



BETA



HIGH-SPACE

FLEET MANUAL

HIGH
SPACE

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Dedication

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***DEDICATION BY PATRICK TAYLOR: TO EVERYONE WHO SUPPORTED
ME OVER THE YEARS, FAMILY, FRIENDS, AND COLLEAGUES. A SPECIAL
MENTION TO MY FELLOW STORYWEAVERS WHO HELPED ELEVATE
HIGH-SPACE TO NEW HORIZONS!***

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Blast-Off!

The Starship rules presented here are the fast, furious and fun way of running space combat and exploration with High-Space, or even stand-alone with the Savage Worlds core rules.

Space ships and space combat are at the center of futuristic, sci-fi games. High-Space makes it easy for Players and GMs to create and play space-borne adventures, interstellar battles, and undertake the dangerous exploration of the stars.

In High-Space, starships aren't soulless constructs with a set of mechanical characteristics divorced

from the rules of the game. Instead they are treated like characters. They have Traits, Edges, and personality-defining Hindrances. With the proper equipment they can even develop personalities, even gain experience...

After your ship is built you will want to take it out for a spin around the block, and this is where the Starship 'combat' and 'exploration' rules really shine. They are fast and furious in the true 'Savage' spirit. Ultimately, each ship is an extension of the characters that fly them, and what happens to a ship has a direct impact on those characters.



More about that sandbox

As mentioned earlier, what you are reading is a set of rules that let you play fast, fun, and furious games, but you will need a setting to play them in. Your sandbox.

'The Lantern,' the third book in the High-Space rules, is just such a sandbox, but you and your friends might come up with your own ideas for a setting, taking inspiration of movies or literature. Alternatively, you might decide to buy a setting that has already been detailed and is just ready for you to drop in and start playing. In this regard there are numerous options, including titles specifically under the Savage Worlds license. Any setting that you think will benefit from space exploration and conflict will do!

Miniatures and maps

It is entirely up to each gaming group to decide if it wants to use miniatures and maps as aides to help set the mood and visualize the action. If you choose to use miniatures almost anything can and will do, although you could invest in some of quality white-metal or plastic starship lines from numerous manufacturers.

With regards to maps, anything from a plain black cloth, to a square or hexagonal map, to a beautifully illustrated star map will do equally well. It's just a matter of personal taste as to what you think works best.

However, to make things fast and fun, Storyweaver has produced a range of 'space maps' with hexagonal tiling, and a full range of counters for the Starship of the Lantern setting, all ready for you to download, print, and play.

Acquiring ships

Ships are acquired by characters based upon the amount of experience points they have accumulated, and these 'Acquisition Points' (A.P.) are totalled amongst a crew. Crews of Novice characters have a much lower possibility of obtaining a ship, and the ship obtained will have a lesser quality and capabilities than the sort of ship that a crew of Veterans could obtain.

Rank and ship acquisition

Experience	Rank of each individual	Individual Acquisition Points
0-19	Novice	1
20-39	Seasoned	2
40-59	Veteran	3
60-79	Heroic	4
80+	Legendary	5

Within your own game the quality of rank can be assumed to mean anything that reflects on a character's status and capabilities. You might take it to mean that the 'powers that be' use rank to arbitrarily assign ships to characters, such as happens in the military. It might be a representation of the political clout of the characters, or their ability to build their own ship, or even their ability to steal one!

The important point is that although a character may own a ship they do so by virtue of some agency – be it the rule of law, politics, debts, favors, or acquired technical knowledge and manufacturing capability.

Should the situation arise where characters already possess or newly acquire a ship that has characteristics greater than those they would normally be able to acquire, then vested interests will deem that ship fair-game in terms of acquiring it for themselves. This goes more so for groups that characters belong to than it does for opposing interests out to steal their equipment – after all it’s easier to demand that someone hand something over to you than it is to steal or take it.

However, ships should not be snatched off characters without any recourse; instead the characters who try to hang onto a ship that is clearly ‘above their station’ will find they have to defend their acquisition more effectively and forcefully. Far from being a problem, this provides some great hook ideas and hanging onto such a ship becomes a motivation for all the characters involved. The death or absence of a prominent crew member could severely hamper the ability of that crew to hang onto their craft – conversely the recruitment of prominent crew will enhance that ability.

If the number of Acquisition Points for a crew drops below the point threshold for their ship, this does not automatically mean that any improved Traits or added Edges are removed from the ship, although they could be at the crew’s discretion if they did not want the annoyance of having to fight to hold onto the ship. No ship trait can ever drop below d4 in this way, and Displacement can never be reduced.

In order to determine the type of ship available to the character(s), all of the Wildcards in the would-be crew should determine their ‘ship Acquisition Points’ based on their individual experience.

Characters can keep their Acquisition Points for themselves, for example if they all wanted to acquire single-seater craft, or pool them for one group ship, or any combination thereof. The most cost effective way of spending ship Acquisition Point is by combining them into a pool. The total number of Acquisition Points to be allocated to a ship determines the cumulative number or points to be spent on Traits and Edges.

As the total number of Acquisition Points allocated to a ship increases, so too does the total number of points that can be spent on Traits and Edges. For example, if the character’s ship allocation points jump from 16 to 17, an additional point can be spent on Traits taking the total to 7 points, and 2 additional Free Edges can be bought taking the total to 10.

Acquisition points and Ship Traits and Edges

Crew Acquisition Points (total)	Points to spend on Traits (total)	Free Edges (total)
1-4	3	3
5-8	4	4
9-12	5	6
13-16	6	8
17-20	7	10
21-24	8	12
25+	9	14

Upgrading or swapping ships

Every time the total ship Acquisition Points for a ship increase into the next points bracket, those contributing the points have the option to either get rid of the ship and start again (with the higher number of points to spend), or to upgrade the existing ship.

The only Trait that cannot be upgraded is Displacement. Modular ships do exist, but even they have a limit to the number of modules they can attach – the best representation is to treat such ships as ‘vanilla’ hulls with multiple docking points.

Warning: Positronic computer cores lose their accumulated experience when they are transplanted into new ships, and their personalities can become schizophrenic!



Your starship!

First of all you have to come up with a concept for your ship. Will it be a single-pilot craft, crewed vessel, or gigantic passenger ship? Will it be capable of interstellar flight? Will it be armed? What will he/she be christened - yeah, your ship may actually be male or female... read on!

The key to a High-Space-fight is the trade-off between the amount of punishment a pilot can endure, and the relative decrease of internal strength as ships increase in size.

Small craft such as single-man fighters do not have the facilities to house their pilots in shock-pods and gill-fluid, and as such are limited in their maneuverability and acceleration by their pilot's physical limits. Under high acceleration, ships bigger than 100m in length or width generate more internal stress than even their modern frame and materials can withstand, literally their front/rear or left/right sides can't keep up with each other during radical maneuvers.

The most combat survivable ships are single or multi-crewed, larger than fighter size, but under the 100m mark. However, ships this size often do not have an FTL drive and instead devote the space to extra weapon loads. This problem can be dealt with by either housing the smaller craft inside a larger FTL capable ship, or more typically by attaching the ship to a dedicated FTL capable external module, often referred to as a 'stick.' Sticks range in size from 500m to several kilometers long, typically engineered with connection points for between 4 and 20 smaller ships.

Starships as PCs?

[GM] "You want to what! Play a starship as your character? Hmmmm.... Sure!"

[GM] Just make sure you build yourself with a Positronic Core Edge, and include your own XP in when figuring Acquisition points. And I will let you acquire XP to spend on Computer Edges and improving Automatics as Skills.

You can take Ship Hindrances and other Hindrances as long as they are psychological, although you won't have an Equilibrium score.

[GM] "Now what? You want to play the USS Enterprise!"

Once you have come up with a concept then it is time to explore the details. Ships in High-Space follow the basic character-creation process as described in the core Savage Worlds rules, with the following changes:

Step 1: Traits

Attributes

Your ship starts with a d4 in each of his five attributes: Maneuver, Computer, FTL, Displacement, and Quality. On top of this you then have extra points to distribute amongst these Attributes based on the number of ship Acquisition Points the crew (of characters) can generate. Raising an Attribute a die-type costs 1 point, and you may not raise an Attribute above d12.

In more detail the ship Attributes are:

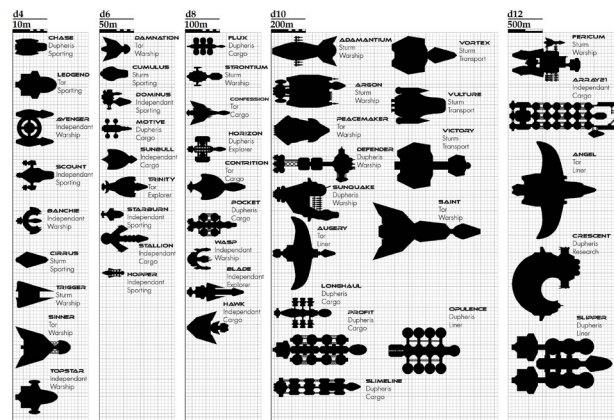
- **Maneuver** is how agile a ship is. Unless a ship is fitted with shock-pods this is normally restricted by the lowest Vigor of the occupants when not using FTL. All Piloting checks are limited to the die-type of Maneuver for each starship.
- **Computer** is the raw computing power of the ship, and its ability to handle systems on automatic (aka 'Automatics'). If a ship is fitted with a Positronic core in its computer it can actually accrue Experience and simulate a personality.
- **FTL** is the faster-than-light capability of the ship. The higher this value, the faster the ship can travel interstellar distances. Ships are capable of normal combat and communications while using FTL drives. The result of the FTL die-type roll is the number of AU that a ship can travel that round.
- **Displacement** determines the ship's bulk, load/passenger/crew numbers, size of weapons, FTL requirements, and computing power it can carry.
- **Quality** refers to the design quality of a ship, and reflects its ability to handle extreme maneuvers, as well as compensate for damage and the degradation of automatics. Crews of poor quality ships may find they need to rely more and more on good life-support!

Displacement and landing on planets

All ships of Displacement d10 or less are capable of trans-atmospheric flight and landing on the ground, and even submarine operation, unless they buy the Non-Atmospheric Hindrance. Ships and structures with d12 or more Displacement are only capable of space flight, and they must take the Non-Atmospheric Hindrance.

Ship Displacement	
Displacement	Description
d4	Single man craft, probe, drone, or remote
d6	A research or exploration ship, spy ship, or large fighter-bomber
d8	A light warship, research station, or sprint trader
d10	A large battleship, or cargo vessel
d12	A super-carrier, commercial or military space-station, or a galactic liner.

SHIP IDENTIFICATION



High-Space Figure Flats available from RPGNow

Secondary statistics

Ships also have secondary statistics, which are determined by their primary Attributes, plus modifiers for Edges or Hindrances. The secondary statistics are:

- **Pace:** When not using FTL flight the performance and quality of a properly-sized engine determines a ship's top speed in a straight line. The larger the ship the more powerful the engine it can carry. Pace per round = Displacement + Quality
- **Toughness:** The structural capacity of a ship to take abuse, whether combat damage or an impact with solid objects. Toughness = (Displacement + Quality)/2.

Pace and Drive Coils

Pace is the normal-space speed of a ship, and it utilizes the 'Drive Coil' of the ship to facilitate propulsion. The Drive Coil is independent of any FTL drive and does not require an 'FTL core.' The Drive Coil is embedded in the hull of the ship, while the FTL Core is located in the main engine area. Only ships with a Drive Coil for normal-space travel would ever consider not having an FTL drive, although even ships with an FTL core require a Drive Coil for final maneuvering and docking at their destination.

Step 2: Design Edges

Next you select one free Design Edge that best describes the apparent purpose for which the ship was designed. We say 'apparent purpose' because sometimes ships are re-tasked – traders can be loaded with bombs and used in suicide missions, exploration ships can be given a stealth upgrade and turned into reconnaissance platforms, etc.

The design of the ship provides the basic equipment and automatics typically associated with that ship on the frontiers of space. The Design Edge sets the limit on the number of Payload and Hardpoints each ship possess.

Step 3: Ship Hindrances

After several years of service no two ships are identical. The environments in which they operate and the approach each crew takes to maintenance and upgrades will ensure every ship has its own quirks.

Pick a number of Ship Hindrances that reflects the age and experience of the ship. For two Minor hindrances (or one Major hindrance that will be available in future releases and rules expansions) the ship gains one extra Free Edge. At most each ship can have two Minor and one Major Ship Hindrance.



Step 4: Ship Edges

You now have as many Free Edges as indicated by the number of ship Acquisition Points, plus any Free Edges acquired through taking Hindrances, to buy Ship Edges within the following categories: Crew, Computer, FTL, Drive, Quality, and Weapons.

Only the Ship Edges in High-Space are available for purchase. When you can purchase each Edge you must also pay the required number of Payload and Hardpoints. Transport Edges and Combat Edges (weapons) can be bought multiple times, while all other Ship Edges can be purchased only once.

Step 5: Naming

Traditionally ships are named or 'christened' at launch. Until a ship is officially launched it is given a 'hull number' and referred to strictly by that number. It is considered back luck to name a ship before it is ready, and superstitions are never discounted in the darkness of space.

Using female names for ships is a fairly common choice, although most rulers like at least one flagship named in their own honor regardless of their sex. Other common superstitions are that it is bad luck to change the name of a ship, and that if a ship attracts too much bad luck it will become cursed!

Design Edges

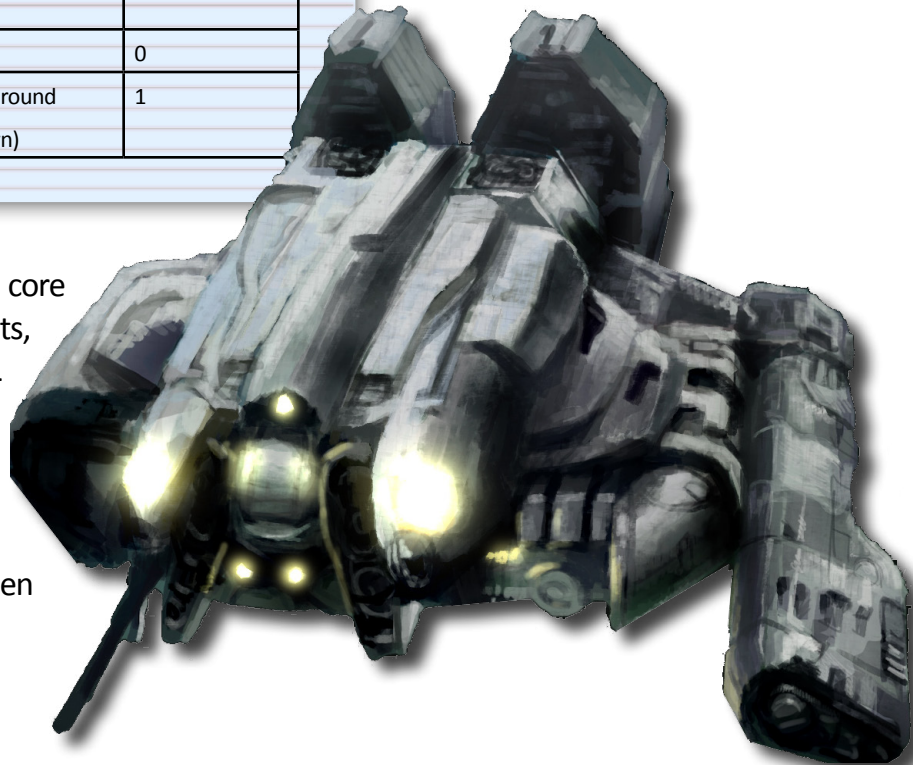
Depending on the purpose for which a ship is constructed it will have certain innate 'design' edges compared to ships constructed for different purposes – for example it could be a purpose built bulk carrier, a research ship, or a warship, all of which have very different design requirements.

Select one Design Edge for each ship when it is constructed. This can never change, although the ship could be re-tasked to try and fulfill other roles.

Design Edges

Design Edge	Modifications	Payloads per Displacement	Hardpoints per Displacement
Warship	+1 Quality die-type -3 pace	1	2
Research	+1 Computer die-type	2	0
Vessel	+1 Hindrance(Minor)		
Explorer	+1 FTL die-type +1 Pace	2	1
Cargo, Stick*	+1 Hindrance, -4 Pace +1 Displacement die-type	3	0
Liner	+1 Quality die-type	3	0
Sporting	+1 Maneuver die-type	0.5 (round down)	1

*Sticks are starship chassis with an FTL core and a full set of dedicated Docking Points, which other smaller ships without FTL cores can attach to in order to 'hitch a ride' in FTL flight. They are preferred by collectives where each member has their own ship, but resources are pooled to buy the Stick that carries them all around.



Ship Hindrances

Ship FTL Hindrances

No FTL Core (Major)

Requirement: FTL d4+2

The ship has a Drive Coil for normal-space flight but no FTL core for full FTL flight. The ship will not suffer damage results that indicate the breach of an FTL core, instead suffering the next relevant damage result beneath it on the Ship Destruction Table. No extra space is gained from this option as the core is relatively small. The only way the ship can travel at FTL speeds is in the landing bay of a larger ship, or attached to the Docking point of an FTL capable vessel such as a Stick.

Ship Quality Hindrances

Non-atmospheric (Major)

Requirement: Displacement d10 or less

The ship is incapable of atmospheric or submarine flight and does not even have landing gear. This hindrance also prevents the vessel from travelling through the lower 'liquid' layer of gas giants although it may still travel through the upper gaseous layers (see the section on Exploration).

Bad Reputation (Major)

Requirement: None

Nasty rumors exist about the ship, and this applies to new ships as much as those with a history, and the crews of other ships avoid the tainted ship with superstitious dread. Treat all Charisma-based rolls from the ship as having a -2 penalty. This penalty typically applies to bridge-to-bridge and ship-to-station communications, but can arise during more esoteric circumstances if applicable.

Limited Arc (automatic/weapon) (Major)

Requirement: The appropriate automatic or weapon to which the hindrance is applied.

One designated automatic or weapon is limited in its arc. While all automatics and weapons normally have a default 360-degree arc in all directions, automatics or weapons with this hindrance have an arc equivalent to a 90-degree cone. The arc is not fixed in space, because the ship can be maneuvered to change it almost at will, but the weapon can only attack targets within the designated arc during a round. The arc must be described at the start of the ship's first action with that system, whether it be on automatic or overridden. For example, if a limited-arc weapon is targeted at one ship, and then later in the same round another ship appears on sensors but it is outside of the firing arc, then the newly visible ship cannot be attacked with this weapon.

Ship Edges

Ship Crew Edges

Shock Pods

Requirement: None

Cost: 1 Payload

Shockpods are padded capsules that improve the effective Vigor of the crew for the performance of maneuvers while travelling at Pace (but not while using FTL). Treat the Vigor of all crew members as +1 die-type when maneuvering.

Gill-fluid

Requirement: Shock pods

Cost: 1 Payload

Gill-fluid is a full fluid based life support mechanism for air-breathing life forms. Clear, gel-like tubes insert themselves and carry oxygen, food, and waste to and from crew inside their Shock pods, and then the pods fill up with the same clear gel. Loose clothing is worn to accommodate the gel-tubes. Gill-fluid is often only used by crew on long rotations, due to the need to take a shower each time they emerge from their Shock pod. The effective Vigor of the crew for the performance of maneuvers is increased by an additional +1 die-type on top of the bonus provided by the Shock pods for Maneuvers conducted while travelling at Pace (but not while using FTL).

Ship Computer Edges

Positronic Core

Requirement: Computer d6

Cost: 1 Payload

Most computers can store information, and carry out self-optimization, but only those with a Positronic core can actually learn. At the end of each session, a Player may choose to allocate a maximum of 1 Experience Point from their character to any automatic their character performed an over-ride on, so long as the character's die-type for that automatic is equal to or greater than the current die-type the ship's computer uses for that automatic. Subsequently, computers with a positronic core will start to have die-types for individual automatics that are higher than their overall Computer die-type (of course, experience improves more rapidly if the ship is a PC!).

A side-effect of this learning is that the ship's computer will start to develop an apparent 'personality' – the personality will be most affected by those it learns the most from, although whether the new personality is aligned with or is inimical to that crew members seems to be completely random.

Note that Positronic computer cores lose their accumulated experience when they are transplanted into new ships.

Expert Automatics (Skill)

Requirement: Computer d6

Cost: None

The ship's computer is fitted with databases of knowledge and specific algorithms that enable it to operate one designated automatic with a +2 bonus. This bonus is not included if the automatic is over-ridden by a manual operator.

FTL Computation Array

Requirement: FTL d4, Computer d6

Cost: 1 Payload

The array is a modular sub-processing center to the ship's computer that enables faster and more accurate computation of FTL routes. The array adds +1 to the die roll for FTL flight. For travel times between stars this value must be included – increase the average roll for each die-type by this amount.

Security Suite

Requirement: None

Cost: 1 Payload

Any action to override the ship's computer that would result in harm to the crew or passengers must first overcome the Security Suite. Part of the Security Suite is a delay mechanism that delays execution of such dangerous commands by 1 round.

A successful Security roll will overcome the Security Suite for the dangerous action that it is combined with (and thus both actions will have the -2 extra action penalty apply). A raise is required to also overcome the delay mechanism so that the dangerous command will happen in that round and not the next.

Ship Transport Edges

Luggage

Requirement: None

Cost: 1 Payload

A small, fully-sealed and pressurized storage compartment, normally used for luggage, but also capable of storing up to 3 normal sized humans in very close proximity. Because of the potential use for carrying plants and animals, this luggage area relies on the same life-support mechanism as that of the crew. Such compartments are sometimes concealed, and aggressively searched for if a ship is boarded for a customs inspection.

Cargo Container

Requirement: Displacement d8

Cost: 2 Payload

This edge represents fully sealed and pressurized transport for as many sealed standard-sized cargo containers as the ship has Displacement points. It can be bought multiple times as separate or joined areas.

Bulk Storage

Requirement: Displacement d10

Cost: 11 Payload

Fully pressurized storage for non-fluid bulk goods, such as grains, manufactured and packaged goods, cast metals, and loose minerals, etc. The storage footprint covers the size of a several regular football fields, is about ten stories high, with a weight of up to 200,000 tonnes.

Fluid Storage

Requirement: Displacement d10

Cost: 12 Payload

Fluid storage is very much the same as Bulk Storage, except that it is specially designed to fill, transport, and empty fluid cargoes. The extra engineering increases the payload requirement, but the volume and weights are approximately the same as for Bulk Storage.

Guest Accommodation

Requirement: Displacement d6

Cost: 1 Payload

Guest accommodation is standard accommodation for non-crew members (their accommodation is automatically considered in the design of the ship). Each accommodation area can comfortably house a number of guests equal to the Displacement of the ship, with a Quality commensurate with the Quality of the ship. Guest accommodation assumes air, food, and water for all guests for the longest FTL trip a ship is capable of undertaking. This Edge can be bought up to 10 times.

Cryo-sleep

Requirement: Displacement d6

Cost: 2 Payload

Cryo-sleep is a form of 'suspended-animation' that living creatures, including humans, can be placed into for extended periods, such as extended drifting at normal-space speeds. Why customers like it is because it is cheap. Why carriers like cryo-sleep is because people can be packed in like sardines! There are facilities for waking individual passengers during a journey if required.

The facilities for maintaining cryo-sleep are sizeable, accommodating the same numbers as the Guest Accommodation table. The extra Payload cost is used to install the cooling and medical systems. This Edge can be bought up to 10 times.

Armory

Requirement: Displacement d8

Cost: 1 Payload

Arms and munitions can be transported as any other type of cargo, which is often the case - a dangerous but lucrative proposition. To safely transport an armory requires a secure strong-room. Not only does an armory need to be secure from on-board sabotage, its physical placement and shielding has to mitigate any damage should the munitions be detonated. Armories have their own local Failsafe (see Ship Quality Edges) and Security Suite dedicated to the shipboard arms and munitions typically available to crew – above and beyond the protection granted by ship-wide security and failsafe systems.

Guest Accommodation /

Displacement

	Number of Guest Accommodation Edges									
Displacement	1	2	3	4	5	6	7	8	9	10
d6	6	12	18	24	30	36	42	48	54	60
d8	8	16	24	32	40	48	56	64	72	80
d10	10	20	30	40	50	60	70	80	90	100
d12	12	24	36	48	60	72	84	96	108	120

This is an added layer of protection which must be breached, and accidental discharges/explosions inside an armory will be contained from blowing up the rest of the ship. Armories are usually only found on warships. Buying this Edge does not supply any of the weapons or munitions normally stored inside it. Instead of an armory, a ship may have a simple 'weapons locker,' which is a glorified name given to a lockable rack or cabinet smaller than a small room – weapons lockers are free to all ships and have no cost associated with them, but the security of the storage and protection they offer is minimal.

Landing Bay

Requirement: Displacement d8

Cost: 1 Payload per point of Displacement

This Edge converts 1 Payload worth of the ship into a landing area that can hold 1 Displacement worth of a smaller ship. If this Edge is bought multiple times it should be noted if it is used for one large bay, or multiple smaller bays.

Mining Rig

Requirement: Displacement d8

Cost: 3 Payload

Mining rigs are used to excavate minerals and ore from anywhere the ship can land, as well as from orbiting asteroids and, in extremely rare and dangerous cases, comets. After any Maneuver rolls for safely landing or aligning with an orbiting body, the mining rig can excavate about 20,000 tonnes of soft metal or minerals, or 5,000 of hard metals or minerals per day per Mining rig, directly into internal storage of the ship, or the storage of another vessel connected via a Docking point.

Hazmat Containment

Requirement: Displacement d8

Cost: 3 Payload

Hazardous materials (radioactive, biological, and chemical) can be safely stored in ships fitted with this Edge indefinitely. The storage is automatically fitted with its own failsafe, as per the Failsafe Edge. Because of the extensive shielding and temperature control around the containment the volume available to store material is very small – typically the size of a small room per Edge bought. When buying this Edge more than once, it needs to be specified if the containment area is one big area or consists of smaller isolated areas.

Combat Conversion

Requirement: None

Cost: 3 Payload per 1 Hardpoint

3 available Payload can be converted to 1 Hardpoint, which can then be fitted with ship weapons at the normal additional Edge cost.

Ship FTL Edges

Anti-capture System

Requirement: FTL d4

Cost: 1 Payload

An anti-capture system ruptures the FTL core of a ship, automatically resulting in a '7' on the Ship Destruction Table. The rupture can be manual triggered, timer-based, or event-based. The system is normally only accessible from the bridge, and can only be installed if a ship also has both the Security suite and a Failsafe Edges (the Failsafe having to be deactivated prior to breaching the Security suite).

Ship Drive Edges

Overdrive

Requirement: Quality d10

Cost: 1 Payload

A ship with this Edge increases its Pace by +1, for normal-space flight only.

Ship Quality Edges

Lifepods

Requirement: None

Cost: None

The ship is fitted with Lifepods. This gives all crew and passengers that are capable of using a Lifepod the choice of ejecting prior to making any roll on the Ship Destruction Table. However, anyone who cannot or who chooses not to eject before the roll must wait until the next Round before they can eject – they will suffer the fate of the ship as determined on the Ship Destruction Table. Each life-pod holds a number of people equal to the Displacement of the ship, with a first-aid kit and enough air to last 48 hours at full capacity.

Tempest Shielding

Requirement: None

Cost: 1 Payload

Tempest shielding raises the effective Quality of a ship by +2 with respect to rolls made to resist the Radiation and Gravity effects of passing too close to a star (see the Exploration section).

Nanomedbay

Requirement: Displacement d8, Quality d6

Cost: 1 Payload

Nanomedbays are advanced medical facilities. They grant a +2 bonus to rolls for all medical procedures, whether made by the ship's computer or by over-riding medical personnel.

Secoms

Requirement: Computer d6

Cost: None

Secoms are scrambled communications impervious to decryption. Anyone trying to decrypt communications between two ships with Secoms must make a Knowledge (Mathematics) or equivalent roll and succeed with a Raise. If the two ships had previously exchanged ciphers (something friendly captains often do) then the Secoms can be considered impossible to decrypt, at least within the lifetime of the characters!

Docking Point

Requirement: Displacement d8

Cost: 1 Payload

A Docking point enables two ships to be joined directly, as long as one of them has an unoccupied Docking point. This is especially important if a ship wishes to dock with a station instead of using a landing bay. If both ships (or stations) have Docking Points it also allows the safe and secure exchange of water, air, people, power, food, and data. It also allows a ship to carry any other ship docked with it, as long as the second ship(s) are each a minimum of 2 Displacement die-type smaller. For example, a d8 'Stick' can dock with and carry as many d4 sized craft as it has Docking points.

Failsafe

Requirement: None

Cost: None

Sometimes the protection of a Security Suite is not enough. A Failsafe is a set of parallel automatics completely disconnected from the ship's computer and control automatics. An override that would endanger the crew is automatically cancelled and the automatic made inoperable. The inoperable automatic can only be restarted by using Repair (or equivalent) from the failsafe controls – which are usually located in a section away from any computer control panels.

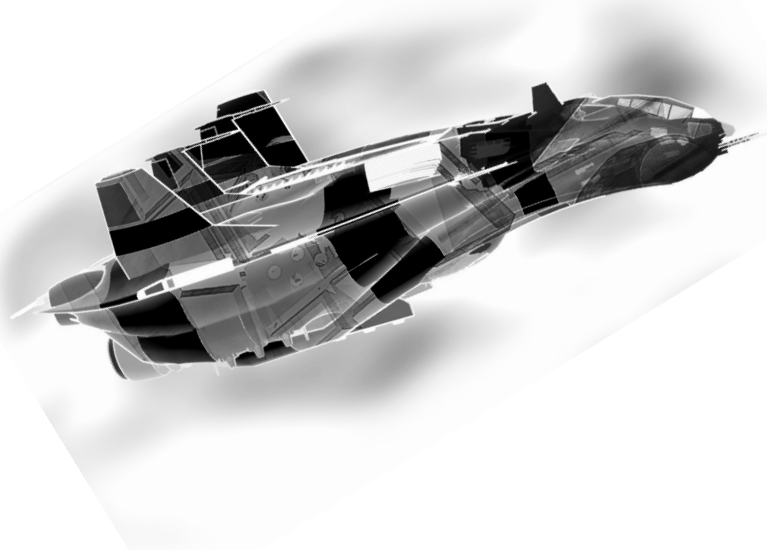
Disabling a Failsafe requires direct physical access to the failsafe system, first breaching any security around it, and then a successful Electronics (or equivalent) roll.

Non-Reactive Surface (NRS)

Requirement: None

Cost: None

NRS has the advantage of blocking active scanning. It imposes a penalty on active scanning of the ship by -2 at all ranges.



Ship Combat Edges

ECM Suite (ECM)

Requirement: None

Cost: 1 Payload, 1 Hardpoint

Ships carrying an ECM suite can make a Programming roll to cancel any kind of sensor or quantum lock (see Quantum-Lock below) currently on their ship. A success will cancel a sensor lock, while a raise is required to cancel a quantum lock. Although sensor locks are virtually automatic in most environments, they can be difficult to obtain in Nebulae and other high radiation environments.

Reflective Armor (RA)

Requirement: None

Cost: 1 Hardpoint

Not only is the surface of the ship highly reflective, it is also cleared of protrusions and external antennae and masts, and weapons are mounted flush with the hull which takes up some extra room.

A reflective surface reduces the damage caused by X-ray lasers and all other light-energy weapons, including Spinal lances, by -1 point.

Spinal Lance (SL)

Requirement: Displacement d10

Cost: 2 Payload, 3 Hardpoint

The largest weapon that a ship of any size can mount, the lance consumes a lot of space and takes a long time to recharge, but a successful hit can end a battle or even reduce a city to rubble!

X-ray Lasers (XAL)

Requirement: None

Cost: 2 Hardpoint

X-ray lasers are standard defensive equipment because of their ability to take out incoming missiles, as well as dish out some damage of their own.

HyperV Missile Battery (HvMB)

Requirement: None

Cost: 1 Payload, 2 Hardpoint

HvMB are long range missiles with FTL engines that can cover entire systems in a burst. An HvMB will reach its target within the round it fires, and self-destruct if it fails to hit the target.

Gravity Bomb (GB)

Requirement: FTL core (cannot have No FTL Core hindrance)

Cost: 2 Payload, 2 Hardpoint

A gravity bomb is effectively an unstable FTL core in a limited containment field. It is launched at a location in space and creates a tear in the space-time fabric, with the same effect as a roll on result on the Ship Destruction Table.

Point Defense Array (PDA)

Requirement: None

Cost: 1 Hardpoint

Small close-range weapons dedicated to missile defense and short bursts of fire. They come in many forms, from high rate-of-fire projectiles, to short ranged broad-beam lasers.

Quantum-Lock (QL)

Requirement: FTL d4+

Cost: 3 Hardpoint

A Quantum-Lock is a wave generator that bombards targets with very low level energy that temporarily alters its nature at the sub-atomic level, acting to 'tag' the target by providing +2 to all sensor and attack rolls for the remainder of the round.

String-Torpedo (ST)

Requirement: None

Cost: 1 Hardpoint

String-torpedos are automatically drawn to matching signatures embedded into a target by a Quantum-Lock, and automatically strike any vessel tagged with a quantum-lock, fired by themselves or an allied ship. It is typical military practice to use large, defensive starships as 'spotters' to paint targets with a Quantum-Lock, and then send in squadrons of light craft armed with String-Torpedos.

Ship Weapons

All of the following examples of ship weapons and defensive items are bought with Ship Combat Edges. See the appropriate Edge for a description of the weapon.

Additional Combat Edges will also be published in adventures and supplements published by Storyweaver Productions, but the Edges here provide all you need to start spacefighting!

Ship Weapon examples

Combat system	C/M/L*	Damage	RoF	Shots	Targeting
Spinal lance	M/L	1d10 / Displacement	1/3	n/a	LoS
X-ray laser	C/M	2d6	1	n/a	LoS
HvMB	M	3d8	1	1	Indirect
Gravity Bomb	C	special	1	1	Indirect
PDA	C	1d4	2	10	LoS
Quantum-lock	C/M/L	special	1/2	n/a	LoS
String-torpedo	C	1d6	1	n/a	special

*See the explanation of 'Combat range' in the High-Space fights section.



Automatics

Every ship, no matter its size, has a computer that is capable of managing each and every automated system on a ship, from Astronavigation, to performing surgical operations in the Medbay, to firing the main guns. This enables the ship's computer to make any Skill rolls associated with these automatics.

The die-type rolled when the ship performs these actions is equal to its Computer trait, up to the maximum of the trait for that automatic. For example, a ship with a Maneuver of d10 and a Computer of d6 can only use a d6 for maneuvering rolls.

Computers can operate as many automatics per turn as they wish, all acting on the Initiative of the ship computer. However, there are times when a human being can finesse an automatic to a higher degree than a computer can manage.

Examples of Automatics

Ship Automatics	Ship trait	Equivalent Skill
Passive Sensors	Quality	Notice
Active Sensors	Quality	Investigation
Direct weapons	Maneuver	Shooting
Indirect weapons	Maneuver	Notice
Maneuvering	Maneuver	Piloting(spaceship)
Medbay	Quality	Medicine
Hacking attacks	Computer	Programming
Communications	Quality	Spacewise

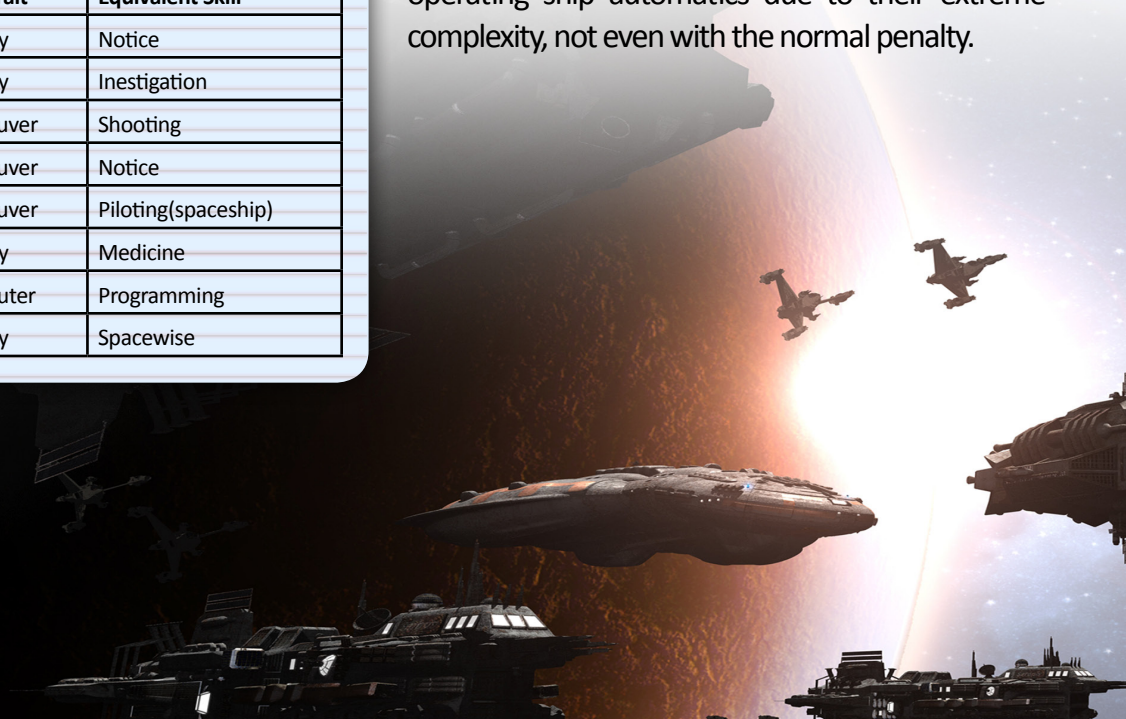
Overrides

Any member of a ship's crew can take over the operation of any automatic on their Initiative, as long as that automatic has not already been used that round. To achieve this the ship's computer is simply told to hand over control of the automatic to the crew, even if the ship's computer has a higher Initiative, in which case it will not operate that system.

When a crew member, with access to the appropriate control panel initiates an override, they use their own Skill (with a Wild-die and modifiers) up to the maximum of the ship's Trait for that automatic. Quality is the most common Trait by which an automatic is restricted.

For example, a ship with a Maneuver of d10 has its maneuvering automatics over-ridden by a pilot with Piloting(space) of d8, so the pilot can roll a d8 for maneuvering. A pilot with Piloting(space) of d10 could also roll a d10 because the ship is capable of matching their abilities, however, a pilot with Piloting(space) d12 would be limited to a d10 because of the limitations of the ship.

Attributes cannot be used as a default value for operating ship automatics due to their extreme complexity, not even with the normal penalty.



Consider this example of an override. If a ship's computer has charted a course into an unknown asteroid field which brings the ship into harms way from a large oncoming asteroid, a human pilot may wish to take manual control of the ship to adjust its course. At this point the ship, the pilot, and the asteroid all determine initiative (the GM draws for the asteroid, the player for the pilot and their ship).

If the asteroid wins Initiative it may impact the ship. If the ship wins Initiative the piloting player(s) must decide if the ship will try to maneuver away, or if a pilot will over-ride the computer. If they elect for the ship's computer to make the maneuver it will occur on the ship's Initiative. If they elect for the pilot to make the maneuver the ship will not intervene – but there is always a risk that the asteroid will act before the pilot! If the pilot wins Initiative they can, of course, act before both the ship and the asteroid.

As stated previously, a crew member with the appropriate and (usually physical) access to the automatic's control can chose to override the ship's computer for that automatic any time before the ship's computer acts. They can do this even if the end result would be detrimental to the crew or passengers - the Ship Edges of Security Suite and Failsafe can provide some defense against this.

If two characters acting with the same Initiative (even if one or both of them have a Held action)

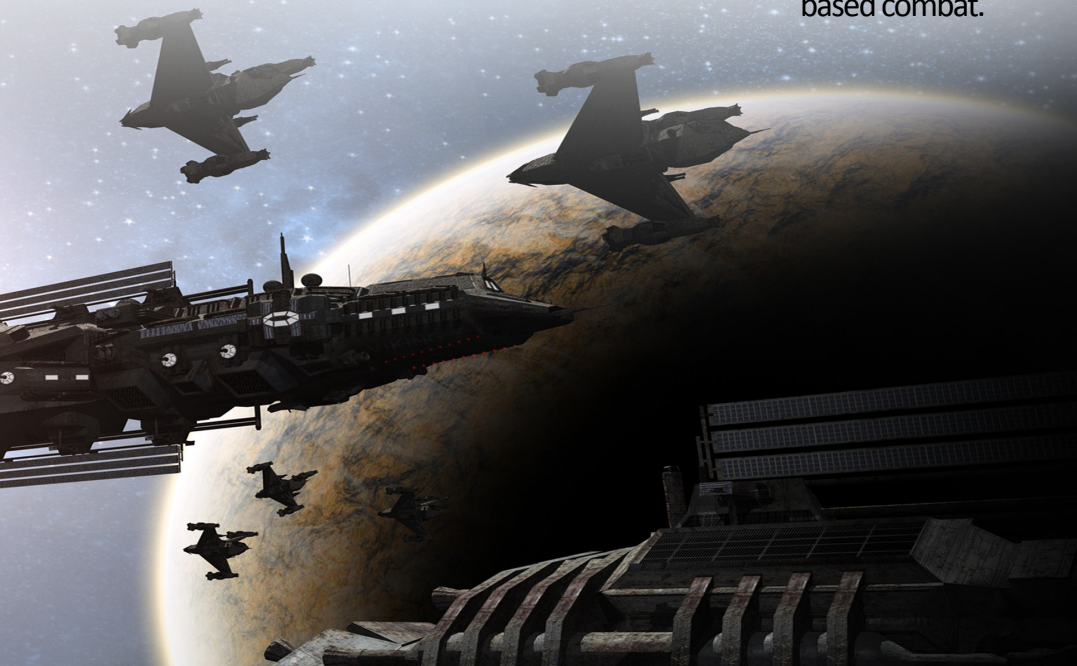
compete for control of an override, they can roll against each other using the requisite Skill and the highest roll wins. However, the winning result must subtract any successful opposing result in order to determine if it succeeds or gets any raises.

For example, Executive Officer Brey of the Sturmian Militocracy is trying to activate the ship's distress beacon, but a saboteur on board the ship is trying to stop her. They both have access to a control panel and there are no security countermeasures in place. In this example, the saboteur has been holding their action in anticipation of having to stop Brey. Brey has Notice d8 and rolls a 7 (she is not a Wildcard).

The saboteur has Notice d4 and rolls a 4, which explodes with a 1, for a total of 5. Brey wins but the final result of $7 - 5 = 2$ which is not a success. The beacon does not activate.

If a crew member with a Held action decides not to perform any overrides that round they retain their Held action until they wish to use it next round and do not draw a new card for Initiative.

Spaceship battles are an exciting element of the sci-fi genre. High tech weapons, major fleet actions, and the actions of daring crews make for great stories. If you are familiar with the Savage Worlds rules you will notice that High-Space resolves space combat in a similar fashion to normal, character-based combat.



Spacefighting

Rounds

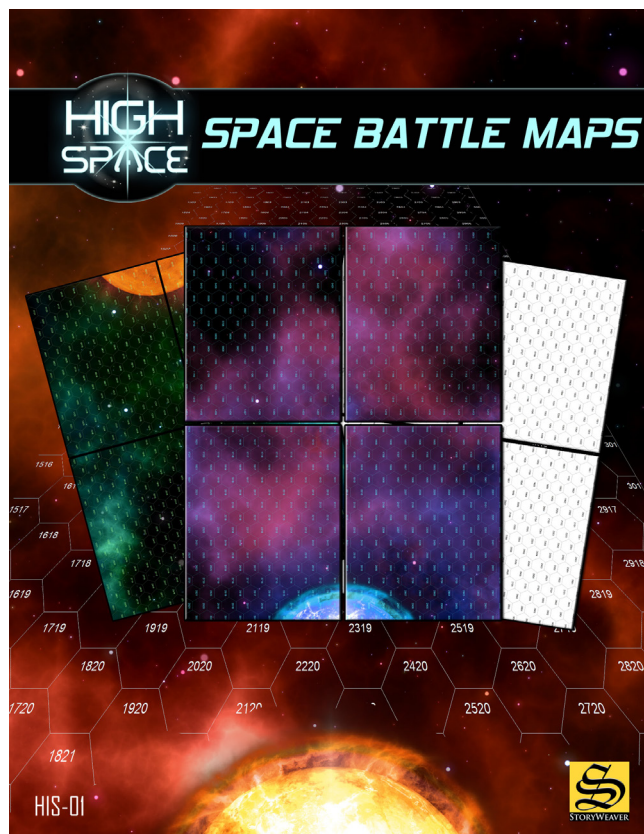
Spaceship combat takes place across great distances, but also at often unimaginable speeds. Combat is divided into Rounds of six-seconds each, and as you will see range and speed are the critical factors.

Weapons & comms at light-speed

Communications links, Weapons, and Sensor signals are considered instantaneous over their operating distances. Communications range is unlimited, but becomes highly directional and requires exact target coordinates beyond Long range, giving it a maximum distance of Quality x .1LY (ground-based systems use d12 unless otherwise stated). Remember, this is 'space opera,' not hard science!

Distance in AU

One AU is the distance between the Earth (in the Sol system) and its sun, Sol. This is approximately 150,000,000km (150 million kilometers, about 92 million miles).



Printable High Space Starship battle maps available from [RPGNow](#).

Using miniatures or maps

Even when only a couple of ships are involved in a combat, it is recommended that either a map and/or miniatures are used to keep track of the relative positions of the combatants. The expression 'relative positions' is poignant because ships can move hundreds of millions of kilometers per second, and whether they are in close, medium, or long range is best approximated rather than calculated exactly.

Whether an object blocks line of sight is usually more important than range, for example whether or not players declare that their ship is actively using a planet or moon to hide behind, rather just being in position somewhere beyond an object.

When the GM determines that combat has commenced, they should place down or mark the position of the ships involved. The GM should make sure that all sizeable inter-stellar objects in the vicinity are accounted for, erring on the side of more objects/cover than less.

Objects such as large space stations and docks, planets, moons, and large asteroids can be placed on a map if accuracy is desired. Alternatively the action can be played out using narrative, where distances and LoS are described instead of mapped. Both methods were used in playtesting and each brought its own strengths to the game.

Movement

FTL Movement

When travelling using FTL flight, ships roll their FTL die-type and move as many AU (150,000,000 kilometers) per Round as the result. If the ship is a player character, or belongs to the player characters, it also gets to roll a Wild-die.

FTL is not possible when navigating any distance which is smaller than .000001 AU (150km). Ship computers cannot compute FTL paths with such a minute margin for error, and the ships themselves cannot handle the stresses of maneuvering in such relatively tight confines. FTL drives will lock-down within 150km of a planetoid or planet (see the section on Exploration).

Ships leave FTL flight with the same Pace as they entered – Pace is conserved indefinitely while a ship is in FTL.

As mentioned in the section on 'Fuel,' FTL drives are usually fuelled by a rare and naturally occurring element, the availability of which is probably going to play a key role in the world of your game.

Normal-space Movement

Travel through normal-space is determined by the Pace of a ship, and often by the Vigor of the crew and passengers.

For each point of Pace a ship has it is capable of travelling roughly 1000 meters (1 kilometer, or 1km) per round. For example, a large luxury cruise liner with Displacement d10 and Quality d6 can travel 16km per round.

A ship may be outfitted with Shock-pods for the full complement of crew, but unless all the passengers are in Cryo-sleep they can be hurt or killed by excessive acceleration and maneuvering forces. Any travel at a Pace higher than the 2 x Vigor die-type of a passenger runs the risk of injuring, even killing them. For each point of Pace higher than 2 x Vigor they suffer that many 1 point in damage each Round. For example, if the liner described above were to move at its full pace, the passengers with d4 Vigor would take 8 damage, probably killing them all! Part of a Failsafe or Security Suite would be mechanisms to prevent this.

Ships have FTL as a matter of course, and only travel using normal-space drives for docking maneuvers and when within 150km of their destination. Warships almost always have Shock-pods for their crews because of the superiority this gives them over civilian craft while undertaking 'planetary defense.'

This is a simplistic, yet fast and cinematic way of handling the complex issues surrounding acceleration that would affect real-life space travelers.

Ranges

Besides sizeable hard objects that block Line-of-Sight (LoS) in space, there is very little else that stops things travelling where they want to go.

There are only 3 ranges that are taken into account in High-Space:

- Close range: Anything less than 1AU (the distance from Sol (our sun) to Earth)
- Medium range: 1AU to 12AU (E.g. the distance from Sol to Saturn, plus 3 AU)
- Long range: 12AU to 24AU (E.g. the distance from Sol to Uranus, plus 6 AU)

Combat rounds

Initiative

For combats with less than a dozen or so ships, each ship should draw a card to represent the Initiative of the ship's computer. To facilitate games where all sides represented have roughly more than a dozen ships each, the ships should be grouped into squadrons or task-forces, and one card drawn for each group. Any ship piloted by crew containing one or more Wild Cards will draw its own Initiative card regardless of overall ship numbers, and each Wild Card crew member will also draw an Initiative card.

As per the Savage Worlds rules, the players will control all ships allied with their characters, not the GM.

The Countdown, Surprise, Holding, and Standoffs are all treated as if they were character actions according to the Savage Worlds rules.

Because the timing of ship combat exists alongside that of character combat, the opportunity exists for crew and passengers not otherwise engaged to act on their own behalf as well as to use any of

the ship's automatics. The potential for action and drama here is limited only by your imagination – you could have boarding parties fighting their way towards the ship's bridge, while the ship's crew are busy trying to blow another ship out of space – or an attacking ship could be bearing down on the character's ship while one of them is in the engine room desperately trying to take down the spy who is sabotaging the engines.

Social interaction is likewise unlimited, and crews are free to engage in hurling verbal abuse at their enemies, pleading for mercy, or changing the conditions of surrender as a battle progresses!

Multiple Actions

As stated in the 'Automatics' section, a ship's computer can handle all the functions of a ship each round, although a character can manually override any automatic. Computers do not incur any penalty for using multiple automatics or ship systems in a round – they can maneuver, shoot, use sensors, and patch people up in the Medbay all at once. However, if characters try to perform multiple actions, including overriding an automatic, they are subject to the normal -2 penalty for multiple actions, although they still roll their Wild-die. Note that whether the ship's computer, or crew members using an override operates an automatic, each automatic is limited to only one use per round.

'Free Actions'

A ship and its computer are not entitled to any free actions – the computer can effectively do everything possible on a ship in the same round, so the point is moot. However, characters who are on board a ship are still entitled to their usual free actions should they choose to use them.

Combat Actions

When ship automatics are used to perform actions, they are resolved with a dice roll the same as for character action. The most common ship actions are tactical maneuvers,

firing weapons, sensor scans, repairs, medical treatments, and jamming enemy scans and communications. Most ships automatics are always at the ready and require no time to be brought into use.

Open Comms

If you wish to initiate a Test-of-wills against the crew of another ship, you need to open communications with them. However, if you initiate a social Skill test you cannot sever a comms link in the same action! Be warned - everyone gets a reply if they wish!

Tactical Maneuvers

The ship's computer, or a pilot using Piloting(space), can perform a single maneuver each round that can provide a benefit to a ship in combat, with some degree of risk if the maneuver fails. There are more maneuvers than described here, but these are common ones:

Mask Engine Signature

By flipping the ship at a critical time it can alter the drive signatures on the enemies tracking devices, making it harder for them to gain a lock-on.

Bonus: -2 penalty to any roll that involves targeting the ship, including sensors and weapons.

Raise: The penalty is increased to -4.

Failure: The ship veers wildly to no effect. -4 to all attempts for your ship to target anything else.

Align For Impact

By keeping the sturdiest parts of the ship facing towards the enemies weapons, you are

likely to suffer less damage when hit.

Bonus: +2 AP versus damage incurred.

Raise: No improvement.

Failure: The ship veers of course. -4 to all attempts by your ship to target anything else.

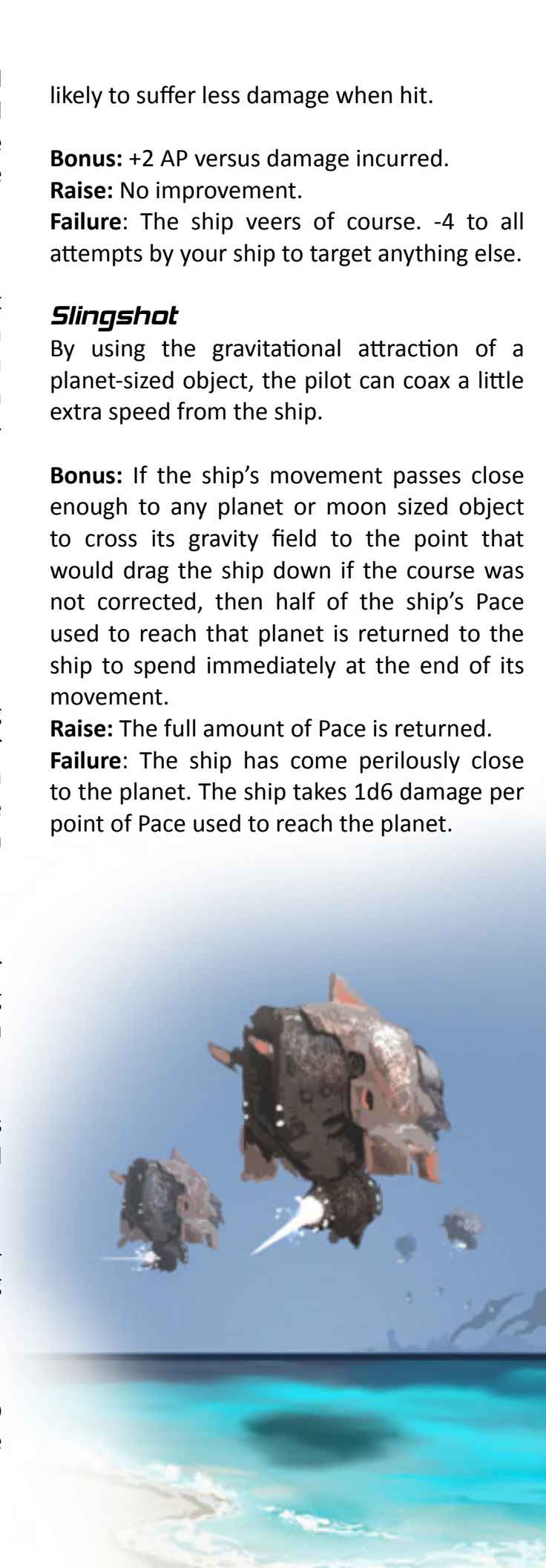
Slingshot

By using the gravitational attraction of a planet-sized object, the pilot can coax a little extra speed from the ship.

Bonus: If the ship's movement passes close enough to any planet or moon sized object to cross its gravity field to the point that would drag the ship down if the course was not corrected, then half of the ship's Pace used to reach that planet is returned to the ship to spend immediately at the end of its movement.

Raise: The full amount of Pace is returned.

Failure: The ship has come perilously close to the planet. The ship takes 1d6 damage per point of Pace used to reach the planet.



Weapons release

Each weapon system on a ship can be activated once per round, using the Shooting Skill. All weapons except Indirect weapons require LoS to their target in order to hit, which makes Indirect weapons an excellent choice if cover is available. The Shooting TN of 4, plus all normal Savage Worlds rules for raises apply.

Defensive Firing

When targeted by an Indirect ship weapon, the targeted ship may react by firing one or more direct weapons that are operable within Close range. Either the ship's computer, or a crew member with a held action, can activate defensive firing. A hit by defensive fire automatically destroys the incoming Indirect weapon. The weapon used in defensive firing mode cannot also be used to attack that Round. If it is used to attack first it cannot be used for defensive firing, and vice versa.

Improved Firing Solutions

Normally, weapons release will occur as soon as possible – after all, the longer the enemy is alive the more opportunity they have to kill you. In situations where a character feels that a weapon is unlikely to be effective they can override the ship computer's control of that weapon, stopping it from firing that round, and instead spend the round fine-tuning the firing solution. Doing this requires spending a round and achieving a normal Success on a Notice roll, providing a +2 aiming bonus for the next round for that weapon (only). Raises add no further benefits and fails and snake-eyes likewise have no effect. Because of the delay involved, nothing is fired and no ammunition is spent if the improved firing solution cannot be calculated.

Running Silent

Sometimes the best way to avoid being hit by a weapon is to be undetectable. Any ship with its engines engaged, in either FTL or normal-space mode, will be automatically detectable by passive sensors to any vessel within Long range in line-of-sight, perhaps even further away if the engines are operating at full thrust, although environmental conditions such as nebulae reduce this.

However, when a ship is powered-down, it becomes invisible to all *Passive* sensors, unless the ship is leaking some form of energy. Ships in this mode take one round to become active again, and until this happens they cannot move or fire any kind of weapons, although they can use internal automatics such as med-labs, communications, and sensor arrays.

The only sensors that a ship can use whilst running silent are *Passive* sensors. A ship running silent will automatically drop out of FTL flight, but it will keep moving at the same Pace it moved at before achieving FTL.

Passive Scanning

A ship's passive sensors can detect all ships and planet-sized astronomical bodies out to Long range and in line-of-sight, *except ships Running-Silent*. They can automatically detect standard sized moons and asteroids at Medium/Close range. The ship's computer or a character using their Notice Skill can use passive sensors to locate and identify any active ship within Close and Medium range, even if they are not within line-of-sight. The sensors can be activated only once per round. The information that passive sensors can provide on starships depends on the success of the sensor use roll:

Success: Location, FTL/Pace.

Raise: Displacement.

Active Scanning

Active sensors have the chance of detecting all astronomical bodies and other ships out to Medium range, even if there is a ship in the scanned area that is *Running-Silent*. Active scanning automatics use the ship's Computer, or a character can use their Investigation Skill, and it is only effective if there is LoS to the target. These sensors can be activated only once per round. The Displacement of the target ship is subtracted from the TN required – the largest ships will automatically show up on active sensors, except within Nebulae. The information that active sensors can provide also depends on the success of the sensor roll:

Success: Location, Displacement, FTL/Pace.

Raise: Quality, Design, Ship Combat Edges.

Damage

Breaches

Every weapon that hits a ship must roll its Damage, versus the Toughness of the target ship as its TN. A success equals a Breach, with an additional Breach for each Raise.

Breaches are a ship's approximation of Wounds. After each Breach sustained, roll d6 on the Ship Destruction Table, adding +1 to the roll for each existing Breach after the first.

Repairs

Breaches can only be repaired at docking facilities. The amount charged for this depends on numerous factors including favors, allegiances, and connections. In any law-abiding port, repairs of weapons damage will be escalated to the local authorities who may/may not be persuaded to overlook them. As long as a ship is not Mauled, or worse, damage to automatics can be repaired by the crew, usually taking several hours for a single automatic, although the time required is reduced with raises. The ship will be functional but it will still be breached and dangerously fragile. Breach penalties to all actions, Pace, and FTL will apply at all times until properly repaired.



Ship Destruction Table

Roll	Result	Description
1	Hit	Hull intact. Distress beacons can be activated.
2	Hit	Hull intact. Distress beacons can be activated.
3	Rumbled	Hull intact. All automatics severely degraded, including emergency life and lighting. Distress beacons will function. -1 to ship Automatics, cumulative with other Breaches.
4	Rumbled	Hull intact. All automatics severely degraded, including emergency life and lighting. Distress beacons will function. -1 to ship Automatics, cumulative with other Breaches.
5	Mauled	Ship's hull loses integrity and air. Rapid loss of environment, heating, and cooling. Distress beacons will function. -1 to Pace, FTL and all ship actions, cumulative with other Breaches.
6	Mauled	Ship's hull loses integrity and air. Rapid loss of environment, heating, and cooling. Distress beacons will function. -1 to Pace, FTL and all ship actions, cumulative with other Breaches.
7	Splintered	The ship breaks apart, along major-bulkhead stress lines. Distress beacons fail to activate. Those exposed are sucked out into the void of space!
8	Explodes	The ship's normal fuel and payload ignite and explode, along with any anti-capture devices. All ships within 1km for each point of the ship's Displacement suffer damage equivalent to 1d6 per point of Displacement from the force of the blast. All of the ship's occupants are vaporized.
9	Annihilation	The ship's FTL core ruptures and tears a hole in the fabric of space-time. All vessels within 1km of the ship must pass either a Displacement or FTL roll or be sucked into the tear with the destroyed ship, before the tear collapses in on itself. All of the ship's affected occupants are removed from reality.



Exploration

The Galaxy

Even with FTL capability, there is great difficulty in crossing the gulf of space between galaxies. Because FTL flight is inertia-less, the FTL drive has to be continually active, and there are currently no ships in existence that have the capacity to carry sufficient fuel for a return journey between galaxies – and thus they must risk having to find a source of fuel at their destination.

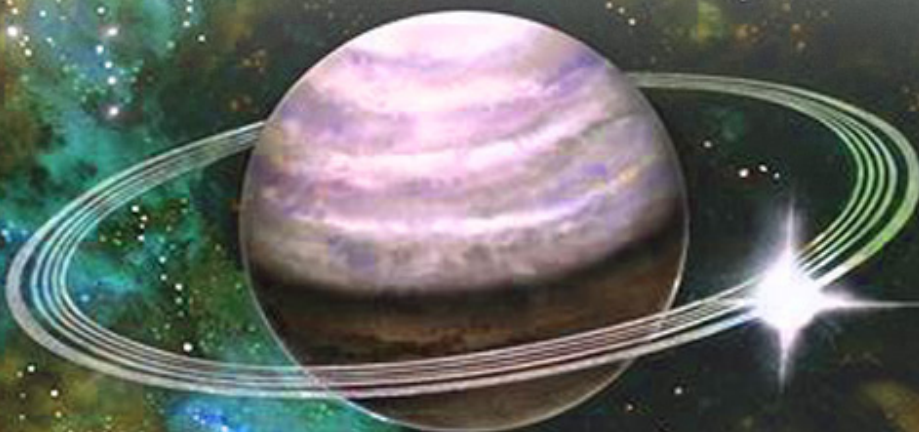
This makes inter-galactic exploration a highly dangerous but potentially lucrative endeavor.

Solar systems

The majority of action in High-Space takes place within solar systems. The voids between solar systems are uninhabited, and ships that attempt to meet at an agreed rendezvous point would find it almost impossible to locate each other if they have not pre-arranged a set of coordinates.

The typical radius for a solar system begins at around 30AU, which is the furthest distance from the center of the system that a permanent monitoring platform might expect to be found.

There are often outlying bodies up to about 70AU out, usually asteroid-sized and too numerous to count, and often beyond the reach of the local law enforcement if they are in fact inhabited.



Travel times between solar systems

As a general rule, the duration of a flight between solar systems (using average FTL speeds) is:

Duration = ((Distance in Light years x 100) / FTL die-type) x 2.

For example, the duration of a flight from the Sol system (Earth's system) to Alpha Centauri on a bulk trader with FTL d4 = ((4.2 x 100) / 4) x 2 = 210 days. The same journey on a sports yacht with FTL d10 = ((4.2 x 100) / 10) x 2 = 84 days.

Trust us - this is the most difficult math in the game! Check the boxout for a set of pre-calculated times for standard distance journeys.

Inter-stellar Travel Time

Distance (LY)	FTL d4	FTL d6	FTL d8	FTL d10	FTL d12
0.1	5 days	3.3	2.5	2	1.7
1	50	33	25	20	17
5	250	167	125	100	83
10	500	333	250	200	167
15	750	500	375	300	250
20	1,000	667	500	400	333
25	1,250	833	625	500	417
30	1,500	1,000	750	600	500

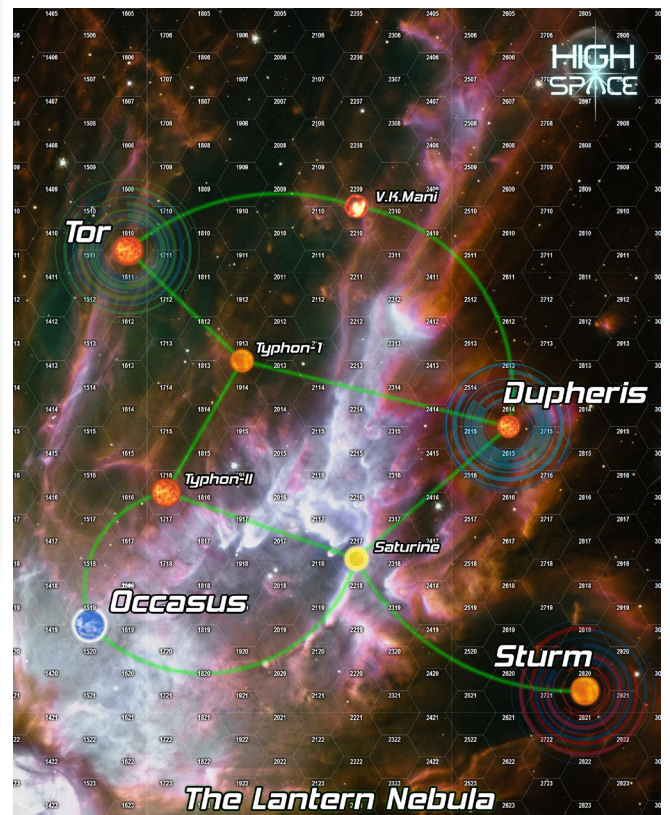
A ship with a working FTL drive can travel between 1 and 12AU per round, and thus is able to fully enter any solar system within a matter of Rounds.

Normal-space travel

Ships without an FTL drive can travel 1 km per point of Pace per Round. Because 1AU is about 150,000,000 km, a Pace 8 ship would, for example, take about 2000 days to travel 1AU, while a Pace 24 ship would take about 700 days to travel 1AU.

Directly comparing their Pace is the easiest way to determine if one ship beats another to a location not reached by FTL.

Typically, ships use FTL flight to reach within 150 km of their destination, and then switch to normal-space flight to make the final approach. The effects of failing a Piloting(Space) roll to approach closer than 150 km using FTL, are an automatic roll of d6 on the Ship Destruction Table, usually due to colliding with a planet or another ship!



Solar bodies: Suns

At the heart of each solar system are one, or more, suns. These gigantic bodies are composed of outer layers of gas, and dense inner cores of metals up to the atomic weight of iron. Every naturally occurring element in the universe heavier than Helium is produced in a star or a supernova.

Radiation

Stars radiate light and heat as a result of the nuclear reactions taking place in their cores. Because of this radiation, the closest to a star that any ship can safely travel is equal to 1AU divided by Quality die-type of the ship.

When ships travel within this minimum safe distance, the crew must make Vigor rolls, with a -2 penalty per range bracket exceeded. If a character fails the roll they take damage as specified in the Radiation section of the Savage Worlds core rules.

Ships usually only travel within this minimum safe distance when trying to out maneuver or foil the sensors of another ship – whenever closer than $\frac{1}{2}$ AU to a red or yellow star a ship is considered to be in radiation equivalent to that of a Galactic nebula (see the section on Nebulae).

Gravity

Due to the extreme gravity wells they produce, the closest to a star that a ship can safely travel is equal to 1AU / Quality die-type. When travelling within this minimum safe distance, the ship must make a Quality roll with a -2 penalty per range bracket exceeded, or suffer 1 breach per range bracket exceeded that round.

Binary star systems

Binary stars systems contain two stars in close orbit around each other. In High-Space, the effects of radiation and gravity hazards are effectively doubled – that is, the minimum safe distance is usually 2AU divided by the ship Quality die-type, with double the roll penalty and double the damage for failed rolls. Other than this, binary-stars contain the same types of planets with the same capacity for habitation as singular star systems.

Trinary star systems

Trinary stars are extremely rare, energetic, and unstable. The minimum safe distance is usually 3AU per ship Quality die-type, with triple the roll penalty and triple the damage for failed rolls. Trinary stars systems will strip the atmosphere from any Earth type planets, because these are usually only found around 1AU from the star, and at this distance their magnetic fields are not strong enough to deflect the powerful ionizing winds these systems generate.

Gas giants

Gas giants all lie outside of 5AU from their local star, although this may be closer for binary and trinary-star systems. They radiate a detectable amount of heat and other radiation, the largest even producing a relatively small amount of nucleosynthesis (the fusion of atoms, releasing energy such as occurs in the sun) but nothing like the full scale radiation of a sun.

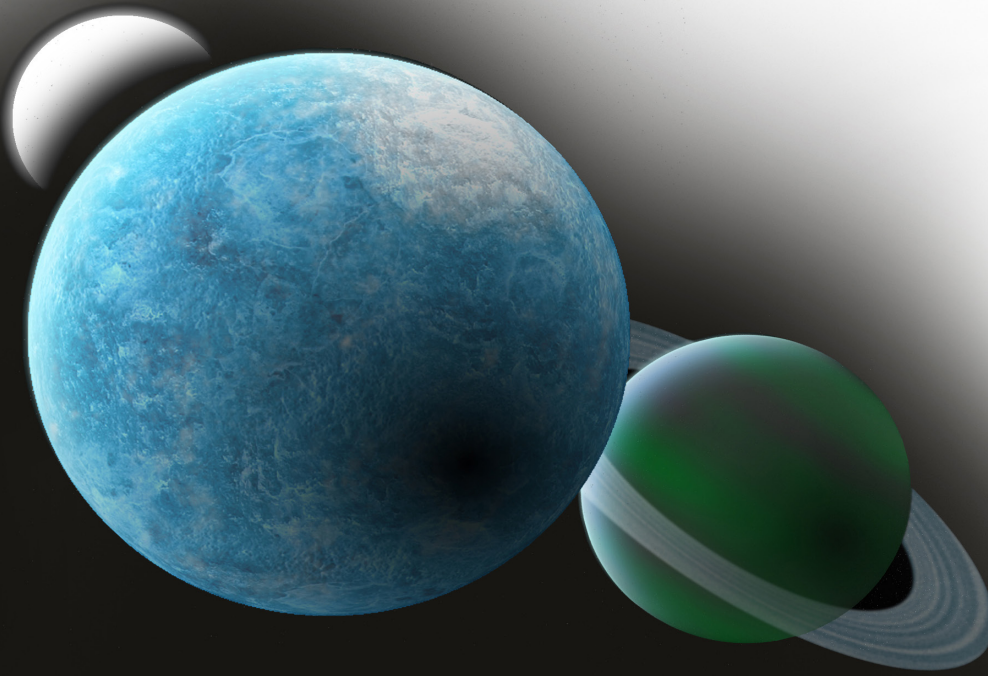
Gas giants can have a vast number of moons, and sometimes rings of material that never coalesced into moons.

The upper atmosphere of a gas giant is easily navigable by ships, as are the lower levels where the gases convert to liquid form due to immense pressure, however any deeper and ships tend not to be heard from again!

Earth-type planets

Planets such as Venus, Earth, and Mars are 'Earth-type' planets. They have a solid surface, and the potential for an atmosphere depending on the distance from their local star, the strength of the star's gravity, and the strength of the planet's magnetic field - derived from having a molten metal core that is in motion. Such planets usually have enough mass to produce a level of gravity that is healthy for human life. Apart from air, water is the other extremely valuable resource of Earth-type planets.

If both water and a nitrogen/oxygen based atmosphere are present, life is almost guaranteed. Planets of this type typically have two, one, or no moons. Instances of 'many mooned' earth type planets have been observed, although such moons are usually the size of asteroids. Because of their propensity to have an atmosphere, ships with the Non-atmospheric hindrance usually cannot land on Earth-type planets.



Golden planets

Planets located almost exactly in the same relative position as the Earth (the liquid water zone around a star) are referred to in astronomical parlance as 'golden,' because they can almost universally support human life, and can have some kind of native life form. Golden planets are highly prized territories and often the source of a great many conflicts for their possession.

Moons

The Earth's moon, 'Luna,' is a good example of a large moon. However, only the rare very-large-moons (such as Titan, orbiting Jupiter) produce enough gravity to achieve a state of 'hydrostatic equilibrium,' where the gravity of the moon is strong enough to prevent the atmosphere from drifting off into space. Most moons have no atmosphere or any kind, and when they do it tends to be made of a deadly combination of poisonous ethanes, heavier than oxygen and the other, lighter molecules that humans breathe.

Human habitation on moons is made doubly problematic because of the relatively low gravity they generate – usually not enough to promote effective bone growth and calcium deposition in humans.

Ships that are non-atmospheric can approach extremely close to most moons, although they still lack any landing gear to safely land. The advantage of moons that have no atmosphere and a low gravity are that it requires relatively little fuel to lift mining and manufacturing products from the surface.

Asteroid fields

Asteroid fields are stellar material left over from the formation of a solar system, or the remains of a planet or moon which has suffered a catastrophic impact with another body - perhaps another planet, a comet, or even the spinal lance of a super-battleship.

At the time of the accident the debris will be clumped together as a dense field, but over millions of years this field will stretch and spread out around the local star (or planet, if the debris was from a moon) until it forms a ring.

Asteroids can range from the size of a pea to several kilometers long. In tactical situations it should be assumed that a ship can declare a move close to some large asteroid in a field, and use it to block LoS. Scanning is likewise blocked as asteroids are usually high in iron and other metal content.

Given more than a few rounds, it should be assumed that large asteroids that lie on the very edge of a field can be readily located with scanners. Otherwise, in an immediate emergency a ship will have to enter an asteroid field in search of cover...

Moving through an asteroid field is incredibly dangerous and can only be done at normal-space speeds. Each round requires a successful Maneuvering roll, with a failure indicating damage equal to one d12 for each point by which the roll was failed.



Comets

Comets are fast, relatively small lumps of ice and rock that melt when close to a star. They leave behind a wake of visible water vapor, also known as a 'tail', which always points away from the star around which they travel, and can be seen by the naked eye. Traditionally, comets have been seen as omens of important events about to occur – the birth of royalty, the fall of empires, natural disasters – and this is another superstition which space-faring humans find hard to let go.

Because even a fast comet only travels at a fraction of a million kilometers per hour, even the slowest ship with only normal-space drives can overtake them – and a ship running silent, attached to or directly adjacent to a comet, would be virtually undetectable.

Comets orbit stars, and sometimes even gas giants, with a wide variety of orbital periods, usually from a few years to millennia between visits. The longer the duration of a comet's orbit, the further out it travels, and most of

the far-travelling comets would range far past the edge of the solar system and become virtually undetectable in the depths of space.

The average star system has millions of comets, particular in its outer reaches, and these alone form the main reason that starships will approach systems from one of their two polar axis (rather than come in along the 'disk' of the system). They are like debris left over from the system's creation. Such debris can be used by enemy fleets attacking a system, however the sheer amount of energy required catching and altering the course of a comet makes it very ineffective. They can be easily destroyed like other indirect weapons, and all but the largest will burn-up on entry into an atmosphere.

Usually only comets of significant size and visibility are given common names and enter the public awareness.

Unlike asteroids, comets have tails. Asteroids also have stable circular orbits that are measured in years, unlike the long elliptical orbits of comets that are measured in decades or centuries.

Nebulae

Nebulae are the often beautiful clouds of interstellar material that can range in size from a solar system (the results of supernovas or disintegrating red-giant stars) to entire young galaxies, still in their infant state of coalescing into stars and systems.

Nebulae are often made of entirely the same material, or pockets of related materials – usually dust, or ionized gas.

Galactic nebulae

Most galaxy-sized nebulae are composed of dust clouds, which can obscure light highly effectively. Because of the impossibility of travelling to other galaxies due to the incredible fuel and time restrictions, little is known about the internal structure of these nebulae.

Within a Galactic nebula, active and passive scanners add 4 to their Notice and Investigation TN, and until they establish an initial lock on a tracking target they require 10 rounds to make a complete scan (a Raise will lower this to 1 round). Once a lock is established it is considered held unless actively dropped.

Stellar nebulae

The nebulae created from disintegrating stars are usually the outer layers of gas from the star, ejected in its dying stages. The gas is highly ionized, charged with magnetic fields, and the entire area out to 10AU from the center of what is left of the system is impossible to scan using passive sensors.

Within this same area, active scanners add 2 to their Investigation TN, and until they establish an initial lock on a tracking target they require 5 rounds to make a complete scan (a Raise will lower this to 1 round). Once a lock is established, the active scanners need not add 2 to their TN but the lock must be maintained each round. If the lock is lost from the active scan it must be reacquired again with the full increase in the TN.

Often in a nebula of this sort, optical visibility (eyeballing) is the best way to locate and track near objects in LoS. Crew members visually searching for ships can use the ships enhanced visual arrays to make Notice rolls to detect a ship within 10km per point of its Displacement. This range is reduced to 5km per point of Displacement if using the naked human eye.



Pulsars

Pulsars were extremely large stars that entered their final stage and collapsed to a super-dense state. Prior to their collapse, they would have expanded to the size of a colossal red giant, and thus there should be no surviving, Earth-type planets in a pulsar system because the red giant would have been so large it would have absorbed them all.

Pulsars are so dense in metals that they generate extremely strong magnetic fields, so tight that they prevent all radiation from exiting the star except via the two polar axes where the fields are weakest. When a pulsar rotates, the tightly angled release of x-rays and gamma radiation they emit may pass across the path of an observer. From the stationary position of the observer, this radiation appears to 'pulse,' hence the name. The frequency of this pulsing is always relatively quick in astronomical terms due to the high rotational speed that a pulsar picks up as it collapses. When a ship is within the tight beam of radiation emitted by a pulsar, it experiences the same radiation as described for Trinary Stars.

Hazards in the stars

The range of hazards that a ship and its crew can encounter in space is enormous, and space itself is as dangerous as the weapons of any enemy ship.

Radiation

Normally ships are shielded from radiation, to the extent detailed in the section on Suns. Specific shielding can reduce the minimum safe distance a ship needs to travel from radiation sources, but they can't eliminate the problem altogether. In a typical science-fiction setting, the main danger from radiation is in the form of burns and heat stress, and it is assumed that medicine has evolved to the extent that radiation sickness can be cured in the event that it is contracted.

The biggest Radiation hazard in the future actually comes from sabotage. A saboteur who can override both the safeties and the security systems of a ship, can deliberately leak lethal radiation from the FTL core. This radiation consists of x-rays and gamma-radiation, and will be contained within the hull of the ship, but everyone on board will suffer damage with a die-type equal to the FTL rating of the ship, at the end of every minute. This damage can be soaked as per normal.

The typical response to such a radiation leak is to evacuate in an escape pod as quickly as possible, abandoning everything – even passengers in cryo-sleep. Safety can also be found within the hull of a smaller ship in a landing bay, as long as that smaller ship is powered up and has a working Drive Coil (used for normal space flight).

Damage from both low and high levels of radiation is detailed in the Savage Worlds core rules.

Salvage

Depending on the political/military situation within a system, it is common practice that a completely unoccupied ship can be taken possession of by right of salvage. The ship must be completely unoccupied by crew and passengers, and it must be outside the gravitational orbit of any moon-sized or larger body. This does not include ships docked at duly authorized docking stations, anchor points, or space stations.

The ship claiming the salvage must inform the nearest authorities of its claim as soon as possible, and failure to do so can negate the salvage claim. In the end, the local authorities and courts may have the final say over a salvage claim.

Such is the lure of salvage, that it is not unheard of for some morally bankrupt crews to murder sole survivors of stricken vessels. Ships with a record of frequently claiming salvage quickly fall under the acute attention of authorities, the insurance agents of such vessels, and the relatives of the former crew.

Consumables Fuel

Given the speed of FTL travel, it is virtually impossible that a properly functioning ship will find itself in a position where the crew starves or suffocates. Ships carry enough water and frozen food that starvation is all but impossible, except in the event of sabotage. Even recycling systems will provide enough clean water for years if properly serviced.

Air is a much more valuable commodity. Although it can be recycled, fresh air is a luxury and ships will pay for a complete replacement of their on-board air every so often. The sale of phony fresh air that is actually recycled stale air is a common peddlers' trick that crews need to watch out for.

Should all the air supply and recycling in a ship fail, the ship will still contain enough air in its internal cavities to support a number of people for a number of days, both equal to the Displacement of the vessel. Cruise liners with active passengers will not hesitate to head for the nearest port at the first sign of trouble with their air systems. Passengers in cryo-sleep require no air at all.

Apart from the garbage/junk used to fuel a ship's quantum reactors, the fuel required for FTL flight may well be different. Regardless of the fuel's actual name in your game world, it should be a rare but possibly naturally occurring element, although it could be possible to synthesise to a degree of purity required for burning in FTL cores.

As an example of a fuel, consider Astatine, which is the rarest naturally occurring element known. It could be consumed in FTL flight and a ship with a full supply of Astatine could typically travel for 1,000 days in FTL (mileage varies!) before needing to resupply. The cost of resupplying Astatine would be enormous, and would usually be about 10% of the operating cost of a ship which is a factor of Displacement. The actual cost would depend on the economies and supply-and-demand in the world of the game, but it should provide for interesting plot developments.



The Lantern

Island in the clouds...

The character-based rules contained in this book are intended for play in the Lantern, a pressure-cooker of a setting that forms the third part of the High-Space rules.

Every rule, edge, and hindrance in this book can be used in the Lantern, as can the starship rules covered in the High-Space Fleet Manual.

The Lantern's is an island-nebula on the fringe of Human-space. Though cut off from the bulk of the galaxy, FTL travel has opened up the Lantern to exploration, as it did for previous civilizations that rose and fell throughout history.

The Lantern had been reluctant to give up its secrets, but now those very secrets are set to change humanity forever. Will human-kind endure, or be relegated to the sands of history like the species that came before it?

Your actions might just tip the balance, one way or the other. Choose wisely.

