

# Vx-Pax Protocol ERC-2055

Real-Time Syncing of ERC-20 Token Balances as ERC-1155 Compatible Tokens  
Using a Storage-Efficient Reflection Mechanism

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## Abstract

The Vx-Pax Protocol introduces a novel financial instrument by integrating ERC-20 and ERC-1155 standards, enabling bidirectional synchronization of token balances between different types of tokens. This allows for the creation of denominations of ERC-20 tokens into "larger bills." Larger denominations of tokens are useful to enhance liquidity management within the DeFi ecosystem and minimize market impact during large transactions. By coupling traditional token transactions with fractionalized ownership represented through ERC-1155, Vx-Pax facilitates large-scale financial operations with reduced slippage, promoting more stable and efficient market conditions.

## Introduction

Liquidity and market stability are crucial in DeFi. Traditional approaches often lead to significant market swings, especially when large volumes are involved. The Vx-Pax Protocol addresses these challenges by automatically using ERC-1155 tokens to create larger denominations of ERC-20 tokens, specifically VaultX. This integration allows for innovative liquidity management and operational efficiency, particularly beneficial in scenarios like Whale Pools, where substantial token bundles are managed collectively without adverse market effects in faster-paced DEXs where liquidity is instant, albeit slippy.

## Basic Overview:

ERC-2055, also known as the Vx-Pax Protocol, does two main things to make it work:

1. Keeping track of your "big bills":
  - Imagine your Vx tokens are like money, and the ERC-2055 protocol is like a special wallet that automatically sorts your money into different sized bills.
  - Depending on how many Vx tokens you have, the protocol keeps count of how many of each "bill size" (called denominations) you have.
  - For example, if you have 250,000 Vx tokens, the protocol might show that you have two "100K bills" and one "50K bill."
2. Moving your Vx tokens when you transfer a "bill":
  - Now, let's say you want to give someone one of your "100K bills" (which is actually an NFT representing 100,000 Vx tokens).
  - When you transfer this "bill" to someone else, the protocol automatically moves the corresponding 100,000 Vx tokens from your regular token balance to the other person's balance.
  - This way, the "bill" (NFT) and the actual tokens always stay in sync, and you don't have to worry about moving the tokens separately.

So, in a nutshell, ERC-2055 acts like a smart wallet that keeps track of your Vx token balance as different sized "bills" (denominations) and automatically moves the right amount of tokens when you transfer these "bills" to someone else. This makes it easier to handle large amounts of tokens and helps keep everything organized and in sync behind the scenes.

## Functionality

### Core Mechanism

The Vx-Pax Protocol leverages the ERC-1155 standard's ability to represent assets in multiple denominations (e.g., 100K and 1M tokens) as a means to control large volumes of ERC-20 tokens (e.g., a stablecoin or a utility token) in a more granular and efficient manner. Each ERC-1155 token corresponds to a fixed amount of ERC-20 tokens, enabling users to transact large sums without directly impacting the underlying token's market.

### ERC-1155 to ERC-20 Synchronization

When a user transfers an ERC-1155 token, the protocol automatically transfers the equivalent value in ERC-20 tokens to the recipient. For instance, transferring one "100K" ERC-1155 token would result in 100,000 ERC-20 tokens being moved from the sender's

to the recipient's account, maintaining a consistent and synchronized balance between the two token types.

#### ERC-20 to ERC-1155 Reflection

The protocol also reflects changes in ERC-20 token balances in the user's ERC-1155 holdings. If a user acquires enough ERC-20 tokens to meet the threshold for an additional ERC-1155 token, the system recognizes this change and adjusts the user's ERC-1155 balance accordingly. This bidirectional synchronization ensures that movements in ERC-20 balances are accurately mirrored in the user's ERC-1155 token holdings.

## Use Cases

#### Whale Pools

Whale Pools, collections of substantial token holdings managed collectively, stand to benefit significantly from Vx-Pax's functionality. By transacting in ERC-1155 tokens that represent large quantities of ERC-20 tokens, participants can execute sizable trades without the usual market slippage. This capability is crucial for maintaining price stability and ensuring fair market conditions.

#### Slippage Reduction

In traditional DeFi trading, large orders often cause significant price impacts, resulting in unfavorable slippage for the trader. Vx-Pax mitigates this issue by allowing large volumes to be moved in a manner that doesn't directly interact with the market until smaller, more manageable portions are exchanged. This system provides a mechanism for high-value transactions to occur with minimal impact on the market price.

#### Efficient Liquidity Management

Vx-Pax facilitates more efficient liquidity management within DeFi protocols. By enabling the fractionalized ownership of large token pools, liquidity providers can more easily allocate and rebalance their contributions across different pools or investment opportunities, enhancing capital efficiency and optimizing yield strategies.

## Conclusion

The Vx-Pax Protocol represents a significant advancement in DeFi operations, addressing critical issues of market impact and liquidity management for large-scale transactions. By integrating the functionalities of ERC-20 and ERC-1155 tokens, Vx-Pax offers a robust solution for handling substantial token volumes with precision and stability, paving the way for more sophisticated financial instruments in the DeFi space.

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