

ALTANTIS and You:

A Guide To Your New Favourite Submarine AI

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(**COURIER CLASS ATLSUB 653569** - Version 0.8.01)

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Introduction

Welcome to your new **COURIER CLASS ATLSUB 653569** submarine! Here at Corp Induseas (Indaseas We Seas All)¹ we are proud to be the industry forerunner in networked submarine AI so are very excited to show off this latest version - 0.8.1²! We've added a collection of quality-of-life enhancements to our previous edition, including the new **!trade** command and automatic sensors system.

As a reminder - as knowledge of all of our other submarine versions is of course assumed as to not patronise you, but we are aware that you might forget bits - ALTANTIS is a **networked**, **scheduled** and **real-time** system. Let's look at what those three things mean.

- **Networked**: all the submarines are connected to a global control centre, which verifies your decisions and allows us to keep track of you.
- **Scheduled**: all of the submarines act at the same time. When you run the majority of your commands, they will not resolve immediately - instead, they will come into effect at the next "world tick".
- **Real-time**: you have a fixed amount of time between each "world tick" to perform commands before all submarines act simultaneously.

These three principles are what guides ALTANTIS, and thus how your submarine operates. If you remember these, you'll probably be fine.

In the rest of this manual, we'll look at the overall running of your submarine and then each subsystem in turn.

A Final Word of Advice, Before We Begin

With your purchase of the **COURIER CLASS ATLSUB 653569** you also get full technical support from the boffins at Corp Industries. They like to call themselves CONTROL, so you may call on their help simply by typing **@CONTROL** in your terminal panel. Be warned that if you manage to recreate The Boy Who Cried Wolf, and @ them repeatedly for little need, you will lose their support. If in doubt, try consulting this manual first.

Onto the manual!

¹ Look I was having a day, okay

² You are still liable for all damages even though this is a beta version.

The ALTANTIS Consoles

Each member of your team has access to their own console, which looks suspiciously like a Discord channel. This is in fact because it *is* a Discord channel, wow³! In this console, you type commands, which will be explained throughout this manual. In this section, we're going to introduce one command that will very much **help** you, yes it's a very **helpful** command that you may have seen on other bots, that's right, it's:

!help: This command lists all commands you can personally execute. This is a subset of all commands - as to avoid overloading any one player with significant choice, we've split the commands between players! Furthermore, these commands are split into categories for ease of finding.

You can also call **!help command** to get help on the particular command specified.

Finally, note that each console is private and as such you should relay your information to your fellow crew if you deem it important. You are provided with a joint console which you can forward anything pertinent to, and with your joint voice channel should suffice for inter-team communication.

³ Yes, this means your submarines are running Discord. Which means they're running Electron, which means they're running Javascript. But the bot itself is written in Python, which is totally a safe programming language with no worries about errors at all. Did we mention this is in beta? At least it's not as bad as a rocketship running Javascript, I guess.

The Game Loop

Your entire experience with the **COURIER CLASS ATLSUB 653569** is split into “world ticks” in what we call the “game loop”. Each world tick happens every minute, and can only be stopped by control. During each world tick, the following things happen in order:

1. **Power Management** (systems are powered and unpowered)
2. **Weapons** (shots are fired)
3. **Other non-submarine things**⁴ (such as resource-rich areas generating resources and sea creatures moving)
4. **The Crane** (the seafloor crane is dropped or pulled back up)
5. **Movement** (if your engines are charged and ready to go), puzzles timeout (you must complete puzzles before you move) and trades timeout (if either trader moves)
6. **Scanners** (scan from your new square if you moved)
7. **Damage** (both from internal sources, and from... less than safe upgrades)

This will make more sense once we’ve gone through each of the subsystems in turn, so do not worry. We need to make a brief distinction between the two types of subsystem in your submarine, which determine when they act:

- **Scheduled:** these are systems which you send commands for during the time before the world tick, and then act during that tick. Most systems work like this.
- **Immediate:** these are systems which act immediately. These are rare, but a few important systems work like this, such as trading.

Each system will be qualified with which of the types they are. Some systems are both, but that will be explained when we get there.

During the game, submarines can be activated or deactivated (using the **!activate** and **!deactivate** commands, respectively). While a submarine is activated, it responds to world ticks and does the loop above. While a submarine is deactivated, **it does not perform any scheduled actions until it is activated again**. Usually this is for when you’re docking at an undersea base.

To reiterate the important point of this section - the game loop is always running, and can only be stopped by control. While your submarine is deactivated, it does not respond to these world ticks, but the world ticks continue regardless.

⁴ You may ask - hey, why does everything in this world work like clockwork? And to this I say the following: we do not know whether the world works like clockwork, but only that we observe it doing so. Perhaps there is a higher - or indeed, a lower - power that controls how we all act in this world? Or maybe you should just mind your own business and trust me on this one.

The Subsystems

We now go through each of the subsystems in turn, explain how it works and list the relevant commands. We also qualify each system with the crew member that has its commands.

Movement [Scheduled, Captain]

The movement of your submarine works on **engine charge**. Each world tick, your submarine gains engine charge equal to the amount of power currently invested into your engines. It then moves during that world tick if it has reached enough engine charge in order to do so. For most squares, you need a total of four engine charge in order to leave that square - this means that a submarine with one engine power will take four turns to leave a square. This will of course differ in different weather conditions.

Your submarine while activated will always move if it has engine power. **If you do not want to move, simply turn your submarine off!** (That is, **!deactivate**.) We at ALTANTIS are very dedicated to efficiency and thus want all of our submarines to go very fast. This deactivation can even give your engineers a chance to think and solve whatever problems may have appeared during your journey.

Some of our earlier models have the ability to turn off the engines without turning the submarine off as they do not have any innate engine power (more on that later). While this allows finer-grained control over your engines, it also means that **you might be left stranded in the middle of the ocean** if you run out of power to power your engines with. Be careful!

There are four commands you need to worry yourself with for this section, and we've already introduced two of them!

- **!setdir dir**: This command sets the direction of your submarine to dir. The direction must be given as a compass direction - so will only accept **N**, **NE**, **E**, **SE**, **S**, **SW**, **W** and **NW**. If successful, ALTANTIS will react with the correct direction as an arrow emoji.
- **!activate**: This command activates your submarine, allowing it to move (among other things).
- **!deactivate**: This command deactivates your submarine. Note that whenever you dock, your submarine will automatically be deactivated so you won't need to manually call this command.
- **!exit_sub**: When at a docking station, you can call this command to leave your submarine and enter the docking station - allowing you to talk to others at the station, trade and so on. You will be returned to your sub on calling the **!activate** command.

Power [Scheduled, Engineer]

All of your subsystems require power in order to function, and ALTANTIS allows you to control where your submarine's power is used. Your submarine has some amount of maximum power available, which can be distributed between your subsystems as you choose. Each system has a power cap representing the maximum amount of power you can put into that system.

Some of your systems also come with **innate power**. This power cannot be turned off or otherwise redirected - even if your submarine's reactor is close to failing, you will always have that system powered and therefore you'll be able to continue using it even when you're inches away from death.

Your submarine's health is represented by how much power your reactor produces. Whenever you take damage, you lose access to a unit of power per point of damage taken. If you have no power spare, a random system will be depowered to make up for it. You can fix this damage by Engineering - more on this later. When your reactor fails entirely (that is, you have no access to power), it breaks apart and you will die.

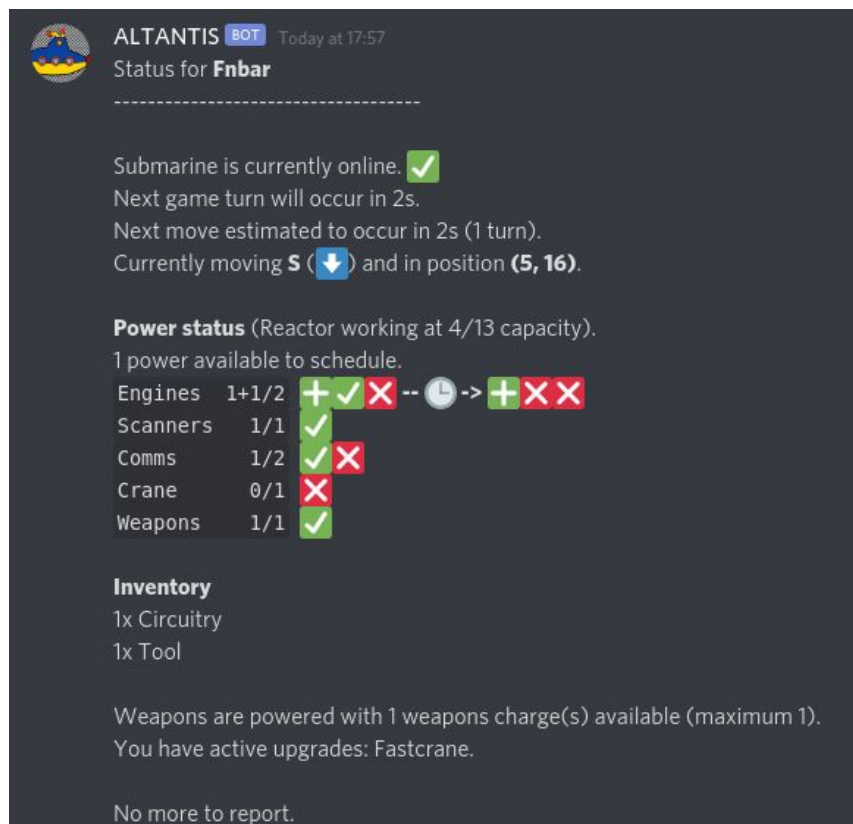
Two commands are provided for power management:

- **!power sys1 sys2 ...**: This command schedules you giving one power to each of the systems listed. You are allowed to repeat and the list is allowed to be as long as is needed. So for example, if you want to give three power to weapons and one power to comms you can use **!power weapons weapons weapons comms**. Note that if the change would be impossible due to running out of power to assign to systems, it will not do it - so if your submarine is using all of its available power, you should first unpower a few systems.
- **!unpower sys1 sys2 ...**: This command is exactly the same as power, but does the opposite. Fails if you would reduce a system's power below zero.

It is important to note that these commands are **cumulative**: if you call power twice, the second call will run as if the first one has completed, and will act on top of it rather than replacing it. To give an example run:

1. **!power comms weapons** - leaves us with +1 to comms and +1 to weapons
2. **!power comms scanners** - leaves us with +2 to comms and +1 to weapons and scanners
3. **!unpower weapons** - leaves us with +2 to comms and +1 to scanners.

Status [Immediate, All Roles]



This set of commands let you get the status of your submarine in the world. They're very useful and simple:

- **!status**: This gives you a status similar to that shown above. This immediately responds.
- **!map**: This gives you a map of the world, including the location of yourself, the bases and storms.

We should quickly go over the parts of this status:

- The first paragraph deals with your submarine's **movement status**. In the screenshot above, you've been informed that the submarine is currently online and moving South from position (5,16). (Note that your in-game turns will be longer than those shown in the screenshot - we are aware that you are not *that* well-trained.)
- We then come to the **power management**, which shows your innate (the 1+ on engines), assigned and total possible power for each system in handy emoji form. Isn't that exciting. It will also show what power change is scheduled, if there is one, using the clock arrow shown above.
- Next we have the **inventory**, which is pretty self-explanatory.
- Then we have the **weapons charge**, which will be discussed more later.
- Finally we have **upgrades**, which will become available during the course of the game.

Finally, new in this version is our automatically-updating map. When you visit a square containing something new (such as some ruins or exciting resources), the map will update to show that on future calls to **!map**. Due to the volatility of the memory this data is stored in, it will rarely lose track of what was seen in a previous square - please do not report bugs about this functionality, we are well aware of it⁵.

Engineering [Immediate and Scheduled, Engineer]

Sometimes, things go wrong at sea⁶. But that's okay, you brought an engineer along with you! Hooray! Just like in real life, your engineer will solve problems in your submarine through the medium of puzzle solving. Whenever you are given a puzzle, **you have until your submarine next moves** (which can be checked with **!status** - note the difference between that and a world tick⁷) or until you are next given a puzzle (whichever is earlier) to solve it. There are three ways that you can be given a puzzle:

1. Roughly every five moves (this varies deliberately to keep you on your toes), your submarine will experience some wear and tear. Like all good engineers, you should fix this immediately, and as such will be automatically given a puzzle once the tick is completed. If you fail to complete this puzzle on time (or get the answer wrong), your submarine will take one damage. If you successfully complete it, you will get nothing but satisfaction.
2. An engineer may elect to take a puzzle at any time to attempt to fix the submarine. If they correctly solve the puzzle, a damage is healed (you cannot go over your max reactor capacity using this); if you get it wrong, you take a damage. In this case, if you run out of time, nothing happens - you didn't heal the damage, but you also didn't touch anything and mess it up.
3. You may be sent a puzzle when installing new equipment, dealing with something particularly difficult, or just when we're feeling particularly mean. Stay on your toes.

There are two commands for this:

- **!puzzle**: This requests a puzzle (see (2) above), which is given to you immediately. You have until the submarine next moves to solve it, or until you are given another puzzle (whichever is earlier).
- **!answer ans**: This answers the currently active puzzle with "ans" and schedules any changes (since damage is done during the world tick). This is unforgiving - if your answer does not exactly match one of the ones prepared for the puzzle (except for uppercase vs lowercase), it will be rejected.

⁵ wontfix

⁶ This message is brought to you by "people die when they are killed".

⁷ To clarify fully, just in case - you move during a world tick if you have amassed enough engine charge. If you haven't, then you won't move and thus you won't have needed to solve the puzzle yet. So on the lowest engine power, you have a leisurely four minutes to solve a puzzle.

Comms [Immediate, Captain]

The communications system on your submarine is fairly rudimentary and does not allow for direct sub-to-sub communication. However, you can broadcast a message to all submarines in your local area, which becomes more and more garbled the further out it is sent.

Our scientists did some experiments to determine how garbled these messages become. We determined that these messages lose roughly $\frac{10}{p}\%$ of their content each square, where p is the amount of power put into the comms system. That is, at one comms power ($p = 1$), a message received by a submarine three squares away will have roughly 30% of their message garbled.

Only one command is needed for this subsystem - **!broadcast msg**, which broadcasts the given message to all within range. This has a short cooldown as to prevent you from spamming the oceans with messages as fast as you can type them.

Scanner [Scheduled, Scientist]

The scanner is entirely automatic and operates every turn while it is powered. It only has one command - **!scan**, which just repeats the results of the last scan you did. That being said, there are still some interesting points that require discussion. Your scanner scans an area based on the amount of power you put into your scanners. If x power has been put into the scanners, you can see things up to a distance of $1.5x$ (rounding down) from your submarine. So for example, a submarine with one power can only see its current square (zero squares away) and one square away, a submarine with two scanner power can see up to three squares away, and so on. Note that yes, you can see your current square while the scanners are off. We like to call this technology "looking out of the window".

These will be reported to you each turn in terms of which compass direction they are in. You will have to work out the exact positions of these things yourself, but that's okay. You're smart.

Some objects are harder to see and will require a certain **scanning strength** in order to see them. Your scanning strength when scanning a particular object is defined as **the distance you are able to see minus the distance that the current object is away from you** - so for example, if you have three power (range of four) and you look at an object one square away, it will be scanned with strength $4-1=3$. This means that you may not see objects when they are far away but as you get closer, and as your scanning strength increases, you'll be able to actually see them. This is the case with treasure chests, which cannot be seen into unless you have a high enough scanning strength. Some animals are also naturally stealthy and need a higher scanning strength to be seen.

Crane [Scheduled, Scientist]

You can pick up things from the seafloor that you've seen using your scanners using your crane. Regardless of how much power it has, it takes two game ticks to pick up something with the crane - one tick for it to go down (during which it picks up the item(s) in question), and one tick for it to come back up. Even if you then move during the first tick, since the crane works before movement you will still get your item(s). However, if your crane loses power during operation (including if you deactivate), the item you were picking up will be dropped.

The crane can pick up one item per power it has. For example, if you have a three power crane, you can grab up to three items at once! These are chosen randomly from all the available items on this square of seafloor (the crane lacks precision motion).

There is only one command needed for this - **!crane**, which predictably drops the crane in your current square. Once the operation is completed, the item(s) will be added to your inventory, after being removed from its treasure chest if it is contained in one.

Inventory [Immediate, Captain]

Being a submarine, you can bring things along with you on your travels. These can be the things you're couriering around, things you pick up off the seafloor, or even just your currency. In order to do couriering stuff, you need to give the items back at the end, which brings us to a helpful ALTANTIS special - our state-of-the-art trading system! Two submarines in the same space can trade using the following system.

1. A team offers a trade with another team, specifying some set of items.
2. The other team produces an offer of what they'll give in return.
3. The first team may then change their offer.
4. Repeat until both sides are happy.
5. At any point, a side may reject the trade altogether.

Note that this will automatically be stopped when either submarine moves, so you need to be quick!

This is done via the following commands:

- **!trade target item1 quantity1 item2 quantity2 ...**: This starts a trade with the submarine named **target** in the same square as you, offering up each item **itemx** with quantity **quantityx**. You can specify as many or as few items as you want (including zero).
- **!offer item1 quantity1 item2 quantity2 ...**: This responds to a trade with an offer. This is the same format as **!trade**.
- **!accept_trade**: This states that you accept the current trade. Once both teams accept a given trade, the trade immediately happens. Note

that your acceptance is valid until the other player makes a new offer with **!offer**.

- **!reject_trade**: This immediately rejects and ends the current trade. Only one team needs to reject a trade for it to end.

We have two final commands in this section that aren't to do with trading, which are as follows.

- **!drop item**: This drops a single named item onto the seafloor below you. You cannot drop items whose names end with an asterisk (*) as these are key items.
- **!interact**: This does something with all of the NPCs (entities that aren't submarines) in your current square. Try it out! You might have a nice experience with a fun sea creature.

Weaponry [Scheduled, Scientist]

Finally, we get to weaponry. This focuses on **weapon charges**, which are a currency generated each turn by your weapons system. You can hold up to n weapon charges at any one time, where n is your weapons power. You recharge half of n (rounded up) charges during each world tick. Your current weapons charges are listed in **!status**.

All weapons can be shot within four squares of your submarine. They hit the square they are targeted at, and indirectly hit all squares surrounding that target. There are two flavours of weapon that cost different amounts of charge, as follows.

- **For one charge**: shoot a weak "**stunning**" shot. This does zero damage to submarines, but will still tell you whether it's a direct hit or an indirect one. This may do more damage to wildlife or buildings, depending on the entity in question.
- **For two charges**: shoot a strong "**damaging**" shot. This does two damage to submarines on a direct hit, or one on an indirect hit.

Note that you can shoot as many shots as you have weapons charges for - if you have three charges, you can shoot one damaging and one stunning shot, three stunning shots or less than that (to save some charges for next turn).

The commands for these are as follows.

- **!shoot_stunning x y**: schedules a weak shot to be done at the next world tick, targeted at the square (x, y). This will only work if you have the charges ready and your target is in range.
- **!shoot_damaging x y**: schedules a strong shot in the same vein.