the server. The server will send a response packet indicating the failure to the requesting client.

LIST_ROOMS

The LIST_ROOMS command is indicated by a command code of 6.

This command is not valid before LOGIN.

There is no *data* in the command packet.

The *data* in the response packet is a whitespace delimited list of channel names.

Upon successful completion of the LIST_ROOMS command processing, the server will send the list of available rooms to the requesting client in the response packet. There is no change to the state on the server.

The LIST_ROOMS command should not fail.

LIST_USERS

The LIST_USERS command is indicated by a command code of 7.

This command is not valid before LOGIN.

The *data* in the command packet is the channel name whose users the client would like listed.

The *data* in the response packet is the channel name, followed by whitespace, followed by a whitespace delimited list of users in the channel.

Upon successful completion of the LIST_USERS command processing, the server will send the list of users in the specified channel to the requesting client in the response packet. There is no change to the state of the server.

If the LIST_USERS command processing fails, there is no change to the state of the server. The server will send a response packet indicating the failure to the requesting client.

MESSAGE

The MESSAGE command is indicated by a command code of 8.

This command is not valid before LOGIN.

The *data* in the command packet is the channel the message is destined for, followed by whitespace, followed by the desired message.

The *data* in the response packet is the channel name, followed by whitespace, followed by the sending user, followed by whitespace, followed by the message when the Response Code is 0.

The *data* in the response packet is a message indicating the failure when the Response Code is 4.

Upon successful completion of the MESSAGE command processing, the server will send a response packet indicating success to all clients registered for the given channel. There is no change to the state of the server.

If MESSAGE command processing fails, there is no change to the state of the server. The server will send a response packet indicating the failure to the requesting client.