Takaprotocol: A Decentralized Exchange and Assets Management Protocol v0.12

Abstract: Takaprotocol is a decentralized exchange for discovering liquidity, trading multiple financial instruments (such as crypto, FX, commodities, and more) and assets management, when the DeFi ecosystem is in need of advanced trading tools to manage investment risks.

The Takaprotocol facilitate the cross-chain transfer of funds, the exchange of assets, and creations of strategies by strategy managers.

This will in turn give investors the ability to monitor their fund managers performance in real time, and to earn passively by following their different strategies.

Takaprotocol Labs is the governance body that will develop, grow, and govern the product. All of its products are owned and governed by its team members.

Introduction

The emergence of trustless, decentralized networks, and smart contracts opens up the potential where assets can be moved or exchanged without the permission, participation, or benefit of financial intermediaries.

Today, with different DEXes and Assets Management protocols launching on different blockchains, you'll quickly notice that most of these DApps still lag behind in meeting up to the standard of their centralized counterparts.

The problem:

• The inability for traders to trade on multiple blockchains or move funds from one chain to another remains a pressing necessity.

• Also, the current DEXes are limited in terms of accessing different financial instruments. For instance, trading the FX and commodities markets on decentralized networks is unavailable.

• The lack of automation tools to help traders automate their trading activities.

• A retail trader (that makes up predominantly the crypto market) cannot afford to trade on these DEXes.

The reasons for their exclusion vary, but the common threads are high transaction cost, bad order execution, low speed, slippage, poor UI/UX and so on.

• In addition, decentralized assets management protocols lack sophisticated tools and flexibility.

Which includes:
1. Unavailability of multiple financial instruments.

2. Inability to access multiple financial services (such as spot, leverage trading, asset management tools) from one platform.

3. Most asset management protocols only allow strategy managers to create an index which is rebalanced periodically; you can't actively trade the market on these DApps.

Note: The index or basket strategy only works during a bull market, it's not bear market proof which leaves investors at a disadvantage of low or bad ROI.

The solution:

• A multi-chain DEX with bridge functionalities that allows traders to easily move funds from one chain to another.

• An aggregation protocol that sources liquidity from various exchanges and is capable of splitting a single trade transaction across multiple DEXes to ensure the best rates.

• Most importantly, giving traders and fund managers access to multiple financial instruments and the ability to automate their trading activities in a truly decentralized ecosystem.

Takaprotocol was formed out of a desire to enable individuals and institutions realize this vision of the future.

• The protocol provides a framework for trading multiple assets and financial instruments without the need for going through centralized exchanges.

The protocol affords for the secure trading of crypto on it's AMM, and perpetual trading (of Crypto, FX, Commodities, and more) on it's decentralized exchange.

At its core, Takaprotocol allows traders to create strategies while giving investors access to browse through hundreds of trading strategies provided by other strategy managers, and automatically copy their trading activities.

Foundational Concepts

1. Interoperability (Multi-Chain):

The Takaprotocol approaches interoperability differently than other DEXes in that it gives traders access to trade assets on multi-chain.

It features a unique bridge protocol that allows traders to perform cross-chain transfer of funds at unprecedented speed, and low transaction cost without the need of a third-party bridge.

Takaprotocol bridge can be used to send transactions of value or call data across multiple chains and / or roll ups unlike most interoperability systems.

Takaprotocol enables this without introducing any new trust assumption or external validators.

NXTP: Non-custodial Xdomain Transfer Protocol

NXTP is a lightweight protocol for generalized cross-chain transfers.

The Takaprotocol borrows heavily, if not completely from well established models of cross-chain transfers.

2. Liquidity Aggregation:

Takaprotocol tackles the issue of low liquidity and slippage by sourcing liquidity from various exchanges and it is capable of splitting a single trade transaction across multiple DEXes to ensure best rate.

The Takaprotocol AMM offers access to deepest liquidity and best token swap rates on various DEXes with unique features including partial fill, and the ability to find the best swap paths across multiple liquidity sources.

3. Smart Trading Automation:

Automated Market Makers(AMMs) like Uniswap, Sushiswap, and Spookyswap revolutionize the way crypto holders provide liquidity on decentralized exchanges, and how investors can swap tokens without giving custody away to centralized exchanges.

However these AMMs lack a lot of functionalities that makes their centralized counterparts in many instances still more user-friendly.

These functionalities mostly involve automatically executing token swaps based on certain conditions being fulfilled, such as offering customers to place Limit orders, Trailing-stop, RFQ, Laddered-buy, or even utilize more sophisticated strategies like Dollar Cost Averaging.

With Takaprotocol smart trading automation traders can use its terminal to automate their trades activities and enjoy the same experience they would normally do on a centralized exchange.

4. Access to Multiple Financial Instruments:

The decentralized financial ecosystem lacks access to trade multiple financial markets, due to DeFi is still in its infancy among other reasons.

For instance, Bob, a trader holding a long position on bitcoin and a short position on oil, all from one account is largely unavailable in the decentralized ecosystem.

Any experienced trader knows that trading only markets like crypto is a death wish.

Hence Takaprotocol integration of a derivatives protocol that allows perpetual trading for multiple financial markets such as (FX, Cryptos, Commodities, Indices and more).

Takaprotocol intend to achieve this by creating a synthetic version of these traditional financial assets, and following the real-time spot prices of these financial instruments using an off-chain price oracle that is connected on-chain.

Traders can use Takaprotocol perpetual contract to open multiple positions on different financial markets using leverage.

Takaprotocol recognize the risk of trading using leverage most especially in crypto that is a highly volatile market, hence enforcing a max of x20 leverage for trading all market available on its DEX.

The max in leverage amount is to protect traders from the loss of all funds.

5. Assets Management:

The Takaprotocol assets management protocol borrows from the copy-trading module that allows investors to browse through hundreds of trading strategies provided by other strategy managers, and automatically copy their trading activities.

With Takaprotocol copy-trading module, investors can achieve the same returns as leading traders on the platform.

The Takaprotocol assets management feature brings various trading strategies results in front of the public and competes with other traders in a fair, truly transparent, and decentralized environment.

Every trader can monetize their skills and earn second income by receiving success fees from their followers. The more followers they will acquire the more money they'll make from profitable trading.

Takaprotocol assets management protocol gives strategy managers access to trade multiple instruments including crypto,FX, commodities, and more.

Individuals can create their own strategy or follow others in a secure and non-custodial manner.

Participants

1. Routers:

These are agents that are responsible for fulfilling transactions on the bridge protocol. The routers are incentivized to complete transactions on the network.

2. Liquidity Providers:

These are market makers who will provide liquidity to Takaprotocol's liquidity pool. Liquidity providers collect rewards on assets locked in pools.

3. Traders:

Traders are users who use the different financial instruments available on Takaprotocol to carry out their activities. They benefit from low fees, fast order execution, and advanced platform features to increase their profitability.

4. Strategy/Fund Managers:

These can be individuals or institutions who are responsible for creating trading strategies thereby making additional income through performance fees.

5. Investors:

These are individuals or groups who choose among best performing strategies and automatically copy their trading activities to get the same returns.

Protocol

The core functionalities of Takaprotocol is divided into several layers, and are as follows.

1: Bridge Protocol:

The bridge protocol utilizes the NXTP model of cross-chain transfers. NXTP is a leight-weight protocol for general X-chain/ Xrollup.

Transactionsthat retain the security properties of the underlying execution environment(i.e. it does not rely on any external validator set).

The protocol is made up of a simple contract that uses a locking pattern to _Prepare_ and _Fulfill_ transactions, a network of off-chain routers that participate in pricing auctions, and pass calldata between chains, and a user-side SDK that finds routes and prompts on-chain transactions.

Transaction Lifecycle

Transactions go through three phases.

1. Route-Auction: User broadcasts to our network signaling their desired route. Routers respond with sealed bids containing commitment to fulfilling the transaction within a certain time and price-range.

2. Prepare: Once the auction is completed, the transaction can be prepared. The user submits a transaction to the _TransactionManager_ contract on the sender-side chain containing the router's signed bid.

This transaction locks up the user's funds on the sending chain. Upon detecting an event containing their signed bid from the chain,

Router submits the same transaction on _TransactionManager_ on the receiving-sidechain and locks up a corresponding amount of liquidity.

The amount locked up on the receiving- chain is the sending amount_auction fee so the Router is incentivized to complete the transaction.

3. Fulfill: Upon detecting the _TransactionPrepare_ event on the receiver-sidechain, the user signs a message and sends it to a relayer, who will earn a fee for submission.

The relayer(which may be the Router) then submits the message to the _TransactionManager_ to complete their transaction on receiver-sidechain and claim the funds locked by the Router.

A relayer is used here to allow users to submit transactions with arbitrary call data on the receiving chain without needing gas to do so.

The Router then submits the same signed message and completes the transaction on the sender side unlocking the original amount.

If a transaction is not fulfilled within a fixed timeout, it reverts, and can be reclaimed by the party that called Prepare on each chain (initiator).

Additionally, transactions can be canceled unilaterally by the person owned funds on that chain (Router for sending chain, user for receiving chain) prior to expiry.

It's important to note that neither participant should require a store to complete these transactions. All information to Prepare, Fulfill, or Cancel transactions is retrievable through contract events.

2. Liquidity Protocol:

On Takaprotocol, anyone can become a liquidity provider (LP) for a pool by allocating liquidity within a custom price range.

With the liquidity protocol, LPs can allocate their capital to smaller price intervals. For example, in a stable coin/ stable coin pair, an LP may choose to allocate capital solely to the 0.99-1.01 range.

As a result, traders are offered deeper liquidity around the mid-price, and allowing LPs earn more trading fees with their capital.

LPs may have different positions per pool, creating individualized price curves that reflect the preference of each LP.

3. Aggregation Protocol:

The aggregation protocol sources liquidity from various exchanges, and is capable of splitting a single trade transaction across multiple DEXes.

How it works
The protocol provides aggregation information services on exchange protocols and networks. The core part of the protocol is the aggregation smart contract which performs runtime verification of transaction execution.

As a result, users' funds can't be lost even in a case of interaction with an unsafe liquidity source, since the smart contract ensures security,the protocol can be used in various aggregation information services such as RouterHunter.

RouteHunter:

A RouteHunter is an aggregation information service that finds the best trading paths across multiple markets in milliseconds, taking gas cost into account.

Depending on the size, order may need to be routed from multiple exchanges in order to achieve superior execution.

4. Smart Trading Protocol:

Takaprotocol's smart trading protocol is a set of smart contracts that offers exclusive features for advanced traders, and beginners alike.

The smart contract allows users to place limit orders, and RFQ orders that later could be filled on-chain. Both types of orders are a data structure created off-chain and signed according to EIP-712.

Key features of the protocol are extreme flexibility, and high gas efficiency that is achieved by using different order types- regular order, and RFQ order.

1. Limit-Order:
Takaprotocol users can place their limit orders via the smart trading protocol.

Anyone can fetch these signed orders using the REST API endpoint to perform trade by filling orders on-chain.

To do that he or she passes a signed order to the FillOrder method on the contract.

RouteHunter algorithm uses limit orders placed via DApp and REST api, as a liquidity source, and makes it available to fill to any Takaprotocol user.

So Takaprotocol limit orders are integrated into our Defi ecosystem from day one.

Unlike legacy protocols, the smart trade protocol charges no fees. This makes the protocol extremely efficient in terms of gas.

Implementations:
Below are some features implemented with the limit order, but the protocol is very flexible, and we can build much more on top of it.

Stop-loss order: Based on the conditional orders feature, a stop-loss order is executed when it reaches a particular price point set by the user. When the price limit is reached, the open position will close to prevent further loss.

Take-profit order: A take-profit order is executed when it reaches a particular price point set by the user. When the price limit is reached, the open position will close to take gains.

Stepwise buy and sell order: The stepwise buy allows users to buy their assets in a laddered manner when the price decreases for instance by half of your asset for $10,000, the remainder 50% for $9,050.

The stepwise sell allows users to sell assets in intervals when the price rises, for example, sell half of your assets for $10,200, 25% for $11,000 and the remaining % for $11,500.

Trailing buy: Activates if set price value is reached. When activated it begins to monitor price decreasing for smart trade.

The trailing level always differs from the price to a constant set value. If price outbreaks the level, smart trading buying begins.

Trailing take profit: Activates after the profit level is reached. After activation, it starts to monitor the price movement. For smart trade, it reacts only when the price moves up.

The trailing take-profit level always remains unchanged when the price crosses this level, it works with assets for sale in smart trade.

Trailing stop-loss: This feature activates immediately after the fact of purchase in smart trade. It will follow the price up for smart trade.

Always remains at the specified price deletion. It will always remain at the specified distance from the price.

2. RFQ-Order:
The protocol enables the fulfillment of request for quotations (RFQs)- orders for a specific amount of cryptocurrency to buy or sell.

RFQ orders have different use cases, and are dedicated to market making in the first place.

Typical scenario is following: Market makers create a bunch of RFQ orders, and expose it via API.

Trading or platform/algorithm ask market maker quotes, and if it matches his needs, he reaches a signed RFQ order from the market maker.

Gas optimized order with restricted capabilities suitable for market makers:
• support expiration time
• support cancelation by order id
• RFQ order could be filled only once
• partial fill is possible (once)

5. Derivatives Protocol:

The derivatives protocol is suitable for advanced traders, offering services such as leverage trading (perpetual contract).

The protocol operates through smart contracts where users are free to trade directly on the exchange without intermediaries.

Unlike a traditional futures contract where there's always a fixed period, a perpetual contract is an exchange traded contract that has no end date and allows you to purchase or sell an asset at any time in the future.

Perpetuals are designed to mimic closely the spot value of the base asset. When a party agrees to end a contract, settlement takes place in the predetermined asset.

On Takaprotocol, perpetual contract markets will be offered on the zk rollup layer 2 solution with upto 20x leverage on synthetic assets.

In the case of Takaprotocol layer 2 solution, it will be designed specifically to provide greater scalability for Takaprotocol's cross-margined perpetual contracts.

Through this layer 2 solution, the platform will be able to provide significantly lower cost, and in turn, much lower trading fees, and minimum trade sizes for users.

Takaprotocol perpetual contracts will be settled within the Layer 2 network itself, and zero-knowledge proofs are periodically published to an ethereum smart contract to establish the validity of state changes inside the Layer 2 network.

However,Takaprotocol derivatives protocol is slightly different in that it operates on a hybrid infrastructure.

In addition to the zk rollups layer 2 solution, it also utilizes a low-latency off-chain system in order to construct and manage the order book.

The off-chain logic will handle trades, liquidations, transactions, and deleverages as well as updating oracle prices.

It also periodically submits proofs attesting to the validity of the change in balances, given the user's transaction.

Given the considerable market interest in DeFi, Takaprotocol's perpetual contracts will be focused mainly on the following markets.
- Crypto
- FX
- Commodities
- Indices, and more.

These five order types will also be available to users.
- Market-Order
- Limit-Order
- Trailing Stop-Order
- Take Profit Limit-Order
- Stop Limit-Order

6. Assets Management Protocol:

The asset management protocol allows investors to choose among best performing strategy managers, and automatically copy their trading activities while strategy managers can earn additional income by allowing others to follow their trades.

The great thing about Takaprotocol assets management service is that it takes a relatively little amount of capital to get started.

In the asset management world, investing in hedge funds would require thousands of dollars to get started and then your money will be locked away and not accessible to you.

With Takaprotocol asset management that uses the copy trading module, you maintain flexibility and full control- you can start or stop copying other traders anytime, so you'll always have access to your capital at arm's reach when you need it the most.

Additionally, professional traders can easily monetize their skills and expertise by allowing others to copy their strategies. The more followers they get, the more money they can make from profitable trading.

Investors will be able to build a better and more diverse trading portfolio while copying trades and markets such as crypto, forex, commodities, indices, and more.

Risks & Further Consideration

Front running:

One of the problems with current AMMs is front-running exploits. This occurs when a malicious user observes a swap transaction after it is broadcasted but before it is finalized and reorders transactions to benefit themselves.

Commonly, a miner or bot will place their transaction immediately in front of the pending transaction. Front-running is a form of blockchain extractable value which has resulted in an estimated $28.8mln profit for those front-runners in the last two years alone.

To discourage front-runners from attacks of this kind, Takaprotocol liquidity protocol will feature 'virtual rates'.

Virtual rates are automatic features of swapping on the Takaprotocol liquidity protocol. A virtual rate is effective for a certain period of time following the trade, which is referred to as a 'decay period'

Hacks of smart contracts:

It will be the duty of Takaprotocol Labs to allocate funds solely for frequent smart contract audits by creating a dedicated smart contract audit team.

Essentially, its code will be 100% open source to ensure a fair bug bounty. Takaprotocol Labs is to establish an insurance fund for this purpose.

Regulation:

It is the duty of Takaprotocol Labs to comply with regulatory bodies where required, this applies to its derivatives instruments.

Takaprotocol Team

From day one, Takaprotocol was envisioned to be an open-source, and a team driven project.

We're a diverse international team of curious, creative people who are passionate about building a decentralized network we believe in.

Together, working from different places like Mexico, Japan, Peru, China, and Ghana.
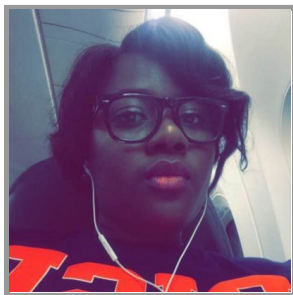
All our core team members have significant experience with building traditional finance and decentralized applications.
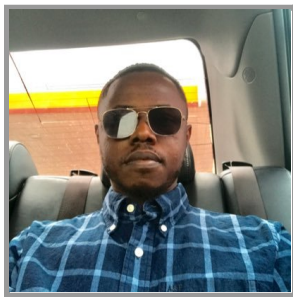
Name: Amaechi Patrick.
Role: Co-founder and CEO
About: Crypto trader, writer, and blockchain developer with over 6 years of experience. Active contributor in several crypto publications and director at Volant digital LTD.

Name: Hussenatou Mary Diallo.
Role: Co-founder and CFO.
About: Crypto trader, and writer with over 4 years of experience in cryptocurrency, and blockchain. Former fund manager and
writer at Uranuscrypto, currently a board member at Volant digital LTD.

Name: María Castillo.
Role: COO and Legal Counsel.
About: Tech Lawyer with 10 years of experience in intellectual property, privacy, contracts, and corporate law.

Name: Luis Oscar Goyburo Reeves.
Role: Developer.
About: Full stack developer with experience in administration and finance. General Manager of Balcari Editores SAC.

Name: Ransika Ranasinghe.
Role: Developer.
About: Self-taught programmer, experience in blockchain with Solidity and Javascript.

Name: Nero Zato.
Role: Developer.
About: Full stack developer with experience in blockchain.

Name: Alex Xu.
Role: Developer.
About: Senior web developer, passionate about blockchain.

Name: Chenzihang.
Role: Community Manager.
About: Experience in product management at Tencent and community operations.
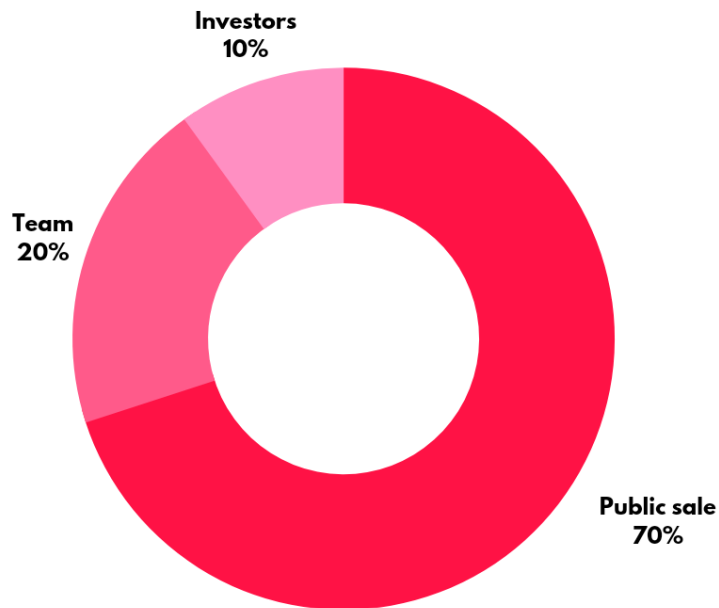
Takaprotocol Token (TPD)

We will issue our token called the Takaprotocol Token. A strict limit of 3 billion TPD will be created, never to be increased.

Ticker: TPD

Type of Token: Utility token

Total Supply: 3,000,000,000 TPD

Allocation of TPD Token

TPD Token Vesting Schedule

- **IDO/Public sale:**
  2,100,000,000 TPD Tokens allocated for public sale will be released 2 months after the public sale finishes.

- **Team vesting plan**:
  600,000,000 TPD Tokens allocated for team will be released as follows:

Initial release:	25%(150Million)
1st year:	25%(150Million)
2nd year:	25%(150Million)
3rd year:.	25%(150Million)

- **Investors**: 300,000,000 TPD tokens allocated to Investors will be released linearly over 36 months.

TPD Value & The Burn

You can use TPD to pay for any fees on our platform, including but not limited to:

- Exchange fees
- Cross-chain fees
- Strategy creation fees
- Performance fees
- Other fees

When you use TPD to pay for fees, you will receive a significant discount:

Discount Rate
1st year: 50%
2nd year: 25%
3rd year: 12.5%
4th year: 6.75%
5th year: no discount

The Burn

Every quarter, we will destroy TPD based on the trading volume on our Decentralized exchange platform, until we destroy 50% of all the TPD.

We eventually will destroy 1.5 billion TPD, leaving 1.5 billion TPD remaining.

Funds Usage

- 35% of the funds will be used to build the Takaprotocol platform and perform smart contract audits.
  And to ramp up team recruiting, training,and the development budget.

- 50% will be used for Takaprotocol branding and marketing,including continuous promotion and education of Takaprotocol and blockchain innovations in industry mediums.

  A sufficient budget for various advertisement activities to help Takaprotocol become popular among investors,and to attract active users to the platform.

- 15% will be kept in reserve to cope with any emergency or unexpected situation that might come up.

To-Dos

This initial draft of the white paper is meant to establish a conceptual understanding of the high-level design of the proposed Takaprotocol.

It should not be considered complete or final as it represents a proposed design for public comment.

Future revisions of the white paper will address incomplete elements and current unforeseen issues or challenges.

After acceptance of the protocol design, a Takaprotocol specification will be developed and published.

Next, a standard-comformant, open source reference implementation, and SDK for developers, traders, and institutions will be developed.

Feedback

Our goal is to develop Takaprotocol as an open source project for the public good. We have a lot to do!

There are numerous challenges associated with realizing Takaprotocol, and there are many things we know we have yet to consider.

We welcome your input on how to improve this white paper.

To send us feedback or ideas, please tweet @Takaprotocold at https://twitter.com/TakaprotocolD or send us a pull request at https://github.com/Takaprotocol-DAO

References:

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