

# Instructions

Step 1: fill the pre-game survey ~10 mins

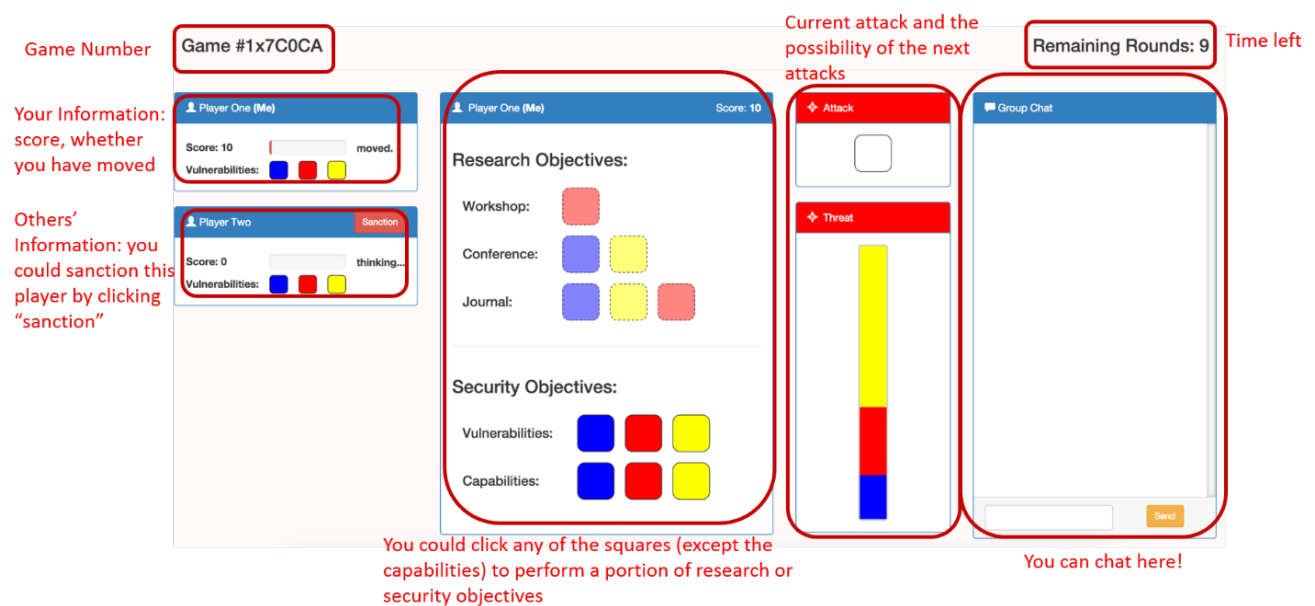
<https://docs.google.com/forms/d/1yC4CH1HNNsQD9K5tJ33-vn8iMobEeyguDvogOzbFHko/viewform>

Step 2: read game instructions below (~10 mins), repeat the following 3 times,

- 1) play the game <http://xipho.csc.ncsu.edu:8000/>  
There are 3 games, play game 2x4A9A9 first, then game 3x4FA93, then 4x21230.  
This game requires 3 players play together, so it's important for you to go into the same game.
- 2) fill the post-game survey <https://docs.google.com/forms/d/1KuVWzmz8XK8E-flCKGSEWwSJcxGuTV0wxVP-JIDR7N0/viewform>

Game Instructions:

Here is the interface:



**Actions** In each game, there are 15 or 30 rounds/ticks. In each round, a player could do one of the following in the middle panel:

- perform a portion of research objectives (by clicking one of the corresponding squares)
- fix a portion of vulnerabilities (by clicking one of the corresponding squares)
- sanction another member in the group (by clicking the sanction button on another player's information panel).

After all the players in the group moves, and it shows “moved.” for everyone in the information panel on the left, you go into the next round. You could always chat in the chat window on the right.

In the game, you could click on the squares of research objectives to gain points. Your goal in this game is to gain as many points (score) as possible. For different research objectives, the rewards are different:

- 10 points for a completed workshop
- 25 points for a completed conference
- 45 points for a completed journal

Once you complete a kind of research objective, there'll be a new one of the same type assigned to you. Different colors (of squares) represent different resources you need to use in the objective.

You can only perform a research objective when you have the capability of corresponding color, showing by the “capability” squares in the bottom. For example, if you don't have yellow capability, then you can't click on any yellow square in the research objectives. You could always click on vulnerabilities though.

**Attack Probability** At each tick, there's a fixed attack probability for each game that represents the attack probability from an anonymous attacker. For example, in a game, at each tick, there is a 50% probability that everyone are attacked. There are 3 kinds of attacks, corresponding to each resource of the same color. For example, yellow attack will only attack yellow vulnerability. The current attack is shown in the right under the “Attack” tab. The ratio of each kind of attack for the next round are shown in the right as a bar under the tab of “Threat”.

**Vulnerabilities and Capabilities** There's a possibility that you lose your work in progress and the capability to do a certain kind of resources (but not scores) when you are attacked (by some anonymous attacker). Whether you will lose work and capability depends on whether you have fixed the corresponding vulnerabilities. For example, if there's a yellow attack,

- if you have yellow vulnerabilities fixed (the vulnerability showing darker yellow), you now have yellow vulnerability lost (the yellow vulnerability showing lighter yellow).
- If you don't have yellow vulnerability fixed (the vulnerability showing lighter yellow), you lose yellow capability (both yellow vulnerability and yellow capability show lighter yellow).
- If you don't have yellow vulnerability and yellow capability, nothing will happen.

**Sanction** You lose the ability to move at next tick if other player(s) sanction you. If you sanction another player, you won't be able to perform any research or security objective this round. The player you sanctioned can't do anything in next round. If multiple players sanction one player, the player being sanctioned can't do anything in the next one round, regardless of the number of players who sanctioned him/her.

**Colored Borders** All the squares with lighter colors are marked with dotted red borders, and all the squares with darker colors are marked with solid green borders.