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# Derivative Sets Using Daxia / Set Protocol \*



thefett

6 min read · Nov 16, 2018



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Daxia now gives you a way to go “long” or “short” crypto prices using tokens on the Ethereum network. For those of you who aren’t familiar with those terms, think of being long as a position where, if the price goes up, you make money and being short as a position where if the price goes down you make money. The traditional way of being long an asset would be to simply own it. But, with Daxia’s Long and Short tokens you can go long or short an asset without owning it.

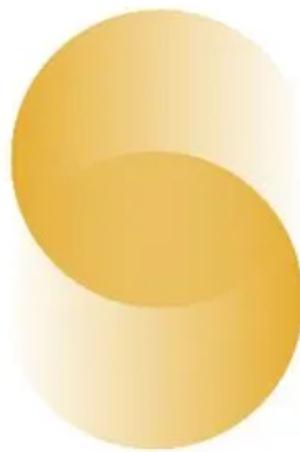
This is revolutionary for the decentralized exchange ecosystem.

Instead of only being able to trade standard ERC20 tokens, you can now have exposure to the short side of price movements, multipliers (e.g. 5x, 10x contracts), and even off-chain assets (BTC, Doge, XRP) all as ERC20 representations of their price movements.

With our mainnet product launched, user and partner feedback is that the week long contracts are still a lot of work. Parties want to enter into a Long or Short token and not have to worry about redoing it every week to keep their position going. If only there was a third party to roll them forward for us...just kidding. We wanted a completely decentralized option and that's where Set protocol and their brand spanking new rebalancing token comes into play.

## What is Set

Set protocol is a standard interface for a collateralized basket of ERC20 standard tokens. To translate, they give you one token that represents a basket of other tokens. Similar to Daxia's contracts, its an ERC20 token that represents a stake in a smart contract.



This is really cool in and of itself, but the even cooler side of the pillow is the new rebalancing token set.

Rebalancing is the process of realigning the weights of a portfolio, which involves periodically purchasing and selling assets to maintain a certain asset allocation. In the traditional finance world where users purchase Index Funds or ETFs, fund managers would perform the rebalancing on behalf of users with minimal input from the end user.

Luckily for Daxia and the rest of the decentralized revolution, Set has devised a system that allows a user to own a Rebalancing Set that rebalances trustlessly.

A new user can get exposure to a Rebalancing Set by simply purchasing a token on an exchange or by minting a Set themselves. No action is required by the user to participate in the rebalancing. Only if the user decides to opt out, does he or she need to get involved. This allows users to passively invest in ERC20 tokens in a fully decentralized manner.

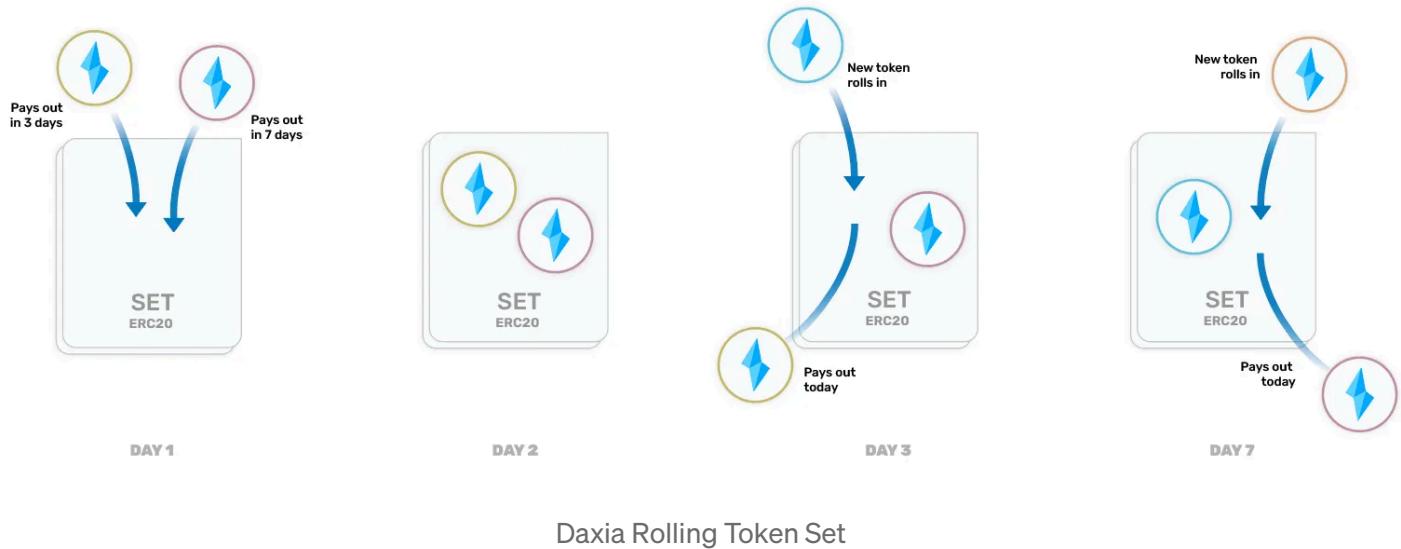
## Enabled Products

Baskets are cool. But now that they can hold Daxia Long and Short tokens, you can create a whole new class of baskets. Below are just some of the products that become possible with Set and Daxia.

### Automatically rolling contracts (single address for front-week short or long token)

The first product is one that solves Daxia's initial problem head on. To give you an example, we will create a Set that has a short token expiring in one

week (token (t)) and one token that starts in one week (token(t+1)). In 7 days, we will initiate the rebalance and trade week long token(t) for week long token(t+2). We have now rolled the exposure of our token forward using the rebalancing mechanism. The party holding the token representative of this basket will now have a ‘short’ token that they don’t have to worry about rolling forward.



**Short baskets (e.g a short DEX basket: Short ZRX, Short AirToken, Short MKR)**

As much as one token is really cool. Another idea is just to basket all of the rebalancing short or long tokens together. So now let's say you love DEX's but think governance tokens are a sham. You can create a basket of short DEX governance tokens (MKR, ZRX, AST, etc.).

**Supercharged Long Baskets (e.g. Long ETH 5X multiplier, Long BTC 10X multiplier, Long Doge 10X multiplier)**

In the same fashion as the short basket, you can also use Daxia tokens to get access to multipliers (e.g. 10X where a 1 percent move in the underlying represents a 10 percent move in payout). Now you can have a basket with some really cool multiplier properties that let you harness short term price jumps within various currencies.

## Flipping basket (Long ETH/Short BTC)

Lastly is the strategy basket. We all have twitter matches with Bitcoin maximalists, so let's finally have a way to put our money where our mouth is. With the flipping basket, parties can go long ETH and short BTC (or vice-versa). So next time you start arguing which coin is going to win, you can actually for some proof of conviction on the matter.

## Technical Issues to overcome

As much as we'd love to say they're launched already, the public will have to sit tight. We're just starting to build out these products, but we have the calluses on our hands (commits to the repos?) to prove they're coming along.

## Transforming tokens

The first issue is that Daxia tokens are shapeshifters. They are digital representations of a contract between the long and short tokens (the contract to pay the change in price). To get to the problem, if a Set contract is holding Daxia tokens on expiration, they will transform into the collateral that is paid out (wrapped Ether at the moment, DAI or others in the future). This is fine, but now we have to specifically enable the Set's to handle this change.

It's luckily not that big of a deal for the code ninjas at Daxia and Set Protocol. All we're doing to handle this is have the Set not hold the exact Daxia token, but rather a handler contract that identifies if expiration has passed and calls the appropriate contract. Pretty simple, but for those keeping up, you now have a digital bearer token representing a basket of handler contracts which hold stakes in automated financial contracts...pretty cool.

## Time sensitive auctions

Another piece that is a challenge to overcome is the time sensitivity of these auctions.

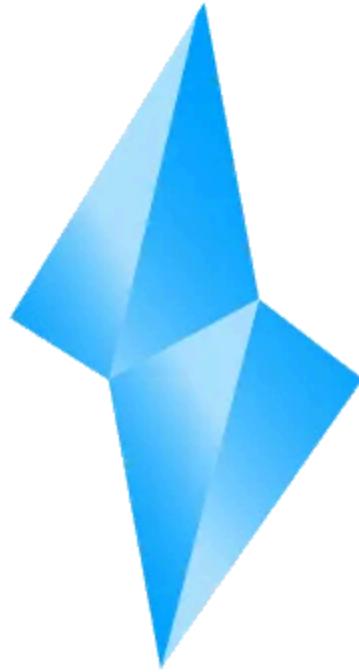
In case you haven't looked up how they work, the rebalancing sets have an auction to rebalance (e.g. sell this week's token for next week's in our case). This works well, but in order to maintain a consistent exposure for the token, we need to make sure that the rebalancing happens at the right time (and/or you have overlapping tokens in your contract). If you sell too early (e.g. before the start date of the next token) or too late (after the tokens in your Set expire), the contract will not perform as intended because the exposure will be different than advertised.

Fixing this issue is more of a traditional finance problem. ETF's commonly use rolling future contracts to maintain a certain exposure to a basket of goods and there are plenty of examples on how to do this. It will however require a more careful set up on behalf of the Set creators to ensure that the contracts overlap and the auctions are concluded at the right time.

## Conclusion

Hopefully you guys are excited about the possibilities. Between derivative tokens, baskets of tokens, and other financial primitives coming into existence on Ethereum, the combination of these products will yield new financial tools that are envy of those Wall Street financiers.

To learn more about Set at [www.setprotocol.com](http://www.setprotocol.com), read the [whitepaper](#) and check out the [code](#). More info about Daxia can be found at [www.daxia.us](http://www.daxia.us), on our telegram at [www.t.me/daxiachat](https://www.t.me/daxiachat), or you can just go straight to the dApp at <https://dapp.daxia.us>.



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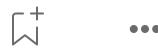
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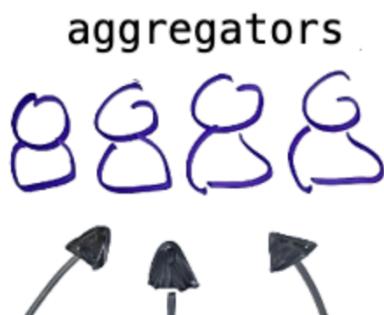
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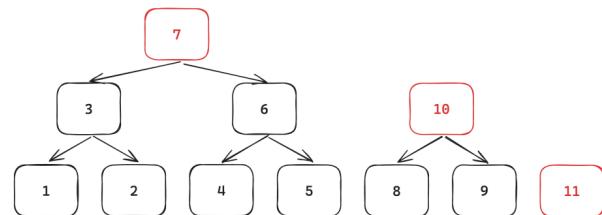
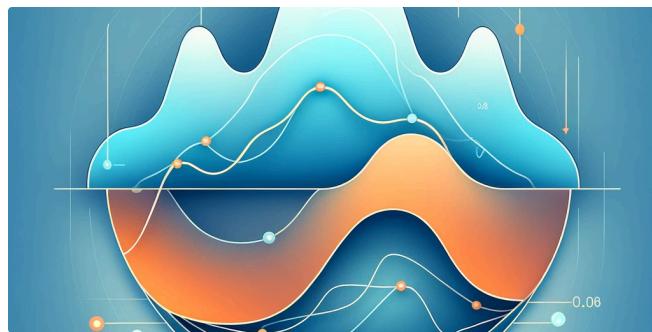


Figure 2: Merkle mountain rage (roots are red)



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```
st stub | dependencies | uml | funcSigs | draw.io
tract Underlying is ERC20 {
    trace
    constructor() ERC20("Underlying", "UND") {
        _mint(msg.sender, 1_000_000 * 1e18);
    }
}

st stub | dependencies | uml | funcSigs | draw.io
tract Vault is ERC4626 {
    trace
    constructor(IERC20 _asset) ERC4626(_asset) ERC20("Vault Token", "V")
        // Additional initialization can go here
}
```



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