

# Team 15 Test Plan

## Project Name: Crater Clash!

Team : Brendan Raftery, Benjamin Loisch, Mangkorn Yuan, Conner Isaacs, Nada Alnoory

### Severity Breakdown

- 1 : **Critical** (Test cases critical to the success of software)
- 2 : **Important** (Test cases encountered on day to day functional tasks)
- 3 : **Workaround** (Test cases for which the software could run even with the defect)

### Test Template

Identification	Functionality/Equivalence/Boundary	Severity
Description		
Instructions		
Expected Result		

**Requirement #1: As a user, I would like to click on “Host Online/Local Game” to set the properties for a game.**

Req_1_hostMenu	Functionality	<b>Critical</b>
The player should have the ability to open a menu to choose settings before hosting a game		
While on the main menu, click “Host Online/Local Game”		
The screen should switch to a new menu, with options the user can click for their game to host. The options should give the ability to select a pre-made map, procedurally generate a new map, and set the map size. The options of this menu should also let the player choose whether to host an online game or host a hotseat-mode game. There should be a back button that will take the player back to the previous menu.		

**Requirement #2: As a user, I would like to click on “Host Hotseat” from within the “Host Online/Local Game” menu to begin hosting a hotseat game session.**

Req_2_CreateGame	Functionality	Critical
When the “host hotseat” button is pressed, a new local (on same computer) game should begin.		
From the main menu, hit “Host Online/Local Game”. Choose preferred settings, and hit “host hotseat”		
A new local game should begin, where it is assumed both players are behind the same computer and taking turns moving their players that way. The players may begin taking turns creating units, capturing resource tiles, and destroying enemy units.		

### Requirement #3: As a user, I would like to select a pre-built map from the “Host Online/Local Game” menu.

Req_3_mapSelect	Functionality	Important
While on the host menu, the user should be able to select any of the pre-built maps.		
From the main menu, click “Host Online/Local Game”. From that menu, select one of the pre-built maps by clicking on its icon.		
A green check mark should appear over the tile to indicate you have selected it.		

Req_3_defaultMap	Functionality	Important
While on the host menu, one of the pre-built maps will be selected by default. Not changing the selection should result in the game starting with this default map.		
From the main menu, select “Host Online/Local Game”, then select “Host Online” or “Host Hotseat” without changing the default map.		
The game should start on the default map.		

Req_3_correctMap	Functionality	Important
For any of the selected maps, after clicking “Host Online” or “Host Hotseat”, the game should start with the correct map.		
From the main menu, select “Host Online/Local Game”, then selection your options, then select “Host Online” or “Host Hotseat”.		
The game should start on the map that was selected.		

**Requirement #4: As a user, I would like to play the game instance I created when I clicked on the “Host Hotseat” button.**

Req_4_hostHotseat	Functionality	Critical
When the host hotseat button is clicked, the program should automatically enter into a game.		
From the main menu, hit “Host Online/Local Game”. Choose any settings and hit start hotseat game.		
The program should immediately start a game with the chosen settings. Two players should be able to play the game and the game should respond to their inputs according to the game manual (we will create a manual / tutorial showing the rules of the game).		

**Requirement #5: As a user, if I have completed a game (won or lost), I would like to submit my score to the online database.**

Req_5_winnerSubmission	Functionality	Important
After completing a game, a menu should pop up allowing the user the option to submit their score to the database.		
Be the victor of a game. Click on submit score from the menu that comes up.		
User is prompted with a textbox to put in their name, and a final submit button which enters their name and score into the database.		

Req_5_loserSubmission	Functionality	Important
After completing a game, a menu should pop up allowing the user the option to submit their score to the database.		
Lose a game. Click on submit score from the menu that comes up.		
User is prompted with a textbox to put in their name, and a final submit button which enters their name and score into the database.		

Req_5_nameLength	Boundary	Workaround
When submitting a score to the highscores, the player should only have a name with a max		

of 12 characters.
From the main menu, click "Host Online/Local Game" and create a game. Finish the game and submit the score. When prompted for a name, attempt to input a name longer than 12 characters
User should be prompted that the name is too long, and to shorten the name. User should then be able to edit the name and try submitting again.

**Requirement #6: As a user, I would like to click on the "Scores" button from the main menu to see the list of scores from matches people have played.**

Req_6_scoresMenu	Functionality	Important
On the main menu, when the "scores" button is clicked, the player should see the high scores, in descending order, of anyone who has submitted their score after a match.10 scores at a time will be displayed, with users being able to click arrows to go farther down the high scores.		
From the main menu click on "scores" button. Click on the right arrow (next 10 highest score button).		
A list of the highest 10 scores that was submitted when players have completed the game will show up in descending order. After clicking the right arrow the list should show the next 10 scores also in descending order.		

Req_6_scoreLeftArrow	Boundary	Critical
The "Scores" menu will not allow users to click on the left arrow (previous 10 highscores) if the 10 scores that are showing are the first 10 high scores.		
From the main menu click on "scores" button. Click on the left arrow.		
Nothing should change in the page. This is critical because it would result in out of bounds, crashing the program.		

**Requirement #7: As a user, I would like to be able to conquer resource tiles around the map that will give me more points to spend on units.**

Req_7_resourceTileConquer	Functionality	Important
If a player's unit is on a resource tile for two turns, that player will receive extra points each round for that resource tile.		
Leave one of your units on top of a resource tile for a two turns.		
After two turns, you will begin to receive extra points each turn.		

**Requirement #8: As a user, I would like there to be a variety of units to spend points on, each with their own strengths and weaknesses.**

Req_8_selectUnit	Functionality	Important
When clicking on your empty base, you should see a window pop up giving you the ability to select a unit from multiple options. If you select one, you should see the appropriate unit spawn.		
Select a ranged or melee unit from the spawn window.		
The appropriate unit should appear in your base.		

Req_8_expensiveUnit	Boundary	Important
When a player attempts to buy a unit that they do not have the points for, it should prevent them from buying the unit, instead of making them have negative points.		
Select an empty tile to begin spawning a unit. Pick a unit that is currently too expensive.		
You should not get a unit, and available resource points should not change.		

**Requirement #9: As a user, I would like to click on "Host Online" from within the "Host Online/Local Game" window to host an online game..**

Req_9_hostOnline	Functionality	Important
When the host online button is clicked, the program should automatically enter into a game.		

From the main menu, hit "Host Online/Local Game". Choose any settings and hit host online game.
The program should immediately load the game map but start the game paused. The host's game will be paused until another player joins the host's game by entering the host's correct IP address. Two players should be able to play the game and the game should respond to their inputs according to the game manual (we will create a manual / tutorial showing the rules of the game). The data between the players will be synced over the internet.

### **Requirement #10: As a user, I would like to click "generate map" to procedurally create a new map for an online game.**

Req_10_mapGeneration	Functionality	Important
The user should be able to generate a random map instead of choosing from one of the few pre-made maps.		
From the main menu, click on "Host Online/Local Game" and choose generate map instead of one of the pre-made maps. Choose a map size, make it either local or online, and start the game.		
A randomly generated map of the specified size unlike any of the pre-made maps should be created during game loading, resource points randomly placed, and the game should start.		

Req_10_minMaxMapSize	Equivalence	Important
When procedurally creating a map, the map size the player can enter should only range from 10x10 to 20x20 tiles.		
From the main menu, click "host online/local game". Then click on the entrybox labeled "Map Size". There will be a default map size of 10 already in the entrybox. Enter any number between 10 and 20 (inclusive).		
There should be no warnings about map size, and when "Host Online" or "Host Hotseat" button is pressed to create a new game, the game board size should reflect what you had entered in the "Map Size" entrybox. The state is valid as long as the number is accepted, and a map is allowed to be generated.		

Req_10_mapSizeUnvalid	Boundary	Important
When procedurally generating a map, the user should not be able to go under 10 or past 20		

when inputting the map size.
From the main menu, click “host online/local game”. Then click on the entrybox labeled “Map Size”. Try and enter a number either under 10 or higher than 20. Press create game.
User should be prompted that the map size is either too small or too large, and asked to either lower it or heighten it. User can then exit the prompt and change the map size.

## **Requirement #11: As a user, I would like to click “find game” to join an online game a host player is hosting.**

Req_11_joinGame	Functionality	Important
When a player wishes to join an online game, they should select this option from the main menu.		
Choose “Join Online Game” from the main menu. Enter the host’s IP address and hit “Join”.		
If you entered a correct address of the host, you should see a new gameboard that is synced with the host’s that is ready to play.		

Req_11_multipleClientJoinGame	Functionality	Critical
When an online game is going on between a host and client, the host should prevent another player from joining.		
Choose “Join Online Game” from the main menu. Enter the IP address of a host who already has a game in progress with another client and hit “Join”.		
You should get a prompt saying that the IP address you entered was invalid (since a game is in progress and the host will not communicate back with with your inquiries).		

Req_11_joinGameInvalidIP	Functionality	Important
When a player wishes to join an online game, they should enter an IP address of a currently waiting online host.		
Choose “Join Online Game” from the main menu. Enter a random IP address and hit “Join”.		
If the IP address was invalid, you should get a prompt asking you to enter the address again. If by coincidence you entered a correct address of a host, you should see a new gameboard that is synced with the host’s that is ready to play.		

**Requirement #12: As a user, I would like the game environment to be in a pixel art style and be formatted to flow together in a 2D grid tileset**

Req_12_tilesetAlign	Functionality	Workaround
When a player wants to generate a map, they will turn on the generate map setting in the game preferences		
The map will generate and the tileset will automatically assign itself to tiles based on the shape and terrain of the map		
If all the tiles are assigned properly, there should be no seams on the map between the tiles		

**Requirement #13: As a user, I would like the game pieces to be in a pixel art style and have basic animations**

Req_13_pieceAction	Functionality	Workaround
When a player moves a piece or completes an action with the piece, an animation will play changing the sprite of the piece		
Complete an action with a piece		
The animation for that action should play and then return to the idle sprite for the piece		

**Requirement #14: As a user, I would like the UI to be in a pixel art style and have basic animations**

Req_14_hoverAction	Functionality	Workaround
When the player hovers over a button, the button should highlight and play a sound if needed		
Hover over a button in the UI		
The button sprite will change to the "hovered" sprite and a sound will play		



Req_14_unhoverAction	Functionality	Workaround
When the player stops hovering over a button, then it should return to normal		
Stop hovering over a button in the UI		
The button sprite will change to the "normal" sprite		

## Requirement #15: As a user, I would like to be able to build buildings that could aid in my resource generation or military strategy

Req_15_selectBuilding	Functionality	Important
The player will attempt to select a building to place onto the map		
Select a building from the menu to place onto the map		
The cursor should change into building placement mode and the user will then be able to select a tile to place the building onto		

Req_15_placeBuilding	Functionality	Important
The player selects a tile while in building place mode in order to place the building		
Select a tile while in building place mode		
If the building can be placed on the tile then the successful sound will play and the building will be placed. If the building cannot be placed then an error sound will play		

Req_15_cancelBuilding	Functionality	Important
The player while in building mode wishes to cancel the placement of the building		
The player in in building placement mode and right clicks		
Building mode cancels the placement of the building, returning to normal selection mode		

## Requirement #16: As a user, I would like to have a main menu to serve as a hub from which I can access different parts of the game

Req_16_switchScene	Functionality	Important
The player wants to use the main menu to navigate the game scenes		
The player is in the main menu and selects an option		
The scene will change to the scene that accompanies the option the user selected		

Req_16_exitMenu	Functionality	Important
The player wishes to exit the game from the main menu		
The player selects the "Exit Game" button in the main menu		
The game will close		

## Requirement #17: As a user, I would like to be able to exit current game

Req_17_exitLocalGame	Functionality	Important
While playing a game, a user should have the option to exit a game by clicking on the exit button.		
Create a new local game. Then click on the exit button. Confirm your choice to exit the game.		
<p>After clicking on the exit button the user should get a confirmation message to make sure they really want to exit the game. After the confirmation, the user should be navigated to the main menu.</p> <p>In case of an online game, after the user has successfully exit the game, the other player will receive a victory message saying that your opponent gave up the game.</p>		

Req_17_exitOnlineGame	Functionality	Critical
While playing a game, a user should have the option to exit a game by clicking on the exit button.		
Create a new online game or join an existing one. Then click on the exit button. Confirm your choice to exit the game.		

After the confirmation, the user should be navigated to the main menu, and the other player will receive a victory message saying that your opponent gave up the game.

Req_17_cancelExit	Functionality	Important
After clicking the exit button, the user should have an opportunity to return to the game before confirming the exit.		
Create a new game or join an existing one. Then click on the exit button. On the confirmation window hit cancel.		
After the cancelation, the user should go back to the game and complete it normally.		

## Requirement #18: As a user, I would like there to be sounds in the game for the gameplay and the UI

Req_18_actionSound	Functionality	Workaround
When completing an action in the game, a sound should play accompanying the action in order to either confirm the action or add immersion to the gameplay		
Complete an in game action		
A sound will play confirming the action has taken place		

# Additional Test Cases

## Gameplay Test Cases

G_1_mapBoundary	Boundary	Important
The map grid has a specific size. Assuming the player is moving a unit, they should not be able to move the unit outside of the map		
Click on a unit to begin moving the unit.		

The available tiles move to on one side should stop if it hits the end of the map

## Database Test Cases

D_2_scoreInsert	Functionality	Important
When a score entry is created for the database, it should be inserted in the correct spot to keep the entries in descending order.		
Win a game. Select submit score, which opens a prompt for a name. Fill it out and Hit submit again.		
Upon looking at the database entries, the entry that has been created should keep the database in descending order (entries above it have a score higher than the entry, and entries below it have a score lower). If there are entries with the same score, the entry is put in the lowest possible spot.		