

A Slice of PI



I see you my friend and your eyes are filled with question and wonder. You fly around in the deep black which is so great you might feel consumed and lost, except for the bright islands within which guide you. These celestials have always existed they've been there since before your first flight, and will still be there after your last. Whether young or old, you have traversed this great expanse using these celestials with little thought...until now. Well come closer and I'll reveal the many treasure which lie upon these glorious islands.

These glorious multi-colored spheres are called "planets" and upon them await glory, treasures, and power. There is an art to harnessing their potential, but it also requires great leadership and management skills. For if you decide to undergo this venture, you will be the one to guide thousands if not millions of individuals to your chosen celestial to lead and direct them in extracting the jewels which lie in wait.

So stay awhile and listen and I'll share with you a slice of PI. Judge for yourself if the myths and legends be true.

SKILLS

Before you can actually begin Planetary Interaction, as in all things Eve there are some skills which need to be trained.



All these skills will help ease the process of PI, increase your income, and help you build a solid foundation (except Customs Code Expertise, that's just a waste of skill points).

But unfortunately these are not the only ones you should master. Being able to manage numbers and calculations, watching market waves, and organizational skills will also help keep stress down and maximize your final income.

Customs Code Expertise:

This will reduce the NPC tax of High-sec POCOs by 10% per rank. (If you're getting this you're wasting time with PI. Spend the skill points on ship skills and move to low-sec.)

Remote Sensing:

Allows you to survey a planet from a number of light years away based on rank. This is really only important if you plan on checking planets further away before you deploy to them. If you're not planning to be constantly scanning for new planets, getting this to Rank III is sufficient for most everyone's needs. (It is also a prerequisite for Planetology, which is why Rank III is sufficient.)

At your Remote Sensing skill level you can only scan planets closer than 5.00ly this planet is at 7.63ly

Interplanetary Consolidation:

Allows an extra planet per rank. 6 Planets total at Rank 5. This is also a necessary skill for some serious PI. Most people do just fine with 5 planets and it is the norm for most to only train this to Rank IV. But having that 6th planet means you have just increased your income which is always good.



Command Center Upgrades:

Allows you to upgrade your command center providing more PG and CPU. Ah, ye staple command center and its limited ability to provide functional chains on a planet. If you plan on doing any type of serious PI you should train this to Rank V. Even though it's quite a long time for a skill, in PI this is king. The power you can provide your planet with, the more resources you can produce.



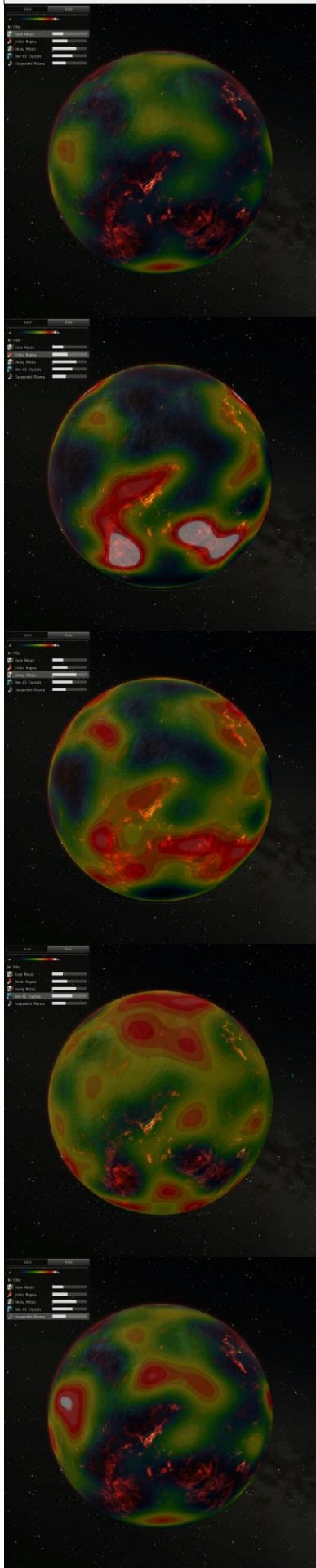
While getting most skills to Rank IV is sufficient till you have trained everything else, with the amount of power gained with each rank, it makes it hard to ignore Rank V as you get the hang of PI. As you'll understand when you fiddle with your building placement and production chains; everything would be perfect if you only had a bit more power.



The power increase from Rank V is even more noticeable when you find a planet where you can fit another Tier 2 product chain.



Planetology II



Planetology:

Allows better interpretation of resource detection. This is a semi-staple of PI and is what allows you to see where concentrations of materials are located. As you rank up this skill it doesn't seem obvious and the changes are really hard to see because of the time of training and when you need to do a re-scan of your planet. You should get this skill up to Rank IV because you could probably live without it, you'll have a much easier time setting up work chains as well as gain access to Advanced Planetology.

Advanced Planetology:

Better version of planetology. Just as with Planetology this skill seems to not have much of an effect, but when compared side by side with lower ranks you can actually see there can be a large difference when it comes to where you place your Extractors.

The images on the left and right hand side show the exact same planet being viewed at the same time but with different ranks in the skill of Planetology and Advanced Planetology.

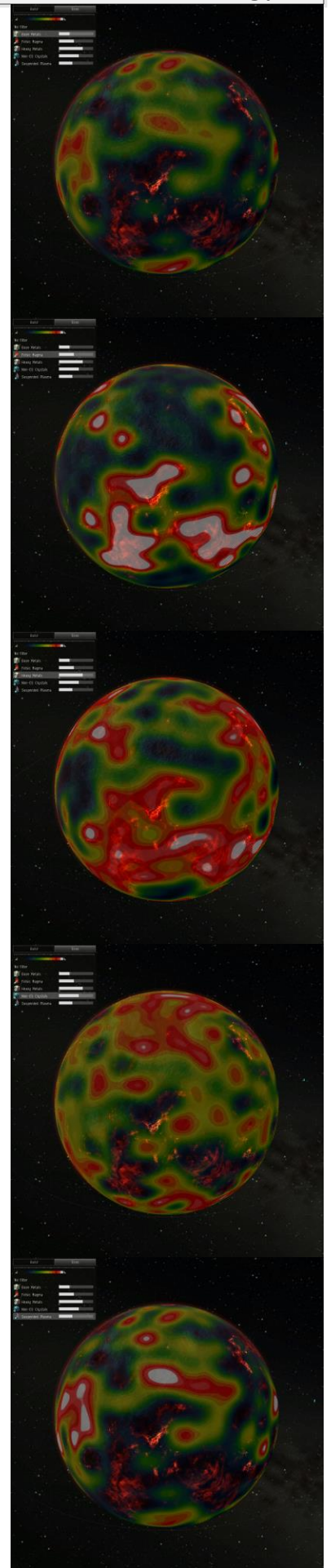
As these examples show, the change isn't very noticeable until you actually do a side-by-side comparison. Resources on a planet also have the habit of deciding to pick up and move shop elsewhere, requiring you to once again look at the planet and find out where the new concentrations have gotten off to.

This makes it hard to judge the same spot several days later to see if the new rank in Planetology has increased your ability to find hotspots.

But after being able to see these comparisons, even though they show similarities in a lot of hotspots, there are also quite a few areas which are quite different in the concentration which the thermal map shows. Including the concentration which the skill level can detect.

This is why it is a good idea if you plan to do some serious PI to get your Planetology skills trained. Because a very good location might be hiding if your skill is too low.

Planetology IV Advanced Planetology IV



Command Center

The life blood of PI are the buildings and how you position and use them. Each one serves an important purpose and it depends on your end goals which will determine the combination of buildings you may use. The thing to remember is some buildings require more PG and CPU than others which could also change your entire setup or the type of product you wish to produce.



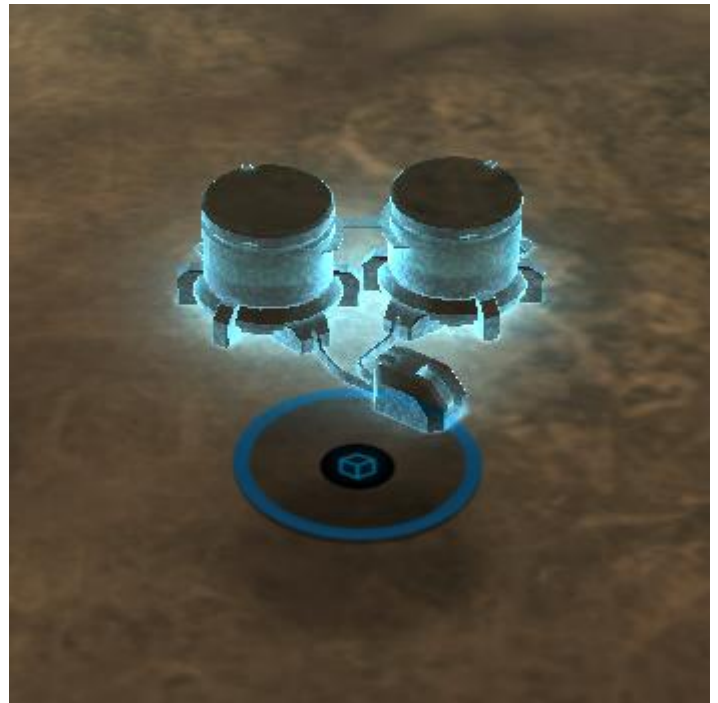
Is the brains of your operations. This building will provide you with the Power and CPU necessary to build all other buildings on your planet. While it is the most costly Initial investment, if you don't change planets too often it will also be the most static building on your planet. The command center has five possible upgrades which provide more Power and CPU as the levels get higher. Each upgrade level can be unlocked with the corresponding rank in the Command Center Upgrades skill. Even though it has some storage space I personally never use it. You may also use this to extract your resources off planet but because of the size of the storage space it's normally more of a large hassle than other methods. For each planet type there is a Command Center which matches it.

Launchpad



You'll never find a more wretched hive of scum and villainy (except in Jita). Your main way to get resources off of planets will be to launch them from here up to a POCO (Player Owned Customs Office).

Storage Facility



A storage facility makes it easier to do long fire and forget cycles without worrying about wasting resources.

Extractor Control Unit



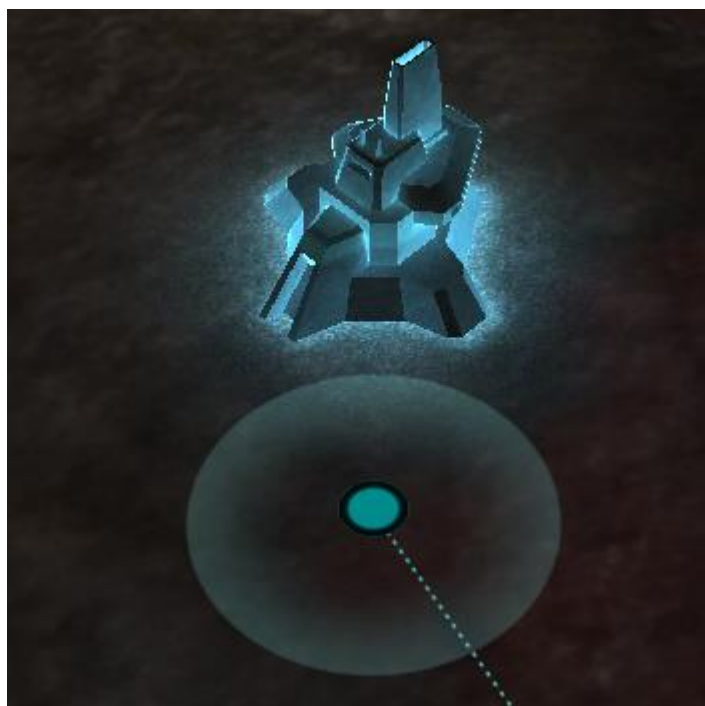
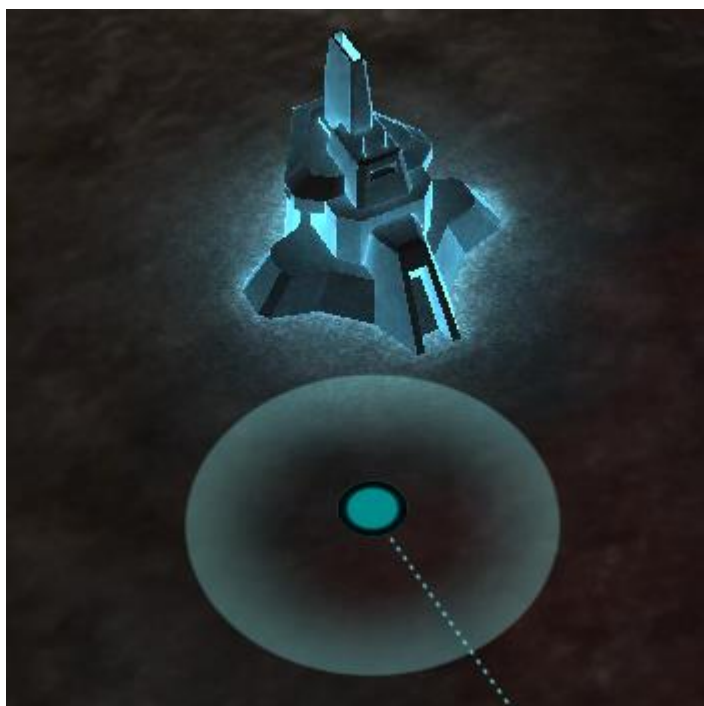
Depending on how you plan to do your production chains this will play a large role in actually extracting resources. It is only through this building and it's min-building the Head Unit which will allow you to begin exploring the deep riches of the planet.

High Tech Production Plant



The ultimate production facility which pumps at Rank 4 products. These can sell for quite a bit and are used in other manufacturing recipes, but can also be more of a pain to produce.

Extractor Head Unit



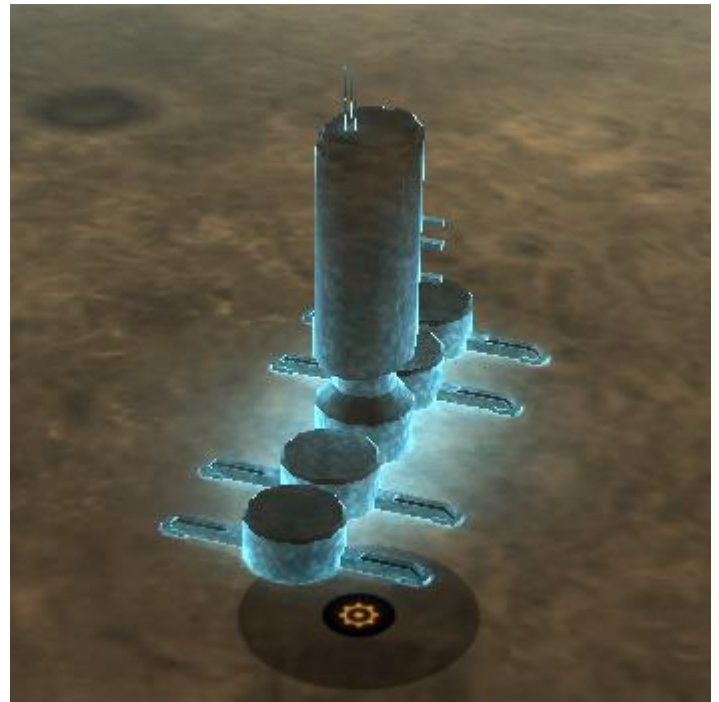
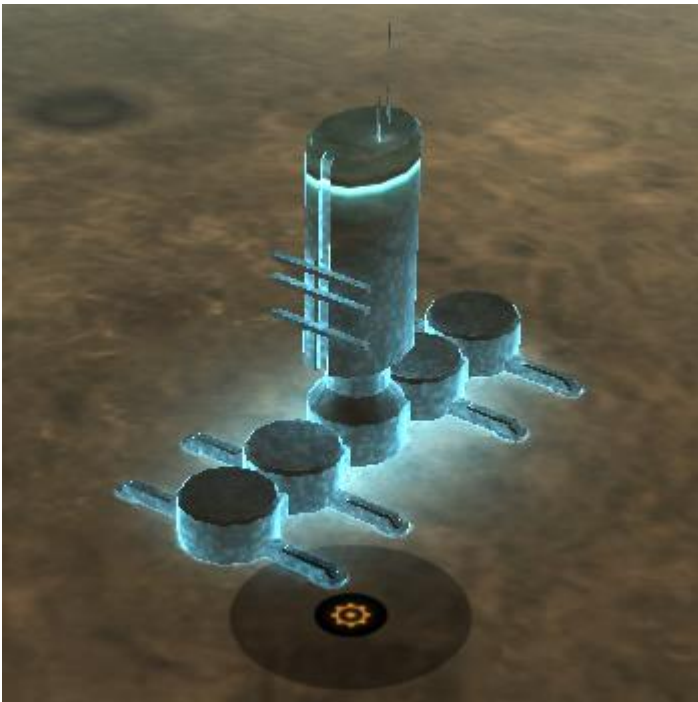
The actual resource collecting building which you would place on top of the resources you want to extract. This building is directly tied to a Control Unit and can only be placed within a certain circumference near said Control Unit. As you increase your cycle time this unit's own circumference area will grow larger or smaller. However if this circumference overlaps another unit from the same Control Unit, a penalty will be applied to the amount which it can extract.

Basic Industrial Facility



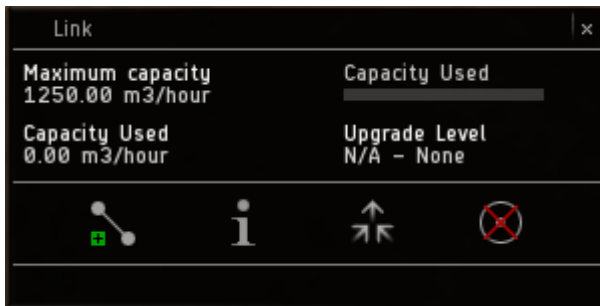
This is your little factory which produces Rank 1 products from all those fancy resources you have extracted on the planet. There are no funky combinations each resource ties into only one Rank 1 product.

Advanced Industrial Facility

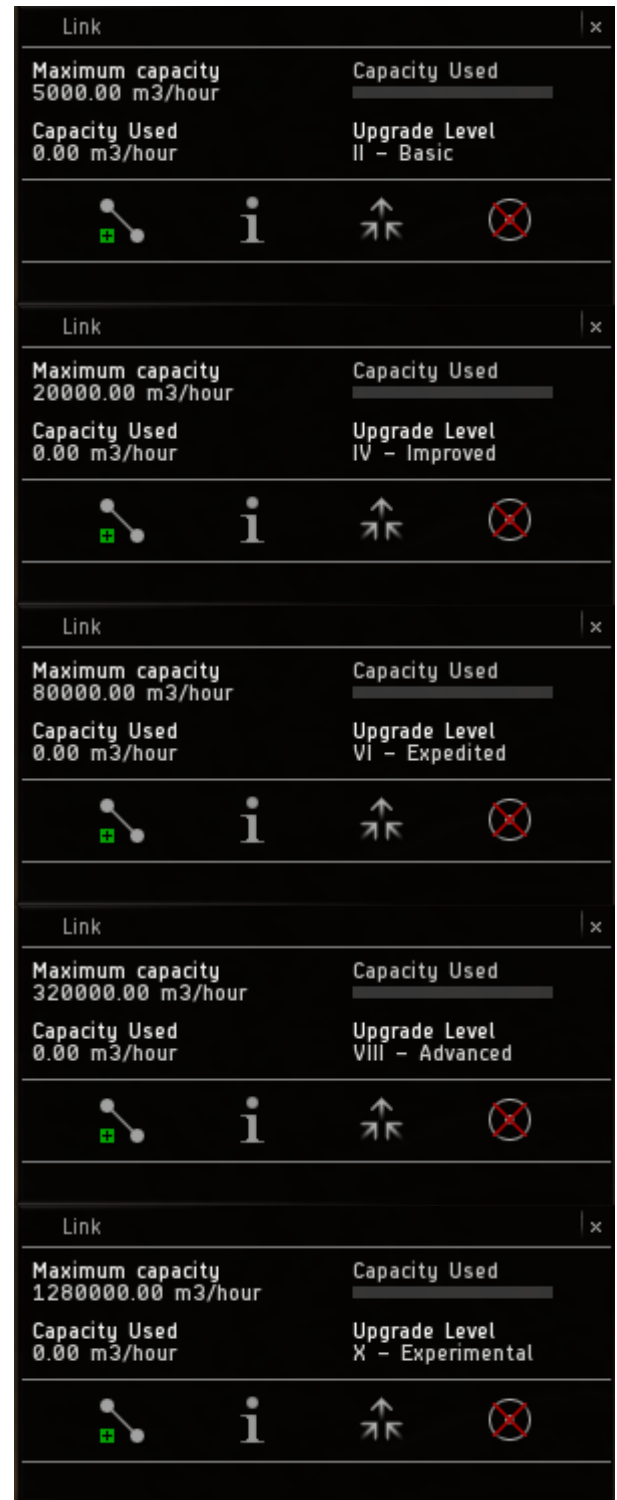


Now we start mix and matching all the things we can produce in this fine building. We can begin combining Rank 1 products to produce Rank 2 and take Rank 2 products to Rank 3.

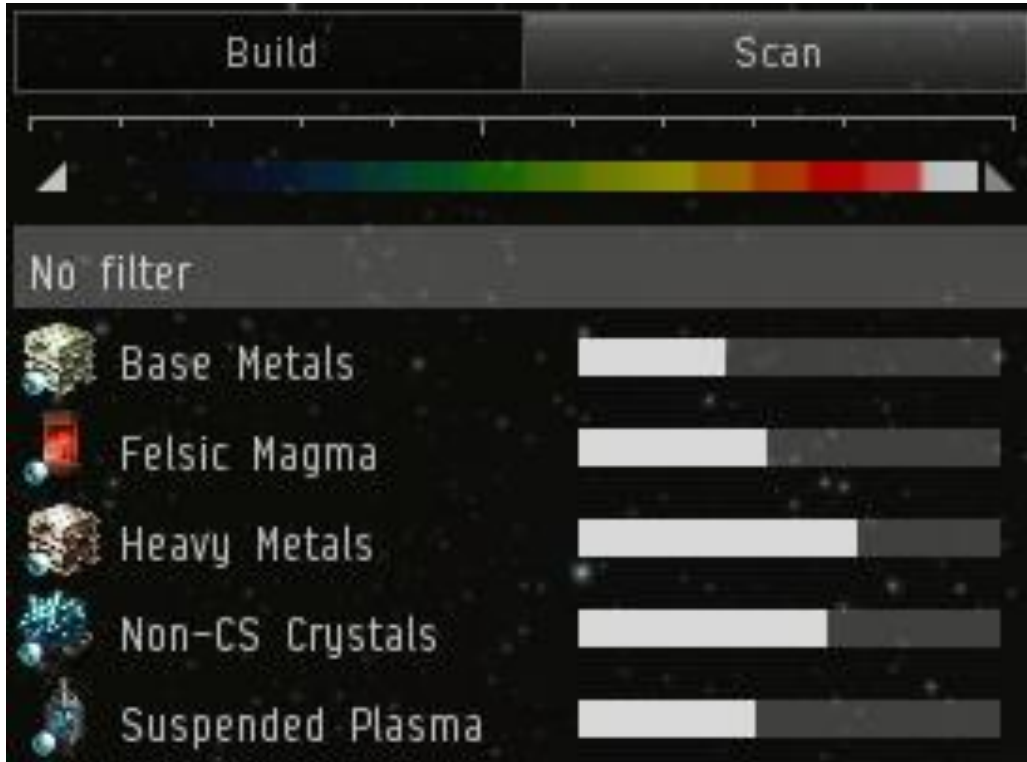
Link



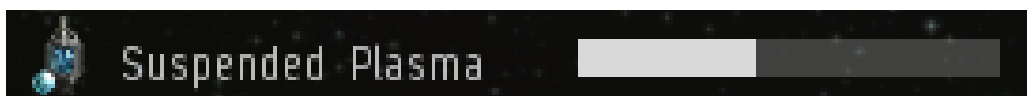
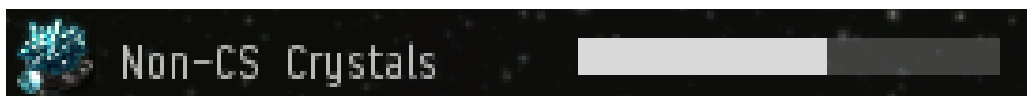
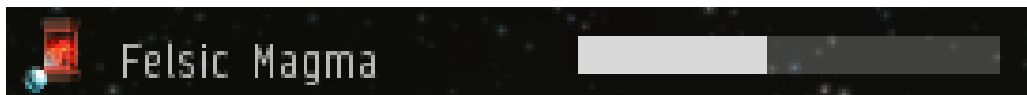
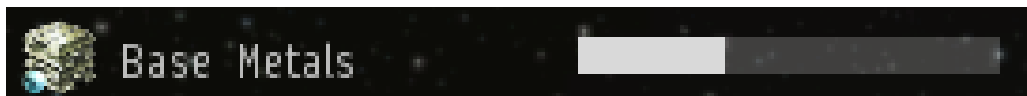
The Link in Planetary Interaction is what allows you to transport your materials from building to building. It is fairly cheap in cost to implement over short ranges, but takes its toll when linking structures which are further away. If you discover a link has insufficient capacity to move all your resources, then there are ten possible upgrades for the Link. Each upgrade doubles the Link's maximum capacity of m3 it can move an hour. Upgrading links cost no ISK but they start to ramp up in Power and CPU use.



Build & Scan Menu



When you first enter Planet View you should have a little build and scan menu underneath your current location. If you don't have that then you need to push buttons up top there till it shows your system and the planet Build/Scan menu.



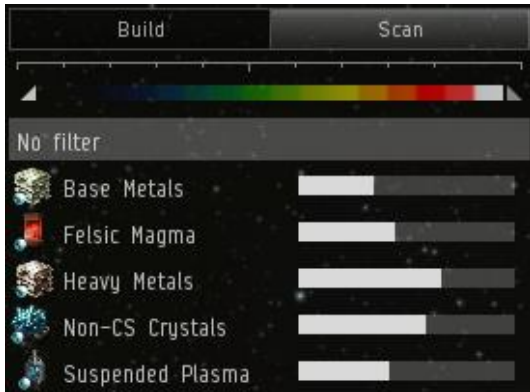
The smaller bar to the right of each resource gives a kind of "gauge" on the quantity of the resource. It isn't a hard value but seems to be in proportion to each other. These bars do not change size and are not dependent on your skill level.

Every planet has five resources which have varying quantities. None of the planets however have the exact same resources, but they may share a couple of the same (i.e. Lava planets have "Suspended Plasma", but so do Storm and Plasma planets). Normally one of the planets is quite abundant whereas some of the others have lower quantities of the resource.

This is what causes PI to fail if you plan incorrectly and set up incorrect production chains where you meant to produce one thing on to discover that the planet doesn't even have one of the resources you require.

A better solution to this kind of problem is to start out producing only products which are available on a planet and worry about importing goods when you have a better handle on everything.

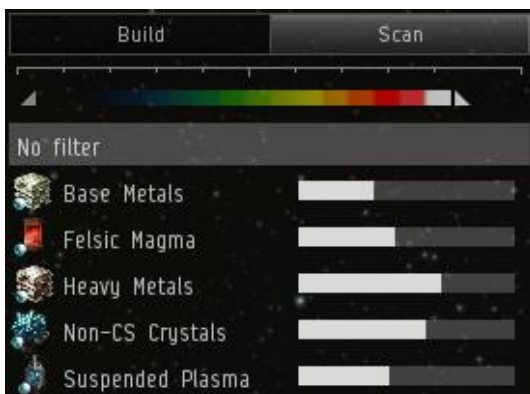
Heat Map Slider Bar



This is what the slider bar looks like when you very first open up planet view.

I personally found this menu to be one of the most confusing things about Planetary Interaction. There is little explanation on how it actually works and how you should set it to be able to find what you need. (Another little secret, you can change the size of this color bar and also move it around by clicking on it, or the little triangles.)

It works just like it should when you click on the little triangles. Just click and hold to drag the little triangle from side to side.



By adjusting this slider bar, you change the heat map on the planet of whichever resource you have selected. Go ahead and play with it for a second and see how the various colors change when you make an adjustment.

What you're accomplishing is narrowing down the quantity which can or can not be seen. Moving the triangle on the right creates a maximum. Whereas moving the triangle on the left creates a minimum type of quantity you want to look for

A question may be going through your mind right now, along the lines of "Why don't I just leave the triangle on the right alone?". The reason is because you have set a maximum, the heat map will never show the amount in the range where there aren't that many resources.

You can make the bar only so small but you can also slide the entire bar left or right as long as there is room (i.e. your bar isn't huge).

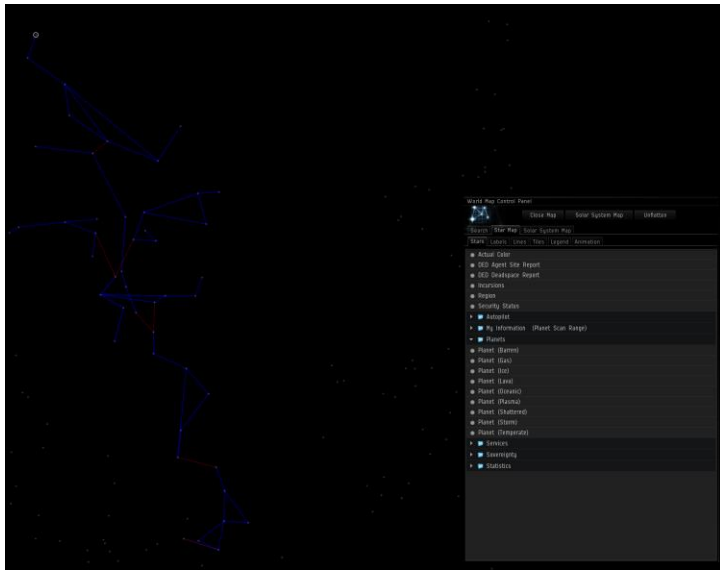


I believe a good balance is struck when the bar is three to four ticks long and you slide the entire bar where only a smidge of white shows on the planet's heat map. Then adjust bar position as you work on other planets.

Star Map

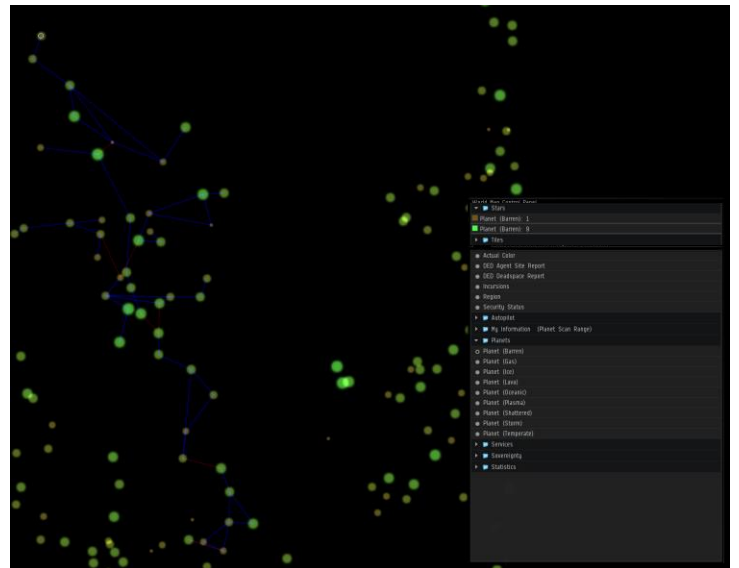
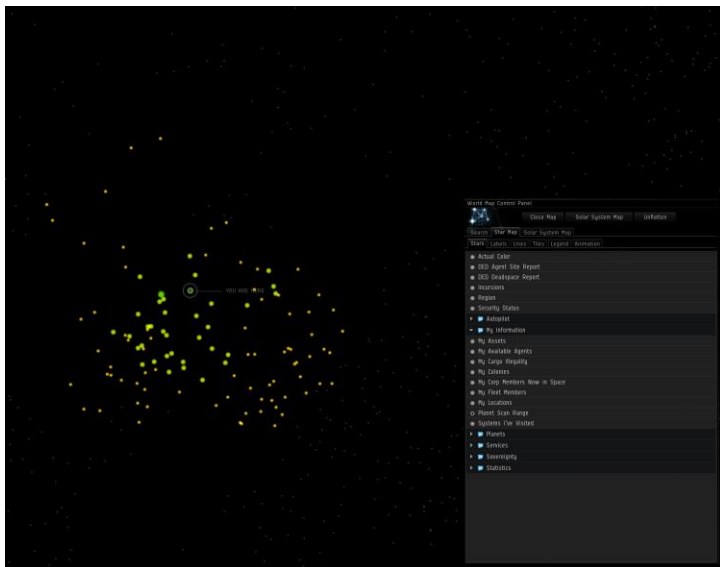
A super handy tool to take advantage of when trying to choose a location for your PI operations is the “Star Map”. This is a map of the entire universe of New Eden, not only that but it also comes with quite a few nifty features. It can be quite surprising how many details you miss when you use the “Star Map”, such as doing imports for a product when one glance at this map would show a planet which doesn’t need any imports to make the same thing.

Press F10 to enter the Star Map interface and window.



Using the Star Map you can go through several tabs and one of those drop down menus has a list of planet types. If you choose a planet it will show all the solar systems in New Eden with the selected planet. (I’ve edited in the color legend but it is just another tab to get too.

The same thing can be applied to your Remote Sensing skill. All the planets which are in range will show up, while those you can’t look at will be faded out.



ISK and You

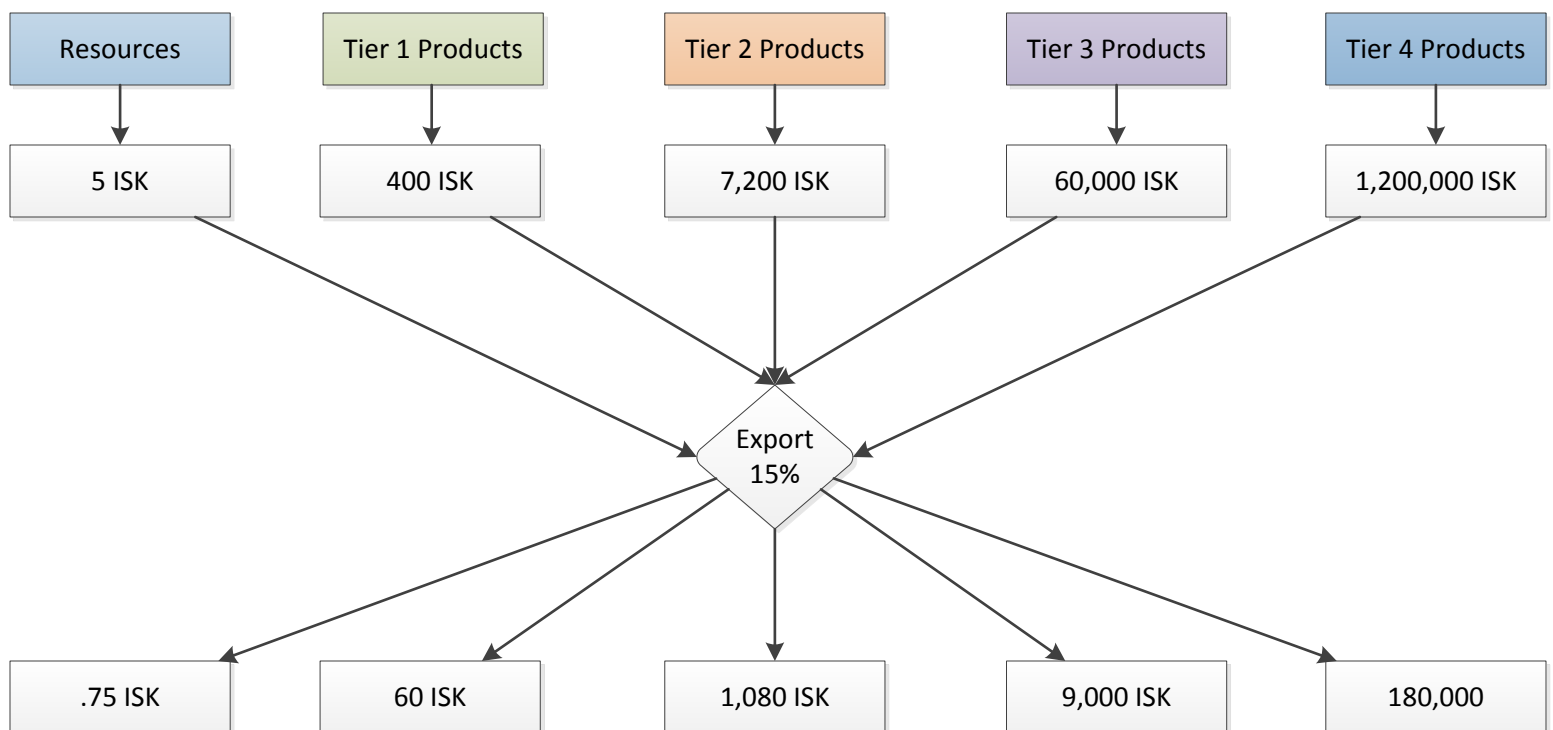
Now here is the really controversial and highly opinionated part about PI. The secret of which is often convoluted or hidden from plain sight. But here's the super secret, of which will be so baffling you may not believe me.

If you're selling your materials for more than the cost to produce them.....you made a profit. *GASP!*

After which there are many levels which can be achieved but it all depends on the amount of effort you wish to put into the project. Some days I'll forget to renew my cycles or make longer cycles for less income because I don't want to be bothered with timers or I may not have time for them. So if you're increasing your ISK when doing PI then you are doing it right.

You will mainly be using a Customs Office when doing PI and these floating leeches hover around a planet sucking on the lifeblood of all those citizens down below. POCOs have a tax rate which can be set, it can also be set to faction standings. This means if you have a bunch of buds in a different corporation using your POCO you could set their corporation blue and enable POCO use with faction standings. Allowing you to charge your enemies exorbitant amounts, or pay the officials to look the other way for you and your friends.

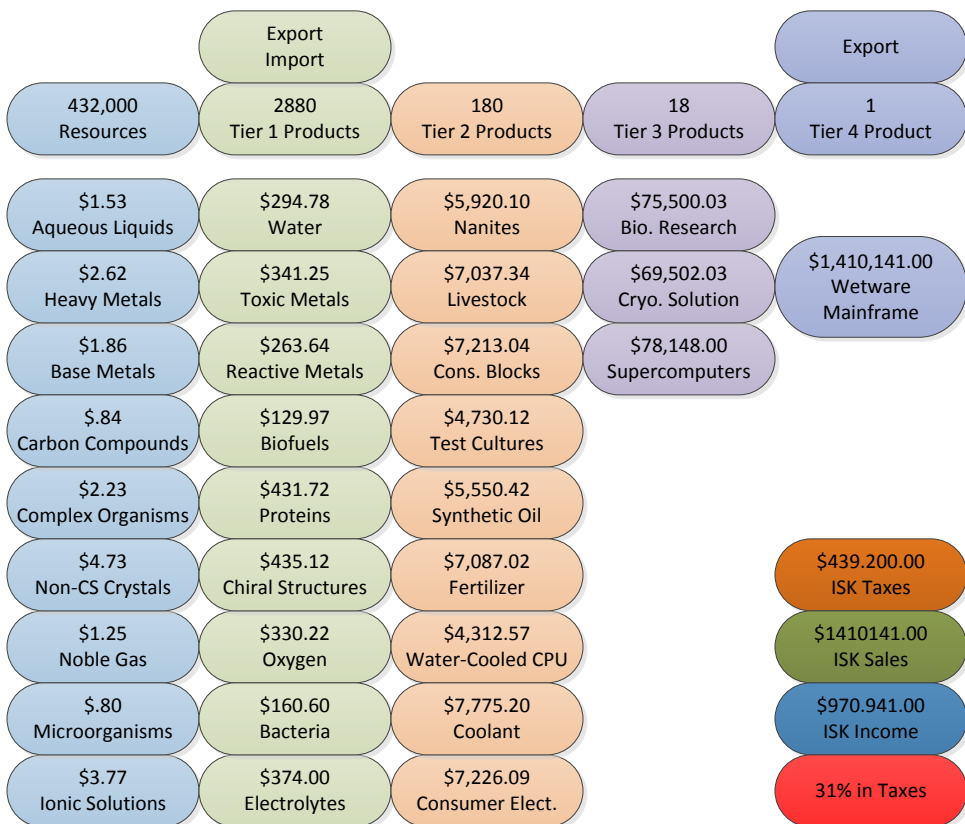
A few basics which need to be understood is that there are possible taxes when doing PI and each tier of product has an amount for which it is taxed against (lemme tell ya it isn't the actual market price). For some reason it eludes people why they don't make vast sums of money doing PI, well one of the first things to check is the tax rate on the POCO you're using, after which understand if you're importing goods as well as exporting. The first tiers of don't have a huge amount for which tax rates are based off of. However as you work up the scale it skyrockets quickly.



Well, looking at those tax rates it doesn't look too bad, quite cheap looking actually.

There in lies the danger and where you will be preyed upon. If we delve a little into the manufacturing process each of those products are made up from a lower tier. Going through an entire chain to produce a "Wetware Mainframe" you'll see just how costly production can get.

Warning: All sales numbers presented are generated by selling to buy orders. I find this gives a more helpful representation of what you may receive given market fluctuations.



But we also mustn't forget about the time it takes to create such a product. A Basic Factory can process 6000 resources an hour it'd take us 72 hours to process all of it and turn it into the first Tier of product. If we had a basic factory for each one we could guess at about 8 hours we'd be done processing. That's quite a while to produce one Tier 4. Now lets add in the taxes from our 15% tax rate. If we had to import and export all of our Tier 1s and the final export of the Tier 4 we're sitting at \$439,200.00 ISK in taxes and we haven't even transported our lovely product to the market. If we toss out transport costs we end up making \$970,941.00 ISK for our trouble. But the 15% tax rate we thought was so reasonable turns out to be 31% of our sales. Can you just imagine the 30% or 40% tax rates that have been thrown up on High-security POCOs?

If we had instead only worried about the first few tiers and only bothered with a one-time export tax, it looks like we would have made a little less than the Tier 4 Product. But the thing is, there is a lot less management making sure you're trying to produce the exact amount, and there is also less overhead in transporting because you don't have to import and shuffle products around to different planets.

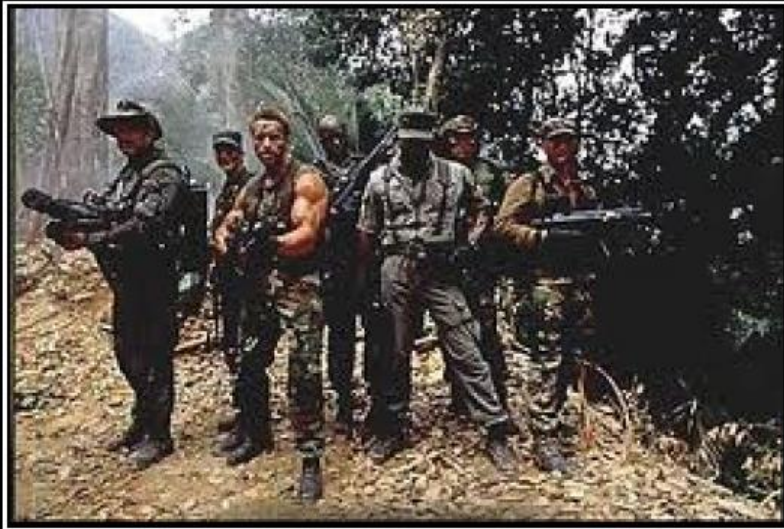
Like I said earlier you can make more but it all depends on how much time you want to spend involved in the project. I favor the Tier 2 Product because it is simple to develop, there's not a huge complex chain to worry about, you only pay an export tax once, and if you take a planet in Low Security space you can double or triple the yield you would get doing PI on a High-sec planet.

There's riches to be had, it's all based off the amount of effort and time invested; do you take the extra hour to do the Tier 4 chain, or would you rather take a cut in profits to do something else with said hour?

Just remember how much time you're willing to set aside for this project, and don't let the final numbers swoon you into going all out. The more complicated a production chain is the more micro-managing you have to do. Which leaves less room for error or the ability to ignore it for a couple of days.

\$701,520.00 ISK + Taxes	\$775,868.80 ISK + Taxes	\$802,638.00 ISK + Taxes
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Location



CONFIDENCE

The feeling you have before you fully understand the situation.



STAY ON TARGET

What's the worst that could happen?

Ah, location...one of those befuddling words when starting your own PI operations. But no worries, there are several areas of space you may choose from all of which will provide PI in some form or another. Probably one of the biggest worries for someone just starting out is safety. So you may think it's a good idea to start up in High-Sec. Well I'll tell ya right now, if you're looking to make any type of ISK High-Sec ain't for you. One of the main caveats of Planetary Interaction is you have to port all those valuable resources off planet. If you want to do it in a reasonable amount of time you're going to want to use a special structure.

But there is something you have to be wary of, this is the dreaded POCO; dun..dun....duuuuun.....

CCP in their infinite wisdom saw fit to allow players to control Customs Offices in High-sec (they were only NPC owned before).

Go on guess, go on. Can't figure it?

Well, ya see POCOs have this thing called "tax" which is charged whenever you export something from the planet or import something to the planet. Most of the time the tax can be pretty reasonable, if it's over 10% you're being charged too much.

Now players have the ability to set Tax rates, not only this but CCP forces a 10% NPC Tax on top of whatever the owner charges.

Let me illustrate what happened when this feature was released and players could own Custom Offices in High Security space.



ONCE UPON A TIME . . .
THE END.

Of course large player blocks saw this as a way to grief High-sec players even more and slice themselves a good portion of the PI. Of course they also have the resources to replace POCOs and the manpower to take and defend them from players and small groups. After which many of the planets are set to unreasonable rates. Seeing POCOs with 20-40% tax rates are not unheard of and the rate seems to rise if you get closer to trade hubs.

A 10% tax will cut into your income by about 17-20%, so if it's higher you're being gouged out of your hard work. "But it's only 10%", you'll say, and that's just it; the tax you're charged by the POCO is not at the current price in New Eden. There is a base amount CCP has set for each tier of products. As such based on how much your products are actually selling for could substantially eat into your profits. (This is bad by the way.)

What does this mean to you as someone who wants in on PI? It means you're not only getting stabbed from the outrageous taxes but you're also funding these large player blocs which in turn seek to continue grieving those who play in High-sec. In essence you may be paying these large player blocs to harass you....sounds fun don't it?

But buck up boy, this adventure ain't over and it hasn't come to an end, because in reality you have the power not them. You are the one who pays the tax and if you go elsewhere they get nothing, while this can be a major or minor annoyance it allows you to stand up to these large blocs the only way you can as an individual.

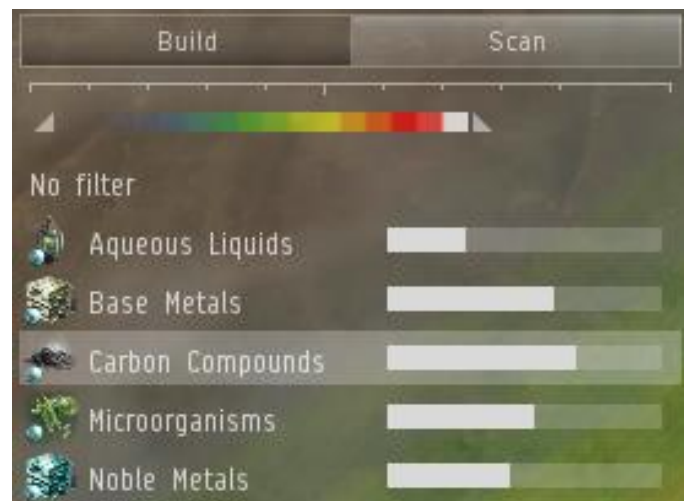
This is where you become a real capsuleer and you venture into new space. You must seek the riches of Low-sec. For there you will find solace in lower tax rates and you most often won't be funding pilots who wish to grief you. Mainly because they're too busy trying to kill each other instead of planning campaigns into high-sec for the harvest of tears. If you play things right, you'll be safe enough and actually make 2 to 3 times more than you would using any high-sec planet.

So destroy those High-sec PI planets you have and venture into Low where the real riches await. These shining beacons are also no illusion, for the planets are vastly more fertile the lower the security status of a system is. But you demand proof from me, well keep a sharp eye because I indeed have a few images which may sway your mind.

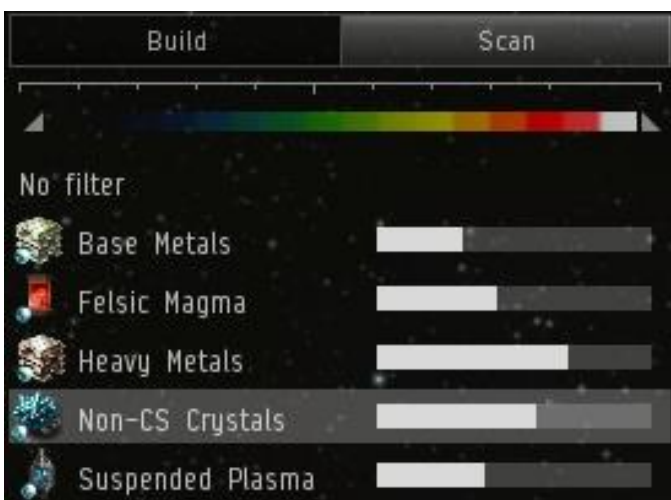
High Security Space



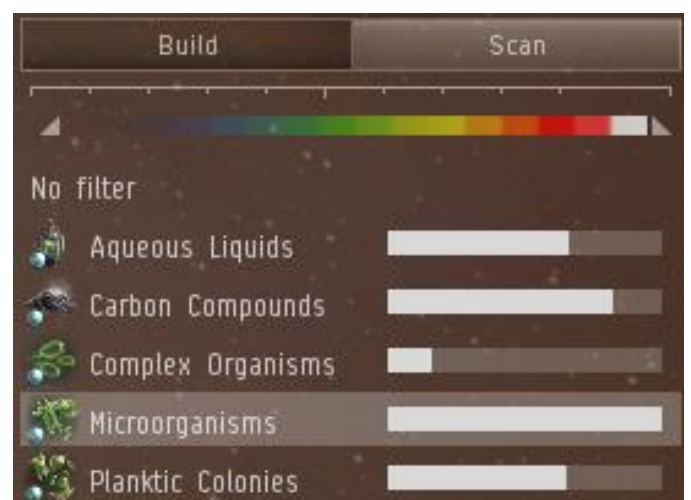
Low Security Space



Null Security Space



Wormhole Space



Tier 2 Production Chain Setup



Your first time doing an initial production chain probably didn't work out to well, or things weren't as clear cut as they seemed. I prefer to use Tier 2 chains because they are low maintenance, fairly cheap to set up, and require the least amount of micromanagement for the ISK they produce. I'm going to walk through how I would set up a production chain on a Plasma Planet located in Null Security space.

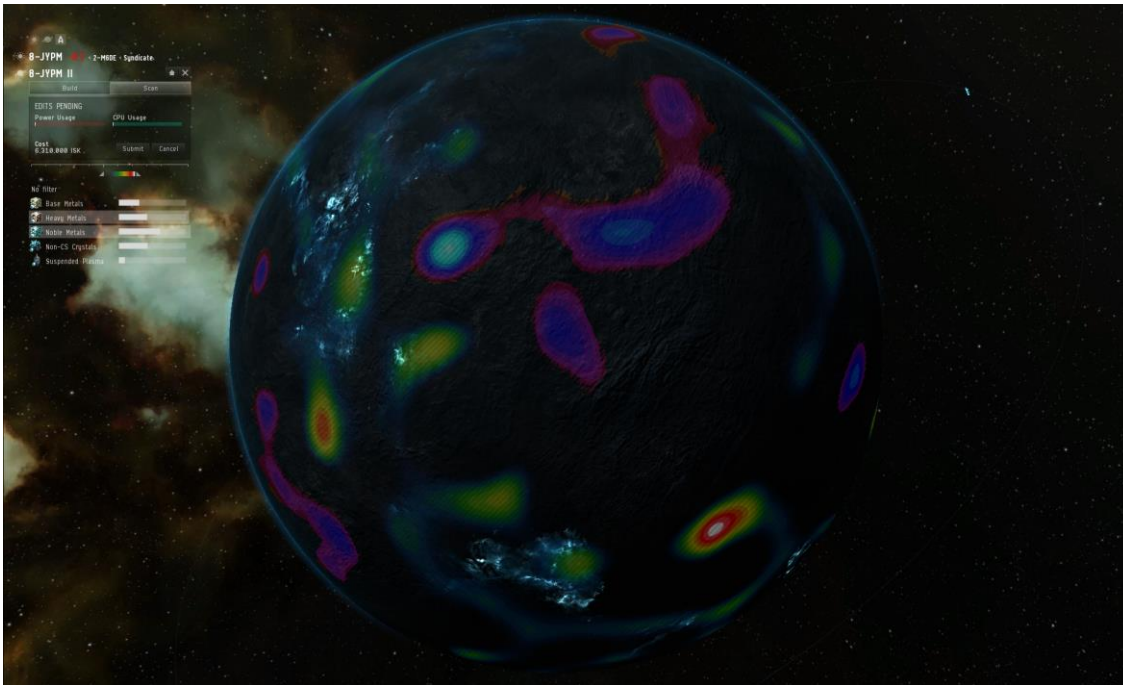
First things first, I find a planet I want to do Planetary Interaction with and I look at its attributes in the show info window. If you look down the list of all the nifty numbers about the planet you'll see a vital piece of information called "Radius". The Radius is a determining factor in how expensive your links will be. (Expensive links equal less Power for production.) Steer clear of large radius planets I like to shoot for under 5,000 km radius but if it's under 10,000 km I'll still consider but it will require a bit more management to get the chain placed just right.

So let's plunk down this Command Center and upgrade it to level VI which will grant me a lot of Power and CPU for buildings. When I opened the Planet view by "right + clicking" on the planet it showed me an initial view and I put my Command Center right where the starting view is. One of the main reasons I do this is every time you go into your planet view after this it will always zoom to your Command Center. I eliminate a bit of useless twirling and save myself a few mouse clicks. The Command Center does not have to be connected to your production chain and it's effect of giving Power extends to the whole planet no matter the size.



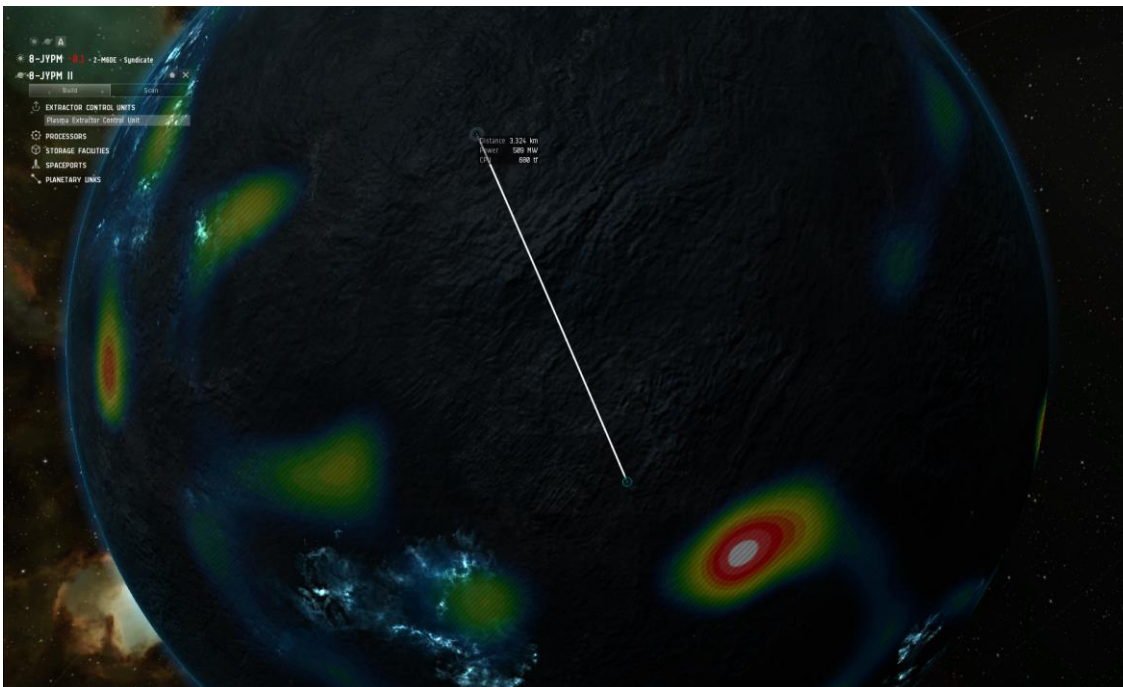
Note:

Look at the end to see all the various Tier 2 Products which can be produced on one planet. Each planet is also capable of producing a Tier 3 without any exports or imports. To see the entire recipe list see added Excel Worksheet, which contains other helpful information and equations.



Having the Command Center all set up means we can now go ahead and start placing buildings, note however you don't need to place a Command Center to be able to see the heat map. You only need it to place buildings.

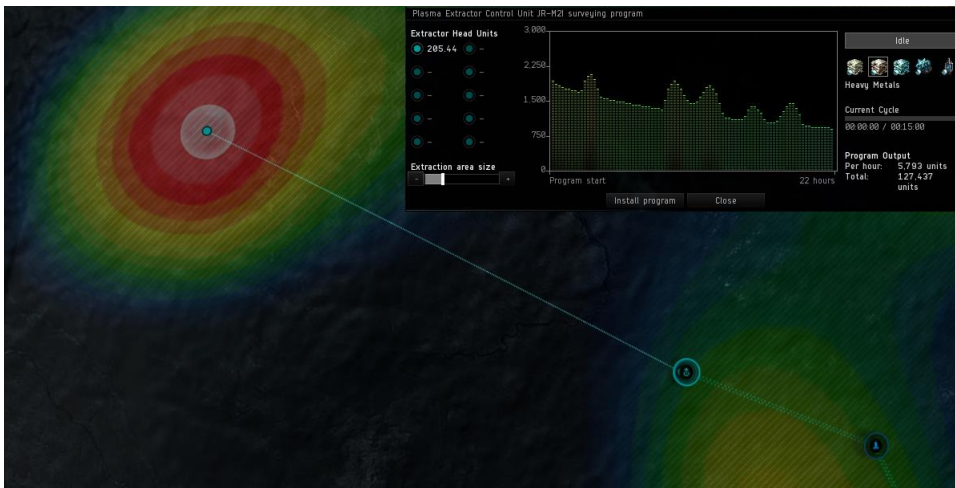
Since I had scanned this planet before hand, I knew the location of where I wished to place my production area. The heat map doesn't show the saturated colors, I added those in to distinguish between the two resources I will need to extract. I have picked spots which are high concentration and rather close to each other. The purpose for this is to save Power on the links attaching the buildings together.



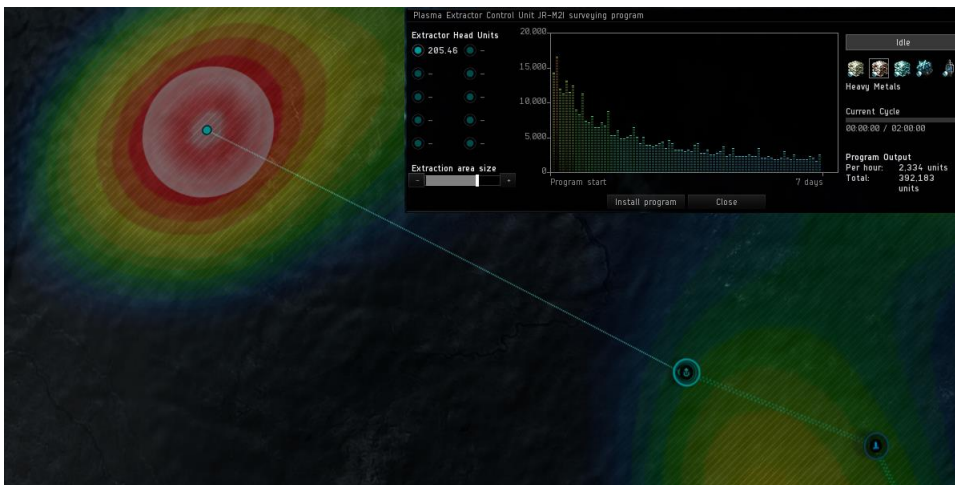
I however am not using the Command Center as my base of operations but instead I have built a Starport. Starports make good central locations because it gives you fast access to the customs office and they have 10k m3 of storage so you have a little buffer to work with.

I've placed an Extractor Control Unit so its range encompasses the Noble Metals in the normal colors. After placing it down I then create a link between it and my Command Center. Take special note of how long the link is and the Power and CPU cost. If we were using a planet with a large radius, this same size of link could actually be 50,000 km. That would be a substantial amount of Power and CPU Usage.

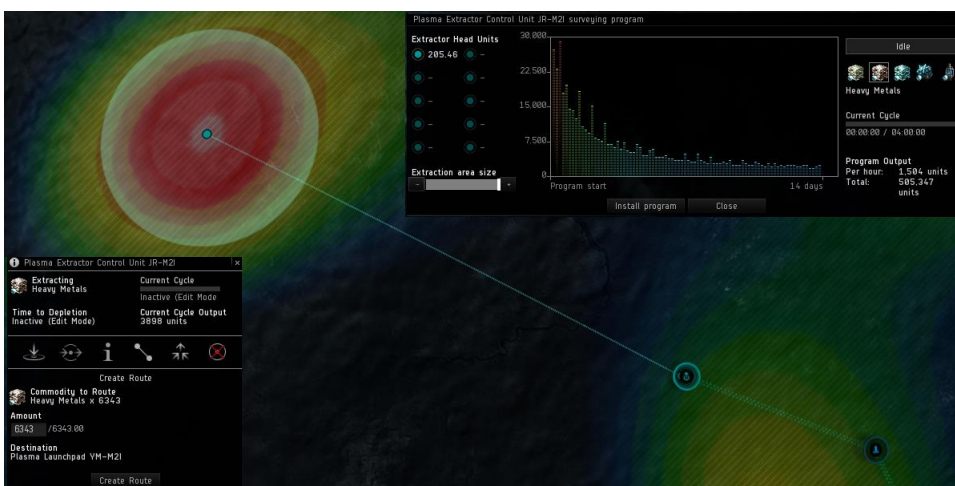
With our 2 extractors placed down in the locations we desire it's time to set up the extraction process and start getting materials made. Opening up the Survey menu from the Extractor Control Unit's menu we're given another window and if we select one of those products the heat map will be displayed showing the location of the selected resources. Here I have chosen to look for Heavy Metals. Activating an Extractor Head Unit, I click and drag it over on top of the hottest part of the splotch of Heavy Metals. You can see the amount extracted per hour and the amount total you will receive.



Along with the total amount and per hour we can adjust how long of a cycle we want to run. I prefer 22 hours to ensure stuff finishes and is ready to be reset at a time which is convenient for me and not the game. If you notice the bar graph, each line signifies a cycle between when an extractor transports the quantity to my Starport. With the shorter 22 hour cycle things are somewhat uniform it's when time starts getting longer that you receive a huge influx of resources after which it tapers off to small amount. You still get an average amount per hour, but it's not a consistent amount.

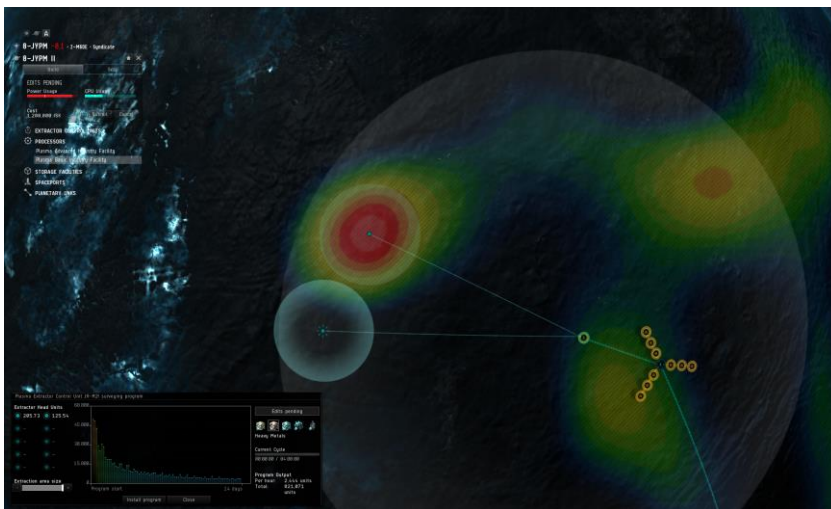


These type of long cycles can be dangerous because if you do not have enough m3 at the destination anything remaining will be destroyed. This is why you shouldn't connect an extractor directly to your factories, the factories don't have any type of storage buffer. If you send it 12,000 resources, it will only process 3,000 and destroy the remaining amount.

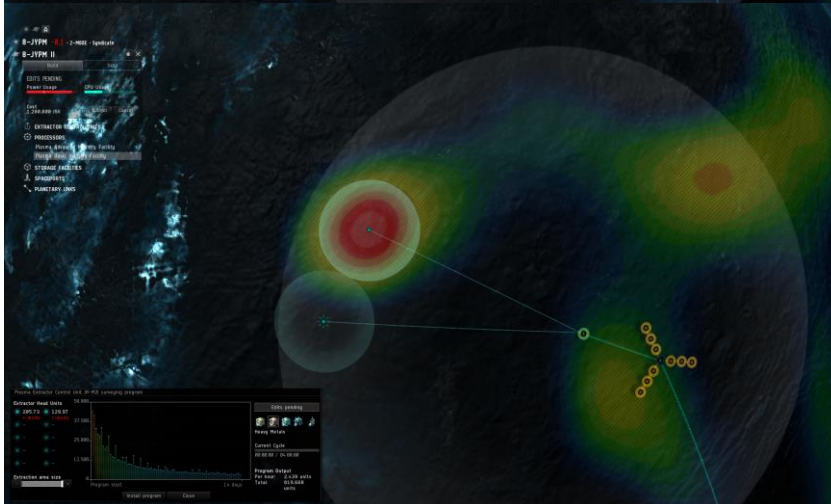


Be aware of this capacity detail, there's a reason I go with the Starport. You are not always going to get an exact number of units you need sometimes you'll have more and sometimes less.

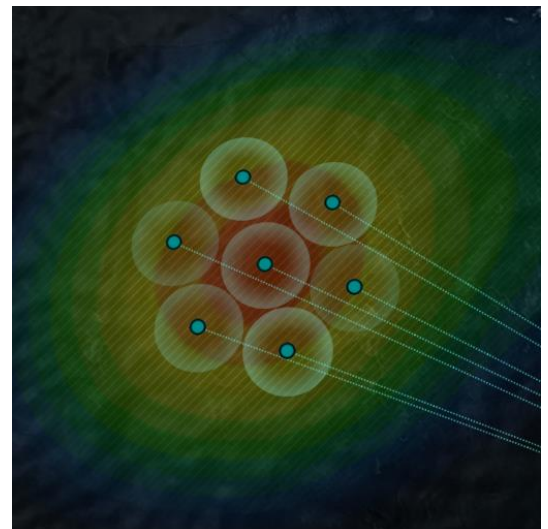
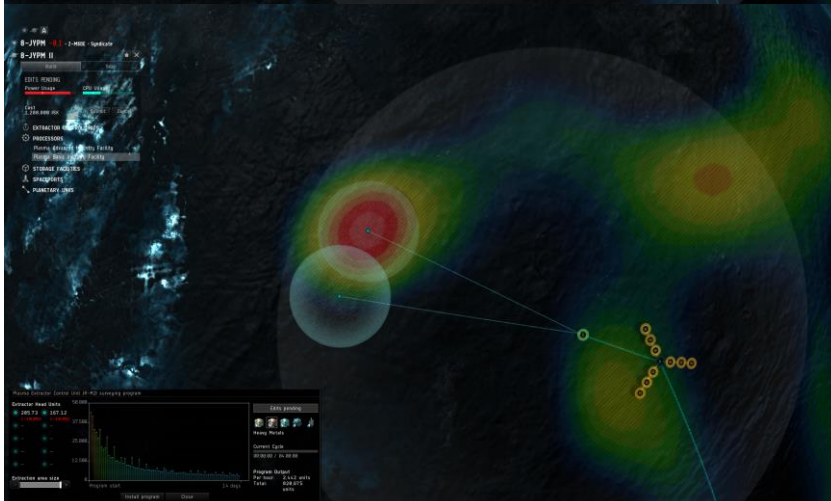
After you finish getting the amounts you desire, click on the extractor again and make sure to route your resources back to your main building.



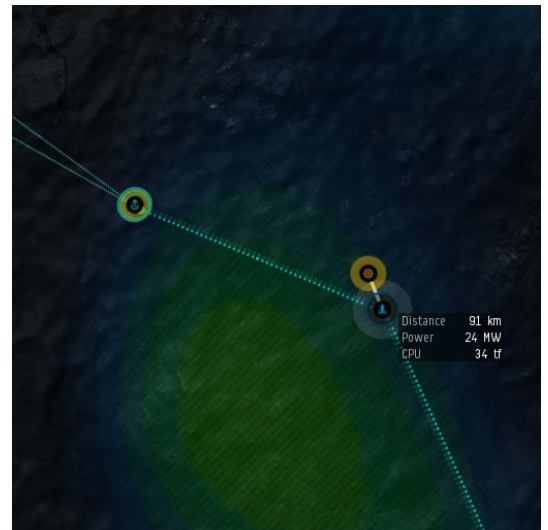
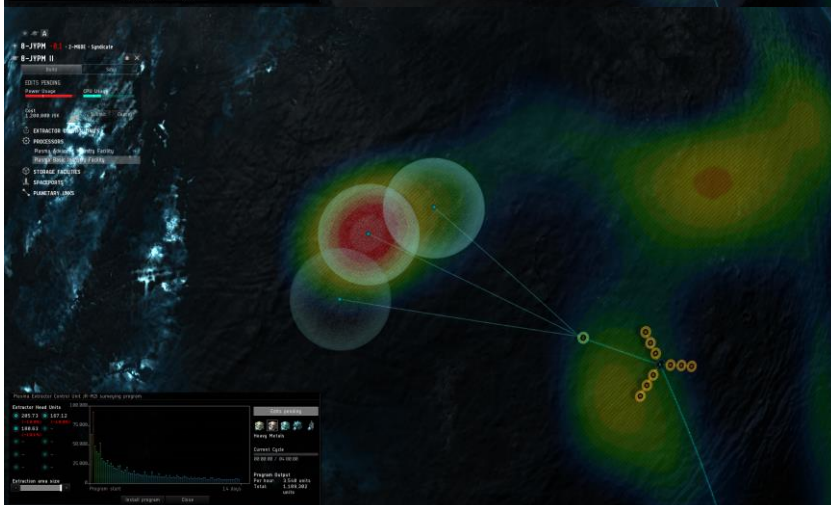
A little quirk of Extractor Head Units is they don't like to play nice with each other. If you have two Extractor Head Units overlap they will start to have a penalty to how many resources they can extract. So always make sure if you have more than one Extractor Head that the two heads are not touching. (However the overlap does not matter if it is over the head units of a different Extractor Control Unit.



There are many ways you can place Extractor Control Heads to try and maximize the most of an area, and the one I've found to be the least frustrating while consistently producing good results is a central Head Unit surrounded by how ever many you need to get the desired amount of extraction.



Make sure you get your factories as close as possible to your Starport.



Safety

I see you've a desire to seek riches in the lower security spaces. Well you'll want to prepare accordingly so you may escape with all your riches intact. There are dangerous predators lurking in these areas of space and you're just another target. If you happen to get caught and blown up, don't take it personally. Unlike High-sec, lower sec areas promote the philosophy of "Shoot All the Things".

So let's go over a few guidelines to help you in your journey to achieve riches.

Greed

Avoid being greedy when it comes time to pick up your products. It might seem like a good idea and a lot faster to gather all of your stuff in one go, but you have to remember this is Low-sec and the odds of you getting blown up are a little higher than in High-sec.

Gather your goods one planet at a time and transport them to safety before going for the next batch. If you get blown up, you may only lose 3-5 mISK instead of 30-40 which is a whole lot easier to swallow in terms of losses than the larger amount.

Stupidity

Avoid being stupid, you're swimming in an area of space where every hunter expects to be hunted and they've become quite adapt at killing things. Don't draw unnecessary attention to yourself, if you get past a gate camp don't insult them in local. When there's a moment when you get caught and blown up, don't rage in local or insult the guy who killed you. If you ended up losing more than a few mISK that's your fault for ignoring my "Greed" guideline.

Ship

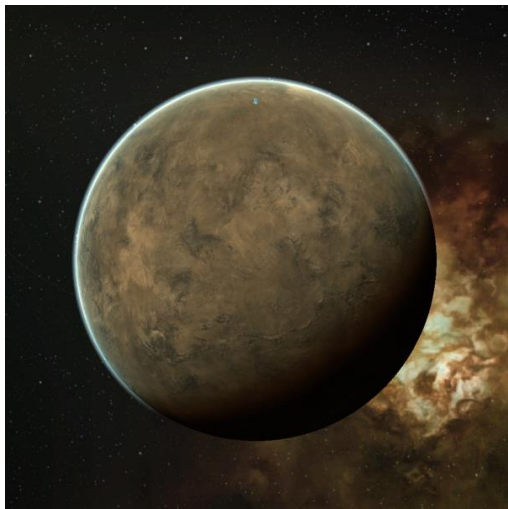
Because your chances of dying are rather high, don't invest huge amounts of ISK into your transport ship. The cheaper it is, the easier it is to replace the loss. Especially if you've been following the first two guidelines.

When it comes to fitting your ship, fit it for agility and align time. The shorter you're in one spot the less time hunters will have to pinpoint your location. Fit the high-slot with a prototype cloak and make sure you've made safes near all of the customs offices you plan on extracting products from. Add warp-core stabilizers in your lows, they won't save you from a determined hunter or many hunters. But can provide some protection against solo hunters.

The cloak is important not because you can warp cloaked (because you can't), but for when you land in your safe you can cloak up in a jiffy to avoid watchful eyes. If it looks like they're going to camp the POCO for a bit, minimize the game and do something else for 30 minutes. Unless you drew attention to yourself then it's unknown how long you'd have to wait.

Patience

Remain patient, as this will be your greatest asset. The more rushed you are, the chances of making mistakes can go up exponentially. Remain calm and wait, your products aren't going anywhere and hunters eventually tire of not shooting things.



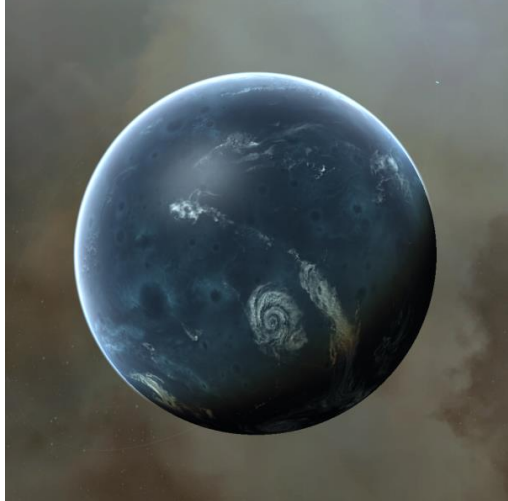
Barren

Gas



Ice

Lava



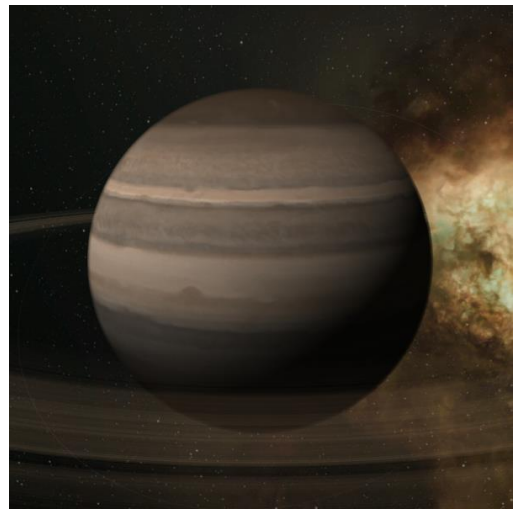
Oceanic

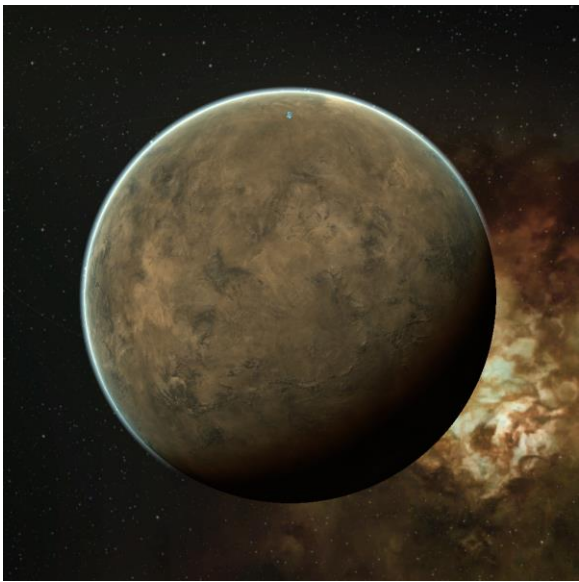
Plasma



Storm

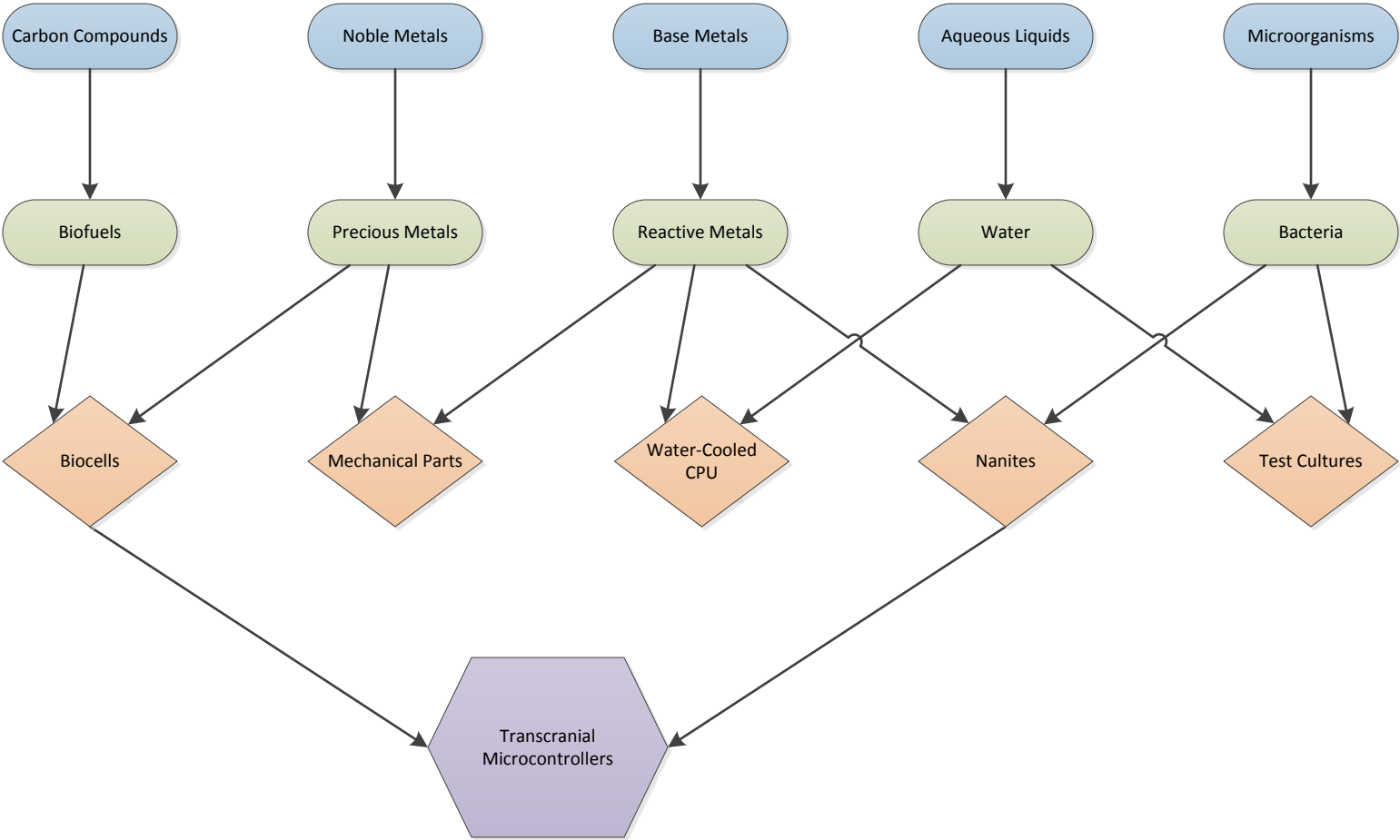
Temperate

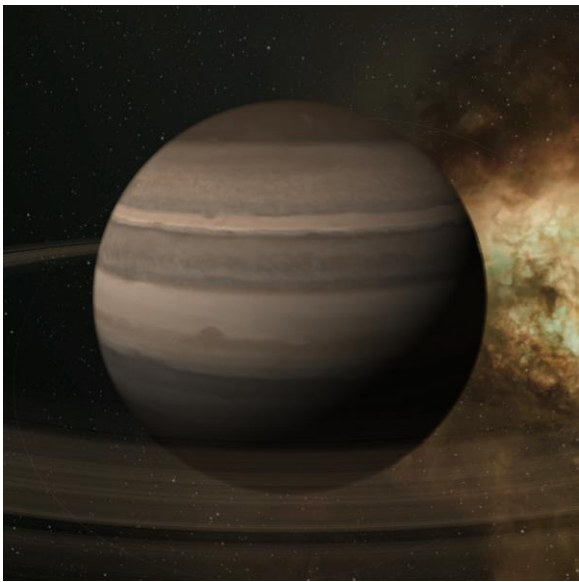




Barren Planet

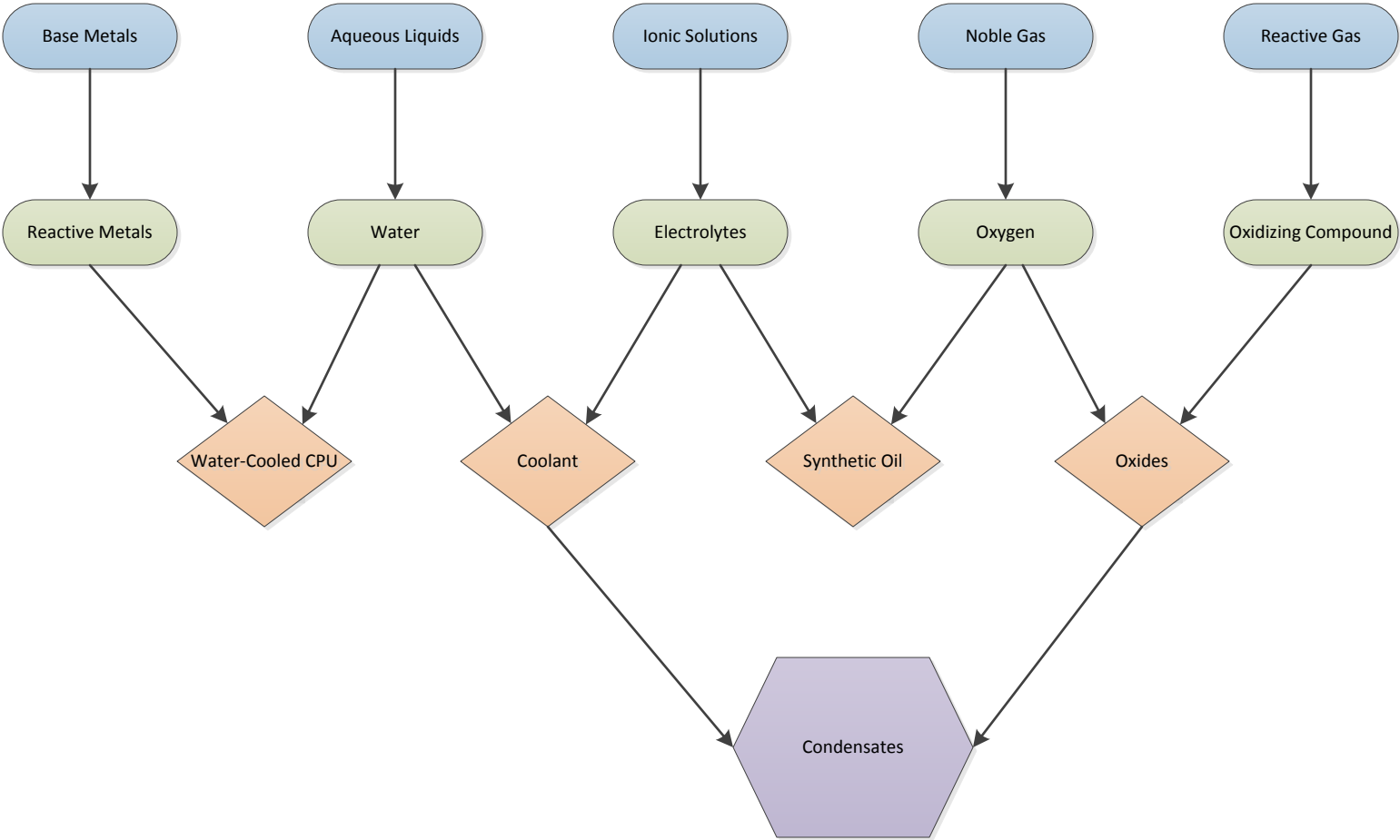
Solo Production Chains

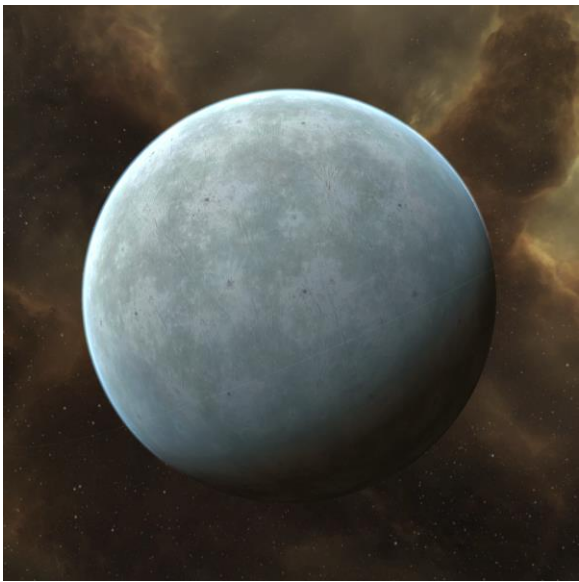




Gas Planet

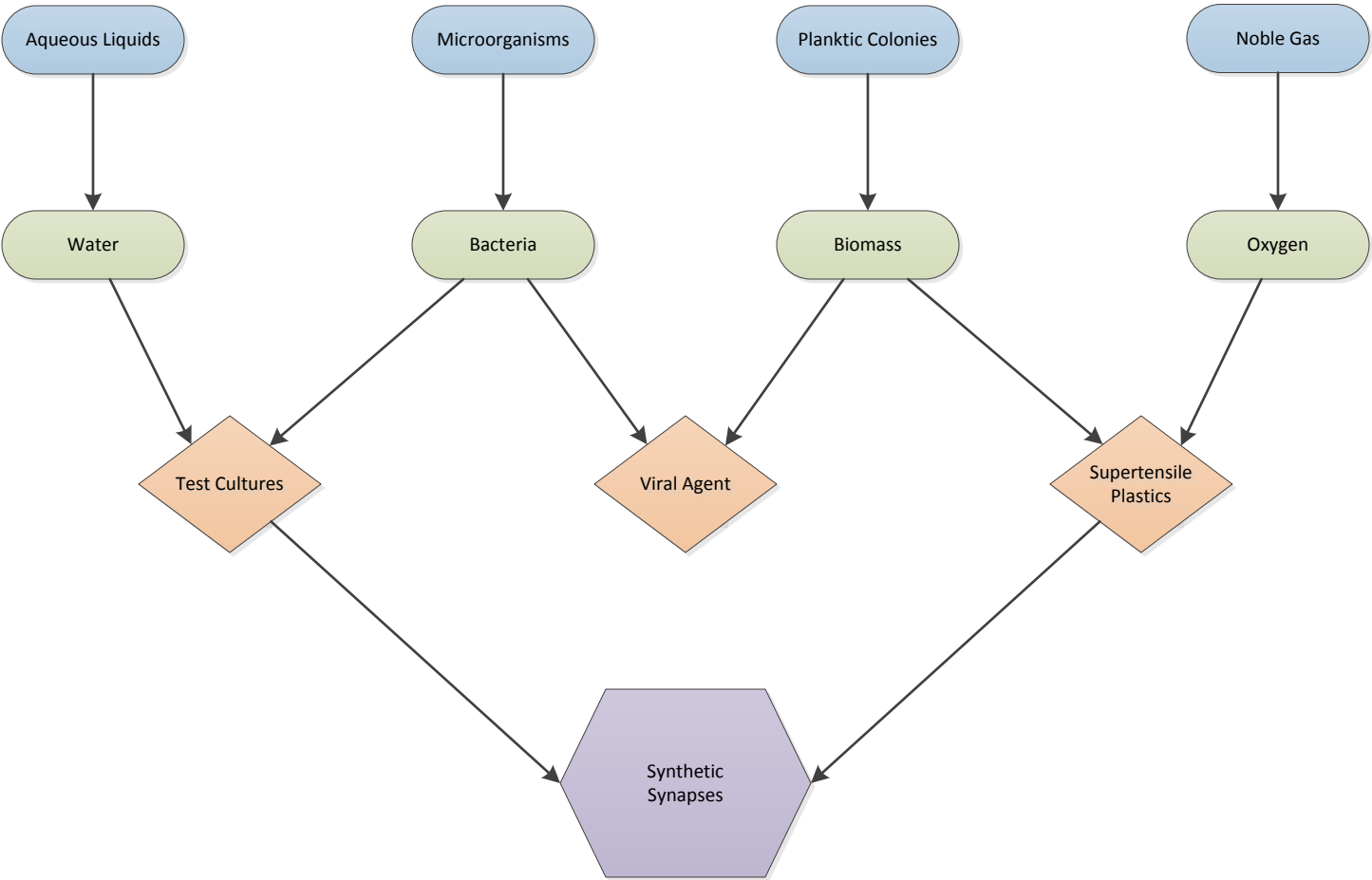
Solo Production Chains





Ice Planet

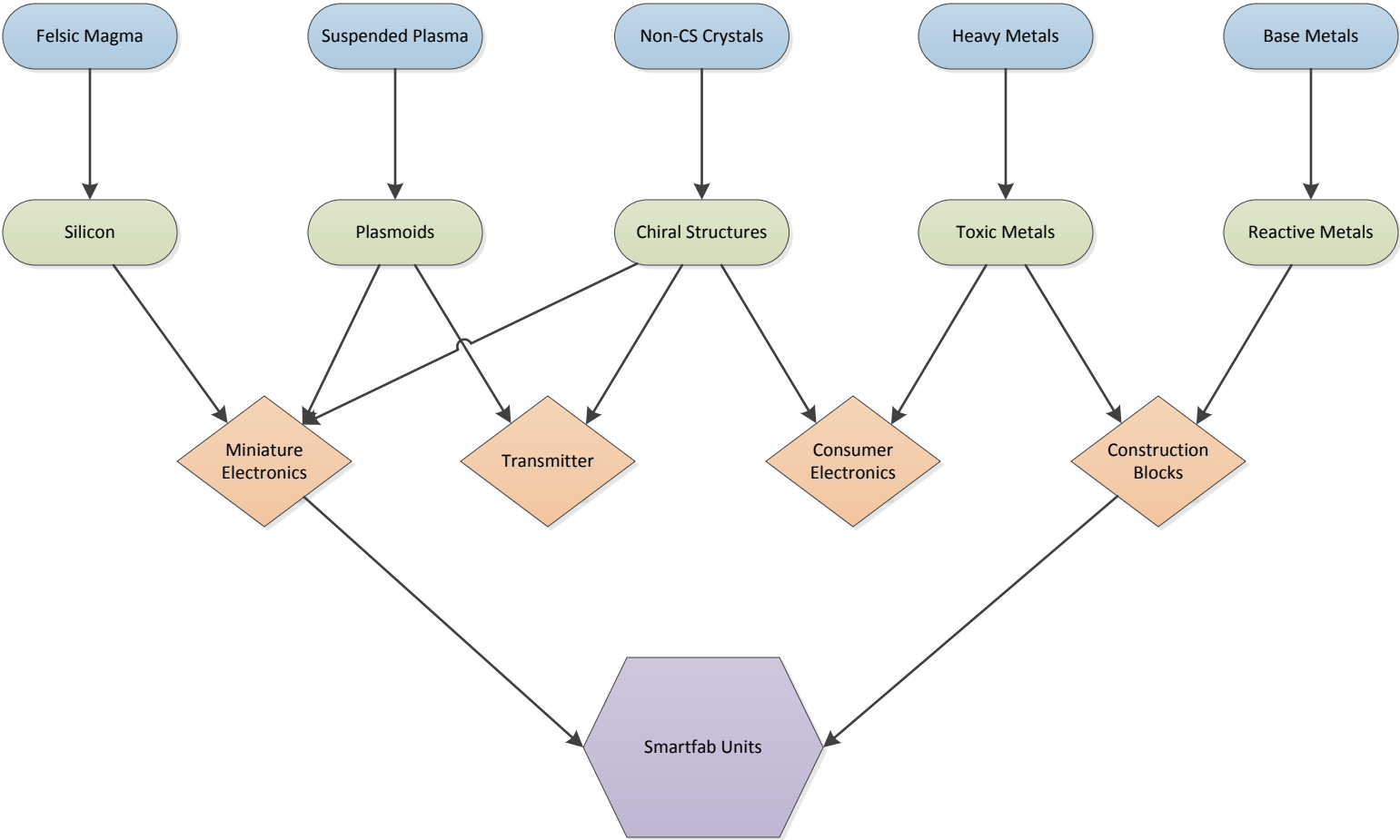
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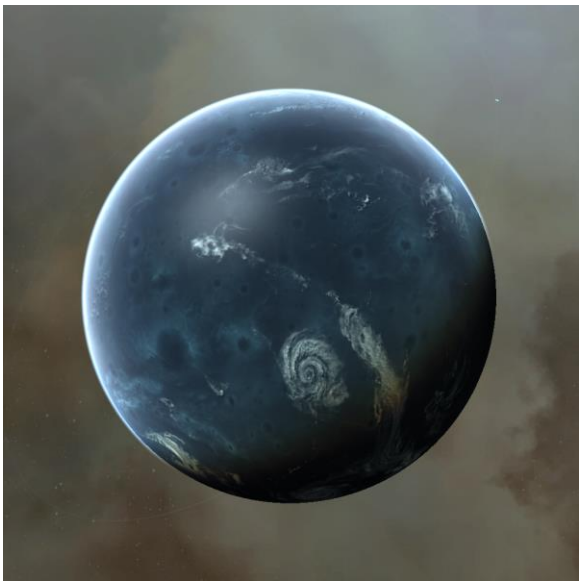




Lava Planet

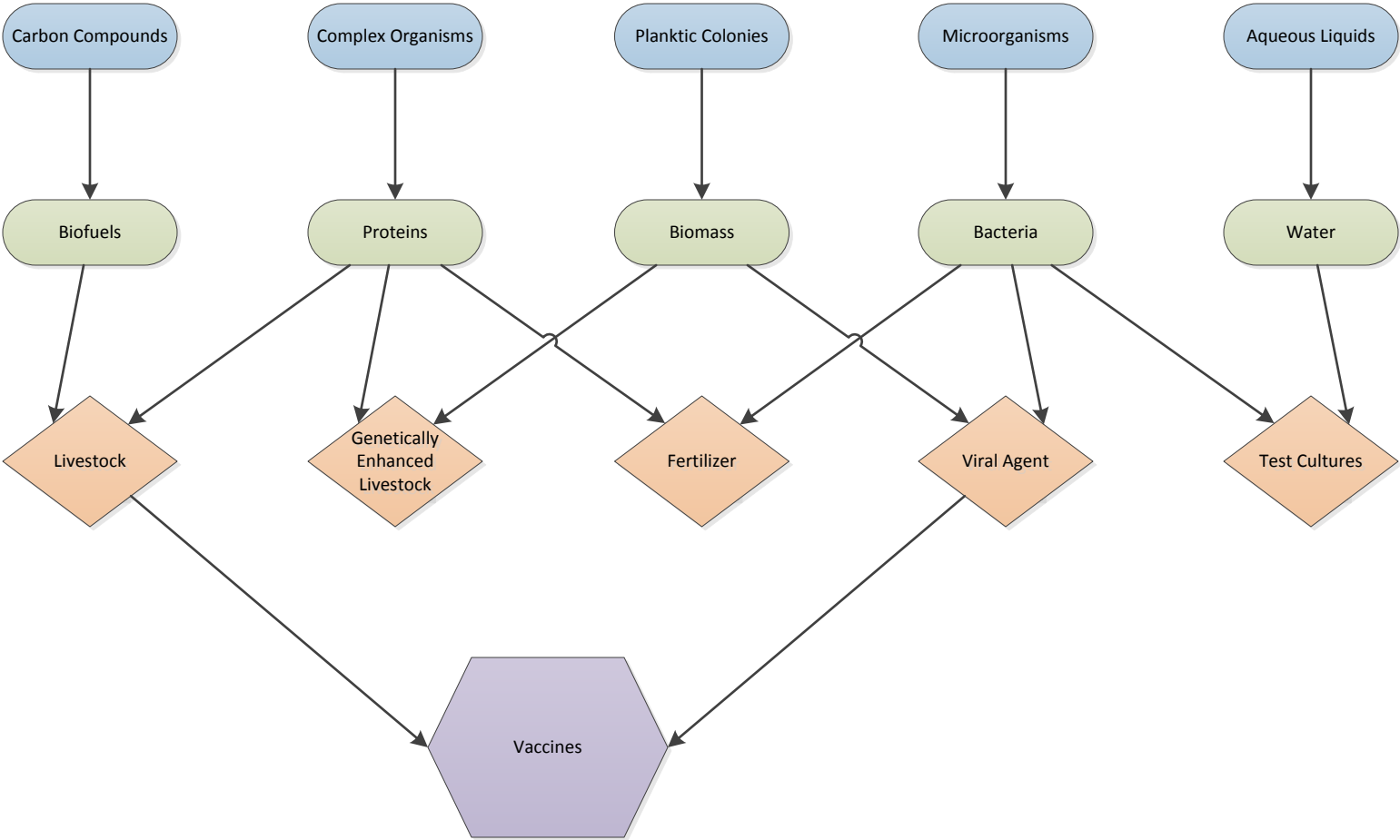
Solo Production Chains





Oceanic Planet

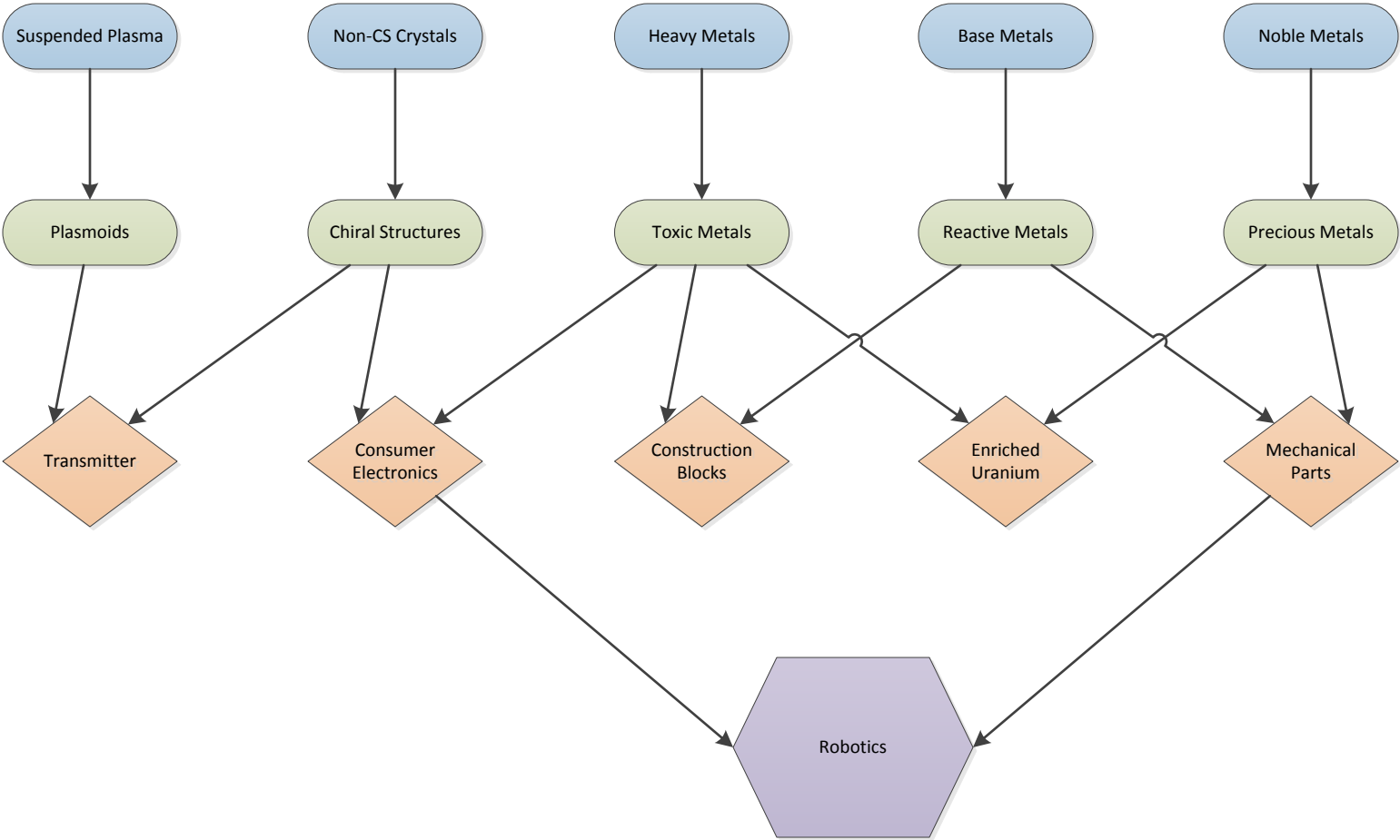
Solo Production Chains





Plasma Planet

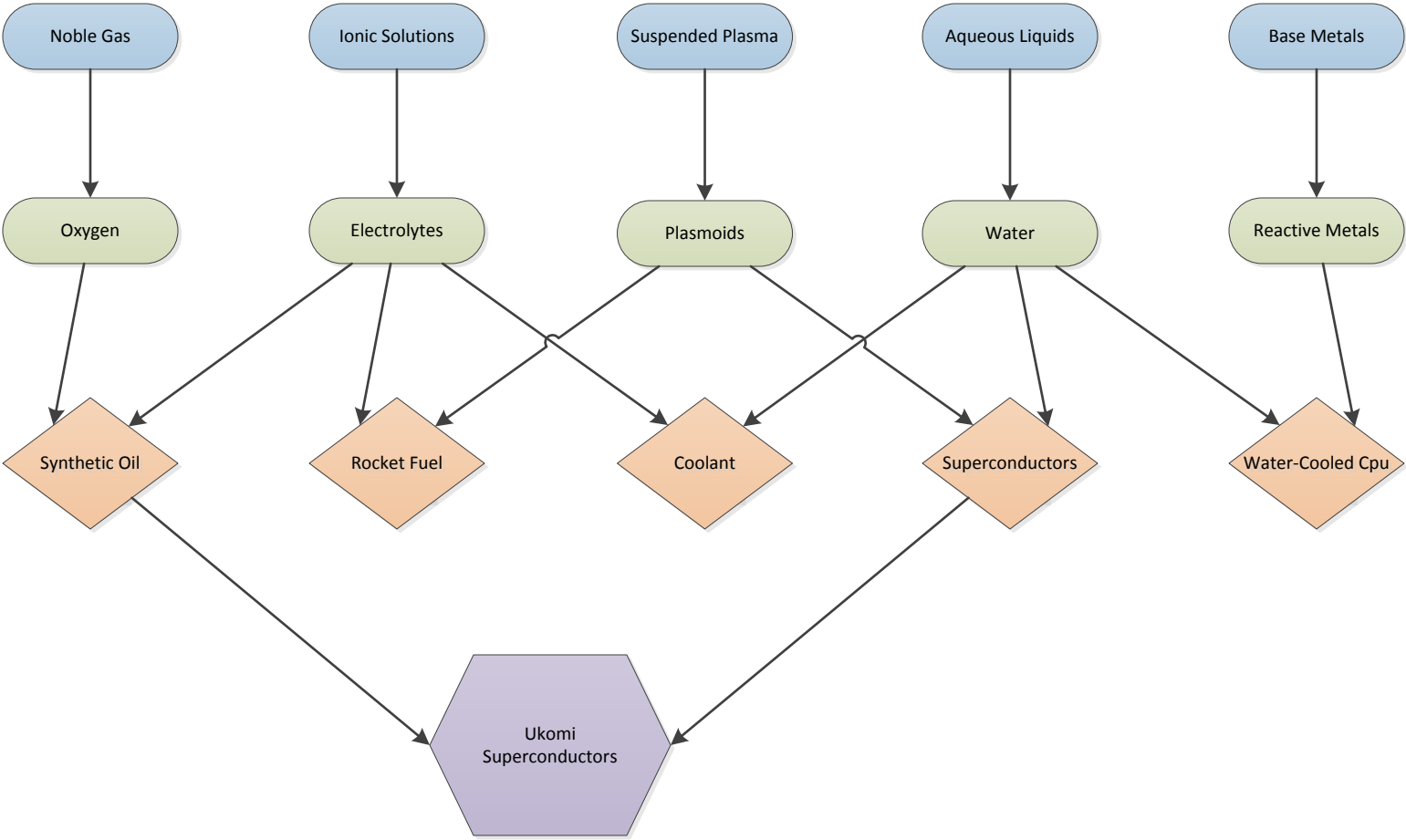
Solo Production Chains





Storm Planet

Solo Production Chains





Temperate Planet

Solo Production Chains

