

Introduction to Arcanum

Hello World! With this introductory article, we explain what Arcanum is and how it combines efficient swapping with asset management and empowers users with a new, first-of-a-kind decentralized ETF.

What is Arcanum?

Arcanum is a highly scalable fully decentralized ETF protocol.

Arcanum protocol acts as a platform for indexed exchange-traded funds in a form of multipools enforced by unique balancing mechanisms approved by the governance. Multipools are the foundational concept of Arcanum, enabling access to a multi asset liquidity with just a single token without dilution or imbalance and augmenting capital efficiency.

Arcanum enables generation of decentralized ETFs tracking the prices of crypto assets within multipools.

The ETF balance stabilization is enforced by the inbuilt algorithms determining the shares of assets in the equilibrium state of the pool in response to the changing market conditions, while dynamic pricing is supported by oracles and an aggregate of prices from leading volume exchanges.

\$AAA, the governance token for Arcanum, is an ERC-20 token used for voting for the new ETFs issued by the protocol and their composition as well as can be farmed for providing liquidity for \$AAA token and Arcanum ETFs. More on that in our future articles.

The concept behind Arcanum

The number of ETFs in the TradiFi world is growing every year; now there are more than 7 thousand of them, and the volume of their total assets exceeds 9 trillion US dollars.

However, by now the ETF as a financial tool hasn't found its place in the DeFi arena and crypto in general. We see only a few products released by centralized institutional players which are greatly limited to be accessed by the retail users.

Surprisingly few attempts to create truly decentralized ETFs can be explained by the complexity of sustaining the ETFs price on the volatile crypto market. We do not claim absolute correctness of our approach but DeFi's capabilities enables us to create a decentralized, permissionless indexes protocol with farming and trading opportunities where every ETF is managed by the DAO.

The ultimate goal of Arcanum is to provide greater asset management opportunities for users and expand the frontiers of DeFi through employing the best TradiFi concepts for the benefit of decentralized web.

Arcanum is highly scalable and establishes an explicit framework through its protocol to set up new pools and thus issue ETFs which by itself make the space diverse and more accessible.

The Mechanics

The DeFi nature of Arcanum enables us to combine two primitives in one - the ETF as an ultimate asset management tool, where a user can provide liquidity in the asset of their convenience which is diversified into a more profitable portfolio that is managed by the public and governance-managed rules, and a multipool with the decentralized swapping mechanics where users can interact with protocol directly and bring it to balance by swapping, minting/burning and leverage reward for their stabilizing actions.

By merging these two primitives, we get an on-chain self-balanced system combining a DEX and an asset management platform in one.

The core products of Arcanum are DeFi ETFs - fully decentralized exchange-traded funds that are implemented in a form of multipools enabling swapping of assets within the pools.

The first ETF by Arcanum is \$ARBI - Arbitrum ecosystem ETF tracking the prices of the top 10 Arbitrum-native DeFi tokens ranked by their revenue. The MVP on testnet is implemented on Polygon though with \$CPT tracking top 5 DeFi tokens on Polygon.

The ETF's main goal is to keep assets shares in the multipool close to the equilibrium and encourage traders to perform actions aimed at eliminating deviations. Unlike traditional DEXs implementing $xy=k$ formula, where traders mainly leverage speculations coming from the price volatility and sandwich

attacks, in Arcanum you can direct your trades to balance the multipool assets and earn a portion of fees for your actions.

ETFs on Arcanum can be minted using any index asset within a corresponding multi pool and burnt to redeem any index asset. The price for minting and redemption is calculated based on $(\text{total worth of assets in index}) / \text{ETF supply}$.

With an ETF token, users basically get a portion of all underlying assets (index tokens) in the pool. If index tokens prices are increasing, then the price of an ETF will increase as well, if declining - ETF's price declines too, however, in both cases, the manageable composition of the ETF's underlying portfolio can eliminate the risks of distinctive assets' extreme volatility.

The ETF contract itself represents a portfolio of assets with a specific set of rules which accepts your deposit, then routes it through algorithms which calculate users' fees based on current ETF balance.

Fees

The ETF's main goal is to keep assets shares close to the equilibrium. So if the deviation calculated after any action with the protocol - mint, burn or swap, is lower than before the action, then the protocol charges minimal fees (0.01). If the deviation after the action is higher, the fees increase exponentially according to the [formula](#). This mechanism is applied to each index asset affected by your action.

How to Use Arcanum

Minting and Burning

It can be minted using any index asset and burnt to redeem any index asset. The price for minting and burning is calculated based on $(\text{total worth of assets in index}) / \text{ETF supply}$ and which of the index assets you're trading against.

Swapping

Swapping the underlying assets of an ETF works with index prices and same fee mechanics as with minting and burning. The multipool will allow you to perform any swap, but in case your trade deviates the balance from the equilibrium you will pay a fee for each % of the deviation in the input and output asset.

Holding

Another passive way of leveraging Arcanum is to simply hold an ETF. First, all liquidity providers get a portion of fees that are accumulated on the platform from swaps. Second, you can leverage the accumulated value of assets in the multipool while hedging the volatility risks of distinctive assets.

Incentives

Cashback is a mechanism that redistributes non-base fee (all above 0.01% base percent for every action) from those users who increase the deviation to those who decrease it (performing a peg trades). This mechanism basically allows fee to be negative, meaning there is more cashback than base fee. You can receive cashbacks for a particular asset linearly depending on deviation decrease.

Farming

Farming will be available for the \$AAA holders in Arcanum V1 and enable them to supply liquidity into the \$AAA/\$USDC and \$AAA/ \$ETH pools on the Arcanum platform and then stake the LPs to get rewards in \$AAA.

ETF risks

Firstly, to get the current USD value of the ETF, it's important to have our own price feeds inside of the contract due to the necessity of constantly updated prices for a multitude of assets. So we take the related oracle risks. This price feed may be taken on a chain from any other existing one or via its own oracle network. Index prices should also be changing fast enough, if there are a lot of assets, it might be hard to update index prices when the asset has big volatility.

Secondly, there is a problem of assets sharp price changes that might lead to ETFs temporary depegging from its value until the equilibrium balance is recovered which might expose the multipool to the MEV attacks and arbitrageurs' maneuvers, so the fees can also temporary deflect from the accurate and drift for a while.

DeFi is risky. DYOR and don't use more money that you can afford to lose.