Concepts

ship
A ship represents any artificial construction in space that the party has influence over. These can be transport ships, mining vessels, military ships or even space stations. Ships consist of a *ship class* that set the basic stats, like payload capacity and can be customized with *module*s to customize it for a certain role. In addition to their modules any ship can carry as much of any resource as the *transfer* allows.

planet
A planet refers to any natural satellite at which ships can park. A planet may be a source of *resource* and can contain *resource* and *module*.

ship_class
A ship class determines the base *stat* for a ship as well as the maximum cargo capacity, Δv and *specific impulse*. Ship classes can be build in a *shipyard* if it is fitted appropriatly* (cf *shipyard*) and then fitted with modules afterwards.

module
A ship module is an entity that can be fitted to a ship. To fit a module onto a ship is instant for the purpose of this simulation. The modules can be anything from production facilities to military equipment to *shipyard* parts. Some, like *heatshield* or *droptank* provide a special benefit, while others provide an increase to certain stats. Most modules have a *weight* associated with them, so certain *transfer* are limited in the types of modules they can bring. Modules can be build in a *shipyard* if it is fitted appropriatly* (cf *shipyard*).

stat
A stat (short for statistical measurement of abiliat<) is a measure of capability of a *ship* to do a certain task. The stats modeled in this simulation are *health*, *attack* and *defense* for *ordonance kinetic* and *boarding* attacks, *initiative* and *power*

Δv
A measure of capability of the ship to perform certain *transfer*. Decrases with increasing payload.

specific_impulse
A measure of engine efficiency. Determines how much Δv decreases with increasing payload.

weight
The prime measurement of quantity of a *resource* or size of a *module*. Weight is measured in 'counts', where 1 count corresponds to roughly 10 metric tonns. The count is often omitted in user interface. Physically knowladgable readers should know that weight is simply used as an alias for mass in the cosmonautics jargon. A tradition that is carried over from shipping and aviation.

ordonance
A type of attack that represents attacks by mostly missile/torpedos that deal dammage by their carried ordonancy. These can be chemical explosives or tactical nuclear weapons. Ordonance weapons thend to be slow-moving, but powerfull. Ordonance defense can be provided by armor or point-defense systems.

kinetic
A type of attack that represents attacks by hyper-velocity cannons, like rail- or coilguns. Kinetic weapons tend to provide quick, hard to avoid dammage and get more powerfull the higher the relative velocities of the ships. Kinetic defense can only be provided by special armor.

boarding
TBD

health
A family of *stat* measuring the ammount of damage that the ship can take. Split up by attack type.

attack
A family of *stat* measuring the ammount of damage that the ship can deal. Split up by attack type.

defense
A family of *stat* measuring the ammount of damage that the ship can negate. Split up by attack type.

initiative
A *stat* measuring a combination of accuracy and evasiveness of a ship in combat. A ship with higher initiative gets to deal dammage before a ship with low one. In the simulation, initiative direcly relates to the number of attacks a ship can make before a ship with 0 initiative.

power
A *stat* measuring the surplus power a reactor can provide. This mostly refers to the surge power that military ships can bring in combat to power modules like railguns, coilguns power-intensive ACS. Power can be increased with modules like *reactor*

resource
A resource reperesents a certain collection of goods needed to build a modules of ship. Resources are stored and produced on a planet-by-planet level. Resources can be transported between planets by any *ship* in a *transfer*. A special resource is *water*, which is used as fuel every *transfer*

allegiance
TBD

shipyard
A shipyard is a collection of modules that can be used to build modules and ships. There are 4 shipyard modules: *small yard 1*, *small yard 2*, *small yard 3*, *small yard 4*. Each collection of *small yard 2* & *small yard 3* can build modules. Each collection of *small yard 3* & *small yard 4* can reapair ships. Each collection of all 4 can build ships.

transfer
A transfer of a single *ship* between *planet*. A transfer is defined by the departure and arrival times. By default the times are set to give the transfer with the least Δv, thus able to carry the most payload. The arrival time can be rushed or the departure time delayed in cost for more Δv. Depending on how much Δv the transfer costs, how much *weight* the ship carries and if the engine is hydrogen consuming, the ship will use a certain ammount of *water* as fuel. More exotic *ship class* may use different materials a fuel. The fuel will be lost from the departuring *planet*. If the planet cannot provide enough fuel, the trnasfer cannot take place.

Resources

water
Stay hydrated! :)

food
...

metal
...

electronics
...

hydrogen
...

Ship modules

Heatshield
Allows more efficient maneuvers around Titan and low Saturn orbit

Drop-tank
The ship can hold 10 extra count of fuel. Lost after use

Food house
Provides + 1 count food / day

Water extractor
Provides + 1 count water / day if stationned on an icey moon

Small shipyard offices
Administrative and design offices. Needed in order to build ships

Shipyard storage facility
Part and material warehouses. Needed in order to build ships or modules.

Small shipyard workshop
Construction Workshops. Needed in order to build or repair ships or build modules.

Small shipyard scaffolding
TODO

Railgun
Consumes 1 power. Kinetic Attk. +1

Missiles
Ordonance Attk. +1

Light armor
TODO

Extra armor
TODO

Point-defence cannons
TODO

High-fi Attitude Control System
TODO

Reactor
While most ship classes have a power regeneration system that can support the most basic ship functions, some modules require a dedicated, 'sailed' reactor.

Ship classes

C1K-998++

A larger variant that carries tripple the fuel and triple the engines of a traditional C1K-998.

Capacity	Δv	I_{sp}
300	6	4.5

C1K-998

Despite beeing nowadays classified as a light freightship, the C1K was at its time the largest cargo ship at the time of its construction. With simple Hydrolox combustion engines, this design was ideal to haul large ammount of cargo with cislunar space. After loosing popularity around the 2060s, some modified version made it to the outer planets and found some popularity due to their large maintenancy ecosystem and their independance of nuclear fuel.

Capacity	Δv	I_{sp}
100	6	4.5

Station 10M

General Cosmonautics space station bus is a structural framework that can hold 10 metric kilotonns of cargo. It is often used for medium sized habitats, shipyards and logistics points. The station has just enough propulsion to maintain orbit and attitude and cannot be used to transport equipment between points

Capacity	Δv	I_{sp}
1000	0	0

Express

High-end ship

Capacity	Δv	I_{sp}
100	12	10