BABEL-PROJECT

NETWORK PROTOCOL DOCUMENTATION

INTRODUCTION

The network transit is performed by using the TCP protocol. Our protocol packets are serialized as **binary** data. For example, a data of type **int32_t** serialized though our protocol will be written over **4 bytes**, representing its memory.

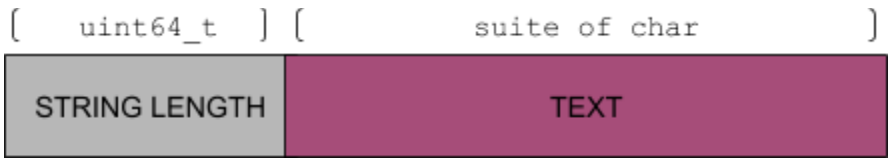
PACKETS PROTOCOL

1. SERIALIZED TYPES

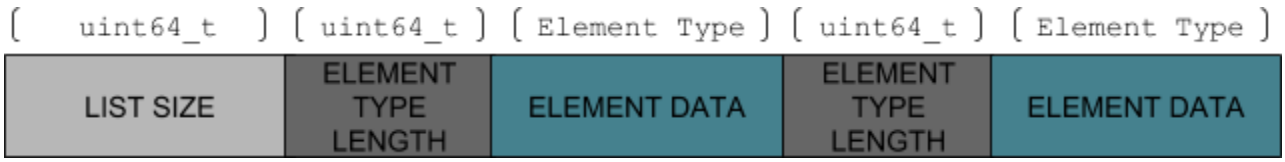
Table of type size:

TYPE	BYTES
(u)int8_t	1
(u)int16_t	2
(u)int32_t	4
(u)int64_t	8
string	8 + size(string)
list<T>	8 + size(list) * size(T)

String representation:

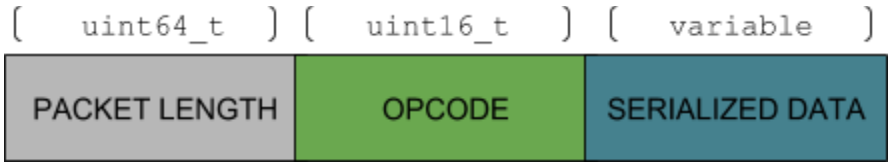


List representation:



2. SERIALIZED PACKETS

Each packet contains a length, an opcode corresponding to its identity and its serialized data, which is a suite of serialized types. Each packet has his own defined rules for its data serialization. See below the diagram of a packet.



3. PACKETS LIST

A. Packets sent by the Client to the Server

C++ API	Opcode	Content	Description
LoginMessage	0x02	[string(name)]	Request a connection to the server. Specify a name as username.
CallRequestMessage	0x06	[string(contact)][string(host)] [uint16_t(port)]	Request a call to a given contact name. Client must specify the port on which the contact will connect if he accepted the call. The host can be empty (retrieved by the server).
CallRefusedMessage	0x09	[string(contact)]	Refuse an incoming call by specifying the contact who called the client.

B. Packets sent by the Server to the Client

C++ API	Opcode	Content	Description
HelloConnectMessage	0x01	N/A	This packet is sent when the server accepted the client tcp connection. The client shouldn't send any packet before receiving this one.
CallRequestMessage	0x06	[string(caller)][string(host)] [uint16_t(port)]	When receiving a request from the client, it is dispatched to the targeted contact client, which should then connect to the given host:port if he accepts the call, or reply a CallRefusedMessage.
LoginSuccessMessage	0x03	N/A	When receiving a LoginMessage, this packet is sent if the username wasn't already used.
LoginFailedMessage	0x04	[string(reason)]	When receiving a LoginMessage, this packet is sent if the username was already used. The reason contains the error.
AddContactMessage	0x05	[list<string>(contacts)]	When a new client logs in, this message is sent to show him all the clients that are already logged in. His contact list should be updated. It also sends this message to all the other clients, and contains only the new logged username.
DelContactMessage	0x0A	[list<string>(contacts)]	When a new client is disconnected from the server, this message is sent to all other clients. It contains the username(s) who left.

ErrorResponseMessage	0x08	[string(what)]	When a client sent a CallRequestMessage but that the called contact doesn’t exist anymore (disconnected).

C. P2P packets sent between clients in call

C++ API	Opcode	Content	Description
ConnectionEtablishedMessage	0x0B	N/A	When a client host is receiving a new connection, this message should be sent. It guarantees that the tcp connection is established. Since this moment, the connected client can start sending VoiceDataMessages .
VoiceDataMessage	0x07	[list<uint8_t>(data)]	A data message that contains packed voice data. This message should be sent and received continuously while the call is running.

D. Other actions

Hanging up a call or disconnecting to the server is simply done by closing your TCP socket.