

NatDiamonds

The first and only bitcoin-jewelry (100% free-mint based)

If you think that matter can only be made of atoms and molecules, you would be surprised to know that bitcoin introduced in 2023 a new substance called digital matter (DMT). Similar to historical big tech breaks, this discovery is empowering a whole new industry: digital manufacturing.

DMT substances are a kind of digital clay. They provide artists and builders with a raw, flexible,

and revolutionary medium that can be molded and shaped into unique assets on the ultimate canvas: Bitcoin. Data-patterns (known as elements within Digital Matter Theory), are now being discovered, and are gradually forming basic elements of a new matter (like atoms in physics).

This results in a new standard: the digital periodic table.

Bitcoin Periodic Table															
Bh				T											
Sz				Ss				W				H			
Mt				No				Bi				Dc			
												</			

NatDiamonds aims to pioneer it, crafting crypto-jewels, a new asset class harnessing the

concept of bitcoin digital clay as the most precious ingredient.

Digital Scarcity

From immutability...

Before Bitcoin there was no such thing as truly immutable data, on earth.

- Not even the oldest books, like the Bible, are unequivocally defined at the single character level.
- Geographical data seems constant but they undergo slow changes: lake and river shapes, oceans deeps, mountains peaks, coast lines...
- Everything in nature is reaching a lower entropy state. Change and mutability are by design all over the Universe
- ...

Full and measurable immutability is only possible in the digital space and as per now the best implementation of it is by far in Bitcoin. This is a very important concept:

- long term immutability doesn't exist in nature, and is only possible in the digital realm
- digital data cannot be granted immutable unless they are buried under a bunch of blockchain blocks, especially big, energy-powered blockchains, like bitcoin.

That's why Bitcoin blocks, the rarest form of data on earth, can be considered as new rocks humanity would have discovered on a distant planet. Every now and then these blocks unpredictably show some predefined regular pattern.

... to digital scarcity



As an analogy you can consider how Nature managed to depart from normal fractal shapes so as to make Italy's coasts very similar to a boot. Outliers are key: they impersonate digital rarity as eccentric phenomenologies of the gauss curve.

This is how fragments of bitcoin data manage to create new matter elements in the numeric realm, matching predefined patterns. On top of

being the only form of 100% immutable stuff on earth, these patterns are also non-arbitrary because no one can, neither predict when they will occur nor influence the bitcoin network to bring them into existence.

Sometimes Bitcoin patterns can be scarce enough to introduce a new form of rarity. This digital scantest fits the 3rd millennium much more than that physical one.

Blockchain assets built on this new rarity are a highly demanded class of collectibles, provably scarce, non-tamperable and forever immutable.

We are all like Christopher Columbos and his

crew sighting America's lands for the very first time.

People are discovering the crypto/web continent just to realize that there is a lot of gold and other free to grab, precious stuff under the ground.

Jewelry Redesigning the future of jewelry

Thanks to bitcoin ordinals, things are going to change forever in many fields, especially where rarity is involved. NatDiamonds aims to front run this change, proposing a new paradigm for the jewelry industry.

Sooner or later, every business diminishes and eventually comes to an end. Jewelry has been around for thousands of years and has almost no competitors, a very unbalanced situation. Now is the time for tech innovation to challenge the field so as to revive one of the oldest businesses on earth.

Jewelry is switching from physical to digital and DMT is a credible and powerful actor of this change.

More specifically, NatDiamonds is an unstoppable protocolled way to build precious digital assets, which resulted in the first bitcoin jewelry on earth.

Everybody can publicly verify that each asset is bitcoin-made, a completely new concept in the space.

At inception, DMT creators set forever few immutable rules. Nonetheless Bitcoin keeps full control on the supply, being the only authority in charge to allow new jewels' mints down the road. Not even the creator can change that and no one can supersede DMT rules.

There will only be five NatDiamonds collections for an estimated total 50.000 mintable items by 2030 (which is much scarcer than available IRL precious stones). However, collections are composable in a top-bottom manner, with items fading in rarity from the top down.



Following a few simple rules, collectors can themselves manufacture new jewels, mixing initial rare assets to get less scarce ones:

- R NatDiamonds assets = RARE, about 50k items by 2030
- S NatDiamonds assets = SCARCE, possibly hundred of millions items by 2030 ranked in a clear and layered scarcity pyramid.

“Astonishing enough, this new jewelry is 100% free-access and free-mint based.”

1. the DMT protocol set the rules forever
2. a new block arrives on bitcoin: it is mintable only if contains a NatDiamonds DMT pattern
3. under a first-arrived/first-served logic, everyone is free to grab the new jewel by inscribing the first the matching ordinal
4. owners of one or more items can mint derived (less scarce) jewels from the top-ranked DMT ones
5. the only fees involved are standard bitcoin transaction fees (2, to 4 dollars that go as usual to network miners)

This is a huge sign of times and a revolution in jewelry: for the first time, **rarity is not proportional to value** (at mint) and anyone is equally allowed to freely grab precious items. This is conceptually very similar to gold diggers or seekers in rivers. The first getting the stone becomes the legal owner. Please note that goods are delivered here as Nature does with air, water, wood... and other public resources.

We believe that most valuable assets in the 3rd millennium will be the ones :

- stored on the best blockchain (bitcoin)
- based on the digital matter theory (DMT)
- delivered through free-mints (for low speculation and high fairness)

Our bets are:

- DMT free-minted assets will be the 3rd millennium's most rare collectibles.
- NatDiamonds, the provably first collection to digitally reshape old jewelry, will be the most successful in creating the new one.

Our vision



DMT Digital Matter Theory

DMT is the bitcoin theory that infers digital matter from tamper-proof bitcoin data, the same way Nature creates new things leveraging non-tamperable physical laws. No one can cheat with bitcoin data the same way no one can change physical laws, asking for instance an apple to fly.

DMT paves the way to a kind-of new thermodynamics, but for the digital world. This allows fair ordinal crypto-asset creations, whose authenticity and provenance are granted by bitcoin transparency.

Subjectivity is removed/minimized which results in unbiased outputs: DMT artworks are considered bitcoin-made because they are shaped by data patterns that are not influenced by any external factor/person, not even artwork creators.

Meaningful, predefined data patterns are called elements in the Digital Matter Theory. A new ordinal is available for minting every time a new block contains the element pattern.

March 1st 2024 1h35pm marks the creation of the very first bitcoin jewelry on earth, because all is time stamped forever in bitcoin data, with the creation of the DMT pattern "21".

NatDiamonds is a valuable project because it is provably the first digital jewelry, that lets bitcoin autonomously create, unstoppable, non-arbitrary jewels.

The two DMT patterns act similar to any existing *physical laws*, which are tamper-proof and inviolable. DMT patterns define when new digital matter can be extracted from a bitcoin block the same way physics defines when a body falls.

Every time the pattern 21 is present in the field 11 of a valid block, a new NatDiamond becomes mintable (first-arrived/first-served).

Every time the pattern d21 is present in the field 11 of a valid block, a new NatJewels becomes mintable.

natdiamonds.21.11

natdiamonds.d21.11

#		Name	Pattern	Field	Deployment Time	Deployment ID	Deployer
188	21	natdiamonds	21	11	03/01/24 01:35 pm	15a0b...2aci0	bc1pc...e9tmv
272	d21	natdiamonds-rare	d21	11	03/30/24 03:25 pm	a00e1...5aci0	bc1pc...e9tmv

This is how we claim strong thermodynamics analogies and stay rooted in Physics.



High data pressures (symmetric btc data)
Deepl digital undergrounds (hash block chaining)
Very long periods (rare DMT events)

Perfect NatDiammonds to free-mint

The first collection

The NatDiamonds collection

It was released on March the 1st 2024 as a free mint with no restrictions on the total numbers of items (bitcoin data set the supply) but a limitation criteria on which block is mintable.

Every time the pattern “**21**” is in the block field 11, a new NatDiamond becomes mintable.

Its rarity is dictated by scarcity traits rules as per the official project GitBook

<https://natdiamonds.gitbook.io/natdiamonds-doc/>

NatDiamonds is the root collection and the one all the others depend upon.

The NatJewels collection

NatJewels is the second collection of the project. It is released and publicly disclosed together with this Whitepaper. NatJewels is a multi-class collection producing 4 kinds of different stones.

Every time the pattern “**d21**” is in the block field 11, one of the 4 NatJewels become mintable

- Pearls : whenever the block number ends with 3 zeros or more (ex 123000)
- Gems: whenever the block number ends with 2 zeros (ex 123400)
- BlackDiamond: whenever the block number ends with 1 zero (ex 123450)
- [Ruby, Emerald, Sapphire] whenever the block number ends with any nonzero digit
 - Emerald (ends with digits 1 to 3)
 - Ruby (ends with digits 4 to 6)
 - Sapphire (ends with digits 7 to 9)

Symmetric,
whatever the
block number



Pearl



Gem



BlackDiamond

Symmetric for
palindromic
block numbers
only



Emerald



Sapphire



Ruby

Anyone is free to grab available NatJewels on MScribe with the limitation of max 2 items per wallet. The collection was deployed under the Trac “privileged auth” mechanism so to avoid mint front running and grant a fair distribution.

Rarity & Scarcity

The rarity pyramid

Since the "d21" pattern is less frequent than the "21" one, NatJewels are generally speaking, more rare (and consequently more valuable) than NatDiamonds.

Their estimated frequency are

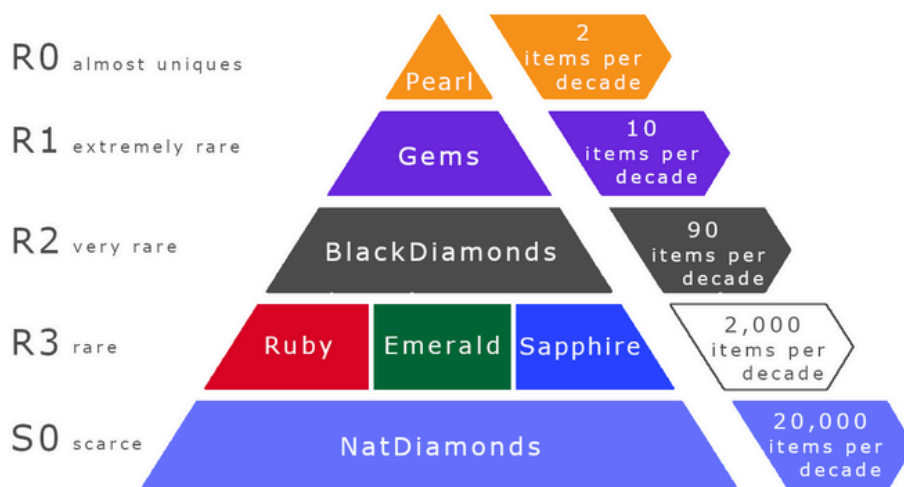
- NatJewels (R) around 2100 items per decade
- NatDiamonds (S) around 21000 items per decade

We consider NatJewels the RARE collection of the project while NatDiamonds is the SCARCE one. Collection's items are often prefixed R or S to label them as belonging to the right rarity class.

Inside NatJewels, items are sub-ranked according to their rarity.

- Pearls (R0) Almost unique => 2 items/decade
- Gems (R1) Extremely rare => 10 items/decade
- BlackDiamonds (R2) Very Rare => 90 items/decade
- [Ruby, Emerald, Sapphire] (R3) Rare => 2000 items/decade

The overall ranking gives rise to the following scarcity pyramid.



This pyramidal minting mechanism is a new Gold Rush for jewels, same as the one that happened when the old world discovered a new continent. The fact everything is available under a fair free-mint logic is :

- a big incentive for collectors to mint sooner than later, keeping interest alive on the project.
- a revolution in the high-end collectible world where rich and poor fairly compete to grab rare and valuable newly created items for pennies (bitcoin transaction fees)

Rarity & Scarcity

The inverted price pyramid

NatDiamonds targets to never sell a single jewel, instead we are determined to keep everything under a FREE-MINT logic.

The only exception would be in case, for the better good of the community, we would need to fund a company/foundation so as to grant project sustainability over time (not mandatory, nor necessary).

Should this happen, we plan to sell less-scarce/less-valuable collections only (like derived/composed NatStones) so that the high-end, most precious jewels will always be delivered under free-mints.

This feature differentiates us a fair amount from the current jewelry world.

“NatDiamonds most valuable items are also the most accessible ones.”

This also reverses the most basic rule of commerce, delivering valuable objects for no money as shipped from the factory, while usually prices start high and get lower over time.

An utterly unseen behavior in business, but also a strong sign of times as we go along the open-source mindset, taking over in tech fields.

Extensions

Smart contract collection's extensions

The project will give NetJewels owners the possibility to extend/embellish objects of a collection minting new standard ordinals from DMT items.

This feature requires smart contract logic and programmability. As of now (September 2024) NatDiamonds hasn't integrated smart contracts yet, mainly because this feature is still under development on several platforms. Currently, ICP seems to us the best way to provide smart contracts around DMT, meaning in the most trustless way.

We are giving here the details on how the NatJewel's composability will work, i.e. the rules to derive ordinal's jewels starting from initial DMT collections (R and S) knowing that this part is under construction and could change in future, following improvements in NAT protocol, DMT, ICP or other BTC L1/L2 solutions.

Once smart contract will be in place, NatStones owners will be allowed to extend their items through three axes.



1. Halving special editions.




Each R item gives its owners the right to mint a special edition 3D Jewel at the next halving. The owner has to call the smart contract to trigger the minting.

Only future halving are taken in account (no retroactivity)

2. Jewel's crowning.

All R items as well as S0 NatDiamonds can spawn an embellished version of the original showing a precious metal crown on top of the jewel.

The NatDiamonds project has 4 metal DMT elements: Gold, Silver, Palladium and Copper. The first 3 are precious metals.

Element	Pattern	Field	Estimated mintable items (per decade)	
au-gold	d78	11	2.000	
ag-silver	d47	11	2.000	
pt-platinum	d79	11	2.000	
cu-copper	29	11	20.000	-

The owner of both the target NatJewel and the precious metal ordinal has to call the smart contract to trigger the minting.

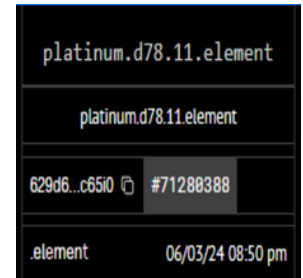
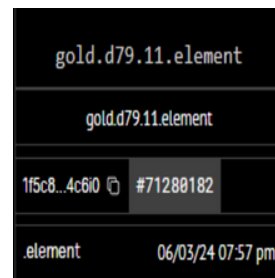
Copper is not directly used for crowning, but can form alloys when mixed to other metals.

Crowning with gold

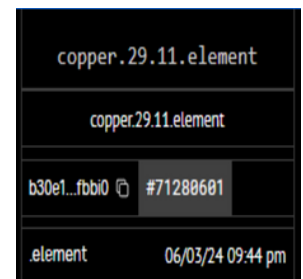
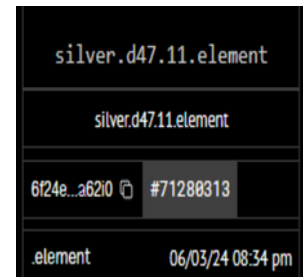


Please note that the owner of more than one precious metal DMT ordinals will be allowed to mix them to get new precious matters.

The table shows how metals can be combined into alloys.



Gold 79	Silver 47	Platinum 78	Copper 29	Metal/Alloy	Type
++				Double Gold	Metal
	++			Double Silver	Metal
		++		Double Platinum	Metal
+	+			White Gold	Alloy
+			+	Rose Gold	Alloy
	+		+	Blood Silver	Alloy
		+	+	Pink Platinum	Alloy
+	+	+	+	Orange Bitcoin	Alloy



Mixing the three most precious IRL metals from the old world gives you the most precious possible ND alloy: **the bitcoin-orange alloy**.

3. NatDiamonds derivation

While R-class jewels (Pearls, Gems and Stones) are non-derivable (static) items, the S0-class NatDiamonds is a derivable (dynamic) collection from which less-scarce levels of jewels can be spawned.

The beauty here is simplicity: one simple rule allows collectors to mint a progressively larger number of new derived items. It is important to highlight that there is no lower limit to the number of S levels. This could lead to an infinite number of minted items of exponentially decreasing scarcity.

- S0 has 20.000 items per decade
- S1 is estimated to have 800.000 items per decade
- S2 can have several millions of items per decade
- ...

Derivation Rule

Two NatDiamonds belonging to the same level of scarcity give the owner of both the right to mint a new jewel at a lower level (N-1 floor) in the scarcity pyramid, provided the sum of their blocks gives a palindromic number.

Exemple: Assuming I own the two NatDiamonds #123432 and #123210 both from layer S0, I'm allowed to mint a new item at layer S1 (less scarce) because their sum is the palindromic number: #246642

$$\begin{array}{r}
 123432 + \\
 123210 = \\
 246642
 \end{array}$$

The free market will decide when new minting stops. This happens when lower-level jewels will be considered not rare enough too to even cover free-minting.

Thanks to this mechanism, the project spans all the possible ranges of the mineral world, like in real life (IRL): from extremely rare/unique stones (rarest jewels on heart) to the very abundant grains of sand.

It is important to pinpoint the fact that

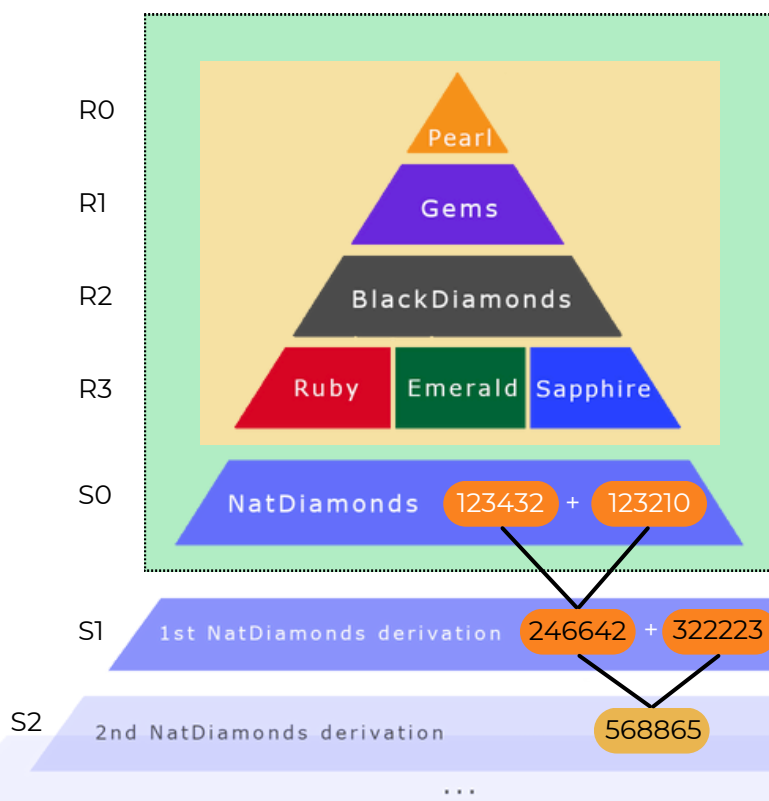
- *derived items are standard bitcoin ordinal assets not linked to the DMT logic.*
 - *R + S0 JEWELS: mintable whenever the block shows the DMT data pattern criteria in field 11*
 - *DERIVED JEWELS: mintable every time they fulfill the derivability criteria described in this WP (this logic is specific to us and doesn't involves DMT)*

- Each derivable R-item can only be used once per derivation. It is then assigned in the smart contract a "derivation-done" flag so that each item can be used two times only (once for Halving, once for Crowning)
- Each derivable S-item (S0, S1...) can only be used once per couple of palindromic sums. The smart contract assigns a "derivation-done" flag to the pair of block numbers giving the palindromic sum, so it can be used once only (but the same block number can be part of different pairs giving different palindromic sums).

(Ex block number 10 + block number 123311 and block number 10 + block number 456644: block number 10 can be reused in the two pairs but non twice on the same)

Derivability

Derivability logic



Owners of any R-item (rare) are allowed to mint a special edition 3d NatDiamond at the next available halving.



Owners R item or S0 item (all rare + NatDiamonds first layer) and one or more precious ordinals metal are allowed to crown their jewel. In that case a new crowned ordinal is minted on top of the DMT original one, which stays the same.



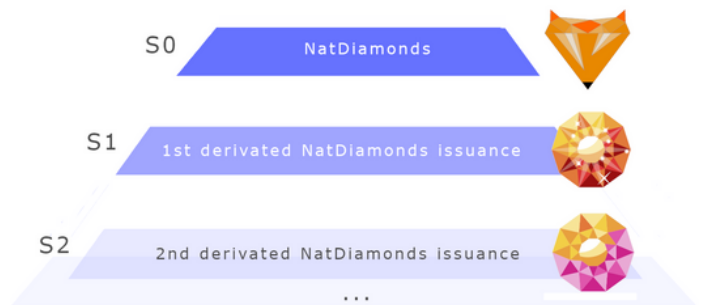
Owners of any S-item (rare) are allowed to mint a new NatDiamond combining two NatDiamonds of the same level (S0, S1 ...) that sums to a palindromic number. The new diamond has the next lower level (ex. S0+S0 gives an S1 diamond)

Derivation

NatDiamonds' derivations: how it works

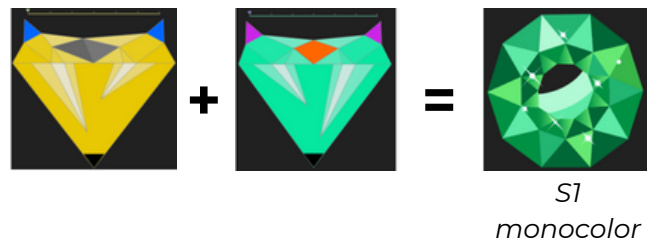
In the scarcity pyramid, NatDiamonds is the first scarce (S) collection. Items are labeled S0 because they belong to the first scarce layer. Starting from this layer, owners of two S0 items can generate another diamond belonging to the next lower (less scarce) layer: S1.

This is possible any time the sum of the two initial NatDiamonds gives a palindromic number.

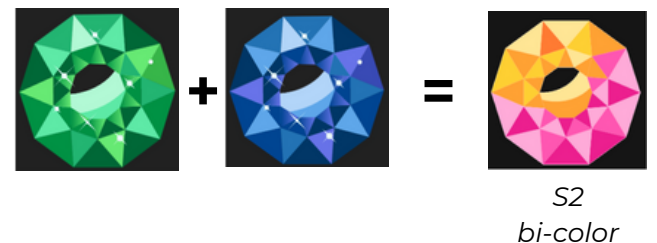


$[S0a, S0b]$ gives $[S1]$ if $S0a + S0b = \text{Palindrome}$
(ex: $111227 + 654340 = 765567$)

This first iteration combines two NatDiamonds images to get a new S1 diamond.

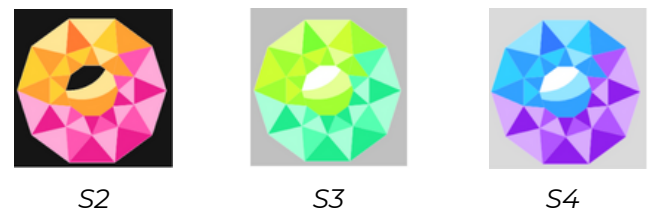


The same process can now be iterated starting from the new layer S1. Mixing two S1 items gives a new diamond at the S2 level under the same constraint (sum must be palindromic).



Starting from the S2 layer owners can turn two items into a new S3 diamond and so on...

- S1 items are mono-color diamonds.
- S2 items are bi-color diamonds.
- S3 S4.. SN items are also bi-color diamonds but their background becomes lighter going down in layers.



Note that by design, S1, S2... SN layers can only host full symmetric diamonds, even if an Sn item is less scarce than an R or S0 asymmetric jewel.

Conceptual paths

The 2D minting axis

NatDiamonds minting follows two possible conceptual paths.

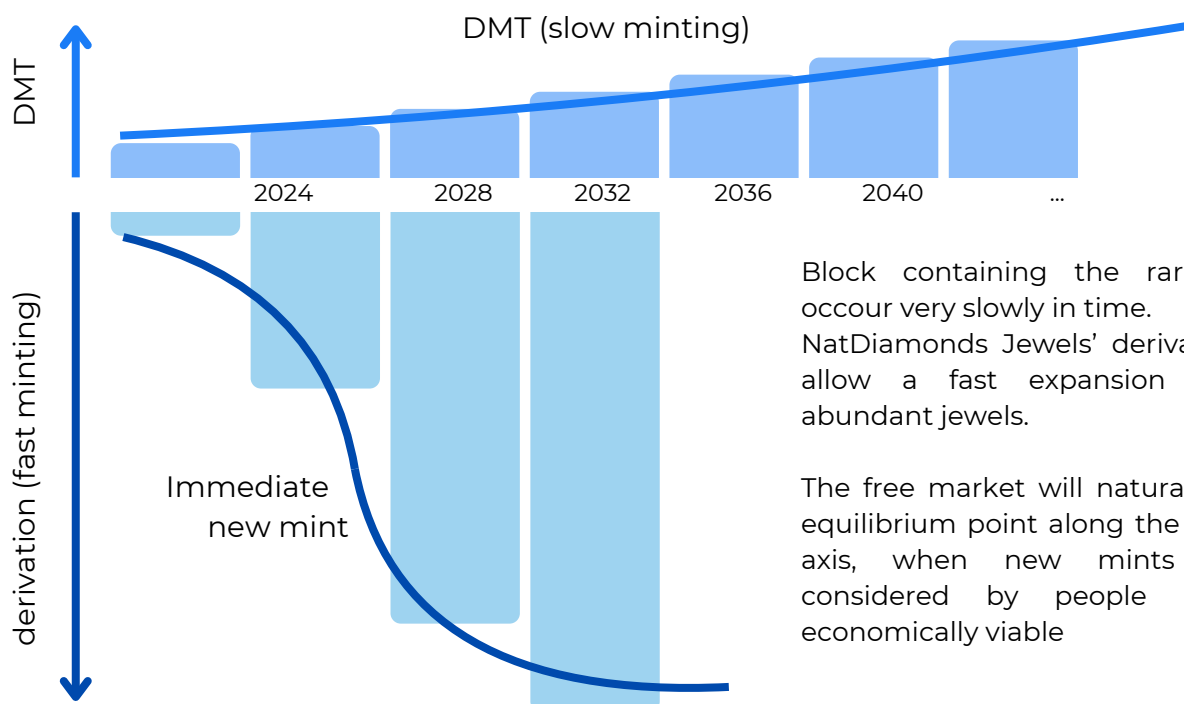
We have the DMT minting. A slow process that only makes a bitcoin block mintable when a specific DMT pattern is found inside the data (field 11). This mechanism grants scarcity because new items arrive after an average time of months/years.

At the opposite, we have the derivation (smart contract controlled) of new jewels (from S1-level onward). A fast-minting process that allows the creation of a bunch of new items as soon as a new rare or less scarce jewel

becomes available. This works on cascade with new mints becoming possible (and progressively more and more abundant) going down in S level layers.

So the overall minting process is twofold: the slow one producing great rarity over time (the slowest the rarest) linked to the fast one, suddenly allowing the mint of infinite derived items but of exponential less scarcity.

In conclusion we have a behavior very similar to minerals on earth, spanning from top-notch, extremely rare stones to the simplest grain of sand.



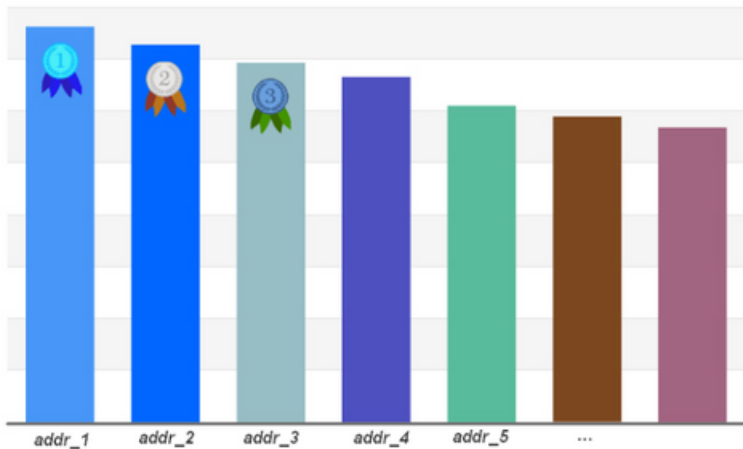
Block containing the rarest items occur very slowly in time.

NatDiamonds Jewels' derivation logic allow a fast expansion of more abundant jewels.

The free market will naturally find an equilibrium point along the derivation axis, when new mints will be considered by people no more economically viable

NatKarat

The NatKarat scoring system



NatDiamonds collectors have a score based on the cumulative NatKarats they own.

On the other end, each NatDiamonds jewel has an associated “karat score”, here detailed

Class	Nat Karats	Symmetry Delta Value (*)
Pearls	5000	1000
Gems	1000	200
BlackDiamonds	500	100
Stones ([Ruby, Emerald, Sapphire])	100	20
NatDiamonds S0	10	2
NatDiamonds S1	5	1
NatDiamonds S2	2	0
NatDiamonds S (N>2)	1	0
Metal Crowned Jewel	+5% karats	
Alloy Crowned Jewel	+10% karats	
Orange Bitcoin Alloy	+50% karats	

(*) Additional NatKarats added to a jewel score for a full symmetric jewel (= having palindromic block number), less symmetric jewels will add a fraction of this max delta value. Ex for symmetry score 0.66 => 2/3 of the delta value.

Example : a collector owning 1 Pearl, 2 Stones, 6 NatDiamonds S1 and 1 Metal Crowned Gem is given a total score of : $1 \times 5000 + 2 \times 100 + 6 \times 5 + 1000 = 6230$ karats

The NatDiamonds website ranks and shows top scores in real time and gives info on personal scores for connected wallets.

Jewelry fabrics

NatDiamonds collectors have a score based on the cumulative NatKarats they own.

On the other end, each NatDiamonds jewel has an associated “karat score”, hAs you may have noticed, our Copper DMT pattern is 29 on field 11.

Because of that, Copper is much more abundant than the 3 precious metals.

Copper has around 20.000 mintable items per decade, 10 times more than gold, silver and platinum. Crowns can not be made up of Copper only (not scarce/precious enough) but can contain some Copper as an ingredient of an alloy.

While Copper has low usage in crowning items, it has its own utility for future creators. In the new digital manufacturing industry, there are also new jobs : digital jewelers. That's why the NatDiamonds project encourages new artists to join the project to mint their artworks using our DMT patterns.

In order to become an affiliated creator the candidate must own at least 100 copper ordinals, before being possibly approved by the community.

To keep IRL analogy, owning as much as copper allows the artist to have wires enough to run electricity for the business.

The rise of the non-arbitrary jewels...

