

# Stack Overthrow

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Game Zip:

<https://drive.google.com/a/umich.edu/file/d/0BwqTtK8ARahgVWVjUVZjUmZoaWs/edit?usp=sharing>

NOTE: We do not have a build because we could not get Unity to make a build that displayed our Maya models correctly. The resulting build was virtually unplayable.

## Setting Up the Server

### How to Launch Server on MAC:

- Requirements:
  - Unity, mono, xbuild
- Setup Instructions:
  - a. [Install mono](#)
  - b. In our project directory, run “./buildGameServer.sh”
    - Not needed again after running once
  - c. In our project directory, run “./runGameServer.sh”
  - d. Take note of your IP address

### How to Launch Server on Windows:

- Requirements:
  - Just Unity
- Setup Instructions:
  - Open  
GameServer/ConsoleApplication1/bin/Debug/ConsoleApplication1.exe
  - Take note of your IP address

### **Setting up the Game:**

- **Use scene: Maya Map**
- Enter your name and your IP address in the text boxes
- If you want to use the test server, check “Test Server”
  - This spawns a dummy player on the server that constantly sends empty input
- Click “Enter”

## **Primary Controls**

- holding alt-key : reveals health bars above all friendly units
- left-click and drag : generates green rectangular box on screen to select groups of units
- press B : pan camera to friendly base
- hold A + left-click : Attack-move, left click where selected units will move and they will engage enemy if within pursuit radius and stop moving towards designated destination
- right-click : if units selected, move units to marks spot or attack clicked enemy unit
- left click : to select individual units or buildings

## **GUI Controls**

- CPU selected:
  - Randomize Button:
    - randomly generates a unit form either Tier 1 or 2 or 3, depending on how many tiers are unlocked
  - Upgrade Tier Button:
    - upgrade to next tier to increase chance of randomly generating a powerful unit
    - unlocks the button for following tier to allow purchase of those units
  - select a unlocked tier
    - click one of the unit icons to generate that unit
- Group of units selected:
  - How to combine selected units:
    - bottom left side of screen, menu of possible combinations for the selected units
    - select the desired unit and then left click a space on the map that is in the dark blue walking area to generate the unit at that clicked spot
  - Select Individual unit from selection:

- center bottom of screen, select an icon of a unit, to individually select that unit from the group of selected units
- Camera Controls
  - Move cursor to sides of the screen to pan in that direction
  - Zoom in using the scroll wheel
- Minimap in bottom right corner
  - left-click on mini map to pan to that location of the map
  - if units are under attack, a red circle will appear on the minimap where the engagement was.
  - left click and hold on mini map to move camera around world map

## **General Instructions to Play Game:**

- How to Win:
  - destroy the opponent's base (CPU)
  - it is not required to destroy all the opponent's defensive towers to win the game
- Defense Towers:
  - each player's base has three towers that will defend the base automatically
  - the towers can be destroyed by the opponent
- Resource Management:
  - Power: used to generate more units (current amount of power represented by a bolt in upper left corner)
  - Memory: current amount of generated units (current amount of memory represented by a person icon in top left corner)
  - resources are not collected but instead generated automatically every 8 seconds
- Capturable Towers:
  - move units next to the tower to capture it, the color of the particles from the tower will change to the color of the player who captured that tower
  - capture towers will allow you to see that part of the map and remove fog of war
  - towers are captured if only one players units are surrounding it and the other player has 0 units around the tower

- Towers in Upper corner of map (crystal towers):
  - if captured, increases power generated every 8 seconds
- Center Tower in map (tall tower shooting huge ray of particles)
  - if captured, all units will move faster
- Unit Hierarchy and Combinations:
  - Tier 1:
    - Double Unit: (range unit)
    - Int Unit: (melee unit)
    - Long Unit: (siege unit)
  - Tier 2:
    - Float Unit: (range unit, generated by combining 3x Long Units)
    - Heap Unit: (siege unit, generated by combining 3x Double Units)
    - Pointer Unit: (melee unit, generated by combining 3x Int Units)
  - Tier 3:
    - Array Unit: (siege unit, generated by combining 3x Heap Units)
    - Binary Tree Unit: (melee unit, generated by combining 3x Pointer Units)
    - Static Unit: (range unit, generated by combining 3x Float Units)

## Cool Stuff

- We made our network architecture from scratch so our game simulations run in lockstep. That is found in the Assets/Scripts/Network folder.
- Also take a look at GUIModelManager.cs and UserInputManager.cs.
- All of the models, graphics, and maps were done by us.

## Credit Where Credit is Due

- We used the A\* Pathfinding Unity Project for our unit pathfinding
- All of our sound effects were found on SoundBible.com
- The background music was composed by AJ's cousin, Jacob Silverstein. We used it with his permission.