

Whitepaper



A DeFi automation platform

Abstract

Mimic is a platform that allows you to deploy tailored infrastructure to automate DeFi operations in a secure, trustless, and non-custodial way. These operations include treasury management, index rebalancing, fee distribution, liquidity provision, etc.

Mimic achieves this through an innovative concept called **Smart Vaults**, an automated solution where a list of allowed actions can be defined and customized to suit any operational need. Smart vaults are multi-layer and can be easily scaled up by deploying and connecting additional ones.

As opposed to other solutions, Mimic provides enormous flexibility to embrace this constantly-changing ecosystem, making any DeFi interaction experience much easier and more secure than before.

Introduction

Powered by smart contract technology, DeFi keeps gaining traction over time and most people are choosing it as an option to centralized solutions. However, operating trustlessly is hard. It becomes even **harder for DAOs and financial institutions** that manage large treasuries and cannot trust third parties with them.

The rise of DAOs as vehicles to drive organizational growth has been exceptional over the last few years. There are many trending DAOs holding +10 billion dollars in treasury assets. With DAOs gaining popularity, many of them started wondering how they could **maximize their treasury** while building healthy and sustainable liquidity for their native token.

However, it is hard to deal with community decisions on-chain. This becomes even worst when talking about putting the DAOs assets to work in DeFi strategies, swapping them at DEX aggregators, bridging them through different chains, etc. We have seen many DAOs trying to circumvent their own processes by trusting individuals, which in the end implies huge security risks. In the era of decentralization, this is not acceptable for most organizations.

On the other hand, even though financial institutions don't have to worry about on-chain decision-making, there are no robust solutions they could use for their own clients in order to allocate their assets while ensuring transparency and security.

Interacting with DeFi protocols is hard. It involves many steps and the complexity level is getting higher every day. Even worse, many mistakes can be caused when interacting with these protocols manually putting your assets at risk.

Here is where Mimic comes into play in order to simplify cross-layer operations with the most popular DeFi protocols with a fully trustless, transparent, and non-custodial solution. It allows to deploy infrastructure where these operations can be predefined and customized to limit who can execute them and how they can be executed.

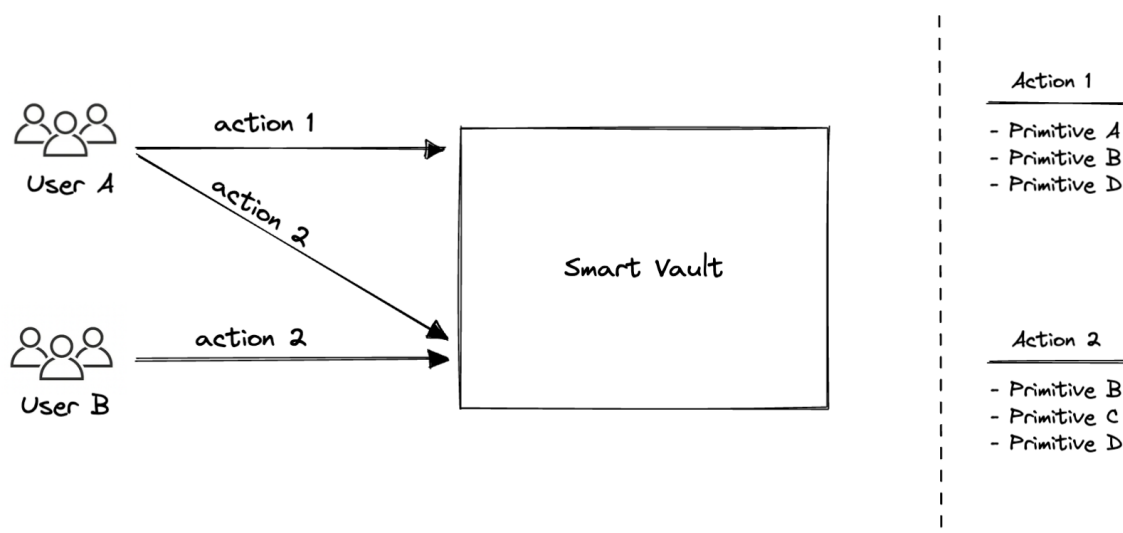
For instance, these are some basic uses cases where the Mimic platform can help with:

- **Treasury management:** control risks by limiting in which DeFi protocol a manager can allocate your assets and where they can be swapped.
- **Fee distribution:** collect all fees obtained by your protocol from different chains, swap, and bridge them together to distribute to token holders later on.
- **Composed strategies:** create complex strategies by composing many DeFi protocols and track all activity and yield on-chain.
- **Auto-rebalancing indexes:** create a basket of DeFi tokens that auto-rebalances back to its target weightings.
- **Liquidity provision:** provide liquidity to DeFi protocols with specific configuration and automatically change it depending on market conditions.

These are just a few examples, Mimic opens the doors to model any other type of DeFi operation that could be automated reducing trust and increasing security.

How it works

Mimic introduces an innovative concept called **Smart Vaults**: an automated and trustless solution that can be customized to execute different processes. To allow this Mimic offers a list of pre-set primitives that can be grouped into actions to model any type of process for your Smart Vaults.



Smart vault high-level illustration

Primitives

Primitives are pre-set atomic operations that can be executed on any Smart Vault. Mimic offers a list of standard primitives to cover the following basic concepts:

1. **Collect** — Transfer assets from an external address to Mimic
2. **Swap** — Swap assets on any decentralized exchange
3. **Bridge** — Bridge assets between different chains
4. **Join** — Allocate assets into a DeFi protocol
5. **Exit** — Withdraw assets from a DeFi protocol
6. **Claim** — Claim rewards from a DeFi protocol
7. **Withdraw** — Transfer assets to an external address
8. **Wrap** — Wrap native-token assets
9. **Unwrap** — Unwrap native-token assets
10. **Call** — Perform arbitrary calls

Each primitive comes with a set of parameters that can be configured for its execution. A parameter can be forced to always be the same, to be limited within a specific range, or dynamically adjusted based on different network conditions. For example, the slippage of a swap can be limited to a maximum value.

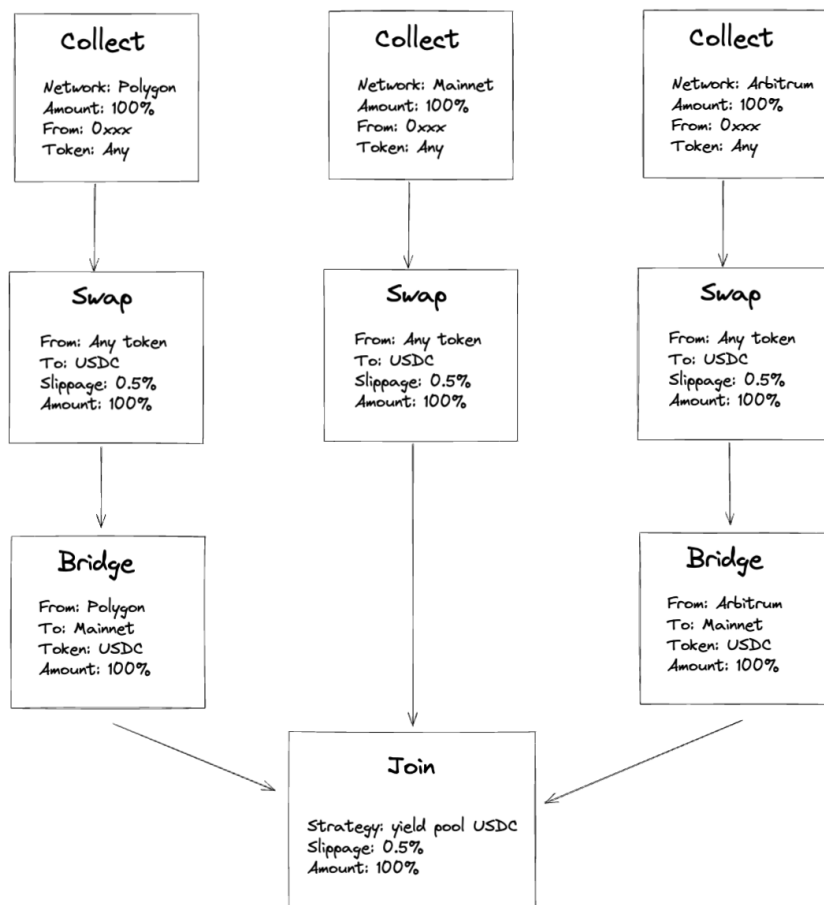
All these primitives follow a simple interface in order to communicate with the rest of the Mimic protocol. This allows users to implement custom primitives to interact with their assets, ensuring full flexibility for specific processes.

Actions

Usually, to automate complex processes, primitives are not executed in isolation. These can be grouped in different ways to perform more complex operations. This group of primitives is called actions.

An action can define how primitives are connected to each other and in which order these must be executed. Additionally, actions can be configured to limit their execution depending on any transaction metadata like sender, gas price, gas cost, timestamps, etc. For example, an action can be configured to be executed only once a month, or only if its total gas cost is lower than 100 DAI.

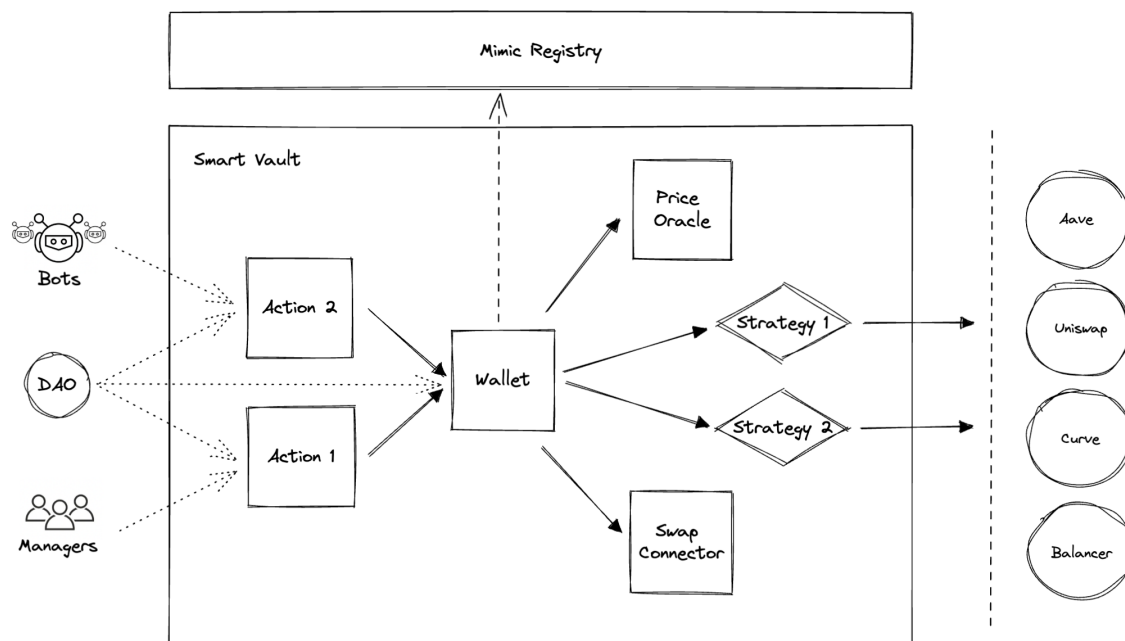
These are just a few examples, Mimic opens the doors to model any other type of actions that could be automated to improve your DeFi experience.



Action example of how assets can be swapped and bridged from different layers to join an Ethereum protocol

Architecture

Smart Vaults are structured in different smart contract components:



Mimic Smart Vaults architecture

Wallet

The Wallet is the key component of Smart Vaults, this is where all the assets of a Smart Vault are held and where its primitives are executed. Wallets are also in charge of performing all the accounting logic related to investments and protocol fees.

Wallets also provide a built-in authentication logic to configure who is allowed to execute these primitives. Only allowed users can operate Wallet's assets, Mimic is never in control of their funds, the Wallet is always in full control.

Wallets are replicated across different EVM-compatible chains to make sure users can interact with them transparently and in a unique way.

Strategies

Smart Vaults can use different strategies to allocate assets into different DeFi protocols. Strategies simply need to define how assets are allocated into a DeFi protocol, how to claim rewards to earn yield, and how to exit their position from the DeFi protocol. These can be managed dynamically, Smart Vaults are allowed to add or remove strategies to control their investment strategies at any time.

Mimic provides a standard interface to make sure all DeFi protocols can be accessed in a simple way from Wallets. Additionally, Mimic facilitates a few implementations to integrate different DeFi protocols like Curve, AAVE, Balancer, Compound, Uniswap, and others. However, custom strategies can be developed in a really easy way. Any [ERC-4626](#) vault or similar vaults can be used as a Smart Vault strategy.

Mimic opens the doors to a whole world of community developers that want to contribute to strategies development. The protocol and curation process is open to anyone. Each Smart Vault will then decide which strategies they want to use. Mimic offers an on-chain curated list of strategies to make sure Smart Vaults can rely on this source. The curation process will be done by a governance committee initially, but it is already planned to become fully decentralized in the near future.

Swap Connector

The Swap Connector is a smart contract that simply assists the rest of the components in a Smart Vault to swap assets. Having this kind of logic in a separate contract allows Smart Vaults to update it or replace it with another implementation in the future if desired. For example, the Swap Connector may allow swapping in different exchanges initially but it also may want to support some more in the future.

The Swap Connector simply interfaces with external exchanges to swap assets and it is mainly used by Wallets. For example, it allows Wallets to swap assets in order to join strategies to have a better position or to swap rewards in order to re-invest them.

Price Oracle

The Price Oracle can be used to query the price of an asset in a decentralized way. It can be used along with other components to achieve different operations.

For example, it can be used to compute the minimum amount out for a swap based on a given slippage before calling the Swap Connector. It serves as a second source of truth to avoid having Wallets depending entirely on what the Swap Connector says.

Similarly to the Swap Connector, Smart Vaults can update or replace this dependency with new implementations in the future if they need to.

Mimic Registry

The Mimic Registry is where all the implementations of the contracts listed above are registered. It acts as a curated on-chain registry so Smart Vaults can check against it before updating their dependencies.

For example, there could be two available Swap Connector implementations registered in the Registry that offer different exchanges. If a Smart Vault wants to update its Swap Connector dependency from one to another, it can simply validate that change using the registry to make sure they are not pointing to an invalid or malicious Swap Connector instance.

The Mimic Registry will be controlled by a governance committee initially, but it is already planned to become fully decentralized in the near future.

Actions

As described before, actions are where primitives can be combined together to achieve more complex operations. Actions can be granted with Wallet permissions to execute different primitives.

An action is a simple smart contract with Wallet permissions that executes a specific set of primitives in a specific order. Context predicates can be defined in each action to control when this should be executed.

Moreover, similarly to Wallets, actions also can make use of their built-in authentication logic to control who is allowed to execute these. For example, actions can be triggered by Mimic bots if they allow that.

Smart Vault

The Smart Vault is the component that puts all the pieces together. It acts as an on-chain registry of which actions are allowed for the Smart Vault. Users can add or remove actions at any point in time.

The Smart Vault itself does not provide any further logic, all the operations allowed in a Smart Vault will be denoted in the actions allowed for it that will interact with the rest of the parts of the architecture: Wallet, Swap Connector, Price Oracle, and Strategies.

Bots

Actions can be triggered not only manually, but also automatically by Mimic bots. Of course, this needs to be allowed from the Smart Vault itself beforehand.

Smart Vaults can allow Mimic bots to execute certain actions based on their pre-set conditions. Bots will monitor the blockchain and trigger these actions automatically only if said pre-set conditions are met. For example, a Smart Vault could be set to withdraw gains on a monthly basis. Note that this action can be configured to be executed automatically by a Mimic bot with a gas cost limit or gas price limit.

Currently, Mimic runs the bots internally, but in order to ensure trustless execution, the system will eventually migrate to a decentralized network of bots.

Revenue model

Mimic is allowed to charge Smart Vaults with protocol fees. There are different types of protocol fees that be charged by Mimic. There are four different types of protocol fees proposed initially:

- **AUM fee:** AUM fee can be charged based on the assets' balances of each Wallet.
- **Swap fee:** A swap fee can be charged on the amount out after each swap.
- **Withdraw fee:** A withdrawal fee can be charged when assets are withdrawn from the Wallet.
- **Performance Fee:** A fee can be charged to each Wallet based on the performance of the strategies they have invested in. If there are no gains no performance fees are charged at all by the protocol.

Note that each of these is set per Smart Vault, not a protocol level. This allows Mimic to turn on or off the fees based on each Smart Vault purpose. Additionally, each Smart Vault is allowed to decide who and how is able to change these fees in the future.

Additionally, fees can be tied to a cap in each Smart Vault. For example, if there is a performance fee of 2% set for a Smart Vault, it is allowed to define an arbitrary cap of 1,000 USDC per year. This allows each Smart Vault to control a limit of how much they will pay to the protocol.

Governance

In the future, Mimic will include a governance token that anyone could get in order to participate in the Mimic DAO. The DAO will be able to control mainly three things in the protocol: fee distribution, whitelisted strategies, and registered implementations.

Initially, Mimic will be governed by a small committee formed by members of the founders, advisors, and investors teams. Once the governance token is deployed, the Mimic DAO will be created and it will be fully transitioned to it, there are no middle steps here, Mimic will be fully decentralized by then.

The governance token will be used for voting to participate in the Mimic DAO. Holders will be able to lock their tokens in order to boost their voting power, usually known as the "voting escrow" model.

Additionally, there will be a liquidity mining program in order to reward wallet owners. There will be an initial amount that will be minted to reward early users. Liquidity mining rewards will be paid in the governance token, and how much will be distributed per smart vault will be decided by the Mimic DAO.

Mimic will distribute protocol fees to Mimic stakers pro-rata to their stake (buyback or burning), benefitting stakers as adoption of Mimic increases — stakers of Mimic are incentivized to propose, discuss, and vote for proposals that further merit the protocol.

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