                    <Request for Comments on Epitech's Babel Project>

Status of this memo

    This RFC specifies a standard for the Epitech's 2018 Promotion. It will be
    used for the project Babel in our 3rd year advanced C++ module by 3 different
    groups.

Table of Contents

```
    1. Introduction
```

This RFC refers to a project in the C++ module in the 3rd year of Epitech's degree. The purpose of the project is to develop a VoIP client-server in C++ (Skype like).

The protocol's goal is to gather all 3 groups of the project into the same communication foundations so that each of the servers and clients of each group works between them.

```
    2. Client to Server
```

In this part you will see every request that is sent to the server by the client.

```
        2.1.  <Version 1.0>
          2.1.1.   <Handshake>
```

The Handshake request is sent when the client connects to the server, he must say hello and give his current Version. Then the server can accept him (or not, depending on the version) and give him access to other requests. It is built with the request binary (1 octet), a temporary client id (4 octet) and the size of the data (2 octet).

```
Request type: handshake
Decimal: 1
Binary: 00000001
Size in octet(s): 7 + Welcome message length
Response: handshake success / handshake error
```

```
          2.1.2.   <Responses>
             2.1.2.1. <Success>
```

Standard response when precedent request succeeded. It is built with a header (request type, client id and data size).

```
Request type: success
Decimal: 2
Binary: 00000010
Size in octet(s): 7
Response: /
```

```
             2.1.2.2. <Error>
```
Standard response when precedent request failed. It is built with a header.
```
Request type: error
Decimal: 3
Binary: 00000011
Size in octet(s): 7
Response: /
```

```
          2.1.3.   <Access>
             2.1.3.1.    <Signup>
```

The Signup request is sent when the client clicks on the "Signup" button. It is built with a header, the login (maximum 16 octets, the password (max 16) entered in the signup window and the profile picture id of the client (1 octet).

```
Request type: signup
Decimal: 4
Binary: 00000100
Size in octet(s): 8 + Login length + Password length
Response: success on sign in / signup / sign in error
```

2.1.3.2.   <Sign in>

The Sign in request is sent when the client clicks on the "Sign in" button. It is built with a header, the login and the password entered in the sign in window.

```
Request type: sign in
Decimal: 5
Binary: 00000101
Size in octet(s): 7 + Login length + Password length
Response: success on sign in / signup / sign in error
```

2.1.4.   <Calls>
2.1.4.1.   <Call request>

The Call request is sent when the client calls one of his contacts. It is built with a header, and the username (of the receiver).

```
Request type: call
Decimal: 6
Binary: 00000110
Size in octet(s): 10 + username length
Responses: call accepted / call declined / call error
```

2.1.4.2.   <Accept Call>

The Accept Call request is sent when the client clicks on the accept button while another client is calling him. It is built with a header, the client username (of the sender) and the client ip (receiver).

```
Request type: accept call
Decimal: 7
Binary: 00000111
Size in octet(s): 14 + username length
Responses: success / error / call error
```

1.1.1.1.   <Decline Call>

The Decline Call request is sent when the client refuse the call from a contact. It is built with a header.

```
Request type: decline call
```

```
Decimal: 8
Binary: 00001000
Size in octet(s): 7
Response: success / error / call error
```

1.1.1.2.   <Hang up>

The Hang up request is sent when the client hangs up his conversation. It is built with a header and then the call id or the client id.

```
Request type: hang up
Decimal: 9
Binary: 00001001
Size in octet(s): 11
Responses: success / error
```

1.1.1.3.   <Send Text>

The Send Text request is sent when the client wants to chat with his contact(s) in the text part of conversation. It is built with a header, the receiver id (client or call) and the text (max 8000).

```
Request type: send text
Decimal: 10
Binary: 00001010
Size in octet(s): 15 + Text length
Responses: success / error
```

1.1.2.   <Contacts>
1.1.2.1.   <Add Contact>

The Add Contact request is sent when the client clicks on the "Add Contact" button. It is built with a header and the client id of the contact added.

```
Request type: add contact
Decimal: 12
Binary: 00001100
Size in octet(s): 11
Response: contact info / error
```

1.1.2.2.   <Accept Invitation>

The Accept Invitation request is sent when the client accepts a new contact request. It is built with a header, the client id and the id of the contact added.

```
Request type: accept invitation
Decimal: 13
Binary: 00001101
Size in octet(s): 11
Responses: contact info / error
```

1.1.2.3.   <Decline Invitation>

The Decline Invitation request is sent when the client declines a new contact
request. It is built with a header, the client id and the id of the declined
contact.

Request type: decline invitation
Decimal: 14
Binary: 00001110
Size in octet(s): 11
Responses: success / error

      1.1.3.   <Modify Profile>
        1.1.3.1.   <Modify Status>

The Modify Status request is sent when the client changes of status
(Available, Occupied…). It is built with a header, the client id and the
status id.

Request type: modify status
Decimal: 15
Binary: 00001111
Size in octet(s): 8
Responses: success / error

        1.1.3.2.   <Modify Login>

The Modify Login request is sent when the client uses the "Change Login"
feature in the program. It is built with a header, the client id and the new
login length.

Request type: modify login
Decimal: 16
Binary: 00010000
Size in octet(s): 7 + Login length
Responses: success / error

        1.1.3.3.   <Modify Location>

The Modify Location request is sent when the client changes his location
manually. It is built with a header, the client id and the new location
length.

Request type: modify location
Decimal: 17
Binary: 00010001
Size in octet(s): 7 + Location length
Responses: success / error

      1.1.4.   <Pong>

The Pong request is used when the server pings the client, he must respond to
the ping by sending this request. It is built with a header.

```
Request type: pong
Decimal: 9
Binary: 00001001
Size in octet(s): 7
Responses: /
```

   2.2   <Version 2.0>
     2.1.1.   <Mute>

The Mute request is used when the client mutes himself in the conversation.
It is built with a header and his own id.

```
Request type: mute
Decimal: 20
Binary: 00010100
Size in octet(s): 7
Responses: success / error
```

     2.1.2.   <Add Participant to Call>

The Add Participant to Call request is used when the clicks on the "Add
Participant" button to add someone to a call. It is built with a header, a
call id and an invited client id.

```
Request type: add participant to call
Decimal: 21
Binary: 00010101
Size in octet(s): 9
Responses: call accepted / call declined / call error
```

     2.1.3.   <Add to Favourites>

The Add to Favourites request is used when a client clicks on the "Add to
Favourites" button to add a contact to his favourites.
It is built with a header, the client id and the added client id.

```
Request type: add to favourites
Decimal: 22
Binary: 00011010
Size in octet(s): 11
Responses: success / error
```

     2.1.4.   <Remove from Favourites>

The Remove from Favourites request is used when a client removes a contact
from his favourites. It is built with a header, the client id and the removed
client id.

```
Request type: remove from favourites
Decimal: 23
Binary: 00010111
Size in octet(s): 11
Responses: success / error
```

          2.1.5.   <Add Nickname>

The Add Nickname request is used when the client wants to rename a contact
for himself. It is built with a header, the client id, the nicknamed client
id and the new nickname.

Request type: add nickname
Decimal: 24
Binary: 00011000
Size in octet(s): 11 + Nickname length
Responses: success / error

          2.1.6.   <Remove Contact>

The Remove Contact request is used when the client clicks on the "Remove
Contact" button to remove this contact from his list. It is built with a
header, the client id and the removed client id.

Request type: remove contact
Decimal: 25
Binary: 00011001
Size in octet(s): 11
Responses: success / error

          2.1.7.   <Modify Profile Picture>

The Modify Profile Picture request is used when the client clicks on the
"Change Profile Picture" button. It is built with a header and a picture id
(1 octet).

Request type: modify profile picture
Decimal: 26
Binary: 00011010
Size in octet(s): 9
Responses: success / error

     2.2   <Version 3.0>
        2.1.8.   <Send File>

The Send File request is used when the client wants to share a file in a
call. It is built with a header, the client id, the receiver id (client or
call) and the file in itself.

Request type: send file
Decimal: 30
Binary: 00011110
Size in octet(s): 11 + File size
Responses: success / error

          2.1.9.   <Listen to Mail>

The Listen to Mail request is used when the client wants to hear his
voicemail. It is built with a header and his own client id.

Request type: listen to mail
Decimal: 31
Binary: 00011111
Size in octet(s): 7
Responses: success / error

3.   Server to Client

In this part you will see every request that is sent to the client by the
server.

    3.1.   <Version 1.0>
        3.1.1.   <Success>

Standard response when precedent request succeeded. It is built with the
answer type (1 octet) and the data size(2 octets).

Request type: success
Decimal: 100
Binary: 01100100
Size in octet(s): 3
Response: /

        3.1.2.   <Handshake success>

This response is the standard success response for the handshake. It is built
with a server header (answer type + data size).

Request type: handshake success
Decimal: 101
Binary: 01100101
Size in octet(s): 3
Response: /

        3.1.3.   <Success on Sign in / Signup>

This response is similar to the standard success response except it is used
only for sign in and signup requests so that the client can be notified of
his state. It is built with a server header, the client id, the number of
contacts he has (1 octet) and for every single contact: the id, the login,
the location, the status, the profile picture id and a boolean to know if the
contact is a favourite.

Request type: success on sign in / signup
Decimal: 102
Binary: 01100110
Size in octet(s): 7 + (nbContacts * (7 + login length[i] + location
length[i]))
Response: /

```
        3.1.4.    <Errors>
           3.1.4.1.     <Error>
```

Standard response when precedent request failed. It is built with a server
header.

```
Request type: error
Decimal: 103
Binary: 01100111
Size in octet(s): 3
Response: /
```

```
           3.1.4.2.     <Handshake error>
```

This response is the standard error response for the handshake. It is built
with a server header.

```
Request type: handshake error
Decimal: 104
Binary: 01101000
Size in octet(s): 3
Response: /
```

```
           3.1.4.3.     <Unknown error>
```

The Unknown error response is used when an unknown error occurred. It is
built with a header.

```
Request type: unknown error
Decimal: 105
Binary: 01101001
Size in octet(s): 3
Responses: /
```

```
           3.1.4.4.     <Sign in error>
```

The Sign in error response is used when an error on sign up occurred. It can
be due to a password, a login or an already connected client. It is built
with a header.

```
Request type: login error
Decimal: 106
Binary: 01101010
Size in octet(s): 3
Responses: /
```

```
           3.1.4.5.     <Call error>
```

The Call error response is used when a user tries to call an offline contact.
It is built with a header.

```
Request type: call error
Decimal: 107
```

```
Binary: 01101011
Size in octet(s): 3
Responses: /
```

3.1.4.6.   <Feature unimplemented>

The Feature unimplemented response is used when a client can't use a feature his contact asked for. (ex: video call to someone which version is not up to date.)

```
Request type: feature unimplemented
Decimal: 108
Binary: 01101100
Size in octet(s): 3
Responses: /
```

3.1.5.   <Contacts>
3.1.5.1.   <Contact Request>

The Contact Request request is used when a client wants to add a new contact: a request is sent to the contact so that he can accept or decline. It is built with a server header, the client id (the one that asks for a new contact) his login and his profile picture id.

```
Request type: contact request
Decimal: 110
Binary: 01101110
Size in octet(s): 7 + login length
Responses: accept invitation / decline invitation
```

3.1.5.2.   <Contact Info>

The Contact Info response is used when a client accepts the contact request. It sends contact's information to the client that asked.
It is built with a server header, the login length, the location length the status of the new contact and his profile picture id.

```
Request type: contact info
Decimal: 111
Binary: 01101111
Size in octet(s): 5 + login length + location length
Responses: /
```

3.1.6.   <Calls>
3.1.6.1.   <Call Request>

The Call Request request is sent to a client when another client is calling him. It is built with a server header, the client id (from the caller), the call id and the caller client ip (4 octets).

```
Request type: call request
Decimal: 112
Binary: 01110000
```

```
Size in octet(s): 11
Responses: accept call / decline call

        3.1.6.2.    <Call accepted>

The Call accepted request is sent to a client when the contact he tried to
call accepted the call. It is built with a server header, the client id (call
receiver) and the client receiver ip.

Request type: call accepted
Decimal: 113
Binary: 01110001
Size in octet(s): 11
Response: /

        3.1.6.3.    <Call declined>

The Call declined request is sent to a client when the contact he tried to
call declined the call. It is built with a server header and the client id
(call receiver).

Request type: call declined
Decimal: 114
Binary: 01110010
Size in octet(s): 7
Response: /

        3.1.6.4.    <Send Text>

The Send Text request is sent to a client when a contact sends him a text
message. It is built with a server header, the sender id and the text.

Request type: send text
Decimal: 115
Binary: 01110011
Size in octet(s): 7 + text length
Response: /

        3.1.6.5.    <Hanged up>

The Hanged up request is sent when a client hangs up conversation. It is
built with a server header, the client id (the one that hangs up) and his
login.

Request type: hanged up
Decimal: 116
Binary: 01110100
Size in octet(s): 7 + login length
Responses:

        3.1.7.    <Ping>
```

```
Standard ping request to check if the client is still connected. It is built
with a header.

Request type: ping
Decimal: 109
Binary: 01101101
Size in octet(s): 3
Response: /


     3.2.   <Version 2.0>
     3.3.   <Version 3.0>
        3.3.1.   <Send file>

The Send file request is used when a client sends a file to another client.
It is built with a server header, the sender id and the file data.

Request type: send file
Decimal: 130
Binary: 10000010
Size in octet(s): 7 + data length
Response: /
```