RFC R-TYPE

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1. Introduction  
  
This document is intended for people working on implementing an Server Client Communication for R-TYPE Project.

2. Server  
  
Server MUST send all the information about the game to client by different packets with in each packet an unsigned short “cmd”.

2.1 UDP

The data transfers between client and server MUST be done by UDP (User Datagram Protocol).  
  
Packets can be lost. So, if a command between server and client failed server don’t send any error message.

The client MUST send multiple commands (For example: CONNECT) till he get the SUCCESS message.

2.2. Packets  
  
ObjectPacket {  
  
 For each item:  
 unsigned int id  
 float X  
 float Y  
 bool hit  
 bool animated  
 enum ALIVE, DEAD  
 unsigned char animation\_id  
}  
  
ScorePacket {  
  
 For each player:  
 enum State INGAME, WON, LOST  
 struct player\_score[4]  
 {  
 char playerId  
 unsigned int score  
 }  
}

LobbyPacket {  
   
 bool gameStarted  
 unsigned short seed  
 unsigned char numberOfPlayers  
}

OnInput {  
  
 short X\_velocity  
 short Y\_velocity  
 bool Release\_shot  
 bool Charge\_shot  
}

3. Clients  
  
For each client, all servers MUST have the following information first: a seed to get the lobby you want by using the CONNECT command.  
The client MUST use the CONNECT command first.

4. Message Details  
  
The server to which a client is connected is required to parse the complete message. A fatal error may follow from incorrect command, a destination which is otherwise unknown to the server, not enough parameters or incorrect privileges.  
  
If a full set of parameters is presented, then each MUST be checked for validity and appropriate responses sent back to the client.   
  
Example:  
  
COMMAND parameter

5. Command client-server connection  
  
All the command server and client MUST use to establish a success connection.

5.1. Establishing a client-server connection.  
  
The client MUST use the CONNECT command to establish a client-server connection:  
  
Command: CONNECT   
Parameters: <packet> (LobbyPacket)  
  
Default IP address is set to the local IP address (127.0.0.1)  
  
When the CONNECT command is send by the client, the server responds CONNECTED if the connection success.  
  
The server MUST NOT use this command.

5.2. Disconnect from the server  
  
The client MUST use the DISCONNECT command to exit the connection between himself and the server:  
  
Command: DISCONNECT  
Parameters: NONE  
  
When the DISCONNECT command is send by the client, the server respond DISCONNECTED if the disconnection success.

6. Command start and end game  
  
All the command the client and server MUST use to start or end the game properly.

6.1. Launch the game  
  
To launch the game the client MUST use the READY command:  
  
Command: READY  
Parameter: NONE  
  
If the command success the server respond by the STARTGAME Command else the server return E\_READY.

6.2. Start the game  
  
To start the game the server MUST use the STARTGAME command with all the sprite in parameter:  
  
Command: STARTGAME  
Parameter: NONE  
  
The sprite will be send to the client.

6.3. End the game  
  
To end the game the server MUST use the ENDGAME command:  
  
Command: ENDGAME  
Parameters: NONE

7. Command Game Information  
  
All the command the server and the client MUST use to send the informations about the game like players or enemies position, events etc…

7.1. Send the players or enemies position  
  
To send the players position the server MUST use the PLAYERPOSITION command:  
  
Command: PLAYERPOSITION  
Parameter: <params> (ObjectPacket)  
  
Like the players position to send the enemies position the server MUST send the same parameter. Only the command name change, the server MUST use ENEMIESPOSITION command.

7.2 Send the projectiles position  
  
To send the projectiles position the server MUST use the PROJECTILESPOSITION command:  
  
Command: PROJECTILESPOSITION  
parameter: <params> (ObjectPacket)

7.3 Send the collide with players or enemies  
  
To send the collide position of the player the server MUST use the HITPLAYER command:  
  
Command: HITPLAYER  
Parameter: <params> (ObjectPacket)  
  
Like the player collision to send the enemies position the server MUST send the same parameter. Only the command name change, the server MUST use HITENEMIES command.

7.4 Send the events of the player  
  
To send the events of the player the client MUST use the EVENTS command:  
  
Command: EVENTS  
Parameter: <events> (OnInput)

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Acknowledgement

Funding for the RFC Editor function is currently provided by the

Internet Society.