SuperNovaROTE

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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 amended this:-
“Illegal character assignment may result in Bad Things(tm) happening to them. They definitely don't want Santa to think they are being bad this year. Be sure that you're assigning characters to worlds in systems where the character is already present. –Pete”. This implies you can AC a character anywhere in the system they are currently in and that if you try to assign them out of that system, the character may be lost, rather than the order just failing.

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

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.
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% 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
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.

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.”

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:
Atmosphere: ----------|
Ocean: ----------|
Temperature: ----------|
Gravity: |
Axial Tilt: |
Terrain (favorable) .....|
Lifeform (favorable) .....|
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 and/or Atmosphere Exchangers, 1/100 popuation
Ocean: To counter this, build Fluid Conversion Plants, 1/100 population
Temperature: To counter this, build a Deep Core Heatsink or Thermal Transfer Station.
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 bonus.
City
Subterranean City
Textile Plants
Colonial Training Centre

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.

The damage dealt by Missiles, Fighters, Drones and Torpedoes is also reduced by the speed of the ship. In addition, all ships with point defence add a portion of that to a fleet wide point defence to help reduce this damage for all ships. This takes effect as a flat rating of Missile Defence added to each ship in the fleet.

See Weapons for examples of Defensive Systems.

In battle, your ships are organised in waves called deployment locations (or deplocs). 1 is the closest to the enemy, 12 is the furthest away.

Assigning Deployment Locations

When you create a ship, you assign it one of 17 different of types, from A (Assault) to N (Non Combatants. Then you create Battle Plans which tell each ship of each type where it is to be deployed. You then assign a battle Plan to a fleet to tell it how each ship assigned to it is to be deployed. Thye same ship in different fleets can be deployed differently, through the use of different battle plans.

Deplocs and Targetting

Each "round" of battle, each "glob" of your firepower targets a random enemy ship. However, not all ships are equal. Two factors are taken into account - Deployment Location and (if you have a Flag Bridge) threat assessment.Ships in Deploc 1 are much more likely to be targetted that those in deploc 2, which are more likely to be targetting that ships in deploc 3 and so on. So, unarmed transports, tankers and the like should always be assigned to deploc 12 so they will probably not be targetted until your warships have been destroyed. The actual way Flag Bridges work is not clear, but unarmed slabs of armour are unlikely to be targetted if there are armed ships.

Deplocs and Attacking

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. Fighters and drones always fight from deploc 1, no matter where their carrier is. No matter where a weapon is deployed, it will always do at least 5% damage.
.
Point Blank: Deploc 1, 20% damage drop off. These weapons are more powerful for their size and cost, but drop off faster.
Beam range: Deploc 1, 10% damage drop off. Most weapons are beam range.
Missiles/Torpedoes- 10% damage drop off
Short: Deploc 2
Medium: Deploc 5
Long : Deploc 8
Standoff: Deploc 10

So, for example, a Type A Plasma Torpedo is a point blank weapon that does 88,000 points damage.
If you assign a ship armed with one in deploc 1, it will do that much damage.
At deploc 2, it will only do 70,400 damage (80%).
If you assigned the ship to deploc 12, it would only do 4,400 (5%).

Deplocs and Defending

Setting a ship further back in a deploc will reduce the amount of damage it takes. For each deploc after 1, the ship will take 5% less damage.

Summary

So, what does all this mean?
First, when you design a ship, keep in mind where you plan for it to fight. Choose a deploc and pick weapons that suit that position. Putting Plasma Torpedoes and Standoff Missiles on the same ship is not the most efficient choice. And, no matter where the ships are, damage is never reduced by more than 95%, so you always have SOME effect.

1) Unarmed ships. Always put them in deploc 12 so they (probably) won't be targetted until you have lost the battle.
2) Carriers. The fighters and drones don't care where the carrier is, so put it far back. If you want to arm it as well, consider standoff weapons and putting it in deploc 10.
3) Warships should generally go in deploc 1 or 2. Remember the ships in deploc 1 will probably get targetted first, so make them tough or expendable.

FIRST TURN QUESTIONS

Q. What do the acronyms on my 1st page Lifeform Modifiers chart stand for?

- SCM - Space Combat Modifier
- RM - Research Modifier
- GCM - Ground Combat Modifier
- EXM - Exploration Modifier
- ESM - Special Modifier (used in exploration/diplomacy situations)
- DIP - Diplomacy Modifier
- DEF - Defensive Modifier
- COL - Colonization Modifier
- CCM - Close Combat Modifier

OPERATIONS QUESTIONS

Q. How much cargo space should I have available in an exploration fleet when doing EXPL orders?

The guideline is 25,000 tons available cargo capacity. The majority of finds will be less than this (the larger finds being either rare or dealt with in other ways) so you can get by with less but if you want to pretty much eliminate the chance of losing something (due to insufficient cargo space) - keep 25,000 tons free cargo space.

PRODUCTION QUESTIONS

Q. What sequence does production occur in?

Installations operate at the end of the turn in a predefined sequence which is as follows:

Power Generation
Shipyards
Fuel Refineries
Resource Extraction
Stripmining Complexes
Industrial Complexes
Other

Shipyards run immediately after power generation so that they are virtually guaranteed to have power available for their operation (Note: Shipyards do not use items that might be produced by your Industrial Complexes that turn in any event - ships placed into Shipyards are paid for during the execution of the Build Ship [SHIP] order). Resource Extraction installations include such things as Iron Mines, Hydroponic Gardens and so forth; they are more efficient than Stripmining Complexes and therefore gain earlier access to potentially limited power supplies. The order within Resource Extraction is alphabetical. Stripmining Complexes run just before Industrial Complexes to ensure a greater supply of raw materials.

Industrial Complexes consume no power themselves and run towards the end of the sequence - producing items from all the mined resources and raw materials (and from previously stockpiled materials) available to them. "Other" represents a variety of unusual installations which generally do not exist in large quantities and come last in the power use hierarchy.

Q. What is the power generation formula for Hydroelectric and Geothermal power plants?

The power output of these installations is

Power Output = ((Yield / 50) +1) * 1000

Example
If your Hydroelectric potential (yield) is 200 then a Hydroelectric power plant would produce ((200 / 50) +1) * 1000 or 5,000 power

Q. When I issue a Build Ship (SHIP) command do I need all of the components available to assemble it or can they be finished during production and still be SHIP'ed in the same turn?

You must have the components available at the time the SHIP order is issued. When the SHIP order executes - it checks the stockpiles in the Population Group and, if sufficient, deletes them and places the ship(s) ordered into the local shipyards. Component production occurs at the end of the turn so your ship component production will always be a case of producing components this turn that you plan to use the following turn.

Q. Do industries or shipyards require power consumption?

Industrial complexes do not require power. Shipyards do require power (100 Power per shipyard) while Shipyard Slips do not. Shipyard Slips dictate how many ships may be worked on in a given turn by a Population Group's shipyards. The number of Shipyards dictate how much total ship tonnage can be completed by that Population Group. (i.e. A Population Group has 2 Shipyard Slips and 50 Shipyards - that population group can complete up to 500,000 tons of shipping [starships, orbital installations, surface installations] in a given turn and can work on as many as 2 units per turn. Power consumption would 5,000 Power).

Q. I see a number of people listed on my homeworld. Is this my total population?

The Population Qty figure that is listed for each Population Group is the number of available POP not the total POP of that group. If you see a figure of, say, 8,000 POP that means that you have 8,000 POP that you can draw on new installations and/or colonist/trooper construction.

Q. What use is the Build Priority number?

The Build Priority number is important since it allows you to sequence your production so that everything occurs in the proper order. Steel, for example, requires Iron to produce (3 units of Iron for every unit of Steel) so you would want to ensure that your industrial complexes produce Iron (from Raw Materials) before attempting to produce Steel (assuming you have no built up stockpiles of Iron sitting around).

Example

Priority, Quantity, Item
500, 30,000, Iron
520, 10,000, Steel

This example show a correct sequence - Iron is produced first (from Raw Materials) then Steel is produced from the Iron.

Q. Why shouldn't I just put all my production to the same priority level?

There are two reasons to avoid this.

1) Using the same priority number is dangerous in that you can easily make a sequence error that causes problems on the production lines. Using unique priority numbers for every production queue item ensures that the production sequence goes exactly as planned.

2) You will also discover that your production queue(s) (the majority of which will be tooled builds) will still need to be adjusted on a fairly regular basis. You may need to increase Steel production, for example, which would also require an adjustment in Iron production. The Edit Build (EB) order will be used frequently as a result and you'll find that the EB order is much more versatile and powerful if you have used unique build priority numbers in your production queue(s).

Q. How do I determine the number of industrial complexes required for a given production queue job?

The Industrial Complex that you have initially can convert 250 tons of materials per turn into new products.

Examples

You have a production queue job for 50,000 tons of Iron.

Producing Iron with Industrial Complexes means that you are converting Raw Materials into Iron and since the conversion rate of raw materials into resources is 10:1 that means that your industrial complexes will be processing 500,000 tons of raw materials to get the 50,000 tons of Iron you've ordered. Accordingly - this production queue job would require 2,000 Industrial Complexes (500,000 / 250 = 2,000).

You have a production queue job for 50,000 tons of Steel.

Steel is produced from Iron (not raw materials) and the ratio is 3 tons of Iron for every ton of Steel. 50,000 tons of Steel therefore is going to require 150,000 tons of Iron to produce. Accordingly - this production queue job would require 600 Industrial Complexes (150,000 / 250 = 600).

Q. How much cargo space should I have available in an exploration fleet when doing EXPL orders?

The guideline is 25,000 tons available cargo capacity. The majority of finds will be less than this (the larger finds being either rare or dealt with in other ways) so you can get by with less but if you want to pretty much eliminate the chance of losing something (due to insufficient cargo space) - keep 25,000 tons free cargo space.

Q. How many orders can I submit for each $6?
Originally it was 30, but it has been expanded to 40.

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 Commonnwealth 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 Commonnwealth
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.

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.

Procedures 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 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.

Tactical Rating	Example Technology
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	Cargosub
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.

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.”

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 Close Combat 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 (Armorored Car Armor Rating) = 2400
Open Terrain
4 (No of of Imperial Guards Heavy Armor) * 4 (Imperial Guards Heavy Armor unit Open Terrain Strength rating) *100 (Armorored 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
Transport 3 (No of Transport Units) * 5 (Transport unit Transport Capacity rating) * 100 (Truck Tech Transport Capacity rating) = 1500
Armor
1 (No of Imperial Guards Heavy Armor) * 6 (Imperial Guards Heavy Armor unit Armor Strength rating) *100 (Armorored Car Armor Rating) = 600

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

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

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

This wiki is to provide helpful information for players of the PBM SuperNova:Rise of the Empire.

The information in this wiki 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 via the Supernova Forum
- Lord Deependra.

Deep Core Surveyors

“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 Surveyor 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 one line for each DCS, giving the basic results:-
3 Deep Core Surveyors were able to operate on GenericSystem - 9
A Deep Core Surveyor has discovered a new source of Meat on GenericSystem - 9, raising its yield!
A Deep Core Surveyor has discovered a new source of Hydroelectric Potential on GenericSystem - 9, raising its yield!
A Deep Core Surveyor has failed to discover any new resources on GenericSystem - 9

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.
Expect roughly two-thirds of the DCSs to find something each turn, with the amount of increase depending on the size of the resource.

Instant Coalescing Embrace (ICE)

“ICE, or Instant Coalescing Embrace, is a highly unstable material used to alter the molecular structure of other objects. Some call the effect 'freezing' but no thermal exchange takes place. The very fabric of atomic bonding seems to be changed, resulting in sometimes weird and often quite unpredictable results. In truth, your scientists have stumbled across something that they do not truly understand. They do know that if deployed on a planet, ICE-1 has a chance of altering the geological nature of the area. Sometimes a new material is formed, while other times a perfectly good vein of precious metals or other yield is ruined. Proximity to a gravitational field seems to drive the reaction. To use, simply construct ICE-1 and leave it in stockpile. On the following turn, just prior to mining and industrial production, stockpiled ICE-1 will react in what can only be described as a totally unpredictable way. To prevent the reaction, load the ICE-1 onto a fleet and move it well away from any planetary body (a Warp Point is safe). Leaving it in orbit is thought to be inadvisable. Use on your homeworld is considered exceedingly risky. Your scientists have no idea what might happen if ICE-1 is carried through a Warp Point. There may well be military uses, but your scientists fear what might happen if they experiment too much.”

Additional comments from Pete:-

"Large "mega-swings" are absolutely possible when you use a lot of ICE, but it's not so much a matter of luck in that regard, but simply a matter of mass. There is always the chance of catastrophe, which is the downside of fooling with ICE. It's risky not in that you stand to make huge gains for a small amount of ICE, but because there is a chance of global catastrophe every time you use ICE....this leads to the idea of using a lot at once, or using it offworld.

ICE and Deep Core Surveyors are not the only ways of raising overall resource production."

In essence, ICE is a strange substance that will randomly change resources on the planet on which it is used. A few points to note :-

1) Any existing resource can change, going up or down. The total net effect seems to be between +0.1 to +0.15 per ton of ICE, so if you used 1000 ICE-1, you would expect to gain 100 points of resources overall…but Iron might go down by 50 and Coal up by 150.
2) There is a chance of a “global catastrophic” result. This is a fixed chance each time ICE is used i.e. using 1 ICE is just as dangerous as using 1 million. ICE-2 and ICE-3 have a reduced chance of creating a catastrophe. This means you should stockpile ICE (at a warp point) until you have enough to make the risk worth the return.
3) You cannot carry ICE through a wormhole so it has to be made in the local system.

To use:-
1) Build ICE in your production queue. Each ton of ICE costs 1000 Rare Elements.
2) Load it onto a fleet and move it to a warp point at the edge of your system.
3) Continue adding to the stockpile on this fleet until you have a large quantity eg 100,000.
4) Bring the fleet to the world to be changed and offload the ICE into a population group on the planet.
5) Do a GEO in the world the next turn to see the effect.

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 3 iron to make 1 steel. One industrial complex can turn 249 iron into 83 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 (2000 tons per turn).
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%. The maximum bonus is 150% at 6th generation. .

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.

If you make an error on your turn, wasted industral capacity can never be recovered. A good idea is to make some overflow orders such as these below. You can, or course, use other items as suits your empire.

9900 2,000,000,000 Iron
9910 2,000,000,000 Steel

If there are insufficient resources to make an item in the queue, your complexes will make as many as they can and then move on to the next item.

A number of values are capped within the game at 2,000,000,000. That's 2 milliard, or 2 billion for any Americans.

Known caps are:-
- Transfers. This applies per field in the TR order, so you could transfer more by entering the maximum in several fields.
- Building. Each BI order will make a maximum of 2 milliard tons. You can enter larger numbers, but only 2 milliard will be produced.
- Ship construction. Each pop group can only make 2 milliard tons of shipping a turn. A ship larger than this will therefore take multiple turns to construct.
- Cargo Bays. Each FLEET can contain only 2 milliard tons of cargo.
- Ships components. Only 2,000,000,000 or each component can be designed into a ship.
- Fuel. Each FLEET can contain only 2 milliard tons of fuel. This is perhaps the most limiting factor in the game as it sets the maximum effective size of ships to about 40 milliard tons.
- Type D Spinal Starbore. This is capped at 2,000,000,000 firepower, per weapon.

However, many things can exceed the cap. For example, stockpiles or the total firepower, shield strength and structural integrity of a ship.

In addition, fleets are capped at a maximum of 999 APs.

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 existing 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!”
5) Place ICE (see below) in the stockpile of a population group on the planet. This can be dangerous but also very rewarding as it can randomly increate resource ratings. However, it can also decrease them.

Pete has stated “ICE and Deep Core Surveyors are not the only ways of raising overall resource production” which may mean there are other methods as well.

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.

2) Terrain plays a part in this happening.

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

These orders have been added or revised.

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:-

Imperial Cargomaster Report: Global Exclusions

LC (Load Cargo) ... Colony Beacon ... Construction Materials ... Imperial Flag ... Improved Textiles ... Processed Radioactives ... Textiles ...

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 #],

DIV (Division Assignment)

Addition:- If you use the following format, all divisions will be transferred from the Army directly back into the Pop Group without needing an orbiting transport to pick them up and then drop them off. This not only saves you potentially many orders, but gets around the archaic requirement of needing troop transports in orbit for divisions who should have just walked/slithered/crawled/flown/tunneled/whatever 100 meters outside of their base back into the general population group. Use the key word DETACH as the third entry in the DIV order. It is not case sensitive, so you could enter Detach or DETACH or even deTacH and it would work fine.

DIV, Population Group #, Army #, DETACH

Example:

DIV, 1435, 12, DETACH

The above order will detach every division in army # 12 and place all of them in pop group # 1435. All of the normal restrictions for DIV still apply, so army # 12 needs to be located in pop group # 1435. There must be at least 1 division in the army to be detached. You need to own pop group # 1435. Nothing else is done to army # 12, so it still exists as an empty shell at its current location. You could then issue a normal DIV order to transfer some divisions back into it, or load some of the divisions onto an orbiting troop transport and then issue a DIV, 1435, 12,

ALL to transfer all of the remaining divisions back into army # 12, or leave them in the pop group for future use.

Note that divisions in a pop group do not normally defend the world they are on, but this is not a certainty. To be absolutely certain that they will fight, be sure to DIV them from the pop group into an army.

You would still use DGF (Disband Ground Force) to completely destroy an army that has no divisions in it and is therefore completely empty. DGF just destroys an already empty army id #, and there is no change to the DGF order.

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 #], [Priority # to Edit], [New Priority #], [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 (Decommision 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 Deisgn)

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 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#]

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
Intelligence Sensor Package
Picket Drone – stored in the Drone Rack.
Science Drone – stored in the Drone Rack.
Magnetic Grapple
Tractor Beam
Stun Beam
Flag Bridge

A successful exploration can find: -
1) Items - There is maximum tech generation that you can find. You are limited to 4th 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 10th 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.

An exception to the rule are temple sites. Priests use these to get favor points for the various gods at these sites. Though currently the religion part of the game is not fully implemented into the game.

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.

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 ((Yield / 50) +1) * 1000, for no ongoing cost. If you have a yield of 200 or higher, they are more efficient that 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.

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 figthing a non-psionic one, they only need 1 Special Talent unit and minimal research in the apporpriate technology to get the +10 bonus.

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 generation^2*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.

You can buy techs with SRP – leftover points from your race creation. You can only buy up to a 5th 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 fourth generation (costing 48) and had already researched it for 6 turns, it would cost 41 SRP – i.e. 6 points from the last 6 turns, 1 from this turn’s research and 41 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 5th 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 6th generation techs.

On the first turn in October each year (the anniversary of the start of the game), you will receive some additional SRPs from Santa Pete.

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 Pathfinder 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 (SCRP 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.

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.WeaponsDefensive SystemsFire ControlWarp Point Assaults

A few technologies of note.
Nuclear Transwarp Drive: The advent of Advanced Fuel triggered a sweeping change in the concept of how to design Jump Drives. Your scientists have come up with an ingenious way to avoid the buildup of dangerous, radioactive materials in the old drives. Instead of shutting down and cleaning the drive after each warp transition, Advanced Fuel is continuously flushed through the drive coils throughout a warp tunnel transition. This totally eliminates the need to conduct jump drive repairs following each transition, allowing a ship to move onward with no delay. The main downside is that washing the highly volatile Advanced Fuel over the active drive coils is incredibly dangerous. In addition, holding a warp bubble open is too much strain for a single Nuclear Jump Drive, requiring a huge battery of the NJD's working in concert to spread the load and maintain a stable warp bubble. A breach in the bubble from the interior of the hyperspace wormhole would spell instant destruction for the vessel. To prevent an accidental NTD breach, a heavy magnetic shield is placed all about the engine compartment. The device is considered safe for normal operation, but does not handle battle damage very well as the shields are focused inward rather than providing protection from enemy weaponry. Finally, Jump Drive output of this unit is, unfortunately, less than that of the standard Nuclear Jump Drive. Note: for game purposes, the Nuclear Transwarp Drive works just like any other Jump Drive. A ship equipped with at least one NTD warps from system to system normally. However, the action points of the ship are not reduced to zero following a successful warp movement. It is therefore possible for a ship with 2 action points to execute a Move - Warp - Move - Warp series in one turn, or a Move - Warp - System Scan.
(25,000 tons) 250 Mk I Nuclear Jump Drive - 250 Mk I Force Shield - 25,000 Advanced Fuel - 25,000 Improved Electronics -
25,000 Improved Synthetic Materials
Classification: Jump Drive Structural Integrity: 5000
Prerequisite Technologies: Mk I Nuclear Jump Drive, Advanced Fuel, Mk I Force Shield
Jump Drive Output: 125000

Mk I Flag Bridge: Flag Bridges are massive modules typically installed on ships designed to be the flagship of a fleet. They combine the advanced features of battle display technology with the ability to communicate almost instantly with every ship in a task force, giving officers a way to coordinate all shipboard activities during exploration, scientific and combat missions. Science stations link officers to survey lander and science lab teams, while the built-in combat information center ties together all weapons batteries into a single, coordinated unit. The presence of even a single Flag Bridge on any ship in a fleet creates a complete datalink to all ships in the task force, meshing every weapon, sensor and bridge system into a cohesive identity. Commanders on every ship in the task force are thus able to attempt to lock their weapons, fighters and drones onto targets which have been evaluated to possess the highest threat potential. The presence of more than one Flag Bridge in a fleet does not provide additional capability, though it does give some insurance in the case of the unthinkable catastrophic loss of what might be the last Flag Bridge in the force. Superior models of this system yield improved scientific and exploration modifiers along with increased chances of targeting enemy vessels deemed to be threatening. Since flagships might be ranked as extremely threatening by enemy flagships, it is probably a good idea to provide heavy armor, shielding and defensive systems to such units and station them well away from the action..... (500,000 tons) 2,500,000 Advanced Electronics
Classification: Bridge Structural Integrity: 500000
Prerequisite Technologies: FFS-2 Fleet Formation Scanner, FCS-2 Aegis Fire Control, Mk I Mass Detector Sensor, Subspace
Communications Gear

Bridge Strength: Impressive [200000000]

Advanced Industrial Complex: Converts Items into other Items. Resources such as Iron can be refined into Steel, or multiple Items can be assembled to form superior Items. Advanced Industrial Complexes can assemble 2000 tons of materials per turn into final products, and make extensive use of robots and cyborg individuals to massively boost industrial output.
Production requirements: 500 Advanced Construction Materials
Consumes:
Requires: 5th Generation Civil Engineering as a prerequisite technology
Requires: 1st Generation Android Technology as a prerequisite technology

ICE-1: ICE, or Instant Coalescing Embrace, is a highly unstable material used to alter the molecular structure of other objects. Some call the effect 'freezing' but no thermal exchange takes place. The very fabric of atomic bonding seems to be changed, resulting in sometimes weird and often quite unpredictable results. In truth, your scientists have stumbled across something that they do not truly understand. They do know that if deployed on a planet, ICE-1 has a chance of altering the geological nature of the area. Sometimes a new material is formed, while other times a perfectly good vein of precious metals or other yield is ruined. Proximity to a gravitational field seems to drive the reaction. To use, simply construct ICE-1 and leave it in stockpile. On the following turn, just prior to mining and industrial production, stockpiled ICE-1 will react in what can only be described as a totally unpredictable way. To prevent the reaction, load the ICE-1 onto a fleet and move it well away from any planetary body (a Warp Point is safe). Leaving it in orbit is thought to be inadvisable. Use on your homeworld is considered exceedingly risky. Your scientists have no idea what might happen if ICE-1 is carried through a Warp Point. There may well be military uses, but your scientists fear what might happen if they experiment too much.
(1 ton) 1,000 Rare Elements
Classification: Resource
Prerequisite Technologies: 3rd Generation Industrial Science, 3rd Generation Planetary Science
Special Weapons Strength: Poor [100]

Mk I Gravitic Thruster: Gravitic Thrusters are basically antimatter-powered maneuver drives utilizing an advanced thrust technology based on the emission of gravitons. It is a elf-contained 100-ton unit, is self-sustaining and requires no external power source. To achieve superior maneuverability, simply add more engines to your design. Maneuverability aids in the ability of your ships to avoid certain types of enemy weapons, and provides additional Action Points for your ships to use during civilian operations. The antimatter power plant in this series of engines is stable under normal operating conditions but does not handle combat damage well even on a good day, with a tendency to detonate in a stupendous explosion upon suffering grievious damage. (100 tons)
200 Advanced Transaluminum - 100 Advanced Electronics - 100 Advanced Synthetic Materials - 100 Advanced Processed Radioactives

Classification: Jump Drive Structural Integrity: 40
Prerequisite Technologies: Mk IV Antimatter Engine, Light Phase Shaker
Maneuverability: Magnificent [Thrust Output: 128000]
Counters: Missiles, Fighters, Drones

Robotic Shipyards: Advances in cybernetics and related fields have resulted in the development of advanced robotic workers capable of reasonably sophisticated manufacturing tasks. Aside from substantial social unrest caused by living workers being replaced by machines, limiting their current use to the shipyard sector, they are extremely efficient and require minimal time off for maintenance, but are somewhat inflexible in their job roles. Once designed to install a section of hull plating, thread wires through hull structures or perform a myriad of other tasks, the machines are left alone to do their jobs. As a result, and to maximize their efficiency in working with a wide variety of starship components, starships of less than 25,000 tons in total mass are ignored by the robotics in favor of larger vessels. This means that once this technology is developed, any design placed in a shipyard anywhere in the empire must be at least 25,000 tons in size or it will not ever be completed. Ships placed in a shipyard to be scrapped are excluded from this restriction, as the robots simply tear apart anything they can get their disassembling appendages on, regardless of tonnage. The benefit of using robotic workers in empire shipyards, however, is substantial: ship construction output is doubled to 20,000 tons of assembly per shipyard over the normal 10,000 tons. As another benefit, existing shipyards are refitted with robots and do not need to be reconstructed. WARNING: Once this technology is developed, ships of less than 25,000 tons can no longer be constructed. Smaller units can be scrapped, but all new construction must be for 25,000+ ton units.
Classification: Repair Yard
This Item cannot be manufactured, and is either a ground combat upgrade or a prerequisite for other technologies

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 th 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.

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*20)^0.5), which would just survey a typical C class warp point.

Jump Survey Sensor	Rating
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

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.

Damage Type	*Example Weapon*	*Countermeasure*	*Example Defence*	*Special Resource*
Coherent Beam	Light Beam Laser	Reflective Armour Coating Coverage	Reflective Armor Coating	Gemstones
Cold	Frost Cannon	Thermal Regulation Sinks	MK I Thermal Regulator	Ghuran Demonblood
Energy Absorption	Light ESAP Beam	Tachyon Grid Spin rate	MK I Tachyon Screen	Ghuran Demonblood
Energy Discharge	MK I Lightning Arc Generator	Electronic Countermeasures Effectiveness	Type A ECM Package	Caldaran Crystals
Energy Disruption	MK I Energy Disruptor	Fixed Stabilisation Reaction Time	MK I Energy Absorber Grid	Caldaran Crystals
Fusion	Light Fusion Bolt	Phase Inversion Timing	Phase Locker	Shenn Stones
Gravitronic	Light Tractor Beam	Displacement Blink Speed	MK I Displacement Device	Caldaran Crystals
Matter Disruption	MK I Matter Disruptor	Molecular Pattern Stabilisation Intensity	Neutron Fixer	Caldaran Crystals
Mine	Standard Mine Rack	Sensor	Mk I Short Range Sensor	-
Missile	Missiles, Fighters. Drones	Point Defence Accuracy	4cm Gatling CIDS	Fuel
Particle Beam	Light Blast Cannon	Meson Web Cohesion	Mk I Meson Screen	Caldaran Crystals
Plasma	Light Thermal Lance	Flux Capacitance Storage	MK I Flux Capacitor	Shenn Stones
Plasma Torpedo	Type A Plasma Torpedo	Black Sphere Generation	Type A Black Sphere Generator	Precious Metals

Projectile	10cm Autocannon	Deflector Angle	MK I Deflector	-
Sonic	Light Stun Beam	Screen Density	Type A Defense Screen	-