

Karox's Guide to Almost Everything in Eve
Part 5 – POS (Player Owned Structure)
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A POS is a corporation deployed installation which is left floating in space in order that those said corporation members can interact with it and make use of the facilities stored inside. Their primary use is to allow for 0.0 space capture, but they can be adapted for use in high security empire space all the way down to lowsec with reduced functionality.

At the heart of a POS is the control tower – these come in 3 varieties, small, medium and standard (large) and there are choices between each of the four races and various pirate faction versions.

The Anatomy of a POS

The control tower is the heart of your POS. It is that which supplies the power to the various modules that are fitted and also the main point of defence of your POS as the control tower is what controls the shield bubble which envelops the structure and all the modules surrounding it.

The POS size determines the size of the shield, a large POS has approx 25km radius/50km diameter shield and the smaller sized versions have progressively smaller shield sizes. When protected by the POS shields anything within cannot be targeted.

There are several additional modules that can be fit to a POS. The 2 most common types that are used are either mobile laboratories (for doing BPO research outside of the NPC station queues) or moon harvesting arrays to gather moon minerals for tech 2 production. There are also construction arrays for producing everything from ammo to titans as well as refining arrays for grinding down ores and modules into their component forms. Details of the various functional modules that can be fit will be discussed later.

Weapon systems and electronic warfare modules form a large portion of a POS setup too – protection from one's enemies is always a prime importance. Each of the racial control towers get bonuses to their 'classic' weapon system – for example Minmatar control towers get bonuses to projectile weapons. Caldari get bonuses to missile and ECM jammers, Amarr gain bonuses to Lasers and Gallente gain bonuses to hybrid weapons. Both Amarr and Gallente gain a bonus to silo capacity also.

Note also that the powergrid and CPU levels available from the control tower are different for each race. Amarr for instance have the highest powergrid, meaning it is easy to anchor more guns there, whereas Caldari have more CPU which makes fitting the functional modules much easier. The scale for higher powergrid to higher CPU goes Amarr – Minmatar – Gallente – Caldari.

One thing that needs to be kept in mind is that all systems which interact with the outside world (for example, weapons to blow up intruders) need to be placed outside of the POS shields, so these can be targeted and destroyed at any time.

Keeping the POS going

A POS requires fuel to run. The majority of this fuel is fixed, and comprises of derivatives from Ice mining (one of the racial isotopes) as well as parts sourced from the NPC markets (trade goods) these are: Coolant, Enriched Uranium, Mechanical Parts, Oxygen and Robotics. Note that the different control towers each need a different isotope, as the ice mined in the different racial areas is different, so sourcing ice for a 'non native' POS can be very expensive, or time consuming depending how far away you need to drag it from the base space it comes from.

A variable additional fuel is also gained from Ice mining in Heavy Water and Liquid Ozone. Use of these 2 items is based on the amount of the maximum powergrid and CPU that is used.

In addition, if a POS is being used in the higher security space (0.7 down to 0.4 systems, so yes,

even in part of lowsec), Starbase Charters are also needed. These are fairly cheaply available from the loyalty point store, or bought from other pilots who have sold theirs on the market.

POS fuel is listed on the dialogue from the 'show info' option on the control tower item as the amount required once per hour, therefore 24 times that which is listed is required per day.

If your POS is in high sec, you can safely plan to buy all your fuels from the market – no need to worry about ice mining, although ice mining is a viable option to maintain the POS. The isotopes can vary slightly in cost from region to region, the cost differential between major market hubs is usually fairly small. A common question is, “So, how much *does* it cost to fuel a POS?” That, of course, depends on market fluctuations, but if you buy all your fuels from the high sec markets, you can expect a small, medium or large tower to cost roughly 10M, 20M or 40M ISK per week, respectively. The cost will also vary slightly depending on the CPU and power grid load on your tower. Also, faction tower can reduce your fuel costs by up to 25%.

Faction POS towers use less fuel than their standard counterparts, but require a larger initial investment due to their relative scarcity and the decision of where the upfront cost is going to lie rests with the purchaser – higher upfront costs and reduced daily running costs, or reduced purchase cost and higher daily costs. Faction POS towers have additional benefits in that they offer more hit points in shield, armour and hull, and will go online/anchor quicker (see below).

Setting it all away

A POS control tower and all of the various structures are quite large. In order to deploy them, it is best to use an industrial ship or freighter (if you are confident that your freighter will not be attacked) due to the size of the modules. A small control tower needs 2,000m³ of space, whereas a large tower needs 8,000m³ of space.

POS components are bought from the NPC market (within the starbase structures subsection), they are not able to be built. Faction structures are built using limited run BPC's (available as random drops from pirate NPC's, exploration or fixed location complexes) and the NPC basic structure along with standard minerals in relatively large quantities, as a ballpark figure, small faction towers need circa 150–200million ISK to manufacture, mediums need around 270–300million ISK and a large faction POS needs around 530–570 million ISK. Base price on the NPC market for a standard small/medium/large control tower is 100/200/400 million ISK respectively, as a comparison with the cost of the faction towers.

Another important step is to find a free moon. Only one POS can be deployed at any given moon, and if you are out in lowsec space or 0.0 it is important to make sure that you don't warp up to an already claimed moon as if there is a POS there already, it could shoot your ship, making the hauler journey very short lived indeed. It is best to scout out with a small ship, warping well away from the moon (for example, warp to the planet instead) and point towards the various moons, scanning for 'control towers' in your overview settings to see if there is anything installed there (using the on board ship scanner)

If you have a free moon in mind, you then simply load the control tower in the ship, travel to the moon at 0km warp distance, and right click the tower in your cargo hold. From there you choose to 'launch for corp' as it is impossible to launch the control tower for your own benefit. The next stage involves anchoring the control tower. This is the critical stage which needs a bit of thought as to how to go about it.

Anchoring a POS requires appropriate faction standing (not a specific NPC corporation standing) of 10 times the security level of the system for any systems within the range 0.7 to 0.4. It is impossible to anchor anything in a system above 0.7 security, and in 0.3 and below security, there is no faction requirement (and also no requirement for Starbase Charters as fuel). This needs to be the same faction that holds sovereignty in the system, for example a POS in the Forge region would need Caldari standing.

The most common way to get this standing yourself is to either take part in faction warfare (which raises the faction standings much quicker than usual) or to perform 'important missions' (storyline missions) which directly influence the master racial standings. Normally, these missions only appear once you have done 16 standard missions, so it can mean a long period of mission grinding to get the appropriate standing for your corporation as this is taken as the average of all members.

You do have the option, though, of doing COSMOS missions or selling pirate dog tags at data centres, since these missions will improve your faction standing, as with normal storyline missions. COSMOS missions can be difficult or confusing, though, and using data centre agents can be an expensive endeavor: http://www.eve-wiki.net/index.php?title=Data_Centers gives more information.

Launching a POS in highsec is therefore a large commitment for a corporation. It is possible for a single person corp to launch and anchor a POS with high solo standings as this will influence the corp standings to the faction, but if this process is done, the POS cannot be transferred to another corp, instead the corp needs to form up around the soloist who launched the POS in the first place. Also, if there is ever a need to remove the POS and re-anchor it, the new faction standings will need to be achieved again before it can be re-anchored.

When the choice to anchor the POS is selected, a countdown will start taking 30 minutes (or less with a faction tower), until then, the POS is at risk of being destroyed or scooped up by someone else. After the 30 minutes anchoring time, the fuel bay can then be accessed, and at least enough fuel for 1 full hour of operation needs to be placed into the fuel bay.

After the fuel has been added, it can then be put online, which activates the POS shields. Another 30 minute period is required to put the control tower online, and once that has completed, the POS is ready for use. Note that these 30 minute timers apply only for a 'standard' tower (the large one) for a small tower, the anchoring and online time is 7.5 minutes and for a medium tower, this time is 15 minutes, again reduced further for faction towers.

Other modules are launched, anchored and put online using the same method, though care must be taken with modules as some are much more restricted as to what can be anchored in each security level, and also all anchored modules need to be placed within the anchoring distance which is listed on the control tower – typically larger towers have a longer anchoring range.

Skills and Roles

Anchoring the tower needs appropriate skills, it's recommended to get Anchoring 5 before even considering going into POS deployment as this is needed to get the Starbase Defence Management skill which is needed to control POS guns for defensive measures, it also allows the pilot to deploy any of the specific modules which are available to be installed within the POS. As a minimum, anchoring level 1 is required to anchor the control tower, though there are some modules such as hardeners, reactors or ECM batteries which require higher anchoring skill – this can be seen from the 'show info' dialogue on the module, under requirements.

Note that in order to control the POS certain corporate roles need to be assigned to the person. Config Starbase Equipment is the master role for anyone who has full access to the POS. Starbase Defence Operator allows control of the guns, and Starbase Fuel Technician allows access to the fuel bay.

Fuel Bay

The fuel bay on the POS is not infinitely big. It is possible to store approximately 15–20 days of fuel in the bay of a standard tower at any one time – longer, if you use a faction control tower, since they use less fuel. The actual amount of fuel in the bay and what it corresponds to in real time can be seen at a glance from the POS management screen which is accessed from the POS itself. A pilot needs to be within 50km of the POS tower and have the appropriate corporate roles to access the management screen.

POS Defence

A time will come when the POS you have set up will be attacked, either in Highsec as part of a war declaration, or in Lowsec or 0.0 as a routine matter of area defence. This is where a suitable POS defence strategy comes into it's own.

Arranging a suitable defensive structure for a POS is down to each individual. Due to the size of the shield bubbles, it is usually impossible for one set of guns to cover the entire area. Several sets are required, arranged to ensure that there are no exposed sides available. Typical POS setups are based on a 'cube' where multiple gun emplacements, warp disrupters and possibly ECM units are set up on each face of the cube to cover fire from that angle.

Guns and other defensive measures have to be placed outside of the POS shields. They need to be placed more than 5,000m from the edge of the shield, but no more than 15,000m from the edge of the shield. It is possible to assign the guns to attack anyone who approaches with a corp standing to your corp of less than a set value (so choosing someone with less than 0.1 standing will attack neutrals approaching) down to only attacking those who have have ≤ 10 standings or those at war with you, along with several stages in between, this is set up in the control menus. Note that there is an option to attack all aggressors within range, which could mean that friendly corp members and even the POS controller could end up being attacked if they are the aggressor in a fight. It is generally a bad idea to choose this option.

The guns operate in a similar fashion to gate guns, they cycle their targets over the duration of the fight, so left to their own operation they will struggle to destroy a group of opponents as no single target will be concentrated on until they are dead. In order to control the guns and focus fire, the Starbase Defence Management skill needs to be trained and the appropriate corp role needs to be assigned to whoever intends to shoot the guns. As a single person can only control at most 5 defensive items, it is best to have several corpmates trained up to handle all of the batteries that are installed.

When arming guns that use ammo (for example, hybrid weapons and projectile weapons) the ammo type needs to be loaded as would be expected for standard ship-based weapons. The next grade of ammo needs to be loaded into the gun, so a small gun uses medium ammo, and a large gun uses XL ammo for instance. Ammo can only be placed inside the guns and launchers after it has been anchored, and as long as it is in the process of coming online.

Note a quick word on keeping guns online. As each online module needs additional fuels to maintain them from the fuel bay based on the amount of CPU and powergrid used, it is common to leave the bulk of weapon emplacements offline until they are needed. They take approximately 5 minutes to put online which should not be too great a deal in the large scheme of POS defence, but keep in mind that online guns can prove to be a deterrent to occasional visitors to the POS since they risk being blown up in lowsec or 0.0.

As a gun is held outside of the POS shields they can be attacked and destroyed. If a gun or other outside emplacement is damaged to 99% hull integrity it will go offline and cannot be placed back online until it has had it's armour replaced by using remote repair modules.

It is also possible to harden the shields using resist hardeners. These anchor just like any other module within the shields (but require a higher base anchoring skill). These greatly reduce the damage that hits the shields as with ship based hardeners. Again, multiple hardeners of the same type are stacking penalised, so carrying more than 2-3 of a hardener is generally seen as a waste.

If you do get attacked and your opponent manages to begin to deplete the shields of the POS, once the shield drops to 25% of the maximum value, modules that need CPU go offline and the POS enters into reinforced mode. Reinforced mode uses a special type of fuel, Strontium Calathrates which are stored in a separate bay aside from the fuel bay in the control tower. This makes the POS shield unbreakable whilst it consumes this special fuel to allow defenders to muster and repel the invading forces. The Strontium bay on a POS allows for around 36-40 hours this defensive period

to be maintained, but once the reinforced mode has been activated, there is no way to access the fuel bays again to top up the fuel so once the fuel bay is emptied, the starbase will be vulnerable to damage. The POS can only be set back online once the shield has been repaired to at least 50%, either by natural shield regeneration or by using remote shield boost modules.

Note that during reinforced mode, gun emplacements which require only powergrid and not CPU are not affected by the POS going offline, so can still be used, as long as they still function.

Uses of a POS

Now that methods of keeping the POS alive and how to set it up have been discussed, it's time to see what can be done with it. A POS is a collection of smaller modules held to perform various functions. Some of these functions are available in highsec, but most are only available in lowsec and down to 0.0 space where and where sovereignty is held.

Holding Sovereignty

Whilst this is very complex subject compared to the simple description shown here, to take control of a 0.0 non NPC controlled system, the potential owner needs to deploy enough large POS towers to have the greatest number in a system. If someone maintains the ownership for a week, they gain sovereignty level 1 and from there can grow to a higher sovereignty level over time. Note that this can only be accomplished by an alliance, a single corporation cannot hold sovereignty. With sovereignty level 1 POS running is made easier to manage as the amount of fuel needed to run the POS is reduced, as well as allowing the specific modules that require sovereignty to be installed within the POS as well.

Corporate Hangars

Corporate hangars allow for general storage of items similar to the corporate hangar in a station. They can be anchored anywhere and are especially useful to locally store extra fuel reserves for your tower.

Mobile Laboratories

These can be anchored anywhere, and come in 2 varieties. Mobile labs have 1 copy slot, 5 invention slots, and 3 of each ME and PE slots. Advanced labs have 3 copy slots, 2 of each ME and Invention slots, and no PE slots. As ME slots and Copy slots are more commonly needed due to the scarcity in NPC stations, there is no lab that is the better choice, but a mix of both could be useful. Note that advanced labs need 100tf more CPU to online compared to standard labs (600 vs. 500) so this can be a factor in tight fit installations. All labs slots in a POS work faster than an equivalent station research slot, typically taking 75% of the time, but advanced labs copy slots are a little faster (65% of the equivalent time) and a standard labs invention slots are twice as fast as invention in a station.

Moon Harvesters

These can only be installed in 0.3 and below security systems. The type of mineral that is gathered is based on the composition of the moon that the POS is anchored at, and can be seen by probing out the moon. At the time of writing there are only Tech 1 moon harvesters seeded on the market, which means that the harvester produces 100 units of the moon mineral selected from those available at the moon per hour. Second and subsequent harvesters can gather a second or other mineral if the moon has multiple types, but 2 harvesters cannot gather the same mineral.

Note that the moon is listed with an 'abundance' statistic. This does not factor into any operation at the moment until the tech 2 moon harvester modules are released as with an abundance 2 moon mineral, it would be possible to get 200 units from the moon per hour with a tech 2 harvester. A harvester is usually used in conjunction with a silo for the harvester to feed its components into every hour.

Silo

A Silo is used to store the products of the various moon operations as well as a way that a pilot can introduce items to the process. A standard silo is used for handling moon minerals, but can only store standard minerals, the reaction products and others. One important point to note is that a silo can only hold 1 item, if multiple items are needed, multiple silos are needed to be used. For general storage, a corporate hangar should be used, silos are primarily intended for the automated processes that can gather direct from the silo and place the result into another silo. Other silos handle biohazards, gas cloud products and boosters for example.

Ship Assembly Arrays

These come in various sizes and levels. It should be noted that these allow production of a ship designed for that size only, for example a larger array cannot manufacture small ships such as frigates. Advanced arrays can be used to manufacture tech 2 ships, and the default arrays are used for tech 1 ships.

Note that X-Large standard arrays cannot be anchored in highsec as these are what is used to construct the capital class ships out at a POS, and these can only be flown in lowsec (0.4 and below). Note that a capital assembly array (requiring sovereignty 1) is required to build a mothership or titan.

Fighter drones need to be manufactured in a small ship assembly array, and not drone assembly arrays as would be expected.

Various other Assembly Arrays

The other assembly arrays can be anchored anywhere. They provide assembly facilities for the specific module types as described on the installation. A Drone Assembly Array for example is used for drones and so on. These assembly arrays typically provide less efficiency than using NPC manufacturing facilities, but are designed to allow manufacturing to take place out in the wilds of 0.0 where stations are few and far between.

There are rapid and efficient assembly arrays which provide a greater or less waste in comparison to a greater or lesser production time compared to the POS installed standard. Note however that all of the assembly arrays (ships included) produce items faster than using NPC stations, but by using the efficient assembly array only gives 1 manufacturing slot whereas the rapid array gives 5, and some of the specific arrays (components for instance) provide 10 slots.

Refining Arrays

Refining Arrays are similar to assembly arrays in that they provide a less efficient refining process than what a station can provide, but are intended to be used where there are limited stations available. They can only be anchored in lowsec and below. An intensive refining array is available to improve on output at the expense of CPU and Power. Refining Ice at a refining array is done at the same efficiency as a station however.

Note that Refining at a POS takes an operational time which is listed on the description of the module. The basic refining array takes 60 minutes to complete its operation, the intensive array provides a better output, but takes longer. Only 1 batch of ore can be refined at a time as well, making it a very slow process for several smaller batches.

Ship Maintenance Array and Capital Ship Maintenance Array

These allow ships to dock and refit the modules they carry in their cargo holds. They also hold ships so they are not left floating in space. The Capital ship maintenance Array requires Sovereignty level 1 to be anchored, but a standard ship maintenance array can be anchored anywhere.

Note that if a corporate hangar is anchored close to the ship maintenance array, it can allow for swapping of modules directly from the corp hangar array to give a lot more options than simply swapping modules that are located in the ships cargo hold, but due to operational timers, this is a very slow process.

Reactors

Reactors are used to combine moon minerals together to create simple and complex reactions to eventually combine together to make tech 2 components. These need coupling arrays and silos to flow the materials through the process, either from a moon harvester to a silo then onto the reactor, or for a silo to be filled by hand and then onto a reactor.

Reactors perform the operation based on the reaction blueprint that is used once every hour. For simple reactions this is typically a 1:1 relationship (i.e. 100 of each unit form up to 200 units output) but complex reactions are a little different. Note that because of the size of the equipment, a complex reactor can only be fit within a large POS, and they can only be mounted in 0.3 and below security space.

Booster Manufacturing

Boosters are the highly illegal combat drugs which are based around the products from gas cloud harvesting via the exploration system. The only way to create them is via a lowsec POS utilising a biochemical reactor system and the various other storage methods involved. The blueprints are sourced from exploration sites and combine together using a biochemical reactor and biochemical silos to create basic pills which are then used in a drug lab to manufacture the booster.

Jump Bridges

These can only be deployed in a system which is within a sovereignty level 3 system. Jump bridges link 2 POS's together within range of each other and allow any ship without a jump drive to travel without the need of gates between the two POS's. Maximum distance between 2 jump bridges is 5 light years.

Liquid ozone is needed as jump fuel and is consumed based on the mass of the ship and distance travelled. It is common for the ship which is going to travel to carry its own fuel, and then load the jump bridge as it arrives due to the limited reserves which can be held on site.

System Scanner Arrays

These are used in Sovereignty 2 systems and perform the same role as a deep space probe. These allow ships to be scanned down anywhere in the system (in reality within 999AU which may as well be the entire system as the largest ones are only 200-300 AU across) given enough attempts and have a higher strength than the ship-launched probes, but they do not gain from any of the pilot skills involved with the exploration subsystem.

Cynosural Jammers and Generators

These are again deployed in a Sovereignty 3 system (for the Jammer) and 2 system (for the generator) and either allow or disallow jump drive travel into the system. The Cynosural generator allow for capital ships to lock onto the Cyno field and jump into the vicinity of the POS. Cyno Jammers are designed to prevent capital ships from appearing in the system.

EveLopedia Entry

There is an entry on starbases in the EveLopedia wiki. <http://wiki.eveonline.com/wiki/Starbase>