

Solar Imperium 3 design guide for developers

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REVISION 1.0

Goals:

The goal of this document is to define how to implement the next version of Solar Imperium based on those specific criterias:

- **The game must be alot simplier!**

At this point, 2.7 release of Solar Imperium is really hard to play with if you are a fresh newcomer who don't have played the oldest releases first. The galaxypedia (Online documentation) is not updated at all and contains way too much topics. I wanted to create something sofisticated but in same time I have lost alot of players by doing so. This is now time to revert back to how the game have to be played. I intend to remove resources such as fuel,ore and wipe the market place.

- **Instant gratification is better than sticking to realism**

In 2.7, everything you do is in real-time. If you plan to attack someone and it takes two days to reach him, you have to sit and wait. With 1.x release everything was instant. You had a maximum of one invasion per turn but a maximum of one invasion per player per day to prevent rushing on weaker empires.

- **Keep the interface simple and stupid**

In 2.7, I wanted to integrate FLASH + fancy CSS floating divs and stuff that actually hinder the experience. With version 3 I want a much simplier interface with no more abuse of AJAX concepts. CSS + Images + HTML and FLASH for extended display like animated invasion report with an option to toggle the feature on/off. The starmap will be rendered in JAVASCRIPT / Canvas instead of AFLAX + FLASH.

- **Integrate with social networks (Facebook)**

I am not much of a social networks fan but it may be the way to go to attrack casual gamers. If you check on Facebook there is already a group created by SRE fans who want a SRE version available for Facebok.

- **Make the game run fast on server side**

2.7 codebase is too complex for the result it produce. I wanted to use full OOP with PHP and ended using public members for all my objects. I think I don't need to use OOP concept for a game like Solar Imperium. In essence, this game doesn't not require to be build with 100% re-usable objects.

- **The development cycle must be short**

This project is mostly a one man project and I don't want to spend too much time before seeing the result. At least this version is intended to reduce code size of the game, it cannot be much longer to develop than 2.7 :)

Technical setup:

- A web server like APACHE and PHP4 or PHP5. (With secure mode turned ON)
- Smarty for templates engine, it may be a little overkill but I want to eventually create a JAVA client and changing the templates to render XML instead of HTML is very simple with Smarty.
- ADODB Library for database handling because it allows the use of any database backend.
- JQuery for very nice way to handle javascript effects and cross-browser features.
- Flash/Actionscript version 3.0 for an optionnal animated invasion report
- My own error handler and XSS catcher for security reasons

About turns update:

Everyone will be able to create a player account and select a game to join (Exactly like in 2.7) but instead of having to integrate turns update directly in PHP I will use the more simpler approach of a CRON entry with a console PHP script.

Just before the CRON entry run (once, twice or more a day) it locks the game and any player who refresh the page will have a little “please wait” message followed by a auto-refresh after 5 seconds. This will surely prevent any race conditions at all.

A version which doesn't require a CRON entry can also be made but after the initial release of the game.

Anatomy of a turn:

One change I want to make is the way turns are done. Instead of throwing the player into a menu and asking him what to do, I want to do something more simpler and more closer to original SRE.

- Empire Status screen is a textual representation of your incomes, expenses, immigration, emigration and research information.
- Manage screen (Buy/release planets, command ship and research tree)
- Investments screen (Bank, trading and lottery)
- Battle screen (Invasions, Guerrillas, pirates, nuclear or covert operations)

The catch is when you have completed a screen, you cannot go back, you have to complete your turn.

On any screen at any time you will be able to send messages, chat or propose treaties.

Empire Status screen:

The empire status screen will display turn information in this order:

- Money operations (Incomes and expenses)
- Food operations (Incomes and expenses)
- Population operations (Borns, Deads, Immigration and emmigration)
- Civil status (How your population is doing)
- Random event if any (You know the mysterious blugozark monster who eat your crops)

Manage screen:

In the Manage screen you can buy or release planets, build a command ship or do research. As like other screens, this screen will use some sort of toolbar to split sections.

Investments screen:

The solar bank will be back with 2 options (Take loans, Invest in bonds) and will re-use most of the old code. Trading will allow exchanging money and units with friendly empires. Players with the same IP or under protections will not be allowed to exchange anything at all between them (Prevent cheating). Lottery tickets will also be available for buying but only a certain quantity per day since the lottery system produces a winner each day.

Battle screen:

The player will have to choose between 5 different operations but only one per turn can be done at any moment. The player have to choose wisely how he want to spend is turn.

- Invasions: Is the only way to eliminate an empire or retrieve planets from enemies.
- Guerilla: You send some of your soldiers covertly to do sneaky attack on your enemy. If your soldiers are succesful (they fight against other soldiers) the enemy cannot know which empire attacked him and you destroy some of his fighters, battle stations, light cruisers, heavy cruisers and carriers. Also impact on civil status.
- Covert operations: allow you to use covert agents to perform various operations.
- Raid pirates: allow you to attack pirates back and retrieve some of the goods they stole from empires in the game.
- Nuclear attack: You have to purchase this upgrade from a black market. If you use it on an empire, he will loose between 30 and 60% of all his population and units but you have 50% chance to get caught by the galactic coordinator and collapse as a result.

Diplomacy:

In Solar Imperium you can propose two sorts of treaties, the peace treaties which allow trades and the defense pact which allow trades and give you some extra defenses.

About events:

When an event happen you will get informed regardless of the screen you are currently browsing. Events can be thing such as invasion reports, spy operations, etc...

Research tree:

I am thinking about doubling the quantity of research techs you can perform. The research tree is one of the strong point of the game which players really appreciates. I will change the way it work by making it a tree where you need to unlock previous techs before reaching more advanced ones. I will also add techs specific to command ship.

Command ship:

The command ship is a big battleship used by the emperor to command his fleet. Having a fully built command ship will give you an extra firepower during invasions and defense. If the command ship get destroyed this is some small chance (10%) that your emperor die with it.

Protection:

Any starting empire have a certain amount of turns under protection (Usually 25). While under protection nobody can invade, guerilla or nuke your empire. Enemies can do “Spy report” covert operation but nothing else. This is something wrong with how people play during protection. Usually you use all your protection turns to growth but also sign defense treaties with bigger empires. It might be interesting to introduce a “ranking/karma system” which grant extra points to empires who protect smaller empires.

Ranking / Karma:

The scoreboard display players by net worth but It will be nice to have another scoreboard which rank players by their actions. For example actions like protecting smaller empires, attacking only bigger empires give you extra points. Attacking smaller empires or nuking someone give you bad ranking. The karma can give a boost bonus to population growth too.

Planets:

There are 10 different planet types:

- Food : Produce food which can be sold to the food market or eaten by your population
- Ore : Produce credits
- Tourism : Produce credits but is affected by civil status early.
- Supply : Produce units
- Government : Host covert agents (300 per planet) and reduce overall planets upkeep

- Education : Increase immigration
- Research : Allow you to complete techs
- Urban: House your population (Immigration and born) , you need 1 planet for every 2 500 civilians you have. Produce pollution.
- Petroleum : Produce credits but also pollution
- Anti-pollution : Clean up pollution

Units:

The effectiveness of units are measured by an overall morale level (from 0 to 100%). At 0% they flee the empire. Every turn you regain 5% of morale for a maximum of 100%

- Soldiers : Used for ground assault / defense.
- Fighters : Used for orbital assault / defense.
- Defense Stations : Used for orbital defense.
- Light cruisers : Used for deep space / orbital assault / defense.
- Heavy cruisers : Used for deep space assault / defense.
- Carriers : Used to transport soldiers and fighters.
- Covert Agents : Used to perform covert operations
- Command Ship: Can be built (0 to 100%) with 5% increase per turn. Not affected by morale and give bonuses to your units during invasions or defense.

Covert Operations:

You can choose between 7 different operations:

- Spy Report: Give you information about an empire (It may be not 100% accurate)
- Insurgent Aid : Increase the level of insurgency of an empire
- Support Dissension : Enemy empire units start to flee in mass
- Demoralize Troops : Diminish the troops morale
- Bombing Operations : Destroy carriers
- Take Hostages : Get cash from hostages
- Relations Spying : Give a detailed report about relations of the enemy empire and also give you his last message content.

Each operation cost points taken from your covert points pool which replenish a little bit every turn. If you perform a covert operation and you succeed, the enemy empire will not know it was coming from you. You cannot perform covert operations against your allies.

Invasions:

The invasions are now instant. This is how an invasion work:

- First you withdraw some of your forces and send it to the battle
- The enemy empire retrieve units from allies and add them to their total units count

- Deep space battle makes your heavy cruisers and light cruisers fight against they light cruisers and heavy cruisers. Some casualties are caused to carriers too (thru killer soldiers and destroying fighters)
- Orbital battle makes your fighters and light cruisers attack the enemy planets which are defended by defense stations and enemy fighters and light cruisers.
- Ground battle makes your soldiers fight against enemy soldiers.
- If you loose any battle, the invasion stop and you retreat back to your empire.
- If you win your invasion you reap a certain amount of planets and you get a morale bonus to your troops.
- If you loose, you get a morale malus to your troop, same for the enemy you are attacking.
- The command ship multiply power of all your units. It will vary depending on which tech you have researched.
- Everyone involved in the battle (You, enemy and allies) get an invasion report.
- If the civil status of the attacked empire is “Revolutionary Warfare” or worst you have 50% chance of killing the enemy emperor if your invasion is succesful.

Civil Status:

They are 8 different civil status that affect your empire stability:

- Peaceful: Nothing to say about it, everything is fine
- Mild Insurgencies: Disrupt tourism a little bit (-25%)
- Occasional Riots: Decrease tax incomes (-25%) and reduce immigration (-25%), increase emmigration(+25%)
- Violent Demonstrations: Disrupt tourism a little more (-50%), universities doesn't not increase immigration anymore.
- Political Conflicts: Overall production reduced by 25%
- Internal Violence: Overall production reduced by 50%
- Revolutionary Warfare: Overall production still at 50% and immigration is set to halt, emmigration rate is multiplied by 200%
- Under Coup: Overall production is reduced by 75% and immigration is set to halt, emmigration rate is multiplied by 300% and you have 10% chance to get killed by mobs in your empire.

Every turn, you have a 50% chance of getting better (back to peaceful) but they are things that let you stay at the same level like high pollution and starvation. Enemies can also increase your civil status by covert operations.

Coalition Invasions:

Some time you have to strike at bigger empires, nothing can beat group attacks. To perform a coalition invasion you need to first be in coalition and move some of your units into the coalition units pool. The coalition leader can then strike at an enemy using theses units. If the invasion succed, everyone get his plunder using a percentage corresponding on the proportion of units involved. The

units also go back to their original empires.

You cannot attack an empire which networth is lower than the best member of your coalition. This kind of assault is only useful against big bad empires. Also note that the units moved into coalition pool cannot be used to defend any of the empires in the coalition, be caucious.

Black Market:

When you have at least 5 000 planets and a ratio of 2 coverts per planet, you have a 10% chance to be contacted by the black market every turn. The black market usually allow you to buy light cruisers and unlock nuclear attack. You can also buy protection turns in exchange on enslaving (loosing) some of your population.

Defensive Bonus:

When you are attacked, the total strength of your units are calculated using your morale, the command ship and a permanent defense bonus of 2x. For example if the base strength of a soldier is 5 (100% morale) and your command ship give you a 2x bonus. You end up with: strength = $5 \times 1 \times 4$ or 20. If the enemy soldier strength is also 5 but he have 50% morale and no command ship, his soldier real strength will be: 5×0.5 or 2.5. To inflict casualties he will need alot more units than you.

Upgrading units:

Units can be upgraded using research tree. Usually each unit type have 2 levels of upgrade. A normal soldier will have a strength of 5 increase to 8 and 12. A key to victory is high tech level.

Online Help:

If you play for the first time, on every screens the game will show a notice explaining what are the options available. The player will be able to dismiss each notifications and will also be able to turn this feature off in his preferences. The galaxypedia will contains a modified version of this document for players explaining how it work without giving specific numbers.

... to be expanded further ...