

Stratego Game Protocol

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To see the Rules of Stratego, go to <http://www.edcollins.com/stratego/stratego-rules-early.htm>

Frame Layout:

*	Frame Type (Int)	Payload
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Definitions:

String: This is a Java String, written and read with writeUTF(), readUTF()

Int: This is a Java int (4 bytes), written and read with writeInt(), readint()

Char: This is a Java char (2 bytes), written and read with writeChar(), readChar()

Client Frames (Frame Types 1-4):

1- Sign On Frame

Payload: Username (String)

2- Setup Frame

Payload: Location of Piece (Piece Id (char), x-Coordinate (int), y-Coordinate (int))

Piece IDs: (1-9 for ranked piece, "F" for flag, "B" for bomb, and "S" for spy)

Coordinate System: 0-9 for X and Y, server uses a 10x10 grid, first player occupies

3- Ready Frame

Client acknowledges that they are finished placing their pieces and is ready to begin playing .

Payload: ("ready" String)

4- Move Frame

Location of piece to be moved and location to move to. If the location is occupied by the enemy, the server recognizes that a battle occurs.

Payload: 4 ints (x,y origin + x,y target)

Server Frames (Frame Types 1-9):

1- *Wait Frame*

If no other player is connected server tells client to wait

Payload: ("wait" String)

2- *Connected Frame*

Server tells client that another player is there, this frame begins the setup phase

Payload: ("connected" String)

3- *Placement Valid Frame*

Server acknowledges that the user's piece placement is valid

Payload: ("valid" String)

4- *Placement Invalid Frame*

Server tells client that the piece placement is invalid

Payload: ("invalid" String)

5- *Playing Frame*

Both setups have been received; playing phase begins

Payload: (username of first turn player String)

6- *Move Frame*

Tells both clients where the player has moved

Payload: 4 ints (x,y origin + x,y target)

7- *Board Frame*

Sends the entire game board to a player with the identities (chars) of their pieces revealed and the locations of the opponent's unidentified pieces (represented by a standard char value).

Payload: 100 chars, following the sequence (0,0) (1,0) (2,0) ... (100,100). The x-value is the column number and the y-value is the row number.

8- *Move Invalid Frame*

Tells client that move was not accepted

Payload: (String "invalid move")

9- *Battle Frame*

Server tells client which piece won the battle or if a tie occurred

Payload: (String "tie" or username of winner + (char)Piece Id of attacker + (char)Piece Id of defender)

10- *Game Over Frame*

Server tells client which user won

Payload: (String username)

Protocol:

1. First user sends Sign on Frame.
2. Server sends Wait Frame.
3. Second user sends Sign On Frame.
4. Server sends Connected Frame to both users.
5. Both users send piece placements (Setup Frames).
6. Server sends Placement Valid Frame or Placement Invalid Frame after each placement.
7. After placement is finished, users send Ready Frames.
8. Server sends Playing Frame and Board Frame when both players are ready.
9. Moves are sent from user (Move Frame) to Server.
10. Server keeps track of turns and sends Move Invalid Frame if player sends a Move Frame out of turn or move is invalid
11. Server sends other both players the valid move or a battle result if necessary (Move Frame or Battle Frame).
12. After each move or battle the Server sends each player a Board Frame so that each player sees the updated board.
13. Once a user has won Game Over Frame is sent.