Communication protocol

When a new client is connecting to the server and the connection is initialized, a “ping pong” control will see if the client is still connected to the server. This control is important because if the client disconnects in a bad manner (without closing the connection), the server will know. (because it doesn’t receive a pong text message).
This control is repeated every action, to control if they are still connected.

All the messages exchanged between client and server are simple string, followed by the “\n” character.

This is a quick view of what are the different communications of client/server:

Login

Game

- **Turn**

- **Actions**
  - **Grab**
  - **Run**
  - **Shoot**
  - **Use power up**
  - **Draw**
  - **Discard**
  - **Pay**
  - **Reload ← da aggiungere**

- **Power Ups**
  - **Targeting scope**
  - **Newton**
  - **Tagback granade**
  - **Teleporter**

- **Various communication messages**

Login

```
+---------+                     +---------+
| Client  |                     | Server  |
+---------+                     +---------+
|                                          |
|                                    ping  |
|<---------------------------------------|
|                                          |
| pong                                     |
|--------------------------------------->|
|                                          |
|                                   login  |
|<---------------------------------------|
|                                          |
|                      insert a nickname  |
|<---------------------------------------|
|                                          |
| nickname                                 |
|--------------------------------------->|
```

login request (server)
login\n
insert a nickname\n

login reply (client)
nickname\n

Game

Turn

```
+---------+                  +---------+
| Client |                   | Server |
+---------+                  +---------+
|                                     |
|                                ping |
|<-----------------------------------|
|                                     |
| pong                                |
|------------------------------------>|
|                                     |
|                                wake |
|<-----------------------------------|
|                                     |
| insert action                       |
|------------------------------------>|---------------------|
|                                     |this section can be repeated|
|                           response  |     more than one time     |
|<-----------------------------------|---------------------|
|                                     |
| end turn                            |
|------------------------------------>|
|                                     |
|                               sleep |
|<-----------------------------------|
```

wake (server)
It’s your turn\n

insert action (client)
insert action\n (grab,run,shoot,use power up)

response (server)
response\n (ok/error)

end turn (client)
end turn\n (declare the end of you turn)

sleep (server)
Your turn is over\n

Actions

Grab

```
+---------+                     +---------+
| Client |                      | Server |
+---------+                     +---------+
|                                         |
|                                   ping  |
|<----------------------------------------|
|                                         |
| pong                                    |
|---------------------------------------->|
|                                         |
|                                  where? |
|<----------------------------------------|
|                                         |
| insert where                            |
|---------------------------------------->|--------------------------|
|                                         | this section can be repeated |
|                             response    |     if there are errors      |
|<----------------------------------------|--------------------------|
|                                         |
| insert a weapon                         |
|---------------------------------------->|--------------------------|
|                                         | this section can be repeated |
|                             response    |     if there are errors      |
|<----------------------------------------|--------------------------|
```

where?(server)
where?\n

insert where(client)
insert where\n (as coordinates(x,y))

response (server)
response\n (ok/error/choose a weapon)

insert a weapon(client)
insert a weapon\n

response (server)
response\n (ok/error)

Run

```
+---------+                     +---------+
| Client  |                     | Server  |
+---------+                     +---------+
|                                         |
|                                   ping  |
|<----------------------------------------|
|                                         |
| pong                                    |
|---------------------------------------->|
|                                         |
|                                  where? |
|<----------------------------------------|
|                                         |
| insert where                            |
|---------------------------------------->|------------------------------|
|                                         | this section can be repeated |
|                             response    |     if there are errors      |
|<----------------------------------------|------------------------------|
```

where?(server)
where?\n

insert where(client)
insert where\n (as coordinates(x,y))

response (server)
response\n (ok/error)

Shoot

```
+---------+                     +---------+
| Client |                      | Server |
+---------+                     +---------+
|                                        |
|                                  ping  |
|<--------------------------------------|
|                                        |
| pong                                   |
|-------------------------------------->|
|                                        |
|                                 where? |
|<--------------------------------------|
|                                        |
| insert where                           |
|-------------------------------------->|-----------------------|
|                                        | this section can be repeated |
|                             response   |     if there are errors      |
|<--------------------------------------|-----------------------|
```

where?(server)
where?\n

insert where(client)
insert where\n (as coordinates(x,y) or color of room or player)

response (server)
response\n (ok/error)

Use power up

```
+---------+                     +---------+
| Client |                      | Server |
+---------+                     +---------+
|                                         |
|                                   ping  |
|<----------------------------------------|
|                                         |
| pong                                    |
|---------------------------------------->|
|                                         |
|                          which power up?|
|<----------------------------------------|
|                                         |
| insert power up                         |
|---------------------------------------->|------------------------------|
|                                         | this section can be repeated |
|                             response    |     if there are errors      |
|<----------------------------------------|------------------------------|
```

which power up?(server)
which power up?\n

insert power up(client)
insert power up\n (as power up name and color)

response (server)
response\n (ok/error)

Draw

```
+---------+                     +---------+
| Client |                      | Server |
+---------+                     +---------+
|                                         |
|                                   ping  |
|<----------------------------------------|
|                                         |
| pong                                    |
|---------------------------------------->|
|                                         |
|                             response    |
|<----------------------------------------|
```

response (server)
response\n (as power up name and color)

Discard

```
+---------+                     +---------+
| Client |                      | Server |
+---------+                     +---------+
|                                         |
|                                   ping  |
|<----------------------------------------|
|                                         |
| pong                                    |
|---------------------------------------->|
|                                         |
|                          which power up?|
|<----------------------------------------|
|                                         |
| insert power up                         |
|---------------------------------------->|------------------------------|
|                                         | this section can be repeated |
|                              response   |     if there are errors      |
|<----------------------------------------|------------------------------|
```

which power up?(server)
which power up?\n

insert power up(client)
insert power up\n (as power up name and color)

response (server)
response\n (ok/error)

Pay

```
+---------+                  +---------+
| Client |                   | Server |
+---------+                  +---------+
|                                     |
|                                ping |
|<------------------------------------|
|                                     |
| pong                                |
|------------------------------------>|
|                                     |
|                     how to pay?     |
|<------------------------------------|
|                                     |
| insert power up                     |
|------------------------------------>|
|                                     |
| number of ammo                      |
|------------------------------------>|-----------------------|
|                                     | this section can be repeated |
|                          response   |    if there are errors       |
|<------------------------------------|-----------------------|
```

how to pay?(server)
how to pay?\n

insert power up(client)
insert power up\n (as power up name and color)

number of ammo(client)
number of ammo\n (as a string)

response (server)
response\n (ok/error)

Reload

```
+---------+                  +---------+
| Client |                   | Server |
+---------+                  +---------+
|                                     |
|                                ping |
|<------------------------------------|
|                                     |
| pong                                |
|------------------------------------>|
|                                     |
|                     which weapon?   |
|<------------------------------------|
|                                     |
| insert weapons                      |
|------------------------------------>|
|                                     |
|                     how to pay?     |
|<------------------------------------|
|                                     |
| insert power up                     |
|------------------------------------>|
|                                     |
| number of ammo                      |
|------------------------------------>|------------------------------|
|                                     | this section can be repeated |
|                          response   |     if there are errors      |
|<------------------------------------|------------------------------|
```

which weapon?(server)
which weapon?\n

insert weapon(server)
insert weapon\n (as weapon name)

how to pay?(server)
how to pay?\n

insert power up(client)
insert power up\n (as power up name and color)

number of ammo(client)
number of ammo\n (as a string)

response (server)
response\n (ok/error)

Power Ups

Targeting scope

```
+---------+                     +---------+
| Client |                      | Server |
+---------+                     +---------+
|                                         |
|                                   ping  |
|<---------------------------------------|
|                                         |
| pong                                    |
|--------------------------------------->|
|                                         |
|                            want to use?|
|<---------------------------------------|
|                                         |
|  (yes/no)                               |
|--------------------------------------->|-------------------------|
|                                         | this section can be repeated |
|                              response   |     if there are errors      |
|<---------------------------------------|-------------------------|
         see the pay message
```

want to use?(server)
want to use?\n

(yes/no) (client)
(yes/no)\n (as enemy player)

response (server)
response\n (ok/error)

pay(server)
pay\n (ok/error)

Newton

```
+---------+                  +---------+
| Client |                   | Server |
+---------+                  +---------+
|                                      |
|                                ping  |
|<-------------------------------------|
|                                      |
| pong                                 |
|------------------------------------->|
|                                      |
|                          who target?|
|<-------------------------------------|
|                                      |
| insert who                           |
|------------------------------------->|-----------------------|
|                                      | this section can be repeated |
|                          response    |     if there are errors      |
|<-------------------------------------|-----------------------|
|                                      |
|                               where?|
|<-------------------------------------|
|                                      |
| insert where                         |
|------------------------------------->|-----------------------|
|                                      | this section can be repeated |
|                          response    |     if there are errors      |
|<-------------------------------------|-----------------------|
```

who target?(server)
who target?\n

insert who(client)
insert who\n (as enemy player)

response (server)
response\n (ok/error)

where?(server)
where?\n

insert where(client)
insert where\n (as coordinates(x,y))

response (server)
response\n (ok/error)

Tagback granade

```
+---------+                    +---------+
| Client |                     | Server |
+---------+                    +---------+
|                                       |
|                                 ping  |
|<------------------------------------|
|                                       |
| pong                                  |
|------------------------------------>|
|                                       |
|                          want to use?|
|<------------------------------------|
|                                       |
|  (yes/no)                             |
|------------------------------------>|-----------------------|
|                                     | this section can be repeated |
|                          response   |    if there are errors      |
|<------------------------------------|-----------------------|
```

want to use?(server)
want to uset?\n

(yes/no)(client)
(yes/no)\n (as enemy player)

response (server)
response\n (ok/error)

Teleporter

```
+---------+                  +---------+
| Client |                   | Server |
+---------+                  +---------+
|                                      |
|                                ping  |
|<-------------------------------------|
|                                      |
| pong                                 |
|------------------------------------->|
|                                      |
|                                where?|
|<-------------------------------------|
|                                      |
| insert where                         |
|------------------------------------->|------------------------|
|                                      | this section can be repeated |
|                           response   |     if there are errors      |
|<-------------------------------------|------------------------|
```

where?(server)
where?\n

insert where(client)
insert where\n (as coordinates(x,y))

response (server)
response\n (ok/error)

Various communication messages

Information message

```
+--------+                    +--------+
| Client |                    | Server |
+--------+                    +--------+
|                                     |
|                               ping  |
|<------------------------------------|
|                                     |
| pong                                |
|------------------------------------>|
|                                     |
|                             message |
|<------------------------------------|
```

message(server)
message\n (such as movement of other player, how many points earned and so on..)