Tapio V1.5: Discussions

Nuts Finance

November 2023

Abstract

This document aims at discussing some design features of the protocol Tapio V1.5 and edge cases.

Contents

1 Unbalanced Pool

1.1 Problem

Different reasons could make the Tapio stableSwap pool unbalanced:

- Single side deposit
- Single side Withdraw
- Internal trading (swap fee)
- LSD reward / Slashing or penalties

If for some reason, we have $D_{old} - D_{new} > \epsilon$, then, any transaction called by the user (e.g. mint or swap or redeem) will revert.

1.2 Solution

To solve this problem, the idea consists in sending tokens to the StableAsset contract corresponding to the stableSwap pool in order to increase D.

1.3 Suggestion

I propose to remove this condition and to define fee depending if the user's transaction makes the pool more unbalanced or no.

2 Pool balances Manipulation

2.1 Problem

It's possible to manipulate the pool balances by sending tokens to the smart contract StableAsset. In this case D will be increased. Then, fee will be generated and the total supply of tapETH will be increased.

2.2 Solution

It's not a critical problem as the extra tokens will be converted to fee for tapETH holders.

2.3 Suggestion

I propose to not use "balanceOf" method to update the pool balances and to update balances from user's transactions.