THIS GUIDE IS OUTDATED AND BEING REWORKED

The New player guide can be found here.

Weaponcore Basics can be found here.

Definitions:

Belter – Tech level of the belt, uses belter components and upgraded belter components, entry to mid-level combat performance.

Inner – Umbrella term for both the MCRN and UNN factions, as they are from the “Inner” planets. Currently both “Inner” factions have the same torpedo technology, and seem to be Peer-to-peer on their PDC technology.

MCRN – Martian navy, Generally the best combat performance of the currently available technologies, with some peer-to-peer capabilities when compared to the UNN

UNN – Earth navy, currently far better combat performance than end level belter technology, though railguns are not as effective as MCRN counterparts, PDCs fill a different niche when compared to MCRN counterparts.

CQB – Close quarters battle – generally combat close enough that PDCs and railguns are the only effective means of engaging an enemy.

Combat Guide:

Early Game Combat:

Voltaire PDC:

Voltaire PDCs are meant as anti-suit weapons more than anything else, they have 3km range, overheat quickly, have terrible accuracy, and low rate of fire, so they’re not effective vs anything other than a low number of ramshackle torpedoes. Ideally don’t use them for anti-grid combat, as NPCs armed with flak turrets will have much higher DPS

Fixed Gatling:

Uses the same ammo as belter PDCs, 40mm lead-steel, so have the same range and velocity, 3km and 2.5km/s. Damage wise it’s about equivalent to a flak turret.

Kess Cannon:

Fixed weapon which uses 180mm ammo, the range is slightly longer than 5km, it’s a cheap way of attacking ships from beyond PDC range, but low projectile velocity of 2km/s and relatively high inaccuracy make it difficult to use effectively.

Obtaining Tech:

NPC Cleanup Rules:

- Grids will get cleaned up if their majority owner is an NPC
- NPCs will get cleaned up if they have an AI block on board
- NPCs which don't have a player within 35km will get cleaned up by MES

Belter components:

(Used in production/industry blocks, as well as the starter tiered weapons)

- Taking them from the Europa Ice mine
- Trading credits for belter comps at Pallas, Vesta, or Tycho
- Using !supportus, voting, then !reward commands to get small amounts
- Killing and salvaging NPCs

Upgraded belter components:

(Used for OPA PDCs and upgraded railguns)

1. Go to Jupiter, a dx6 instance, which spawns pirate ships and stations. Kill their thrust and power but preserve the guns, and search for cargo containers.
2. Grind off all the flak guns, retrieve the upgraded scrap item (also take the PDC chips), loot cargo containers.
3. Take all your upgraded scrap to Tycho station, selling it at the tech trade store (make sure to have a couple million credits per scrap component sold)
4. Next to the tech store is a store with no buy or sell orders (usually), when you sell scrap to tycho, it'll slowly populate with repaired upgraded belter components you can buy back, at a ratio of 1 component per 1 scrap sold.

Inner Components:

(used for Inner torpedos)

1. Go to the inner planets, DX3 and DX4, with a ship prepared to defend against significant torpedo volleys, railgun is recommended, PDCs can be used
2. Both inner factions use the same torpedo blocks, but you'll need to hunt their destroyers or frigates, as the smaller scouts, such as the MCRN Asp, are not equipped with torpedoes. Optimal ranges for torpedo boat spawns will be between 200 and 300km from the planet you're around.
3. After successfully spawning the torpedo boats (they tend to spawn in pairs), your best bet is to use railguns at a 4-7km standoff range to kill/disable the ships. Target Utility first, then power after their remote control is out, or power only.
4. Match velocity, confirm ship is dead by keeping railguns on, with targeting power subsystems, they'll strip ships of reactors and batteries, then you can close in for

salvaging (if you can see the drive signal, don't approach, if the ship started slowing down, it's likely still functional, but turn grid target off for weapons till velocity is near zero, before resuming fire)

5. You'll either want a grapple system to take ships out of DX3 for salvage, or a quick way of accessing your ships controls, salvaging may take long enough that more ships spawn. For inner scrap, prioritize salvaging the torpedo blocks. If taking salvage to another instance, be careful on instance transfer, with physics freeze, using only landing lock is pretty likely to put the wreck inside your ship.
6. After the inner scrap is collected, take it to either of the scrapyard or the rebel fleet for conversion. Take lots of extra SC with you, inner tech conversion is expensive, also rate is 1 component per scrap, a standard for all scrap to component trade loops

Getting Basic UNN components or MCRN Components:

1. Go to the inner planets or Saturn, DX3 and DX4 and DX6, with a ship prepared to destroy ships from beyond CQB range (Turreted Railguns preferred), PDCs can be used, but significant damage is likely.
2. Both inner factions use the same weapon loadouts for T1 - T2 Ships, but spawn different amounts of ships. For large amounts of PDCs you'll want to hunt their Corvettes, as the smaller scouts, such as the MCRN Asp, and torpedo boats, only have 2 guns each. The T3 spawns can also be hunted for PDCs, but it's not recommended as they take longer to kill for not much more PDC comps than a single corvette.
3. After successfully spawning the Corvettes (they tend to spawn in pairs), your best bet is to use railguns at a 4-7km standoff range to kill/disable the ships. Target Utility first, then power after their remote control is out, or power only.
4. Match velocity, confirm ship is dead by keeping railguns on, with targeting power subsystems, they'll strip ships of reactors and batteries, then you can close in for salvaging (if you can see the drive signal, don't approach, if the ship started slowing down, it's likely still functional, so turn grid target off for weapons till velocity is near zero, before resuming fire).
5. You'll either want a grapple system to take ships out of DX3 for salvage, or a quick way of accessing your ships controls, salvaging may take long enough that more ships spawn. For PDC Comps, prioritize salvaging the PDC Turrets
6. After the Comp scrap is collected, take it to either the martian rebel flotilla or UNN Shipyard for processing. Again, take lots of extra SC with you. As a note, you can also find fully functional UNN PDC components in the UNN ship cargos, so always check those.

Getting Advanced UNN or MCRN Components:

(used for Inner Railguns):

1. Go to the inner planets or Saturn, DX3 and DX4 and DX6, with a ship prepared to destroy ships from beyond CQB range (Torpedos preferred), railguns, and even PDCs are viable alternatives, but expect significant damage. You'll need to get close to the planet you plan to farm at to start spawning the heavy Inner ships.
2. The loadouts for the Inner cruisers are quite different from each other, the Scirocco (MCRN) has a single fast firing and accurate gun railgun, while the Leo (UNN) has 2 railgun turrets with high damage per shot, and no blind spots. The Scirocco has 7 ares torpedo launchers, while the leo has 3 zeus launchers, making both deadly targets from torpedo ranges. Optimally positioned PDC mounts are an absolute requirement in either fight, as these ships never spawn without escorts.
3. After you successfully spawn a massive drive signature, start heading in the opposite direction at cruise speed, ASAP, as they will attempt to close into railgun range.
4. Target power with at least 6 ares torpedo launchers, and let loose, send a minimal amount of torpedoes per salvo, time the salvos so that you are pressuring the PDCs to overheat, and always check the status of the target consistently to make sure you dont overkill it with torps.

Getting MCRN Reactor Components: (to be done)

Weapons:

Weapon Exclusion Zones

Weapons on the server have exclusion zones which prevent placement of other weapon blocks within a certain range. This is a mechanic to prevent the spamming of different weapons, incentivizing more creative ship designs. Typical exclusion zones are 2 blocks, with some exceptions like some torpedo launchers which allow 1 block between weapons.

Fixed Weapons and WeaponCore

Weaponcore fixed weapons tend to have issues when combined with nexus servers, specifically on instance transfer, so if you plan to participate in combat after a server transfer, make sure to !fixship and relog to keep desync to a minimum. Also, use at least one subgrid (Mag locked or otherwise prevented from moving relative to main grid) to change how the game calculates your grid physics, as this will eliminate most movement/position based desync between the server and client. Allows you to see the exact position of enemy grids, and your own grid while in combat, and reduces the issues caused by taking damage (ship jumping around or otherwise uncontrollable). For best results, when using fixed weapons, set a hotbar slot to toggle weapon mode, (Mouse Fire, Keyfire, and Key Toggle), and set a nearby hotbar slot to Keyfire, which will be used to fire the weapon. Make sure to regulate when you have keyfire enabled, so you aren't accidentally using the weapon. And avoid mousefire if you're using seamless, as it's unlikely to work due to server desync.

Point Defense Cannons:

Ranges:

PDCs start targeting torpedoes, grids, or players at 3km.

PDC Progression:

Voltaires are the basic model PDC on expanse, they are very cheap to build, but are also the worst PDC to use, quick to overheat, and with a terrible rate of fire, you would need to use a lot of them to ensure torpedoes are shot down in a PvP environment. All belter PDCs use the same 40mm lead-steel ammo, which has a base damage of 1000, does half its damage to armor blocks, and does full damage to functional blocks like reactors, batteries, and thrusters.

For PvE vs the pirate faction, you may only need 4 – 8 Flak PDCs to ensure that their torpedo volleys are shot down, however, as you go up against the other PvE factions, the MCRN or UNN, 8 – 16 OPA turrets will be recommended for defeating their torpedo volleys, as their ships have autoloading launchers with 3 torps per volley, and much better torpedo performance. Combined with the Inner spawns tending towards multiple ships, their torpedo volleys can be nasty, so best to lean on the side of caution and use both a large (12+ Turret) PDC network, and evasive maneuvers when being targeted.

OPA PDCs will give you far and above the best performance of the Belter level PDC options, being more accurate than Flaks, and overheating slower. This means that armor is very important for PDC defense vs pirates, exposed functional blocks will rapidly be destroyed in CQB, and light armor barely delays damage, though it does make a difference. Heavy armor is preferred but not completely necessary.

MCRN PDCs currently have the most accurate cone of fire, while UNN PDCs will have a better fire rate performance for getting rounds down range in bursts as they overheat. Both Inner PDCs use Tungsten-Teflon 40mm ammo, which is slightly different from its belter counterpart, doing 1200 base damage per shot, but maintaining the 50% damage to armor. This means for fighting ships equipped with Inner tech, heavy armor exteriors are recommended if entering PDC range, light armor will be rapidly chewed through, and heavy armor also will not protect you for long if evasive maneuvers aren't taken, as the inner PDCs have much higher rates of fire than their belter counterparts,

Dodging PDCs:

At 2.5km range, approximately 9.2g or 91.8 m/s^2 acceleration is needed over the course of 1 second to change your position such that incoming rounds will always miss. A ship starting from net 0 velocity accelerating 9.2g can displace itself ~46m in the 1 second it takes for a round to travel to it. Most importantly though, the requirement of 9.2g's comes from maintaining a max boost speed of 500 m/s while accelerating in a circle. A ship traveling at max speed while accelerating in a circle normal to the firing cannon can effectively displace itself a little more than 46m+ from the lead position assuming perfect use of acceleration, and is overall harder to hit. But it would mean 2 ships maintaining 2.5km distance while using 9.2g drive acceleration and maintaining a circular trajectory/acceleration pattern can effectively dodge each other's PDC fire, until distance is closed and displacement over time is reduced to the size

of the ship being targeted. An effective method of automating this process is with the use of gyro override, though some tuning will be required to ensure that 7 – 7.5gs of acceleration is being used to maintain velocity in the initial direction of the turn, allowing the 500 m/s boost velocity to be maintained, while 5 - 5.5g is used perpendicular to your ships direction of travel (this is the bit that displaces a ship from its calculated lead indicator (you may also notice that 7.5g + 5.5g =/= 9g, this is a result of trigonometry, yikes).

You may also know by now that railguns have similar time to target at max range as PDCs on this server (~1 second to travel max range of 3km, and ~1 second to travel max targeting range of 10km) this effectively means that a ship capable or designed to avoid PDCs at 2.5km, is also capable of dodging railguns at 8km - 10km, given the same acceleration, maneuvers, and tactics are used, granted a much larger distance from target.

Railguns:

Railgun recharge and fire rate calculator:

[Railguns calculator/spreadsheet]

(for spreadsheets you wanna copy it into your own google file then edit it there)

Ranges:

Railguns sit at 10km for their max effective ranges.

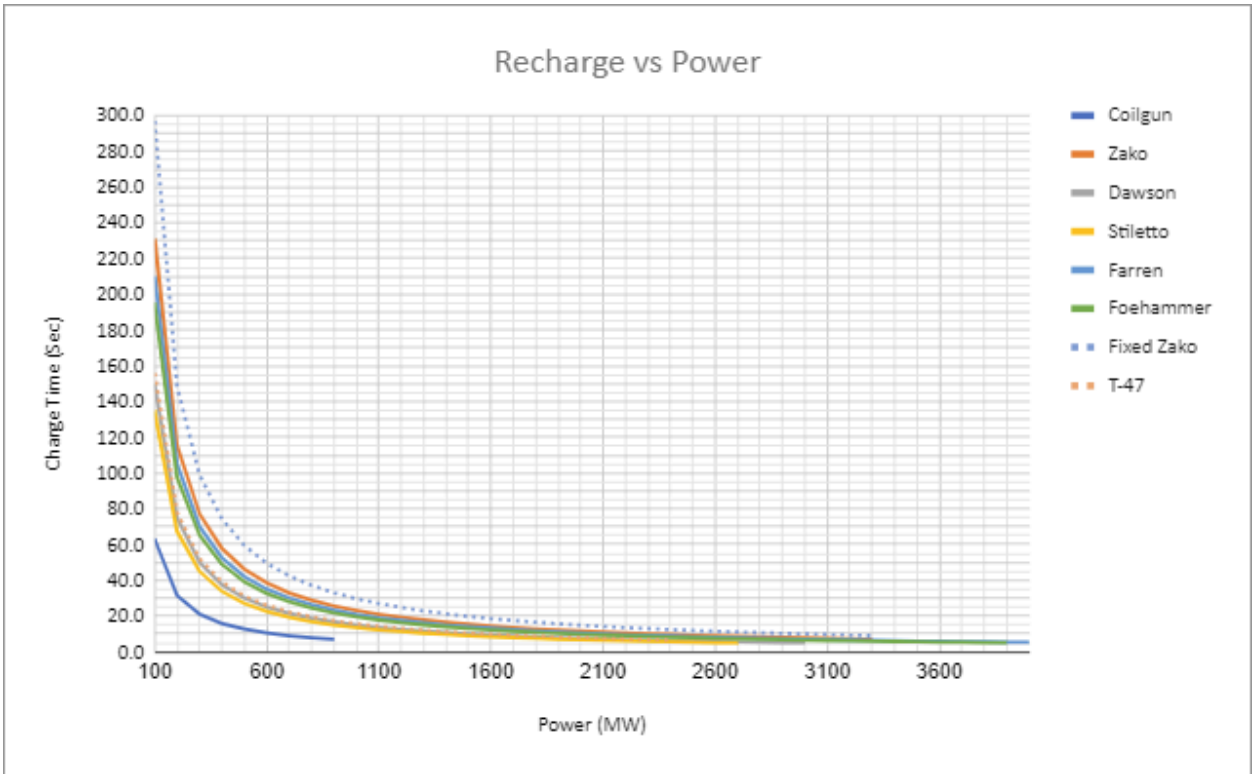
Railgun Progression:

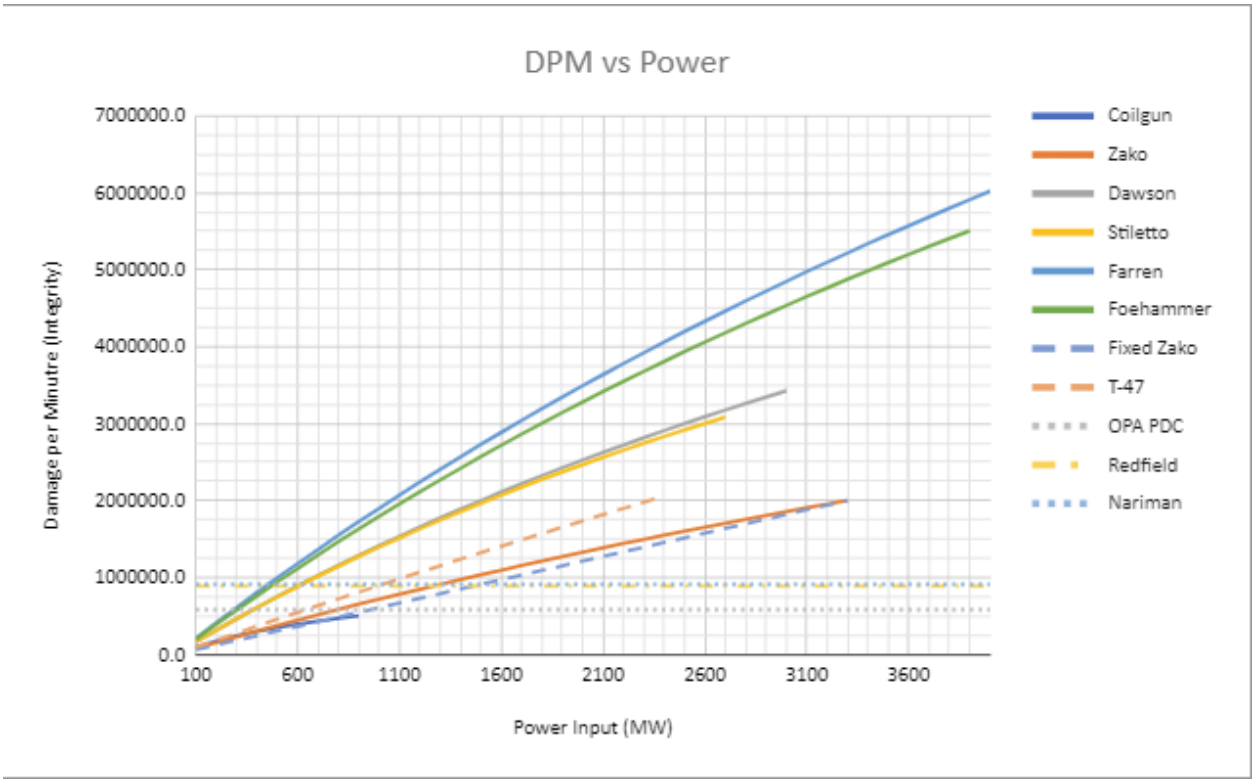
The first railgun the player will generally have access to will be the fixed Zako railgun, which only requires basic belter components tech-wise. It uses 120mm Lead-Steel Slugs, the ammo is relatively cheap to manufacture compared to inner railguns. For power requirements, the railguns have a variable charge mechanic, charge up depending on the amount of available power, maxing out at a specified charge time depending on railgun.

For the Fixed Zako, 3300MW is the maximum amount of power which can be input at a recharge time of 9 seconds. The fixed Zako is also unique amongst railguns, in that it immediately fires after using mouse click or key fire commands, where all other in-game railguns will have a charge-up period after receiving the fire command, after which they fire.

Recharge Time vs Power input:

Also important is that the relationship between additional power and change in charge time is non-linear. 1 Large reactor on a Zako fixed railgun will have a 99 second recharge, 2 reduces that to 49.5 seconds, 3 reduces to 33 seconds, etc, as you progressively add power, you get diminishing returns on charge time, as shown on the graph below.


Recharge vs Power
Charge Time (Sec)
300.0
280.0
260.0
240.0
220.0
200.0
180.0
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
100
600
1100
1600
2100
2600
3100
3600
Power (MW)
Coilgun
Zako
Dawson
Stiletto
Farren
Foehammer
Fixed Zako
T-47


DPM vs Power
Damage per Minutre (Integrity)
7000000.0
6000000.0
5000000.0
4000000.0
3000000.0
2000000.0
1000000.0
0.0
100
600
1100
1600
2100
2600
3100
3600
Power Input (MW)
Coilgun
Zako
Dawson
Stiletto
Farren
Foehammer
Fixed Zako
T-47
OPA PDC
Redfield
Nariman

However, if you intend to circumvent this by using multiple undercharged railguns, be aware that power will be allocated 1 by 1, instead of simultaneously, which results in the (n+1) railguns being un-optimal except for burst damage, where multiple railguns with poor power input will allow a large amount of upfront damage.

After the fixed Zako, there are 2 railguns which use upgraded belter components, the Zako Turret mount, and the T-47 Fixed railgun. The T-47 fills the niche of a railgun for frigates, with a reduced power requirement vs the Zako, at only 2400 MW or 8 large reactors for max input, with 6.5 sec min recharge time. The Zako turret has similar requirements to the fixed Zako, reaching 7 second recharge at 3300MW, but has a 2 second chargeup time. DPS wise, the Zakos and T-47 are all effectively in the same category, but the T-47 is easier to power and has the best DPS. both Zako railguns have 8km/s velocity, and the T-47 has a 9 km/s velocity, making it easier to lead with. However the T-47 uses 80mm ammo with less damage per shot. If you are optimizing your power setup for a ship, you can use my Sigma Expanse Block Stats Spreadsheet to optimize power mass, volume, or Integrity.

For inner railguns, there are currently 2 available (Stiletto and Dawson), with the superheavy railguns being unavailable currently (Foehammer and Farren). Comparing the Dawson to the Stiletto, the Stiletto has a power requirement of ~2700MW and 5 Sec recharge time, and the Dawson has a minimum recharge time of 5 seconds at an input power of ~3000MW. (A large fusion reactor outputs 300MW).

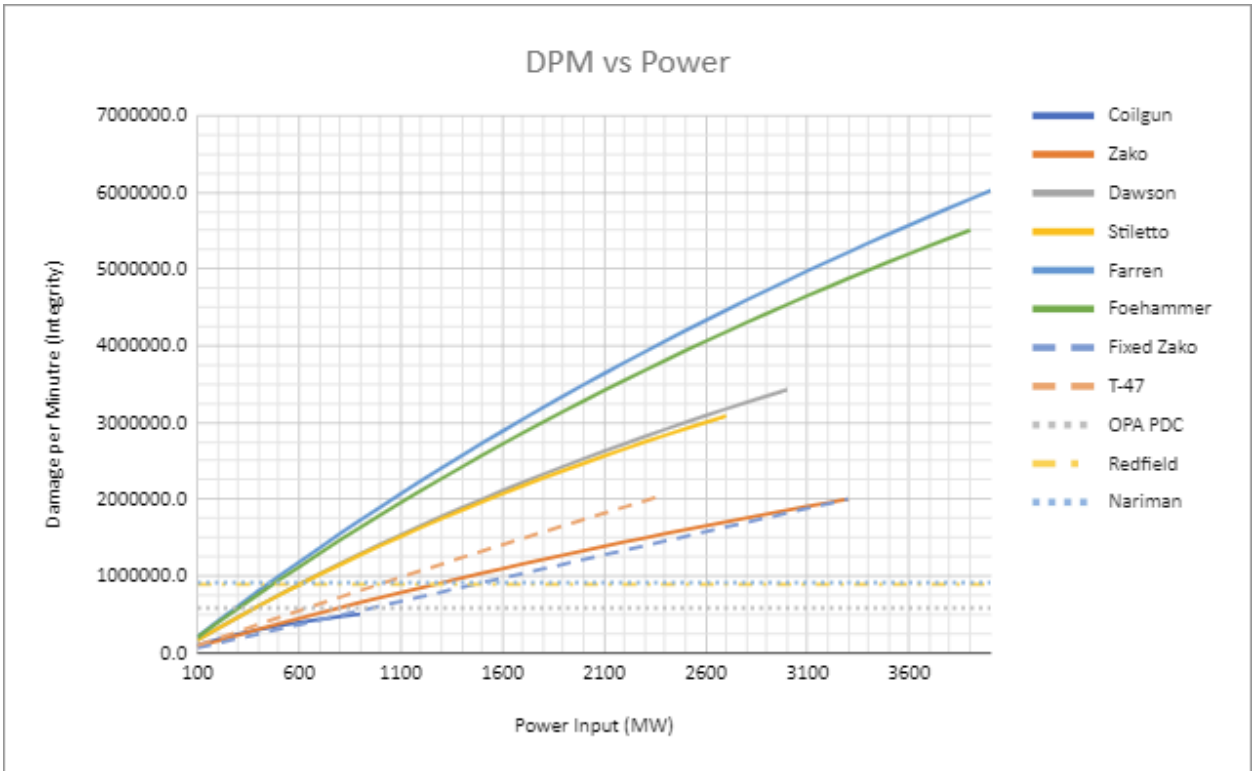
Comparing Railguns:

Considering the 2 second charge up delay for the available turreted rails, the max fire rates are as follows:

Stiletto: A shot every 7 seconds, ~8.6 shots per minute, at ~2700MW input power.

Dawson Pattern: A shot every 7 seconds, ~8.6 shots per minute, at ~3000MW input power.

Zakosetara: A shot every 9 seconds, ~6.6 shots per minute, at ~3300MW input power.



Damage wise, the Dawson beats the Stiletto and Zakos for DPS, though the stiletto is easier to power, and is more accurate than either the Dawson or Zako.

Torpedoes:

Range:

Both Ramshackle torpedoes, the 220mm Explosive, UNN and MCRN torpedoes all have 16km lockon range, however, they have trajectory limits closer to 25km range, and the lifetime to reach that, so be wary of torps following past lock on range once you break away from enemies.

Torpedo Comparison:

Torpedoes base most of their characteristics on the ammo/type of torpedo used. Currently in-game, there are a limited amount of ammo types, the small ramshackle torpedo, large ramshackle torpedo, the 220mm Explosive Torpedo, 220mm MCRN torpedoes, and 220mm UNN torpedoes. The ramshackle torpedo has a max speed of 1000m/s, and a max

acceleration of 450 m/s^2, or ~45g. The 220mm MCRN and UNN torpedoes are currently the best torpedoes in-game, the MCRN torpedoes have a max speed of 1400m/s, with 7 hitpoints, while the UNN torpedoes have a max speed of 1200m/s, and 8 hitpoints. Both have an acceleration of 800 m/s^2. When a 220mm torpedo hits your ship, it'll do 600k damage to any blocks within its immediate radius, with a damage range of 15m, suffice to say, you do not want to be hit with a torpedo. The ramshackle works the same way, but with a 10m radius and a smaller damage amount at the epicenter.To reiterate, the torpedoes do NOT have a damage pool, everything within their radius takes damage regardless of the maximum integrity of blocks within said radius, with damage amount being decided solely by radius from epicenter. The best armor against torpedoes is highly spaced low density blocks, with important blocks as far from the outer edges of your ship and/or each other as possible.

The Tycho torpedo launcher can only fire small ramshackle torpedoes, which exit the block from the front, the block only has capacity for 2 torpedoes to be loaded at a time, and can only be hand loaded, but the launcher is cheap, as well as the torpedoes.

The Apollo launcher can fire either large ramshackles or 220mm Explosive torpedoes, which exit from the top of the block, facing forward. The Apollo has conveyor connections on the front and rear face, and can fire 3 torpedoes every 13.5 seconds, which puts it in the same category as the Ares launcher, but at a lower tech level, requiring upgraded belter components to be built instead of inner components.

The Artemis torpedo launcher is a single fire conveyor reloaded inner torpedo launcher. It can fire 3 types of torpedo, 220mm Explosive, 220mm MCRN, and 220mm UNN, with the inner torpedoes coming in 2 spread patterns, low and high spread. With multiple launchers together, the spread pattern can be used to overwhelm a smaller number of PDCs (Low Spread), or force PDCs to slew excessively towards new targets (High Spread), allowing for varied engagements and adaptable launch platforms. The Artemis launcher takes 14.5 seconds to reload a torpedo.

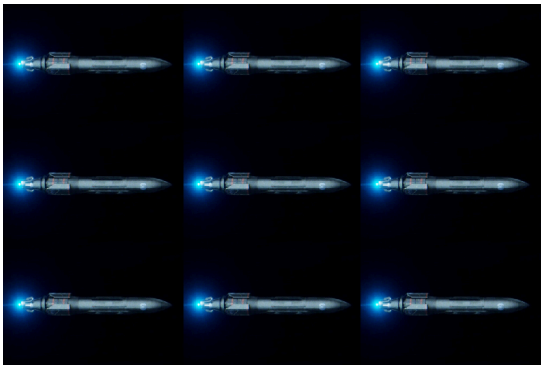
The Ares torpedo launchers come in 2 forms, a sloped and flat version, which are exactly the same except for looks. 3 types of torpedo can be fired, 220mm Explosive, 220mm MCRN, and 220mm UNN, with the inner torpedoes coming in 2 spread patterns, low and high spread. The torpedoes come out the front of the launcher, and can be fired in bursts up to 3 torpedoes before a reload of 13.5 seconds, at a rate of 2 torpedoes a second, it takes 1.5 seconds to fire a full 3 torp volley. A couple of ares launchers firing together can be used to progressively overheat an enemy PDC net over the course of an engagement.

The Zeus launcher fires from the top of the forward face, with a rather large volley of 9 torpedoes, it reloads in 15.5 seconds, and takes 4.5 seconds to fire the full 9 torpedo volley. Capable of firing 220mm Explosive, 220mm MCRN, and 220mm UNN torpedoes, the Zues excels at pressuring PDC networks, overheating them quickly, but the downside is the size and mass of the launcher.

Inner Launcher Comparison:

For the formation of the fired torpedoes, firing in series (1 at a time with a delay) has a significant impact on the ability of torpedoes to get through PDC fire, with current PDC overheat settings, you can either attempt to overwhelm a grids PDC net with a front loaded alpha strike, or slowly stream torpedoes in to cause maximum overheat with minimum torp use, then strike when the grids PDCs are cooling down or reloading. Torpedo type and spread settings will also affect this greatly, slower torpedoes like the small and large ramshackle take longer for the initial pdc fire to intercept them, but have lower health per torpedo, getting shot down by 5 shots, while 220mm explosive torpedoes are faster by 20%, and have 6 health instead of 5 health, this means they do get intercepted faster. Finally, the inner torpedoes have a couple other variables, the High spread torpedoes turn right after entering PDC range, and form a larger cloud, so more PDCs are engaged, the initial pdc shots are more likely to miss, and the torpedoes have more health (MCRN torpedos have 7 hitpoints, UNN have 8), but the MCRN torpedoes are faster at 1400m/s, while the UNN torpedoes sit at 1200m/s. These differences make MCRN torps better for low spread alpha strikes, or using high spread attacks to overheat grids, but they do nearly the same damage as 220mm explosive torpedoes, while UNN torpedoes take a bit longer to shoot down, more are needed to alpha strike a target, but they do more damage than their MCRN counterparts. This makes experimentation key to testing PDC defenses, and optimizing your torpedo firing strategies, the 220mm explosive is a great mid price torpedo, but the inner torpedoes have a lot of advantages, while the cheaper ramshackle torpedoes are also viable as fodder for overheating PDC nets.

Examples of torpedo magazine dumps:



Example of a 3 Ares launcher torp cloud

Example of a 1 Zeus Torp Line

General Building Guide:

Drives:

Current on-server stats:

There is a maximum drive plume size of 500km on the server, if a beacon exceeds that size, the ship it's attached to will temporarily shut down. This puts a cap on max thrust on the server, well under the max cap that the 100 block functional limit would allow. This means that for capital ships looking to maximize their thrust output, large drive sections with stealthier drives are the best way to maximize thrust output. Currently, that means the most thrust output at a 500km beacon size is 12 silversmith drives, and 1 pandora drive, at a thrust output of 860MN, but has a large form factor vs other drive configurations, and silversmith drives require UNN tech to build. The other option for reaching max beacon outputs are 4 Sirocco drives, with either 6 Munroes or 4 Pandora drives, for 716MN and 688MN respectively, or 1 Kaminari with 4 Silversmiths and 4 Munroes, which has an output of 744MN. There are a lot of options for drives which trade between thrust output, signal size, fuel efficiency, and surface area, so pick carefully.

The block stat spreadsheet has a consolidated thruster stat page which can be useful for drive selection, and the Ship Maneuvering Calculator Sheet can be used to determine fuel use, acceleration, max signature, and RCS fuel time.

Post Drive Rebalance:

Here are the current server stats, as well as various sheets for thruster rebalance proposals, with the latest rebalance proposal, the drives would have various roles where they specialize vs other drives, as well as general stats for each size type. The Avalon would provide the great thrust per frontal surface area, allowing for small ships to have a means of stacking larger amounts of thrust, at the cost of fuel and signal size. Generally, as drive size increases, thrust to weight ratios will decrease, resulting in smaller ships getting drives which allow larger accelerations for their sizes, while larger ships get drives which have overall slightly better performance stats, but are heavier than stacked small drives, and more resource intensive to build. This may lead to many more design considerations in the future, as there will be different thrust levels, fuel use levels, and stealth ratios between drives such that no one drive can be called overall better than others.

There are 2 low tech belter drives with powerful thrust outputs for their size, the avalon, a 2x2x4 drive, and the raider, a 3x3x3 drive. With no thruster component requirements or superconductors, the drives require much fewer rare ingots, but have poor relative fuel efficiency, and a large signal ratio for their thrust output. The fuel efficient drives are the Pandora 3x3, Camina 5x5, which offer the best fuel use for their thrust output, with decent signal ratios and thrust outputs. Finally, there are 2 classes of military drives, the stealthier Munroe 3x3 Leonidas 5x5, and Silversmith 5x5, and the high output drives, the morrigan 3x3, Tachi 5x5, as well as the larger jack of all trades Scirocco 7x7, and Kaminari 11x11. The stealthier drives trade fuel ratio, thrust output, and weight, for their reduced signatures, while the high output drives trade fuel efficiency and signature ratio for their larger amount of thrust.

Armor:

There are generally 3 major ways to defend your ship, Dodging, Armor, and Redundancies.

Acceleration, Avoidance:

As mentioned in the PDC tip/tricks portion, you can effectively dodge or mitigate incomingPDC fire by maneuvering your ship between the time a shot is fired at you, and the time it gets to where your ship should be. You will need at least 9.2g of acceleration to be able to do this effectively, as well as some luck and skill maintaining specific distances from the enemy targeting you. I recommend using my Ship Maneuvering Calculator to tell you your maximum g's, and both RCS or Drive endurance. You can also use the Sigma Expanse Blocks Stats 2nd sheet to compare Epstein Drives. You can also use your acceleration to avoid specific bands of combat, if you have more than 7.5g, your ship is capable of 500 m/s for its top speed, and with pilot skill you can choose and maintain specific weapon range bands for optimal combat performance.

Having a large amount of acceleration is very useful for avoiding certain weapon ranges as well, as having more acceleration than an opponent (player or NPC) allows you to control the fight, or disengage if outclassed or outnumbered. If you can stay out of PDC range, heavy armor becomes unnecessary as it is not very useful for blocking Railgun or Torpedo hits.

Integrity Tanking:

Armor, as also mentioned, is very important if you want to mitigate PDC damage, as exposed functional blocks will rapidly take large amounts of damage. For ships expected to fight in CQB, heavy armor is a necessity, light armor will act to reduce a couple shots worth of damage, but is little more than a fraction of a second of protection. The gyro block is probably the only viable functional block you can ignore this rule for, due to its large integrity pool. Drives/Thruster however, need to be well positioned or well armored to prevent damage. Armor effectiveness can also be increased if you have decoys positioned under thicker armor, away from subsystems and/or functional blocks. With Weapons core, you'll need to have a large amount of decoys under the thrust and power subsystem setting to effectively reduce targeting said systems (which happen to be the ones most often targeted by Player, and the most important ones to avoid damage to). For H2 Tanks, you'll wanna surround the blocks with light armor, blast doors, or heavy armor on the faces, as this will mitigate explosion damage from the tank in the case of a fuel explosion, light armor is the lightest here, but doesn't protect the tank as well from PDC fire if that's the damage dealer.

Volume, Redundancy:

Redundant conveyors, backup power, and spread-out subsystems are very important for surviving railgun damage, as you will not be lugging around enough armor to stop a railgun (20+ heavy armor blocks to block a single railgun round). Having a large ship volume can be one of the most effective ways to avoid being taken out of a fight early, decoys combined with redundancy can make a ship very resistant to railgun deaths. Power systems and thrusters are very likely to be targeted, so you don't wanna put other functional blocks near them, especially not hydrogen tanks, which should be spaced a couple blocks from other components or

conveyor lines when possible. For combat ships, 3 conveyor lines or more should be used to connect blocks throughout a ship, with multiple connection points throughout to increase redundancy. Ideally, it should be impossible for a single railgun shot to cut conveyors to more than a couple blocks. It is also important to have at least 2 spawn kits on your combat ships, one near your main bridge and a second general or secondary bridge spawn. On that note, secondary control seats are mandatory, it isn't uncommon for the control seat to get destroyed by railguns, so multiple seats in multiple locations will be required if the goal is to stay combat effective for long periods of time in combat.

Trade Guide:

Stations:

Tycho Station:

Primarily buys Packages, with orders 75% larger than other stations, and sells tech items at a discount, such as belter components, PDC Tracking Chips, and Torpedo Guidance Chips. Also has special tech items like Lithium Cells, used to craft Tycho battery blocks. Additionally, hosts 4 player stores, which are rented out monthly via a ticket.

Pallas Station:

Primarily buys ice, but also buys ingots, diamonds, and packages. The ice sold to the regular Ice store will convert into Ice Boxes and Water Tanks which can be purchased for 50k each, and sold to other stations for large profits en masse.

Vesta Station:

Primarily buys ores, and converts them quickly into Ingots which can be bought back for quick access to processed resources. Also buys packages and diamonds.

Ganymede Station:

Primarily buys Ice Boxes, Water Tanks, and Packages, a relatively easy to access station which allows completion of the ice trade loop, but due to its relative proximity to Pallas, doesn't provide optimal profits. Can sell structural comps to Ganymede for profit.

Medina Station:

Primarily buys Ice Boxes, Water Tanks, and Packages, due to the distance from industrialized Human space, sell prices are high, so bulk shipments can net huge profits. Also features a gift shop for people willing to purchase collectables, and a special store which is not setup as of the production of this guide.

Gas Giant Gas Stations:

Profiting off Trade Goods:

Packages:

Currently the best station to sell packages to is Tycho, which buys 75% more packages per refresh than other stations. This means you can potentially make ~250million SC in profit per refresh selling just heavy arms and toolboxes. (35 heavy arms and 105 Toolpacks) In-Depth package Calculator can be found here.

Ice Trade:

Selling a full refresh of Ice at Ceres (without using the bulk trader) will net you 220mil SC in profit, but you can then spend 50k per ice box and water tank generated (800 each), and sell them to other trade stations at 75k - 400k (Tycho, Ganymede, Gas stations, Medina) and 170k - 450k (Ganymede, and Medina) each. This allows for potentially massive profit, but you'll need a lot of cargo because you can only fit 1150 boxes or tanks into each large cargo container block.

Diamonds:

Diamond ore doesn't show up on the ore detector, but if found and mined, can be directly sold to Ceres, Vesta, or Corley for 10 million to 100 million max SC per refresh. Diamond is not a good primary SC maker though due to the relatively low SC earning per refresh compared to Ice or Packages, but useful as a secondary trade good, where it can be traded along with packages and ore at Vesta, or ice and ingots at Ceres.

Beyond the Ring Gate:

The Ring Space (DXMedina):

The Ring Space or “slow zone” is the name for the space beyond the Sol Gate. It is a trans-dimensional plane that connects various systems through the Ring Gates. All Ring Gates lead into the Ring Space and the from the Ring Space you have access to all Systems that are currently connected.