

GUI/Gameplay testing document,

Group 1 - Last updated: 30/10/2015

Alex Geenen, Bart de Jonge, Mark van de Ruit, Menno Oudshoorn, Stevan de Vringer

The tables in this document are used to depict our testing methodology for 'untestable' parts of our program. This includes all of the graphical user interface and large amounts of basic gameplay behavior. Due to the way our program is set up - in a collection of 'states' - we have split these tables up per state. The following states will be documented: the start, settings, game over and game states.

Per state, the tables depict the following: an action taken, the expected result - that is, the required behavior, whether the result was correct, and the unexpected result if it was not.

Game state

This is the state in which the main game is running. The actions undertaken here are all either part of the gameplay, or the pause menu.

| Action taken | Expected result | Result correct? | Unexpected result |
|---|--|--|-------------------|
| Player presses/holds right movement key | Player sprite moves to the right | Yes | |
| Player presses/holds left movement key | Player sprite moves to the left | Yes | |
| Player presses fire key | Player sprite fires a laser-like weapon | Yes | |
| Player presses fire key with instant powerup | Player sprite fires a very fast laser-like weapon | Yes | |
| Player presses fire key with vine powerup | Player sprite fires a very slow laser-like weapon, that sticks to the ceiling and stays until hit by a ball. | Yes | |
| Player presses pause key while the game is unpaused | The game pauses | Yes | |
| Player presses pause key while the game is paused | The game shows a countdown timer, before unpausing | Yes | |
| Ball hits wall | The ball's X-direction is reversed. | Yes | |
| Ball hits floor | The ball's Y-direction is reversed. | Yes | |
| Ball hits ceiling | The ball is destroyed | Yes, although this is hard to test without modifying levels. | |
| Ball hits closed gate | The ball's X-direction is reversed. | Yes | |

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|--|---|-----|--|
| Ball hits opened gate | The ball passes through the gate. | Yes | |
| Ball hits player without shield powerup | The player dies. | Yes | |
| Ball hits player with shield powerup | The ball passes through the player. | Yes | |
| Ball hits coin/powerup | The ball passes through the coin/powerup. | Yes | |
| Laser hits ball (large enough) | The ball is destroyed, two smaller balls appear in it's place unless it gets too small, the player gains scorepoints. | Yes | |
| Laser hits ball (too small) | The ball is destroyed, the player gains scorepoints. | Yes | |
| All balls are destroyed | The level ends. | Yes | |
| Player walks against wall | The player cannot walk further in the direction of the wall. | Yes | |
| Player walks over coin | The player gains scorepoints. | Yes | |
| Player walks over shield powerup | For the next few seconds, the player has an active shield. A counter is shown in the top-left corner. | Yes | |
| Player walks over instant powerup | For the next few seconds, the player has an instant laser. | Yes | |
| Player walks over vine powerup. | For the next few seconds, the player has a vine laser. | Yes | |
| Player walks over freeze powerup. | For the next few seconds, all pre-existing balls do not move. | Yes | |
| Player walks over a slow powerup. | For the next few seconds, all balls move at half the speed. | Yes | |
| Player walks over a fast powerup. | For the next few seconds, all balls move at twice the speed. | Yes | |
| Player walks over a weapon powerup while another is active | The current weapon powerup is replaced by the new one. | Yes | |
| Player walks over a speed powerup while another is active | The current speed powerup is replaced by the new one. | Yes | |

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|--|--|------------------------------------|--|
| Player dies with more than 1 life remaining | The level, score, balls and player location are reset and the player respawns. | Yes | |
| Player dies with 0 lives remaining | The player is dead and the game switches to the gameover state. | Yes | |
| The level ends, and is not the final level | The countdown goes quicker, while the player gains extra scorepoints. Afterwards, the next level is loaded. | Yes | |
| The level ends, and is the final level. | The countdown goes quicker, while the player gains extra scorepoints. Afterwards, the game switches to the gameover state. | Yes, although this is hard to test | |
| Scorepoints are gained | A small floating number indicating the scorepoints appears in the screen, and the player's score increases. | Yes | |
| In local multiplayer.... | The names player_1 and player_2 float above, respectively, players 1 and 2. | Yes | |
| In LAN multiplayer | The pre-assigned player names float above the correct players. | Yes | |
| In multiplayer, if both players have a shield powerup... | Two countdown numbers are shown below one another in the top-left corner of the screen, for players 1 and 2. | Yes | |
| The escape key is pressed | The game is paused/unpaused, depending on the state. The tiny light in the bottom-left corner is switched. | Yes | |
| The game is paused | There are menu buttons: return, main menu and exit. All the interactions for main gameplay are disabled. | Yes | |
| The game is unpaused | A counter is shown for 3 seconds, after which the game continues running. A tiny light in the bottom-left corner is switched on. | Yes | |

| | | | |
|--|--|-----|--|
| The return button in the pause menu is pressed/held. | The game unpauses | Yes | |
| The main menu button in the pause menu is pressed/held. | The game switches from the current state to the startstate. | Yes | |
| The exit button in the pause menu is pressed/held. | The game exits. | Yes | |
| In LAN Multiplayer, when one of two players disconnects. | The game returns to the multiplayer menu for both players, and a warning is shown. | Yes | |

Start state

This is the state in which the main menu screen is running. The actions undertaken here are all part of the graphical user interface.

| Action taken | Expected result | Result correct? | Unexpected result |
|--|--|-----------------|-------------------|
| The player activates the 'Play 1-player game' button | The game switches to the gamestate, starting in level 1, with only 1 player. | Yes | |
| The player activates the 'Play 2-player game' button | The game switches to the gamestate, starting in level 1, with 2 players. | Yes | |
| The player activates the 'Play LAN game' button | The game switches to the multiplayer state. | Yes | |
| The player activates the 'Options' button | The game switches to the settingsstate. | Yes | |
| The player activates the 'Exit' button | The game exits. | Yes | |
| The player hovers the mouse over any of the available buttons. | The button in question is highlighted. | Yes | |
| The player presses any of the navigation keys | The correct button is highlighted | Yes | |
| The player presses enter or clicks on a highlighted button | The button is activated | Yes | |

Settings state

This is the state in which the settings menu screen is running. The actions undertaken here are all part of the graphical user interface.

| Action taken | Expected result | Result correct? | Unexpected result |
|--|---|-----------------|-------------------|
| The player presses/holds the 'Return' button | The game switches to the startstate, showing the main menu. | Yes | |
| The player presses one of the available player sprites (first player) | The sprite is selected and highlighted. This is the sprite that represents the player in the game state, and player 1 in multiplayer. | Yes | |
| The player presses one of the available player sprites (second player) | The sprite is selected and highlighted. This is the sprite that represents player 2 in multiplayer. | Yes | |
| The player presses one of the available color buttons | The menu is reloaded, and the game is now displayed in the appropriate color | Yes | |
| The player presses the shuffle button | The menu is reloaded, and the game displays in a different color every time a state switch occurs | Yes | |

Multiplayer state

This is the state in which the LAN multiplayer menu screen is running. The actions undertaken here are all part of the graphical user interface, or connecting/disconnecting with other players.

| Action taken | Expected result | Result correct? | Unexpected result |
|--|---|-----------------|---|
| The player presses the host button | A message is shown, informing the player of their local IP address | No | The IP address may be useless due to secondary network adapters such as Tunngle/Hamachi |
| The player presses the join button | The game attempts to join the specified IP, and informs the player of their succes/failure. | Yes | |
| The player enters an IP address in the textfield | This is now the IP address used when the player presses the join button. | Yes | |
| The player presses the return button | The game switches to the main menu state | Yes | |

Game over state

This is the state in which the game over menu screen is running. The actions undertaken here are all part of the graphical user interface, or the saving of highscores.

| Action taken | Expected result | Result correct? | Unexpected result |
|--|---|--------------------------------|---|
| The player has died too many times | A message is shown, informing the player the game is over. | Yes | |
| The player has finished all the levels | A message is shown, informing the player he has completed the game | Yes, but this is hard to test! | |
| The player, having entered a name in the text bar, presses/holds the 'Save highscore' button | The name, along with the player's highscore, is saved and then displayed in the highscores list to the right. The 'Save highscore button' changes to text informing the player of a succesful save. | Yes | |
| The player presses/holds the 'Play again?' button | The game switches to the game state, where the player's location, lives, level and score have all been reset. | No | This has caused unexpected behavior in some rare instances, where the player had either teleported, had 0 lives, or had retained their previous score. |
| The player presses/holds the 'Main menu' button | The game switches to the start state, and in the background the player's location, lives, level and score have all been reset | No | This has caused unexpected behavior in some rare instances, where, later on, the player had either teleported, had 0 lives, or had retained their previous score. |
| The player presses/holds the 'Exit' button | The game exits. | Yes | |