



## General SuperNova Advice Draco Galaxy

### *Disclaimer*

The information in this file is derived from the rulebooks, postings by Pete and experienced players, my own experiences and some speculation. If you find anything with which you disagree or that contradicts your own experience, please contact me at <mailto:scottv@powerup.com.au>

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## Changes in the Draco Galaxy

The Draco Galaxy is the second game of Supernova and uses slightly different rules from the original game (now called the Andromeda Galaxy).

Following is the list of changes announced by Pete:-

- ALLG order removed (this applies to `Andromeda` as well, since it did nothing anyway)
- Any ship in a fleet with a Bastion is prohibited from being scrapped
- Bastion design in setups significantly improved, and its fleet is always set to Zulu.
- BOMB order temporarily off-line in both `Andromeda` and `Draco` as it is being recoded
- Dramatic reduction in shield efficiency
- Dramatic reduction in thrust engine efficiency
- GATK will engage every pop group on the target planet, including Total Allies (this applies to `Andromeda` as well)
- ICE tech removed
- Maximum ship speed capped at 8 action points
- Minimum action points for ship designs set to 1 instead of 2
- New empires begin with Robotic Shipyard technology already completed
- NWTX-4000 Planetcracker tech removed
- PAP proposals limited to No Agreement, War or Total Alliance
- Planetary Cargo and Universal Gate tech removed
- Rankings in various categories will appear from time to time, detailing where your empire stands, but not revealing to you where other empires rank
- ROE settings limited to Quebec, Romeo or Zulu
- Scientist research point hits reduced significantly
- SCUT order removed
- Significant reduction in cost for a variety of installations, most especially those involved with colonization
- Slot-1 research capped at 2nd generation items
- Some non-player-controlled forces given artificial intelligence to expand, react and in general act *far more aggressively* than simply sitting idly by
- Some planet types given more resources as appropriate for their type, atmosphere, terrain and so on
- Stable Wormhole Construction tech removed
- System Beacons never stop transmitting unless destroyed
- Thrust engines provide no mitigation benefits against enemy missile weaponry
- Various changes to galaxy resource allocation by planet, invariably upward
- Various changes to some tech prerequisites and output
- Exploration, leaders, traditions, religions, other changes not mentioned here....

`Andromeda` and `Draco` have slightly different rules sets, variations in technology and a variety of other differences. For the most part, `Andromeda` has been left intact (some game-wide features such as the recoding of the BOMB order will apply to both). We didn't want to make significant changes to the existing galaxy as there are many long-running

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empires that would not appreciate anything remotely resembling any radical changes. **Draco**, on the other hand, is a brand new region of space, and each galaxy can thus present exciting challenges for different play styles. Here are some of the more important features that apply only to **Draco** unless otherwise stated below. *So as to keep some mystery, not every change is listed, or listed with exact details.*

A lot of what is listed below may appear negatively, as restrictions without benefit, but there is a lot more to it than that. The reasoning behind these changes is to provide a much different and in many cases a richer play style for **Draco**. Each galaxy has its own flavor, so as to provide varying styles of game play for every kind of player.

An excellent example is the maximum action point restriction. Currently, ships can be made to be very, very, *very* fast. A fleet can move from one end of your empire to the other in a single turn, or run a short convoy route hundreds of times. This causes a number of database issues which severely slow down turn processing, but it also causes game balance problems. When a fleet has 100 action points, it can move around any warp point defense with trivial ease. It can move pretty much anywhere it wants in one turn, subject only to fuel costs which are often mitigated by gate use.

A defender can reinforce any system he wants at any time. Allies can converge on a targeted system in a single turn. It's fast and loose, and severely unbalanced—great when you're destroying an enemy, and terrible when a massive hostile fleet shows up out of nowhere. It's a mutual assured destruction style of play, which sounds fun but quite often provides a terrible experience for one side or the other.

The reason for that particular change is to encourage a more measured strategic approach to attacking and defending. If your assault fleet only has a few action points, more thought needs to be given to your approach path. You could avoid that heavily defended warp point *there*, but it would take 3 more action points to go around it. Those 3 need to have real meaning and not just be trivialized by a 50 or 32 action point movement speed.

Furthermore, alliance operations will require much more planning, and less of the sometimes tedious, mechanical implementation of working out a jump-50 path for your assault. You and your allies might be on opposite sides of an enemy. Right now, you could just move around to join up and then hit your enemy in one spot with a giant fist of ships. It's effective, but unbalanced. The defender doesn't know where you're going to show up, and he can't really do anything about it.

With slower fleets, your allies might hit him on the far side of his empire. He must choose to either react or not. Are there more enemies about to show up over there? Is it just a probe, or a major invasion? He knows that his enemies aren't speed-gazillion any more, but his reaction suffers from the same issue—he has to actually *think* about it. If he reacts in strength, he opens himself up to your attacks on this side of his empire, and his defending fleets aren't any faster than yours—he's suddenly out of position to deal with your incursion. If he has fast reaction forces, they aren't *that* fast. He has to *choose* where to commit his reserves. He holds the

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advantage of interior lines of movement, while you hold the advantage of choosing where to attack, or to provide distractions to confuse him. The whole idea is to provide more strategic thought to your attacks, or defense, instead of the whole affair being trivialized by near-infinite ship speeds.

Think of it more like a World War II encircling engagement. Getting around your enemy to cut him off has a *lot* more meaning with slower fleets. Seeing him commit to his eastern front lets you push on his western front with the knowledge that he can't just zip back to stop you. It's all about a much more reasoned, thoughtful approach to invading somebody else's space—with *can't-just-gate-it-all-away* dividends at the end of the road.

Speaking of gates....they are gone. When you finally do close in on an enemy homeworld, perhaps one that has been heavily industrialized, you don't want to not gain anything because the defender simply dismantles his installations and gates everything away. If you put a lot of thought and work into moving your fleets into position, tricking the defender into reacting *here* instead of *there*, maybe slipping in behind him to force him to come back through your blocking forces on warp point assaults inside his own space, you want to gain something out of all of that. The defender has the advantage of an increasingly smaller sphere to defend as you move in on him, but he also can't just gate everything away should his defenses collapse.

ICE is also gone. Without ICE, production in many cases is brought back to reasonable levels. A Heavy Cruiser squadron in a system should *mean* something, and it gets kind of dull when all of the big ship designs end up getting classified as Nova Dreadnaughts.

Research emphasizes actually *researching* an item instead of simply getting a huge pile of scientists and relying on random scientist hits to complete projects with extreme speed. This will lead to lower tech items having a longer shelf life. If you build a fleet early on, it should be relevant for a longer period of time. If your neighbors decide to stockpile their resources with the thought of building 3<sup>rd</sup> or 4<sup>th</sup> generation ships, they should *pay* for that risk if you attack using 2<sup>nd</sup> generation ships.

Missile weapons are great. You can put missile ships at deploc 7 or 9 or whatever their missile systems like, not lose any offensive firepower, and enjoy the benefits of greater defense by being deployed away from deploc 1. They also suffer mightily because enemy ship maneuverability dramatically cuts into their effective firepower. As a result, missile firepower can be quite ineffective since pretty much every ship is at least speed 8.

In *Draco*, maneuverability does nothing against enemy missile systems. This would lead to missiles being the only intelligent choice for a ship design (why wouldn't you

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want to have your ships gain deploc for defensive purposes, but not lose anything in return?). Therefore, the firepower of all shipboard missile systems has been reduced. You can gain the advantage of placing your ships back at deploc 7, but you won't have as much total firepower as you would have had by using coherent beam-equipped ships up at deploc 1. Point defenses still work normally just like any other defense system, so that's how you would defend against enemy missiles. Missile systems with lower preferred deplocs such as torpedoes have less reduced firepower so as to make them interesting in comparison to their longer-ranged counterparts. It would come down to your preference for *firepower-per-ton-at-this-or-that-deploc* instead of *just-build-this-one-because-it's-always-better*, or *never-build-any-missile-system-because-all-enemy-ships-are-speed-8*.

**It should be noted that the galaxy is not a safe place. Other players will certainly represent major competitors, but they aren't the only threats you will face. Expect to lose some explorers, and for your fleets and population centers to face serious threats by non-player-controlled forces. Piecing together the ashes of the former mighty T'ckon Empire will not be a simple task. Do not expect non-player-controlled forces to act like potted plants (no offense intended to any intelligent plant-based player-run empires). This paragraph is intended to jump out and poke you right in one of your many eye-stalks. You have been warned.**

Finally, there may be updates and changes made as the galaxy progresses, likely for strict game balance reasons. Most updates were severely restricted in Andromeda because so many empires became entrenched (and understandably so) in their interactions with the game mechanics, but with a fresh start in Draco it's best to state up front that if something turns out to be wildly out of balance, causes havoc in the database, is a clear exploit or creates significant problems of any sort, it may need to be corrected. Such changes will certainly be rare or might even never occur (and that would be the best outcome of all). We will try to err on the side of not making any changes, but if it looks like an exploit, it probably needs to be eliminated.

## Fuel

Fuel is needed to construct some items and to propel ships through Warp points. You don't need it to travel within a system. Improved and Advanced Fuel are used to construct items but are not used in fuel tanks (think of them as advanced lubricant rather than actual fuel).

There are three sources of fuel

- 1) Skimming
- 2) Converting Gaseous Elements through your ICs
- 3) Fuel Installations

### 1) Skimming

A fleet with built in Fuel Shuttles can perform a Skim order when in orbit around any planet. The best worlds are Gas Giants which will add 200 fuel per Shuttle to the fleet's fuel tanks. Other worlds will give less than this (see below). A common practice is to set up a population group on a gas giant and set up a convoy route:-

SKIM 999

OC 999 <group number> Fuel 99999

You can then move skimmer ships to the gas giant and assign them to the convoy route where they will use all their action points each turn skimming for fuel. You then set up a tanker to convoy the fuel to somewhere useful (a colony or a fleet on resupply duty at a Warp point)

If the world is a Gas Giant, skimming efficiency is 100% (IE -- 200 fuel)  
Otherwise, the atmosphere and ocean type are checked as follows:

Atmosphere

Hydrogen: +50%

Methane: +50%

Hot Gases: +40%

Ammonia: +30%

Nitrogen: +20%

Chlorine: +10%

Carbon Dioxide: +10%

Oxygen: +10%

Ocean:

Any Semi-Liquid: +40%

Any Liquid Gases: +20%

So for example, a world with Ammonia atmosphere and Semi-Liquid Nitrogen Oceans would generate 30% + 40% = 70% on the fuel, or 140 fuel per skim.

So, you do not need a Gas Giant. Hydrogen or Methane worlds with Semi-Liquid oceans get you 180 per turn, which is still pretty good.

### 2) Converting Gaseous Elements through your ICs

You can convert 1 Gaseous Element into 1 Fuel, just like converting any other resource. This is not very efficient and is really only worth doing if you have a lot of gaseous elements and are waiting for more advanced installations to be researched.

### 3) Fuel Installations

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You start with the Fuel Refinery which turns 2 Gaseous Elements into 10 Fuel and costs 500 CM. Once you build a refinery, it will run each turn as long as you have the Gaseous Elements. When you research Improved CMs, you gain access to the Fuel Distillation Complex. It costs 500 Improved CMs and turns 2 Petroleum into 250 Fuel. Next is the Fuel Purification Refinery. For that you need Improved Fuel, Improved Petroleum and Advanced CMs. It costs 500 Advanced CMs and turns 1 Improved Petroleum into 500 Fuel.

#### Resupply

You can fuel your ships by doing a LC order over a population group with fuel in its stockpile or via the Resupply order. If a fleet is given a resupply order, it will transfer as much fuel as it can to any fleet that arrives at the same location or any ship that is built at that location. You should build a surface installation at your home world with a large number of fuel tanks, assign it to resupply duty and set up a standing order to transfer fuel from your home population group each turn to keep it topped up.

## Research

Each empire gets 25 research centres. This number can never be changed. Each research centre will contribute 1 point a turn towards researching the technology you choose. This point is then modified by your racial research bonus, if any.

If you take all the racial bonuses for research you produce 1.5 Research Points per Centre. If you take all the racial penalties for research you produce 0.8 Research points per centre.

For each "plus" in Intelligence you get 10%, for each "plus" in Sensory you get 5%, and for Long Life Cycle you get 5%.

You can assign multiple research centres to the same tech but the points gained are the square root of the RCs assigned i.e. if you assign 4 to research a tech, you get 2 points towards that tech.

You can see your progress in an item through the Research Report at the end of your turn. Each – to the right of the tech indicates 5%. The bar only reports in multiples of 10% so if you had research 27% of a tech, the bar would be "---- >"

In general, the cost of a technology is  $\text{generation}^2 \times 3$ . That is, a first costs 3, a second 12, a third 27 and a fourth 48. Most technologies are capped at 48 so fifth generation and up cost 48 as well. There may be some exceptions to this capping rule. For example, in Draco the research costs of Engines have been significantly reduced.

You can buy techs with SRP – leftover points from your race creation. You can only buy up to a 2nd generation tech and it costs you the remaining points needed for that tech (not counting the current turn's research). For example if you decided to buy a second generation (costing 12) and had already researched it for 6 turns, it would cost 5 SRP – i.e. 6 points from the last 6 turns, 1 from this turn's research and 5 from SRP. Each turn, SRPs are spent on one tech. The program will check the tech in the first slot and buy it if it is 2nd generation or less. If not, it will try the second slot and so on. Once you have put in a SRP order, one tech a turn will be purchased in this way until you either run out of SRPs or you are only researching 3rd generation techs.

On the anniversary of the start of the game (around 30 September), Santa Pete will deliver you some additional SRPs to be spent on first and second generation tech (as detailed in the previous paragraph). On the first anniversary, each empire received 75 additional points.

## Warp Points

Warp Points are the connections between systems. They usually, but not always, occur in linking pairs eg the Warp point From System A to System B will probably lead to a warp point from System B to System A. Before a warp point can be used, it must be surveyed by one of your fleets with at least one Jump Survey Sensor.

The warp points leading out of your home system have already been surveyed. The warp points leading back into your system need to be surveyed but you receive a special bonus on these so they can be done by a starting Pathfinder, no matter the warp class.

For a fleet to pass through a warp point, it must have been surveyed, each ship in the fleet needs a jump drive and you must have enough fuel in the fleet. Fuel is drawn from a common pool so each ship does not need to have fuel loaded, or even have been built with fuel tanks. The cost is the warp point multiplier times the mass of the fleet in thousands of tons. When a fleet passes through a warp point, unless every ship has a Transwarp drive, its AP will be set to 0.

Warp Class	Fuel Cost	Survey Difficulty
A	1	1
B	2	10
C	4	35
D	9	70
E	16	100
F	25	150 ?
G	36	200 ?
H	49	250 ?
I	64	300 ?

When surveying a warp point, you need to exceed the point's difficulty. Each class of warp point has a standard difficulty plus a small additional number based on hidden factors. For example, a typical E is 100 points but could be 110. The only way to find this out is to survey the warp point.

The survey rating of your fleet is the rating of the best jump survey sensor plus the square root of the sum of the ratings of all the jump survey sensors. For example, a Mk I Jump Survey Sensor is worth 20 points. A fleet with 12 of these would give a rating of 35 ( $20 + (12 \cdot 20)^{0.5}$ ), which would just survey a typical C class warp point.

Jump Survey Sensor	Rating
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MK I	20
MK II	50
MK III	80
MK IV	110

Explorers and Scientists in the surveying fleet will reduce the difficulty of the warp point. Only the best of each will be considered. An explorer will reduce the difficulty by 10% for each rank he has and a scientist will then reduce that by 5% for each rank. In general, scientists are much more valuable on a world researching than surveying on a fleet.

Finally, some installations built in a system reduce the difficulty of all warp points in that system.

Installation	Survey Bonus	Cost (CM)
Imperial Science Lab	30	2500
Science Lab	30	2500
Astronomical Observatory	25	500
Imperial Science Centre	20	1000
Science Centre	20	1000
Imperial Science Outpost	10	500
Science Outpost	10	500

### ***Misjumps***

There is a very small chance that a misjump can occur. The fleet will end up a very long way away, probably hopelessly lost.

“Your ship encounters unusual conditions as the wormhole it is travelling in becomes unstable for a few seconds. Its warp bubble very nearly contacts the interior of the warp tunnel, but some deft manoeuvring avoids this disaster and the vessel makes it through safely. It's a harrowing experience to say the least, leaving the crew shaken but alive. However, they don't show up where they expected to arrive.... Morale plummets when they figure they might never see home again, but the crew has gained some valuable experience.”

Pete has hinted at the following:-

1) This is a very "rare" event and he would be surprised if I ever saw it happen in the same system ever again.

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2) Terrain plays a part in this happening.

3) Certain tech systems can help protect against this sort of thing.

## Power Supply

At the start, power can be generated by Coal Fired Power Plants, Fission Power Plants, Hydroelectric Power Plant and Geothermal Power Plants. Except on very small colonies, coal power stations are not worth building (and, by extension) coal is not worth mining.

A fission power plant generation 10000 power for an initial cost of 500,000 CM and an ongoing cost of 100 Processed Radioactives a turn. This is the main source of power for some time. If a planet has a Hydroelectric or Geothermal yield rating, you can build the appropriate power plants. Each costs 250,000 CM and generates  $((\text{Yield} / 50) + 1) * 1000$ , for no ongoing cost. If you have a yield of 200 or higher, they are more efficient than a Fission Power Plant, in terms of initial cost.

If you rely on Fission Power Plants, it is very important to make sure you do not run out of Processed Radioactives.

Solar Power Plants produce 2500 power for an initial cost of 250,000 Improved CM. They are not as efficient in terms of initial cost but they have no on-going costs so are a viable alternative to Fission power plants on worlds without Hydro or Geological ratings.

A Fusion Power Plant costs the same as a Fission Power Plant and produces the same output but only needs 100 water as fuel per turn.

# Space Combat

## **Basic Combat Overview**

A battle lasts until one side is destroyed, or until the battle has run a set (very large) number of rounds. The maximum duration is usually only met when a ship with very weak firepower meets an unarmed ship with high SI – eg a lightly armed scout versus a large armoured transport. All combat is simultaneous – it is possible for both sides to be completely destroyed.

- 1) Add up all the damage your fleet deals, modifying it for the deployment location of each of your ships.
- 2) Divide this into a number of identical globs, based on your fleet's [fire control](#).
- 3) Each glob randomly targets an enemy ship with the lower deployment locations much more likely to be targeted i.e. a ship in rank 1 is much more likely to be shot at than one in rank 10. A single ship can be targeted by more than one glob.
- 4) Calculate damage for the ship targeted.
  - a) Reduce the damage for the defending ship's deployment location (approx 5% per rank after 1 ???)
  - b) Reduce the damage based on the defending ships defensive systems (see below).
  - c) Any remaining damage then strikes the Shields. Shields start the battle fully charged and do not recharge during the battle. At the end of the battle, they are returned to full strength, ready for the next battle.
  - d) Anything left hits the ship's SI, resulting in a % damage rating for the ship. The ship is now less effective in combat by that %. If the damage hits 100%, it is destroyed. A destroyed ship will not be targeted by another glob of damage in the same round.

Damaged ships are gradually repaired by their crews. The addition of a Repair Bay on a ship will speed its repair and the repair of every other ship in the fleet. Alternatively, you can disassemble the ship at a shipyard (SCRIP order) and re-build it. This will negate all the damage but will lose any combat experience the ship has.

A few points about fighters and drones:-

- 1) They always fight from Deploy Location 1, irrespective of where the carrier is.
- 2) They appear in warp point assaults at the beginning of the battle and engage immediately.
- 3) They continue to fight until your last ship, orbital and fortress is destroyed. Even if all your carriers are lost, as long as there is at least one other ship left, they will continue. As soon as that last ship is lost, all the fighters shut down.
- 4) As well as having their effectiveness reduced by the enemy's point defence, fighters and drones are also shot down, meaning only some will survive the battle.
- 5) They benefit defensively from pulse engine tech improvements, wherever they might be in the galaxy.
- 6) If the enemy has no way to shoot them down, their firepower does not degrade as ships are eliminated, in contrast to conventional weapons which lose firepower as ships are damaged or destroyed.

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- 7) They are relatively cheap to build considering that half of their effective tonnage is pure Steel in the form of Fighter Bays or Drone Racks.
- 8) Fighter Bays and Drone Racks can be built ahead of time, perhaps before the fighter or drone tech that you are interested in has been completed. Carriers could even be built and placed into fleets before their fighters/drones are ready, allowing for the stretching-out of construction times for a war fleet.
- 9) Carriers can see an improvement in firepower simply by replacing their fighters and drones on the fly rather than requiring a complete scrap-and-rebuild cycle as with conventional warships.

## ***Weapons***

Every weapon has a preferred range. If they fire from that deployment location or closer, they work normally. Any further back and they deal less damage. Point blank weapons are the exception as they deal extra damage if in deployment location 1.

Missiles/Torpedos : Point Blank [1], Short [2], Medium [5], Long [8], Standoff [10] (all 10% drop off)

Other : Beam [1] (10% drop off), Point Blank [1] (20% drop off, bonus from [1])

There are 15 types of weapons, each with a defensive system to counter it.

<b><i>Damage Type</i></b>	<b><i>Example Weapon</i></b>	<b><i>Countermeasure</i></b>	<b><i>Example Defence</i></b>
Coherent Beam	Light Beam Laser	Reflective Armour Coating Coverage	Reflective Armor Coating
Cold	Frost Cannon	Thermal Regulation Sinks	MK I Thermal Regulator
Energy Absorption	Light ESAP Beam	Tachyon Grid Spin rate	MK I Tachyon Screen
Energy Discharge	MK I Lightning Arc Generator	Electronic Countermeasures Effectiveness	Type A ECM Package
Energy Disruption	MK I Energy Disruptor	Fixed Stabilisation Reaction Time	MK I Energy Absorber Grid
Fusion	Light Fusion Bolt	Phase Inversion Timing	Phase Locker
Gravitronic	Light Tractor Beam	Displacement Blink Speed	MK I Displacement Device
Matter Disruption	MK I Matter Disruptor	Molecular Pattern Stabilisation Intensity	Neutron Fixer
Mine	Standard Mine Rack	Sensor	Mk I Short Range Sensor
Missile	Missiles, Fighters. Drones	Point Defence Accuracy	4cm Gatling CIDS
Particle Beam	Light Blast Cannon	Meson Web Cohesion	Mk I Meson Screen
Plasma	Light Thermal Lance	Flux Capacitance Storage	MK I Flux Capacitor
Plasma Torpedo	Type A Plasma Torpedo	Black Sphere Generation	Type A Black Sphere Generator
Projectile	10cm Autocannon	Deflector Angle	MK I Deflector
Sonic	Light Stun Beam	Screen Density	Type A Defense Screen

## ***Defensive Systems***

In general, each defensive system counters one type of damage and has no effect on the others. There are a few systems that do affect multiple damage types eg EDAC (Energy Dispersion Armor Coating).

To work out the effectiveness of a ship's defence, add up the rating of the particular defensive system on that ship. Divide that by the ship's mass. Add one to that number to give the damage divisor. For example, a 10,000 ton ship with 30 MK I Short Range Sensors (Sensor rating 250 each) would only take 57.1% of any Mine damage that reaches its hull.  $1+(30*250/10000)=1.75$ . Dividing that into 100% leaves 57.1%.

The advantage of defensive systems is they very effectively counter a specific damage type. However, if the enemy does not use that damage type, they are pretty much useless.

All ships with point defence add a portion of that to a fleet wide point defence to help reduce Missiles, Fighters, Drones and Torpedo damage for all ships. This takes effect as a flat rating of Missile Defence added to each ship in the fleet.

## **Fire Control**

Fire Control is calculated from bridge systems and naval officers.

- 1) Add up the mass of all ships on your side of the battle. Add up the bridge ratings of every ship on your side of the battle. Divide the Total Bridge Rating by the Total Mass. If this is less than 1, it is 1.
- 2) For each empire in the battle, get the rank of the highest level [naval officer](#) present and add it to the square root of sum of the ranks of all of that empire's naval officers that are present. For each empire on your side, add the naval officer fire control rating to the total.
- 3) As ships take damage and are destroyed, fire control is re-calculated.
- 4) During a warp point assault, ships that have not yet arrived still contribute to the fire control.

For example, the Federation and All Systems Commonwealth are allied and are attacked by The Evil Empire. The Federation has some battle ships but no computers so the Commonwealth contributed a command ship.

Federation

Mass of all ships involved 1,000,000

Bridge Strength: 0

Naval Officers: Admiral, Rear Admiral, Senior Captain

All Systems Commonwealth

Mass of all Ships: 100,000

Bridge Strength: 3,000,000

Naval Officers: Commodore

The fire control for the fleet is worked out as follows.

Total Fleet Mass=1,100,000

Total Bridge Rating=3,000,000

Base Fire Control=3,000,000/1,100,000 = 2.7.

I am uncertain of the rounding but will assume .7 rounds up, giving a fleet wide fire control of 3.

Federation Officer Fire Control =  $5 + (5 + 3 + 1)^{.5} = 7.8$ , round up to 8.

Commonwealth Officer Fire Control =  $2 + (2)^{.5} = 3.4$ , round down to 3

So the total fire control of the fleet is  $3 + 8 + 3 = 14$ .

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During the battle, the Commonwealth command ship takes 60% damage. Its Bridge Rating is now only 1,200,000. The Fire Control from this drops to 1 (1,200,000/1,100,000 rounded down) which gives a total fire control of 12.

## ***Warp Point Assaults***

When you move through a warp point and encounter an enemy fleet on the other side, you trigger a warp point assault. Each "round" of combat, a wave of your ships moves through the warp point. The specific ships in each wave are random, with low deploy locations much more likely to go first. Only a set number of ships can fit through in each wave, based on the size of the warp point. The Warp Bubble size of each of your ships is the mass divided by the warp thrust.

A few points to note:-

- 1) It is the size of the warp point you are entering, that matters, not the size you are exiting.
- 2) There is no rounding. If your ships all have a warp bubble of 11 and the warp point size is 20, only one ship will enter per "round".

**Very Important:** All Fighters and Drones always go through in the first wave, along with the ships in that wave. This makes fighters and drones very useful in a warp point assault as their firepower attacks the enemy immediately. Consequently, if you are planning to defend a warp point, having point defence in your fleet (in the form of CIDS or your own fighters) would be advised.

## ***Screen Ship Strategy***

Space combat has been dominated by the Screen Ship Strategy. Since a fleet's firepower is accumulated into a single 'glob' and since the ships in deploy location one are generally targeted first, the accepted doctrine is to build large numbers of 1000 ton ships and deploy them at the front. The capital ships then sit behind them. Each fleet then spends many turns shooting down screen ships, with most of their firepower wasted on blow-through. Note that the Bastions defending homeworlds will generally ignore screens in favour of more "interesting" targets. See "Countering the Screen Ship Strategy" below for more details.

### Example

Empire A and B each build 1 capital ship. Empire A's ship has fire power of 100,000 and SI of 500,000. Empire B builds a much smaller ship – 50,000 firepower and 250,000 SI. Empire B also build 10x 1000 ton screen ships, each without weapons and an SI of 5000.

Both sides have a fire control of 1.

Round 1

Empire A fires 100,000 and destroys one screen ship utterly. The excess firepower is lost. Empire B fires and does 10% damage to Empire A's ship.

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Round 2

Empire A fires 90,000 and destroys another screen ship utterly. The excess firepower is lost. Empire B fires and does another 10% damage to Empire A's ship.

Empire B has now lost 2000 worthless tons of shipping and Empire A's battleship is down to 80% of its strength.

The battle will probably end with Empire B victorious, even though his fleet was only a little over half the strength of Empire A's.

#### Advantages of the Strategy

1) Your expensive capital ships are protected behind a layer of 'junk' ships.

#### Disadvantages of this Strategy

- 1) It is very expensive to build the thousands of shipyard slips to produce the vast numbers of screen ships required.
- 2) Because of their size and cost, screen ships are not transwarp, making screened fleets very slow to advance or be reinforced.
- 3) They can't be used to assault a warp point as their numerical advantage is negated by the size of the warp point.
- 4) The sheer size of the battles slows turn processing for everyone.

#### Countering the Screen Ship Strategy

The accepted counter-measure is to build your own fleet of screens and maximise the fire control of your fleet so you can destroy more screen ships in a round.

Fighters can also be assigned to a Deep Strike, which means they should try to attack ships further back from the front line, bypassing the screens.

In addition, the presence of a MK I+ Flag Bridge in the fleet will re-prioritise targeting to ignore screens. Homeworld starting Bastions are equipped with Flag Bridges, making screen ships particularly ineffective when attacking homeworlds.

## Characters

**Note:** Unspecified changes have been made to some Characters in the Draco Galaxy. As yet, no significant changes have been noted, except for the reduced research from Scientists.

Characters are randomly recruited each turn. The probability of each type is based on your type of government. They start at rank 1 and each turn, each character has a chance of promotion. You can only have one character of rank 7. Pete has specifically stated that promotions are time based. It doesn't matter if they are doing anything or not. A naval officer that sits on your home world has just as much chance to be promoted as the same character running around with a fleet engaging in battle every turn.

"A character can be assigned to any of your fleets or ANY world with a single AC order. The character does not need to be at the same location as either the fleet or world and you do not need to have any in-game knowledge of the world." Pete has now clarified:-  
"You can transfer them to your fleets without issue (once per turn per leader)"

Some characters will help with "immigration" if assigned to worlds with small population groups.

Your Emperor is a Level 7 Diplomat, and can also assist with Warp Point Exploration. As Pete said: "What worthy Emperor would be worth his salt (no offense intended to any denizens of planet M-113) without being surrounded by a bevy of skilled advisors wherever he goes? "

Explorer

1. Scout
2. Adventurer
3. Voyager
4. Pioneer
5. Explorer
6. Ranger
7. Legendary Explorer

The highest rank explorer in a fleet reduces the difficulty of a warp point when surveying by 10% per rank.

Explorers also assist when a fleet conduct an explore order.

Scientist

1. Scholar
2. Professor
3. Technologist
4. Academician
5. Senior Scientist
6. Master Scientist
7. Chief Scientist

The highest rank scientist in a fleet reduces the difficulty of a warp point when surveying by 5% per rank.

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Scientists also conduct research. There is a chance each turn that a scientist will add research points to a technology you are currently researching.

The factors that affect the probability of a minor breakthrough are:-

- Whether the scientist is in a fleet or on world. A world is better.
- The distance of that world from your home world. The further the better.
- The difference between that world and your home world. Unusual worlds are best eg frozen worlds close to the sun.
- The presence of your science installations in that system – possibly 1% per installation.
- The rank of the scientist, though that is more likely to just affect the number of points you receive – possibly 1% per rank.

If you have a hit, the scientist will add a number of points to the tech.

Naval Officer

1. Senior Captain
2. Commodore
3. Rear Admiral
4. Vice Admiral
5. Admiral
6. Fleet Admiral
7. Grand Admiral

Naval officers add to a fleet's [fire control](#). (Highest rank officer + square root of the sum of all officer ranks.)

They may also have other effects on combat.

Special Agent

1. Detective
2. Investigator
3. Junior Agent
4. Senior Agent
5. Field Agent
6. Agent 00x
7. Director

An agent placed on world with another empire's population group will conduct espionage - mostly information gathering but also some sabotage. An agent is more effective on the empire's home world than on a colony. Agents left on your worlds will conduct counter-espionage.

Diplomat

1. Envoy
2. Diplomat
3. Junior Ambassador
4. Ambassador
5. Sr. Ambassador
6. Imperial Ambassador

(Your emperor is your level 7 diplomat)

A diplomat can give a production boost to a random mine on the same planet. The boost is 3%

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per rank. The same character can boost multiple mines and multiple characters can boost the same mine.

They also increase the chance of success of a diplomacy order working.

#### Administrator

1. Administrator
2. Junior Administrator
3. Senior Administrator
4. Minister
5. Commissioner
6. Governor
7. Provincial Governor

An administrator can give a production boost to a random mine on the same planet. The boost is 3% per rank. The same character can boost multiple mines and multiple characters can boost the same mine.

#### Merchant

1. Broker
2. Financier
3. Trader
4. Speculator
5. Senior Trader
6. Master Trader
7. Merchant Prince

A merchant can give a production boost to a random mine on the same planet. The boost is 3% per rank. The same character can boost multiple mines and multiple characters can boost the same mine.

#### Army Officer

1. Senior Colonel
2. Brigadier General
3. Field general
4. General
5. Marshal
6. Field marshal
7. Grand Marshall

Army officers help in ground combat.

#### Martial Artist

1. Private
2. Corporal
3. Sergeant
4. Lieutenant
5. Captain

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6. Major
7. Colonel

"Martial Artists, by themselves, don't seem to do a whole lot (yet) but they do allow others to be boosted. They help with Morale, Security and Ground Fighting; just not as well as Religious Leaders, Special Agents and Army Officers."

#### Religious Leader

1. Acolyte
2. Missionary
3. Priest
4. Archpriest
5. Bishop
6. Archbishop
7. High Priest

A religious leader can give a production boost to a random mine on the same planet. The boost is 3% per rank. The same character can boost multiple mines and multiple characters can boost the same mine.

Religious Leaders also help with your people's "morale", which translates into increased population growth if it is high enough.

## Ground Combat

### **Procedure for invading a planet**

1. Plant a colony beacon on the target world. (COLB)
2. On the next turn, offload divisions from your fleet into the new pop group (OC).
3. Create a new army on the target world (NEWA)
4. Assign divisions to the army (DIV)
5. Assign any characters to army (AC)
6. Attack! (GATK)

If the troops do not meet any resistance, you can load them back on your fleet and move on to the next world. With enough action points in your fleet, it is possible to use the same divisions to conquer several worlds in the same turn. This is useful in capturing small undefended mining colonies and is a reason to garrison at least one division on each of your colonies.

If two empires are invading a world, each should issue a GATK on the same order and an e-mail should be sent to Pete to indicate which of the empires will take control of the planet afterwards.

A note from Pete about the spoils of victory:-

"Ships in yards belonging to a pop group that is captured hang in their yards - I usually clear them out when the world falls in any event.

If I feel that a defender is burning resources to no purpose (designing a ridiculous ship and dropping it into the yards, for instance in an attempt to exhaust resources) I will likely just dump it back into stockpile or simply give the ship to the invader to do with what he wishes. The golden rule here is to be reasonable."

### **Details of Ground Combat**

The single most important concept is the Tactical Rating (TAC). There are 35 different tactical ratings. Each ground unit is rated in several of these. The actual tactical benefit provided by a unit is based on the ground techs you have with that tactical rating. The tactical ratings of each army are compared, with each side receiving bonuses based on the degree of tactical superiority in each area.

Important Point – All units are equal in terms of damage dealt and durability. The only difference is in the Tactical Ratings. (Exception: A fortress is equal to 10 units).

The initial odds are worked out on the number of divisions each side has and then modified for TAC. TACs are compared in each area and each side receives bonuses up to shifting the odds by one point. For example, if army A outnumbered army B 2:1 but army B had a massive TAC superiority in Armor (and everything else was equal), the odds would shift to 1:1. (See the examples below for more details).

What this means is you should diversify, both in ground units and in ground tech research. An

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army made entirely of one type of unit would only cover a few tactical ratings, allowing a more diversified force to achieve a significant tactical advantage.

Each unit type has 10 points split across one or more tactical ratings. The unit adds its points times your technological rating to get the final Tactical Rating.

For example, the Transport unit is rated at 5 in Ammunition and 5 in Transport Capacity. At the start of the game, you have one tech that affects this rating. "Truck" is rated at 100 in Transport Capacity and 50 in Ammunition. Therefore, an army with a single Transport would have tactical ratings of 500 in Transport Capacity and 250 in Ammunition.

<b><i>Tactical Rating</i></b>	<b><i>Example Technology</i></b>
Air Defense	Anti-Aircraft Artillery
Air Support	Helicopter
Air-to-Air Combat	Jet Fighter
Ammunition	Truck
Amphibious	Hovercraft
Antitank	Viper Anti-Tank Guided Missile
Aquatic	????
Armor	Light Tank
Artillery	M82 Mortar
Biological Weapons Defense	Cellular Enhancement Drug
Biological Weapons Virulence	Harmful Biological Munitions
Broken Terrain	Mole Burrower Tank
Camouflage	Sneak Suit
Chemical Defense	Mk I Chemical Weapons Defenses
Chemical Weapons	Irritant Agents Chemical Munitions
Close Combat	Club
Electronic Warfare	J2 Phantom Jammer
Engineering	Barbed Wire
Environmental	ECK
ESP	ESP Deluder

Heavy Weapons	Recoilless Rifle
Intelligence	Smoke Projector
Medical	Mk I Field Hospital
Nuclear Defense	Perimeter Shield
Nuclear Weapons	Nuclear Bomb
Open Terrain	Armored Car
Orbital Bombardment	Surface-to-Surface Missile
Security	Dartgun
Small Arms	Gauss Rifle
Space Defense	Perimeter Shield
Special Weapons	ICE-1
Subterranean	Ferret Excavator Tank
Telekinesis	Telekinetic Blaster
Telepathics	Screamer Bomb
Transport	Truck

The other major modifier is your racial statistics. These have a very significant impact. A 'brain blob' race will need many more divisions to defeat a combat oriented race, as well as a technological edge.

Possessing Improved and Advanced Weapons technologies will add to your CCM, GCM and DEF modifiers in ground combat. These bonuses stack with each other and the bonuses already provided by the Improved and Advanced Food Concentrates techs.

Lifeform GCM's modify odds by making your troops dish out more than normal firepower.

Lifeform DEF makes your troops harder to kill, for example:-

"Attacking divisions counted as if they were 1.4 divisions each for casualty purposes"  
or "Defending divisions counted as if they were 0.5 divisions each for casualty purposes"

A value of 1.0 means that if your side was scheduled to lose 10 divisions, you'd lose 10. If your divisions were worth 0.5 each, you would lose 20 instead. 2.0 would mean that you'd only lose 5. That value is derived primarily from your lifeform design.

A quote from Pete:-

"Assuming that losses will be even at a 1:1 odds ratio would be incorrect. It is wise to increase one's odds, especially on an invasion of an alien world, as much as alien-ly possible. Odds of a few to one (3:1, say) are not sufficient to overcome the many disadvantages of dropping one's troops on an alien and almost certainly hostile world."

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The actual benefit provided by TAC is as follows.

1. In each area, take the TAC of the side with the larger TAC and divide it by the smaller. If this is greater than 10 (or the smaller TAC is 0) set this to 10 (except from Small Arms which caps at 30). If the defender has the larger TAC, make the number negative.
2. Add up all these modifiers and divide by 10. This number is then added to the odds.

### Example 1

Both armies in this case just have the starting ground tech and have identical racial combat stats. Empire 1 is attacking Empire 2. Assume all else is equal so the base odds are 1:1.

Empire 1 : 4 Transport  
Empire 2: 4 Imperial Guards Heavy Armor

Empire 1's TAC is:-

*Ammunition* = 4 (No of Transport Units) \* 5 (Transport unit Ammo rating) \* 50 (Truck Tech Ammo rating) = 1000

*Transport* = 4 (No of Transport Units) \* 5 (Transport unit Transport Capacity rating) \* 100 (Truck Tech Transport Capacity rating) = 2000

Empire 2's TAC is

*Armor* = 4 (No of Imperial Guards Heavy Armor) \* 6 (Imperial Guards Heavy Armor unit Armor Strength rating) \* 100 (Armored Car Armor rating) = 2400

*Open Terrain* = 4 (No of Imperial Guards Heavy Armor) \* 4 (Imperial Guards Heavy Armor unit Open Terrain Strength rating) \* 100 (Armored Car Armor rating) = 1600

So, Empire 1 totally dominates in Transport and Ammo and Empire 2 in Armor and Open Terrain so both gain +10 in each, which results in no overall tactical bonus to either side.

### Example 2

Taking the same empires as before, let's say empire 1 built one Imperial Guards Heavy Armor instead of one of its Transports.

Empire 1's Tac is now:-

*Ammunition* = 3 (No of Transport Units) \* 5 (Transport unit Ammo rating) \* 50 (Truck Tech Ammo rating) = 750

*Armor* = 1 (No of Imperial Guards Heavy Armor) \* 6 (Imperial Guards Heavy Armor unit Armor Strength rating) \* 100 (Armored Car Armor rating) = 600

*Open Terrain* = 1 (No of Imperial Guards Heavy Armor) \* 4 (Imperial Guards Heavy Armor unit Open Terrain Strength rating) \* 100 (Armored Car Armor rating) = 400

*Transport* = 3 (No of Transport Units) \* 5 (Transport unit Transport Capacity rating) \* 100 (Truck Tech Transport Capacity rating) = 1500

Empire 1 still totally dominates in Transport and Ammo so gets +10 from each. Empire 2 still wins in Armor and Open Terrain, but it is not overwhelming.

Armor = 2400/600 = -4.

Open Terrain = 1600/400 = -4

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So the odds shift is  $10 \text{ (Ammo)} - 4 \text{ (Armor)} - 4 \text{ (Open Terrain)} + 10 \text{ (Transport)} = 12 / 10 = 1.2$

So, the odds go from being 1:1 to 2.2:1.

## Planetary Exploration

The chance of finding something when exploring a planet is based on the following factors:-

- Your racial EXM
- The presence of an explorer in the fleet
- How "rich" the planet is in terms of exploration. This is a set hidden value. Gas Giants and Asteroids seem to be exploration-poor.
- How much of the planet has been explored i.e. the more finds you make, the less likely you are to make any more. An ORB will tell you how explored the planet is.
- Survey components built into the ships of the fleet.

Survey Components include: -

Universal Translator Device

Science Lab

Survey Lander

Short Range Sensor

Medium Range Sensor

Long Range Sensor

Mass Detector Sensor

SLY Intelligence Sensor Package

Picket Drone – stored in the Drone Rack.

Science Drone – stored in the Drone Rack.

Magnetic Grapple

A successful exploration can find: -

1) Items - There is maximum tech generation that you can find, based in some way on your current level of technology. At the start, you are limited to 4<sup>th</sup> generation items. These items will be loaded on your fleet. If you do not have sufficient space, they will be discarded and lost. A minimum of 25000 cargo space and 1 Fighter Bay and 1 Drone rack is recommended. Only a few percent of item finds appear to exceed this amount of space. Remember, if you have an item in the stockpile of a world with a science installation, you can perform an ANZ to determine its pre-requisites.

2) Technology – You can learn something about a random technology that you don't already know. It adds a few points to your research of that tech. This can be any technology at all and is completely random. In fact, it is really too random to be of much use. For example, getting a tech hit in a 10<sup>th</sup> generation weapon belonging to a path you are not researching will do you very little good. Unless you can already research this technology, you can't obtain any information about the tech.

3) Warp Points – You can receive the survey knowledge of warp point, allowing you to send ships through without surveying it. If there are un-surveyed warp points in the system, this knowledge will be of one of these. Otherwise, it will be a completely random warp point somewhere in the galaxy. If a survey ship becomes trapped in a system, it might be worth setting it up to explore in the hope you will gain the survey knowledge to move out.

4) Locations – These are really just special flavour. There are a number of locations like "Bombed out University" or "Crashed Alien Spacecraft". A tech hit can be at one of these, which will modify the type of find. For example, a find at an Observatory will be a Warp Point.

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5) Special Knowledge – On “unusual” worlds, it is possible to find unusual knowledge, the only known example being the Energy Sapper Creature Knowledge, which is the pre-requisite for the Energy Absorber weapon path.

The standard method of exploration is to position the fleet over a world and issue standing orders (XEXPL). You also issue a standing order to offload the fleet’s cargo to a pop group on the planet below. Optimally, you would set up one XOC after each XEXPL but this is very expensive in orders. It is generally more efficient to design exploration ships with more cargo bays, fighter bays and drone racks and offload after all its explore actions have been done.

## Production

### **Resource Production**

Each planet has ratings in several resources. The exact resources available depend in part on the type of planet. For example, Asteroids tend to be rich in Iron and Light Metals.

Resources are extracted each turn by the mines that exist on the planet. The amount extracted is calculated by the following formula: -

Number of Mines \* (Resource Rating – (Number of Mines/10) [rounded to the nearest whole number])

In other words, each additional mine you add drops the efficiency of the process. The break-even point for each resource is Resource Rating \*5. If you build more mines than that, your extraction will drop.

The other source of resources is through the use of Stripmines. Each will produce 1000 tons of raw Resources each turn. These can be converted into any base resource by your Industrial Complexes at a ratio of 10 to 1. Stripmines are very important as they allow you to fill in any gaps in your mineral extraction.

In general, you should build as many mines as you can on your home world. However, resources you are not going to use are wasted. For example, if you do not intend to build any items that require Shenn Stones, mining Shenn Stones is a waste of resources. You would be better off building more Stripmines and using them to produce something you will use.

There are several ways to increase the amount of resources you extract each turn.

- 1) Establish colonies and ship the production home.
- 2) Build Deep Core Surveyors. These will increase the ratings of random resources on the planet on which they are built.
- 3) Build Improved and Advanced Stripmines. These extract many more Raw Resources.
- 4) Place characters on the planet. Many character types can randomly give boosts to mineral extraction, e.g. "Lord Deependra used his/her negotiating abilities as a Diplomat to good effect, solving several labor disputes to improve Lumber extraction in Population Group # 99999!"

## ***Deep Core Surveyor***

"Deep Core Surveyors are deep tunneling units that search the core of a planet for additional resources. They operate autonomously and may discover new veins of any of a variety of valuable resources. Construction of multiple Deep Core Surveyors can be quite useful, but the benefits of building more than one drop off in a nonlinear fashion. Deep Core Surveyors are energy hogs, consuming an impressive 100,000 Power per turn."

Because of the energy requirements, Deep Core Surveyors are best deployed on worlds with Hydroelectric or Geothermal Potential.

Each turn, after production and population growth/attrition, the DCS will run. You will receive the following message to indicate they are running:-

3 Deep Core Surveyors were able to operate on [planet name]  
Deep Core Surveyors operate on [planet name] attempting to raise its yields

The actual increase is random and not given. The only way to determine it to perform a GEO on the next turn or calculate back, based on the next turn's production.

My experiences have lead me to expect approximately two-thirds of the DCS to find something each turn, with an average increase to the resource of about 4. I have yet to see a DCS find an entirely new resource.

## ***Industrial Production***

Industrial Complexes are used to convert resources into things you can actually use. Each base Industrial Complex converts 250 tons of a resource into something else. For example, it takes 2 iron to make 1 steel. One industrial complex can turn 250 iron into 125 steel in a turn.

There are two ways to increase your Industrial Capacity

- 1) Research and build Improved (750 tons per turn) and Advanced Industrial Complexes.
- 2) Research the Industrial Science Horizon technologies. Second generation gives you a 10% increase on your industrial capacity, third generation increases the bonus to 20% and so on.

Once you research them, for a cost of 500 Improved CM each, you can build Orbital Crystal Refineries. Each converts 50 RR directly into 100 Improved Refined Crystals each turn.

The Production Queue runs sequentially – the first items should be the resources you are making out of Raw Resources, then the intermediate items eg Steel, Processed Radioactives and then the Final products eg MK I Nuclear Jump Drive.

A good idea is to make the last two orders as below:-

9900 9,999,999 Iron  
9910 9,999,999 Steel

These should soak up any Raw Resources and Industrial Capacity you have left over.

If there are insufficient resources to make an item in the queue, your complexes will make as

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many as they can and then move on to the next item.

### ***Population***

Your single most important possession is population. As your resources grow, the need for miners will also grow. And with more mined resources, you need more workers for your industrial complexes to process those resources.

Two important technologies are Imperial Medical Center and Cloning Center. Both of these boost your percentage population growth. To derive the maximum benefit, you need 1 of each of these for every 100 population.

Note: The 1/100 maximum bonus is significantly better than, say 1/101, so get to the maximum as soon as possible and stay there.

No matter the population of the planet or the installations you build, the maximum population growth per turn is 25,000.

## Colonisation

Once you have built as many mines as you can on your home world, you can look at colonising other worlds for their mineral wealth. The first step is to survey them. There are three relevant orders:-

### **GEO (Geological Survey)**

This will tell you the mineral wealth of a planet and therefore whether or not it is worth colonising. The resources will be sorted in order from highest to lowest.

Resource Yield ratings are listed following each entry, with high Yield values being desirable.

---

Coal (360), Light Metals (294), Gemstones (265), Ghuran Demonblood (265), Crystals (209), Grains (97), Iron (80), Water (80), Industrial Chemicals (74), Petrochemicals (62), Gaseous Elements (61), Hydroelectric Potential (48), Lumber (44), Caldaran Crystals (28), Rare Elements (19), Precious Metals (10)

### **PMAP (Planet Map)**

This provides other details on the planet eg terrain, temperature etc. It also gives the presence of any existing population on the planet.

---

Temperature(Kelvin) Axial Tilt Gravity Atmosphere Ocean

---

217                      24              2.2              Oxygen      Liquid Ammonia

Mountains 39%, Ice Fields 26%, Forested Mountains 18%, Crystal Plains 10%, Liquid Gases 5%, Barren Rock 1%, Tundra 1%

Microorganisms on this world are virtually nonexistent. Pollution is causing some problems, while Radiation levels are undetectable.

### **CSV (Colonial Attrition Survey)**

This will tell you the attrition your colonists will suffer on this world. This is based on your racial specifications so if two different empires CSV the same world, they will get different results.

If a world is ideal for colonisation, you will receive this message when you CSV it:-

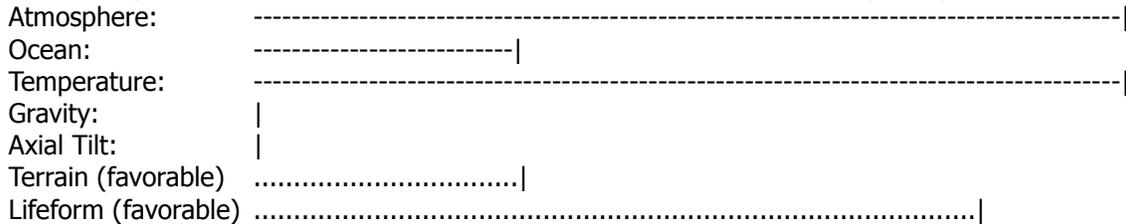
“They analyze general information about the planet, and determine that the attrition rate at this world would be zero. Ideal colonization conditions are present at this world.”

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Otherwise, you will receive a bar graph showing the condition of the planet.

They analyze general information about the planet, and determine that the attrition rate at this world would be very low, with either a slight loss of population over time or perhaps a slight gain. Though not ideal, it is close.

Your survey teams break down the cause of the attrition into the following categories:



The most important point to note is the bars are relative, not absolute. In the example above, Atmosphere and Temperature are equally problematic and each about three times as bad as ocean. However, another planet's CSV could have much shorter bars and be a worse proposition for colonisation.

If you CSV a planet and specify a Pop Group on the planet, any installations it contains will be taken into account.

- Atmosphere: To counter this, built Domed Cities, 1/100 population.
- Ocean: To counter this, build Fluid Conversion Plants, 1/100 population
- Temperature: To counter this, build a Deep Core Heatsink or a Thermal Transfer Center
- Gravity; Possibly an Inertial Dampening Station will counter this.
- Axial Tilt: To counter this, build Weather Control Stations, 1/100 population
- Terrain: No known counter.

There are also a number of installations that add a generic attrition/influx bonus.

- City
- Subterranean City
- Colonial Training Centre
- Textile Plants
- Imperial Commissary
- Aeroculture Farm

Possessing Improved or Advanced Consumer Goods techs, or Improved or Advanced Luxury Goods techs, will add to colonial influx. Should you possess several of those technologies, the bonuses stack.

Possessing Improved or Advanced Plantfoods provides for a general increase in colonial influx from existing installations at the colony. These bonuses stack if you possess both techs.

From Pete: "If your colony exceeds around 10k pop it will see drastic reductions in colonial influx as it's less of an interesting colony to emigrate to and more of a regional imperial hub - that limit is what I'll likely be raising to help out a bit."

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Pete also said: "Be aware that colonizing in Draco is a lot easier than in Andromeda. Installations such as **Domed Cities** can be quite effective at making otherwise totally inhospitable worlds great colonies. Furthermore, general colonization bonuses from installations (which is what almost all of them provide) stack directly, so if you have **Domed Cities** and **Subterranean Cities** at the same colony, their benefits combine with no loss of effectiveness. This can be a great way to drop colonists onto really nasty worlds such as those with the wrong atmosphere (or no atmosphere at all) and extreme temperatures.

Even Gas Giants can be colonized--it's assumed that your colonists live in orbital habitats, though the temperature, atmosphere and other features of the Gas Giant are still used in the attrition formula. You can even build **Subterranean Cities** for such colonies (your colonists would be living inside debris orbiting the Gas Giant or manufactured armored habitats as examples). Admittedly it's a bit odd to visualize some of the colonization installations for Gas Giant colonies from a reality perspective, but it can be done. "

## *Ship Design*

Ships are composed of the following types of system. You do not need to include all of these on a ship. A ship must be a minimum of 25000 tons. A starship needs at least one engine and orbital installations and defence bases cannot have engines (which limits them both to only 1 AP).

### ***Weapons***

Things that make the enemy go boom.

For details, see the section on [Weapons](#).

### ***Defence***

This includes armour, shields and systems that reduce specific types of incoming damage.

For details, see the section on [Defensive Systems](#).

### ***Engines***

Every ship (including orbitals and surface installations) has minimum action points (AP) of 1. By adding additional engines to a starship, this can be increased. The AP of a ship equals its total engine thrust divided by its mass, with a maximum of 8. For purposes of movement, this is rounded down to a whole number but the actual number is used for defensive purposes.

APs = Total Engine Thrust / Total Ship Tonnage

Another way to look at it is "How many engines do I need to get "X" AP?"  
Number of Engines = (AP \* Base Weight) / (Thrust per Engine - Mass per Engine \* AP)  
where Base Weight is the ship's weight with no engines (jump drives, yes, engines, no).

Initially, you need only a single MK I Nuclear engine (Thrust =400) on each ship to get 1 AP. More engines add nothing to the vessel. MK II Nuclear Engines have a thrust of 450 so you could build slightly faster ships but it is extremely inefficient to do so. Third generation engines have a little more thrust (MK III Nuclear = 550 or MK I Fusion= 500) which allows you to start building faster ships.

### ***Jump Drives***

These allow ships to transit a warp point. Every ship in the fleet needs a jump drive or you can't move. Jump Drives do not effect fuel consumption (except by increasing the ship's mass). Each jump drive has a Jump Strength. This is used to calculate the ship's Warp Bubble. The Warp Bubble is only used in [Warp Point Assaults](#).

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When you jump, the AP of the fleet is set to 0 unless every ship in the fleet has a Transwarp Jump drive. Transwarp Jump drives replace standard jump drives. You don't need both on a ship, but including a regular jump drive will not stop the ship being a transwarp ship.

## ***Cargo***

This includes Cargo Bays, Drone Racks, Fighter Bays, Fuel Tanks and Troop and Colonial Berthings. All cargo is stored at a fleet wide level meaning you do not need to include each of these on every ship in your fleet. This is especially relevant for fuel.

## ***Bridge***

Bridge systems are used to calculate the fleet's [fire control](#) in battle. For more details, see [Space Combat](#).

## Locating Homeworlds

Ultimately, the purpose of a war is to capture the other player's homeworld. Before you do that, you have to find it. Here are a few tricks that may help.

Note the location of all fleets encountered. If you battle a fleet, you get to see how much fuel they have left. You may be able to work back a likely course by the types of jumps they could have made.

Remember that, although a pathfinder can't survey a C class warp point or higher, other ships could have cleared the way.

Most players generate fuel by skimming at gas giants. Therefore, a home system will probably have skimmers over the gas giant (if there is one).

Jettisoning a System Probe will tell you of any colonies (or the homeworld) in the system.

Note the name of the system. Pete has been known to give home systems a name at least vaguely related to the race. Depending on his mood, it could be a little obscure. Consider the name of the race and their flag and compare it with system names in the region.

Homeworlds seem to be usually Terrestrial (normal, Hot or Frozen), but I have found one on a Hot Rockball.

Take note of any colonies located. They can give you a clue to the homeworld's atmosphere and temperature.

A home world will be at least 5 jumps away from any other home world. If two empires started on the same turn, they are probably 5 jumps apart. Each turn between them possibly adds two extra jumps. This is approximate only and depends on how many other empires started at the same time and the exact topography of local space.

## Orders not in the Rulebook

### **Global Exclusion**

Lists for LC (Load Cargo) and OC (Offload Cargo) have been added. During execution of an LC, ALL order, if an item is found in the Load Cargo exclusion list, that item will not load. It is skipped as if it was not present in the population group. The same is true for OC, ALL orders - items in Fleet Cargo will be skipped if they are encountered during an OC, ALL order and are listed in your OC exclusion list. To add items to your LC exclusion list, issue an LC order with the special keyword GLOBAL EXCLUDE as the first item. Example: 'LC, 12345, 25, GLOBAL EXCLUDE, EXCLUDE, Processed Radioactives, EXCLUDE, Light Beam Laser, EXCLUDE ' would add Processed Radioactives and Light Beam Laser to your LC exclude list. This order acts like a toggle, so if either or both of those items happened to be on your LC exclude list already, they would be removed. 'OC, 12345, 501, GLOBAL EXCLUDE, EXCLUDE, Fuel, EXCLUDE, Light Drone, EXCLUDE, Interceptor, EXCLUDE ' would add Fuel, Light Drone and Interceptor to your OC exclude list (or remove them if already on that list). These lists are only checked when an LC, ALL or OC, ALL order is encountered. It is also checked if you happen to enter an LC, ALL NO FUEL or OC, ALL NO FUEL order. The population group and fleet #'s entered in these GLOBAL EXCLUDE LC and OC orders do not matter, because these are global lists used for your entire empire. You can still use the ALL NO FUEL option if you like, but this system sort of replaces it - you could simply add Fuel to your LC exclude list.

Specific LC and OC item exclusions have been added as well, for use with regular versions of those orders. Just list an item like you would normally, but use the keyword EXCLUDE as the quantity and that item will be skipped. Example: OC, 12345, 34, Construction Materials, 25000, Fuel, EXCLUDE, Crystals, 10000 would load Construction Materials and Crystals but would skip loading Fuel. These specific exclusions are checked during LC, ALL or OC, ALL orders as well as regular LC and OC orders. For the most part I'd expect the global lists to have items added such as Fuel, Processed Radioactives and Water (things needed for Power generation) or OC exclusions for expendables such as fighters or drones. Using specific exclusions during an LC, ALL order would look like this: 'LC, 12345, 25, ALL, 0, Fuel, EXCLUDE, Construction Materials, EXCLUDE, Processed Radioactives, EXCLUDE'. This would load everything from pop group # 12345 onto fleet # 25, but would skip Fuel, Construction Materials and Processed Radioactives. Make sure to put a number in for the quantity field right after the ALL keyword - it isn't used for anything, but you need to get past it to start entering excluded item names...so put some number in there and then start keying in , EXCLUDE pairs as if you were entering a regular LC or OC order.

For example, my current LC exclusions are:-

```
** Imperial Cargomaster Report: Global Exclusions **
LC (Load Cargo) ... Colony Beacon ... Construction Materials ... Imperial
Flag ... Improved Textiles ... Processed
Radioactives ... Textiles ...
```

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### ***DECF (Decommission Fleet)***

The DECF order can now be used to send all your empty fleets back to your homeworld in a single order. Enter the keyword HOME as the Fleet ID # and all fleets with no ships in them will be relocated to your homeworld.

### ***DELS (Delete Standing Order)***

Used to delete up to five standing orders (identified by their priority number)

DELS, [Priority #], [Priority #], [Priority #], [Priority #], [Priority #],

### ***ESTA (Edit Standing Order Priority)***

Change the priority # of up to five standing orders

ESTA, [Priority # to Edit], [New Priority #], [Priority # to Edit], [New Priority #]

### ***EXIL (Exile Character)***

Exile a specific character

EXIL, [Character ID#]

### ***FNAM (Rename Fleets)***

A new order, FNAM has been added – it is very similar to the NAME (Name Legendary Characters) order, allowing you to rename up to five fleets per FNAM.

FNAM, [Fleet #], [New Name], [Fleet #], [New Name], [Fleet #], [New Name], [Fleet #], [New Name], [Fleet #], [New Name],

## ***FOB (Fleet Order of Battle)***

Gives an analysis of the fleet

FOB, [Fleet ID#]

## ***JETT (Jettison Cargo)***

The JETT order no longer requires an action point.

If you Jettison a System Beacon, your fleet will deploy a System Beacon. There is no point in deploying more than one System Beacon at once in the same system.

## ***MESS (Send Message)***

An order to send standard messages in-game to another empire.

The MESS order can be used to send any text that you like. Since there isn't much room in the entry box for a long message, enter a MESS order and then head to the Edit Orders screen to change the message to meet your needs. If you want to include information such as your email address or phone number, just type that into your message. Please keep your messages free of profanity and in the spirit of the game.

## ***DECF (Decommission Fleet)***

The DECF (Decommission Fleet) order can be used to send all of your empty fleets back to your homeworld in a single order. Enter the keyword HOME as the Fleet ID # and all fleets with no ships in them will be relocated at your homeworld.

## ***NUD (Naval Unit Design)***

The NUD (Naval Unit Design) order can be used to alter the Mission Class of an existing ship, surface fortress or orbital installation design. Issue an NUD with the same name as an existing design and the order will change that design's Mission Class to that indicated in the NUD. The NUD order will no longer rename new ship designs with the '-A' series if you issue an NUD with a design name already in use; instead, it will alter Mission Class.

## ***PAP (Political Action Proposal)***

You can set any level of alliance you like with this order, which is used primarily to allow for complex Rules of Engagement fleet settings. The level of alliance you choose is one-way: that is, you can indicate that you treat the other empire as an "alliance", but he could do a PAP order and set a relationship with your empire as a "trade pact". Both parties do not need to

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issue PAP orders at the same time. One could issue a PAP and the other does not ever have to reciprocate.

PAP, [Empire #], [Agreement]

### ***REVO (Instigate Revolution)***

Used to change your primary government type, secondary government type and/or imperial tradition (also allows you to specify the title of your new emperor). May be issued once every 25 turns.

REVO, [new primary govt type], [new secondary govt type], [new Imperial Tradition], [new Emperor title]

### ***TAC (Ground Force Tactical Ratings)***

Gives analysis of an army, showing all the tactical ratings from your technology and units.

TAC, [Army ID#]

## Repeated Orders

It costs \$6 for each 40 orders or part thereof that you submit each turn. However, you can set up orders that will automatically execute freely each turn.

## **Standing Orders**

There are a number of orders than you can issue as standing orders. This is done by preceding them with X eg XEXPL or XOC. These orders will submit each turn. If you look at the Orders Supplement, all the orders that can be made standing are listed. The standing orders will be listed at the end of your turn results.

Probably the most common use of X is for exploration orders.

The most important difference between standing orders and Convoy Routes is the Standing Orders execute in order from first to last each turn. Accordingly, if you assigned three orders that each take an action point to a 2 AP fleet, the third order would never be executed i.e. you can't assign a series of standing orders that will take more than 1 turn to execute.

## **Convoy Routes**

Convoy routes are used to set up a more complex series of orders that can take many turns to execute. You can also add multiple fleets to the convoy route. If a fleet assigned to a convoy route does not reach the end of the route by the end of the turn, it will continue with the next order next turn. When a fleet reaches the end of a convoy route, it will immediately continue with the first order again.

You can assign a fleet to a new convoy route from with a convoy route, but that will immediately stop the fleet. It will resume with the new convoy route the next turn.

For the orders than can be used in a convoy route, see the Orders Supplement and the Convoy Route Supplement.

Note: Although the convoy supplement says you do not need to stop recording the convoy if its last order is the last order on your turn, you do need to issue the stop recording order. Otherwise, random other orders may be added to the convoy route.

You can delete a convoy route you no longer need by:-  
ECNV, [Convoy Route Name], CLEAR ALL, 0

Sample Convoy Route 1

This convoy route is used to transfer 100 colonists a turn to a colony world. It takes 6Aps and a Transwarp fleet to run this route in a single turn. If the fleet can't manage that, it will stop and resume with the next order this turn. I set up all my colony convoy routes to transport 100 colonists at a time so I can create standard orders to build attrition-reducing facilities, which usually need 1 facility per 100 population. If I assigned a 12AP fleet to this convoy route, the fleet would execute all the orders twice each turn.

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Priority 10 - CTRN: 11111, 100  
Priority 20 - LC: 11111, \*\*, Construction Materials, 50000, Colonists, 100, Fuel, 100000  
Priority 30 - MOVE: \*\*, Mouse, 12345  
Priority 40 - WARP: \*\*  
Priority 50 - MOVE: \*\*, Elephant, 67890  
Priority 60 - WARP: \*\*  
Priority 70 - NM: \*\*, Duck, 3  
Priority 80 - OC: \*\*, 22222, ALL NO FUEL  
Priority 90 - CON: 43, Iron Mine, 22222  
Priority 100 - CON: 34, Light Metals Mine, 22222  
Priority 110 - CON: 23, Gas Refinery, 22222  
Priority 120 - CON: 1, Colonial Training Center, 22222  
Priority 130 - LC: 29234, \*\*, ALL  
Priority 140 - MOVE: \*\*, Duck, 55332  
Priority 150 - WARP: \*\*  
Priority 160 - MOVE: \*\*, Elephant, 74636  
Priority 170 - WARP: \*\*  
Priority 180 - NM: \*\*, Mouse, 1  
Priority 190 - OC: \*\*, 11111, ALL NO FUEL

## Sample Convoy Route 2

This convoy route will skim fuel from a gas giant. This could be set up as standing orders but a convoy route allows me to assign higher AP skimmer fleets to the route in the future. Another fleet is assigned standing orders to move the fuel from the Gas Giant's population group to somewhere more useful.

Priority 10 - SKIM: \*\*  
Priority 20 - OC: \*\*, 66666, Fuel, 99999

## *Psionics*

If your race is psionic, you will gain the ability to research psionic tech. Primarily, this allows you to build a variety of mass destruction devices and gain Ground Combat TAC in the three psionic values, which can give you a significant bonus.

The three TAC Ratings are ESP, Telekinetics and Telepathics. The only ground unit that uses these is Special Talent which has a rating of 3 for each (and 1 in Intelligence).

Remember, if you fight a race without a rating in a TAC you have, you gain an immediate +10 TAC shift. If a psionic race is fighting a non-psionic one, they only need 1 Special Talent unit and minimal research in the appropriate technology to get the +10 bonus.

## *NPC Empires*

One important difference in the Draco Galaxy is the presence of active NPC empires. So far, only the Death Machines have activated and been encountered.

### ***Death Machines***

The first mention of the Death Machines was a global message to all empires:-

"Intergalactic merchants, spies, rumormongers and other sources of occasionally-questionable intelligence have reported that an empire-that-shall-not-be-named wandered into a system claimed by the dreaded Death Machines, was warned to leave under the threat of severe penalty, and instead chose to poke about in the system, resulting in the utter and complete annihilation of his forces there. Subsequently, DMX forces in the entire region that were otherwise in a somewhat dormant state began to stir...."

A comment posted on the forum:-

[My guess is that this was a pre-programmed event and that no player caused it. He gave us around 13 turns or so to get things up and running and now we have to start dealing with the Non-Player adversaries.]

Lead to this response from Pete:-

"A good guess, as there are certain events that can be triggered, and others that can be triggered after that--but always caused by player activity. Somebody was caught snooping about in a bad place, waking a slumbering giant. I had wondered how many turns would go by before it would begin.

<spoiler alert> DMX forces, for example, remember when and where they sight those hated biologicals (uh, that's you guys), how much of a fight you put up, when they lose forces and how much, and a host of other things. Their actions aren't totally random, thought currently they have a very limited data set to work with so for now a lot of their fleets just move somewhere to either open up a new jump point or just to cause trouble so it might seem random. Even I don't know what they'll do next with certainty, because as time goes on their actions will be dictated more by how they react to the particulars of how things are going in this or that star system."

Since then, Death Machine warning beacons have been detected in some systems:-

<< System Beacon >> THIS SYSTEM IS INTERDICTED BY DMX SECTOR 0511 WARSHIPS -- FURTHER INCURSIONS WILL RESULT IN THE EXTERMINATION OF YOUR SPECIES "

And numerous aggressive fleets have been encountered.

So far, three types of ship have been encountered.

Minelayers:-

[Zulu] X0814-2

1 ML EX4M (Minelayer - 60,000 tons)

ML EX4M (Minelayer - 60,000 tons) [Integrity: 389,980 / 389,980] (Green, Timid)

180 Burst Mine Rack, 3 Fuel Shuttle, 12,000 Fuel Tankage, 1 Mk I Fusion Engine, 1 Mk I Fusion Jump Drive, 2 Mk IV Jump Survey Sensor, 17,100 Selenite Battle Weave

Mines: 79,200

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Maneuverability: 0.01, Missile Defense: 0.00 %

Light Cruisers:-

[Zulu] K0814-2

3 CL K4S (Light Cruiser - 224,700 tons)

CL K4S (Light Cruiser - 224,700 tons) [Integrity: 1,261,680 / 1,261,680] (Green, Timid)

225 Battle Imaging System, 10,000 Cargo Bay, 3 Fuel Shuttle, 45,000 Fuel Tankage, 48 Light Sonic Disintegrator

1 Mk I Fusion Engine, 1 Mk I Fusion Jump Drive, 1,125 Pulse Laser CIDS, 54,600 Selenite Battle Weave

Sonic: 268,800

Maneuverability: 0.00, Missile Defense: 50.10 %

Heavy Cruisers:-

[Zulu] M7724-0005

1 CA HK7B (Heavy Cruiser - 500,000 tons)

CA HK7B (Heavy Cruiser - 500,000 tons) [Integrity: 6,149,000 / 6,149,000] [Shields: 315,000 / 315,000] (Green, Timid)

2,000 8cm Gatling CIDS, 10,000 Cargo Bay, 103,800 Cordellium Composite, 200 Crystallizer, 250 FCS-1 Archer Fire Control, 10 Fuel Shuttle, 50,000 Fuel Tankage, 450 Mk III Force Shield, 1 Mk IV Nuclear Engine, 1 Mk IV Nuclear Jump Drive

Cold: 1,600,000

Maneuverability: 0.00, Missile Defense: 70.60 %

Death Machines seem to be organised into different sector commands, as evidenced by the sector listed in their warning beacons and in the fleet names eg Fleet X0814-2 belongs to sector 814.

Each Sector Command has a Core Fleet that serves as its production centre and "home world".

The Death Machines do not appear to colonise worlds.

DMX Death Machines # 9999 'Metallic Sphere Orbiting Dead World'

[Zulu] CORE0653

1 OMP SFAC-88 (Orbital Mining Platform - 1,200,000,000 tons)

12 BM MRS1 (Monitor - 2,500,000 tons) [each]

6 BB B4M (Battleship - 4,000,000 tons) [each]

## ***Other NPC Empires***

The first exploration message you find mentions a number of races by name.

"References to the Rigellians, Hivers, the Pride, the Fetwhar, Tellerites, Valtavians, the Plek'ton and some sort of machine race are found in several documents, but no specific information is given on these strange alien beings. Others are mentioned as well, but no names are given and details are sketchy at best. Whatever happened to the T'ckon- whether they did it to themselves in some sort of civil war or were overcome by an alien menace--is impossible to determine."

If the "some sort of machine race" is the Death Machines, then perhaps the Rigellians, Hivers, the Pride, the Fetwhar, Tellerites, Valtavians, the Plek'ton and even the T'ckon are waiting to be activated at some point in the future.

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## *Supernova Slang*

Brain blob – A race that maxed out the research bonuses at the expense of combat ability

Turtle – A race that hides on their home world, building defences

Pirate – Any aggressive race

Screen Ship – Small vessel (usually 25000 tons) that exists solely to absorb enemy fire. Usually has 1 Mk I Nuclear Engine, 1 MK I Nuclear Jump Drive, maybe 1 weapon and the rest is the best armour available. Positioned in deployment location 1 in battle.