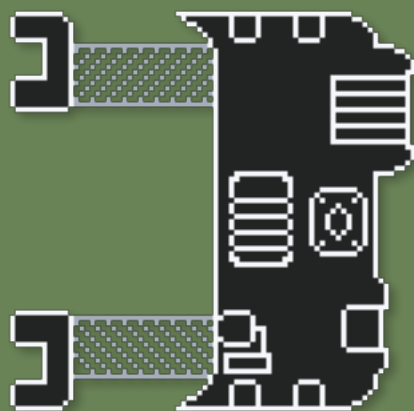


DECK & CONN

SPACECRAFT OPERATION & SERVICE MANUAL



CEN OPERATIONS DIVISION, MARS

DECK & CONN

SPACECRAFT OPERATION & SERVICE MANUAL

REVISION 1

FORWARD

If you are reading this and your service number is stamped on the front page, then congratulations - you are now a member of an elite group of people. You are one of only a thousand or so people ever to have been given **command** of a corvette of the Colonial Earth Navy.

The purpose of this handbook is not to teach you something as complicated as warship command; that is quite obviously a skill that takes many years of hard work and experience. This handbook's purpose is to summarize many of the things you will have been taught over your years in the Colonial Earth Navy Officer's College, in one easily accessible place.

There are two ways to be issued command of a vessel in the CEN. First, there is being granted a full commission as a Post-captain. If you are reading this during peacetime, it is the most likely path you have taken.

However, if you are reading this in wartime, there is a second possibility: that you have been given a **battlefield commission**. These can happen for many reasons, but unfortunately many are tragic - the aftermath of human loss.

While we hope you have been issued this book under good circumstances with a promotion to Post-captain, we at the CEN Documentation & Internal Information Department would like to take a moment to respect those of you who have perhaps found yourselves being issued one of these books a little earlier than you expected.

Every hand that has touched the writing and editing of this book is a hand that has also commanded a spaceship of the Colonial Earth Navy, without exception. Many of those hands began auspicious careers with battlefield commissions.

Our hats go off to you, however you came by your new position, and we wish you the smoothest sailing and the greatest luck.

May you and your crew come home from every patrol.

Rear Admiral Rachel Hollingworth, CINCCHARFLT



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BASICS

1.

COLONIAL EARTH NAVY SPACESHIPS

The **United Earth Colonies** is the pinnacle of human political and logistical organization - a democratic capitalist utopia where every dollar votes. But this is not the United Earth Colonies. The role of the **Colonial Earth Navy** is to preserve democracy - not to practice it. It is because of brave officers like you and your crew that we will defend the UEC from the horrors of the communist Federation, where people are valued over money.

As the **commanding officer** aboard a CEN warship, your word is final - you have the only vote. What you say goes, and it is on the strength of your decisions and strategies that your crew will live or die. You will decide where your ship travels, which systems you will power up or down, which weapons you will fire and when to do so. You will pick your officers from those available to you in home port, promote those whose work you deem exemplary, and help train future captains, chief engineers and more.

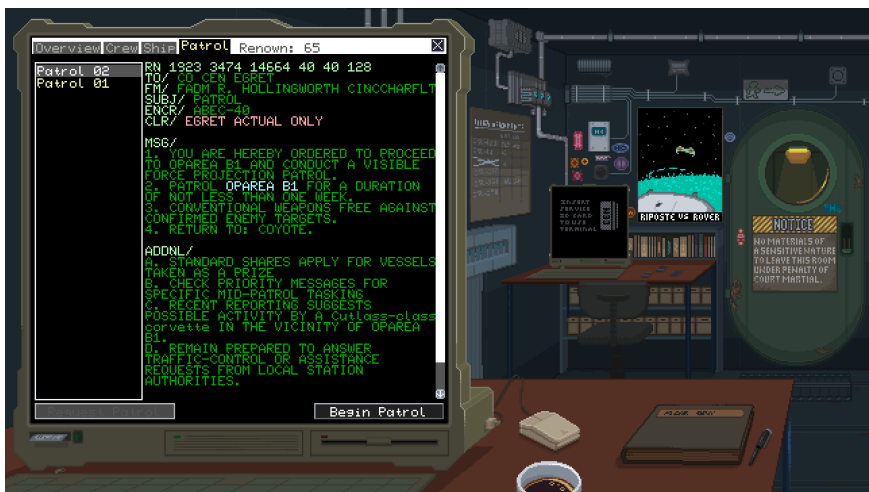
The majority of your time aboard ship will be in the **Conn**, the nerve center of a modern warship. Here you can see sensor reports on what's around you, place high-level orders such as moving, starting or scrambling your reactor, arming weapons or setting your ship at General Quarters.

After issuing one or more actions, you will need to execute your orders by pressing the **Execute** button. When this button

is pressed by you, your crew will carry out your orders, and you will be ready to see the consequences of your actions, and make another command.

If you do not execute your orders, you will continue to be able to issue more, check more settings, or even move between rooms in your ship.

Unless you are doing a single, dedicated mission for high command, you will also spend some time between your **war patrols** making decisions at the **Captain's Computer** at a starbase. From here you can load fresh supplies, promote officers, alter your weapons loadout, and otherwise prepare yourself for the patrol to come.



Beware, however - being issued command of a warship is a rare opportunity not to be taken lightly. The future of your life and career with the CEN will depend almost entirely on your strategies as a warship captain. Confidence and aggression reign supreme, and if you do not show these skills and produce good results, you can expect to find yourself losing your command and instead being given an equally important,

if no doubt less exciting, job doing paperwork back at Fleet Command.

Only the toughest CEN officers make it as warship captains - make sure you're one of them.

2.

CREW & OFFICERS



Whether you have a small boat such as a WASP-class Corvette or a larger warship, your primary job will be managing and issuing orders to your officers and crew.

Officers are the people you will directly select, billet, and issue orders to. It is your choice who you pick during a wartime captain's commission. **Crew** are chosen indirectly by your **Executive Officer**. The better your XO, the better the crew they will select.

Aboard each ship you have multiple officer posts. Each section will have an officer in charge and a junior officer learning under them.

Your **executive** section runs the crew and executes your orders directly. These officers are your **Executive Officer** and your **Second Officer**, respectively.

Your **engineering** section keeps your ship mechanically sound, ensuring your engines are running, your reactor is safe, and any repairs required are carried out quickly and efficiently. These two officers are your **Chief Engineer** and **Engineer's Mate**, respectively.

Your **navigation** section pilots your warship. Without them, getting anywhere will be hard. This section contains your **Chief Helmsperson** and **Helmsperson**.

Your **gunnery** section is in charge of **torpedo** firing solutions and hitting targets with your **anti-ship railgun** turrets. Your **Lead Gunner** and **Assistant Gunner** make up this section.

Your **medical** section keeps your crew alive. Whether it's a burst appendix or a wound from a railgun strike, it's your **Chief Surgeon** and **Assistant Surgeon** who will make the difference between life and death.

Finally, there is your **security** section. Aboard your ship, your **Master-at-arms** and **Corporal** run the division and are in charge of repelling boarders, maintaining discipline, and most importantly, **boarding** enemy vessels to take them as a prize.

Over time in your service, your officers will gain **experience** and may be ready for **promotion**. A junior officer can become a senior officer, replacing their previous section head, and your section heads may gain enough experience to be promoted away from your ship. It is your job to make these decisions.

Between patrols, the Crew tab on your Captain's Computer will allow you to make these decisions, as well as review the records and biographies of the officers you will be sailing with. Every senior and junior officer billet must be filled before your ship will be cleared to begin a patrol.

Aboard ship, one officer from each section will be **on watch** at any given time. Every 12 hours, when a **change of watch** is called, this will change and the tired officers will be replaced by others who will be refreshed from the time spent off watch, resting. Half the day, your most experienced officers will stay at their posts, while their juniors will be on watch for the other half.

If and when you call for **General Quarters**, the available senior officers will take their stations and normal watch rotation will be suspended. Beware, however, that this may result in exhaustion among your on-watch officers during protracted battles. You may want to manually bring other officers on watch in this instance.

During combat, another fact in the service is **casualties**. An officer wounded during battle may be able to continue, at a reduced capacity. If this occurs, it may be best to replace them and let them recuperate. It is also possible for your officers to be grievously wounded, such that they will automatically be replaced while they spend time in the ship's infirmary.

Then, of course, is the tragedy of an officer being killed in the line of duty. If this happens on patrol, you will be shorthanded, which can be taxing for the remaining officers and crew. If it's just one officer, this may not be a huge problem. If there are several, you may need to make the decision to cut your patrol short and head back to port.

3.

SENSORS



At the conn, you will have access to both sector-level and quadrant-level information at your main viewer. By default, you will be shown the area immediately around your warship. This includes planetary bodies, detected friendly, neutral, and enemy vessels, natural phenomena, and starbases.

To get a view of the entire quadrant, toggle the Quadrant button - labeled **QDT**. In this view you can see every sector in your current operating quadrant, select sectors for more information, and **mark** them, which will let your **faster-than-light drive** plot a jump to get you there.

In **sector** view mode, you will not only see objects near you, but potentially dangerous objects such as unidentified or enemy vessels will be pointed out even at a distance, using arrows to indicate their direction from you if you are in **standard** rather than **zoomed** view mode.

Your sensors must be powered and operational before they can detect other vessels. Their quality, their condition, and their distance from another ship will determine how easily they can detect it. Damage to the sensor system reduces its effective detection range.

To avoid detection, remain motionless and shut down systems that generate **emissions**. A quiet vessel on the other side of the sector may not be detected immediately.

If your sensors pick up evidence of a vessel but no precise details about it, your display will indicate the area of a **possible contact** with a question mark. Sustained contact may gradually reveal its category, class, and eventually its name. Maintaining contact also improves your **firing solution**, while losing contact causes that solution to deteriorate even though the last known contact information remains available.

An **active scan** will reveal ships within the scanned area and improve your firing solutions against them. Active scanning also increases your own emissions, making your ship easier for the enemy to detect.

Probes provide another way to extend your awareness, automatically detecting ships within their operating radius.

When sensor information is incomplete, it is best to act cautiously. Staying motionless and keeping some of your systems off may allow you to get the jump on the enemy. Alternatively, you may use this time to spin up torpedoes and prepare your weapons and crew for an upcoming battle.

4.

NAVIGATION



There are two ways of moving your warship - using your **sublight** engines to move within a sector, and your **faster-than-light** drive, used to travel to other sectors within the quadrant.

Within a sector, you can order motion in any cardinal direction from the helm panel below the main viewer or cancel that action using the button in the center of the directional arrows.

When using your map tablet or the main viewer's map mode, left click selects an object or position, and right click re-centers the map if you are zoomed in.

To use your **FTL drive**, you will need to ensure you have plenty of power in your ship's **batteries** - FTL drives use more power while spinning up before a jump than even a reactor at full capacity can generate.

To make a jump, switch your main viewer to **quadrant** view and select a destination system within range of your jump drive, pressing the **mark** button to confirm it.

Once this is done, you can choose to **spin up** your drive, which will take several turns.

Depending on the position of the destination sector, you will then need to maneuver your vessel into the **safe jump zone**, indicated by animated purple lines on your sector view map the moment you have marked a target.

Once you are inside this zone and your drive is spun up, you may then choose to jump. It is possible to jump outside the safe zone; however, the CEN Corps of Navigators warns against this. A **misjump** can send you to an unintended sector or position and will damage your warship. The farther your ship is from its safe jump zone, the greater the risk of a misjump. Even a jump from within the safe zone carries a small chance of failure - FTL travel remains very dangerous.

After any FTL jump, your batteries will be completely drained and your weapon systems will be reset.

*Note: If you need to discharge your FTL drive quickly, you will have to **decoil** it. This is a dangerous procedure that releases the energy from your jump capacitor, damaging your own ship and anything else within its radius.*

5.

POWER

Aboard a warship, the most important consideration is how much power different systems consume. Most systems consume little enough power to operate from the **battery bank** when required. However, certain actions, such as spinning up your jump drive or charging a torpedo, will take more power than you can generate even if your nuclear fission reactor is at full power. This is when ensuring that you have plenty of power in the battery bank is important.

In any given turn, your selected actions determine how much power the ship generates and consumes. The difference is your **net power**. If you are generating more than you are using, the excess will be stored in your battery bank. Otherwise, power will be drained from it. If the net result of your choices is impossible due to a lack of power in your battery bank, you will have to alter your command decisions until the **Execute** button is unlocked, indicating you have made valid choices given your present power limitations.

Your **reactor** is not, however, the only way to generate power aboard your warship. In fact, to get your warship's reactor going, you will need power to begin with - it takes a decent amount of power in your battery bank just to start your reactor in the first place, a Catch-22 situation that fortunately has several solutions.

There are two ways to charge your battery bank without your reactor running. First, there is **shore power** - the ability to connect your ship to the power available on a starbase, charging your battery bank in preparation to fire up your reactor and get underway.

The second option is the **Auxiliary Power Unit**, best used to get your reactor powered up after it has **scrammed** while underway. Starting your APU takes some time, and it also uses fuel, but unlike the reactor it does not take any power to start.

For this reason, when bringing a ship from **cold and dark** to operational readiness without shore power, your only practical option is to start the APU and run it until the battery bank can start the reactor.

While your internal power can be controlled from the control room of your warship, the engine room to see more detailed information on the power in the various **electrical buses**, and to connect/disconnect **shore power**.



6.

WEAPONS & MUNITIONS



The very word **warship** indicates its primary purpose - warfare. Power projection. The armaments on a warship vary from the limited capacity of a gunboat to battleships bristling with turrets

There are two primary offensive weapons aboard a modern warship and two defensive ones.

Anti-Ship Railgun turrets are sometimes considered the primary weapons of the modern warship, although they are not its most powerful. The reason is simple - railguns have effectively **unlimited ammunition**, limited primarily by the amount of power your ship has available.

To prepare a railgun for firing, the **target** (targ) button must be used. Once this command has been executed, the turret is ready to fire, though you may still make another choice: prioritizing **accuracy** or **velocity**. If you have a poor potential solution for the target, choosing to prioritize accuracy will increase the chance that you will hit, but it will also most likely result in less damage than if fired normally. Conversely, prioritizing velocity will do more damage if it hits, but your chance of hitting your target is lower, so it is best to prioritize velocity only if you have a very good **targeting solution**.

Both ASRs and torpedoes use the target's current **target solution** as their base chance to hit. Maintaining a strong solution is therefore as important as preparing the weapon itself.

Railguns may not do as much damage as explosive or nuclear torpedoes, and their range may be more limited, but being able to fire them as often as your sensor suite permits makes them probably the most important tools in a warship's arsenal. In fact, despite torpedoes being the weapons most associated with modern space battles, it is not uncommon for experienced captains to intentionally set out on patrol without a single torpedo launcher available to them.

That said, **torpedo launchers** remain critical, especially in larger space battles or when facing enemies more powerful than your own. A small **corvette** may only be able to mount one or two railgun turrets, but a battleship could mount

dozens. The only way to level the playing field even a little is through the careful employment of **explosive**, **EMP**, or even **nuclear-tipped torpedoes**.

Explosive torpedoes use shaped charges to damage both the hull and internal systems. EMP torpedoes cause little hull damage but inflict heavy damage on internal systems. Nuclear torpedoes cause massive damage to hulls and systems across the area surrounding the detonation.

A **direct hit** inflicts the torpedo's full damage and may cause a critical hit. An **indirect hit** means the torpedo detonated close to the target, inflicting reduced damage. For explosive torpedoes, a direct hit concentrates damage on the hull and one system, while an indirect hit spreads less damage across the hull and multiple systems.

The primary difference, obviously, is ammunition - most warships can carry about **four torpedoes** with each launcher. When deployed carefully, however, even a relatively low-power EMP torpedo can be the difference between winning and losing a battle.

To counter these two weapon types, modern warships also have two kinds of **defensive measures** - **magnetic hull plating** and **close-in weapon turret systems**.

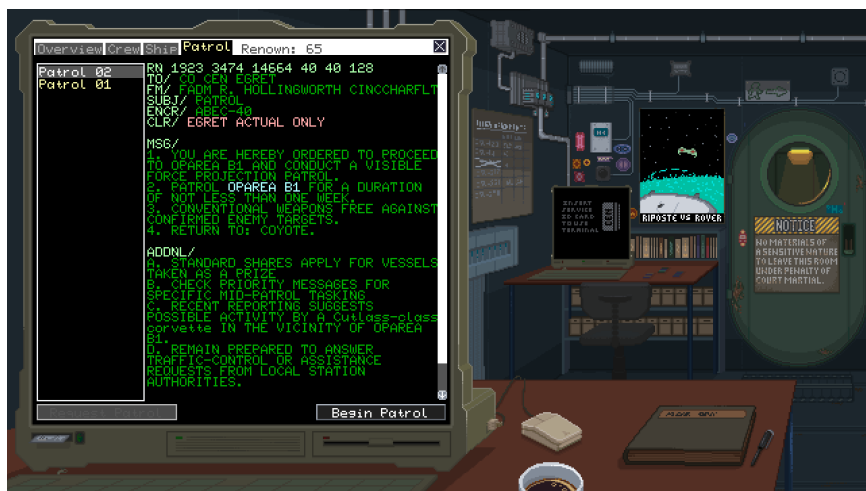
MAGS are your friend, as long as you have the power to operate them. Active MAGS reduce damage from incoming railgun rounds according to the absorption rating of the fitted module.

Conversely, **CIWTs** are pop-out turrets designed to target very small, fast-moving objects - torpedoes - and detonate them before they get too close to your hull. They defend against explosive and EMP torpedoes, but nuclear torpedoes bypass ordinary CIWTS interception. The limitation of a CIWTS system is, like torpedoes, a matter of ammunition.

Unlike MAGS, which can operate as long as you have the power, your CIWTS rounds will eventually run out on a long enough patrol, making you especially vulnerable to torpedo fire.

7.

WAR PATROLS



Once you are in command of your own warship, you will be given access to the Captain's Office aboard the station. In this room, you will find computer terminals accessible only to those in command of a warship. It is from these terminals that you will be able to requisition supplies, alter your ship loadout, make crewing decisions, and request a new war patrol.

War patrols are the meat and potatoes of your job. While the captains of some warships are given specific directives from Fleet Intelligence based on their performance, and others

may be given convoy duty, your primary duty as a corvette captain is conducting war patrols.

A corvette is the smallest warship tasked with solo combat operations, making it one of the most distinctive warships sent into space.

You will be issued a patrol **operating area**. You can toggle the oparea visibility in your quadrant view with the **PZ** button. You must spend at least **eight days** there for a war patrol to be considered complete.

Beyond merely completing the patrol, you will have further objectives. When performing force projection, your primary job is to ensure that your patrol zone is clear of enemy presence, or that enemy forces are at least unable to operate freely. Intelligence reports may give you the location of enemy vessels in or near your oparea - use those reports to locate and suppress, damage, or even destroy enemy warships.

The ultimate ignominy for any warship captain, however, remains losing their ship to an enemy force not through destruction, but through occupation.

To truly impress Fleet Command, disable an enemy ship, dock with it, win a **boarding action**, and assign an eligible officer to command the prize crew. Taking the vessel as a **prize** is a fine way to help ensure that you will retain your command. New spaceframes returned home for commissioning into the Colonial Earth Navy can result in commendations, promotions, or more.

Following a patrol in which you show exemplary command judgement and results, Fleet Command may award you **November Status**. This permits you to requisition one item of nuclear ordnance per patrol.

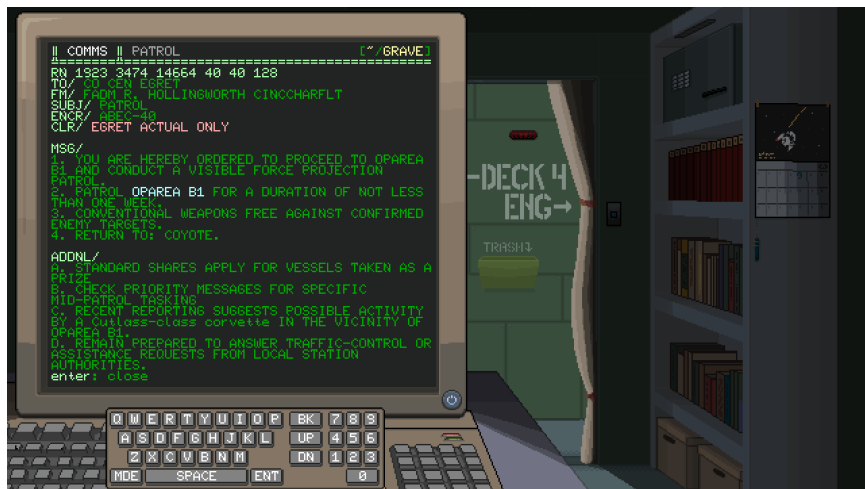
Future patrol orders will authorize its use against identified Federation warships at the captain's discretion; read those orders carefully before employing it and be very mindful of the use of radiological weapons. Misuse can result in extreme damage or even the loss of your own vessel - fire at range, and be confident your torpedo will hit.

Patrolling, however, has its limits, both subjective and objective. You must decide whether to engage a superior enemy or retreat, while also considering the munitions and supplies at your disposal. Watch your supplies and your munitions. You can detour via a supply depot to get more, but at a certain point your crew will become exhausted, and returning home will be your only viable option.

Once you are low on supplies, or otherwise decide that your patrol has been successful enough, you will have to return to your designated **home port** and dock. After docking at your home port, the patrol can be ended, and you will be ready to receive a report on your efforts from your fleet commander.

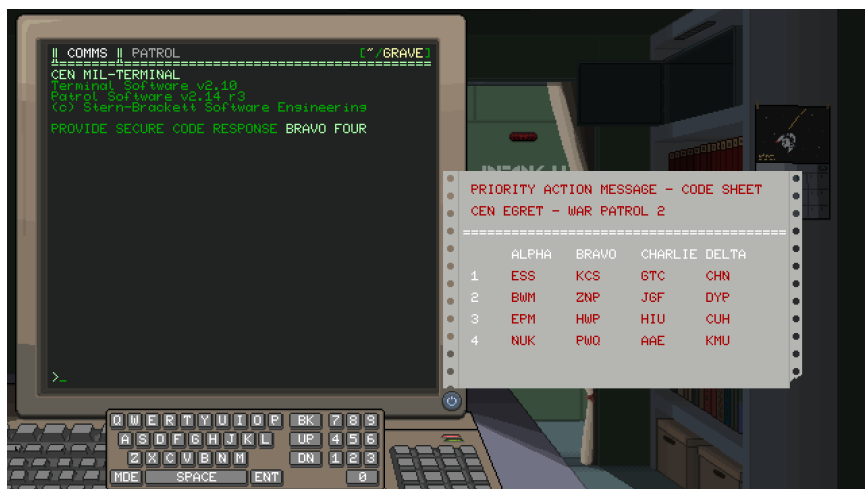
8.

ORDERS & COMMS



While out on patrol, there are two methods of communication with the outside world. The most critical is also the most private. In your quarters, you will find the captain's terminal, which, among other things, gives you access to **Priority Action Messages** when the passcodes stored in your **safe** are entered correctly.

After booting up your computer, open your **captain's safe** and consult the current **PAM code sheet** for your patrol. When prompted with a category and row, such as **BRAVO THREE**, find the **three-letter code** at that position on the sheet and enter it into your computer.



Once this is done, you will be able to read your mission orders, intelligence reports, and other messages coming through the PAM system.

This computer also contains a **patrol screen**, which summarizes the state of your patrol relative to the orders issued to you.

The second method of communication is **burst transmissions** - a system that lets spacecraft within a sector communicate with each other. Unlike PAMs, which are encrypted, burst transmissions are sent entirely in the clear, so they should not be used for communications of strategic importance.

To view burst transmissions from nearby ships, press the **BST** button on your top-left console in the conn. Your nav screen indicates whether burst signals have been read. In sector mode, an animated sound icon indicates an **unread transmission** from a vessel or platform, while a dimmed, static icon indicates one that has been read.

ENGINEERING

9.

ENGINEERING OVERVIEW

To operate a modern warship requires handling a complex collection of interconnected **systems**, each drawing from the same limited supply of power and each contributing to the ship's ability to fight, move, and survive.

At a high level, every ship consists of its **hull**, **batteries**, and individual systems. These systems include the reactor, auxiliary power unit, sublight drives, sensors, weapons, magnetic plating (MAGS), and defensive turrets (CIWTS). Some systems are active as long as they have power, and others need to be manually started up or turned on/off as required.

Some systems can be replaced with superior models at the will of the ship's commander, others are simpler ones that are intrinsic parts of the spaceframe. A different module may generate more power, draw less of it, produce fewer emissions, extend a system's range, carry more capacity, or simply perform its job more effectively.

Reactors, APUs, FTL drives, sensor suites, CIWTS, MAGS, and ASR equipment all use these replaceable modules. Your hull, batteries, sublight drive, and torpedo launchers are more closely tied to the design of the ship class and cannot be exchanged in the same way.

Most engineering orders take time to **execute**. Starting or stopping machinery, moving the ship, targeting weapons, charging launchers, and firing may therefore require several turns of preparation. What appears to be a single order from the conn may represent an entire sequence of actions below decks.

Every powered system is also a tactical decision. Machinery consumes power, and most active systems add to your ship's **emissions**, making you easier to detect. A fully powered up warship is far more capable than a cold one, but it is also much louder. If you are attempting to remain hidden until you are in a better fighting position, considering which systems you will keep on or off can be important.

Finally, no system should be considered indestructible. Damage Control will attempt repairs every turn, but severe damage may leave machinery requiring **drydock**. Your engineers can make such a system useful again at sea, but they cannot always restore it to full condition until the ship returns to port.



10.

DAMAGE CONTROL

Damage Control reports from your executive officer and their DC team will be broken down into a broad summary of the state, so as to minimize the analysis required by a captain before making command decisions. A system may be **undamaged**, **damaged**, **heavily damaged**, in **critical** condition, or completely **inoperable**. These descriptions are the captain's best indication of how much work remains and whether the machinery can still function.

An inoperable system will be forced off, and no further orders for the system can be issued. A launcher will not begrudgingly finish charging after being destroyed, nor will an FTL drive retain a jump order after its machinery has ceased to function.

Critically damaged machinery may still exist without being fit for every purpose. Some controls may remain available while actions that require the system to be fully functional do not. It is best to treat a critical report as an urgent warning, even if the system has not yet been declared inoperable.

Severe damage may leave a system requiring **drydock**. In space, your engineers can usually restore such machinery to useful service, but they cannot return it to a pristine **undamaged** state. Completing those repairs requires dockyard equipment.



Not all damage reaches your ship in the same way. ASR rounds, explosive shaped charges, EMP effects, nuclear weapons, stellar heat, a faster than light misjump, or an FTL decoil are all capable of damaging your warship and harming its crew differently.

11.

POWER & BATTERIES

Every operations decision aboard your ship that uses an electric system is reflected in its **net power**: the amount being generated minus the amount demanded by active machinery. If generation is higher, the difference charges your batteries. If demand is higher, the difference is drawn from them.



You cannot execute a set of orders that would take the batteries below zero. If the projected power balance is impossible, you must either shut down machinery, cancel an expensive action, or bring another source of power generation online. This may force you take dangerous actions such as **scramming** a nuclear reactor mid-startup or **decoiling** a jump drive when it is mid way through spinning up.

The maximum capacity of the **batteries** is part of the spaceframe's design. When the engineering display reports the batteries as **LOW**, the ship is not immediately disabled, but very little reserve remains for starting machinery, charging weapons, or responding to an emergency. This means a general rule of thumb is - keep as much in your batteries as possible before starting time and power-consuming actions such as spinning up your jump drive.

A system does not necessarily draw the same amount of power at all times. Machinery starting up may draw more power than leaving it idle. Sensors draw more during an active scan, the sublight drive draws more while moving, and launchers require substantial power while charging before settling to a lower ready-state demand.

Power may come from three places. The **reactor** is your primary generator, the **APU** provides independent auxiliary generation at the cost of its limited fuel, and **shore power** can charge the ship while it is docked at a station. The reactor and APU can run together when greater output is required, as long as you have the fuel to keep running the APU.

While the APU can be run while docked to generate enough power to start your reactor, it is recommended to keep the fuel until you really need it, instead using the shore power available at all major spaceports to get enough charge for starting your reactor.

12.

HULL

The **hull** is the physical body of your warship. Its maximum strength is determined by the ship class. A warship whose hull reaches **critical** condition will soon become **disabled**.

A disabled vessel may survive further punishment and become **stricken** rather than being destroyed immediately. This is the state in which an enemy spaceframe may remain available for capture. Continue firing, however, and the remaining structure will fail completely, which will result in destruction of the vessel and the death of its crew.

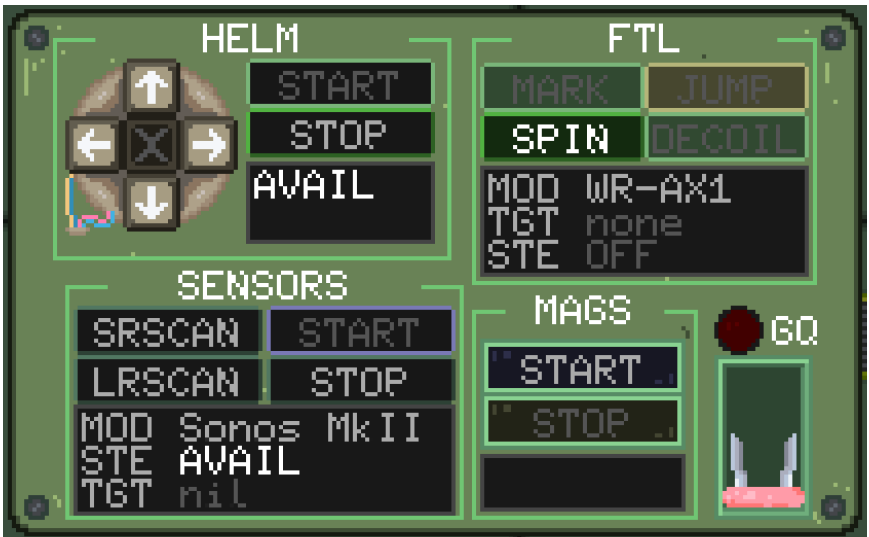
Most weapon strikes divide their force between the hull and one or more internal systems. The exact distribution depends on the weapon. An ASR round that merely ricochets is an exception: as it doesn't break through the hull, it will not get to the delicate systems within.

Hull repairs are considerably slower than ordinary system work. They receive only a fraction of the normal Damage Control effort, but most importantly - your engineers cannot safely repair the hull while **MAGS** are active. If the hull must be restored during combat, the magnetic plating will have to be shut down first.

Stars are another danger to hull integrity. Remaining adjacent to a star causes repeated **heat damage**. Active, functional

MAGS reduce this damage somewhat, but they do not make close stellar operations safe.

As such operation in proximity to stellar objects should only be ordered if the tactical situation absolutely demands it.



13.

REACTORS

The nuclear fission **reactor** is the primary generator aboard a modern warship. The precise kind of reactor determines its normal output, the power required to start it, and the emissions it produces.

A reactor does not generate power until fully started up. During the startup process, it consumes power instead to get the fission process started. This is why a warship with an empty battery may need shore power or its APU before the reactor can be brought online.

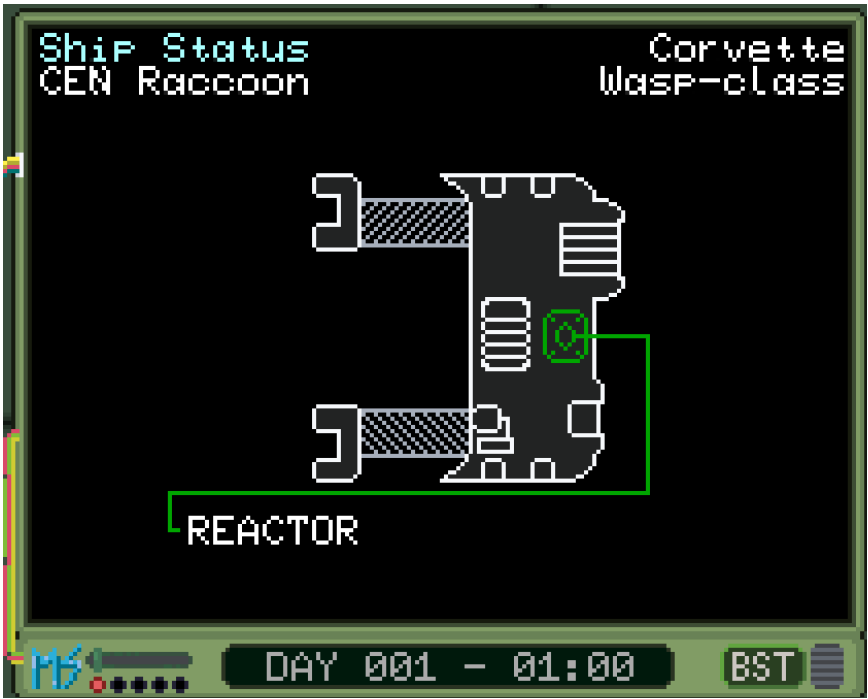
Once running, the reactor has three output settings. **Normal** mode produces its rated power at its normal emissions. This is the standard operating state and the one against which the other settings should be judged.

Reduced mode produces considerably less power and lowers the reactor's emissions. It is useful when demand is modest and you wish to run somewhat quieter, though shutting down the reactor altogether remains quieter still - but the risk of the time and power requirements to start it again must be weighed against the emissions benefit to running your warship cold.

Emergency mode drives the reactor above its rated output and produces a far greater sensor signature, with the benefit

of providing extra power in dangerous situations, such as in battle scenarios.

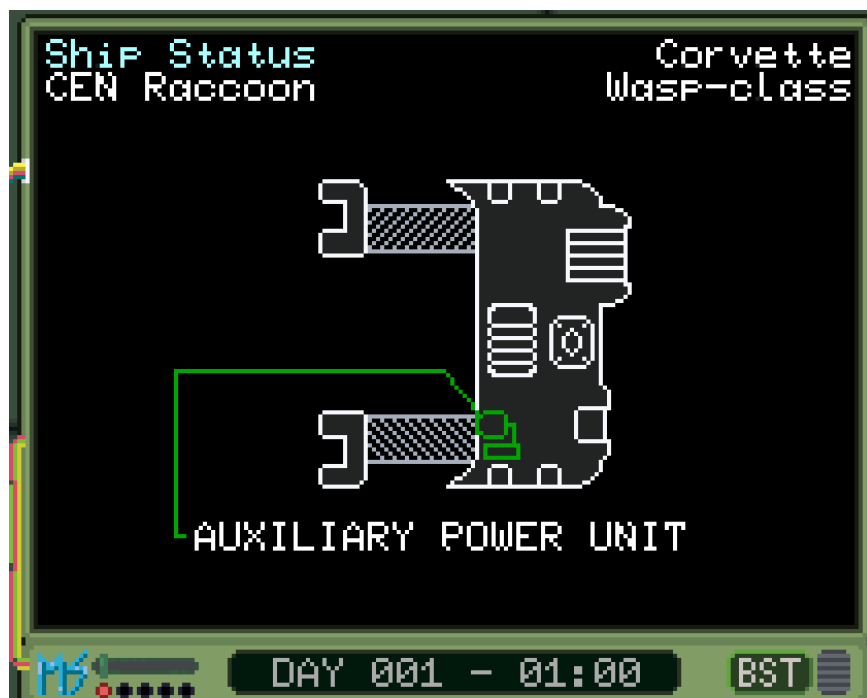
Finally, the reactor may be **SCRAMMED**. A SCRAM immediately shuts down the reactor. Restarting it afterward requires the normal startup process and enough stored or auxiliary power to complete it. Scramming a temporarily produces a large emission signature that might give away your ship's position, and also has a chance of damaging the reactor itself in the process.



14.

AUXILIARY POWER UNITS

The **Auxiliary Power Unit** is an independent secondary generator. Unlike the main reactor, it requires no outside electrical power to begin starting, making it the standard answer to a ship that is cold, dark, and away from shore power. Its usefulness is, however, limited by its consumption of **APU fuel**.



The fitted APU module determines its electrical output, emission strength, and fuel capacity. Every APU carries a set number of units of fuel and consumes one unit during each turn spent starting or running. It is dependable, but it is not an unlimited source of power.

Under normal conditions, startup takes some time. If power is required immediately, you may enable the **pump** while it starts to reduce the start time. This makes startup immediate, but produces a much greater sensor signature during the process.

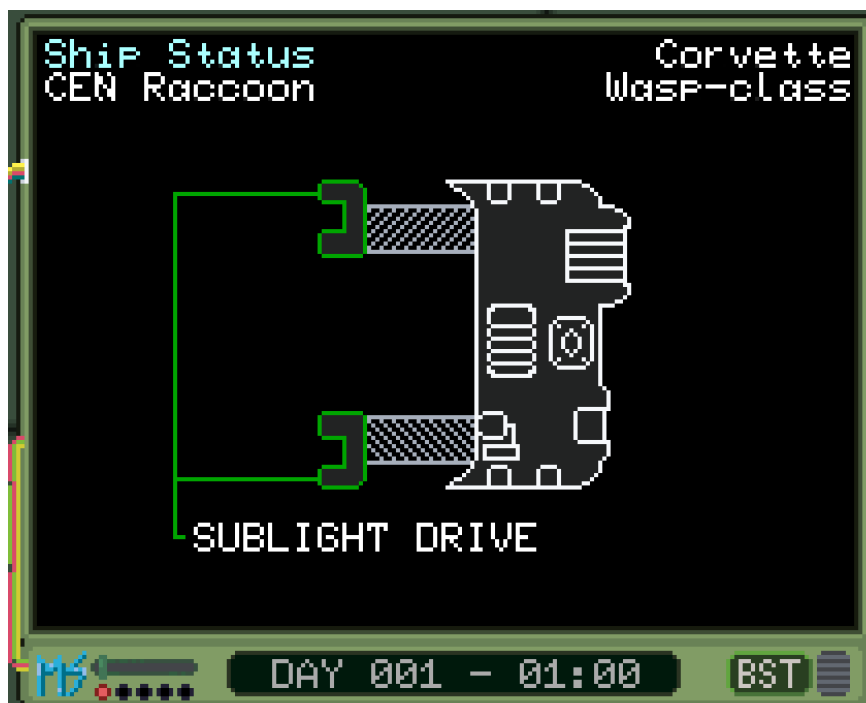
Once the APU is running, opening its **vent** reduces both its output and emissions. This is useful when a smaller amount of quiet generation is more valuable than its full rated output.

The APU may be run alongside the reactor, used to charge the battery bank, or used by itself to start other machinery. Its most important purpose is to provide enough power to start the reactor after a SCRAM or recover a vessel from a **cold-and-dark** state.

15.

SUBLIGHT TRAVEL

Your **sublight drive** moves your warship within its current sector. It requires a short period of time when turned on before becoming available, after which a movement order will carry the ship by one tile in a cardinal direction when the turn resolves.



Starting or idling the drive draws a small amount of power. When movement is queued, this increases to a higher amount of power. Movement also produces a greater sensor signature than leaving the drive online but idle. A ship under power is therefore both more detectable and more expensive to operate than one merely keeping its engines ready.

Both sensors and sublight propulsion must be available for **docking** and **undocking**. Even if a station is directly alongside you, the ship cannot safely complete either procedure without the ability to see its surroundings and control its actual motion.

16.

FASTER THAN LIGHT TRAVEL

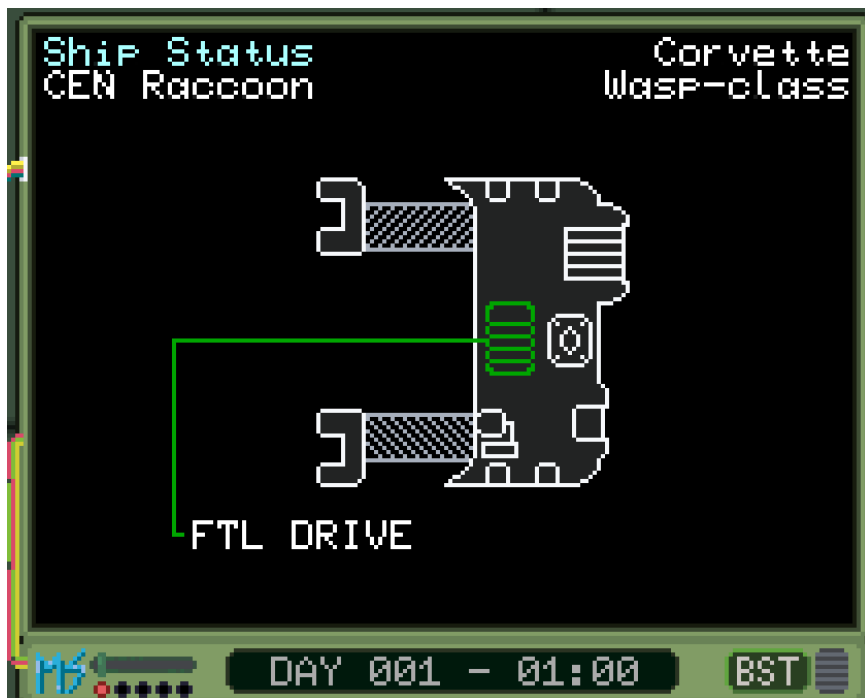
The **faster-than-light drive** moves your ship between the sectors of a quadrant. The specific drive you have fitted determines how many turns it takes to spin up, how much power and emissions it produces, how far it can jump, and how long the resulting journey will take.

You may begin spinning up the drive before selecting a destination. During spin-up, it consumes the module's full power draw and produces its normal base emissions. Once the drive is ready, both its power demand and emissions fall substantially, but moving around with a spun-up FTL drive still takes more power than is generated by most reactors, and will begin eating into your battery reserves. As such, standard operating procedures are to spin up only when you are at or near your safe jump zone.

Marking a destination identifies the appropriate **safe jump** zone for your planned jump.

Jumping from this **safe zone** minimizes (but does not entirely remove) the chance of a misjump. The farther the vessel is from it, the greater the danger. A misjump damages the hull and internal systems and may even leave the ship in the wrong sector or at an unintended position. Even a properly aligned jump retains a small risk; FTL travel is never entirely safe.

Once spin-up has begun, the only way to stop the drive is to **decoil** it. A decoil releases the stored charge as an EMP-like blast centered on your ship. The strength of the blast is proportional to how far the drive had spun up, and it presents a severe risk to your own warship and any vessels around you.



*Note: **Decoiling** is dangerous to your own vessel, but it can also be used as a weapon of last resort against ships that cannot otherwise be harmed.*

17.

SENSORS

Your **sensor suite** provides local contact detection, active scanning, long-range sector scans, target identification, and provides the firing solutions used by your weapons. Without functioning sensors, a warship may still be dangerous, but it will be fighting blind.

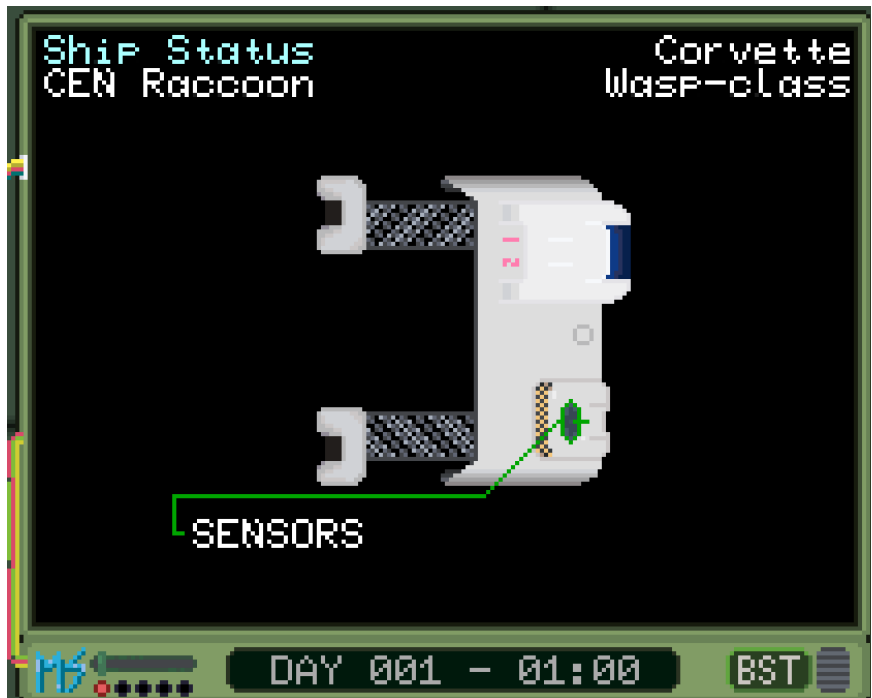
The fitted sensor module defines its passive range, idle and active power use, emissions, long-range scan radius, and the number of sensor actions it can coordinate in a single turn.

Passive detection begins with the passive sensitivity of your module vs the amount of emissions being produced by another spaceframe. Damage to the sensor system reduces that range. A quiet target may remain hidden until it is close; a loud one can reveal itself from across the sector. This is part of why gunships and corvettes are still operated in great numbers; a battleship may be the toughest kid on the block, but it's also the loudest.

An **active scan** consumes a large amount of power and increases your ship's emissions. In exchange, it guarantees detection throughout the area surrounding the selected scan point and can sharply improve information about contacts there. In short, if you're hunting a small hard-to-detect enemy warship on the other side of your sector, an active scan can pick it up quickly, at the expense of giving away your own existence and position.

A **long-range scan** looks beyond the present to neighboring ones. It reports the number of ships in nearby sectors. It tells you that other space traffic or danger is present, not necessarily exactly what it is.

Every suite has a limited **sensor action capacity**. Active scans, long-range scans, or the feeding of targeting data to launchers or turrets all draw from the same allowance when orders are queued, as well as taking more power. A captain trying to target every weapon and scan every direction in the same turn may exceed what the suite can coordinate.



Better sensor modules generally provide some combination of greater range, lower emissions, wider long-range coverage, or more simultaneous actions. Whatever the module, local detection requires the sensor system to be powered and above critical condition.

18.

MAGNETIC PLATING

MAG units energize magnetic plating built into the hull, reducing damage from incoming ASR (railgun) projectiles. The specific fitted module determines both the percentage of damage absorbed and the power required to keep the field active.

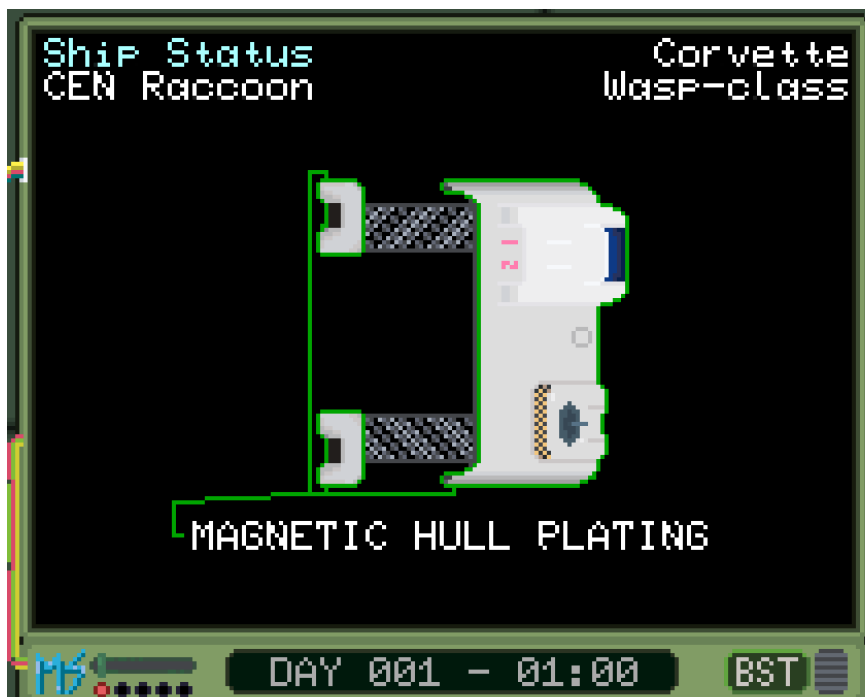
According to both engineering tests and combat experience, current modules absorb between about 15 and 40 percent of an ASR strike's kinetic damage. The remainder still reaches the ship, so magnetic plating should be understood as damage reduction rather than invulnerability.

Active MAGS add substantially to the ship's **emissions**, regardless of which module is fitted. This may make a defended vessel easier to detect before the first shot is fired.

Magnetic plating protects specifically against ASR fire. It does not currently reduce damage from explosive torpedoes, EMP effects, nuclear weapons, or an FTL decoil.

There is one additional use. Active, functional MAGS reduce **stellar heat** damage.

MAGS and CIWTS are both treated as defensive combat systems. As part of normal safety procedure, both are shut down while the ship prepares to dock.



*Note: Your engineers cannot safely perform **hull repairs** while the plating is energized. If Damage Control need to work on the hull, MAGS will have to be shut down, leaving the ship temporarily more exposed to railgun fire.*

19.

CIW TURRETS

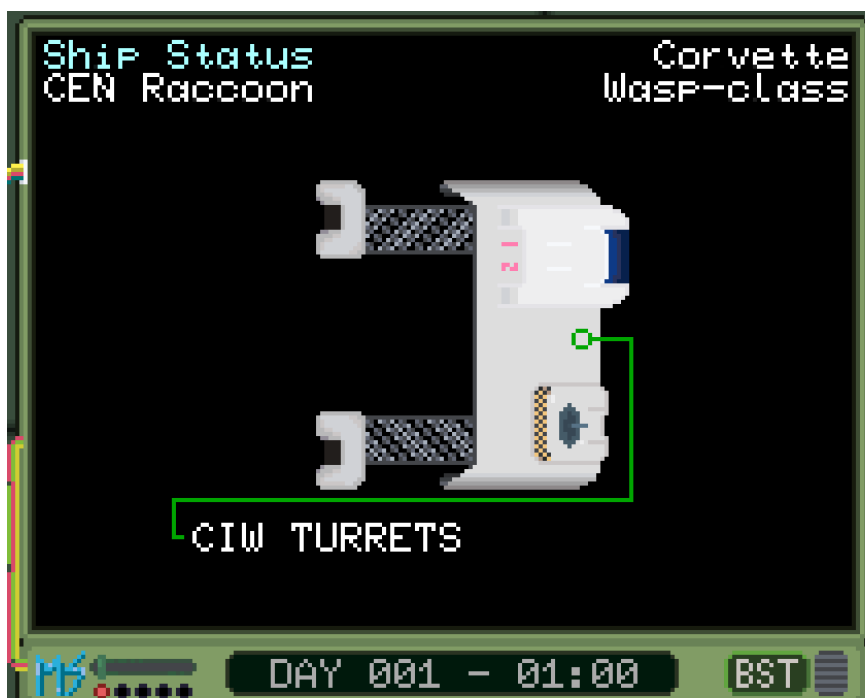
Close-In Weapon Turret Systems are the ship's defense against incoming torpedoes. When powered, functional, and supplied with ammunition, they engage these threats automatically.

The fitted CIWTS module will determine the minimum and maximum number of rounds fired in each burst, as well as its power requirements. A larger **burst** consumes more ammunition, but gives the turrets a better chance to destroy the torpedo or detonate it before it reaches the hull.

Every interception can have one of three results. The burst may destroy the torpedo completely, cause a **partial interception** by detonating it early, or miss. Larger bursts improve the chance of a complete interception.

A partial interception is still useful. The torpedo detonates early, allowing only reduced explosive or EMP damage to reach the ship. It is nevertheless damage, and repeated partial interceptions can still cripple a vessel.

Of course, this presumes that the warhead in the approaching torpedo requires close impact to be truly damaging - CIWT rounds may indeed detonate a nuclear-tipped torpedo early, but the difference between a nuclear torpedo hitting you directly rather than going off nearby is a largely academic one; nuclear explosions are still very very bad.



CIW turrets begin with 60 rounds. Once the magazine reaches zero, the turrets cease to provide any defensive benefit until their ammunition is replenished while docked at a station. Captains expecting heavy torpedo fire should watch their remaining rounds closely - it may be worth turning the turrets off to retain their use for a later battle during a patrol.

20.

ANTI-SHIP RAILGUN TURRETS

Anti-Ship Railguns are direct-fire weapons that accelerate solid projectiles toward another vessel. A ship may mount as many turrets as its spaceframe is configured for - from a limit of one or two for most gunboats to potentially dozens aboard a large capital ship.

The overall ASR system must be powered and functional before any turret can target or fire. Within that system, each turret operates independently. It remembers its own target, intended subsystem, accuracy or velocity setting, and whether it is idle, targeting, or firing.

Keeping the ASR system powered requires very little energy. Firing is another matter: each turret draws a large pulse of power according to its fitted module, and firing several turrets together can consume the entire output of a standard reactor for that turn.

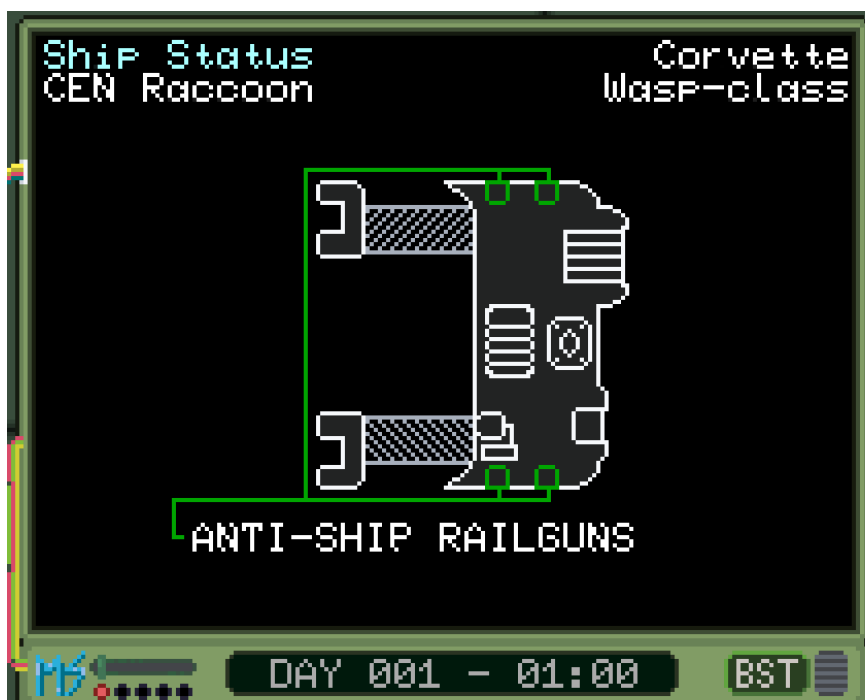
An ASR firing solution begins with the target information supplied by your **sensor suite**. Final accuracy is then affected by range, the movement of both vessels, gunner proficiency, nearby stellar bodies, and whether the shot is aimed at a particular part of the target.

ASR damage is strongest at very close range and falls steadily as the distance increases. Long-range fire may still be possible, but even a successful strike will carry less force.

Different ASR modules have different **damage ratings**. The RG-7 is the standard against which the other weapons are measured; more powerful modules increase every kind of hit, including glancing strikes.

Fortunately, modes can be changed to impact your ASR effectiveness under various circumstances.

The **+A** button is the **increase accuracy** mode, and increases accuracy at the cost of damage. The **+V** button is the **increase velocity** mode, which increases damage while making the shot slightly less likely to hit. In general, increasing accuracy will help for initial shots if your solution is poor, and once you have a good solution and/or are close range, increasing the velocity of your shots is the most effective way to prosecute a target.



Additionally, as ASR rounds are more precise than torpedoes, a specific target can be chosen to alter what kind of damage you are likely to do to an enemy vessel.

An aimed shot selected by the captain per-target may favor the target's **hull**, **weapons**, or **drives**. This makes any successful damage more likely to affect the chosen area, at the cost of a higher chance of a general miss

ASRs produce minor emissions while powered and a little more while targeting. Firing produces a much larger emissions spike for each turret discharged. Preparing every turret may give you a formidable first volley, but firing them together can also reveal your ship at considerable distance.

21.

TORPEDO LAUNCHERS

The number of **torpedo launchers** you have aboard your warship will be determined by you, restricted by the number your spaceframe can be fitted with.

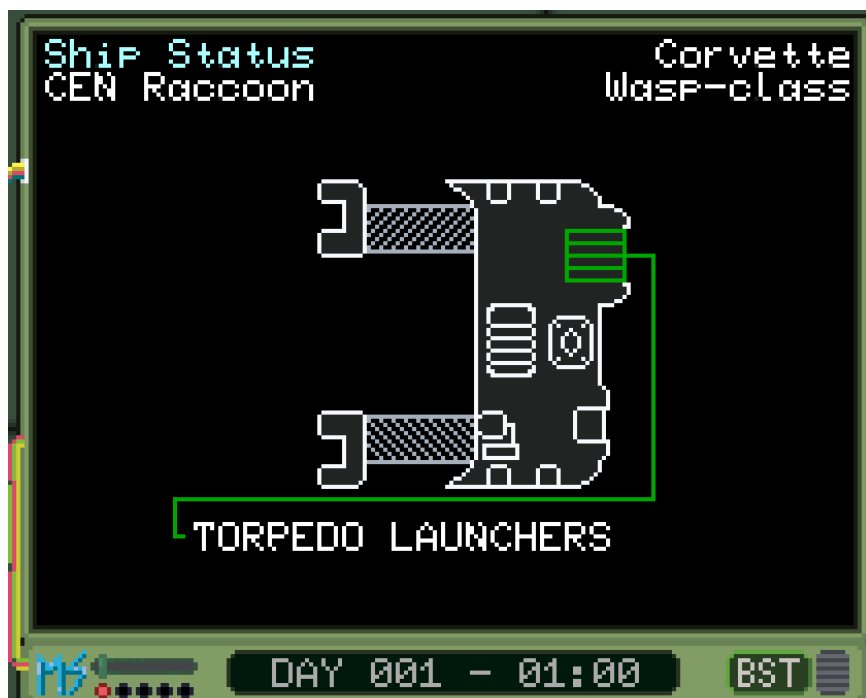
Each launcher contains as many as four ammunition slots. These may carry explosive torpedoes, EMP torpedoes, nuclear torpedoes, or remote sensor probes, depending on what was loaded before the patrol.

Launching a weapon is a deliberate, multi-stage process. You must select a loaded **tube**, select a **target**, charge the launcher, open its outer door, and finally order it to fire. Tube and target selection must resolve before the later stages recognize that the launcher is ready, so the entire sequence will take some time.

Charging takes two turns. During this time, the launcher draws its full power demand and produces increased emissions. Once ready, it draws less power, although opening the outer door and ordering fire increase its emissions again.

A launcher may target a detected ship or a specific coordinate within the sector. This allows a weapon to be sent toward a position even without a vessel selected, but a launcher cannot be aimed directly at a stellar object.

When the torpedo is fired, the launcher system then resets to a cold state, clearing its selected tube, target, open door, and firing order. Preparing the next shot requires beginning the sequence again.



Launchers are individual systems which occupy different places aboard your warship and can be damaged or even destroyed individually.

22.

DAMAGE CONTROL

Damage Control performs one repair operation aboard your ship during each turn.

As captain, you may order your Executive Officer's DC team to focus work on the hull, reactor, FTL drive, sublight drive, APU, CIWTS, ASRs, launchers, sensors, or MAGS. A selected priority continues to receive repair work until it cannot be repaired any further. Control then returns to your Executive Officer.

Without a selected priority, the **XO** first considers the most damaged critical machinery: the reactor, APU, sublight drive, sensors, and FTL drive. If none of those systems requires work, the XO selects the most damaged repairable system elsewhere aboard the ship.

There is one exception. If the hull reaches **critical** condition, it takes default priority; there's not much point in keeping the reactor running if everyone is floating around dead in space. But before that point, your XO normally clears repairable system damage before assigning work to the hull.

The amount restored begins with the proficiency of your engineering officer and is then scaled according to the crew available. Setting **General Quarters** provides a further bonus to repair work.

Hull repair is far slower than system repair. It also cannot proceed while MAGS are active, so the captain must choose between magnetic protection and work on the ship's structure.

A system which has sustained serious structural damage can only be restored to partial working order in space - full repair to pristine condition must wait until the ship reaches proper dockyard facilities.

TACTICS

23.

COMBAT

Operating your warship requires selecting actions, then confirming them with the **execute** button. You may inspect the situation and queue as many compatible orders as your crew, sensors, and power supply can support. Nothing is final until you execute the turn, at which point every vessel carries out its prepared actions.

The order of resolution matters. Power changes, weapons, FTL actions, system state changes, crew activity, and docking are resolved before movement. Repair work and environmental hazards occur after movement. A captain who understands this sequence can anticipate not only what a ship will do, but when the consequences will arrive.

Every conventional attack begins with a tracked target's **sensor solution**. Continued contact strengthens that solution, while losing contact causes it to degrade - if a target at distance disappears into a nebula, you will have to move closer to re-acquire it and the solution you had to fire weapons at the target will be worse depending on how long you've lost the contact.

A weapon may be ready to fire and a target may still be visible on the display, yet a poor solution can make the shot little more than a wager. Your officers can shift those odds. A proficient gunner improves attacks, while a proficient helm officer can help a moving ship avoid incoming fire. Movement

itself affects railgun accuracy, as hitting a target from a moving platform is always going to be tougher than hitting a target from a stationary platform.

Before battle, consider calling **General Quarters**. This places available senior officers on watch, suspends normal watch rotation, and improves the effectiveness of Damage Control. The cost is fatigue: a battle that continues too long may exhaust the very officers you most need.

Victory does not always require destroying the enemy. Severe hull or critical-system damage can leave a ship **disabled**. Enemy captains may surrender according to their temperament, hull condition, disabled machinery, and crew casualties. A surrendered ship can be scuttled or taken as a prize.



A ship is only destroyed after its hull has been damaged beyond any possibility of survival. Between disability, surrender, a stricken hull, and outright destruction lies a valuable tactical distinction. Fire carelessly and you may turn a prize into debris; stop too early and the enemy may remain dangerous.

24.

DETECTION

Detection is a contest between the observing ship's **sensor range** and the target's **emissions**. Your suite provides the starting range, sensor damage may reduce it, and stronger emissions from the target extend it.

Colloquially, the emissions being produced by a vessel can be described as the boat being **loud** or **quiet**. In practical terms, a loud vessel can be detected much farther away than a quiet one. FTL machinery, sublight movement, sensors, reactors, auxiliary power, torpedo launchers, ASRs, MAGS, and CIWTS can all contribute to emissions. Nearby planets and stars mask them, making stellar terrain valuable cover.

Nebulae also mask a vessel's emissions. The deeper a ship moves into a nebula, the more its emissions are suppressed and the harder it becomes to detect. The thinner edges provide less concealment than the dense interior, and the protection applies equally to friendly and hostile ships.

Local detection requires sensors to be powered and operational. Ships that are docked, docking, or undocking do not participate in normal local detection.

An **active scan** guarantees detection within a small area around the selected point. It is an effective way to uncover a suspected contact or improve a firing solution, but it also increases your own emissions. A deployed **probe** provides

similar coverage around its position without requiring your ship to remain nearby.

The first time passive sensors establish a contact, its firing solution will be poor. Maintaining contact gradually improves it, with close observation producing better results than distant tracking. An active scan provides a much greater improvement.

If contact is lost, the solution gradually deteriorates. Once a vessel has been detected, however, a poor remembered solution is retained. The display keeps its last known information, but that should not be mistaken for knowing where the target is now.

The tactical lesson is straightforward: control your own emissions while forcing the enemy to reveal theirs. A quiet ship near stellar cover or deep within a nebula may observe without being observed. A ship that moves, scans, energizes every defense, and spins up every weapon is announcing that it expects a fight.

26.

MOVEMENT

Sublight movement carries a ship by one orthogonal tile when the turn resolves. The drive must be powered and operational, and the destination must remain inside the local grid.

A ship cannot move into a stellar object. An occupied destination also prevents movement when it resolves, so two vessels attempting to use the same space will leave one or both plans frustrated.

As mentioned in the **ASR** section, moving your vessel and firing your railguns at the same time will reduce your chance to hit the target.

A moving target is not only harder to hit with railguns, but harder still with an experienced helm officer.

And, of course, using your sublight drive to move increases your emissions, making your warship noisier. The captain must weigh the defensive benefit of motion against the extra sensor signature it creates.

27.

WEAPON TACTICS

Both torpedoes and ASRs begin with the tracked target's current **sensor solution**. Better weapons do not compensate for firing blindly. Before committing ammunition or firing your railguns, consider whether another turn of contact or an active scan would produce a better shot.

Explosive torpedoes deliver shaped-charge damage to hull and internal systems. A direct hit is substantially more destructive than a nearby detonation. They are a dependable choice when the objective is to physically cripple or destroy a vessel.

EMP torpedoes are intended to overwhelm machinery. A direct hit is substantially more powerful than a nearby detonation, and most of the damage is inflicted on systems rather than the hull. This makes them especially useful when you wish to disable a ship without destroying the spaceframe.

Ordinary torpedoes must survive the enemy's **CIWTS**. Defensive fire may miss, detonate the torpedo early and reduce its damage, or stop it completely. For this reason, repeated attacks can be useful not only for damage, but for exhausting the target's limited CIWTS ammunition. If you have a large supply of EMP torpedoes and only one or two explosives, against a more powerful target it may be worth firing the EMP torps first to reduce the number of CIWTS

rounds the enemy has on hand before you fire the torpedo you truly need to hit.

Nuclear torpedoes operate differently. Their explosion is so large that even early detonation from CIWTs is largely an academic question. Their strength is also their danger: a poor choice of target can harm friendly ships, neutral traffic, or your own vessel. Consider this carefully before calling **battle stations nuclear**.

Probes occupy launcher ammunition slots but are not weapons. They inflict no damage. Once deployed, however, they guarantee detection across the surrounding area and can maintain awareness somewhere your ship has left behind.

ASR fire becomes progressively less accurate at long range. Its damage begins falling off much sooner than torpedoes, so close railgun fire is both easier to land and substantially more destructive when used within their effective range.

Remember that with ASR fire you can alter the turret's accuracy and velocity with the **+A** and **+V** modes. This can noticeably improve the accuracy at the cost of damage, or damage at the cost of accuracy.

Finally, an ASR may aim at the hull, weapons, or drives. Such an aimed shot is slightly less accurate. Use it when disabling a particular capability matters more than simply landing the easiest available hit.

If you want to disable and take an enemy warship as a prize, railguns are

28.

SHIP TYPES

Military warships are divided into broad **categories**:

- **Gunboats** are the smallest standard military vessels. Their size generally limits what they can carry, but a small contact should never be dismissed before its fittings are known, especially as gunboats usually operate in small squadrons.
- **Corvettes** are the next category. They are the smallest warships commonly trusted with independent combat operations, combining enough range and armament to patrol without a larger formation.
- **Frigates** represent a substantial increase in scale and may bring heavier hulls, larger crews, and more extensive weapon or defensive installations into an engagement.
- **Destroyers** are the largest standard military category presently operating in Charlie Quadrant. The Leviathan and Citadel classes belong here. A corvette captain should assume that a destroyer holds a major advantage until sensors prove otherwise.
- **Drones** form a separate category. They are automated rather than normally crewed warships, but are generally used for training and target practice, rather than operating as warships in their own right.

The **category** of the warship you have detected gives you a useful first estimate, nothing more. Two ships of equal category may be built for different roles or fitted with very different modules. Damage can reverse an apparent advantage, while an intact smaller vessel may still be more dangerous than a larger ship whose weapons, sensors, or power systems have failed.

Use category to decide how cautious to be. Use class identification, emissions, observed weapon states, and damage reports to decide how to fight.

29.

BOARDING ACTIONS

An enemy spaceframe is always more valuable intact than destroyed. To claim one, you must first **disable** the vessel or compel its captain to surrender, move adjacent to it, and dock.

If the enemy captain has **surrendered**, an unopposed boarding party will secure the ship without potential loss of life. You may then decide whether to **scuttle** the vessel or place a prize crew aboard.



If a disabled enemy refuses to surrender, docking begins a contested **boarding action**. The captain selects an eligible officer and a party of as many as five crew. Senior security officers provide the greatest command strength, followed by command officers and then gunnery officers. The condition of the officer, the size of the party, crew effectiveness, and current officer bonuses all influence the result.

Enemy **opposition** is based on the size of the crew aboard the disabled warship. Larger crews resist more strongly. Damage to the target progressively reduces its readiness as the hull approaches destruction.

A strong result captures the vessel without crew losses. A marginal result still succeeds, but members of the boarding party are killed. A poor result fails to capture the ship and causes heavier casualties; the officer leading the action may be wounded, critically injured, or killed.

Once a warship has surrendered or been taken over with a boarding party, the practical choices are to **scuttle** it or take it as a **prize**. Scuttling recovers a small amount of supplies and may recover CIWTS ammunition before destroying the vessel.

Taking a prize requires an eligible command or helm officer to lead the captured ship, plus three members of your crew. That officer and crew leave your vessel. A prize may be worth considerable renown, but weakening your own complement in hostile space is not a decision to make lightly.

30.

SURVIVAL

There is no special order for **withdrawal**. To disengage, you must use the same sublight movement and FTL systems used at any other time. The difference is that the enemy will be trying to stop you.

If a battle looks unfavorable, begin preparing early. The FTL drive can be spun up without a destination marked, allowing you to store charge while deciding where to go. A destination within range must still be selected before the jump order becomes available.

The safest escape requires maneuvering into the correct **jump zone**. Even there, a small chance of misjump remains: FTL travel is never entirely safe. Outside the zone, the risk is much greater and rises the farther the ship is from safety. Nearby stars are particularly dangerous, while other stellar objects also increase the risk.

A **misjump** always damages the ship, tearing away a substantial portion of its remaining hull and potentially crippling several powered systems. It may also place the ship in the wrong neighboring sector. An emergency jump can save you from enemy fire only to leave you crippled somewhere worse.

Ordinary movement remains useful while the drive charges. Stellar cover makes incoming fire less accurate and masks

emissions, while prior movement can help a proficient helm officer evade torpedoes. Your aim is not necessarily to outrun the enemy, but to survive enough turns to make the jump.

There is one final option. Stopping an FTL drive after its initial cancelable stage will **decoil** it, releasing an EMP pulse. The farther the drive has progressed through spin-up, the stronger the resulting pulse will be.

At full charge, the emitting ship suffers severe EMP damage. The pulse is even more powerful against vessels immediately nearby, then tapers away with distance. The blast is therefore strongest against nearby ships rather than its source.

Decoiling may cripple your own systems, cancel your escape, and leave you unable to exploit the damage. Against an enemy you cannot otherwise defeat, however, deliberately decoiling to damage an enemy may be preferable to surrender whatever the cost to your own warship.

APPENDICES

APPENDIX A.

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APPENDIX B.

LINKS

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