Oxedium V1 Whitepaper

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Abstract

Oxedium V1 is a single-sided liquidity protocol that allows users to provide liquidity with a single token. The protocol uses internal algorithms to continuously maintain the balance of initial liquidity in its vaults through trader incentives, ensuring optimal routes for token swaps.

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1 Motivation

Modern AMMs (automated market makers) on Solana and other blockchains require users to provide liquidity in two tokens simultaneously.

This creates several limitations:

- Entry barriers — not all users have token pairs or want to manage balances to participate in liquidity provision.
- Impermanent loss — token volatility can lead to a decrease in the value of deposited funds, making participation risky for users with small capital.
- Complexity for non-professional users — many cryptocurrency holders simply store their assets in wallets because they don't know how to make them work without taking on risks.
- Fraudulent pool risks — in existing protocols such as Raydium and others, users can lose funds by participating in dishonest or insufficiently verified pools.
- Inefficient use of liquidity — current solutions do not allow for the maximum utilization of idle assets without significant risks and complexity.

As a result, a large number of users remain passive, and the DeFi ecosystem loses potential liquidity and activity.

The single-sided liquidity protocol offers a solution to these problems and delivers significant advantages for both users and the Solana ecosystem:

- Ease of participation — users can provide liquidity using only one token, without the need to balance pairs, lowering the barrier to entry.
- Risk minimization — single-sided liquidity reduces the likelihood of impermanent losses, allowing users to earn safely on their assets.
- Active capital utilization — even users who usually just store cryptocurrency in their wallets can engage their funds in DeFi without complex strategies or high risks.
- Protection from fraudulent pools — the protocol provides a verified and secure infrastructure for liquidity provision, minimizing the risk of losing funds to dishonest pools.
- Growth of the Solana ecosystem — increased liquidity and user engagement stimulate DeFi development on Solana, unlocking new opportunities for traders, stakers, and project integrations.

We are building a single-sided liquidity protocol that lowers barriers for users, minimizes risks, and drives the growth of the Solana ecosystem — making DeFi more accessible, secure, and efficient

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2 Oxedium protocol

2.1 Description

Oxedium is a single-sided liquidity protocol that allows any user to staking their cryptocurrency into one of the available vaults within the protocol (such as SOL, USDC, and others).
Users can withdraw their staked assets at any time in the same amount, along with the accumulated portion of trading fees generated by the protocol.

Example Use Case:
Consider a user who holds 100 SOL and believes in the long-term growth of the Solana ecosystem.
Instead of keeping their assets idle in a wallet, they can deposit them into the SOL Vault within the Oxedium protocol, which yields returns from trading fees — for example, an average of 30% annually.

If, after a year, the price of SOL doubles, the user's balance increases to 130 SOL (initial deposit plus yield). Combined with the asset's price appreciation, their overall position effectively multiplies in value.

In the opposite scenario — if SOL decreases by 30% — the accumulated trading fees from the vault help offset the price decline, allowing the user to retain approximately the same portfolio value in USD terms

2.2 Balancer

Balancer is the internal algorithm of the Oxedium protocol that manages liquidity distribution and dynamically adjusts trading fees.
To understand its logic, it is useful to recall how liquidity aggregators such as Jupiter, Titan, and others operate.
When a user initiates a token swap through an aggregator, the aggregator collects data from multiple protocols and determines the most efficient route for the trade.
In a similar way, the Balancer functions inside Oxedium: it monitors the internal state of all vaults and determines which swap routes the protocol is ready to execute based on current liquidity conditions.
The Balancer continuously tracks the liquidity and balance levels of each vault within the protocol. When a trader performs a swap, it evaluates the vault's condition and adjusts the trading fee dynamically:

- If the current vault balance is equal to or greater than its initial reference balance, the Balancer applies a base trading fee.
- If the current balance falls below the reference level, the fee increases dynamically, encouraging liquidity replenishment and protecting the vault from imbalance.

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In practice, the Balancer integrates with the overall Solana trading flow, analyzing ongoing swap activity and routing profitable transactions through Oxedium liquidity infrastructure.

By dynamically managing fees and vault balances, the protocol continuously generates yield for liquidity providers while maintaining equilibrium across all vaults. Through this mechanism, Oxedium aligns user incentives with protocol stability, creating a self-sustaining liquidity system that adapts to market conditions in real time.

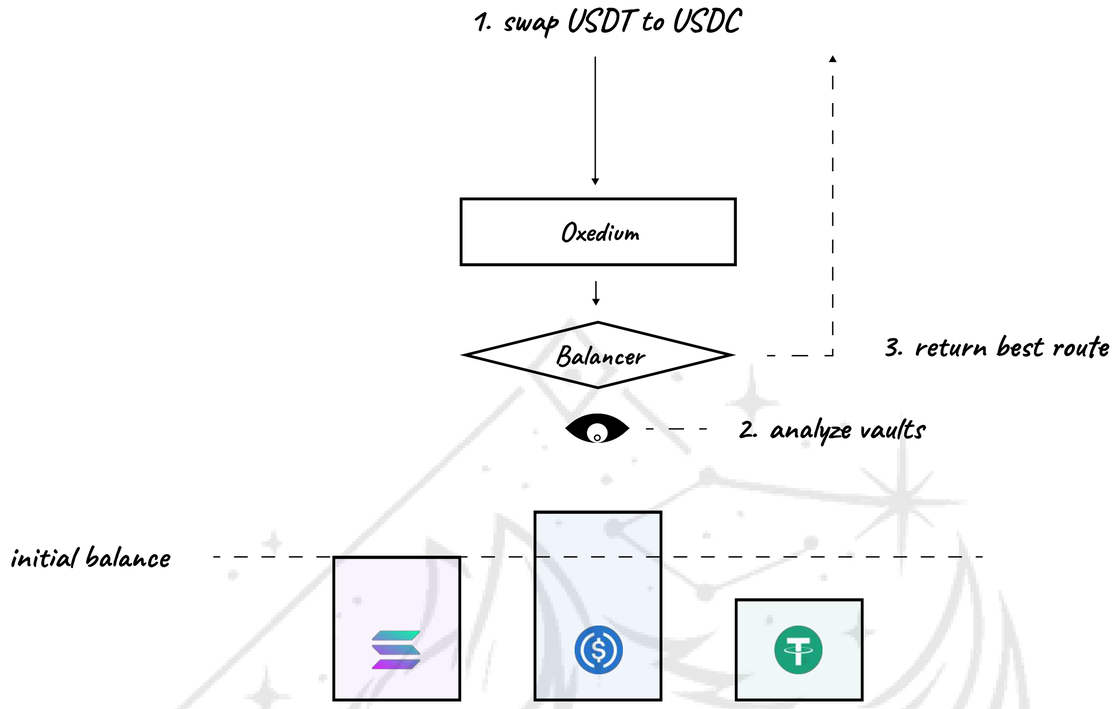


Figure 5: Protocol architecture

2.3 Optimizations

The protocol sources its exchange prices from the reliable Pyth oracle, ensuring accurate and up-to-date market data.

This oracle-based approach provides several key advantages over traditional AMMs:

- No slippage — trades are executed at the oracle-defined market price, independent of trade volume.
- No price impact — swaps do not alter the market rate or exert pressure on asset prices.
- Resistance to manipulation — the use of verified external price feeds prevents any direct influence or exploitation of internal vault balances.

By relying on an external oracle for pricing, the protocol maintains fair market integrity, enhances user safety, and ensures a transparent and efficient trading environment.

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2.4 Adjustable Parameters

The Oxedium protocol features several adjustable parameters that can be modified through DAO governance to ensure flexibility, sustainability, and responsiveness to market conditions. These parameters allow the community to optimize the protocol for risk management, yield, and user experience.

Key Adjustable Parameters:

1. Protocol Administrator
   - The DAO can update or change the protocol administrator responsible for certain operational tasks.
   - Ensures decentralization and adaptability in governance.
2. Vault Creation
   - The community can approve the creation of new vaults for additional assets (e.g., SOL, USDC).
   - Allows the protocol to expand its supported assets in a controlled and secure manner.
3. Vault Oracle
   - The price oracle for each vault can be updated or replaced via governance.
   - Ensures accurate and reliable pricing while adapting to better or more secure oracle sources.
4. Vault Base Fee
   - The base trading fee for each vault can be adjusted.
   - Allows the DAO to optimize incentives for liquidity providers and maintain protocol sustainability.
5. Protocol Fee Collection
   - Parameters governing the collection and distribution of protocol-level fees can be modified.
   - Provides flexibility in revenue allocation and long-term protocol funding.

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3 Use cases

Aggregators

For optimizing swap routes, increasing available liquidity, providing users with accurate and predictable exchange prices, and ensuring safe use of liquidity without slippage or price impact.

Individuals

For liquidity providers: to earn passive income from trading fees, safely participate in liquidity without impermanent loss, efficiently utilize their assets

Wallets and other applications

Enable users to earn yield on their assets, integrate safe single-sided liquidity provision, optimize returns through protocol fees, and expand application functionality while maintaining simplicity and security for end users

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4 Conclusion

The Oxedium protocol introduces a single-sided liquidity model on Solana that combines oracle-based pricing, dynamic fee management, and DAO-governed adjustable parameters. By eliminating impermanent loss, slippage, and price impact, the protocol enables users to safely earn yield, optimize capital efficiency, and actively participate in the DeFi ecosystem.
With support for multiple assets, stablecoins, and integration opportunities for aggregators, wallets, and staking applications, the protocol fosters liquidity growth, market stability, and community-driven governance.
In summary, Oxedium provides a secure, flexible, and user-friendly liquidity infrastructure, aligning the incentives of liquidity providers, traders, and the broader Solana ecosystem to support long-term sustainable growth in DeFi

5 References

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