Swappy Whitepaper

swappy-fi.com
(https://github.com/vvukelic/swappy)

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Abstract

Swappy is a decentralized, peer-to-peer (P2P) trading platform built for seamless and trustless token swaps, eliminating the need for liquidity pools. Unlike conventional swapping platforms that rely on liquidity pools, which often suffer from slippage and variable fees tied to trade volume, Swappy focuses on over-the-counter (OTC) trading. This approach ensures that users experience zero slippage—they know exactly how many tokens they will send and receive before confirming a swap.

Swappy also simplifies the fee structure by offering a fixed, low fee per swap, regardless of the transaction size. This makes trading more predictable and cost-effective for users. Additionally, traders have the flexibility to create private or public swaps and set time limits, giving them greater control over their swaps.

One of the main challenges with P2P swaps on blockchains is the issue of trust and security. Swappy addresses these challenges by providing a trustless environment where users can swap tokens securely without relying on intermediaries, ensuring both parties are protected throughout the process.

1. Overview

Swappy is a simple yet powerful DeFi application that provides users with the flexibility to custom-tailor their swaps based on their specific needs. Unlike conventional swapping platforms, Swappy enables users to create highly customizable P2P swaps without relying on liquidity pools.

Swap offer

A Swap Offer is a customizable structure defined in Swappy, created when a user (swap offer maker) initiates a swap using Swappy's intuitive interface. Each Swap Offer includes the following parameters:

- **Token to send:**
  - The swap offer maker selects the token they intend to send.
- **Amount of token to send:**
  - The maker specifies the exact amount of the token they wish to send.
- **Token to receive:**
  - The maker selects the token they want to receive in return.
- **Amount of token to receive:**
  - The maker defines the exact amount of the token they expect to receive.
- **Time limit of the swap:**
  - The maker can set a time duration for the swap offer, after which the offer will expire if not accepted.
- **Public or private swap:**
  - The maker can choose between a public swap or a private swap, where they define a specific address of the swap taker. This restricts access to the offer, ensuring only the specified address can accept the swap, effectively making it private.
- **Partial swap:**
  - The swap maker can choose whether the offer must be filled in its entirety or can be partially fulfilled by multiple users. This feature increases the likelihood of the offer being filled quickly, as it allows multiple participants to fill portions of the swap until the total amount is reached.

Once the swap offer is created, the swap offer maker can send the URL of that offer to the taker.

Swap

A swap is generated when a user (swap offer taker) accepts and fulfills a Swap Offer, either fully or partially. Each Swap Offer can result in multiple Swaps (0 to N), depending on whether the offer is fulfilled in its entirety by a single user or partially by multiple users.
Swap includes following parameters:

- **Amount sent:**
    - The actual amount of the token that the swap offer taker sent to fulfill the Swap Offer.
- **Amount received:**
    - The exact amount of the token that the swap offer taker received in return.
- **Time of the swap:**
    - The timestamp indicating when the swap was executed.

Fee structure

Swappy implements a simple, transparent fee model that ensures users know the cost of each transaction upfront:

- **Fixed Fee in USD Value**:
    - The fee for each swap is fixed in USD but is paid in the native token of the blockchain where the swap occurs (e.g., ETH, MATIC, BNB…).
    - The fee amount is initially set to $2 on Ethereum mainnet, and $1 on other networks, but can be adjusted.
- **Real-Time Exchange Rate**:
    - To convert the USD fee into the native token, Swappy uses Chainlink's oracle to fetch the latest exchange rates. This ensures that the fee amount in the native token remains accurate and up-to-date.
- **Who Pays the Fee**:
    - The swap offer taker (the user accepting the swap) is responsible for paying the fee. This fee is deducted at the time the swap is executed.
- **Governance and Adjustments**:
    - The fee amount can be adjusted by the community using Swappy's DAO governance mechanism. A proposal must be approved by SWPY token holders, after which the setFeeAmountInCents function can be called to update the fee.
    - This ensures that the fee structure remains flexible and responsive to the needs of the community.

Public Swaps Market

Swappy is evolving to offer a Public Swaps Market that functions as a simplified, decentralized exchange, allowing users to take advantage of a more dynamic trading environment.

- **Public vs. Private Swap Offers**
    - **Private Swap Offers** are restricted to specific addresses set by the swap offer maker, making them accessible only to designated users.
    - **Public Swap Offers** are open to all users and are automatically listed on the Public Swaps Market if they are not fulfilled or expired.
- **Order book model**

    - **Public Swap Offers** are pooled into an order book, creating a basic framework for a classic exchange. This allows Swappy to expand beyond simple P2P swaps, enabling more sophisticated trading strategies.
    - Users can create market or limit orders to fulfill existing swap offers:
        - **Market Orders:**
            - Instantly match with available offers at the current rates.
        - **Limit Orders:**
            - Allow users to specify the price they are willing to accept, only executing the swap if the conditions are met.
- **Benefits of the Public Swaps Market**
    - **Increased Liquidity:**
        - By pooling public swaps into an order book, Swappy provides users with greater visibility into available trades, making it easier to find counterparties.
    - **Efficient Matching:**
        - Users can efficiently match with offers that meet their requirements, optimizing their trading experience.
    - **Trustless Environment:**
        - As with all Swappy transactions, the Public Swaps Market operates without intermediaries, ensuring secure and trustless execution of swaps.

2. Architecture

Swappy's architecture leverages two smart contracts: SwappyData and SwappyManager. These contracts are designed to handle the creation, management, and execution of peer-to-peer (P2P) swaps in a secure and efficient manner. Here's a breakdown of their roles:

SwappyData.sol

- The SwappyData contract serves as the core data management layer for the Swappy platform. It is responsible for storing and organizing all swap-related data, including the details of swap offers, users, and swap history.
- Key Features:
    - **Data Storage:**
        - Manages information on active and completed swaps, ensuring that all swap offers are securely stored on-chain.
    - **Swap Offer Struct:**
        - Defines the structure of a swap offer, including the tokens to be exchanged, amounts, time limits, and whether the swap is public or private.
    - **Swap struct:**
        - Defines the structure of a swap.
    - **Security:**
        - Functions that add or update the data in SwappyData contract can only be called from SwappyManager contract.

SwappyManager.sol

- The SwappyManager contract acts as the main control layer, facilitating the interaction between users and the Swappy platform. It handles the creation, acceptance, and execution of swap offers.
- Key Features:
    - **Swap Creation:**
        - Allows users to create new swap offers, specifying the tokens to send and receive, the amounts, and the swap conditions (public or private).
    - **Swap Execution:**
        - Manages the execution of swaps once a counterparty accepts an offer. This includes handling partial fills and multiple participants if partial swaps are enabled.
    - **Fee Management:**
        - Handles the fixed fee model, converting the USD-based fee to the native token using Chainlink oracles. The fee is deducted from the swap offer taker during the transaction.

    - **Governance Integration:**
        - Includes functions that allow the DAO to update platform parameters, such as the swap fee, through community voting.

How These Contracts Work Together?

The SwappyData and SwappyManager contracts work in tandem to provide a robust and modular system for peer-to-peer token swaps:

- **Data Handling:**
    - SwappyData ensures all swap-related information is securely stored, enabling easy access and efficient management of active swap offers.
    - The SwappyData contract's functions that add or update data can only be called by the SwappyManager contract
- **User Interaction:**
    - SwappyManager acts as the interface through which users create, manage, and execute swaps. It also handles fee payments, ensuring that users are charged correctly based on current network conditions.

3. SWPY token

The SWPY token is the native utility and governance token of the Swappy platform, designed to align incentives among users, contributors, and the broader community. It plays a critical role in ensuring the sustainability, decentralization, and growth of the platform.

Purpose and Utility of SWPY

- **Governance**
  - SWPY holders can participate in the decentralized governance of the platform by voting on key proposals, such as adjusting the swap fee, implementing new features, or modifying the protocol's parameters.
  - Token holders can propose changes and vote on the use of treasury funds, ensuring that the community has a say in the platform's future.
- **Staking and Rewards**
  - Users can stake SWPY tokens to earn a portion of the platform's revenue generated from swap fees.
  - Stakers are rewarded for their commitment to the platform, which helps to incentivize long-term holding and active participation in governance.
- **Fee Discounts**
  - Users who hold and stake a certain amount of SWPY tokens can receive discounts on swap fees. This provides an incentive for users to acquire and hold SWPY, increasing demand for the token.

Token Distribution

The total supply of SWPY is **1,000,000** tokens, distributed as follows:

Category	Percentage	Total Supply
Liquidity Pool	15%	150,000 SWPY
Community Incentives	20%	200,000 SWPY
Team & Advisors	20%	200,000 SWPY
Treasury & Reserves	20%	200,000 SWPY
Staking & Rewards	25%	250,000 SWPY

- **Liquidity Pool**
  - To ensure seamless trading and price discovery, 15% of the SWPY token supply will be allocated to a Uniswap liquidity pool, paired with USDC, providing initial liquidity and enabling users to trade SWPY tokens.

- **Community Incentives**
    - Tokens allocated to reward users and foster growth. This includes airdrops for early users, rewards for active participation (e.g., completing swaps), and engaging in governance activities.
- **Team & Advisors**
    - Reserved for the founding team and advisors, with a vesting schedule of 3 years with a 6-month cliff to ensure alignment with the platform's long-term success.
- **Treasury & Reserves**
    - Held in the DAO's treasury for future platform initiatives, partnerships, and unforeseen expenses.
- **Staking & Rewards**
    - Reserved for users who stake their SWPY tokens to earn a share of the platform's swap fees, incentivizing long-term commitment.

Governance Mechanism

The SWPY token serves as the backbone of Swappy's decentralized governance model.

- **Proposal Creation**
    - Any SWPY holder with a minimum stake can create a proposal, suggesting changes to the platform.
- **Voting Power**
    - Voting power is proportional to the amount of SWPY staked, allowing more invested users to have a greater influence on decision-making.
- **Fee Adjustment**
    - The initial swap fee is set at $1 but can be adjusted through community votes. If a change is approved, the DAO can update the fee using the setFeeAmountInCents function.

Staking for Revenue Sharing

To further align incentives and reward active participants, Swappy offers a staking program where users can stake their SWPY tokens to earn a share of the platform's revenue.

- **Revenue Sharing**
    - A portion of the fees collected from P2P swaps is distributed to SWPY stakers. This incentivizes users to hold and stake their tokens, driving demand and fostering a loyal user base.
- **Claim-on-Demand**
    - Stakers can claim their rewards on any of the supported networks. If fees are collected on a different network, LayerZero's cross-chain messaging allows users to bridge their rewards, with the gas costs covered by the user claiming the reward.

Initial Distribution and Launch Strategy

- **Airdrops**
    - Tokens will be distributed to early users and supporters to drive initial adoption.
- **Liquidity Pool**
    - A portion of the tokens will be made available for trading through Uniswap liquidity pool.
- **Staking Launch**
    - A staking program will be introduced to incentivize early token holders to stake their SWPY and earn rewards.

4. Roadmap

- [x] ~~Launch Swappy on three networks (Ethereum, Polygon and BNB Smart Chain)~~
- [x] ~~Launch Swappy on Optimism netwrok~~
- [x] ~~Launch Swappy on Arbitrum network~~
- [ ] Implement a searchable list of publicly available swaps
- [ ] Deploy SWPY token contract (liquidity pool, airdrop, rewards)
- [ ] Enable staking of SWPY token
- [ ] Implement an order book of public swaps
- [ ] Introducing governance to SWPY token