



# Metrina Whitepaper

2023.01.14

# Table of content

<b>Overview</b>	<b>2</b>
<b>Introduction</b>	<b>2</b>
Asset Tokenization	2
Real estate Tokenization	3
<b>Metrina Background</b>	<b>4</b>
<b>How does metrina work?</b>	<b>5</b>
<b>Metrina Token</b>	<b>8</b>
I. Blockchain Network	8
II. Smart contracts	8
III. Application of tokens	10

## Overview

Investing in real estate tokens has become very popular and promising in recent years. Real-estate tokenization allows even those who cannot afford a whole building to buy a certain share. Metrina is a blockchain-based platform for real-estate tokenization all over the world. Metrina tokenizes real estate during the initial stages of construction. A token represents an area of a building that an investor owns. By issuing tokens, money is raised for the construction of the building. Metrina mints a certain number of local tokens for each building, and the value of these tokens is tied to the property's price. Metrina tokens are constantly priced based on real-estate market changes. In order to protect its users' investments and ensure system transparency, Metrina uses Ethereum Blockchain technology. Moreover, using blockchain increases the audibility of the system, where users can monitor the Metrina smart contracts on the Ethereum blockchain online. The Metrina local tokens are standard Ethereum ERC20 tokens that can be traded peer-to-peer or exchanged for other cryptocurrencies or fiat currencies. The Metrina token smart contracts keep a list of all the token holders. In Metrina, a local token's life cycle ends when the construction process for its corresponding building is completed. At this time, the building is sold and its outcome is distributed among the token holders proportional to their share and via smart contracts.

## Introduction

### Asset Tokenization

The idea of Asset Tokenization is to divide a real-world asset into digital tokens, which are then sold to investors. The tokens represent the value of the asset and can be traded on a secondary market, which in case of the digital tokens is the blockchain network.

The process of asset tokenization is not new, it has been around for at least 10 years. However, with the advent of blockchain technology and smart contracts, it has become easier to tokenize assets and create an ecosystem that allows for greater liquidity in these markets. Asset Tokenization enables those who are looking to invest in real estate or other tangible assets with small capital to get involved in these markets by buying fractions of an asset instead of investing in a whole one.

## Real estate Tokenization

Real estate investment refers to the purchase, ownership, management, rental, and/or sale of real estate property for profit. There are several different ways to invest in real estate, including :

1. **Buying and holding:** purchasing a property and renting it out to generate income.
2. **Fix and flip:** purchasing a property in need of repairs, fixing it up, and then selling it for a profit.
3. **Real estate development:** developing a property from the ground up, such as building a new housing complex.
4. **REIT (Real Estate Investment Trust):** a company that owns and operates income-producing real estate, such as apartments, shopping centers, or office buildings. An investor can buy shares in a REIT, which provides a way to invest in real estate without the hassle of actually buying and managing a property.
5. **Crowdfunding:** a new way of investing in real estate, it allows multiple investors to pool their money to invest in a property or a real estate project.


Each of these methods has its own set of pros and cons, and it's important to carefully research and consider the risks and potential returns before investing in real estate.

As Blockchain technology advances, many are using it to facilitate the process of crowdfunding for real estate development. Crowdfunding based on blockchain technology in real estate investment refers to the use of blockchain technology to facilitate the pooling of funds from multiple investors to invest in real estate projects. Blockchain technology is a decentralized, digital ledger system that allows for the secure and transparent tracking of transactions.

One way crowdfunding via blockchain can be done is through the use of asset tokens, which are digital assets that represent ownership in a real estate project. These tokens can be purchased by investors using cryptocurrency and are stored on the blockchain. The use of blockchain technology allows for a more efficient and secure way of handling the buying and selling of these tokens, as well as the tracking of the ownership and distribution of profits from the real estate project.

Crowdfunding using blockchain technology also allows for a more efficient and cost-effective way of raising capital for real estate projects, as it eliminates the need for intermediaries such as banks or investment firms. Additionally, blockchain technology can also enable fractional ownership of a property, providing an opportunity for smaller investors to participate in larger real estate projects.

Real estate tokenization has been gaining traction in recent years, with the total value of tokenized real estate assets estimated to reach \$1 trillion by 2023. According to a report by Deloitte, the global real estate tokenization market is expected to grow at a compound annual growth rate (CAGR) of 25.3% from 2020 to 2027.



In 2020, the total value of tokenized real estate assets was estimated at \$2 billion, with the majority of these assets located in Europe and North America. The report also found that the majority of tokenized real estate investments were made in residential properties, followed by commercial and industrial properties.

The report also highlighted that blockchain technology is playing an increasingly important role in the real estate industry, with more than 50% of surveyed companies indicating that they are either already using or planning to use blockchain technology for their operations. Additionally, more than 70% of surveyed companies indicated that they are either already using or planning to use smart contracts for their operations.

## Metrina Background

Metrina is a blockchain-based real estate crowdfunding startup. Our solution is a new and innovative way for individuals to invest in real estate projects. The following is a description of Metrina Platform:

1. Metrina has created a platform on which real estate developers can list their projects and raise funds through crowdfunding. Instead of traditional forms of fundraising, such as bank loans or venture capital, the developers can raise funds from a large number of investors with small contributions.
2. Metrina platform uses blockchain technology to facilitate the fundraising process, ensuring transparency, security, and immutability of transactions.
3. Investors can purchase tokens, track the progress of the project, and receive their returns through the platform.
4. Metrina platform has used smart contracts to automate the process of raising funds and distributing returns to investors.
5. Metrina platform can also provide investors with more flexibility, as they can invest small amounts and have the opportunity to invest in a diverse range of properties.
6. Metrina brings many benefits to both real estate developers and investors; Developers can raise funds more easily and efficiently, while investors can access a wider range of investment opportunities. Additionally, the use of blockchain technology can increase transparency, security, and trust in the investment process.

In Metrina, we have a diverse team with a mix of technical, real estate management, legal, and business skills. Here we describe some key roles in our team:

### 1. Blockchain developers:

Our blockchain developers are responsible for building and maintaining the platform's blockchain infrastructure, including smart contract development and integration.

### 2. Real Estate experts:

Our real estate experts have knowledge and experience in the real estate market and are responsible for finding and evaluating potential real estate projects for the platform.

### **3. Legal and Compliance experts:**

Our legal team is responsible for ensuring that the platform's operations are compliant with all relevant laws and regulations related to blockchain, real estate, and crowdfunding. In addition, the team ensures that real estate and investor contracts are legitimate and sound.

### **4. Marketing and Business Development:**

Our marketing team is responsible for creating and executing a marketing strategy to promote the platform and attract developers and investors.

### **5. Management:**

Our management team is responsible for coordinating the activities of different teams, ensuring that the buildings are delivered on time and on budget, as well as ensuring quality standards are met.

Metrina launched the Metrina web application in December 2021<sup>1</sup>. In this period, Metrina passed its market test with limited advertising. Metrina users crowdfunded more than one million dollars for four construction projects.

## **How does metrina work?**

### **1. Real estate registration**

Owners register their buildings with Metrina. Then Metrina assesses the building's price and the quality of the construction; if the real estate was considered appropriate then the owner signs a contract, which guarantees that the construction process will meet certain predetermined checkpoints within a certain timeframe.

### **2. Token Issuance**


For each building, a predetermined number of MTR-XYZ tokens, where XYZ is the abbreviation of the name of the building, will be issued by Metrina. Number of issued tokens is proportional to the area of the building. After token issuance, the tokens will become available for sale.

### **3. Buy Token**

To purchase MTR-XYZ tokens during the sale period, investors must pass the KYC process on Metrina's website or one of our partners'. Tokens can be purchased directly from

---

<sup>1</sup> <https://metrina.ir/>



Metrina's or its partners' websites. The price of the token is obtained by querying the Metrina oracles that monitor the real estate price. After the purchase, investors can verify the execution of the transaction on the blockchain.

For each purchase, Metrina will automatically generate a contract between itself and the investor as part of the sale process. As part of this contract, Metrina commits to providing regular updates on the construction progress on their website. Additionally, Metrina promises to audit the real-estate sale auction at the end of the construction and pay the investor's share fairly after the auction.

#### **4. Token Exchange**

Metrina token holders can sell their tokens through the Metrina website marketplace or external marketplaces. Investors can only transfer tokens to KYC-compliant users using Metrina smart contracts, ensuring the system isn't vulnerable to money laundering.

#### **5. Construction Audit By Metrina**

During the construction process, the Metrina experts visit the building regularly and check the progress of the construction process. They will provide reports of their visit and will upload these reports on the Metrina website to inform the token holders.

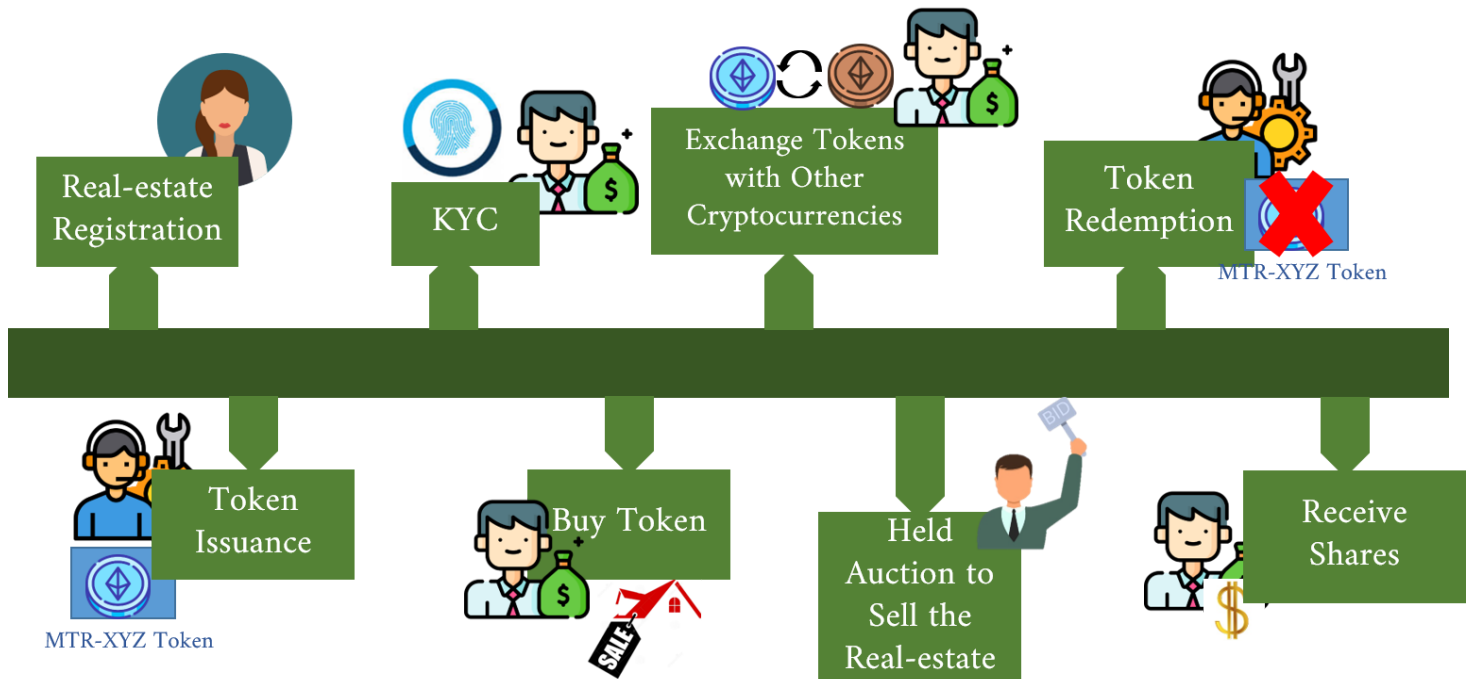
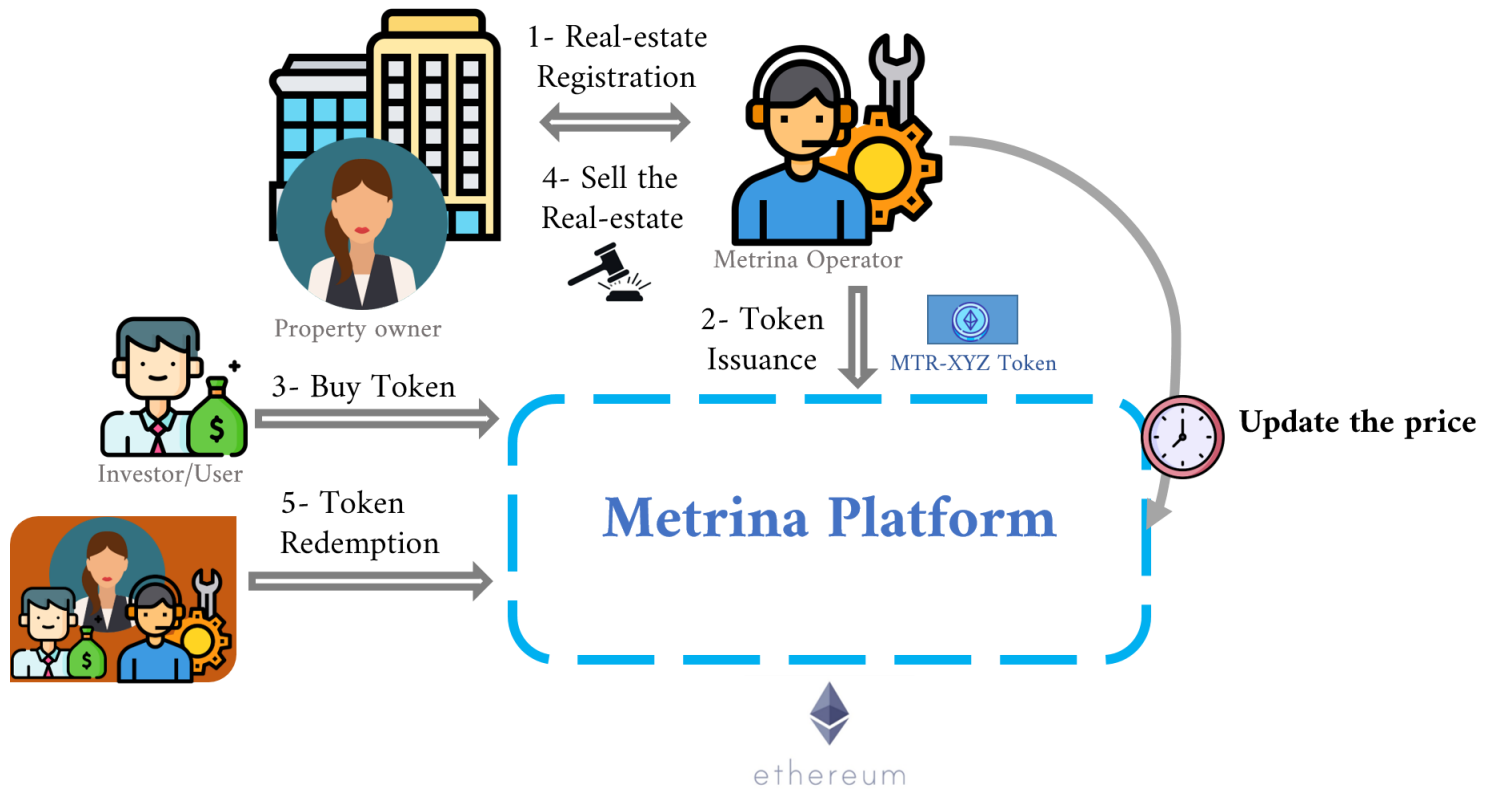
#### **6. Token Redemption**

After the end of the construction, based on the price assessed by Metrina real estate experts, a reserve price auction for selling the building will be held. The property owner should cooperate with Metrina in this phase.

After the auction, when the building is sold, Metrina operator calls the redemption function of the token smart contracts to seize the investors' tokens and transfer the their share of the sold price.

Image2 [mahsa.bastan76@gmail.com](mailto:mahsa.bastan76@gmail.com)







## Metrina Token

Metrina will issue an ERC20 token on the Ethereum blockchain for each tokenized property. These tokens will be named MTR-XYZ where "XYZ " represents the abbreviation of the project name. Each token has its own contract, which contains specifications about the construction property as a URL and also manages the lifecycle of the token. In metrina each square meter of property is equivalent to 100 MTR-XYZ tokens. **There are no decimal points for tokens, so each can be treated as an undividable share of the property.** In this section the design choices made by Metrina about this token are explained in detail.

### I. Blockchain Network

Ethereum is used as the underlying blockchain network, as it provides well-established standards and tools to deploy tokens. As a public network, it also provides excellent flexibility with other decentralized applications which is an important vision of Metrina for future development.

### II. Smart contracts

Metrina solution is based on Bridge<sup>2</sup> protocol, developed by Mt Pelerin, a Swiss financial institution. The bridge is an open-source multi-chain platform to manage the issuance, distribution, transfers, compliance, and corporate actions of tokens on EVM blockchains.

Contracts are deployed using a proxy pattern. The proxy pattern is a deployment pattern introduced in Eteurem in 2016 to provide a way to update the source code after the smart contract has been deployed. A proxy architecture pattern is such that all message calls go through a proxy contract that will redirect them to the latest deployed contract logic. This pattern will enable Metrina to prevent any harm to investors due to failure in implementations.

The Metrina platform consists of four main smart contracts:


#### 1. MetrinaToken

This contract is an ERC20<sup>3</sup> compatible smart contract. The ERC20 standard specifies the different properties and methods of the token. Properties include name, symbol, decimal, and the total supply of the token. Methods include transfer, allowance, the balance of, and approved functionalities.

---

<sup>2</sup> <https://www.mtpelerin.com/bridge-protocol>

<sup>3</sup> <https://ethereum.org/en/developers/docs/standards/tokens/erc-20/>



Metrina token smart contract also has the additional feature of providing redemption capability so that after the completion of the underlying project, the token will be redempted with agreed-upon interest by seizing the token from the owner and transferring stable coins equivalent to the redemption value of the token to the owner.

As a side note, seizing a token is only possible under certain conditions, and otherwise, the token remains under the custody of its owner. For users who do not want to get stable coins and have a non-custodial wallet in the platform, the redemption of tokens can be done off-chain and tokens will be transferred to Metrina ownership in exchange for fiat currency.

## 2. Processor and Compliance Registry

These two contracts are responsible for enforcing compliance of tokens' trading with KYC rules. For each transaction, the processor will check if the transaction abides by rules defined by all compliance registries. Currently, Metrina only requires that at least one trusted party to register the user by using the compliance registry contract to be able to hold the token.

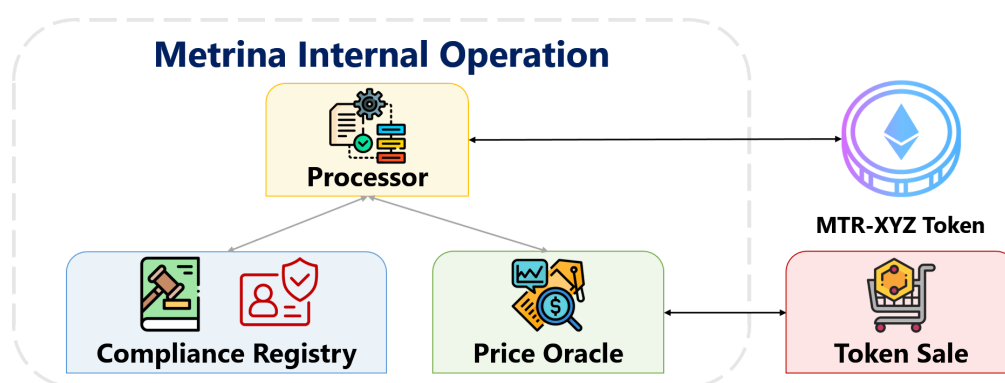
In other words, in order to exchange metrina tokens, the sender and receiver of the token should be registered on metrina.

## 3. Pricing Oracle

This contract will maintain the exchange rate between each token's price and stable coin and also Rial currency. At the time of redemption or token sale, this contract is queried to get the latest exchange rate to be used in the transaction. The only entity that can update the exchange rate is Metrina. Metrina uses third-party agents to provide updated real estate prices periodically and also uses global stable coin prices for updating the aforementioned rates. The prices are updated at regular intervals so as to avoid any possible slippage.

## 4. Token Sale

This smart contract is used by the platform to sell tokens to users by accepting off-the-chain Rial payments or on-chain stable coin payments. This contract will ask Price Oracle to get the price of the token at the time of exchange. The sale of tokens has an open and close time during which tokens can be purchased from the contract.



### III. Application of tokens

Metrina tokens can potentially be used in all applications where an ERC20 token would be applicable. Some of these applications are:

#### 1. P2P Trade

The simplest use case of tokens is a peer-to-peer exchange of tokens between valid participants. This form of trade doesn't involve any third party and valid users can transfer ownership of tokens on their own.

#### 2. Exchange

Metrina asset tokens can be exchanged with any other ERC20 or network tokens, like BitCoin or Tether, at an agreed-upon price in exchange platforms. Metrina aims to collaborate with cryptography exchange platforms to index Metrina asset tokens in their lists.

#### 3. Liquidity providing

Due to the guaranteed value of Metrina tokens at the time of redemption, the tokens can be used to provide liquidity in decentralized liquidity pools and earn interest.

#### 4. Loan collateral

Metrina asset tokens can be used as collateral to get liquidity equivalent to a percentage of their value. This way one can gain liquidity by holding without selling their assets.

#### 5. Governance

Since each token represents ownership of a property, the decisions regarding the building and management of property can be voted upon by participating token holders.

#### 6. Fund

Metrina intends to provide an asset token fund, providing exposure to a number of properties in a single investment. These funds will consist of tokens held by the platform. The redemption values will be paid out to the investors of the fund proportionally.

