



STRONGHOLD

A SOLIS
ORTV VSQVE AD OCCASVM

Design Doc 2019

Preface

The name “Stronghodl” is inspired by [a meme I once saw](#) on the 4chan /biz/ board during the final days of the 2017 Bitcoin “golden bull run”, which perfectly captured the sentiment of that era of the cryptocurrency saga. I will never forget those days for the rest of my life. You could almost feel a great shifting of consciousness in the air.

Ever since discovering his book “[Play Money](#)” in high-school, I have always been a *huge* fan of [Julian Dibbell](#), who discussed the various economic and legal implications of a future world where virtual labor in virtual economies, such as those of Ultima Online, [Everquest](#), or World of Warcraft, could be seen as a legitimate form of employment. A world of “[hyperreality](#),” blurring the line between the “real” and “simulation.” Between “work” and “play.”

To get a deeper understanding of what Stronghodl hopes to achieve, I strongly recommend reading his book, because the moment I saw that silly meme that day, it finally clicked for me why Bitcoin *had* to come into existence. I now see that cryptocurrency is simply the technical bridge between these virtual economies of the future and our physical, real-world economies, allowing value to move fluidly between them, free of all the red tape and legalese.

I am building this game for the people who will live in that future, to be a glimmer of the past. Memories of late nights in dungeons with guild-mates, exploring vibrant worlds rendered by computer code, and that fleeting sense of a community in the ethereal... In short, this is my crypto “killer app.”

A virtual New World, where we will build
“[empires on which the sun never sets](#).”

Github: <https://github.com/jonargyne/lambic>

Current implementation pipeline:

- ~~implement multiplayer networking (sockets)~~
- ~~implement chat~~
- ~~implement basic entity logic~~
- ~~implement combat mechanics~~
- ~~implement procedural terrain generation~~
- ~~implement client-side rendering~~
- ~~implement collisions~~
- ~~implement day/night cycle~~
- ~~implement light sources~~
- ~~implement character sprites~~
- ~~implement procedural dungeon generation~~
- ~~implement indoor areas~~
- ~~implement resource mechanics~~
- ~~implement command system~~
- ~~implement building mechanics~~
- ~~implement farming mechanics~~
- ~~implement entropy~~
- ~~implement items~~
- ~~implement swimming~~
- ~~implement pickup/drop/equip functions~~
- **implement NPCs**
- ~~implement alliance/enmity mechanism~~
- ~~implement fishing~~
- ~~implement stealth mechanics~~
- **implement dialogue engine**
- implement building functions
- implement inspection mechanics
- implement dynamic paths/roads
- implement visual building guides
- implement skill trees and stat progression
- fully integrate mongodb
- **implement death mechanics**
- implement combat damage/skill calculations
- implement relic system
- implement ship mechanics
- implement crafting and herbalism
- implement trading
- ~~implement bgm~~ and sfx
- implement weather system
- implement maps
- *migrate from canvas to Pixi.js (optional)*

Current issues & bugs:

Low priority:

- Occasional undefined values for cave entrances (Genesis.js:262)
- Player can pressAttack without a weapon equipped
- FrankSpear walk animation sizes need fixing

High priority:

- Serf update loop frequently gets stuck entering/exiting buildings

CONCEPT: Stronghold is an **open-world MMORTS** and **dungeon-crawler**, existing as a mesh of interconnected game worlds where players compete for resources and build structures to establish map control. All events in the game happen dynamically, with nothing pre-scripted other than the world protocol, similar to Minecraft. “A Solis” is the first prototype of this concept, designed and coded entirely by myself (Johan).

GOLD (CRYPTOCURRENCY): Gold (as a currency) in the game will be a fully integrated cryptocurrency. Each wallet on the blockchain will correspond to a potential character in the game. This also means that gold can be sent to exchanges outside of the game and converted into other cryptocurrencies like Bitcoin, and thus eventually even fiat currency. This cryptocurrency layer creates a seamless transactional bridge between the virtual economy of the game and the “real world” economy. The long-term implication of this mechanism is not intuitive at first, but this aspect is actually the game’s core innovation, making it first and foremost **an economic experiment**.

A proposed model may involve levying a transaction fee for all gold transactions in-game which will go to a wallet controlled by the game server itself, to act as a “faucet” that re-circulates gold back into the server for players to extract.



Zoomed-out view of part of an Overworld map, rendered in-game.

OVERWORLDS: When a player logs in, their GPS location is required. If there are no maps with an origination point within a certain distance of their location, a new map instance is generated for their area; otherwise, they are inserted into the closest map, joining any other players already on that map. This map is known as an “Overworld”. Overworlds are procedurally generated using the Simplex noise algorithm. [You can preview a sample Overworld map here](#). If the real-world locations of two Overworlds are within a certain distance of each other, a **Dungeon** is created to link the two, allowing players to travel between them.

An alternative model that has been proposed: Overworlds (essentially standalone servers) are kept up and running as “nodes” by users in exchange for economic benefits within the Overworlds they maintain. A special Relic item, unique to each Overworld, may be held by their character, granting them a % of the gold that goes into the game world smart contract, for example. All other players would simply connect to the Overworld that is geographically closest to them. This would essentially put scaling of the game (in terms of servers) in the hands of the community.

TERRAIN:



Grassland: Regular grassland, best for building on.



Brush: Dense bushes. Clearing Brush converts tile to Grassland. Applies minor speed reduction.



Light Forest: Sparse woodland. Can be cut down for wood. Extracting all wood converts tile to Grassland. Applies minor speed reduction.



Heavy Forest: Dense woodland. Contains more wood than Light Forest. Extracting enough wood converts tile to Light Forest. Applies major speed reduction. Visibility in Heavy Forest is reduced.



Rocks: Rocky, elevated terrain. Can be mined for stone. Applies speed reduction.



Mountain: Mountainous terrain. Contains more stone than rocks. Must be climbed onto. Applies speed reduction.



Water: Can be traveled through, but applies major speed reduction and combat is disabled. Can be fished in. Boats can freely travel and combat on water.



Cave: Cave systems are accessed by entrances found in mountains around the map. There is almost no visibility inside without a light source. Rocks can be found in caves with much higher chances of yielding metals or diamonds when mined.



Road: Allows for faster travel, builds organically over time, or can be built by players.

ENVIRONMENT & ECOSYSTEM:

Entropy:

Flora:

Fauna:



Progression from sunrise to sunset.



Nightfall.

DAY/NIGHT CYCLES: As the game’s name implies, the world’s day/night cycle is a central feature, dictating NPC behavior and shifting the power dynamic on the map.

The vast majority of economic activity (such as resource gathering or construction) happens during daylight hours, as Serfs work on farms, lumber camps, mines, etc.

Nightfall gives the advantage to stealth, making traveling between fortified areas dangerous. Light sources such as fires and torches are needed to reveal stealthed enemies. NPCs will either stay in their homes or congregate in communal areas such as Taverns and Strongholds.

OBJECTIVES: Stronghodl does not have a formal “questing” system. Everything happens dynamically according to the game’s environment protocol. The *implied* objectives in the game are to accumulate resources and ultimately control an Overworld. Beyond

that, the game is totally open-ended, and players define their own experiences. Several dynamic events can happen in the world that will naturally result in a quest-like experience. For example: a merchant player who owns a Trading Cart carrying goods between two allied towns' Markets may offer a small monetary reward to a maximum of two players who escort it safely to its destination; or a nearby enemy encampment has grown too powerful, and is harassing players who are farming nearby, requiring a stronger player's help to defeat them.

DUNGEONS: Enemy NPCs in Stronghold spawn periodically at their randomly generated spawn points. The game also tracks how long a spawn point has been active without having its respawn timer reset (a killed enemy resets the spawn timer). If a set amount of time goes by without a reset, the spawn point is upgraded to spawn more NPCs. If enough time goes by, spawn points will eventually upgrade into standalone **Dungeons** themselves, and the rewards for defeating them improve. Spawn points that have upgraded over time have various events they can trigger. For example, a leader NPC will be able to send minion NPCs in groups to go kill other NPCs or players that they encounter and then report back. This naturally drives the gameplay, encouraging the player to deal with the harassment by defeating the NPCs at their spawn point.

NPCs:

Units:

Neutral: Neutral NPCs are generally peaceful but will either run or fight back upon being attacked.

Sheep: Spawns on farms, gives Lamb and Wool when killed.

Deer: Will flee if it sees another non-Deer character, or upon being attacked. Drops venison when killed.

Boar: Charges at any nearby humans or wolves. Drops boar meat when killed.

Enemies:

Wolf: Hunts deer or humans at night. Will attack any human that comes too near.

BUILDING: Players are able to build structures (like a house, tower, stronghold, etc) on the map if they collect enough resources. Most buildings can only be built on Grassland or Rocks. Some can be built on Mountains. Buildings have much more health than a player, and can be used to store items and create a safe area for the player away from hostile NPCs. NPCs can attack buildings, but it takes a long time to actually destroy them. Certain buildings will require other buildings to be built first before they can be built:

TIER I	FARM	LUMBER CAMP	MINING CAMP	HUT	HOUSE	TAVERN	TOWER	BLACKSMITH	FORT	OUTPOST	MONASTERY
				=====	==== =====	=====					
TIER II	MILL			DOCK	STABLE	MARKET		GARRISON			
							=====	===== =====	==== =====	=====	
TIER III							STRONGHOLD	WALL	GATE	GUARDTOWER	
TIER IV							CATHEDRAL	=====	=====	=====	=====

Social/Economic:

Hut: Small wood dwelling.

House: Stone dwelling, has a lock.

Tower: Two-story stone dwelling, has a lock.

Farm: Can be farmed to produce grain.

Mill: Stores grain and converts it to flour.

Lumber Camp: Stores wood.

Mining Camp: Stores stone and iron.

Blacksmith: Allows for crafting with metal.

Tavern: Central social building, allowing for population expansion into a more complex town. Also serves as a place to congregate at night. Food and drinks can be purchased here.

Marketplace: Where goods can be sold.

Dock: Can construct ships.

Monastery:

Cathedral: The most expensive and magnificent building that can be built, generally meant as a show of wealth in a highly-developed player society.

Military:

Fort: Wooden fortification.

Wall: Stone fortification.

Gate: Can be built into walls. If owned by a House, it will shut when the House is under attack.

Outpost: Small defensive tower made of wood.

Guard Tower: Defensive tower made of stone.

Garrison: Small defensive structure, can produce military units.

Stable: Allows the player to purchase a horse and produce units on horseback.

Stronghold: Fortified castle.

RESOURCES:

TRADE:

DEATH: Upon death, a player drops their gold and any inventory and active gear which can then be looted from their body. Killed players become ghosts and must either wait a significant amount of time to respawn or find a wandering Friar, nearby Monastery, or a friendly player with the skill to revive them.

STATS:

HP: Health points. Player dies when it reaches zero.

Spirit: Needed to use skills.

Strength: Increases melee damage and reduces the time spent on manual labor (building, mining, chopping wood, etc).

Fortitude: Decreases incoming damage.

Dexterity: Increases attack speed and chance of parrying.

Faith/-Faith: Faith is required to use Holy skills, -Faith is required to use Evil skills.

Stealth: Decreases chance of detection during stealth and stealthed activities.

Perception: Allows the player to notice more important details about the world around them, as conveyed through the game's narration when using Inspection.

Craft: Progressively unlocks the ability to create more items that can be constructed from various materials.

SKILL TREES:

Might: Skills for the sword (and some for the lance). Sword skills are divided into two subtrees: Liechtenauer (German school) and Fiore (Italian school). Care has been taken to replicate the various techniques of these real-world styles in a 2D context. As in the real world, the German school rewards aggressive play that takes the initiative in combat, whereas the Italian school emphasizes timing and countering.

Marksmanship: Skills for archery.

Stealth: Skills for stealth with an emphasis on daggers, but also encompassing swords and bows. The player will generally be choosing between skills for rural tracking and hunting in forests, and skills for urban trickery in towns.

Druidry: Skills for use in the natural environment, such as herbalism.

Holy: Skills with an emphasis on restorative and empowering effects. Players will have to choose between two subtrees that reflect the divisive history of the Church during the Middle Ages: Benediction and Consecration. Benediction players will reflect the power and prestige of the Roman Catholic Church, while Consecration players will reflect the piety and penitence of the Mendicant Orders and the Protestant Reformation. True to the historical context, Benediction players will progress through their skill tree under the close guidance of the Church and their Bishop, while Consecration players will be sent out to discover their path on their own.

Occult:

Diplomacy: Skills with an emphasis on extracting useful information or negotiating for beneficial political outcomes through effective use of the dialogue engine.

Craft:

HOUSES & KINGDOMS:

ITEMS: Items can be looted from enemies, extracted from the environment, or crafted by combining other items.

Rarity:

Common: Vast majority of items.

Rare:

Lore:

Mythic:

Relic: Unique items generated by specific circumstances.

Types:

CLASS & APPEARANCE: A player's appearance is determined by the combination of gear they have on and other status attributes (such as knighthood, for example), which will generally indicate their "class". Note that "classes" in the typical MMORPG sense are not hard-coded into the game, but various combinations of gear will naturally promote certain play-styles which can be inferred from the player's appearance.



Serf: No armor.



Rogue: Leather armor, sword/dagger.



Hunter: Leather armor, bow.



Scout: Leather armor, sword, horse.



Ranger: Leather armor, bow, horse.



Swordsman: Chainmail, sword.



Archer: Chainmail, bow.



Horseman: Chainmail, sword, horse.



Mounted Archer: Chainmail, bow, horse.



Hero: Plate, sword.



Templar: Plate, sword. (Knighted)



Cavalry: Plate, sword, horse.



Knight: Plate, sword, horse. (Knighted)



Lancer: Plate, lance, horse.



Crusader: Plate, lance, horse. (Knighthood)



Priest: Cleric robe.



Mage: Monk robe.



Warlock: Black robe.

RANKS: Ranks in Stronghold are styled after chess pieces, alluding to their respective functions.

 **Knight:** Reserved for elite combat units, typically on horseback. Players can gain this rank by pursuing the Might skill tree and being Knighted at a monastery by a Lord or King.

 **Bishop:** Reserved for elite clerical units. Players can gain this rank by pursuing the Holy skill tree and being ordained at a monastery by a Bishop.

 **Lord:** Reserved for leadership roles such as a dungeon boss. Players can gain this rank by building a Stronghold, which formally grants the player feudal lordship over their House.

  **King/Queen:**

SHIPS:

TITLES: