Minswap ISO Toolkit

▼ I. Overview

Background

> A key component of creating a positive developer ecosystem that empowers builders is having an effective community fundraising model for projects. The ISO has proven to be such a model for Cardano. Developing an open-source toolkit that allows developers to easily and efficiently run an ISO would be a powerful catalyst for the developer ecosystem.

What is a ISO?

> An ISO, or Initial Stake Pool Offering, is a fundraising model used in the Cardano ecosystem where participants delegate their ADA to a specific stake pool in exchange for tokens of a new project. This method allows projects to raise funds while rewarding participants.

Do you profit from it?

> Yes, by participating in an ISO, you can profit in two ways. First, you receive ADA staking rewards by delegating your ADA to a stake pool. Second, you receive tokens of the new project. These tokens may increase in value as the project grows.

Do I pay anything for it?

> No, you do not directly pay anything for participating in an ISO.

How do I participate in the ISO?

> To participate in the ISO, you need to stake your ADA in one of the active pools that the project has partnered with.

How is the reward calculated?

> The reward in an ISO is calculated based on the amount of ADA you delegate to the stake pool and the duration of your delegation. The specific formula can vary depending on the project's rules, but generally, the more ADA you delegate and the longer you keep it staked, the more tokens of the new project you receive. Additionally, you also earn ADA staking rewards from the stake pool.

How do I receive Reward Tokens?

> Stake your ADA in a partnered pool during the ISO event to snag some Reward Tokens. You'll get tokens based on how much ADA you have and how long you delegate, according to the project's formula. Once that's sorted, send 2 ADA to the Batcher Address, then you'll get back 1.5 ADA along with your rewards.

▼ II. The ISO Parameters

Various parameters are to be determined for projects to configure before launching their ISO event. These will depend on the project's needs, and must also reflect their communities' needs.

Therefore, we propose the following parameters:

- **Pool List**: (*required*) This parameter lists the stake pools eligible for the ISO, ensuring they align with the project's goals and provide a secure

staking environment. (*The pool list can be found here: https://cardanoscan.io/pools*).

- **Reward Token:** (*required*) The reward token is the new project's native token that participants receive for delegating their ADA during the ISO.
- **Reward Distribution**: (*require*)This parameter defines how the total reward will be distributed among participants based on their ADA delegation.
- **Start Epoch**: (*required*) This parameter defines when the ISO event begins, marking the epoch when participants can start staking their ADA.
- **End Epoch**: (*required*) This parameter marks the cutoff point for staking ADA to earn tokens, determining the ISO's overall duration.
- **Smallest Pool Bonus**: (*optional*) This provides extra rewards to those staking in smallest pool, promoting network load distribution and Cardano decentralization.
- **Whale Limiter**: (*optional*) Limits the maximum ADA delegation per participant to prevent domination by large holders and ensure fair token distribution.

How is the reward calculated?

Let’s say Minswap ISO schedule with parameters:

- Pool List: JUNO, VIPER, ROCI, QUEEN, ...
- Reward distribution: 125 million $MIN tokens.
- Start Epoch: Epoch number 300.
- End Epoch: Epoch number 319 (ISO lasts 20 epochs).
- Smallest Pool Bonus: 1.25X point multiplier for delegating to the smallest pool at the time of delegation.
- Whale Limiter: Maximum 100k ADA delegated.

Each epoch, 6.25 million tokens are rewarded. The number of tokens an individual receives is approximated by a scoring system based on their ADA's percentage of total ISO delegation. This approximation is due to two mechanisms:

1. Whale Limiter:

a. *Scoring System (used to calculate participant's % of ISO rewards each epoch):*

   Under 100,000 ADA delegated: Total points = Total ADA

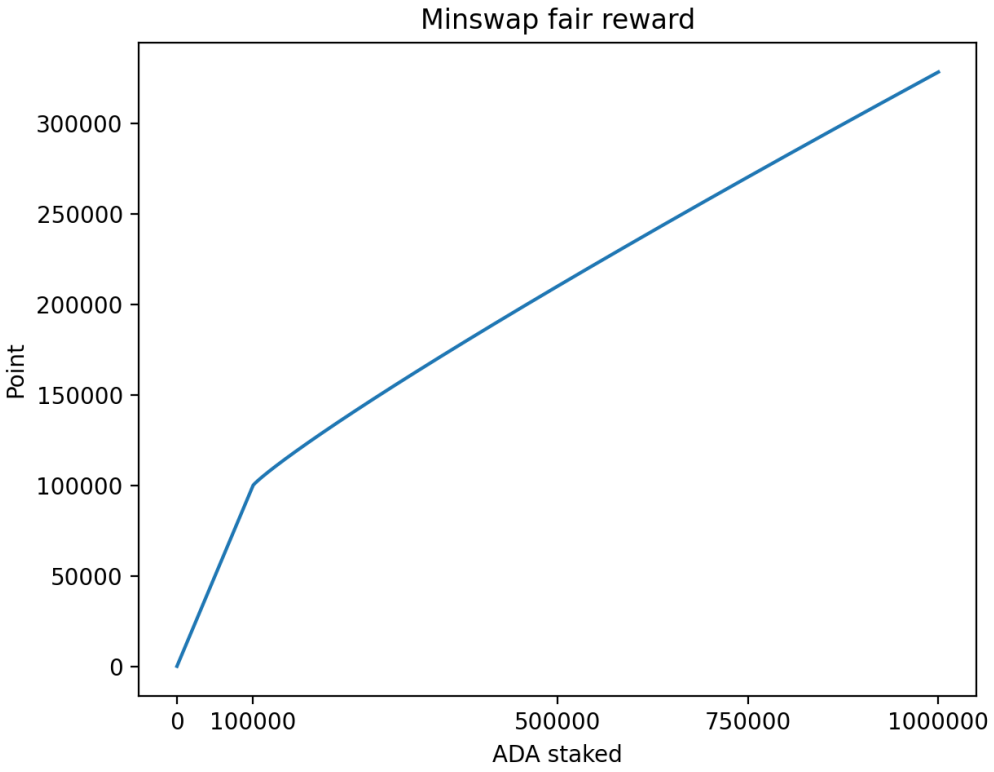
   Over 100,000 ADA delegated: Total points = 100,000 + (Total ADA - 100,000) ^ 0.9

b. *Example:*

   100K ADA = 100K Points

   1M ADA ~ 328K Points

   10M ADA ~ 2M Points



2. Smallest Pool Reward.

1.25X point multiplier for delegating to the smallest pool at the time of delegation. This multiplier will activate after 10 epochs and apply to all future epochs as long as the participant stays in the same pool.

So complicated, can you give me an example?

> For example, at the end of epoch 285, there are only two participants Long and Richard.
>
> Long delegated 100k ADA, equal to 100k points.
>
> Richard delegated 1M ADA, equal to around 328k points.
>
> Total points of that epoch are 428k.
>
> Long earn 100k / 428k = ~23% of the rewards, equal to 6.25M * 23% = 1.46M tokens.
>
> Richard earn 328k / 428k = ~77% of the rewards, equal to 6.25M * 77% = 4.79M tokens.

▼ III. Development

The ISO Toolkit includes three components corresponding to three sequence processing tasks, as illustrated in the diagram below:

ISO Processing Diagram

Calculate Reward:

- Tech Stacks: `python, django, cardano-db-sync, redis`
- Purpose: The Calculate Reward service determines the distribution of reward tokens to participants. It computes each participant's share of the total reward pool according to predefined ISO parameters, such as the Whale Limiter and Smallest Pool Bonus. This ensures fair and transparent reward calculations throughout the ISO event.

Seeding Reward UTxOs:

- Tech Stacks: `typescript, bun, @minswap/translucent, cardano-db-sync, redis`

- Purpose: Handles the initial distribution of reward tokens to participants' addresses. This process sets up UTxOs with the correct reward amounts, ready for participants to claim.

Distributing Rewards:

- Tech Stacks: `typescript, bun, @minswap/translucent, cardano-db-sync, redis`
- Purpose: The Distributing Rewards service manages the transfer of reward tokens to participants. It ensures tokens are sent to the correct wallet addresses promptly and securely.
- *Notes: The user pays 2 ADA to the Batcher Address, and the Batcher will return 1.5 ADA and reward tokens to the user.*

▼ IV. How To Use

1. **Requirements:**
    - docker, docker-compose
    - Cardano Db Sync Config
    - Maestro Key
    - Batcher Wallet
    - Fund Wallet
2. ISO Parameters and Environment:
    - Update your own parameters in `docker-compose.yaml`
    - Update your `.env` file base on `.env.example`
3. Execution:

```
docker compose --env-file .env up --build -d
```