

CryptoBeasts.org

A Peer-to-Peer Electronic Rare Eggs System

est. 2017

Abstract. CryptoBeasts delivers a unique token with novel utility. Taking inspiration from the first cryptocurrency, Bitcoin,¹ the \$rare-eggs token has a finite supply of 10,000. Each token is represented by an unhatched Rare Egg, which are composed of 1,000 beasts of ten different types (species). After a period of incubation, the token holder can ‘hatch’ their \$rare-egg whenever they choose, thus revealing their CryptoBeast and associated attributes / rarities. The \$rare-egg also comes with a property lot in ‘Eggland’ - the setting of the CryptoBeasts video game. Distribution is distinguished from other projects by utilizing the novel methods of Non-Fungible Token Proof of Unique Identification, as well as Non-Fungible Token Elliptic Curve Cryptographic Digital Signature Algorithmic Verification, discussed in detail below. Governance and oversight are provided by a DAO which ensures decentralized decision making authority. CryptoBeasts is a never before attempted experiment on the blockchain.

KEY WORDS

1. Non-Fungible Token
2. Elliptic Curve Digital Signature Verification
3. Blockchain in Video Games
4. Ulam’s Spiral
5. Proof of Unique Identification

1. Background

Congratulations! You’ve stumbled upon a rare egg. What’s inside these rare eggs is a mystery. All that is known is that a unique creature awaits you inside. Meet the CryptoBeasts.²

CryptoBeasts is a blockchain-based online experience, with verified proof-of-ownership. The concept was first envisioned on July 7th, 2017³ as a project on the Ethereum⁴ blockchain, before the phrase “NFT” (non-fungible token) was even coined.⁵ The project was inspired by the CryptoPunks⁶ scene, as an interesting new culture began to emerge. As time went on, technology evolved - which allowed the CryptoBeasts vision to slowly become a reality.

Fast forward to February 2021, two crypto visionaries @CryptoKingD⁷ and @tommygunnnn,⁸ while on their exploration of the deepest corners of the Ethereum blockchain, finally invited the community to see what they have been working so hard on. Both with a strong background in decentralized finance (DeFi) and blockchain, the founders stepped afoot into new territory.

The team expanded, and word soon began to spread to NFT enthusiasts about these beautiful yet elusive creatures. The CryptoBeasts’ vast power and magnificence were admired, but they were often difficult to control. That is when we banded together (on Discord)⁹ to tame the

CryptoBeasts and collect their precious, Rare Eggs for ourselves.

2. Non-Fungible Tokenomics

2.1 Supply

The symbol for the token associated with the Rare Eggs is **\$rare-egg**.

The maximum total supply is 10,000. Each Rare Egg is associated with a Rare Egg type.

There are ten (10) distinct Rare Egg Types, numbered 0 through 9. For each of the ten (10) Rare Egg Types, there are 1,000 Rare Eggs of that type. The calculation is as follows:

$$10 \text{ Rare Egg Types} \times \frac{1,000 \text{ Rare Eggs}}{\text{Rare Egg Type}} = 10,000 \text{ Rare Eggs} \quad (1)$$

2.2 Distribution

CryptoBeasts implemented an active effort to achieve fair distribution among the community. The earliest 1,000 adopters of cryptobeasts.org were able to pre-claim a Rare Egg, free of charge. The airdrop was to reward the early adopters who were able to solve the cyphers and code cracking activities that took place in early April 2021.¹⁰ CryptoBeasts revives the spirit of “crypto” in the cryptocurrency non-fungible token space by introducing said puzzles, as well as contributing to the community.

CryptoBeasts is the first project to implement *Non-Fungible Token Proof of Unique Identification*, to ensure that each airdropped Rare Egg is claimable by one and only one individual (and prevent a phenomenon known as “double egging”). The airdrop was implemented using a novel approach of a *Non-Fungible Token Elliptic Curve Cryptographic Digital Signature Algorithmic Verification*, discussed in further detail in the Technical section.

In addition, the CryptoBeasts team allocated 800 rare eggs for promotional purposes, such as giveaways and charities; another 200 eggs are allocated for the team, which may also be used for giveaways in the future.

2.3 Sale

In total, 8,000 Rare Eggs are available for purchase during the Initial Mint.

Initial Mint:

- 1 Rare Egg for 0.1 ETH
- 10 Rare Eggs for 1.0 ETH

Those able to obtain a rare egg of each of the ten types will earn the **Egg Lord** title in the DAO and video game, an accolade of great honor and prestige.

The Initial Mint is set to take place on June 27, 2021.

After the Initial Mint, Rare Eggs can be purchased from the secondary market such as: OpenSea, other NFT exchange platforms, over the counter, and eventually the CryptoBeasts marketplace.

2.4 Attributes

Each Rare Egg is associated with a set of attributes: Number and Type.

Once hatched, the Rare Egg will become a CryptoBeast. Each CryptoBeast will have a set of attributes associated with the CryptoBeasts' Type. Each of the ten (10) CryptoBeasts' Types is mapped one-to-one with each of the ten (10) Rare Egg Types.

Egg Type for any particular Rare Egg can be determined via the following formula:

$$\text{Rare Egg Type} = \left\lfloor \frac{\text{Rare Egg Number modulus } 1,000}{100} \right\rfloor \quad (2)$$

For instance, Rare Egg #1,269 is Egg Type 2.

You can also view each Rare Egg, with its associated properties, such as Rare Egg Type and number, on the CryptoBeasts Guide on the official website.

2.5 Hatching Mechanism

Each Rare Egg will have the ability to hatch into a CryptoBeast. The function is callable by the owner of the Rare Egg. Once the Rare Egg is hatched, the CryptoBeast, along with the value of its attributes (and associated rarity) is revealed. Rare Egg holders may opt out of hatching their Rare Egg, thus keeping those said attributes and associated rarities a mystery to both themselves and the world.

2.6 Governance (DAO)

Holders of the Rare Egg token are able to participate in community discussions, voting, and governance. More information regarding governance can be found in the DAO Section.

2.7 Exclusive Access

Holders of the token are able to gain access exclusive content, including the game once released, the private VIP messaging channels, as well as other content not accessible to the public as well as future projects created by the developers.

3. DAO (Decentralized Autonomous Organization)

3.1 Ideology

The CryptoBeasts team does not own CryptoBeasts; it has no owner. The concept of a DAO should work was originally envisioned in the Ethereum whitepaper,⁴ and has since been implemented across many projects. The creators believe that the community should have an active role in shaping the future of the project.

Once the project has been fully executed, the developers aim to give the power back to the people. Just as George Washington relinquished control of the Continental Army in 1783 (and Cincinnatus in the ancient Roman period), we too, aim to remain uncorrupted by power.

One week after all Rare Eggs are minted, there will be a mass virtual assembly of CryptoBeasts members. The purpose of this assembly is to enact rules and by-laws on how the \$rare-egg ERC-721 token may serve as a governance token. Once a suitable constitution has been enacted and the team's outlined objectives met, the CryptoBeasts developers will give all necessary resources to the DAO to sustain the project for eternity.

We intend the DAO to function based on a hierarchy of those who own more Rare Eggs having a greater influence in the overall direction of the project.

3.2 DAO Hierarchy

- Owner of one (1) Rare Egg: **egglet**
- Owner of two (2) Rare Eggs: **eggling**
- Owner of each type of Rare Egg (10 eggs total): **Egg Lord**
- Owner of 12 Rare Eggs: **Dozeneer**
- Owner of 24 Rare Eggs: **Double Dozeneer**

NOTE:

- Owners of Rare Egg 000-499: **OG Eggers**
- Owners of any number of Rare Eggs that were minted during the Initial Mint and have not been transferred are referred to as **Early Eggdopters**

3.3 DAO Treasury

The DAO Treasury will have access and control of 100 RARE EGGS. The DAO Treasury may utilize the Rare Eggs in any fashion they see fit, including sales to fund future endeavors led by the DAO.

4. Game Mechanics and Metaverse (EggLand)

For the purpose of token (\$rare-egg):

$$1 \text{ Rare Egg} = 1 \text{ CryptoBeast} = 1 \text{ EggLand Property}$$

The meaning of this relation is to establish that a Rare Egg is hatchable into a CryptoBeast. Each Rare Egg also entitles you to property in the CryptoBeast Metaverse: EggLand! In EggLand, players will band together with CryptoBeasts and Rare Egg holders of the same type and battle against other species of CryptoBeasts. The EggLand Property is organized as a 100×100 grid for a total of 10,000 plots. The Metaverse property is distributed using an algorithm called Ulam's Spiral, where each property will be neighboring to at least one property of an alike CryptoBeast Type in Eggland. This distribution was done in a way, so that the lower the Egg Number, the closer to the origin the EggLand metaverse property is. It was formulated in a way to benefit the OG Eggers and early adopters of the project, in a first-of-its-kind fair distribution. The genesis Rare Egg, labeled as Rare Egg #0, is located at the origin of the metaverse, and is provided as public property by the original founding team.

The EggLand property will be navigable in the CryptoBeasts metaverse game. The game, designed using the Unity platform, has plans to be available on PC, Xbox, PlayStation, and Nintendo consoles. The game will later introduce battling components, where two players of two different CryptoBeast Types can battle, as long as they are on the metaverse property of another

Beast Type. When a Beast dies, it will be a ghost for a short time during the game, and will be able to be revived later. The game also has plans for level-up / power-ups, and other functionality.

5. Technical Details and Discoveries

There are some key discoveries that were made by the CryptoBeasts project during the application of this project.

5.1 Discovery of Non-Fungible Token Elliptic Curve Cryptographic Digital Signature Algorithmic Verification

The discovery of the novel application of Non-Fungible Token Elliptic Curve Cryptographic Digital Signature Algorithmic Verification was made by the team during the course of this project. This was deployed through an Ethereum smart contract in solidity⁴ as an application to allow users to claim a particular individual non-fungible token through the use of a verifiable code that was signed by the wallet of the original deployment wallet address.

5.2 First Implementation of Non-Fungible Token Proof of Unique Identity

The team was the first to perform a unique Non-Fungible Token Proof of Unique Identity process, to ensure that each airdropped non-fungible token is claimable by one and only one individual. The team was able to implement the proof of verification process using the above algorithm to perform the necessary airdrops.

5.3 Introduction of the Individual Reveal Mechanism for Non-Fungible Tokens (“Hatching”)

The project introduced a feature in non-fungible tokens, that allow for the individual reveal of an individual associated image for the non-fungible token. This is done through the use of a function call in the smart contract that allows the user to call to reveal the underlying image.

5.4 The Usage of Web3 to Authenticate Ownership of a Non-Fungible Token For an Online Game

The team implemented the usage of Web3 in order to authenticate that a user owns a non-fungible token. This ownership is authenticated to allow the user to enter the online game as the playable character that is associated with the non-fungible token.

5.5 First Fair Dispersal of Metaverse Property using Ulam’s Spiral

In an effort to discover the fairest way to disperse metaverse property, in a way that allows non-fungible tokens of a particular type to neighbor each other, and in a way that allows for the lower item numbers of non-fungible tokens to be more centered in the metaverse property, the team implemented an algorithmic grid, based on Ulam’s Spiral.¹¹

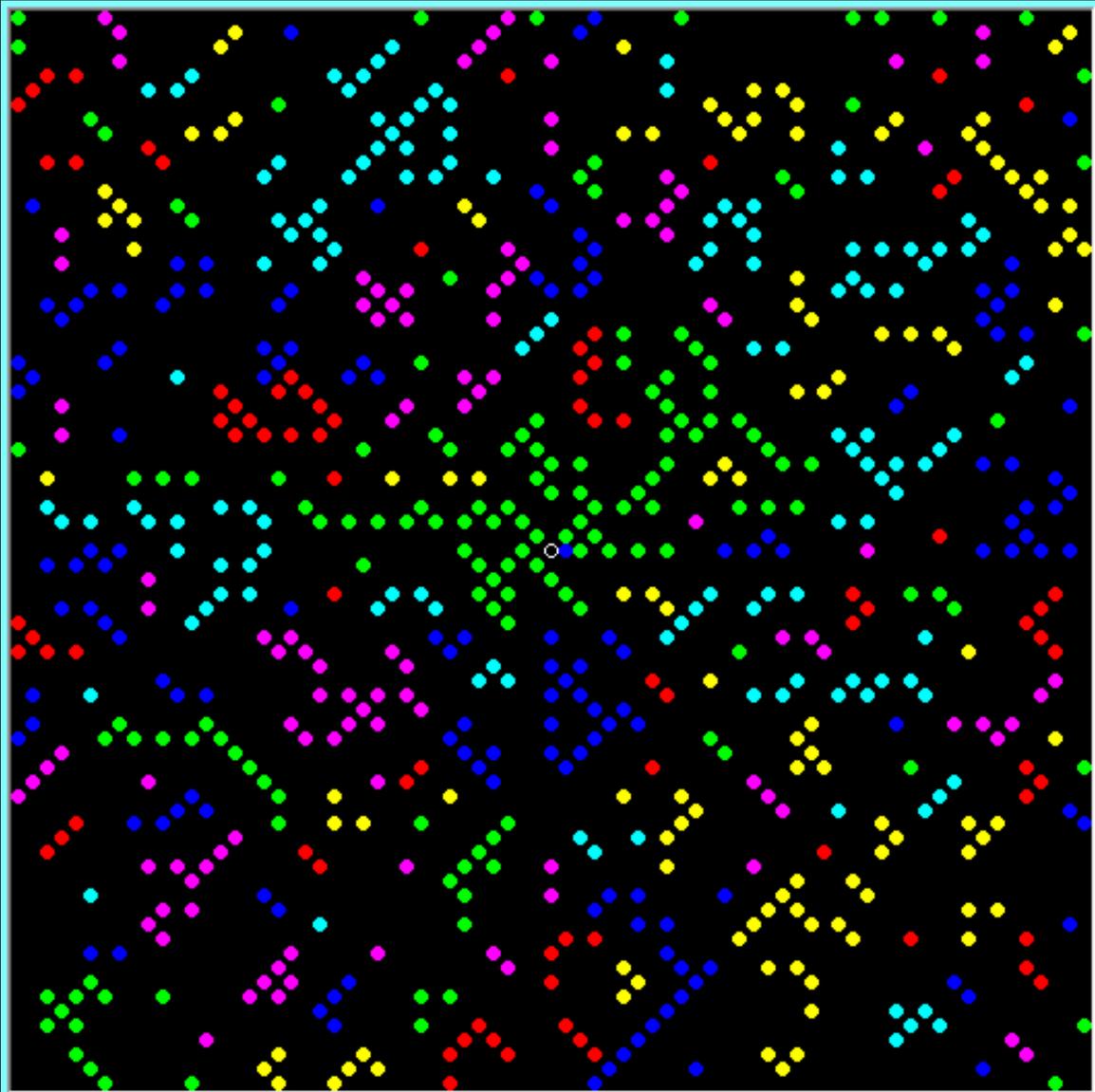


Fig. 1. The Ulam's spiral, where the CryptoBeasts metaverse, EggLand, is based on.

6. ROADMAP

Initial Mint:

- 0 Percent Minted: Nothing.
- 25 Percent Minted: Nothing.
- 50 Percent Minted: Nothing.
- 75 Percent Minted: Nothing.
- 100 Percent Minted:
 - DAO assembly + creation of by-laws
 - Rare Eggs will begin to receive the functionality of the ability to hatch (awarded on a rolling basis), starting four (4) weeks after the Initial Mint is completed
 - More details of EggLand will be provided, after the preliminary Rare Eggs begin to hatch
 - WenEgg.com will become online. This is an e-commerce store where people can purchase and collect rare swag. Metaverse wearables and merchandise will become available shortly afterwards.

Future Plans (through the assistance of the Decentralized Autonomous Organization):

- EggLand release and early access
- Rare Egg incubation, freezing, and staking
- Expansion of metaverse merchandise and physical merchandise
- Referral system
- CryptoBeast Battles and Challenges
- CryptoBeast level-ups, power-ups, wearables, and evolutions
- Third-party wearables and extensions
- Third-party API, app store, scripting, and applications
- CryptoBeasts NFT Marketplace
- CryptoBeasts Breeding (will not affect official supply) - with DAO approval
- In-game currency and economy
- Video game metaverse platform expansion to PC, PlayStation, Xbox, and Nintendo consoles

7. Frequently Asked Questions (FAQ)

7.1 What is the CryptoBeasts project all about?

CryptoBeasts are a one-of-a-kind rare creature minted on the Ethereum blockchain. Each creature is unique from one another with rarity varying based on attribute allocation logged on the next block in the chain. There are 10,000 available; there will never be more.

7.2 So what's going on? Break it all down for me.

You first need to acquire a Rare Egg! Once you do that, the adventure will begin. The first chance to acquire a Rare Egg will be during the Initial Mint, which will take place on June 27, 2021.

7.3 Why are there differently colored Rare Eggs?

There are ten (10) Rare Egg types. Each Rare Egg type has the ability to hatch into one-of-a-kind species. These species have different attributes, as well as different abilities.

7.4 Why are they called Rare Eggs? Don't they each have their own associative rarity?

As mentioned above, there are a maximum of 10,000 Rare Eggs that could ever be created. This is compared to the billions (possibly trillions) of common eggs that have been laid and hatched throughout history. The Rare Eggs of the metaverse are, in fact, rare compared to the common eggs of the universe. However, each CryptoBeast, when hatched, will have its associated attribute values, along with their associated rarity. The CryptoBeasts of the metaverse, as well, are rare compared to the common beasts of the universe.

7.5 How much does a Rare Egg cost?

Each Rare Egg can be minted for 0.1 ETH during the Initial Mint. After all eggs are minted, Rare Eggs can only be purchased on the secondary market via exchanges like OpenSea. We wanted to provide an opportunity to those passionate about the project to have a more direct mode of entry at a fair price.

7.6 What does a Rare Egg get me?

A Rare Egg gets you the following:

- **Rare Egg:** The verifiable ownership of a Rare Egg, with the ability to hatch.
- **CryptoBeast:** Hatching the Rare Egg gets you a one-of-a-kind CryptoBeast.
- **Eggland Metaverse land property:** Each Rare Egg comes with its own land property where the egg is housed... in Eggland! This will come with the ability to name and manage the property, as well.
- **CryptoBeast V.I.P. Lounge:** Private chat room, exclusively only for CryptoBeast \$rare-egg holders; there is a verification process to ensure that only \$rare-egg holders are able to enter the VIP Lounge.
- **Video Game Access:** The holders of Rare Eggs will be the first and only ones to access the Eggland blockchain video game when it is released.
- **Video Game Exclusive Content for Early Eggers:** Those who participate in the Initial Mint will also be able to have special access that other players will not be able to view.
- **Special access in future projects from the Initial Creators:** Egg holders will always have a special place in our hearts. For the release of future projects, Egg holders may have the opportunity to get early access or special benefits.

7.7 What can I do with my CryptoBeast once it's hatched?

Rare Egg holders aka CryptoBeast owners will have the ability to use the ERC-721 token within the Metaverse, Eggland! In addition, each \$rare-egg serves as a governance token within the CryptoBeast DAO.

7.8 Why did the CryptoBeasts project take nearly four years to develop?

Having started in 2017, when we had originally envisioned the concept, the tools and technology at the time did not exist to create our dream project. We are happy to be able to take the time to create the project with the type of quality that the community deserves.

7.9 What is EggLand?

EggLand is the CryptoBeast metaverse world. It is full of crypto HODLers, beasts and most importantly, Rare Eggs. Secure your property on Eggland by claiming on CryptoBeasts.org

7.10 How is the content attributed? Can I create derivative art?

The images and metadata content are available through the *Copyleft license*,¹² for anyone who is the accessor to the wallet that is holding the non-fungible token that is associated to that artwork. Being the first NFT project to implement Copyleft as its licensing model, derivative art is both allowed and encouraged.

8. Conclusion

Rare Eggs are the future. Their use case and utility are unmatched in the Non-Fungible Token space. What started off as a fun concept has now become a technological juggernaut. The work presented in the ERC-721 smart contract is of the highest quality. This is reflective of the team's dedication and commitment to the longevity of the project. Whether you joined the CryptoBeast community for the hilarious memes, state of the art tech, or because you are genuinely interested in eggs of the rare variety; there is something which can intrigue any crypto enthusiast. As a community-driven project, the future will be exciting and dynamic. The CryptoBeasts team would like to thank everyone who has supported us; we did this for you.

Notes and References

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