**STELLAR HISTORY GENERATOR**

**DESIGN DOCUMENT**

# **INITIAL WORLD GENERATION**

At the start of the game a world is generated. The parameters for this world are chosen by the user and include the following:

* Size of the World (Minimum of 25)
* Length of the History
* Number of Stars
* Number of Civilizations

The last two are ratios that are dependant on the size of the world. World generation starts by generating a grid of (Size x Size). It then assigns star types to random coordinates in the grid. If the grid does not include **at least** one of every star type the world is rejected and a new one generated. In total there are 12-star types (including space).

1. Space
2. Verdant
3. Primeval
4. Stone
5. Submerged
6. Dry
7. Tropical
8. Frosty
9. Arcane
10. Crimson
11. Tyrian
12. Golden

Once stars are generated the game starts to generate civilizations that exist on world start. A human civilization must be created first. After this a random race. The race must have a habitability of 1 with the star to be its home star. If no star of habitability 1 can be found, then a new race is rolled and the civilization generation process is repeated.

The capital star is then [discovered](#_STAR_DISCOVERY) and a [new settlement](#_NEW_SETTLEMENT) is established around the star. [A ruler](#_NEW_CHARACTER) is then generated for the civ. Three traits are then chosen for the civ. A government type and name are then chosen from the name pool for the race (this is flavour and government type doesn’t affect the simulation, traits are what matter). The starting [economy](#_ECONOMY_SYSTEM) is then taken from the economy of the home star.

## **STAR DISCOVERY**

When a star is discovered it is reclassified as discovered and given a name that relates to the star language .csv file for the discovering race.

## **NEW SETTLEMENT**

* Name is chosen from the name of the parent star
* A [new leader](#_NEW_CHARACTER) character is generated
* Initial economy points (Max of three) are determined by natural resources of the parent star
* Initial population is randomly generated between 50-100
  + Unless it is the initial star of a civilization, then it is 10,000
* Settlement also has an empty list of visiting characters

## **NEW CHARACTER**

* Name is generated from name data for character race
* A random role is chosen for the character unless it has already been passed in
* Three random traits are chosen for the character from the pool of traits for the chosen role
* The current location of the character is equivalent to their parent star
* The age of the character is 0, unless it has been passed in
* Character status always starts as alive
* Max\_HP and HP both start at 100

## **ECONOMY SYSTEM**

The economy is divided into four components. These are wealth, population, natural resources, and food. Resources and food can be developed from fertility and mineral deposits around stars.

* Wealth is used to fund new buildings, and is created by them
  + When wealth is low, a civilization decreases the size of its military and focuses on building up natural resources
* Population is used to provide manpower towards civil and military projects
  + Population grows when there is enough food to go around
  + When population is low, the civ will look into conquering system from nearby civs (preferably of the same race)
  + They will also develop internal agricultural deposits to
* Natural resources are used in constructing buildings and providing the army with equipment
  + When natural resources are low the civ will focus on develop mineral deposits
  + The dedication of natural resources to the army will also be cut
  + If the situation is critical the civ may consider invasion or colonial expansion, although the cost of these makes it a last resort
* Food is used to feed the population
  + When food is low the civ focuses on developing fertile land
  + It will also cut back on expansion, as food is expensive in the process of setting up colonies

When all four are satisfied a civilization will focus on expansion and be more confident in starting wars. When any of the four are either neutral or negative the civ will focus on developing it, prioritizing whichever is more negative in 10-year plans.

# **WORLD ACTORS**

## **CIVILIZATIONS**

Civilizations are the largest actors on the world stage. They are almost entirely focused on expansion, seeking to assert themselves as the dominant power in a region. However, it is through this drive for expansion than everything else in the simulation can occur.

* Civilizations have certain traits that influence how they act, this combines with ruler traits. When a ruler trait and civilization trait are either neutral or positive to eachother the civilization trait takes priority. However, when they are antithetical then the ruler trait takes priority.
* Civilizations are comprised of various settlements surrounding stars that provide the resources that fuel the economy and military.
* Each civilization hosts a military that determines competency in warn.
  + The two important factors of a military are size and professionalism.
* Civilization policy (A 10 year plan) is determined by the economic status of the civ and whether it is at war

## **SETTLEMENTS**

Settlements are the secondary actors of the game. Settlements develop their own economies but rely on the economy of the civ to expand and grow. Economy for the settlement (Minus the capital star of a Civ) is split 50/50 with the Civilization, with the Civ providing subsidies in whatever a Settlement is struggling in.

## **CHARACTERS**

Characters are the tertiary actors of the game. Characters are split into three different roles: leaders, adventurers, and scholars. Leaders will seek to implement policy depending on their traits (Whether that be beneficial or detrimental to the society they lead), adventurers seek to go out and earn glory and prestige slaying beasts and saving people, scholars seek to expand knowledge and push the bounds of magic and technology.

Characters can marry and have children. When a character marries, they will typically settle for a few years. This will be extended if they bear children. Partners of characters do not have character sheets generated. However, children do. Children of leaders have a % chance to replace them as leader upon reaching 18. However, if they do, they will become an adventurer instead.

If a character gains high enough prestige, there is a random chance that upon death they ascend to become a God (The prestige threshold for this increases each time a new God is born). Leaders gain prestige for the success of the settlement or civilization they lead, adventurers gain prestige from the beasts they slay and feats they achieve, and scholars gain prestige by making technological or magical breakthroughs.

## **WORLD EVENTS**

World events are major occurrences in the world that spice-up the game and attract adventurers. Such events include:

* Discovery of a Stellar Dragon
* Manifestation of a Demon
* Occult Activity
* Tear in the Void

Characters who participate in a World Event gain a significant amount of prestige. Additionally, certain world events such as “The Discovery of a Stellar Dragon” can lead to the creation of new religions.

## **DEITIES**

Deities are worshiped by the people of the world. Deities can take a variety of forms, from a god to a dragoon. Even demons can come to be worshipped if they have the right traits. Deities are assigned a series of traits depending on their origins.

* Deities generated on world-start have random traits
* Deities created via the ascension of a character share that character’s traits
* Beasts that are worshipped as Deities may not share traits with the Beast, but instead general beliefs on how that Beast acts in the world
* Deified Demons will always represent traits related to chaos, anarchy, and madness. Although they are not necessarily evil

### **PANTHEONS**

Each civilization has a series of Deities it worships. The pantheon must share traits with the civilization. If a civilization ever has a change in traits (Having its government replaced) then within a decade the pantheon of that civilization will change.

# **TRAIT SYSTEM**

## **TRAITS OVERVIEW**

Traits are the core component of the simulation. Civilizations, settlements, characters, and deities are all assigned traits. Traits determine the actions an actor can take in each turn, and each actor gets traits randomly assigned to them.

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| --- | --- |
| **CIVILIZATIONS/SETTLEMENTS** | **CHARACTERS/DEITIES** |
| Economic | Egotistical |
| Expansionist | Pragmatic |
| Colonial | Reformist |
| Neutral | Conservative |
| Research Orientated | Competent |
|  | Incompetent |
|  | Schemer |
|  | Ambitious |
|  | Content |
|  | Aggressive |
|  | Noble |
|  | Adventurous |
|  | Cowardly |
|  | Explorer |
|  | Bard |
|  | Mad |
|  | Kind |
|  | Rude |
|  | Pious |
|  | Mage |
|  | Scientist |
|  | Insane |
|  | Obsessive |
|  | Keen |
|  | Dim witted |
|  | Abstract Thinker |
|  | Prodigy |
|  | Engineer |

## **ACTIVITES**

Activities are events that actors can participate in. Activities are randomly generated and stick around until an allotted time has passed or a character has completed the activity. Characters can only complete activities that have attributes related to their traits (I.e., only a character with the explorer trait can uncover a lost treasure)

Activities vary depending on the type of an actor, with characters having more personal activities whilst civilizations have broad and wide-reaching activities to participate in. Since civilizations and settlements leaders also have traits, these traits can sometimes conflict with that of the civilization they rule. If this happens, the ruler’s trait takes priority.

### **ACTIVITES FOR DIFFERENT ACTORS**

Civilizations take one activity every five years. As this is civilization wide, the effects are wide reaching. A civilizational activity may spawn activities for settlements and characters alongside randomly generated ones. Likewise, settlement activities can spawn character activities and occur every five years. Character activities can be spawned by settlements and civilizations but can also be randomly spawned in different locations, character events occur yearly.

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| **CIVILIZATIONS** | **SETTLEMENTS** | **CHARACTERS** |
| Trade Decline | Drought | Beast Outbreak |
| Border Conflict | Public Paranoia | Rumours of a Ruin |
| Monetary Crisis | Mine Collapse | Rampaging Beast |
| Pandemic | Epidemic | Infection |
| Funding Research | Research Enclave | Innovative Idea |
| Vanity Project | Vanity Project | Time Off |
| Build Wonder | Construct Monument | Forge Item |
| Military Escalation | Rebellion | Duel |
| Brain Drain | Internal Emigration | Marry |
| Population Boom | Internal Migration | Have Child |
| Beast Crisis | Beast Infestation | Nearby Treasure |
| Cult Purge | Cult Indoctrination | Fanatic Hunt |
| Political Instability | Cult Takeover | Cult Bounty |
| Military Coup | Cult Purge | Bounty |
| Engineering Project | Engineering Works | Engineering Breakthrough |
| Cooperation with Mages | Deal with a Mage | Study Arcana |
| Education Funding | New Schools | Study Science |
| Piracy | Bandits | Bandit Bounty |

### **HOW ACTIVITES MAP TO TRAITS**

Each activity has a dictionary with the name of the trait containing the weights for outcomes to the activity. If a trait and activity are incompatible the relationship is represented by an ‘X’.

## **WORLD EVENTS**

In effect, world events are just fancy activities. They can be interacted with by civilizations, settlements, and characters. World Events typically occur in a single location, although manifestations such as dragons can move to new locations. World Events follow the same general rules as activities, although may have some unique properties.

# **TECHNOLOGICAL AND MAGICAL ADVANCEMENT**

Technology and Magic both share a similar research system, and provide modifiers to civilizations with different research tiers. Magic and technology both act as bonuses in certain events and activities. For example, when settling a star a civilization with more advanced technology and magic will have a higher chance to succeed. Additionally, fighting a battle will apply tech and magic modifiers.

Magic and technology are advanced by scholars. Most magical research disseminates from Mage Academies throughout the stars. Non-magical scholars (And some magical) will remain in the courts of monarchs that sponsor them. A civilization with a lower technological level can steal tech-points from another via certain activities.

# **HISTORY**

## **A TYPICAL TURN**

A turn lasts one year and involves the following processes

* Characters take their turns
* Settlements take their turns
* Civilizations take their turns
* World Events take their turns
* Checks probability for new world event spawning
  + The more active World Events, the less likely a new one is to spawn