



# WhitePaper

ver. 1.0

<https://github.com/Tonium-io>

Multisig:

0:d1d928c959db63f5213fd05a2f1e74d0e1bdda50a  
f82a4ad57c9fb049959b472

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A non-custodial NFT platform that allows you to  
mint NFTs, trade them, store files on the  
blockchain and participate in auctions.  
Fast, cheap, like everything on Free TON!

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# MARKET

The NFT industry began to develop in 2017 with the launch of such innovative collectibles as CryptoPunks and CryptoKitties. Over the past 4 years, the NFT space has expanded both through the development of crypto art and through a host of new use cases and industries. According to the analytical website NonFungible.com in April-May 2021, the volume of transactions amounted to \$284,568,333.88<sup>1</sup>.

Almost anything can be tokenized. The technology provides a wide range of opportunities for its application, and the most popular use cases for NFT are:

- Digital Art
- Digital Music
- Gaming assets
- Trading cards
- Virtual real estate
- VR-wearable devices
- Tokenized luxury goods
- Event tickets
- Subscription Services
- Blockchain-Domain Names
- Licenses and certificates
- Tokenized insurance policies

The rapid growth of the NFT market has its drawbacks, and the main one is the colossal energy consumption: as of April 2021, Ethereum mining will require about 49.16 terawatt-hours of electricity per year. And the carbon footprint will be 23.35 Mt of CO<sub>2</sub>, which is comparable to the emissions of the Dominican Republic.

“What troubles me is the amount of waste that we try to justify for-profits,” says Joanie Lemercier, a French artist. Last winter he made \$30,000 selling several NFTs. He had another art

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<sup>1</sup>Source: <https://nonfungible.com/market/history>

“drop,” or release of works for sale, planned for February, which he hoped would bring in as much as \$200,000 — “literally probably two or three years of my gallery sales” — but as a climate activist, he couldn’t justify consuming more energy to create digital scarcity, so he canceled the release. “I left a lot of money on the table”<sup>2</sup>

Fortunately, there are already technological solutions that can reduce the impact on the environment. The “proof of stake” consensus mechanism is estimated to use just 0.01 percent of the energy currently used by the Ethereum mining network.

So artists like Joanie Lemercier are urging cryptoartists to stop using sites such as SuperRare and to shift instead to the small handful of exchanges, like Hic Et Nunc or Kalamint, that already use proof-of-stake technology<sup>3</sup>.

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<sup>2</sup> Source: <https://www.nytimes.com/2021/05/12/magazine/nft-art-crypto.html>

<sup>3</sup> *ibid.*

# WHY TONIUM?

Tonium is a FreeTON-based non-custodial NFT marketplace. FreeTON, in its turn, is based on the open source TON protocol, developed by Telegram. It's rather a collection of blockchains or multi-blockchain. FreeTON has some features which favorably distinguish it from other blockchains including Ethereum. First of all, FreeTON has infinite dynamic sharding with instant hypercube routing and dynamic splitting and merging of shardchains. That makes it possible to processing millions of transactions per second, as opposed to the now-standard dozens of transactions per second<sup>4</sup>.

FreeTON uses a Proof-of-Stake (PoS) approach for generating new blocks in the shardchains and the masterchain and BFT-type consensus protocol. This ensures the high reliability and security of blockchain.

Unlike most of the NFT marketplace on Ethereum, Tonium can provide the highest transaction speed (more than 1 mln/sec) with low fees and storage costs (\$0.01 at Tonium vs. ~\$60 at Ethereum). This provides much more opportunities for mass adoption.

Tonium smart contracts empower to upload files directly into the blockchain or in IPFS. That means the source file cannot be lost or destroyed, as if a third-party server crashes, for example.

## TARGET AUDIENCE

- Decentralization and anonymity proponents:
  - FreeTON community members
  - Authors and creators concerned about the safety of their works

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<sup>4</sup>Источник: [https://en.freeton.wiki/TON\\_Blockchain\\_main\\_features](https://en.freeton.wiki/TON_Blockchain_main_features)

- Projects and users with NFTs' large number/ regular release:
  - Virtual items holders, eSport players/pro gamers that using NFT items in the games
  - Companies issuing certificates / diplomas / licenses
  - Amateur artists, musicians, performers, small studios
  - Sports clubs, stadiums, theatres, event agencies that sell tickets

## STRATEGY

Tonium is a professional development team with serious intentions. Project manager Alexander Vat is one of the initial members of FreeTON, a member of DeFi SubGovernance and NFT SubGovernance, who knows all the features of the blockchain and can ensure close interaction, effective cooperation, and integration with FreeTON DeFi solutions.

Our team negotiates with leading projects that work out various technical solutions, as bridges or own TIP-3 tokens. We hold the parley to create cross-project technologies that will support the interaction with other projects. Our developers have experience in creating Ethereum-based NFT marketplaces, for example, Opensea.

Unlike some other projects, Tonium is a long-term project that will be implemented regardless of the contest results or even our participation in this contest. Our target for the next year or two is to enter the top 10 marketplaces around the world.

We understand that Tonium can appeal primarily to those users who are interested in the transaction speed and we are already negotiating with several projects from the gaming and art spheres. Part of this networking is the AIBC UAE conference in Dubai. Let's lift the veil - we are going to keep a flashmob with the participants of the conference and create an art object, which will be tokenized and its real version will be destroyed.

An important part of the target audience is aspiring artists. For most of them, the minting cost on Ethereum is too high to take a risk with no sure their works can compensate for it. Some young and prospective artists are ready to tokenize their artworks on Tonium. We have contacts with various art foundations and we expect to work with leading art galleries and studios.



The streaming platform Script.TV has already agreed to use Tonium for minting and distributing NFT among its users during streaming.

Interaction with potential partners is a large layer of our future work and we have already started it, as we are confident that Tonium will be implemented.





# HOW DOES IT WORK?

## INTERFACE

New account: to start working with Tonium user links his ExtraTON wallet through the browser extension. Wallet keys are used for transaction signing, fees and gas payments, etc. The platform supports multiple providers and on start signing by mnemonic also provided.

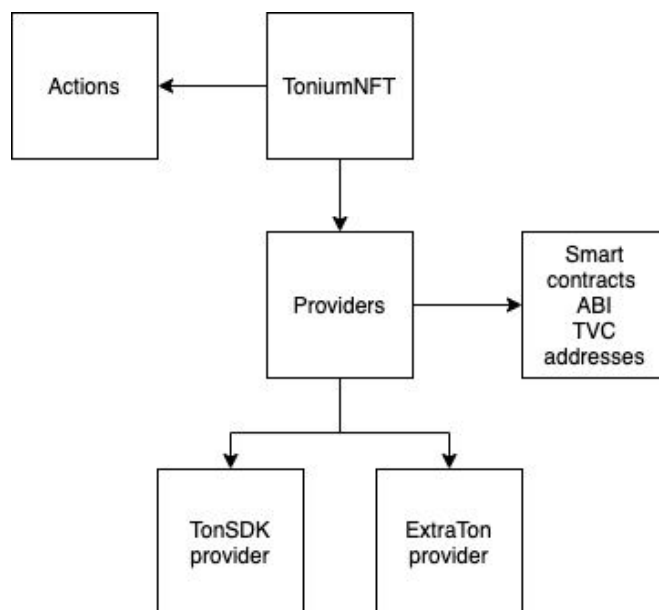


Figure 1. Multiprovider

All minted and bought NFTs stored in the user wallet. Tonium doesn't keep any information about a user or personal data.

User profile: Catalogue of created NFTs, history of transactions.

Collections: Entering the "Collections" tab user can find the following info about each NFT:

- Name
- Description
- Type of meta information (without meta/basic (Title, Description, Preview for images, for example)/advanced (structured meta information for game items, etc).
- Author
- Owner

- Date of the offering
- Auction start/end date
- Sale at a direct price or auction
- Counter of participants
- "go to buy/bid" link.

Link to any NFT can be sent to another user.

Auction: By default, previews of the last 20 NFTs are displayed on the home screen with their name, starting price, and the current offer(last bid). Users can click "expand more" (sorting by date). Also sorting can be changed to "by price/bid".

All NFT is traded for TON Crystals.

## MINT NFT

At this menu section, users can create new collections and mint NFTs.

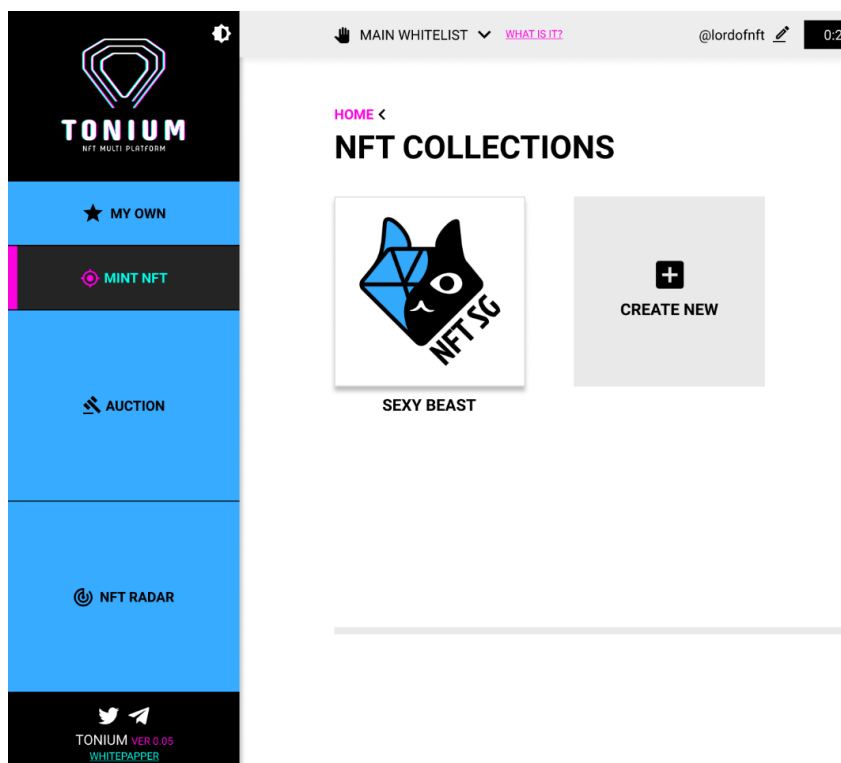


Figure 2. "Mint NFT" tab

To create a new folder (Collection) user clicks on the “Create new” button and sets the Collection options as Title, Description, Folder image, etc. Every Collection has its root smart-contract address, responsible for the patterned creation of the specific NFT into this collection.

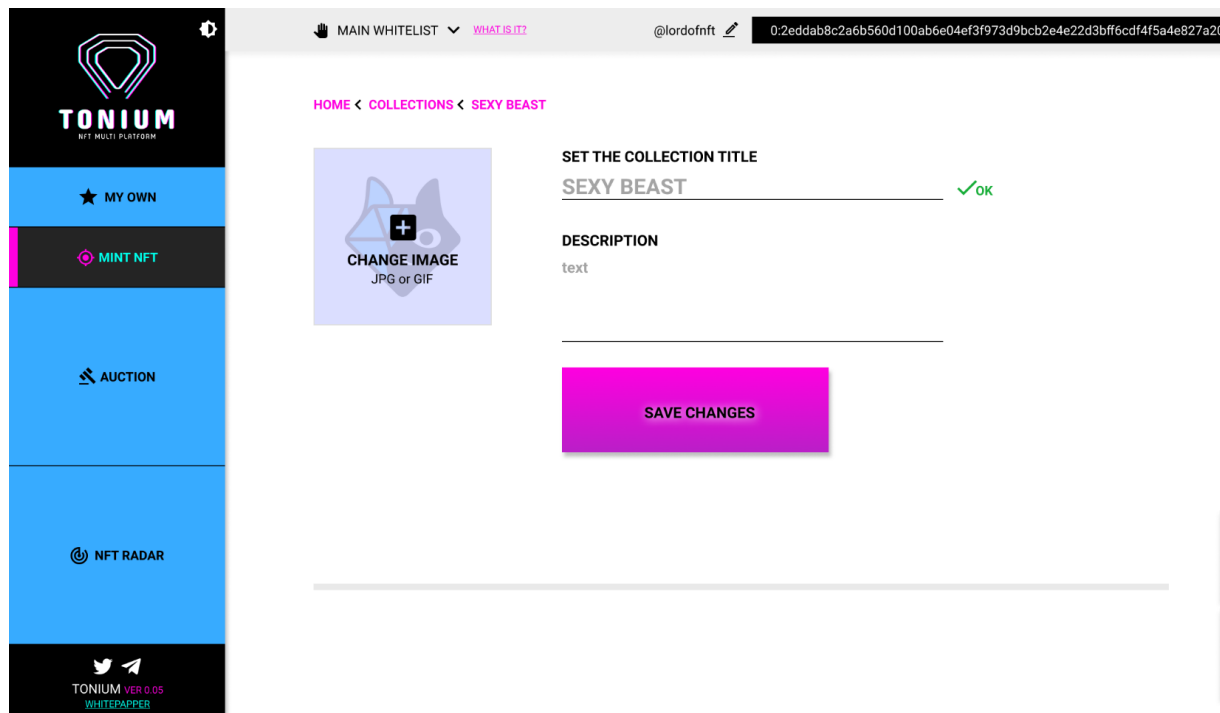


Figure 2. “Mint NFT” tab. Collection creating

The next step is adding a new NFT. On this page, a user uploads a file that will become an NFT (image, video, audio, or any other - document, library, etc.) and preview image, sets the name of NFT and its description.

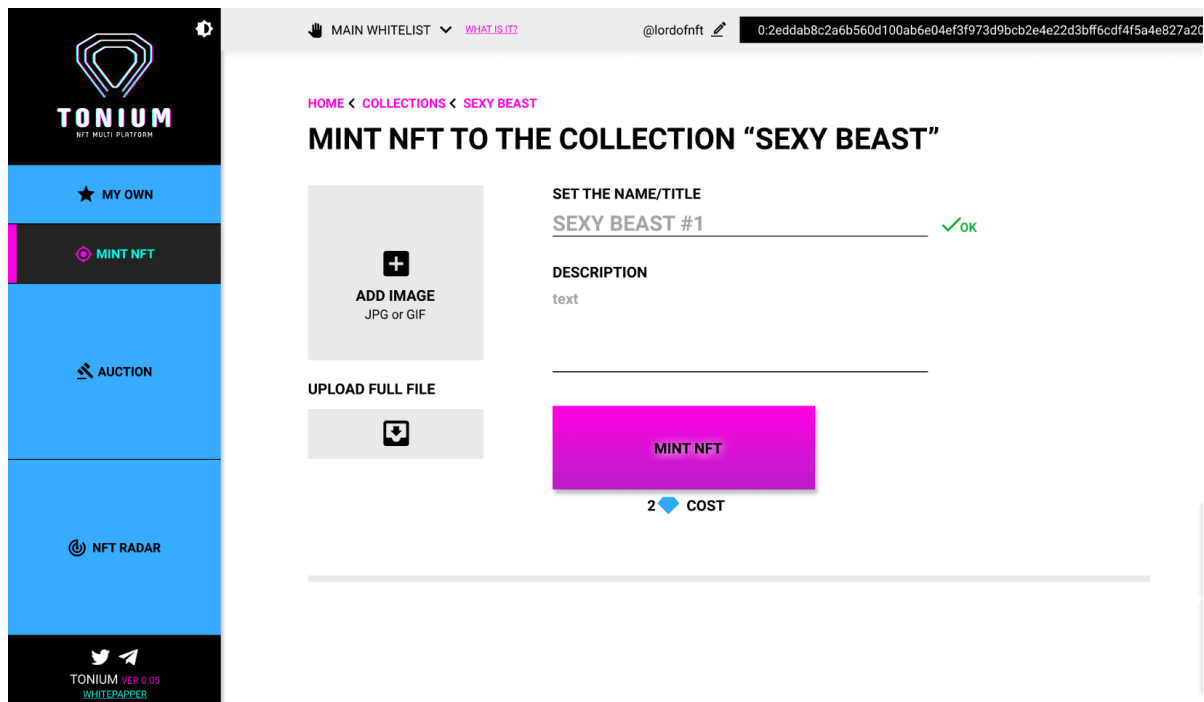


Figure 3. "Mint NFT" tab. Minting new NFT

Uploaded files stored in IPFS or blockchain by user choice. In the testing period (in MVP) file size in the blockchain is primarily limited to 1 Mb at the frontend, but technically, the smart contract allows to store unlimited file size. This parameter is limited for the testing period, because upload network speed now is 3.2 kb/sec, and the upload may stop now if an error occurs, or take a significant amount of time, so uploading of 1 Mb can take more than 5 minutes. But as soon as we develop the resumed upload mode and when the network speed increases, this restriction will be lifted.

Storage price<sup>5</sup>:

- 8 Kb = 0,1 TON Crystal
- 80 Kb = 1 TON Crystal
- 1 Mb = 12 TON Crystal

Link to the IPFS storage is hashed and recorded in a JSON file placed in the smart-contract. When the contract is deployed, the NFT is shown in the catalogue.

In this way, a user can create an unlimited number of NFTs.

<sup>5</sup> approximate price for the current network load

## MY OWN

In the “My Own” menu section, the user can overview all NFTs in his wallet (minted, received, and purchased) and the transaction history. At the “Auction” tab, the user can monitor the progress of his auctions.

Every NFT can be sold, sent to another user, or edited from this page.

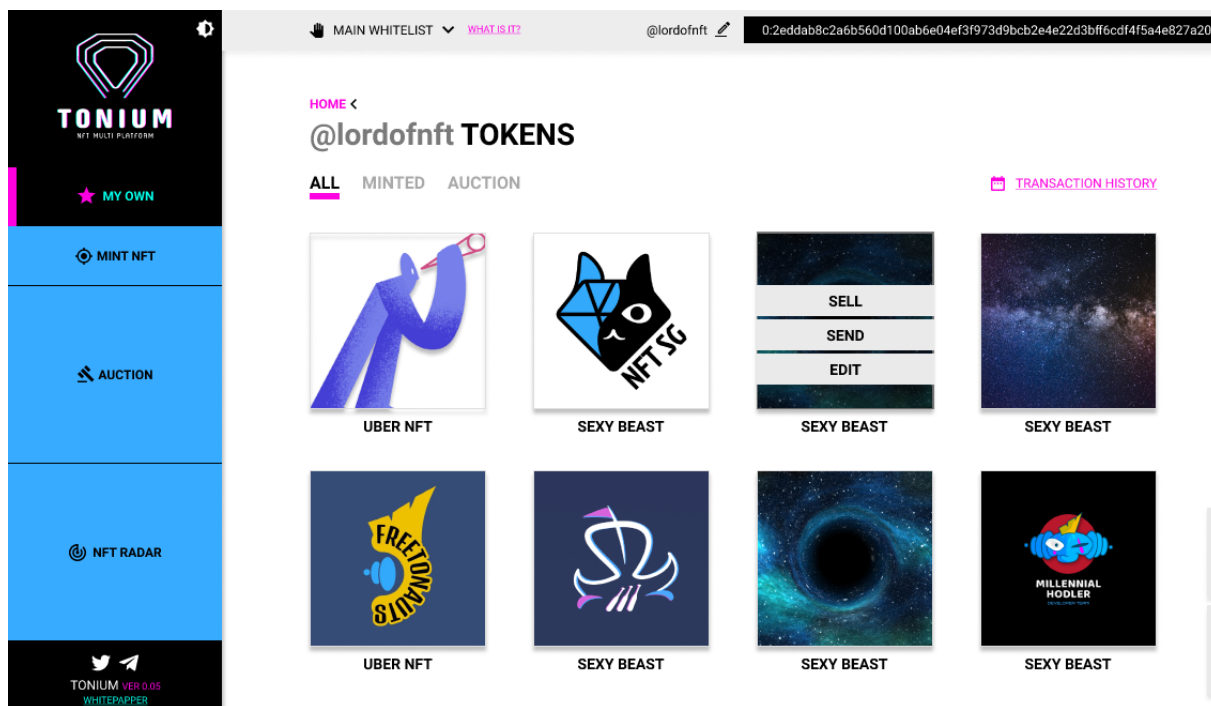


Figure 4. “My own” tab

Transaction history is displayed in chronology order and content data about user’s bids, NFT minting, and transferring.

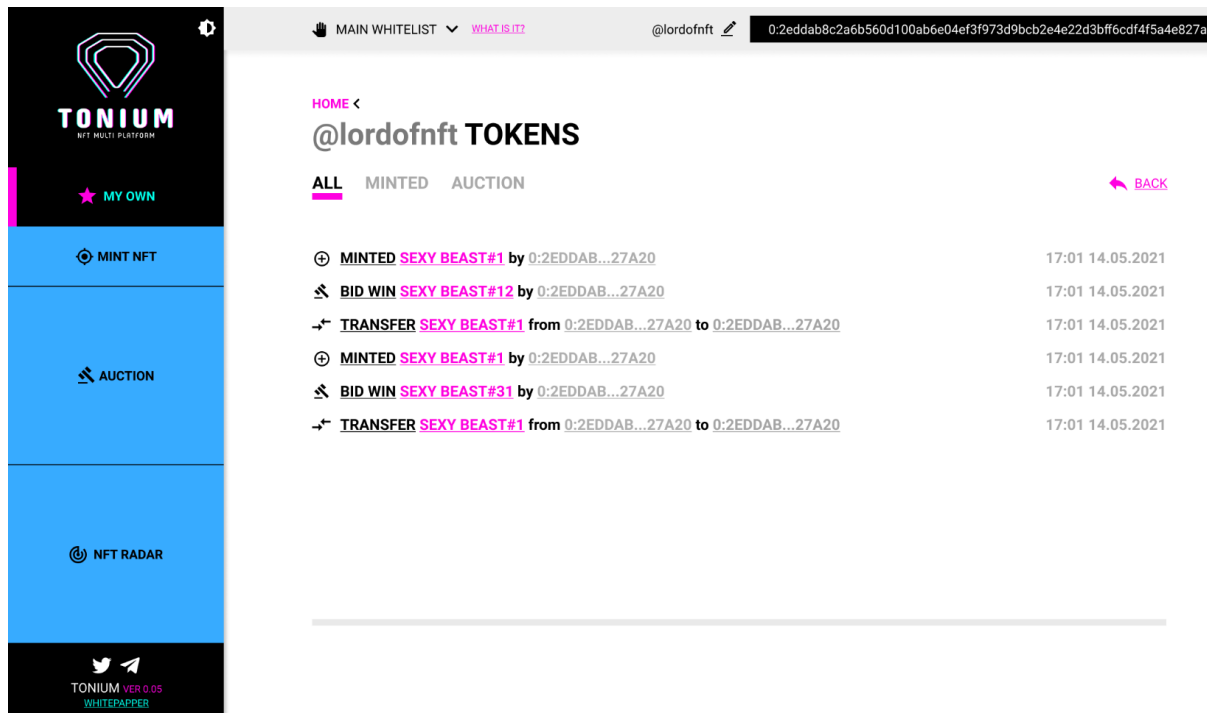


Figure 5. "My own" tab. Transaction history

## AUCTION

On this tab, the user can find information about their auctions, current and complete. In the "My" section, the auctions started by the user are displayed, and "Bided" - those the user participates in.

The auction is held in the following order:

A Person 1 (seller) launches a sale/auction and chooses an NFT for sale. Price can be set in 3 options:

- Starting price (minimum bid size (bid delta) can be set)
- Fixed-price

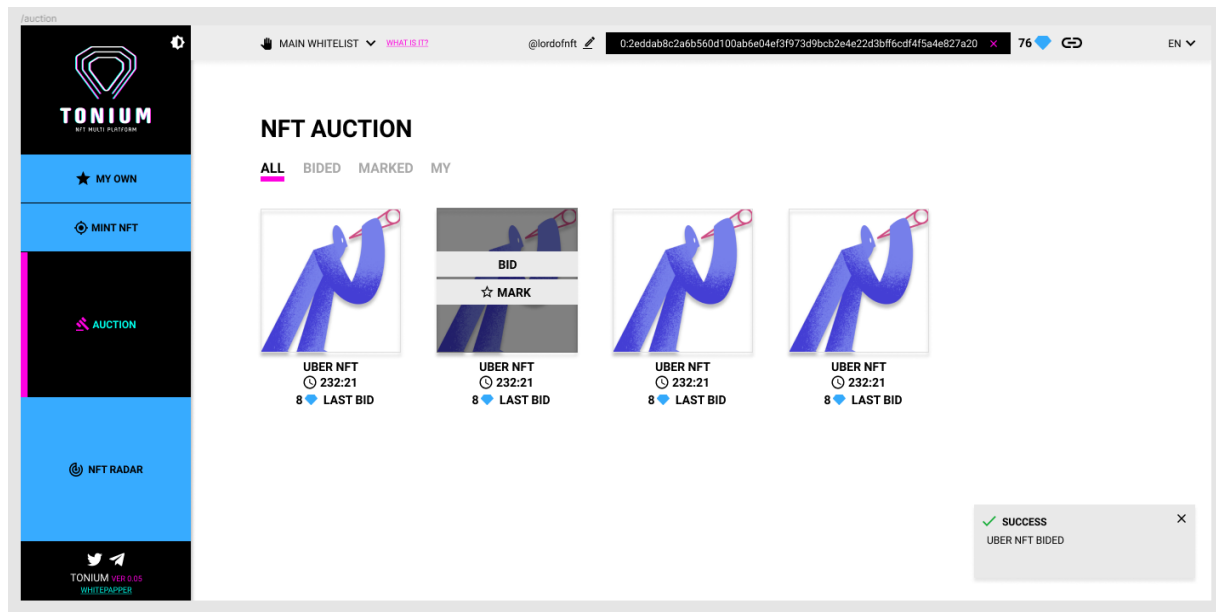


Figure 6. "Auction" tab

A Seller sets an auction time frame (start/end). A Person 2 (Buyer 1) submits his bid in TON Crystals from ExtraTON wallet (browser extension).

A unique feature of Tonium is the use of a single smart contract "Exchanger" for both buy/sale (fixed price) and auction process (see Fig.8):

Buy/sell algorithm:

- A Person 2 (Buyer 1) sends an NFT price in TON Crystals to a smart contract and the smart contract transfers NFT to his wallet.

Auction algorithm:

- In the case of an auction, the same smart contract reserves a bid until the next bid or end of the auction. If Buyer 1's bid wins an auction, funds are transferred to Seller, and the winner gets his NFT. If another Person (Buyer 2) submits a larger bid, the smart contract returns the reserved fund to the sender (Buyer 1) and reports to him that he is outbid.

The bid of Person 2 cannot be less than the minimum bid.

A Seller able to sell a bundle of NFT up to 127 individual minted NFT from one Collection. It can be a set of game

artefacts (Fig. 7), or a music album, for example. In MVP the NFT amount in one bundle is limited at the frontend to 25 at a time. Every NFT minted on Tonium and sold as a bundle can be resold separately thereafter.



Figure 7. Example of game set that can be sell as a bundle

Any sale/auction can be cancelled before execution (before the first bid or purchase).

At the start, the fees are charged only for the sale/auction (service fee), not for the NFT minting, but this can be changed.



# SMART CONTRACT

As mentioned above, Tonium uses a single smart contract for both buying/selling at a fixed price and the auction process. The scheme of the interaction of the parties is shown in the figure below. At one point in time, there is one receiver in the smart contract. If this is an auction, then as soon as the previous receiver's bid was outbid, his Crystals return to him and the receiver changes.

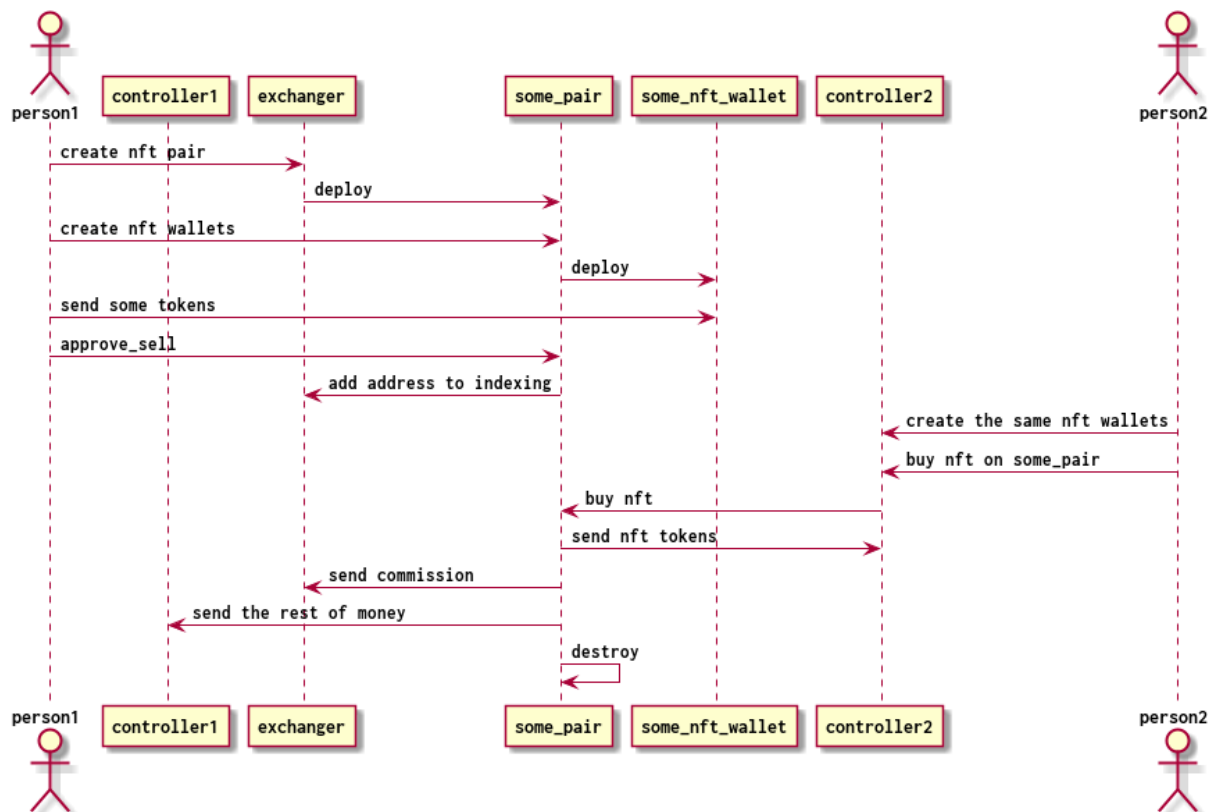


Figure 7. Smart contract scheme

## SMART CONTRACT ALGORITHM

@startuml

actor person1 as person1 order 2

participant controller1 as controller1 order 3

participant exchanger as exchanger order 12

participant some\_pair as pair order 13

participant some\_nft\_wallet as wallet order 14

participant controller2 as controller2 order 20

actor person2 as person2 order 21

person1 -> exchanger: create nft pair  
exchanger -> pair: deploy  
person1 -> pair: create nft wallets  
pair -> wallet: deploy  
person1 -> wallet: send some tokens  
person1 -> pair: approve\_sell  
pair -> exchanger: add address to indexing  
person2 -> controller2: create the same nft wallets  
person2 -> controller2: buy nft on some\_pair  
controller2 -> pair: buy nft  
pair -> controller2: send nft tokens  
pair -> exchanger: send commission  
pair -> controller1: send the rest of money  
pair -> pair: destroy  
@enduml

## FUTURE WORK

The Tonium team plans long-term work on improving the marketplace and expanding its functionality. An important goal is to make the marketplace user-friendly.

The system of storing and displaying information for users will be improved and structured. Users will be able to view the history of bids and auctions in separate catalogs. Also, the history of owners will be available for every NFT.

The Search engine will be upgraded too. Optionally users will be able to create tags for minted NFT (1/several/choose from the available ones). In the search engine, a filter by tags (1/multiple, matching selection by 1 tag, by all tags) can be applied. Sorting will be possible by several parameters: date of placement, cost (price / bid), popular. Users can also exclude certain authors from the search, and choose to search only for digital or real (analog) works.

After implementing the Decentralized Name Service (DeNS), the own domain name can be given to each Collection. And then you can go to this album not only from the marketplace but also from other resources.

We are considering introducing such a non-standard option as NFT fractional purchase. Thus, the owner of the tokenized object can sell it not to one buyer, but several at once. In real life, it is almost impossible to become the owner of a one-hundredth of a picture by Edvard Munch or a tenth of a song by Freddie Mercury, and in the world of blockchain, this becomes real.

The trading part of the platform will also be improved. The function of closing the auction at the moment when the offered price suits the seller without waiting for the end of the auction could be one of those updates. Another TIP-3 token will be available.



We also hope to turn Tonium into a platform for communication between authors, creators, and connoisseurs of cryptoart, their spirit, and community. For example, to add the possibility of blogging, so that authors can write about themselves, about the creation process; or the ability to message and discuss. Modern buyers want to buy not just an NFT and not just a digital painting, they are fascinated by the opportunity to buy an Experience, a Story, a tiny part of the artist's Soul. However, this also makes quite practical sense. Buyers want to be sure that they won't get a fake. And one of the ways to verify authors is to match their profile on the site with their social media accounts. This increases trust to some extent.

We are also going to provide users with the opportunity to use Tonium services by subscription, instead of an each-time minting fee.

Another major challenge for Tonium in the near future is to develop a mechanism of lifetime royalties for NFT authors. The essence of the idea is that each author when selling his tokens can set the royalties amount, which he will be guaranteed to receive from each secondary sale of his token. This will help protect the interests of the author in the case that the price of his work will increase over time.



# ROAD MAP

## Q2 2021

- DeBot support
- TON Crystal Wallet browser extension integration (with WEB3 support)
- Maximum price setting (when such a price is offered the auction closes automatically)
- Creating tags for minted NFT (1/several/choose from the available ones)
- search engine with a filter by tags

## Q3 2021

- Sales to a specific person and transfer to other wallets (user's own, for example)
- Optimization for the mobile version
- Functionality for communication between users: chats and discussions panel, likes and reposts, retweets
- Support of complex JSON-es, structured for games

## Q4 2021

- Decentralized Name Service (DeNS) integration
- services by subscription
- Solutions developed in 'Browser extensions' contest
- Various wallets connect (if available)
- dApps and smartphone Apps

## Q1 2022

- Lifetime royalties for NFT authors
- Virtual 3D gallery (including viewing via VR headsets as Oculus Quest)



# BONUS

The Tonium team has prepared a nice bonus for its first users! During the first month after the launch of the marketplace, we will give one free collectible NFT Freetonaut to each newly registered user.

Freetonauts is an art-token of a new-coming blockchain multiverse, including dApp Games, Interactive Stories&Movies based on FreeTON.

## WHO ARE FRETONAUTS?

Freetonauts are the dominant sentient inhabitants of the planet Freetonia, have blue skin, large eyes, and their arms are capable of lengthening.

Freetonia is rich in various resources, but the favorite treat of most Freetonauts is the special crystals. However, some individuals are energized by crystals in a completely different way, due to a special energetic symbiosis.



## EATERS & HODLERS!



**EATERS** receive the energy of crystals as food.  
Cheerful and carefree subspecies of Freetonauts.



**HODLERS** derive their crystal energy from direct tactile contact.  
It remains a mystery why the crystal is not sharing energy with every freetonaut.

Over time, Hodlers become much larger and physically stronger than their relatives, they develop a fourth levitating auditory membrane.



**DONT EAT TOO MUCH!**

In the first game "Freetonauts: Elderborn" players will find:

- three different types of freetonauts and their endless unique collections (NFT);
- reproduction, reincarnation, pumping account levels and the freetonauts themselves;
- achievement system (NFT);
- missions with unique rewards (NFT);
- equipment (NFT);



- the ability to use the received characters and items in subsequent games (Multiverse NFT);
- trade / auction through popular marketplaces;

In the future such features as PVP; ownership of NFT lands; fully dApp game, smart contracts, and tokenization through the "Free TON" blockchain.

*логин:*

*В редюсер кладем инфу о том залогинились мы или нет.*

*Ее туда кладет ToniumNFT забирает редюсер и вызывает экшен.*

*Если нет то кнопка логина*

*по нажатию будет рор-уп где тайлы (кнопки) со всеми провайдерами (у ToniumNFT есть метод который вернет всех провайдером). Провайдер может быть неактивным, у него есть такое свойство. Если неактивный то нельзя нажать*

*Нажатие уходит в setProvider который все делает*

*в случае есть там будет TonSDK то надо дополнительно показать фразу ввода мнемоники или дать возможность ее сгенерить (Изнат все как делали в крипто кошельке) Там же дописать TonSDK на конструктор который принимает мнемонику, шифрует ее и кладет локально на комп юзера*

*Сам ToniumNFT при ините (загрузка страницы) инициализирует все (уже делает) но теперь еще пинает store и ставит туда всю инфу*



30. проверить требования - по сортировке и фильтрам маркетплейса и все требования вообще

32. Какие еще скрины нужны:

- Зайти внутрь токена,
- продаем токен кому-то, выставляем токен на аукцион (цена или мин. цена и тогда step),
- делаем ставку на аукцион, покупаем токен без аукциона,
- скрин - выиграли аукцион.

Digital assets dump storage

*This function will be used to migrate from current centralized storage to TON Storage.*