

# vSlice Whitepaper

## Abstract

vSlice consists of three interacting contracts.

Wallet.sol is a multisig wallet for contributors to deposit funds. This contract is only active during the Token Issuance.

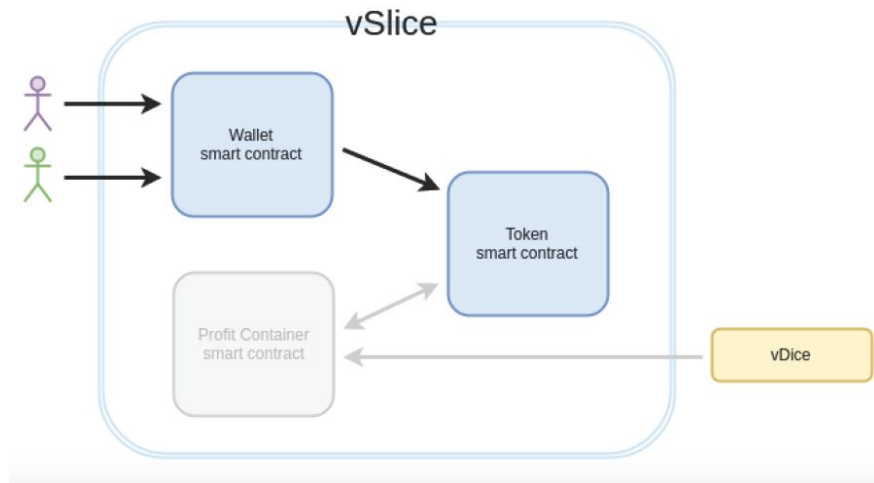
Most of it is essentially identical to the Ethereum Foundation's standard multisig wallet authored by Gavin Wood. New functionality is concentrated in the Tokenswap contract, which the wallet inherits.

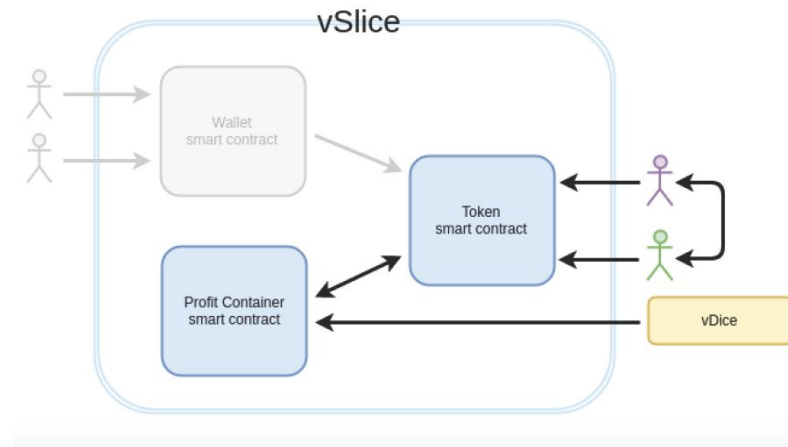
Token.sol implements exchangeable tokens, which earn shares in vDice profits. This is an ERC20-compatible token contract with custom additions. ProfitContainer.sol acts as the link between Token.sol and the vDice game platform, distributing profits to token holders.

## vSlice Technology Structure

The structure of the vSlice application is composed of three smart contracts, each of them handling a different aspect of the token issuance.

The three smart contracts interact with each other and with the vDice contract as better explained by the graphs below.





Wallet smart contract - a smart contract implementing the standard multisig wallet logic is the gateway to receiving tokens for new token holders ("contributors") during the token issuance (there is no use for this afterwards).

The wallet contract will receive incoming transactions and will trigger the token minting logic on the Token smart contract side.

Token smart contract - a smart contract implementing the token management logic. By looking at the amount each "contributor" (where a "contributor" is identified by an ETH address) deposited into the Wallet smart contract, the Token smart contract distributes the tokens to the token holders ("contributors").

Once the token issuance phase is completed, the total supply of tokens cannot be changed - in the following phases tokens can not be issued, but just exchanged.

At this point token holders interact directly with the Token smart contract, which will be updated as soon as the tokens' ownerships change.

Profit Container smart contract - a smart contract implementing the profit distribution logic. Being connected to both the Token smart contract and the vDice game platform one (where the vDice smart contract is an Ethereum betting game producing profits), the Profit Container contract acts as a bridge between the two sides of the game structure.

On one side the contract receives incoming transactions which move value from the vDice game platform to the vSlice profit container itself, while on the other it reads the state of the token contract, querying for the token balance of the transaction sender

We have reused, as much as possible, the *standardized* code that exists in the Ethereum ecosystem, with the aim of minimizing the implementation complexity. This also ensures system security.

In particular, the base of the architecture is built upon the wallet contract and the ERC20 token contract. These have received extensive scrutiny and have been thoroughly vetted by the Ethereum community.

Some modifications are needed in order to implement the custom logic, but the abovementioned contracts will provide a solid groundwork from which to build.

## Design and Features

The 'vSlice' Smart Contract System is a set of smart contracts which provide the following features:

- A safe and auditable exchange of Ether (ETH) for 'vSlice' tokens during the creation phase.
- Token holders receive a share of game platform profit, proportional to the amount of tokens held, in a fair and transparent way.
- Tokens behaves as any standard ERC20 token.

## Architecture

We will achieve the objectives listed above with the following architecture:

- Manual Coin Locking
  - a) Each token holder gets an amount of token proportional to the ETH they deposit into the token issuance, in the ratio of:
    - Week 1 = 1 : 130
    - Week 2 = 1 : 120
    - Weeks 3 & 4 = 1 : 100

The profit from the game platform is sent to the token contract and is accumulated in its balance.

The token contract can be in any one of these two states:

*i. Unlocked: tokens are freely transferable, and profit cannot be withdrawn during this period of time. The length of unlocked time period will be decided at contract deployment: e.g 3 weeks.*

*ii. Locked: tokens cannot be transferred. Each token holder can withdraw their profit share only during this period of time. The profits which are not collected can be sent/withdrawn to the wallet contract. The length of the locked time period should be decided at contract deployment: e.g 1 week.*

It's the most simple approach for distributing game profits to token holders. It's the easiest to implement. It needs few modifications to the standard ERC20 token contract. This will provide maximum security.

It should be remembered that if a 'vSlice' holder fails to withdraw their profits, they will lose their share of the profits during that time period. Coins are perfectly transferable and fungible on exchanges. However, sending to and from exchanges is prevented during the coin-locking period.