Planetary Interaction Guide

Tres's comprehensive Handbook for the Absolute

Version 0.3

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Abstract

Work in progress...Some parts of this guide are inspired by posts on eve-forums by Steven Thomas, Cadde and various others.

Introduction

Since the Tyrannis expansion podpilots are able to interact with planets to a small extent. This means for now practically just the production of various trade goods (former NPC produced) from resources harvested and processed on planets.

The basic workflow to achieve this is as following:

1. scan the planet for available resource distributions
2. place the appropriate command center on the planet close to the hotspots you want to exploit
3. build the needed infrastructure around it, for example extractors, processors or links
4. set up extraction materials, processing schematics and material routes
5. wait for the output and export your products

This process will give you mostly (not only) intermediate materials not directly consumable by players. For higher level products you will need a more complex processing chain with im- and exports on several planets. As the number of planets a single podpilot can handle is limited you will need to create and coordinate a logistics network that spans over several podpilots and planets - metagaming at it's finest.

At the moment the whole show is about the creation of:

- Starbase Fuel (non-ice products)
- Nanite Repair Paste
- Player Owned Starbase Structures
- Outpost Construction Components
- T2 Components (non-moon sourced)
- Sovereignty Structures

Skills

As for everything in EVE there are also special skills for Planetary Interaction to improve your capabilities. Although it's absolute possible to place a basic command center on a single planet and have a go at it without any skill, if you want to run full-blown colonies on several planets, scattered over some systems, you'll want the following skills:

Remote Sensing. Rank 1, Prereq.: Science I

The ability to gather and analyze remote sensing data from satellites in orbit around a planet and to produce proper calibrated surveys. Level 1: allows scans within 1 ly, Level 2: allows scans within 3 ly, Level 3: allows scans within 5 ly, Level 4: allows scans within 7 ly, Level 5: allows scans within 9 ly

Planetology. Rank 3, Prereq.: Science IV, Remote Sensing III

The understanding of planet evolution and the fundamentals of resource extraction.

Advanced Planetology. Rank 5, Prereq.: Planetology IV

Advanced understanding of planet evolution and the fundamentals of resource extraction.

Command Center Upgrades. Rank 4, Prereq.: none

Each level in this skill improves the quality of command facility available to you, in turn allowing for a greater number of connected facilities on that planet. Cannot be trained on Trial Accounts.

Interplanetary Consolidation. Rank 4, Prereq.: none

For each rank in this skill, you may install a command center on one additional planet, to a maximum of 6 planets. You can have only one command center per planet. Cannot be trained on Trial Accounts.

Planets

For the whole thing to work you need planet(s) to get the raw materials from or respectively to run some processors on. If we look around we see plenty of them, about 9 per starsystem. A more closer look and some databank queries later we'll get the following figures:

Table 1. Planets of New Eden

	Temp	Ice	Gas	Ocean	Lava	Barren	Storm	Plasma
Empire	2139	2710	5648	304	1467	1864	1921	231
Outlaw	2908	4689	9868	511	2804	3343	3395	386
Jove	183	350	693	35	200	232	257	27
W-space	2054	3502	7545	406	2002	2674	2597	299
Sum	7284	11251	23754	1256	6473	8113	8170	943

In sum that are 67253 planets (the 6 shattered planets included). Now, not each planet type has all the raw materials there are. Just 5 out of the 15 raw materials can be found per type. And another thing to note is the abundancy of the materials on the planets, which depends on the security level of the star system.

A null sec planet yields roughly 6-8 times more than a high sec planet.
Sec status vs CC, number of players on planet, ?structures on planet?, blacklisted planets

Table 2. Planettype vs Raw material

	Barren	Gas	Ice	Lava	Ocean	Plasma	Storm	Temp
Autotrophs								x
Aqueous Liquids	x	x	x		x		x	x
Base Metals	x	x		x		x	x	
Carbon Compounds	x				x			x
Complex Organism					x			x
Felsic Magma				x				
Heavy Metals			x	x		x		
Ionic Solutions		x					x	
Micro Organism	x		x		x			x
Noble Gas		x	x				x	
Noble Metals	x					x		
Non-Cs Crystals				x		x		
Planktic Colonie			x		x			
Reactive Gas		x						
Suspended Plasma				x		x	x	

Out of the 15 raw materials 3 are bound to a single planet type.

Scanning for Resources

If you go into planet view mode for a planet you'll see the following user interface by clicking on the 'SCAN' tab (the colormap on the planet comes up when you click on one of the abundancy bars):
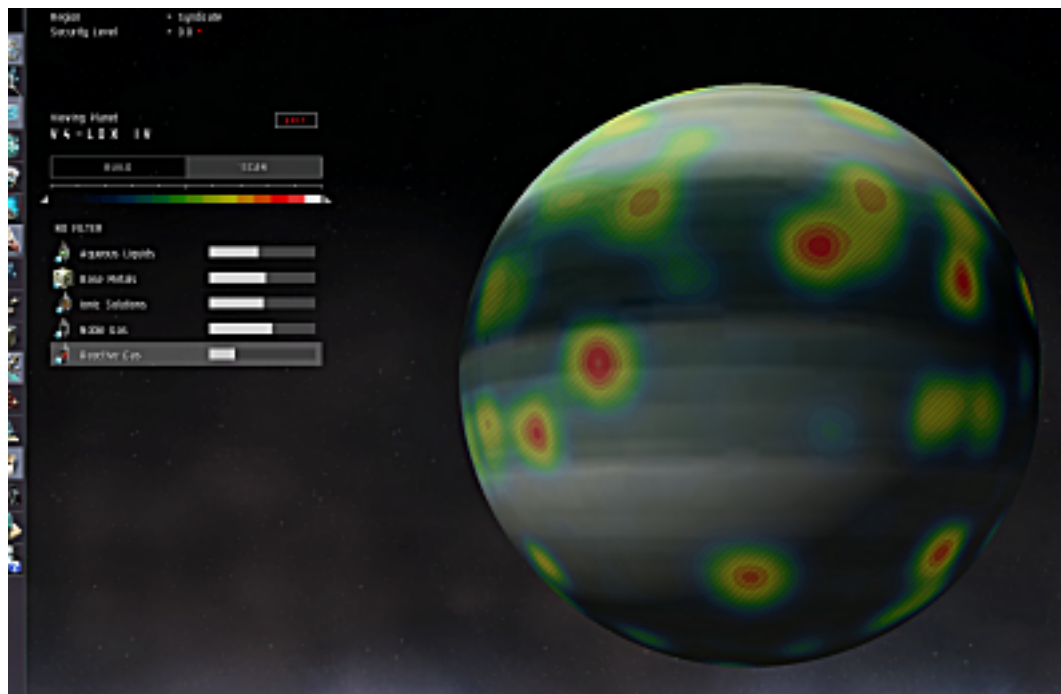
Abundancybar. The abundancy bars for the raw materials give you an overview of how much of the raw material can be harvested at all from the whole planet and gets calculated in realtime. The math behind probably looks something like this: abundancy bar value = (summarized actual available sources / summarized maximum possible sources)


This only gives you an idea about the whole planets abundancy, but it doesn't really tell you how big of a source rate you can find, especially at hotspots. To get this information you need to understand the colormap on the planet and have a play with the colorbar.

Colorbar. The colorbar has two handles at both ends (white triangles), so you can set the colors to indicate finer nuances of abundacies by moving them closer to each other. By holding and moving the narrow colorbar itself (grab it at the colors) you can slide through the abundancy values with a higher resolution.

- In it's widest setting the colorbar goes from zero to maximum abundancy (blue to white, 0% - 100%)

- In it's most narrow configuration the resolution of the colorbar is increased by a factor of 10 (so the minmum and maximum now is just 10% apart, f.i. the colorbar starts with blue at 72% till white at 82% - everything above and below won't be visible anymore and the colormap on the planet will reflect that)

HowTo find a hotspot. You click on the abundancy bar to get a colored distribution map overlay on the planet. Then you spin and roll the planet around until you think you got the most abundant spot. Now narrow the colorbar for 10x resolution. Check the hotspot by sliding the narrow colorbar slowly from the left to the right, so that the most abundant area just becomes white. You might want to spin and roll the planet again to make sure there are no better hotspots you might have missed.
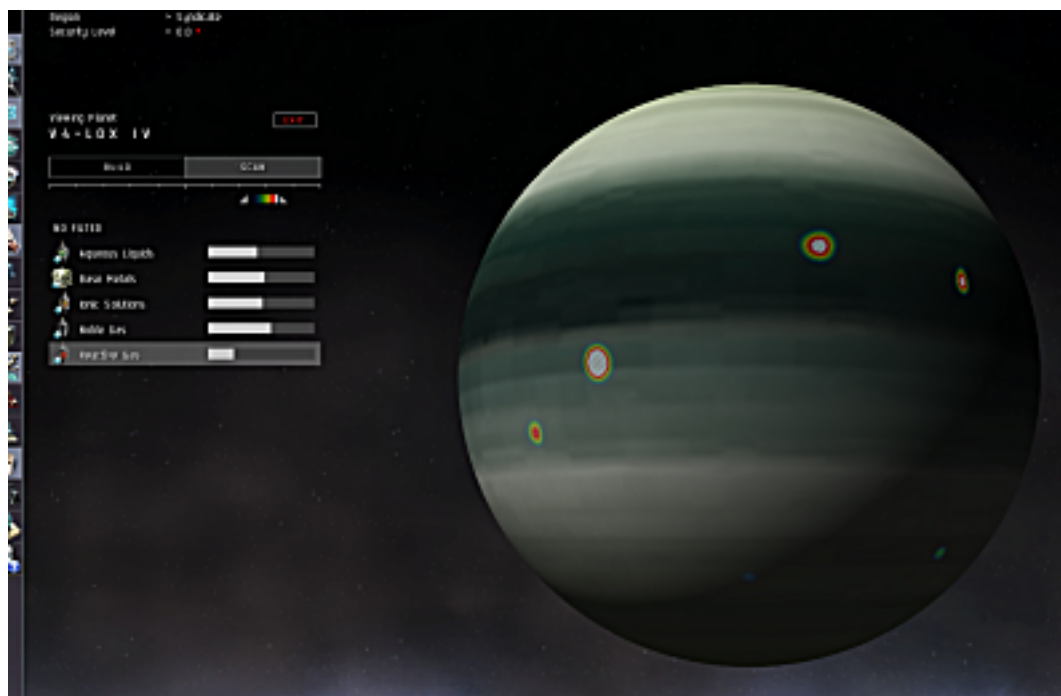
So, what's the deal with the range of the remote scanning skill. What does it look like to scan a planet from far away compared with a scan right next to it? Truth to be told, you want to be as close as possible to the

planet. This naturally serves just the purpose to scan for alternative planets you could colonize. Once you put down a command center the scan results will look the same from everywhere in New Eden.

So, this is how it looks like when you scan from 9 LY away (colorbar range 13% till 23%):
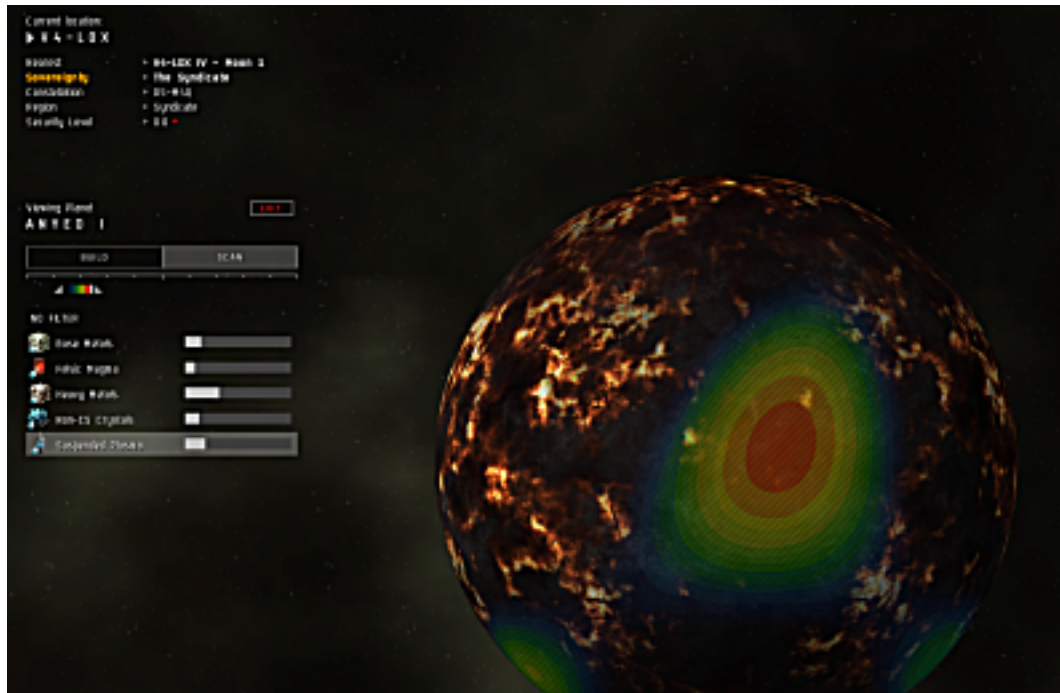
And this is how the same planet looks from orbit by scanning the same resource with the same setting of the colorbar:
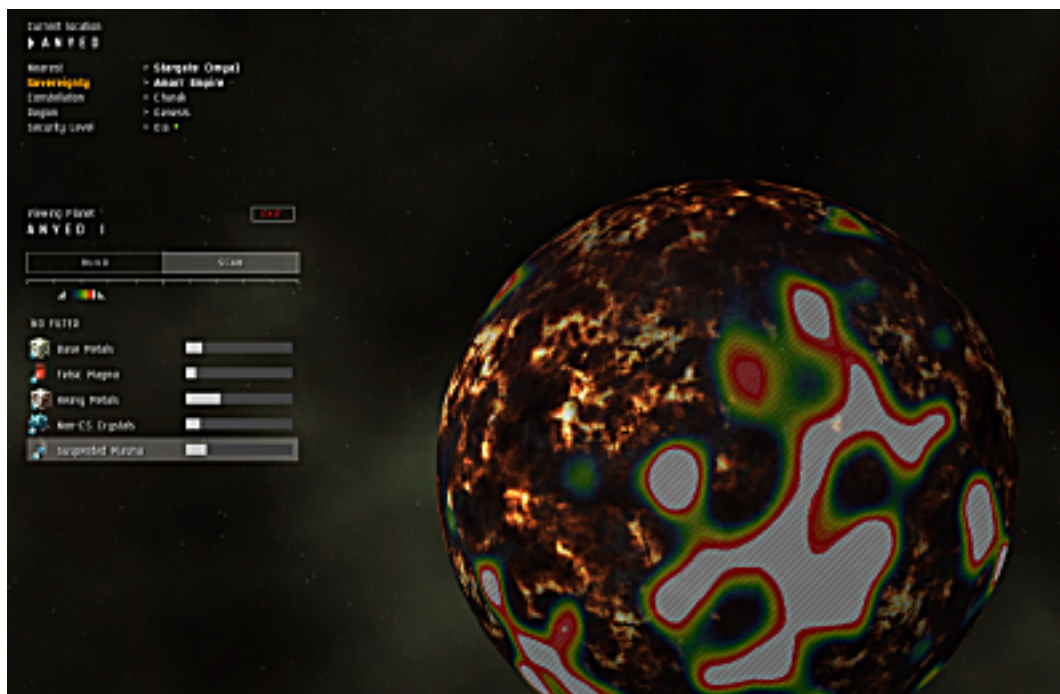
So the conclusion is, that at maximum scan distance you won't even get a clue about the possible strength of the hotspots.

Planetary Structures

Now that you know where to get the most stuff you need some information about the structures you will work with. Most of the time you'll just look at symbolic representations of the structures you built on the ground (or let float in the atmosphere) in the form of pins. Each structure has a specific symbol on it's pin so you can easily spot it's function in your planetary networks:

Planetary Command Center - xCC

Planetary command centers are the infrastructural core of each colony, specialized for a planet type and come in 6 tiers. There are basic, limited, standard, improved, advanced and elite command centers. With a command center you can already export products from a planet via a planetary launch container. Command centers can't import products on their own. You can only place one command center per planet. Command centers need to be bought on market and shipped to the planet.

Extractor - EX

An exractor pulls material out of a planets crust, collects liquids or destilates gases. There are dedicated extractors for each of the 15 raw materials. If you set up an extractor you can choose between 4 levels of exploitation rates which affects the cycle time, the lifespan of the resource and it's extractable size. Extractors don't need to be bought on market.

Storage Facility - SF

A storage facility can be used as a buffer, a redistribution point and as a simple storage as the name already says. There can be different types of materials in the same storage at the same time. Storages don't need to be bought on market.

Basic Industry Facility - BP

The basic industry facilty processes raw materials into processed materials. It's cycle time is 30 min. Industry facilities don't need to be bought on market.

Advanced Industry Facility - AP

Advanced industry facilities process processed materials into refined commoditites and refined commoditites into specialized commodities within 1 hour cycles. Industry facilities don't need to be bought on market.

High Tech Production Plant - HP

High tech production plants are only available on barren and temperate planets. With 1 cycle per hour they process specialized commodities and processed materials into advanced commodities. Production plants don't need to be bought on market.

Launchpad - LP

A launchpad serves as a connection to the customs office in the orbit of the planet. If you build one, the customs office in the orbit becomes accessible to you or it will even create one if there isn't one already. You can export and import products with it. Launchpads don't need to be bought on market.
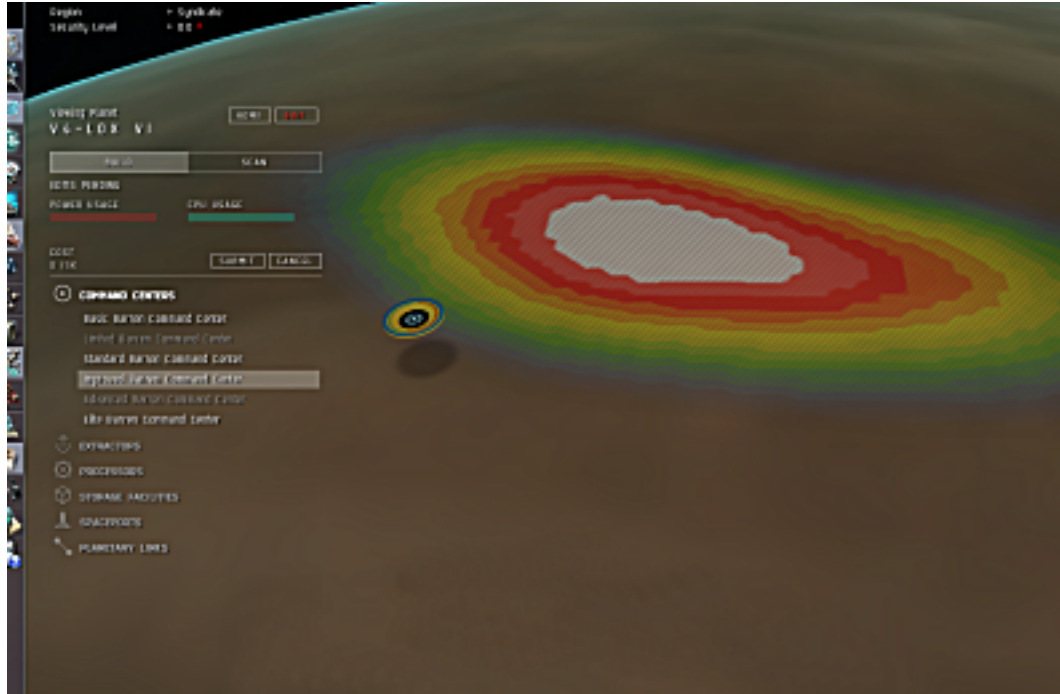
HowTo install a CC. Be in space in the same starsystem as the planet you want to colonize. Have the matching CC in the cargohold of your ship and planet view open. In the 'BUILD' pane only the command center item will be highlighted, expand it. Depending on the type(s) of CC(s) in your cargohold there will be highlighted entries. Decide upfront where to place your CC as you can't spin and roll the planet during placement. Click the highlighted entry (mouse pointer gets a CC symbol attached) and click again on the planet where you want the CC to be. Click the 'SUBMIT' button to finalize your building or 'CANCEL' (equals R-CLICK with mouse) to start again.

Table 3. PG and CPU for planetary structures

PIN	PG	CPU	Cycle Time	Storage	Cost
BCC	+6,000 MW	+1,675 tf	-	500 m3	???
LCC	+9,000 MW	+7,057 tf	-	500 m3	???
SCC	+12,000 MW	+12,136 tf	-	500 m3	???
ICC	+15,000 MW	+17,215 tf	-	500 m3	???
ACC	+17,000 MW	+21,315 tf	-	500 m3	???
ECC	+19,000 MW	+25,415 tf	-	500 m3	???
EX	-800 MW	-200 tf	300-1,800 sec	-	150,000 isk
SF	-700 MW	-500 tf	-	10,000 m3	600,000 isk
BP	-800 MW	-200 tf	1,800 sec	120 m3	225,000 isk
AP	-700 MW	-500 tf	3,600 sec	1 cycle	450,000 isk
HP	-400 MW	-1,100 tf	3,600 sec	1 cycle	900,000 isk
LP	-700 MW	-1,600 tf	-	10,000 m3	1,125,000 isk
Link-0	- 0.26 MW/km	- 0.36 tf/km	-	-	-

Let's say you placed a CC at your planet, got all exited about it, flew some fancy maneuvers and now can't see it anymore. Well, nothing easier than that. Either DoubleCLICK on the planet or click the 'HOME' button or re-enter the planet view mode. All of those actions executed on a planet (that you've already colonized) will spin, roll and zoom right on top of your CC.

HowTo install planetary structures. Access the planet mode from the maximum distance your skills allow you to. Choose from the 'BUILD' pane the structure group you want to built from and expand it. Decide upfront where to place your structure as you can't spin and roll the planet during placement. Click at the entry of the structure you want to build (mouse pointer gets a pin symbol attached) and click again on the planet where you want the structure to be. Click the 'SUBMIT' button to finalize your building or 'CANCEL' (equals R-CLICK with mouse) to start again.

Building the structures is one thing, understanding how to handle them another, especially the pins. Each pin has some indicators that tell you something about it just by looking at it. The colored outer ring gives you information about the usage of the storage volume of that structure, like a circular gauge with darker color for free space and brighter color for used space. The smaller white inner ring signals the status of the structure. A blinking ring tells you that the structure is waiting for something. A steady, but broken white ring tells you at what part of the actual cycle this structure is at (one cycle 1-6, next cycle 7-12):
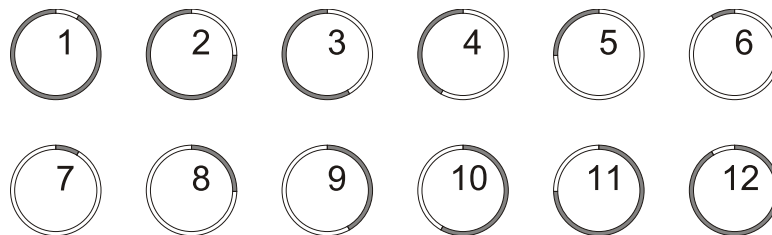
When a pin has no smaller white inner ring it just means that it doesn't cycle. A special case is the command centre with it's half blue half red inner ring, cause this one tells you how much PG/CPU the installed other structures on that planet are consuming.

Structure detail window...
Installing Shematics at BP, Surveying for Deposits with EX

Links, Routes and Transfers

So you know the 'where' and you know the 'with what'. Let's get to the last bits before you know how to set up any production chain there can be. The structures need to exchange products with each other for this all to work. To be able to exchange products between them, the structures need to be connected by links where there can get transports - the routes - over it.

Link

Links connect pins like tracks or roads connect cities. They need PG/CPU to be run and can hold a limited volume of transports. To extend this limitation you can upgrade links over 10 levels, which will also increase their PG/CPU consumption. Links don't need to be bought on market and cost nothing to create.

Table 4. Link Upgrades for 100 km and 1,000 km

Level		Capacity	100 km		1,000 km	
			PG	CPU	PG	CPU
0	None	250 m3/h	26 MW	36 tf	161 MW	216 tf
I	Local	500 m3/h	45 MW	69 tf	356 MW	544 tf
II	Basic	1,000 m3/h	67 MW	110 tf	572 MW	949 tf
III	Standard	2,000 m3/h	91 MW	156 tf	804 MW	1411 tf
IV	Improved	4,000 m3/h	115 MW	208 tf	MW	tf
V	Fast	8,000 m3/h	141 MW	264 tf	MW	tf
VI	Expendited	16,000 m3/h	167 MW	324 tf	MW	tf
VII	Express	32,000 m3/h	??194 MW	??385 tf	MW	tf
VIII	Advanced	64,000 m3/h	222 MW	454 tf	MW	tf
IX	State-of-the-Art	128,000 m3/h	251 MW	523 tf	MW	tf
X	Experimental	256,000 m3/h	280 MW	596 tf	MW	tf

HowTo create Links. There are several ways to start the creation of links:

- from the 'BUILD' pane, 'PLANETARY LINKS' entry, then CLICK on the pin you want to start at
- by R-CLICK on the structure pin you want to start at and selecting 'Create Link' from the context menu
- by holding down [CTRL], then CLICK with the mouse on the pin you want to start the link from and then release [CTRL]
- with the 'CREATE LINK' button in the structure detail window in the 'LINK' tab

Links are all finished by a CLICK on the destination pin.

Route

Routes between structures can only be created, if one of the structure does work on a repetetive cycle and if there is already a link between them. Routes can't be created between non-cycling structures. You can have as many routes per link as you want, as long as the capacity of the link can carry it. Routes don't need to be bought on market and cost nothing to create.

5 hops max
Check the light teal dotted lines (those are THE links, VERY VERY BAD COLOR-CHOICE btw) between the two structures. No (marching ants) moving little dots - no routes. Each direction (bidirectional traffic) will have it's own moving dots. Also.. you can check the link for routes by just hovering over it. If there is a route running along it, there will be a percentage value poping up. The same can be achieved by hovering over the destination structure/pin. All incoming and outgoing routes will light up and the according percentage values will show up. However, if you got other routes already running over that link it might get confusing and not possible at all to see it easily. In that case you have to check source and destination for the routes to be sure

HowTo create Routes. As routes describe the arranged transport of products between structures you can create them from several points within the structure detail view window at several occasions.

HowTo make a Transfer between storages. As you can't create routes between storages, there need to be a way to get products from storage to another storage or the command center or the launchpad. open

the detail window for the structure that contains the pile of products you want to transfer and click on the 'STORAGE' tab. Now CLICK on the 'EXPENDITED TRANSFER' button and a new window will open.

Launch and Customs Office

work in progress.. Taxes
HowTo export or import products

Processing Tree

work in progress..

Volume of goods

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Reactive Gas ─────▶ Oxidizing Compound
Noble Gas ─────▶ Oxygen ─────▶ Oxides
Micro Organisms ─────▶ Bacteria
Planktic Colonies ─────▶ Biomass ─────▶ Supertensile Plastics
                                    Viral Agent
Aqueous Liquids ─────▶ Water ─────▶ Super Conductors
Suspended Plasma ─────▶ Plasmoids
Non-CS Crystals ─────▶ Chiral Structures ─────▶ Transmitter
Felsic Magma ─────▶ Silicon ─────▶ Miniature Electronics
Base Metals ─────▶ Reactive Metals ─────▶ Mechanical Parts
Noble Metals ─────▶ Precious Metals ─────▶ Biocells
Carbon Compounds ─────▶ Biofuels ─────▶ Polytextiles
Autotrophs ─────▶ Industrial Fibers

Gel-Matrix Biopaste
Planetary Vehicles ─────▶ Integrity Response Drones
Hazmat Detection Systems
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Carbon Compounds ─────▶ Biofuels
Autotrophs ─────▶ Industrial Fibers ─────▶ Polytextiles
Micro Organisms ─────▶ Bacteria
Noble Metals ─────▶ Proteins ─────▶ Fertilizer ─────▶ Industrial Explosives
Suspended Plasma ─────▶ Plasmoids
Aqueous Liquids ─────▶ Water ─────▶ Super Conductors ─────▶ Ukomi Super Conductors ─────▶ Nano-Factory
Ionic Solutions ─────▶ Electrolytes ─────▶ Synthetic Oil
Noble Gas ─────▶ Oxygen
Base Metals ─────▶ Reactive Metals
```

Diagram 1

Ionic Solutions → Electrolytes
Electrolytes → Coolant
Aqueous Liquids → Water → Coolant
Reactive Gas → Oxidizing Compound → Oxides
Noble Gas → Oxygen → Oxides
Oxides → Condensates
Coolant → Condensates
Condensates → Organic Mortar Applicators
Heavy Metals → Toxic Metals → Consumer Electronics
Non-CS Crystals → Chiral Structures → Consumer Electronics
Consumer Electronics → Robotics
Base Metals → Reactive Metals → Mechanical Parts
Noble Metals → Precious Metals → Mechanical Parts
Mechanical Parts → Robotics
Robotics → Organic Mortar Applicators
Micro Organisms → Bacteria → Organic Mortar Applicators

Diagram 2

Carbon Compounds → Biofuels → Biocells
Noble Metals → Precious Metals → Biocells
Biocells → Transcranial Microcontrollers
Micro Organisms → Bacteria → Nanites
Micro Organisms → Bacteria → Test Cultures
Nanites → Transcranial Microcontrollers
Base Metals → Reactive Metals → Test Cultures
Aqueous Liquids → Water → Water-Cooled CPU
Test Cultures → Synthetic Synapses
Water-Cooled CPU → Guidance Systems
Synthetic Synapses → Recursive Computing Module
Noble Gas → Oxygen → Supertensile Plastics
Planktic Colonies → Biomass → Supertensile Plastics
Non-CS Crystals → Chiral Structures → Transmitter
Suspended Plasma → Plasmoids → Transmitter
Transmitter → Guidance Systems
Guidance Systems → Recursive Computing Module
Transcranial Microcontrollers → Recursive Computing Module

First Diagram

Micro Organisms → Bacteria

Planktic Colonies → Biomass

Bacteria, Biomass → Viral Agent

Noble Metals → Proteins

Carbon Compounds → Biofuels

Proteins, Biofuels → Livestock

Livestock → Vaccines

Viral Agent → Vaccines

Vaccines → Sterile Conduits

Non-CS Crystals → Chiral Structures

Felsic Magma → Silicon

Silicon, Chiral Structures → Miniature Electronics

Base Metals → Reactive Metals

Heavy Metals → Toxic Metals

Reactive Metals, Toxic Metals → Construction Blocks

Miniature Electronics, Construction Blocks → Smartfab Units

Smartfab Units → Sterile Conduits

Aqueous Liquids → Water

Water → Sterile Conduits

Second Diagram

Suspended Plasma → Plasmoids

Ionic Solutions → Electrolytes

Plasmoids, Electrolytes → Rocket Fuel

Reactive Gas → Oxidizing Compound

Felsic Magma → Silicon

Autotrophs → Industrial Fibers

Oxidizing Compound, Silicon → Silicate Glass

Silicon, Oxidizing Compound → Polyaramids

Industrial Fibers → Microfiber Shielding

Rocket Fuel, Silicate Glass → Camera Drones

Polyaramids → Hermetic Membranes

Microfiber Shielding → Nuclear Reactors

Planktic Colonies → Biomass

Biomass → Gen. Enhanced Livestock

Noble Metals → Proteins

Noble Metals → Precious Metals

Heavy Metals → Toxic Metals

Precious Metals, Toxic Metals → Enriched Uranium

Enriched Uranium → Nuclear Reactors

Camera Drones, Hermetic Membranes, Nuclear Reactors → Self-Harmonizing Power Core
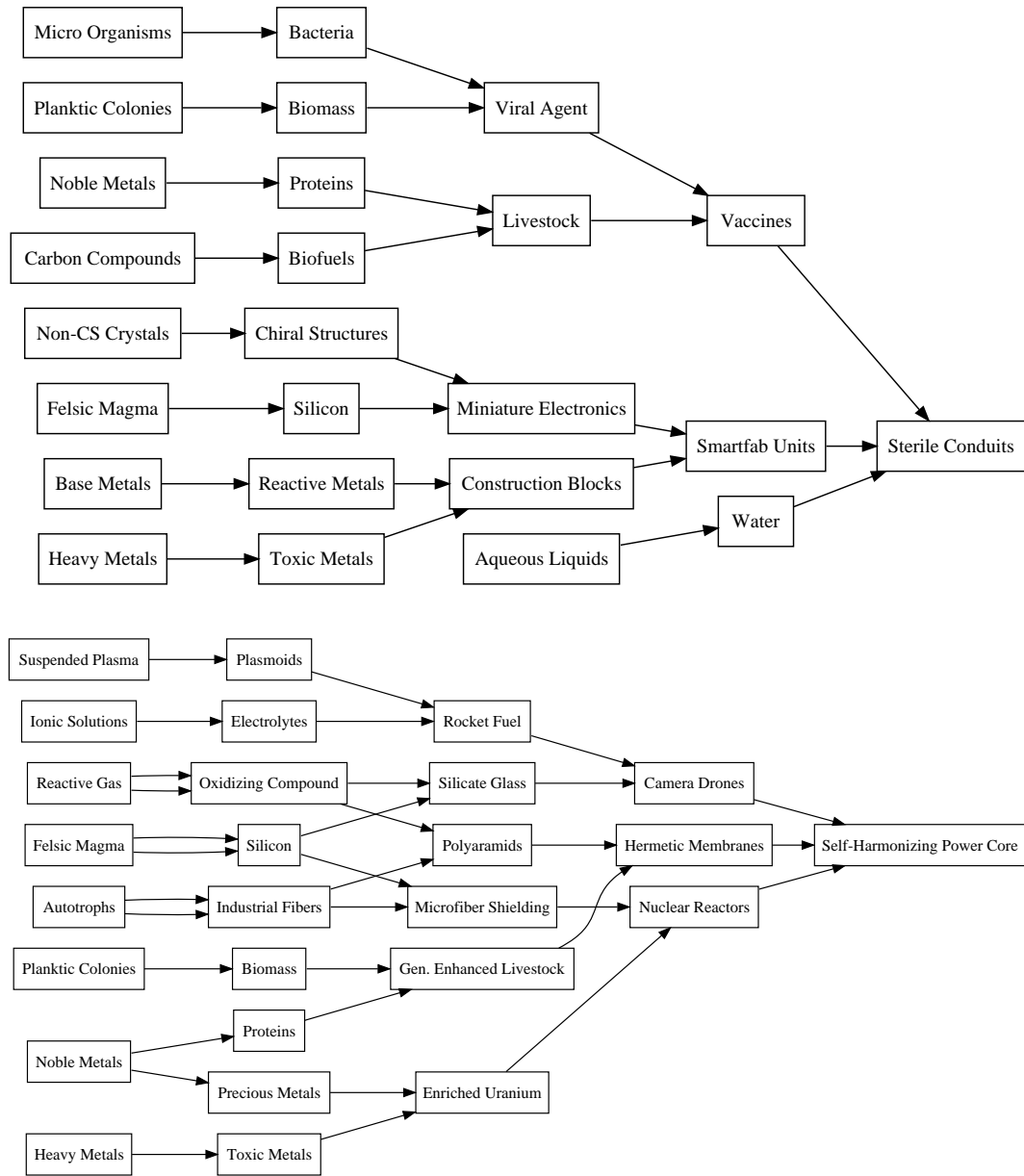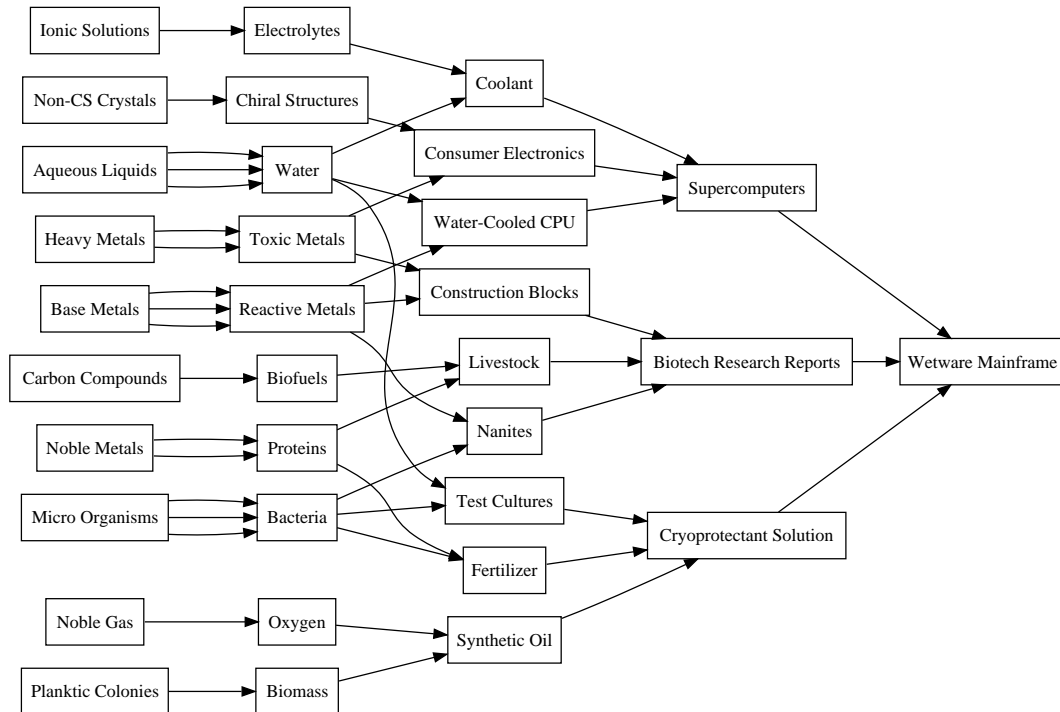
Production

work in progress..
depletion time vs source range vs extraction rate
Add something about max abundancy vs source rate.. it seems that when the colorbar is at most wide setting that white (100%) reflects 255u/min for a 5hour cycle. This means with the right setting for the colorbar at 78% you can actually see sustainability areas...
HowTo decide where to place extractors

FAQ & Changelog

FAQ

Are there any planets in can't colonize? You can't colonize shattered planets or planets in starsystems where another corp or alliance has sovereignty. Also planets in starsystems with high traffic and storyline planets aren't colonizable. Any other planet is colonizable by you. Yes, also the ones in w-space.

Can I place more than one CC per planet? No.

Can I upgrade my CC without terminating my whole colony? No.

Can I attack other players colonies in any way? The only way to screw other podpilots for now is to extract at the very same spots they extract. DUST514 will bring other means to the table though.

Can I exchange products with other podpilots on the surface? This is planned for a future expansion and not available yet.

Changelog v0.2
- error in Table 2 - raw materials for ice planet solved

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