

# EtaSwap

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General info: EtaSwap is DEX<sup>1</sup> aggregator on Hedera blockchain. It allows users to find and swap tokens at best rates among DEX-es.

## 1. Introduction

This document is a technical overview of EtaSwap, explanation of smart-contracts and flow.

## 2. Price Oracles

Price Oracles - is smart-contracts that provide a unified interface of getting rate for currency pair for different types of exchange. At the moment there are 3 active and maintainable DEX-es on Hedera blockchain: SaucerSwap, Pangolin and Heliswap. The Oracle contract - exposes the main view method "getRate(srcToken, dstToken, connector)". That allows us to retrieve the current rate for currency pair.

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<sup>1</sup>Decentralized exchanges

[https://en.wikipedia.org/wiki/Decentralized\\_finance#Decentralized\\_exchanges](https://en.wikipedia.org/wiki/Decentralized_finance#Decentralized_exchanges)

### 3. Adapters

For each DEX, EtaSwap provides smart-contract that creates unified interface of interaction, they named as adapters:

The steps of interaction:

- 1) Receive ERC20<sup>2</sup> token/HBAR from user
- 2) Charge fee to fee account
- 3) Swap user tokens on defined DEX
- 4) Return dust to user in case of any
- 5) Return destination ERC20 token/HBAR to user

### 4. Exchange

Exchange smart-contract - is single entrypoint (factory) for adapter contracts. It allows for contract owner account to add new Adapters, remove existing adapters, pause and unpauses swaps (in case of emergency).

### 5. Fees

Amount of fee can be different for each adapter, it's possible to change the fee for a particular adapter. Approximately fee amount is 0.2-0.5% per swap.

Network gas for different kind of swaps (for current Uniswap-like DEX-es) takes around:

- 1) ERC20 -> ERC20 swap = 900000 - 920000 Gas (~0.07 USD)
- 2) HBAR -> ERC20 swap = 235000 - 245000 Gas (~0.02 USD)
- 3) ERC20 -> HBAR swap = 1670000 - 1690000 Gas (~0.12 USD)

### 6. WHBAR issues and cross-DEX swaps

Each exchange on Hedera provides its own WHBAR token (wrap on native HBAR token, that allows it to use it in the general flow of DEX). So cross-DEX swaps not really possible with one connector. In this case the path of swap will be:

Token A -> WHBAR (exchange A) -> HBAR -> WHBAR (exchange B) -> Token B

, which could cause a solid amount of fee. This is subject for future discussions/improvements for the next version.

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<sup>2</sup>ERC20 token standard:

<https://ethereum.org/en/developers/docs/standards/tokens/erc-20/>