BitShift Game Description

# Introduction

BitShift is a 2D, top down, single-player shooter game. In the game, the player controls an antivirus agent seeking to defend the system from a virus infection.

The game takes place over a series of regions. Each region has its own characteristics and enemy design and may require different strategies to beat. Regions are divided into levels which in turn are divided into rooms. The levels and rooms are procedurally generated to ensure that each play through is unique.

To defeat the virus infection, the player character will have a multitude of abilities at his disposal. These abilities will be acquired and augmented over time through leveling.

# World Design

This section discusses the design of the game world and the hierarchy of constructs. The game world is divided up into four sections: the world, regions, levels, and rooms.

## The World

The world is the top-most level in the game world hierarchy. It is instantiated when the game first begins and hold player data and region metadata.

## Regions

The world is subdivided into multiple regions. Each region has some unique game mechanics, enemies, and visual design. Regions are instantiated when the player first reaches the region. Regions hold level metadata.

## Levels

Each region is subdivided into multiple levels. Each level consists of rooms connected together. The levels are procedurally generated so that different playthroughs are unique. Levels hold room metadata.

## Rooms

Each level is subdivided into multiple rooms. Rooms are the lowest level of the game world. Rooms are procedurally generated from prebuilt set pieces and may contain enemies, shops, bosses, and other items.

# Player Character Design

The player will control a single character over the course of the game. This character is an anti-virus bot attempting to destroy the virus infection in the game.

The player character will have accesses to a variety of abilities over the course of the game. These abilities can be earned over time by leveling.

## Movement

The player character can be moved by using the arrow or WASD keys on a keyboard. This allows the character to move in each of the four orthogonal directions. However, the character’s movement has low friction; thus, by combining keypresses in different directions, the character can move in any direction.

If the player does not press any keys, the character will continue moving in a straight line and slowly come to a stop.

## Shooting

Shooting is a key mechanic in the game, and is the primary method that the player will use to damage enemies. Shooting is done with the mouse and is independent of moving. The character will always shoot towards the mouse even if it is moving in the other direction.

## Leveling

Leveling is the primary way of improving the player character. The player can find objects in each game level that give one point to spend on character level. In addition, the player can buy these items from merchants and acquire them as drops from bosses.

Each individual stat starts at level 0 and can be leveled to a maximum of 36 to completely fill out the stat skill tree. As there are four stats, the hard level cap is 144. However, there will be a limited number of leveling objects instantiated into the game world, so the true player level cap will be less than 144.

## Primary Stats

The player can level four distinct stats: Integrity, Scalability, Throughput, and Extensibility. Leveling each stat improves various passive effects and enables the acquisition of new abilities. Leveling stats is done by putting points into that stat’s skill tree.

### Integrity

The integrity stat drives player health and shield effectiveness. Each level put into integrity increase the player’s and shields’ health by a small amount. The active abilities tied to integrity are Shield, Firewall, Reflector, Invulnerability, and Absorption.

### Scalability

The scalability stat drives player damage. Each level put into scalability slightly increases the player’s damage done through shooting and offensive abilities. The active abilities tied to scalability are Missile, Logic Bomb, Air Strike, Laser, and Chain Shot.

### Throughput

The throughput stat drives player movement speed and fire rate. Each level put into throughput slightly increases the player’s movement speed and the rate of fire for shooting. Throughput abilities are focuses around slowing and stunning enemies, and are Shock, Blink, Shock Trail, Gravity Well, and Bend Time.

### Extensibility

The extensibility stat drives ability cooldowns and ability slots. Each level put into extensibility decreases ability cooldowns by a small amount. In addition, every few levels of extensibility provides an additional ability slot for the player. Extensibility abilities focus on unique effects, and consist of EMP Wave, Clone, Pulse, Invisibility, and Hacker.

## Abilities

The player can have three active abilities equipped at any given time. These abilities can be swapped around freely; however, the game will not pause during this process, so swapping abilities during combat is difficult. Leveling Extensibility will give the player more ability slots (up to a maximum of 6).

Abilities can be acquired by putting points into the skill tree for a given stat. New abilities are unlocked every five levels. The first ability is unlocked at level 1, the second at level 6, the third at level 11, the fourth at level 16, and the capstone at level 21.

Each ability (except the capstone abilities) have alternate implementations. The player can unlock these alternates once they have acquired the primary ability. The player can equip only either the primary or the alternate implementation at any given time.

Abilities can be improved three times. Each level of improvement requires one stat point, so to fully unlock the ability, the player must spend 5 skill points (one to unlock the ability, three to upgrade the ability, and one to unlock the alternate).

Abilities also have sockets built into them. Sockets can be filled with passive abilities, which are also unlocked on the skill tree. Rank 1 and 2 actives have one slot, rank 3 and 4 actives have two slots, and capstone actives have three slots. Actives in the Extensibility tree have 1 more socket at each rank.

## Passives

Passive abilities are equipped to active abilities. The duration of the passive is tied to the active’s cooldown; if the active has a longer cooldown, the passive has a longer duration.

Passives can be unlocked at the same time as alternate active abilities and can be upgraded twice. The first passive is unlocked at level 2, the second at level 7, the third at level 12, and the fourth at level 17. To fully unlock a passive, the player must spend 3 skill points (one to unlock the passive and two to upgrade the passive).

Passives are not stackable on the same active. That is, an active ability cannot have multiple of the same passive equipped to it. However, multiple actives can have the same passive. If the player uses multiple actives in close success, the effect of the passives will stack.