

STAR ATLAS Golden Era

PRE-ALPHA

Game Manual

DECEMBER 2022 DRAFT



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01

Roadmap

The features in this manual address the pre-alpha launch, unless otherwise denoted with a Version. All information in this manual is subject to change. SAGE is a work in progress and is still being designed, built, iterated on, and balanced.



Tech Demo

Web-optimized Ship Models with Metadata + Metrics	Fleet Formation, Disbanding, Spawning, + Management	Galactic Map with 51 Star Systems
Faction Security Zones (5 Star Systems per Faction)	Faction Central Space Stations (1 Per Faction)	Tier 1-5 Starbases
Starbase Construction (T0 to T1)	Star Path Network	Docking + Undocking
Localized Cargo Management	R20	Asteroid Belt Resource Extraction
Planetary Resource Extraction	R4 Crafting	Starbase Crafting

The primary purpose of the Tech Demo launch is for the ATMTA engineering team to test, augment, and validate the technology of SAGE on devnet.

Building a 3D web game with fully on-chain hosting of game state and logic comes with certain engineering complexities. Streaming the real time blockchain data to the game front end at scale with thousands of players is a unique and novel engineering challenge. Consequently, we have to make sure that the infrastructure is as persistent, secure, fast, and stable as possible.

▶ — Pre-Alpha

Medium Risk Zone	Dark Space Sectors	Council Rank
Ship Loaner System	Non-Starpath Warping	Impulse Movement
PVE Combat (Jorviks)	PVP Dark Space Combat	PVP Structural Combat (Starbases + Planetary)
Jettisoning + Looting	Starbase Destruction	SAGE (Character)
Home Star System	SOS (placeholder until distress signals + P2P are enabled)	CSS Land Bundle Utility
Respawning		

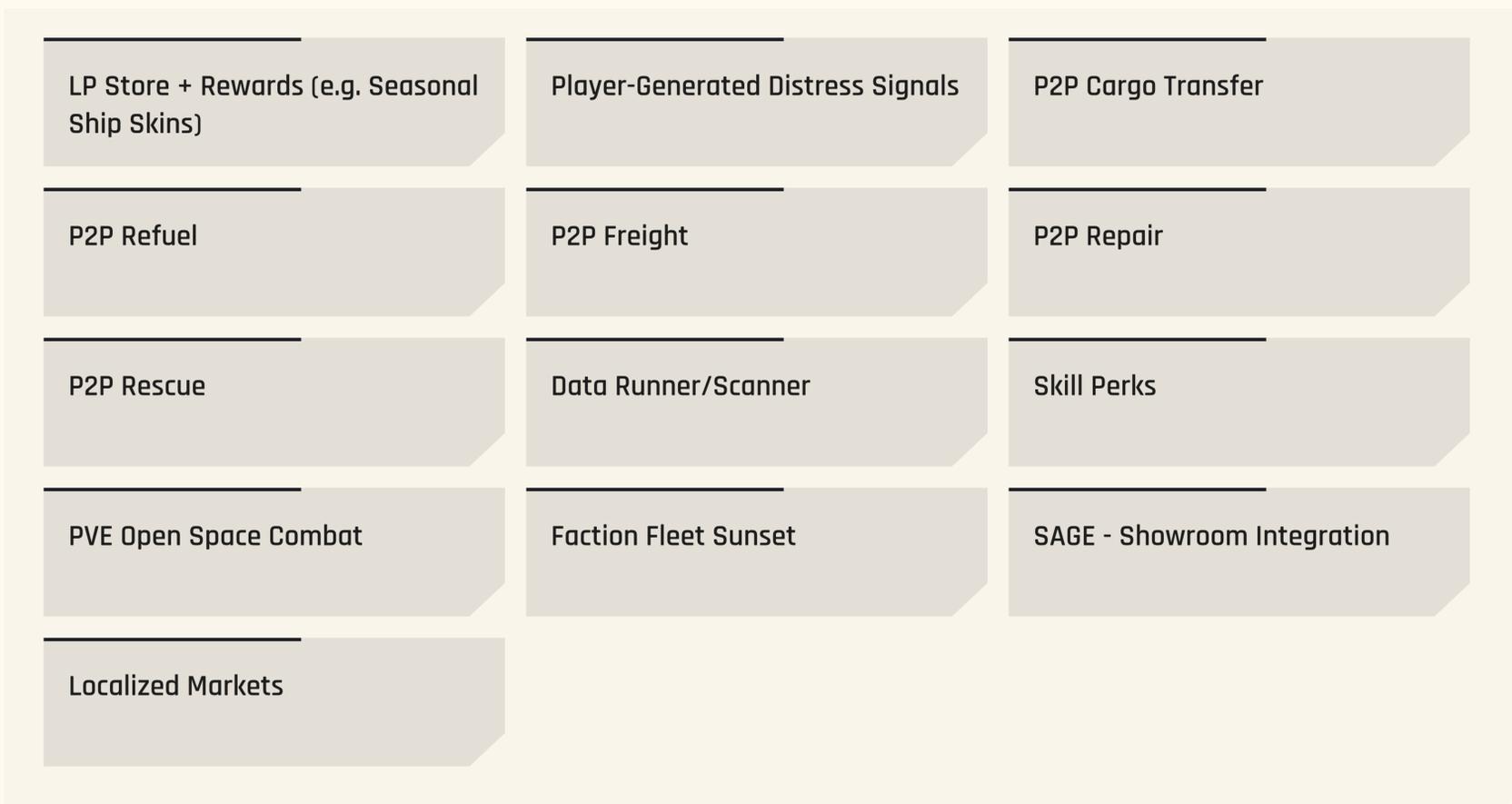
We will invite the Star Atlas community and ecosystem partners for pre-alpha playtesting of a limited gameplay feature-set. The goal of pre-alpha releases on devnet is to identify game design, technical, or other issues and improve the experience based on player feedback. After several rounds of optimizing the core-level features of SAGE, we will deploy the programs to mainnet.

In the testing phase, we will be adding features and gameplay gradually. As new systems are introduced for testing, SAGE pre-alpha on day 1 will not be the same as SAGE pre-alpha on week 5.

The decision to deploy to mainnet depends on the level of robustness and safety of the core game experience and economic levers. ATMTA cannot accurately estimate the exact scope required for mainnet launch until playtesting occurs. For example, SAGE could go live with several pre-alpha features OR we may choose to wait until we are ready to launch with V0+ features.

Feedback and participation from the community will help guide the decision on launching a "Minimum Loveable Product".

▶ — V0 - P2P Economy



This release will be the alpha release of SAGE where the P2P in-game economy will be activated. A significant number of features in this roll-out will enable a truly player-driven economy with P2P actions. We will also be opening up the LP Store to reward players for their contributions to their factions.

▶ — V1 - Land



This release will focus on activating the land economy in SAGE. This will be the first release where claim stakes can be used to secure a plot of land on planets. Players will engage in construction, upgrading, maintenance, and defense. of terrestrial assets. Reference the appendix for more details.

▶ — V2 - Careers

LP Store Expansion (Additional Rewards)	NPC Headshot Portraits	Asteroids, Wreckage, Escape Pods
ECOS (PVE)	Ships Customization (Cosmetic)	Ship Configuration (includes SFT to NFT Migration)
Galactic Map Expansion	Combat Upgrades and Damage Types	Dark Sector Random Events
Mission System (NPC Generated Quests)	Career Skill Trees	Faction Reputation
Combat License	Freight License	Racing License
Rescue License	Refuel License	Repair License
Salvage/Tow License	Data Running License	Bounty Hunting License
Faction DAOs	Bounty System	Access and Permits
Components/Mods/License Airdrops		

This release will be focused on career specialization through career licenses. Whether you want to specialize in bounty hunting, become a space-trucker via the freighting career, or start a DAC of fuel rats, this release satisfy all of those needs.



V3 - Crew + Space Stations



Space Stations and Decks	Terrestrial Assets	Crew (Races/Types)
World Events (Speeder +)	Player-owned Space Stations	Components Crafting
Module Crafting	Mod Crafting	Charge Crafting
University Crew Minting	Crew/Pets System	Ship to Station Combat
Ship to Ground Combat	Jump Points	Research and Crafting Progression
P2P Space Station Services	Space Station Markets	Regional & Sectoral DAOs
Territorial Ownership (Space Stations)	Crew Airdrops	

V3 will focus heavily on crew and activities in space stations. Crew members will be individualized to have their own levels, aspirations, and traits. Crew synergies can manifest aboard your ship with proper planning.

Been wondering where to call home? Don't have a Hab on a Central Space Station? Perhaps a player-owned space station is right for you. This release will expand upon space stations to allow you to add on new deck extensions such as a Shipyard, University, Retail, and Hangar.

▶ — V4 - High Risk Zone + End Game

High Risk Zone	Ship Destruction	Stealth + Scanning
Tufa (PVE)	Megastructures	Megastructures Expansion
Area Bosses and Raids	Ship Crafting	Political End-game
Territorial Ownership (Systems/ MegaStructures)	Insurance	Deep Space
Deep Space Exploration	Terraforming	

We know many of you have an appetite for high risk, high reward. The high risk zone boundaries will finally open up. Permanent asset destruction is possible, but the most exotic resource and the darkest mysteries are left to be uncovered.

We are also adding area bosses, raids, and an entire POLIStician career path as part of the end-game grind!

The Golden Era

Welcome to the Golden Era of space exploration.

After one hundred years of peace, Galia's cosmic currents are once more disturbed by the waves of war.

The outer systems of the Medium Risk Zone, the biggest suppliers of resources in the galaxy, are in complete disarray. Mostly untouched by the Council of Peace politics since the signing of the Treaty of Peace, this ecosystem rearranged itself to fill the vacuum of power left by the MUD, ONI, and Ustur.

Now, the Jorvik fleet spread their influence, led by the Pirate King's charisma. The ECOS and their vessels roam unimpeded and preach their radical tenets against technology and overall civilization. Warlords and slavers run rampant, seizing control of entire worlds and using their populations as resources to forward personal power agendas.

Even civilian initiatives, such as CARY Farming and Armstrong Industries, which provided relief, infrastructure, and development for those worlds, have been targeted by terrorist attacks and pillage. The situation has been so dire that even official Council of Peace bases suffered attacks, resulting in heavy casualties in terms of personnel and resources.

This can't be allowed to continue, and the Council of Peace has issued a call to the DACs and captains of the three factions to pacify the outer ring and integrate this part of the Medium Risk Zone to the welfare of the intergalactic order.

Be careful though: while there are many external threats, there are also enemies within the Faction's order. A new generation of politicians, DAC leaders, and merchant princes want to use the current situation as a way of expanding their influence and seizing power for themselves in the rich medium zone lands. With the Convergence War being only a distant memory now, this narrative of empowering the Factions in the face of the Council has been collecting adepts at each passing day.

Nevertheless, this chaotic scenario is home to many opportunities for the brave, who manage to navigate through the galactic storm. The creation of galactic infrastructure, epic fleet battles, exotic planets with unique resources, deep space mining, the creation of supply chains and interplanetary commerce, all of this, and much more, wait for you and your allies.

This is what's worth fighting for in the Golden Era of space exploration. Will you join the fight to pacify and protect the Medium Risk Zone... Or perhaps instead, join the group of conquerors? This is your choice, and your choice alone. Whatever you choose to do, remember this, the cosmic currents flow as they please. Take care so to not be caught when the tide turns over.

Map of Galia



The stories and efforts of Star Atlas take place in Galia, a star system cluster within the Milky Way Galaxy. At the heart of Galia is the enshrouded Cataclysm.

In Star Atlas: Golden Era (SAGE), the three factions (MUD, ONI, Ustur) are in the midst of stabilizing their own security zones. Each security zone has a nexus star system that boasts a Central Space Station. Each faction security zone is safe and will not have Player-vs-Player (PVP) combat. The respective security zones will have empty star systems in need of colonization via Starbase construction.

Outside of the Security Zones (SZ) are the Medium Risk Zones (MRZ). Here, PVP and Player-vs-Environment (PVE) gameplay is enabled. Combat in the MRZ comes with the risk of fleet destruction. Upon your fleet getting destroyed, you lose your fleet cargo, and your fleet will undergo a respawn time. Once the respawn timer has elapsed, players can choose to reform the fleet either at their faction CSS or their Home Star System SB. Respawning at the CSS is free, but fleets will always be in need of repair upon arriving at the selected respawn location.

The map of Galia is partitioned into sectors. Each sector can be thought of as a grid-like section of the map. Some sectors can be mostly empty; we call those "dark" sectors. Others can host an entire star system.

Each SZ will have 5 star systems, including the pre-populated system where Central Space Stations reside. The MRZ will have 36 star systems for a total of 51 star systems across the map. The number of star systems will increase over time. A star system has between 4 and 8 planets, with the system broken up into an inner ring, mid ring, and outer ring. A system always has at least 1 inner, 1 mid, and 1 outer planet that are unlocked with Starbase upgrading.

At the game start, some of the MRZ Star Systems will be controlled by Jorvik (Banished Faction) and must be PVE cleared before establishing Council of Peace (COP) control. As the game progresses, the three COP factions will build out their SBs in the MRZ and will eventually collide with one another. They will fight to control/upgrade as many SBs as possible.

Starting Out and Council Rank

To start, a player must own a ship and deposit it into SAGE. If the ship is already enlisted in Faction Fleet, it must be un-enlisted first to be eligible to deposit in SAGE. Players have no limit on the number of ships they can deposit but will be limited in how they use those ships via Council Rank Privileges, more details below.

When a player is ready to undock from the CSS, they will need to form a fleet containing at least one ship. Composing or disbanding fleets can only occur within the CSS or SB hangars. Ships must be located at the same CSS or Starbase to be merged into a fleet. After composing a fleet, the player will be able to undock, move, and direct their fleet as if it is one entity, even though it can be composed of multiple ships. This is similar to control groups in most Real-time Strategy games.

▶ Council Rank

Council Rank is an account-wide progression level that is a measure of the player's in-game stature with players will starting out at Council Rank 1 in their faction Security Zone on the Central Space Station (CSS). Players can ascend in Council Rank by gaining Experience Points (XP). XP is earned via Resource Extraction, Crafting, and Combat. XP earned across multiple fleets all contribute to the same Council Rank progression. Players will gain Council Ranks upon hitting established XP thresholds. Council Rank spans from 1-100. Players may be able to over-level past 100 in the future.

Players start out with 3 Privilege Points, gain 1 with each subsequent rank, and gain 5 points at every 10th level.

RANK	TOTAL PRIVILEGE POINTS
1	3
2	4
3	5
4	6
5	7
6	8
7	9
8	10
9	11
10	16
...	...
20	30
...	...
50	72
...	...
100	142

Privilege Points can be spent to improve various gameplay parameters, called 'Privileges'. As these points are limited and only gained when increasing their Council Rank, players must make strategic decisions on how to spend these. Point selection is not permanent and can be reallocated for an ATLAS fee.

PRIVILEGE	DESCRIPTION	PER POINT	STARTING VALUE	MAX VALUE
Concurrent Fleets	Max number of concurrent fleets deployed	+1 Fleet	1	50 Fleets
Fleet Size	Max volumetric individual fleet size	+1 Fleet Size	1	100
Crafting Capacity	Max concurrent crew tasked to craft	+1 Crew (for crafting)	1	None
Starpath Pass	Reduction in Starpath fees	+0.5%	0%	25%
Expedited Rescue	Reduction in respawn time	+0.5%	0%	25%
V1: Land Rights	Max volumetric stakes deployed	TBD	TBD	TBD

Below is the table that indicates how many points need to be assigned on Fleet Size to hold a ship per class. Note that ships with hangars will provide a bonus to the max fleet size for the fleet they are in

CLASS TABLE	FLEET SIZE REQUIRED
1 (XXS)	1
2 (XS)	4
3 (Small)	9
4 (Medium)	16
5 (Large)	25
6 (Capital)	36
7 (Commander)	49
8 (Titan)	64

A player at level 10 will have 16 points to distribute. Below is an example of a possible point selection a player can have:

PRIVILEGE	STARTING VALUE	POINTS ASSIGNED	FINAL VALUE
Concurrent Fleets	1	1	2
Fleet Size	1	8	9
Crew Capacity	1	4	5
Starpath Fee	0	2	1%
Expedited Rescue	0	1	0.5%

This means that this player can have 2 Concurrent Fleets with a Maximum Fleet Size of 9. In other words, a Fleet with a single Small Ship plus a Fleet with 9 XXS Ships.

Additionally, the player enjoys a 1% reduction in Starpath Fees, a 0.5% reduction in respawn times, and the ability to task up to 5 crew at once to craft at Starbases

A player at level 50 will have 72 points to distribute. Below is an example of a possible point selection a player can have:

PRIVILEGE	STARTING VALUE	POINTS ASSIGNED	FINAL VALUE
Concurrent Fleets	1	10	11
Fleet Size	1	48	49
Crew Capacity	1	6	7
Starpath Fee	0	4	2%
Expedited Rescue	0	4	2%

This means that this player can have 11 Concurrent Fleets with a Maximum Fleet Size of 49. In other words, up to 11 Fleets with a single Commander Ship, or any lower level permutation. It is important to note that ships with onboard hangars provide a fleet size bonus. This means the commander likely increases the 49 Max fleet size to allow for additional smaller support ships within its fleet.

Additionally, the player enjoys a 2% reduction in Star Path Fees, a 2% reduction in respawn times, and the ability to task up to 7 crew at once to craft at Starbases.

Lastly, the following perks are unlocked as a player ascends the Ranks. As we add more content to the game, more features will be unlocked through the Council Rank, such as the High-Risk Zone. Note that Council Rank is account-wide and not tied to a specific ship, fleet, or crew member.

COUNCIL RANK	PERK
1	V1: 1 Untradeable Tier 1 Claim Stake
5	Access to Medium Risk Zone
10	Access to a Home Starbase

Player Onboarding and Commander Progression Program

In order to minimize the barriers to entry, a player only needs a ship and R4 to start playing SAGE. With the starting assets, the new player will be able to form their first fleet, supply it with R4, and go explore their first star system.

Since players start out at Council Rank 1, owners of high-class ships will not have their fleet size upgraded enough to use them immediately. To address this, the Council of Peace has temporarily agreed to establish the Commander Progression Program (CPP). CPP is a temporary program available to players that have enlisted ships in Faction Fleet.

This allows players to use smaller class, Council provided assets given they have enough program points.

CLASS	OWNER POINTS AFFORDED	CPP POINT COST	COUNCIL PROVIDED MODELS
XXS	0	1	Airbike, X4, Jet, solos
XS	2	3	Lowbie, Jetjet, X5
SMALL	4	6	Ambwe, X6, Mik, R6
MEDIUM	10	15	Mamba, Evac, Tursic, Enforcer
LARGE	25	37	Sunpaa, Bitboat, R8, Thripid
CAPITAL	61	...	No models
COMMANDER	152	...	No models
TITAN	376	...	No models

Note: Council provided models are subject to change.

If a player has a Small Ship in Enlisted Faction Fleet, they have 4 points to use in CPP. This could be 1 XXS ship and 1 XS ship, or 4 XXS ships.

Assume the player elects to just spend 1 point on an XXS, then that ship will be available for use in SAGE. Returning that ship will allow the player to withdraw their Small ship from Faction Fleet.

Note: The player needs the Council Ranks Points allocated to support any Council Models they wish to play with as well.

Using available CPP points lowers your expected Faction Fleet ATLAS earnings based on the ratio of Points afforded to Points used. Returning COP models will return your points available and increase Faction Fleet earnings.

Risk Zones

▷ Security Zones (SZs)

Each faction has their own Security Zone, which is intended to be the safe zone, starter, and social area for players of the same faction. As the name implies, the Council of Peace factions provide security within the zone boundaries, and combat/crime is strictly prohibited. In V2, consensual combat will be permitted via a combat hailing/acceptance system similar to dueling. Complete destruction or loss of assets is not possible in the SZ.

▷ Medium Risk Zone (MRZ)

The Medium Risk Zone is outside the faction security zones. Players entering this zone acknowledge and accept a medium risk on assets due to combat from NPC pirates/raiders and other players. The NPC enemies in these zones can be dangerous to new players and a nuisance to experienced players. PVP combat is expected. In V2, it will be disincentivized with a bounty system. Complete destruction of assets is not possible in the MRZ. Any Starbase inventory subject to territorial conquest will require an ATLAS fee to reclaim. Fleet inventory is lost if destroyed in battle.

▷ V4: High Risk Zone (HRZ)

The High Risk Zone includes the enshrouded area in the center of the map called the Cataclysm. It may change in size and shape as the area is developed. Upon entering High Risk Zone, the bounty mechanism is lifted (though incurred bounties persist). Enemy NPCs are of moderate to high-level threats. Permanent loss of assets is possible.

Crew

Crew members are linked to any ship deposited to SAGE. If a ship has 3 crew member slots, it has 3 crew members embedded within it. These 3 crew members are not individual NFTs (yet), and cannot be separated from ships or traded peer-to-peer outside of SAGE. The tokenized crew system will be added in V3.

The total number of crew for each ship is the sum of the crew slots. Crew are used when a ship docks at a Central Space Station or Starbase. When docked, the crew members embedded in the ship will become available for crafting at that structure. When a crew member is assigned to craft, it will not be available to join a fleet until it is no longer crafting.

Total crew members are also used to calculate food consumption of fleets when undocked for the Central Space Station or Starbase.

Fleet Management

Forming a fleet is one of the first actions to get started in SAGE. A fleet must be formed, even if just one ship is available. In order to form a fleet, the following criteria must be met:

- All fleet-bound ships are docked at the same Starbase or CSS
- The Player has sufficient Fleet Size to host all ships
- Crew available at the Starbase or CSS to support all fleet crew slots

Upon forming a fleet, it can be transferred to the Starbase or CSS loading bay to supply fuel, food, and ammo for its expedition. The loading bay also allows for Fleet repairs using Toolkits if the Fleet is damaged.

Disbanding a Fleet is an option for players wanting to return ships back to individual entities. Disbanding a fleet requires the following criteria to be met:

- The fleet must be full health
- The fleet must be empty of any onboard items

Upon disbanding a fleet, the crew disembark from the ship(s) and are available for crafting at that Starbase or Central Space Station. If a crew member is assigned to an active crafting job, it will not be available to join a fleet until it is done crafting. Crafting jobs will be cancellable.

In order for the fleet to undock, the following criteria must be met:

- Fleet has greater than 0% HP
- Max number of concurrent fleets deployed is not exceeded

Fleet Resource Consumption

Players will need to supply their fleets with food, fuel, ammo, and toolkits (R4, derived from: refeed, refuel, rearm, repair) over the course of normal gameplay. Fleets consume R4 in the following ways:

- Fuel - Consumed when using a Starpath, warping, impulse movement, exiting a planet, and in battle
- Food - Consumed when extracting resources and in battle
- Toolkits - Consumed when repairing docked fleets. Repair ships will have the ability to repair undocked ships.
- Ammo - Consumed in battle and when extracting from asteroid belts

If a fleet runs out of R4 during their expedition, the following gameplay mechanics are imposed:

- Fuel - Fleet is locked to their current location (planet or sector) and must submit for a distress signal to respawn. In V2, players will be able to submit a distress signal to allow players to support them.
- Food - Fleet can no longer mine and has a significant debuff in battle, including not earning LP.
- Toolkits - Not used while the fleet is deployed with the exception of Repair ships when that functionality is added. Toolkits are used to repair fleets while docked.
- Ammo - Fleet cannot commit damage in combat or extract from asteroid belts
- HP - Fleet is destroyed and will undergo a respawn timer. The player can select the respawn location if they have unlocked a Home Star System. The default respawn location is the CSS. ATLAS may be spent to reduce the timer.

▷ Fleet R4 Capacity

Fleets share an aggregate fuel tank, ammo magazine, and cargo bay. Toolkits and food are stored in the cargo bay. Fuel and ammo may be transported in the cargo bay, but cannot be moved to the fuel tank or magazine respectively while undocked. Fuel and ammo take up more cargo space when placed in the cargo hold.

Location, Movement, and Starpath Network

▷ Fleet Locations

Fleet locations are stored as game state information on the blockchain. Opposing fleets must be at the same location to interact with each other. Recall that the entire map of Galia is partitioned into sectors. This is important in understanding the location of a fleet at a given point in time. In order to enter a planet or Starbase, a fleet must first travel to the star system sector. The following is a list of locations and states a fleet can exist in:

- **Dark Sector**
- **Star System Sector**
 - **Starbase/CSS**
 - Loading Bay
 - Docked
 - Attack
 - Defense
 - **Planet**
 - Mine
 - Attack
 - Defend

▷ Movement

Ships can travel directly between Star Systems via the Starpath network. Otherwise, players will need to traverse through dark sectors.

There are 3 Modes of Travel:

- **Warp (Non-Starpath):** Travel over several tiles subject to Fleets' Max Warp Distance. Costs fuel per jump. Subject to post-warp cooldown timer.
- **Warp (Starpath):** Travel directly between Star Path endpoints. No cooldown and significant warp fuel reduction. Costs an additional ATLAS fee for convenience.
- **Impulse (Adjacent Sector):** Travel to adjacent sectors. Cost fuel per movement.

▶ Starpath Network

Fleets enjoy long-range warping between star systems using faction-owned star paths. This system is analogous to a fast-travel system in traditional RPGs. A starpath is only available for use if your faction owns both endpoints. To own an endpoint, a faction-owned Starbase must be constructed in the star system sector. Only one Starbase can be built per star system sector. When traveling via an available star path, the warp will be more efficient in time and fuel cost.

The fuel cost for a star path warp depends on Starbase tier at the origin node. Traveling from a Starbase Tier 5 to a Starbase Tier 1 is cheaper than the return route. See the Starbase section below for a table listing all Starbase upgrade perks:

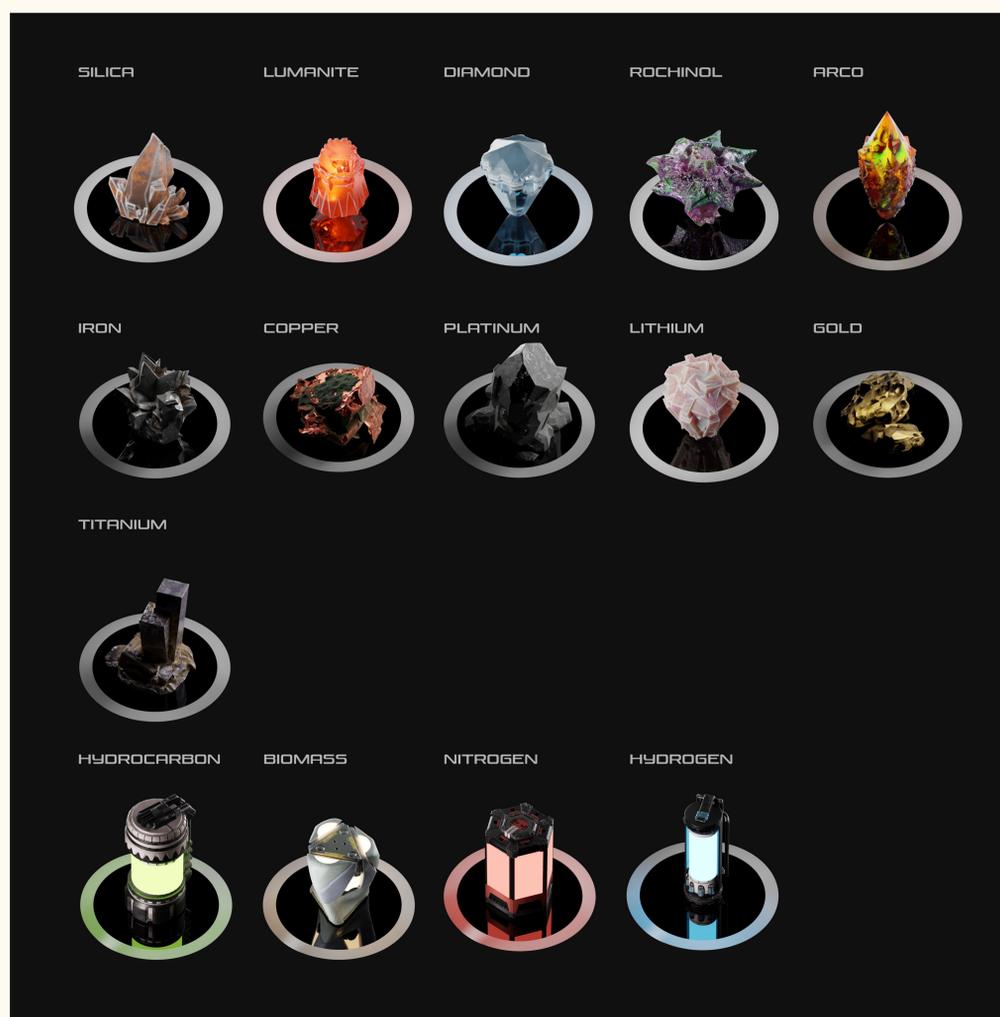


Resources and Celestial Bodies

At the foundation of SAGE is the mining and crafting economy. Players will be sourcing resources from planets and asteroid belts in order to craft products such as R4 and Starbase upgrade materials. Below is a list of the celestial bodies that can be encountered within the sectors of Galia:

- Star (varying types)
- Asteroid Belt
- Planet
 - Terrestrial
 - Volcanic
 - Barren
 - Gas Giant
 - Ice Giant
 - Dark

Only planets and asteroid belts can be mined of resources. Each can have up to three different resources available. Players will find that the resources available are mapped to the type of planet. As for resources, below is a list of resources that will be encountered:



- Biomass
- Carbon
- Hydrogen
- Nitrogen
- Iron
- Copper
- Lithium
- Platinum
- Gold
- Titanium
- Silica
- Lumanite
- Diamond
- Rochinol
- Arco

▶ Resource Attributes

The two main factors that define a resource's emission rates are hardness and richness.

Resource Hardness

The resource's hardness can be defined as "how hard it is to mine this resource". As such, a resource with a higher Hardness value will be more difficult to mine.

If Iron has a hardness value of 1 and Silica has a hardness value of 2, then for every 2 units of Iron a player extracts, they would extract 1 unit of Silica given the same conditions and amount of time spent mining.

The Hardness value is constant for a given resource, regardless of where it is located.

Resource Richness

Every system has a resource Richness value that differs from system to system. The System Richness value is inherited by the planets within that system and, in turn, by the resources on those planets. Richness increases with systems that are closer to the Cataclysm. In fact, the richest systems in SAGE pre-alpha can be found on the border between the MRZ and the HRZ.

A resource's Richness can be defined as to "how abundant this resource is in this location". The more Richness a system has, the higher the emission rate of its planets (and resources on those planets) will be. Resource's Richness varies depending on its location.

Suppose 100 Copper per second is being emitted on Planet X with a system Richness of 1. We also have Copper being emitted on Planet Y in a different system with a Richness value of 2. The emission rate on Planet Y is going to be 200 Copper units per second in this scenario if conditions and time spent mining are the same.

Resource Extraction

Resource Extraction can only occur at planets and asteroid belts. The term resource extraction is used here instead of "mining" because mining will be a specific action that only mining spec ships can conduct. Planets are available for resource extraction when the following conditions are met:

- Player's faction owns the Starbase of the sector where the planet is
- Starbase tier is high enough to unlock the planet
- Planet is not in "fallen" status due to enemy attacks

In SAGE, fleets aren't physically mining on planets but loading up their cargo with resources that are mined by terrestrial mining facilities (mining drills). The terrestrial mining facilities are supported by the Starbase's logistic network which upgrades concurrently with Starbase upgrades. Once claim stakes are released, the terrestrial mining facilities will be player-owned.

Note: This system will change in V1 with the introduction of Claim Stakes. Reference the Claim Stakes section in the appendix for more details.

Assuming all the conditions are met, a player can select a planet and then select "extract" or "defend". Selecting "extract" puts the fleet on the planet's surface. The fleet will start loading its cargo depending on the extraction rate of the fleet, the resource hardness, and local richness. Players selecting their extraction fleet will see cargo filling up in real-time. Extraction automatically pauses once cargo has reached capacity, if the planet becomes "fallen," or if the faction loses control of the local Starbase.

While extracting resources, a fleet will consume food depending on the amount of crew on board. At any time the player can choose to reassign the extraction fleet to a different resource available on the planet. Switching will terminate the current extraction job and start filling fleet cargo with the new resource. Once the fleet is ready to leave the planet's surface, fuel is spent to exit the atmosphere. If the fleet doesn't have enough fuel, they are stranded and must SOS out.

If the planet gets attacked while extracting, the player can choose to continue or join the battle. Not joining the battles has no direct penalties, but lack of player defensive support may hasten attackers achieving "fallen" status (0% health), which halts planetary extraction emissions. Depending on the Starbase tier, the planet will naturally regenerate its health over time. Emissions will not resume until the planet reaches 25% health. Emissions will only pause again once the planet hits 0% health.

Asteroid belts function similarly to planetary extraction, except there is no requirement to have a local starbase. Anyone is free to extract resources from asteroid belts. Extracting from asteroids does not expend fuel for exiting the atmosphere but expends ammunition. Mining spec ships, once added, have special onboard rigging to allow them to mine in space without the expenditure of ammo. Players will also be subject to attack when extracting or mining asteroid belts, unlike planetary extraction.

Player Inventory

A player's inventory in SAGE consists entirely of their localized Starbase inventories and fleet inventories. This inventory is specific to resources and crafted products. Players also have ownership of any of their ships/fleets at their respective locations. Reference the Locations, Movement, and Starpath Network for a list of possible fleet locations.

▶ Localized Items (Starbases)

All items entering SAGE from the Galactic Marketplace appear within your inventory at your faction's Central Space Station. From there, inventory can then be transported to other sectors and Starbases via fleets. All items deposited at Starbases are also localized. Localized resources must be transported back to the CSS to be exported from SAGE and listed on the Galactic Marketplace. The Galactic Marketplace is able to support all three factions' CSS simultaneously due to the instantaneous jump points connecting the three.

Localized resources require players to physically freight resources between sectors as part of the empire sprawl and expansion SAGE game mechanics.

If a Starbase gets destroyed, any locally stored resources owned by players are subject to a percentage burn. The remaining will be recoverable within the sector if you return. or will remain recoverable within the sector it was lost depending on the Risk Zone level of the Starbase.

▶ Localized Items (Fleets)

Fleets will also have localized inventories consisting of their onboard R4 supplies and cargo. When a fleet docks, its inventory can be unloaded into the SB. This will then transfer the Resources in the cargo to the Player's SB inventory.

Ship Selection and Performance Bonuses

Selecting the right ship depends on the playstyle of the player. Each ship has unique stats based on its Make, Spec, Class, Components, Modules, and Crew:

- **Make** is the Manufacturer of the Ship. Each manufacturer specializes in a different area of spacefaring
- **Spec** is the utility focus of the ship
- **Class** is the effective size band the ship falls within
- **Components** are the critical subsystems of the ship that will be swappable, upgradeable, modifiable, and craftable in V3
- **Modules** are the optional add-ons that are swappable and craftable in V3

Starting with Make, below is the relative bonus table across all ship manufacturers. The columns are defined as the following:

- **Hull** affects the HP of the ship
- **Shield** the shield strength of the slotted shield generator
- **Armor** affects the armor value of the slotted hull reinforcement
- **Warp** affects the warp range and cooldown of the slotted warp drive
- **Impulse** affects the impulse speed of the slotted impulse engine
- **Thrust** affects the agility value of the slotted maneuvering thrusters
- **Bays** affects the performance of the slotted Missile or Bomb bays
- **Hard Point** affects the performance of the weapons in the slotted hardpoints
- **Counter** affects the performance of the slotted Countermeasure bay
- **Fuel Savings** affects fuel efficiency. A higher value means less fuel is spent
- **Repair Savings** affects the cost to repair. A higher value means less toolkits spent
- **Tractor Beam** affects the rate at which items are salvaged in space
- V2/V4: **Scanning** affects the performance of the radar and scanner
- V4: **Stealth** affects the performance of the ship when activating stealth

Some manufacturers boast more advanced technology and are granted more bonus points. However, their pricing naturally reflects this bonus. Note: Manufacturer faction alignment does not influence anything in SAGE pre-alpha. It will be considered once ship crafting is added.

▶ Ship Make Bonuses

≡ Make:	Aa Faction Alignment	# Hull:	# Shields:	# Armor:	# Warp:	# Impulse:	# Thrust:	# Bays:	# Hard Pt...	# Counter:	# Fuel Savin...	# Repair Savin...	# Tractor:	# Scan:	# Stealth:	Σ RATING:
Pearce	MUD	5	4	3	4	3	2	4	6	1	2	2	3	2	5	46
Busan	ONI	3	5	4	2	4	3	5	4	2	2.5	1.5	1	3	6	46
VZUS	Ustur	4	3	5	3	2	4	6	5	3	1.5	2.5	2	1	4	46
Calico	MUD/ONI	4	4.25	3	3	3.5	2	3.75	5.5	1	2.25	1.75	2	2.5	5.5	44
Ogrika	ONI/Ustur	3	4.5	4.25	2	3	3.5	5.5	3.75	2.5	2	2	1	2	5	44
Opal	Ustur/MUD	4.5	3	4.5	3.5	2	3	5	5.25	2	1.75	2.25	2.5	1	3.75	44
Armstrong	Any	4.5	3.5	3.5	2.5	2.5	2.5	3.75	3.75	2	1.25	2.75	4	3	4.5	44
Fimbul	Any	3.5	3.5	3.5	2.5	2.5	2.5	4.5	4.5	1.5	1	3	1.5	1.5	4.5	40
Fimbul BYOS	Jorvik	3.75	3.75	4	2.75	4.25	2.75	5	6.25	2	1.5	2.5	1.75	1.75	5	47
Fimbul ECOS	ECOS	4	4	4.25	3	3	2.25	6.5	5.75	2.5	2	2	2	2	5.75	49
Tufa	Tufa	4.75	3.25	4.75	3.25	5	3.75	5.75	4.75	2.75	2.75	1.25	2.75	2.75	3.5	51
Rainbow	Any	4.25	5.25	4.25	4.25	4.5	3.25	4.75	6.5	2.25	3	1	3.25	2.25	5.25	54

Next, evaluating the ship spec, we have a similar bonus table with the addition of onboard capacity

- Capacity bonus affects the total space onboard the ship for inventory consisting of the sum of the fuel tank, ammo magazine, and cargo hold.

▶ Ship Spec Bonuses

Aa Spec	# Hull:	# Shields:	# Armor:	# Warp:	# Impulse:	# Thrust:	# Bays:	# Hard Pt...	# Counter:	# Space:	# Fuel Savin...	# Repair Savin...	# Tractor:	# Scan:	# Stealth:	Σ RATING:
Fighter	5	4	5	3	5	4	2	4	2	2	2	1	1	2	3	45
Bomber	4	5	4	3	3	3	4	3	3	2	2	1	1	3	4	45
Bounty Hunter	3	3	3	3	4	4	2	2	2	3	3	3	2	4	4	45
Freighter	3	3	3	6	2	1	1	1	2	6	4	6	4	2	1	45
Refuel	4	3	3	6	2	1	1	1	3	6	6	4	2	2	1	45
Refuel/Repair	3	4	3	3	3	3	1	2	2	4	5	5	3	3	1	45
Repair	3	3	3	3	4	4	1	2	2	3	4	5	3	4	1	45
Salvage	4	3	3	3	3	3	1	1	2	5	3	5	4	4	1	45
Rescue	3	4	2	3	4	5	1	2	2	2	4	2	5	4	2	45
Transport	2	5	2	4	5	2	2	2	4	5	4	1	2	2	3	45
Racer	3	6	2	3	6	6	1	2	1	1	1	6	3	2	2	45
Data Runner	2	2	1	5	4	4	2	2	4	1	4	2	2	6	4	45
Multi-Role <input type="checkbox"/> 1	3	3	3	3	4	4	2	2	2	3	4	3	2	3	4	45
Miner	4	3	4	4	3	2	1	1	2	5	1	3	6	5	1	45
Tow	4	4	4	4	4	3	1	1	1	1	2	6	6	3	1	45
Smuggler	3	3	3	5	4	3	2	2	2	4	2	4	3	2	3	45

Class refers to the size band an asset's form factor belongs to. Ship Class is an extremely important variable in assessing the overall performance of a ship. Higher class means higher raw performance, but it also comes at the cost of more consumption. As Ship class increases, the following can be expected:

- Increased HP (Hull Points)
- Increased SP (Shield Points)
- Increased Planetary and Asteroid belt Extraction Rates
- Increased onboard cargo capacity (split between cargo bay, fuel tank, ammo mag)
- Increased R4 consumption

Next, evaluating a ship's components is also valuable. When looking at components, their class dictates their performance rating. The table below outlines how each component is used in SAGE. It is important to note, oversized (higher class than ship's class) components enjoy better performance but are offset by the total power available by the power supply. This means an oversized weapon on a ship has a slower firing rate or overheats faster due to the onboard power limitations. This system is in place to keep balance within ship classes.

▷ SAGE Component Bonuses

COMPONENT	AFFECTS
Shield Generator	Shield Strength Value
Warp Drive	Warp Distance/Cooldown
Impulse Engine	Impulse Speed
Maneuvering Thruster	Agility Value
Weapon Hardpoint	Hardpoint DPS
Missile Bay	Missile Bay DPS
Countermeasure Bay	Countermeasure DRPS
Hull Reinforcement	Armor Value
Tractor Beam	Salvage Rate
Radar	V2/V4: Scanning Ship and Resources

A ship's modules are its optional add-ons and give diversity to different ship load outs. If a module is under or oversized for the ship it is in, this affects the percentage value of the bonus it provides. The bonuses provided by each of the modules are outlined below:

▶ SAGE Module Bonuses

MODULE	DESCRIPTION
Cargo	Increased Cargo Bay Capacity
Fuel	Increased Fuel Tank Capacity
Ammunition	Increased Ammo Magazine Capacity
Mess Hall	Reduced Food Consumption
Hydroponics	Reduced Food Consumption
Salvage	Increase Salvage Rating
Medbay	Increased Rescue Capacity (Lower Respawn Timer)
Bomb Bay	Bonus Damage to SBs/Planets
Hangar	Increases max fleet size of fleet ship is supporting
Drone Port	V2: Can be slotted with drones with different utility bonuses
Smuggle Cargo	V2: Increased Protected Cargo
Theatre	V3: Improved Crew Morale
Art Gallery	V3: Improved Crew Morale
Repair	V2: Improved Repair Capability
Scanner	V2/V4: Scanning Rate Boost
Data Rack	V2: Scanning Rate Boost
Brig	V2: Increased Bounty Rewards

Lastly, when selecting a ship, crew can also be a decision factor. SAGE pre-alpha will not have the full intended crew system in place. Instead, the total crew count (from the ship's crew slots) is counted as crew available for crafting when the ship is docked, as well as for food consumption rate when the ship is deployed. In V3, once the crew system is developed, each crew slot will be filled by an NFT crew member that gains experience depending on how they're used.

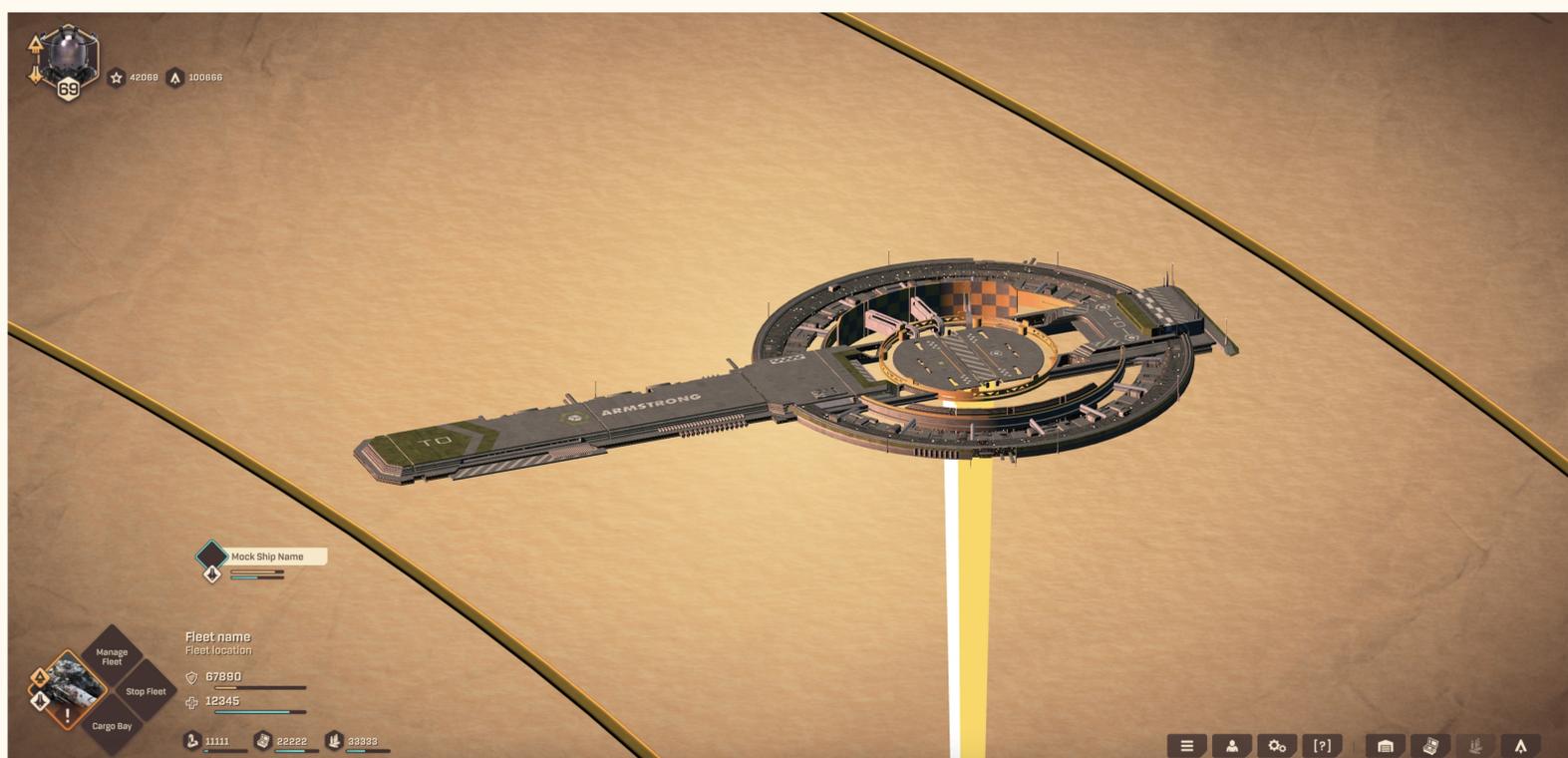
Starbases and Crafting

▶ Starbase Tiers and Overview

The main objective for each of the factions in SAGE is to expand their control of the Galia Cluster via the construction of Starbases. Starbases require a massive amount of materials to construct and likely require crowdfunding from the faction members or DACs.

Each Star System can have only one Starbase located on the System's inner ring. Starbases have 5 different tiers, and they can be upgraded through those tiers. The table below outlines the perks for each Starbase tier:

STARBASE TIER	RINGS CONTAINED	STARPATH FUEL REDUCTION	TOOLKIT EFFICIENCY BONUS	LOCAL STORAGE CAPACITY (TBD)
0 (Platform)	-	0%	-	-
1	Inner	0%	0%	T1
2	Inner & Mid	20%	10%	T2
3	All	30%	15%	T3
4	All	40%	20%	T4
5	All	50%	25%	T5
CSS	All	60%	30%	T6



▷ Rings Contained

The planets on the Inner Ring of a Star System are the only ones that a player can reach from a Starbase Tier 1; this is called Sphere of Influence. As a Starbase upgrades, the Sphere of Influence of the Starbase expands. A Starbase Tier 2 can reach the planets on the Middle Ring, while a Starbase Tier 3 and beyond reaches the Outer Ring, thus reaching all planets within the Star System.

▷ Starpath Fuel Cost Efficiency

Higher Tiers of Starbases allow for more sophisticated and efficient ways of travel. This is why a player will receive a Fuel cost reduction when using the Starpath Gateways. Note that this Fuel cost reduction always takes into account the origin Starbase cost reduction, not the destination. Traveling via Starpath from a Starbase Tier 5 to a Starbase T1 is 60% cheaper than the return trip; plan accordingly!

▷ Repair/Toolkit Efficiency

Repair Kits used to repair the Starbase itself or Toolkits used to repair ships docked on the Starbase are more efficiently applied than doing so unsupported in Open Space.

▷ Local Storage Capacity

Recall from the inventory section that players have localized inventories at Starbases. As such, this inventory has a cap depending on the Tier of the Starbase. Due to their increase in size, higher-tier Starbases offer players more storage space. CSS Hab assets, part of the CSS land bundles, will also offer a bonus to CSS local storage in SAGE.

▷ Stats

Every tier upgrade will also increase the Starbase HP, SP, Armor, Shield Strength, and Damage.

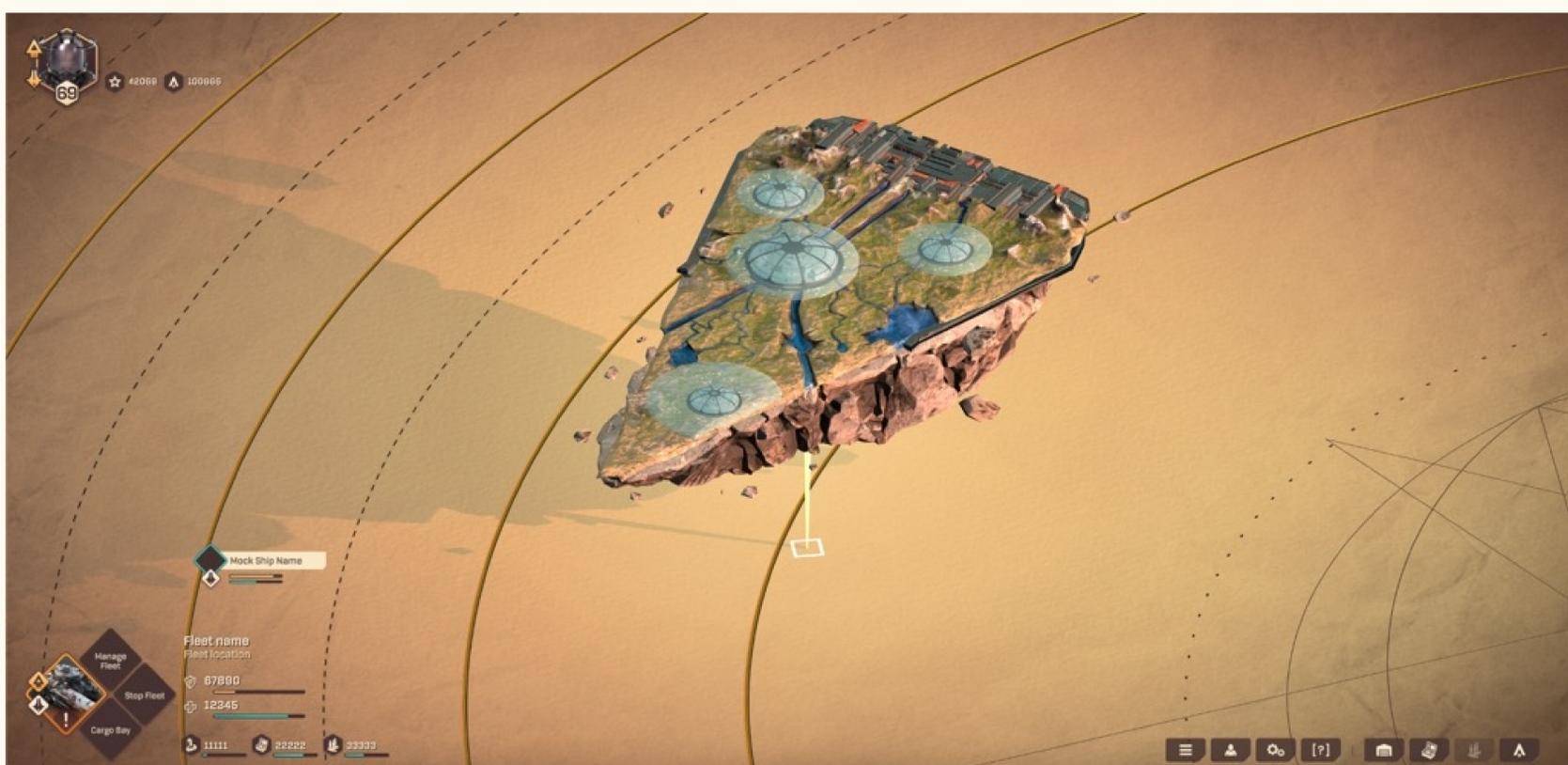
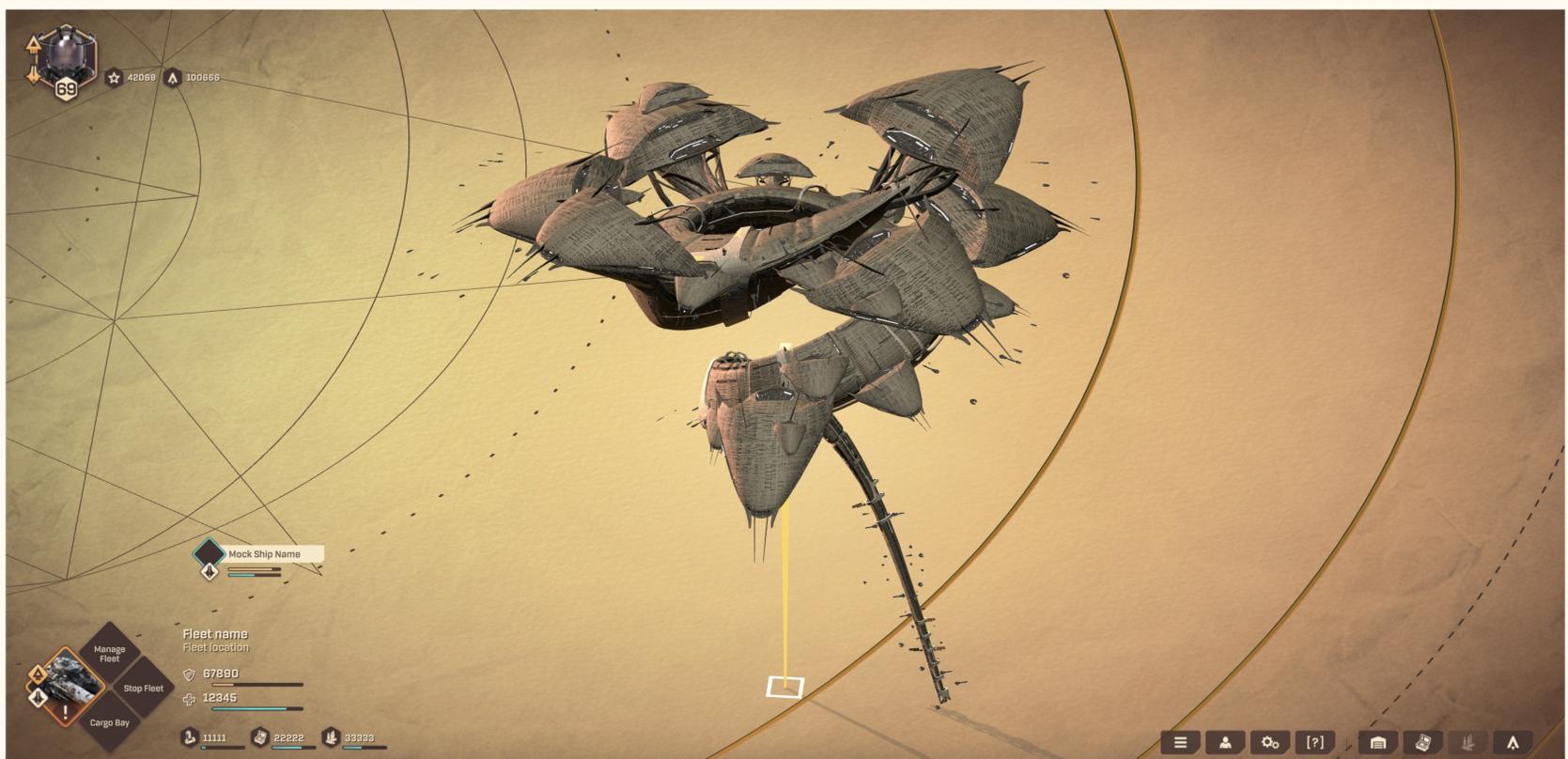
▷ Starbase Tier 0

This is the first presence of the Starbase once it has been claimed and built by a faction. It has no ability to support fleets, but marks faction control as well as the ability to support the Starpath network. It must be upgraded and defended.

▶ Central Space Stations (Starbase Tier 6)

The maximum tier a Starbase can reach is 5, but one exception to the rule is the faction's Central Space Station (CSS), which is Tier 6. There are 3 CSSs, one for each faction.

CSSs are not only special because they can reach a higher tier than regular Starbases, but also in the regard that a player can respawn their fleets at them for free, have a free (slow) base ship repair, and it's the main hub for trading within your faction. This means if a player wants to move any asset they own on SAGE to their wallet, they'll have to be taken to the CSS first. Conversely, when you deposit an asset from your wallet into SAGE, it will appear at the CSS of your faction.



▷ **Constructing a Starbase**

If a Star System is unclaimed, it means there is no Starbase occupying the Starbase Node. As such, a faction wishing to claim the Star System can construct a T0 Starbase.

Constructing a T0 Starbase requires the players of a faction to add resources to a pool that is cached at the Starbase Node. When the aggregate resources added to the pool match the resources needed, the faction constructs a T0 Starbase. Every player who has added resources to this pool will be rewarded proportionally for their individual contribution.

If a player removes their contribution while the construction crowdsourcing is ongoing, their current contribution gets removed from the pool, and they will not receive any rewards for completing the SB construction.

If multiple factions are engaged in T0 construction race conditions, the faction that completes their resource pool first gets the Starbase. The faction that didn't get the Starbase will not be refunded the resources they've invested. Those resources will be effectively burned.

▷ **Starbase Destruction**

When the Starbase is destroyed (HP reaches zero), docked ships will be sent to Respawn, either to the CSS or a Home Starbase the players have previously set. A portion of the local inventory stored at the destroyed Starbase is subject to burn. The remaining inventory is reclaimable through an ATLAS cost.

A Starbase destroyed produces salvage materials that are salvageable with salvage spec ships. Attackers who participated in the battle will earn a large Loyalty Point bonus.

If there's more than one attacking faction present at the moment the Starbase is destroyed, a T0 Starbase (control of the Star System) will be awarded to the faction that inflicted the most damage to the defender's Starbase.

Note that all ongoing player crafting jobs on the Starbase will be canceled in the event of its destruction, and resources involved are subject to the above inventory destruction rules.

▷ Active Crew at Starbases

Docked Ships (not fleets) will increase an Active Crew Counter at each Starbase.

Docked Ships are not the same as Docked Fleets. Fleets must be disbanded to increase the Docked Ship and thereby the Active Crew counter.

Active crew are used to complete crafting, upgrading, and repairing jobs at Starbases. These jobs can be queued. Active Crew are temporarily in garrison at Starbases when not crafting.

Crafting at Starbases Players may craft items at Starbases using their local Starbase inventory and assigning Active Crew to a crafting job. The available recipes are tied to the Starbase tier.

The total amount of Active Crew will define crafting rates at that Starbase. Players may have multiple crafting/upgrade jobs at a time/per Starbase as long as they have crew assigned and enough resources in their inventories. A player with zero active crew at a Starbase may not start a job. If they don't have the required input resources, they may not start a job.

Players will select the desired product they want to craft and quantity, constrained by their inventory. Players must claim the products once complete. Claiming in increments while the crafting job is ongoing is allowed and will not interrupt the crafting job.

STARBASE TIER	RECIPE UNLOCK
0	-
1	Food, Fuel, Iron, Copper, Copper Wire, Framework (Iron), Magnet, Graphene, Hydrocarbon, Polymer, Electronics, Power Source, Electromagnet
2	Ammo, Toolkits (Iron), Repair Kit (Iron), Steel, Framework (Steel) Aerogel, Crystal Lattice, Field Stabilizer
3	Titanium, Framework (Titanium), Toolkit (Steel), Repair Kit (Steel), Energy Substrate, Radiation Absorber
4	Toolkits (Titanium), Repair Kits (Titanium), Strange Emitter, Super Conductor, Particle Accelerator
5	All
6	All

▷ Crafting Speed Improvement Per Active Crew Assigned

Each crafting recipe has a minimum time to craft. This is the time it takes 1 crew member to craft it. Adding additional crew members does not decrease the time it takes to craft, it allows more units to be crafted in parallel.

Time until Craft Job Complete = Quotient(Crafting Unit Recipe Time * Quantity, Crew) + Crafting Unit Recipe Time * Min(mod(Crafting Unit Recipe Time * Quantity, Crew), 1)

As an example:

Crafting unit recipe time = 1 min
 1 Crew makes a 1 Power Core in 1 min
 2 Crew make 2 Power Cores in 1 min
 2 Crew make 1 Power Core in 1 min
 3 Crew makes 3 power Cores in 1 min
 3 Crew make 4 Power Cores in 2 mins

The reason why 2 Crew make 1 Power Core in 1 min is because the 2nd crew member is not afforded their own power core to work on in parallel. Therefore, the 2nd crew member is idle while the 1st crew member finishes the 1 Power Core in 1 min. Adding crew members parallelizes bulk crafting of assets.

Note: CSS Hab assets, part of the CSS land bundles, will also offer a bonus to crafting rates at Central Space stations.

▷ Upgrading a Starbase

Players may upgrade Starbases using their local Starbase inventories and assigning Active Crew. The Starbase upgrade product requirements are defined by the current Starbase tier and the current state of the crowdfunded pools.

Upgrade rates will be defined by the recipe and the crew assigned to the job. Players may have multiple crafting/upgrade jobs at a time/per Starbase as long as they are different products/upgrades.

A player with zero Active Crew at a Starbase may not start a job. Players gain variable Loyalty Points for each upgrade resource that gets consumed via the upgrading job.

The materials needed for each Tier upgrade are listed below:

TIER UPGRADE	MATERIALS NEEDED
0 (Construction)	Frameworks
0 → 1	Frameworks, Electronics, Power Sources
1 → 2	Frameworks, Electronics, Power Sources, Electromagnets
2 → 3	Frameworks, Electronics, Power Sources, Electromagnets, Field Stabilizers
3 → 4	Frameworks, Electronics, Power Sources, Electromagnets, Field Stabilizers, Radiation Absorbers
4 → 5	Frameworks, Electronics, Power Sources, Electromagnets, Field Stabilizers, Radiation Absorbers, Particle Accelerators

▷ Starbase Upkeep

Much like how fleets consume R4, Starbases must also be upkeep. Starbases need Food, Fuel, Repair Kits (not Toolkits) and Ammo to fully function. Players will collectively contribute these consumable resources to shared Starbases caches in exchange for LP. If a Starbase runs out of any of these resources, the following mechanics are applied:

- Food - Local crafting rates are reduced by 50%
- Fuel - Starbase Shield Regeneration is paused and Starpath node is temporarily unavailable
- Ammo - Starbase no longer emits damage during battles
- Repair Kits - Starbase no longer repairs HP damage

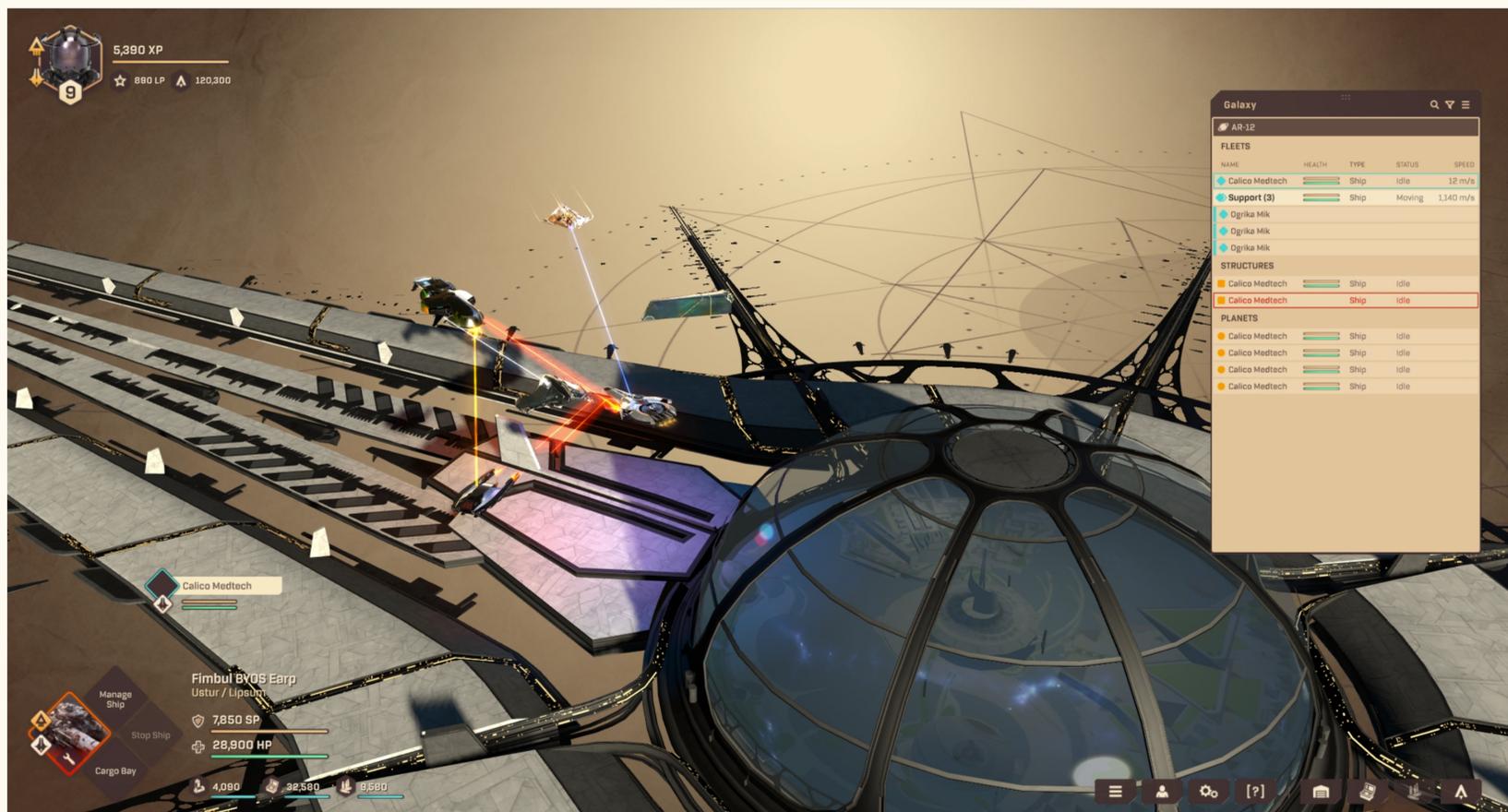
Local Starbase resource caches have a max storage cap that increases with Tier. Planets use these similar mechanics, except they only require Repair Kits for healing.

▷ Setting a Home Starbase

When a player reaches Council Rank 10, they are given the option to set a Home Starbase for an ATLAS cost. Home Starbases allow the player an alternate respawn location for their fleets in the event of destruction, submitting a distress signal, or other fleet respawn events.

If the player hasn't unlocked and set a Home Starbase yet, fleet respawn will always default to their faction's CSS. If a Home Starbase is lost due to inter-faction conflict, it will no longer be available for respawn. The player will need to set a different Home Starbase. Setting a new Home Starbase has an attached ATLAS cost.

Combat Mechanics



Combat is restricted to Open Space, Starbases, Planets and Asteroid Belts. They will develop very much in the same manner, but with small differences depending on the location.

▶ Open Space and Damage Types

A battle starts when a Grace Period ends. A Grace Period can be initiated by a single player engaging against an enemy player, Starbase or Planet. When a player actively initiates a Grace Period, a global visible timer starts to count down, and any other players that wish to join the battle have a set amount of minutes to join the battle. The time will reset every time a new fleet joins the battle, with a total timer limit not to exceed 5 minutes. The total 5 minute timer avoids indefinite timer resets or delay abuse.

Entering a battle has an associated R4 cost. A player (other than the one who initiated it) can try and flee the battle at any time **before** it starts. Flee chances are based on the relative fleet agility values. Having a higher agility value than your aggressor means you have a higher chance of fleeing. Smaller class ships generally have higher agility.

Once the battle starts, all the fleets participating on each side bundle into one aggregate fleet, and the players cannot leave the battle until it finishes. Both aggregate fleets attack each other with deterministic combat calculations. Fleets have five Damage Per Second (DPS) types: Energy, Light, Heavy, Missile, and Bomb. Each second, they will deal the amount indicated of these five types of damage

Energy, Light and Heavy damage depends on the weapons slotted in the fleet's hardpoints. Player will be able to select the hardpoint weapon type for each ship when banding a fleet. A single ship can only have one damage type assigned to its hardpoints. But fleets can have ships of different damage types selected. The ability to slot specific weapons in each hardpoint will be added with the Ship Configuration system in V2.

DAMAGE TYPE	STRENGTH	WEAKNESS
Energy	Shields	Hull
Heavy	Hull	Agility
Light	Agility	Shields
Missile	Hull	Counter measures
Bomb	Starbases & Planets	No damage to ships

The battle lasts a fixed amount of seconds (given by the location of the battle), and if this time has elapsed or one of the fleets is destroyed, the battle ends, and XP/LP is awarded to the participants. If one side is destroyed, then a winner is declared and rewarded loot in the form of the losing fleet's inventory, and salvage. At this time, players can choose to re-engage in battle. This is especially useful on Starbase and Planetary battles.



▷ Starbase and Planetary Battles

Following the mechanics described above, battles at Starbases and Planets will function similarly to open space battles with a few key differences described below.

Only one battle can happen at a time at a given Starbase or planet. Players can choose to defend a Starbase or planet idly or actively by traveling to the sector and selecting defend or joining an active battle grace period. When a battle is initiated, fleets idly defending the Starbase or planet will automatically join the battle. Players extracting resources on a planet are given the option to join the battle. If an extracting fleet opts to not join (either through inactivity or conscious selection) they will continue collecting resources.

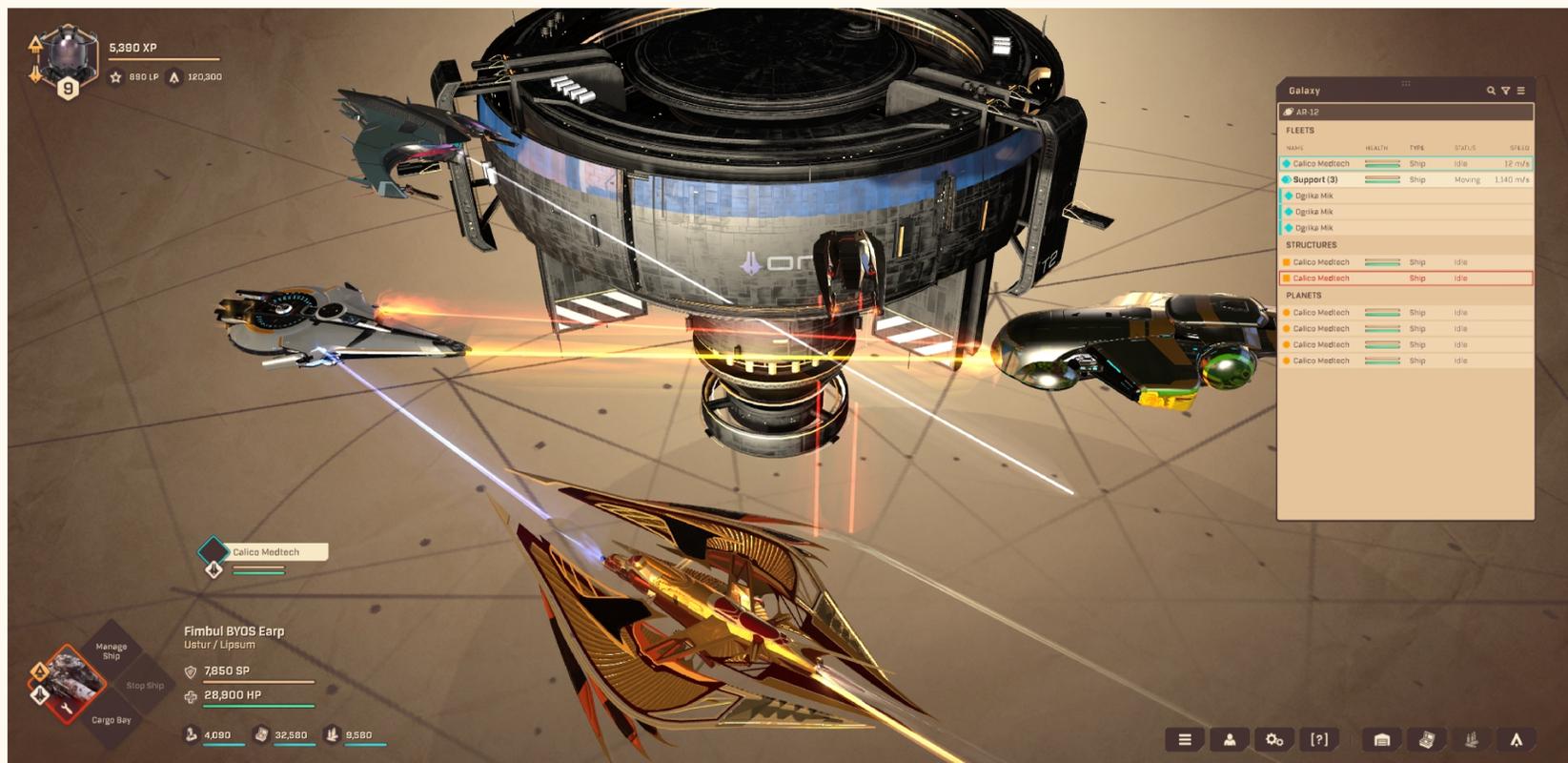
Starbases have their own defensive stats (hull points, shield points, armor, and shield strength) depending on the tier. Starbases also output damage as long as the local Starbase ammo cache is not empty. Planets don't have shield points, shield strength or damage output.

The Starbase or Planet takes SP or HP damage once the defending fleet is destroyed. The exception to this is bomb damage that ignores the defending fleet. Damage goes first to the Shield Points (in the case of Starbases) and then to the Hit Points. [Click Here](#) for details on Starbase destruction.

When a Planet reaches 0 Hit Points, it enters into the Fallen status. While in Fallen status, the resources emissions of a Planet are drastically reduced, and the damage a Starbase takes is increased by $5\% * \text{Planet (same system)}$ on Fallen status.

Starbases regenerate HP and SP outside of battle depending on local fuel and repair kit supplies. The Hit Points of the Starbase have to be actively repaired by players by contributing repair kits to a local cache in exchange for LP.

Planet's Hit Points also regenerate HP outside of battle depending on the local repair kit supplies at the planet. Players may actively repair planets by contributing repairs kit for LP similarly to Starbases. If the Planet's Hit Points go above 25% at any given time, it will lose its Fallen status (if it had it). Repairs to planets HP also depends on the local Starbase Repair Kit supplies.



- Some extra notes on Combat:
 - Players will be able to select the damage type for their hardpoints (Light, Heavy, Energy) when banding their fleet
 - The Agility of the aggregate fleet determines the starting side.
 - Upon successful fleeing, your fleet cannot be attacked for a window of time
 - There are no 3-way battles. If a fleet belonging to a third faction elects to participate in a battle already initiated by the two other factions, they must select which side they intend to support.
 - When aggregating fleets, some stats are summed up like HP, SP, and DPS, while others are a weighted average like Armor, Shield Strength, and Agility.

Respawn and SOS

Ships that are destroyed (HP=0), are docked at a Starbase that is destroyed, or submit an SOS, will enter into a respawn state. Respawn states takes a fleet to their faction CSS or Home Star System (unlocked at Council Rank 10). The respawn time is a function of distance, fleet rescue capacity, and Council Rank expedited rescue percentage.

Voluntary respawn is always an option via SOS. SOS is a player-initiated game action where a player opts to enter a fleet into respawn (e.g., not having enough fuel). SOS will force drop all cargo onboard the fleet. This penalty is in place to prevent abuse.

$$\text{Respawn Time} = (\text{Global NPC Warp Speed}) * (\text{Distance from SOS to Respawn Location}) * (\text{Fleet Rescue Capacity Modifier}) * (1 - \text{Council Rank Respawn Time Reduction \%})$$

$$\text{Fleet Rescue Capacity Modifier} = \text{Fleet Rescue Capacity} / \text{Fleet Crew Count} * (\text{Global Variable Max Rescue Timer Reduction \%})$$

Rescue Capacity is a stat granted to fleets with rescue ships and medbays.

Loyalty Points and ATLAS

▶ Loyalty Points

Loyalty Points (LP) are non-tradable (but spendable) points earned for completing faction-subsidized actions. These actions are directly in support of faction expansion into the MRZ:

- Attack Enemy Starbases and Planets
- Defend Friendly Starbases and Planets
- Upgrade Friendly Starbases
- Contribute R4 to a friendly Starbase or planet for upkeep

Players earn ATLAS proportional to their LP accrued. Each faction will have 33% of the available SAGE ATLAS emissions and will pay out emissions to their players based on each player's engagement level (LP earned) every epoch.

In every LP accumulation epoch, a player's LP earnings will be converted to a percentage of the total faction's LP earnings for that epoch. The percentage will be multiplied by the faction's available ATLAS rewards for the epoch and paid out.

In V0, a Loyalty Point store will be added that will give offer a variety of rewards in exchange for LP, ATLAS, or both.

▶ ATLAS

The Star Atlas economy is denominated in ATLAS. ATLAS utility will increase as the Star Atlas ecosystem expands. In SAGE, ATLAS has the following utility:

- Earned based on SAGE LP accrued via gameplay
- Purchase assets off the Galactic Marketplace
- Reclaim assets lost in the MRZ stored in Starbases
- Pay for Starpath fees
- Reallocate Privilege Points
- Reduce Respawn timer
- V1: Land Claim Rent Payments

APPENDIX

Claim Stakes (V1)



Claim stake functionality is expected to be implemented for SAGE V1. Please reference the road map for the feature release version descriptions.

Claim stakes allow the player to stake a non-permanent claim on a plot of land on any planet controlled by their faction. Players will have to transport the claim stake to the desired planet. Claims stakes of higher tiers will require more cargo space onboard for physical transport. Once delivered to the desired location, player may initiate the staking process. When finalized, they will be able to start extracting resources from the planet. Extracted resources will go to a resource cache that can be accessed by owned fleets for transport to a Starbase.

In SAGE V1, planets in the SRZs have unlimited slots. MRZ planets have limited slots for Tier 2-5 claims and unlimited for Tier 1. The MRZ limited claims have guaranteed resource emission rates. Since MRZ Tier 1 claims are unlimited, their resource emissions are subject to the current total number of Tier 1 plots staked on that planet. So more players staking T1 claims to a planet means fewer available resources distributed to those T1 claims. As the player base and economy grow, planets' land plot cap can be expected to scale.

Once land operations are turned on in SAGE V1, players will no longer be able to extract resources from faction-owned planetary facilities. Instead, player-owned facilities will be required. The transition plan for this change will be detailed leading up to this release. Also, recall that ships will retain the ability to extract resources from asteroid belts.

All players in SAGE are granted 1 free untradeable Tier 1 claim stake, with a few more that can be unlocked as they climb the Council Ranks.

Claim Stakes have 5 tiers:

Claim Stake Tier	Building Slots	Resource Emission Bonus	Planet Plots SRZ	Planetary Plots MRZ	Storage Capacity Multiplier	Stake fits in (ship class)
1	12	0%	Unlimited	Unlimited	1x	XXS
2	24	100%	Unlimited	Limited	4x	XS
3	42	200%	Unlimited	Limited	12x	Small
4	64	400%	Unlimited	Limited	30x	Medium
5	100	700%	Unlimited	Limited	66x	Large

NOTE: Resource Emission indicates how abundant resources are on that plot of land. Numbers are subject to change.

▶ Starting Out



In order to place buildings on land claims, players will need to provide the construction resource requirements. Buildings (other than the ones already sold on the Galactic Marketplace) will need to be constructed in situation by players. This means physically transporting the building requirements to the planet's surface or using a local refinery to make them.

Since buildings are large structures, they will not be tradeable. The ones that exist on the marketplace are special flat-packed variants that will be consumed when placed. Once placing the flat-packed version, it can only be deconstructed and cannot return to its flat-packed form.

Once a player has staked their claim to a system or planet within their faction, they will start out with a HUB (starter building) at Tier 1. The first action players will take is to submit their ATLAS rent at the HUB. ATLAS rent will drain as a rate dependent on the tier of the land claim. Increasing a land claim's tier will cost ATLAS and can be done at any time, but it will increase rent costs.

After rent is paid, then land actions become available. If a player runs out of rent, they become delinquent and will be forced to un-stake.

Players will likely start out by building a Tier 1 mining drill. After a few more buildings, the player will likely run out of available power from the HUB. This is where a power plant comes in. Over time players will need to manage and balance production, concurrent jobs, building slots, building upgrades, rent, power, maintenance, and defense as part of the terrestrial operations gameplay loops.

▷ Buildings

The buildings available are presented below with the following definitions:

Utility - what the building is used for

Building slots - how many slots it uses when placed. Each Claim Tier has a limited number of building slots

Maintenance - the upkeep requirements for the building

Power - whether the building provides or consumes power

Upgrading - what can be expected when upgrading. Each building can be upgraded to Tier 5

Other - Any other notes about the building

▷ HUB: Base center

- Utility: Starter building, automatically constructed once the claim is staked. Provides initial power to support the first few buildings. The HUB tier will always match the claim stake tier. To upgrade a HUB, the claim stake tier must be upgraded. It can only be removed via un-staking the claim.
- Building slots: None
- Maintenance: Provider
- Power: Provider
- Upgrading
 - More concurrent jobs (construct, upgrade)
 - Increased local storage for resources and products
- Other: Consumes ATLAS as rent

▷ Mining Drill

- Utility: Mines subterranean resources. Each miner will be configured to a resource deposit. You are free to place as many mining drills as desired on a deposit, whether it is iron, copper, or silica, as long as it fits within your available building slots. Different planets will have different resource deposits and different hardness and richness values.
- Building Slots: 1
- Power: Consumer
- Maintenance: Repair Kits
- Upgrading
 - Higher mining speed, better effectiveness on rarer resources
 - Higher power and maintenance consumption

▷ Power Plant

- Utility: Provides power to buildings. Building multiple plants will support larger power consumption requirements.
- Building Slots: 1
- Power: Provider (consumes Fuel)
- Maintenance: Repair Kits
- Upgrading
 - Higher power output and maintenance consumption

▷ Refinery

- Utility: Used to refine raw resources into useable materials. Allows R4 production.
- Building Slots: 2
- Power: Consumer
- Maintenance: Repair Kits
- Upgrading
 - Higher refining speed, better effectiveness on rarer resources
 - Higher power and maintenance consumption

▷ Atmo-Reclamation Facility (ARF)

- Utility: Available for use in gas harvesting on planets with atmosphere. The ARF, like the mining drill, can choose which gas to harvest.
- Building Slots: 1
- Power: Consumer
- Maintenance: Repair Kits
- Upgrading
 - Higher harvesting speed, better effectiveness on rarer resources
 - Higher power and maintenance consumption

▷ Farm

- Utility: Grow biomass that can be refined into food.
- Building Slots: 1
- Power: Consumer
- Maintenance: None
- Upgrading
 - Better biomass yields, new organics available
 - Higher power consumption

▷ **Repair/Maintenance Facility**

- Utility: Automates building maintenance and repairs damage from attacks. Consumes repair kits.
- Building Slots: 2
- Power: Consumer
- Maintenance: None (consumes Repair Kits to repair other buildings)
- Upgrading
 - More efficient use of repair kits for maintenance
 - Higher power consumption

▷ **Defenses**

- Utility: Protects from enemies, initially cheaper than the shield. Different weapon types are effective against different enemies.
- Building Slots: 1
- Maintenance: Repair Kits
- Power: Consumer
- Upgrading
 - Better protection
 - More power consumption
- Other: Consumes Ammo

▷ **Shield Generator**

- Utility: Protects from enemies and weather
- Building slots: 3
- Maintenance: Consumer
- Power: Consumer
- Upgrading
 - Better protection
 - More power consumption

▷ Space Station

- Utility: Linked to the HUB for automatic shipment of goods into orbit.
- Building slots: None. 1 Space station per claim.
- Maintenance: Repair Kits
- Power: Consumer
- Upgrading
 - Better protection
 - More local storage
 - Faster automatic shipments
 - More power consumption

▷ Job Queue

At any given time, the player has a job queue that dictates the amount of concurrent actions available within their land operations. A HUB Tier 1 has a max job queue of 1. This means the player can only do one action at a time where an action is defined as:

- Placing or constructing a building
- Upgrading a building

As the HUB tier increases, the max job queue will also increase.

▷ Expanding your footprint

Players must invest Privilege Points (from Council Rank) into Land Rights to increase their maximum land footprint if they want to expand their terrestrial holdings. A Claim Stake Tier 1 will need at least 1 Privilege Point, while a Claim Stake Tier 5 will need as many as 16. Bear in mind that this is volumetric, meaning that if a player wants to have a Tier 1 and a Tier 5, they will need at least 17 Privilege Points allocated to Land Rights.

Claim Stake Tier	Points Needed
1	1
2	2
3	4
4	8
5	16

Claims stakes will be upgradeable and craftable. Upgrading a claim stake in SRZ is unrestricted, assuming the upgrade requirements are met. Upgrading a claim stake in the MRZ requires that there is an open slot available in the next tier.

▷ Un-staking your Claim

Un-staking a land claim can be voluntary or involuntary. In the voluntary case, a player must first deconstruct their buildings and unlink their space station. Building deconstruction will refund a portion of the building materials. Once all buildings are removed, a player can un-stake the claims from the HUB (thereby removing the HUB). The claim stake will be available for pick up on the planet's surface.

Involuntary un-staking can occur due to rent delinquency and combat. For example, if planets switch ownership due to Starbase destruction, claims will be forced to un-stake. In these situations, the buildings are destroyed or unlinked, and the claim un-staked. Forced destruction of buildings returns fewer materials than voluntary deconstruction. Any resources that were in the storage facility remain untouched. The player must return to the planet to pick up their remaining supplies.

▷ Final Notes:

- Depositing your claim stake on Faction Fleet will give you rewards in the form of R4
- Players will start with one untradeable T1 Claim Stake
- Players will be able to craft and upgrade Claim Stakes which will be scaled in difficulty with their value
- Asteroid belts are not available for claim staking
- Gas giants do not require claim staking (due to a lack of a physical surface), but can be harvested with a space station

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