

# The Up-Stable Token eXperiment



## Abstract

The blockchain technology has proven a key development factor for the new economy, allowing for safe, fast and low-cost transfer of value between individuals and companies. Many coins and tokens have been launched and some have become valuable assets, with a good reputation. One of the main drawbacks of digital currency is the high volatility of the value, compared to fiat currencies. This has driven the creation of stablecoins, like USDT, DAI, USDC, and other. Stablecoins ensure a 1:1 value pegged to fiat, making them a viable alternative for on chain value transfer. The inherent stability of these token makes them ideal for value storage during bear market phases, but are less preferred during bull market periods due to the lack of growth. The USTX experiment aim is to deploy a new utility token, based on smart contract technology, that takes the best of both worlds: the growth potential of digital currencies like BTC and the stability effect during bear market conditions typical of stablecoins. This can be obtained by creating a modified AMM smart contract driven liquidity pool, that dynamically manages the reserve to allow for price increase in uptrend market and damping the price decrease during downtrend. The reserve will be completely transparent and certified by the underlying blockchain, removing the need for complex proof of reserve methodologies. A target reserve level will always be enforced by the smart contract to ensure the long term stability of the system. The reserve liquidity will be locked in the contract, meaning that the owner of smart contract will not be able to withdraw liquidity. The token and DEX contracts will be open source and deployed using the TRC20 standard over the TRON blockchain. The adoption of the Tron blockchain allows to overcome the high gas fees that are typical when using ERC20 contracts over Ethereum. As the title says, this is an experimental project that needs real world data to be validated. One of the aspects to be evaluated is the psychological effect of the users and how will they react to a token that has lower volatility than the reference market.

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## Introduction and state of the art

The blockchain technology allows the creation of tokens or coins to store value, transfer value and be an investment. Since 2009, the year of the launch of Bitcoins, digital currencies have proven to be a functional alternatives to fiat, with a great potential for value storage and investment.

The trustless architecture of the blockchain combined with the smart contract functionality integrated in the latest generation blockchains allow for innovative ways to handle liquidity provision and price behavior. Automated market makers have arisen as a true decentralized way to exchange coins and tokens. Typically AMMs work in two ways: the constant price model and constant value model. The constant price model is used for stablecoins, where tokens are constantly minted or burned to guarantee a 1:1 pegging to a reserve of value (typically a fiat currency, but it can be other assets). The constant value model is used for swap services like Uniswap, Justswap and others where the product of the pair reserve is kept constant and the price is automatically determined by enforcing the constant product relation within the smart contract.

Stablecoins have proven to be a very interesting asset for the users, given the high market cap reached (over 90B\$ at the time of writing). It is also observable a stablecoin trend to increase the cap even during bear market periods, meaning that users tend to transfer value from growth coins to stablecoins to reduce their risks during adverse market phases. Still they represent less than 5% of the overall cap of the digital currency market, meaning that most users seek growth in their investments.

A novel approach to liquidity management allows the implementation of a growth token, at the same time guaranteeing good resilience during bear market phases. A well thought mechanism, actuated by a smart contract without the need to have a central authority like fiat central banks, allows to increase the reserve during bull market and using that excess reserve to dampen the token reduction in price during bear market. A sustainable fee structure, leveraging the intrinsic low cost TRON blockchain, is an additional positive aspect.

Smart contract parameters will allow tuning of the system behavior during the initial deployment. These parameters include the target reserve level, expressed as a percentage of the market cap at any given time, and the expansion and contraction coefficients that dynamically drive the price change response for buy and sell operations. The internal reserve of the pool will be USDT TRC20 tokens. Being a stablecoin, it removes the need for oracles and reduces the risks involved in the change of value of the underlying asset, that would be present if the reserve was made of unpegged tokens or coins.

Both the token and the swap pool smart contracts will be deployed in the blockchain, implementing a truly distributed and trustless system. The contract owner will be acting only to manage parameter tuning and will be limited in the capability to access the reserve funds, since the contract will not present an interface to withdraw the liquidity from the pool.

The choice of the underlying blockchain was driven by two main factors: the fees and the environmental impact. TRON is a low fee blockchain, there are ways to lower the transaction costs down to zero using TRX freezing. In any case the transaction fees will be an order of magnitude lower than an equivalent ERC20 contract. Also, having a Delegated Proof of Stake consensus mechanism, the environmental impact due to CO2 produced by the nodes is much lower than Proof of Work chains like Bitcoin or Ethereum.

## Technology

The project consists of a token and a decentralized exchange, where all the magic actually happens. The USTX token is a standard TRC20 token with a few add-on features:

- Minting and burning. They are needed by the DEX to operate and control the price fluctuations;
- Roles. To allow the team and the DEX to access privileged functions, like parameter settings, minting and burning;
- Pausable. To allow changing the smart contract parameters and operating modes safely, like enabling/disabling Launchpad mode.

The DEX is handled by a different contract that implements a modified AMM model to allow buying and selling USTX in exchange for USDT(TRC20).

To validate the system the team made extensive simulations taking the BTC history data as input. The source data have been modelled to behave like a standard AMM exchange (taking into account also the increasing circulating supply of BTC). From this model we obtained data representing daily trades, that have then been used as an input for the USTX DEX model. We understand that the models are always a simplification of reality, but we think they give a good qualitative indication of the system behavior.

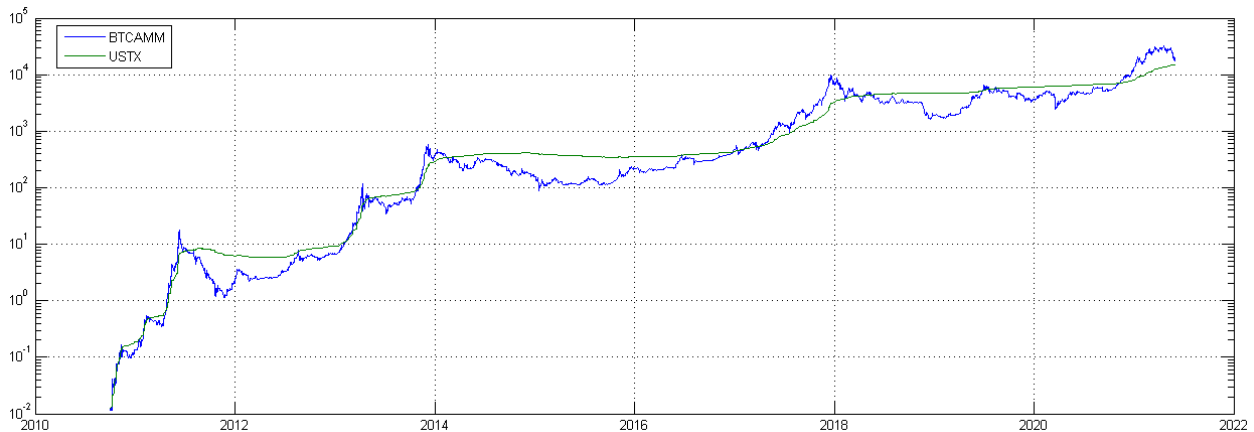


Figure 1 - Price comparison between BTC (AMM modeled) and USTX

In figure 1, it's easily appreciated the main feature of the proposed solution: damping the negative market periods, reducing drawdown, while allowing to catch the upsides. The strength of the damping and expansion depends on the reserve level, that is actively managed by the smart contract, without any intervention from the owners.

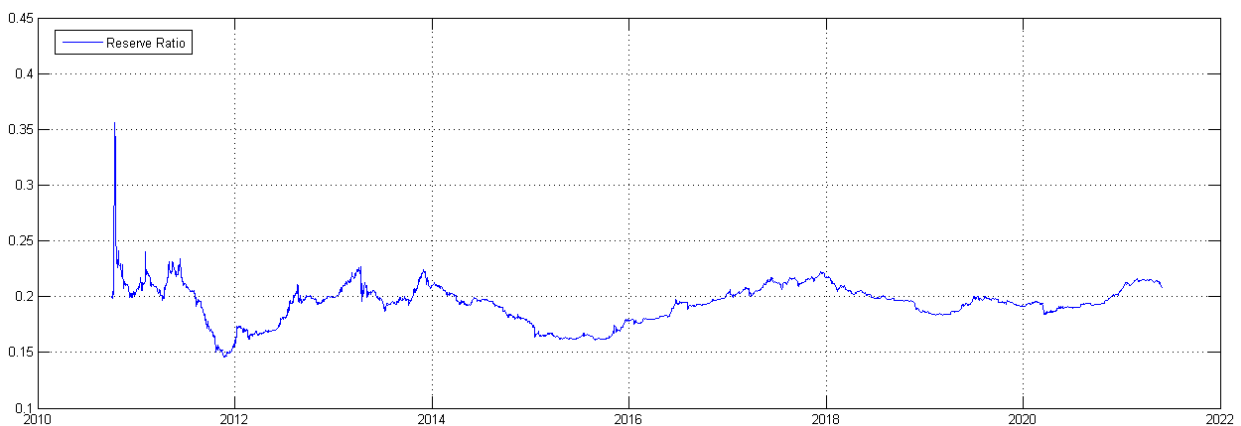


Figure 2 - Reserve level. Simulation target = 0.2.

The coefficients that are used to determine how much the system can damp or expand, are determined as a function of the reserve level, compared to a target value.

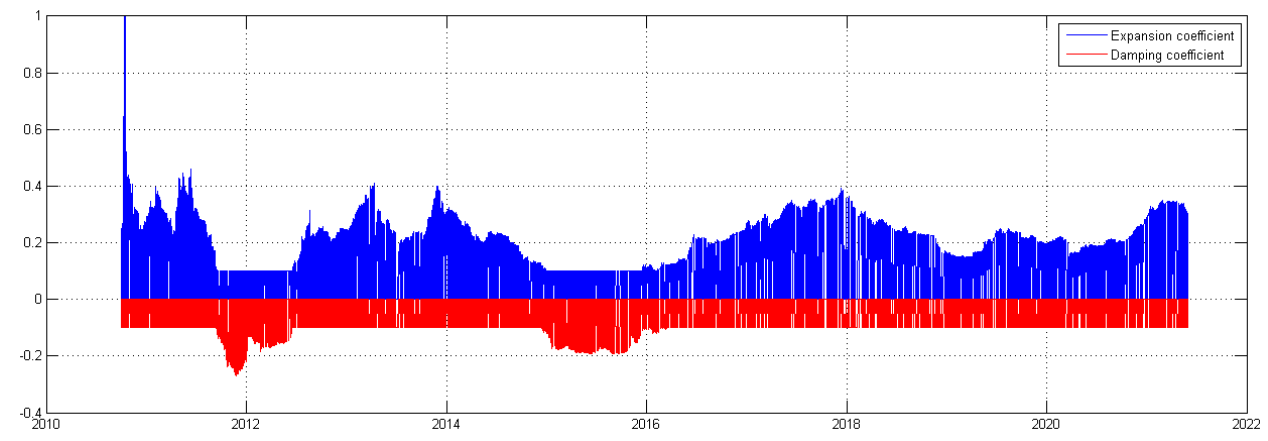


Figure 3 - Expansion and damping coefficients

For the simulation, a minimum expansion coefficient of 0.1 and a maximum damping of 0.1 were set, to always have a price reaction when buying and selling.

The internal mechanism of the DEX that allows to control the price of the token relies on minting new tokens in the reserve when buying and burning them when selling. That's why the USTX token cannot have a limited supply for this idea to work.

### Comparison with a standard AMM DEX

A normal DEX will interact with users guaranteeing the constant product of the assets liquidity, as shown in the image below. We can observe a 2% effect on price on both directions, sell and buy.

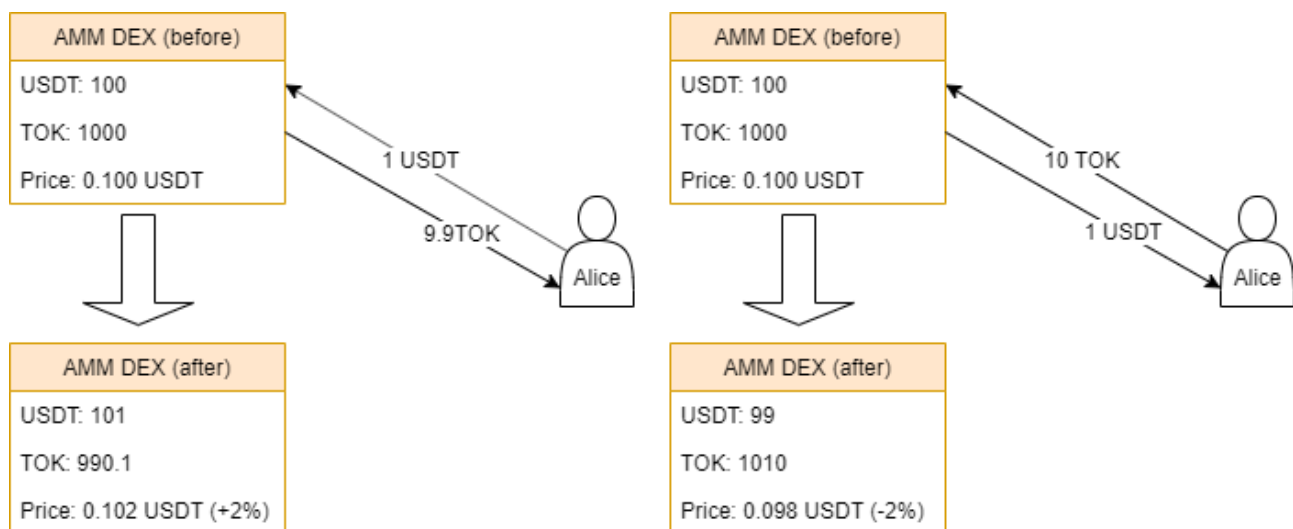


Figure 4 - Normal DEX operation

The proposed DEX will be able to manage the asset price, depending on the reserve ratio, compared to the market cap. So we can have two possible scenarios: A, with reserve ratio above the set threshold and B, with reserve ratio below the set threshold.

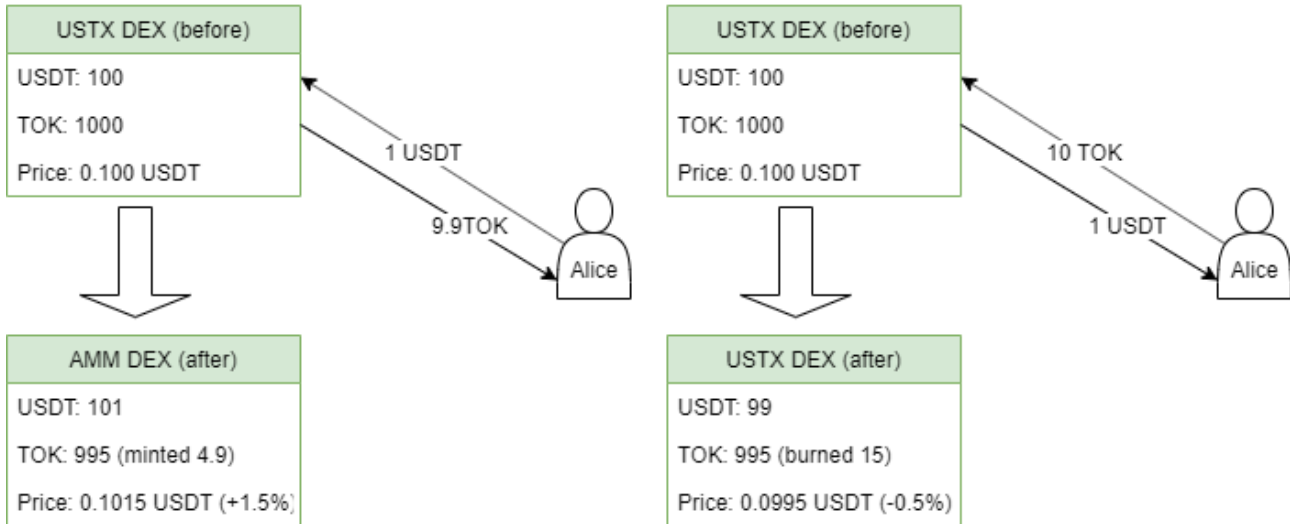


Figure 5 - USTX DEX behavior with reserve ratio above threshold

In this case the price effect is asymmetrical: there is a positive price effect of +1.5% in case of buy operation and a dampened -0.5% effect on a token sell operation.

When the reserve ratio is below the threshold level, the damping action cannot be as strong and also the expansion is limited, until the reserve has reached a healthy value again, as can be seen in the image below.

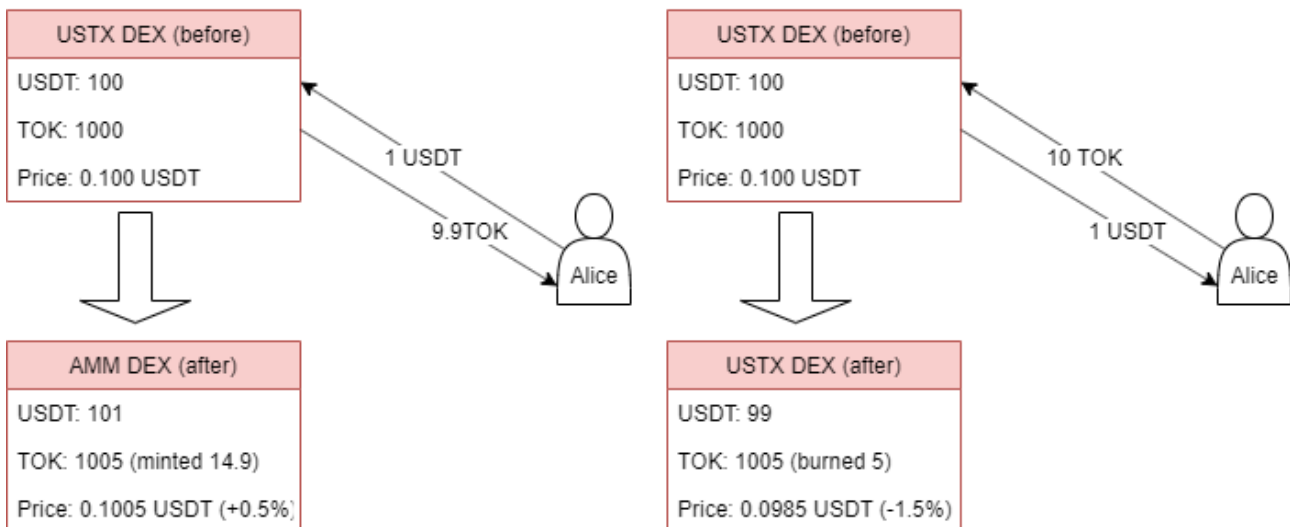


Figure 6 - USTX DEX behavior with reserve ratio below threshold

In this case the price effect is conditioned by the contract aim of restoring a healthy reserve level. So expansion is limited to +0.5% and damping is reduced to -1.5%.

The numbers shown above are a qualitative representation of the proposed DEX mechanism and should not be considered as quantitative reference data.

## Tokenomics

The idea is to follow the KISS rule, so the team decided to have a community testnet phase, followed by a liquidity launchpad and then move to normal operation of the DEX.

### Community TestNet

Before Launchpad, an open testnet phase will be done, to ensure that the contracts are bug-free and safe for use. The community will be involved in this very important task and will be rewarded with USTX tokens depending on their level of participation and contribution. The amount of tokens distributed to CTN participants is 5% of the total liquidity raised during launchpad. The CTN will run on Tron Shasta testnet and simulated USDT tokens will be traded for USTX. The test USDT tokens will be generated compiling the real USDT contract, using the same compiler version and optimization levels as the real one.

### Launchpad

The goal of the launchpad is to collect enough liquidity to be able to start trading on the DEX with low price fluctuations. The launchpad will last 4 weeks and will have at most two rounds:

- Round 1: 10M USTX at 0.01USDT price.
- Round 2: if round 1 finishes early, other 10M USTX will be made available at 0.012USDT price.

There are a few rules for the launchpad phase:

- There is no hard cap or soft cap, in any case after 4 weeks the launchpad will end and the DEX will begin normal operation.
- At least 90% of the USDT liquidity generated during the launchpad is locked in the reserve. The team cannot withdraw it, ever.
- At most 10% of the USDT liquidity will be used by the team to pay the initial expenses and finance development of the DEX website.
- The launchpad orders will be limited in size. We do not want a few big holders, but distributed participation to validate the concept.

Normal operation of the DEX, after launchpad, will begin at 0.015USDT price.

The development team will not hold at any time more than 25% of the total supply and will commit to the following vesting periods:

- 100% locked for the first 3 months
- 90% locked for the following 3 months
- 50% locked for the following 6 months
- Unlocked after 12 months.

We can have multiple scenarios, depending on the success of the launchpad. Here are represented two scenarios, one that shows the case of Round 1 completion and one with both rounds completed.

### Token distribution after Launchpad (scenario 1)

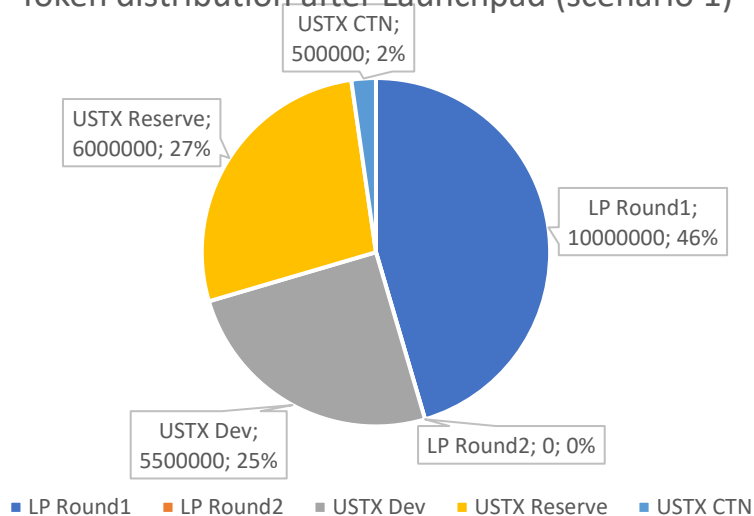


Figure 7 - Token distribution after launchpad (scenario 1)

### Token distribution after Launchpad (scenario 2)

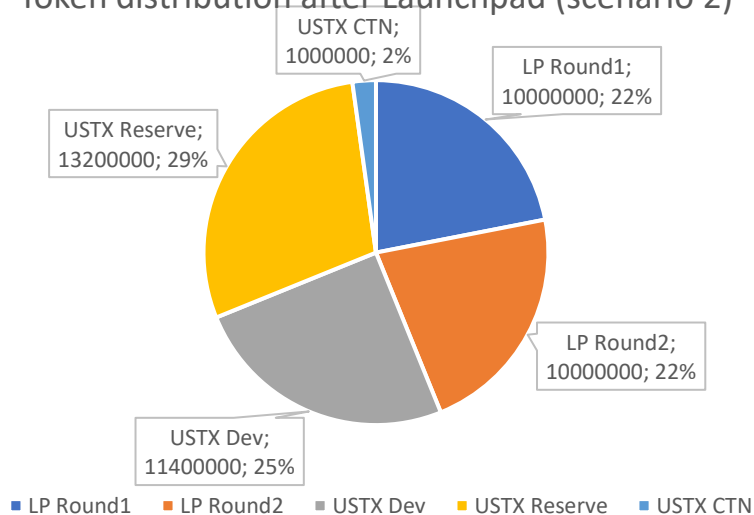


Figure 8 - Token distribution after launchpad (scenario 2)

	LP Round1	LP Round2	USTX Dev	USTX Reserve	USTX CTN	USTX Total	Market Cap
<b>Scenario 1</b>	10000000	0	5500000	6000000	500000	22000000	\$240000
<b>Scenario 2</b>	10000000	10000000	11400000	13200000	1000000	45600000	\$486000

Table 1 – USTX token distribution after Launchpad

	USDT Reserve	USDT Dev	USDT Total	Reserve %
<b>Scenario 1</b>	90000	10000	100000	37.5%
<b>Scenario 2</b>	198000	22000	220000	40.7%

Table 2 - USDT distribution after Launchpad

### Normal DEX operation

After launchpad, the DEX USTX reserve will be primed to get the initial exchange price set at 0.015USDT. This will be achieved by calling a USTX contract function to mint or burn tokens of the internal reserve so that the ratio between USDT and USTX is 0.015.

The exchange fee will be set at 0% for purchasing tokens and 1% for selling tokens. The fees will be used by the team to be able to sustain the project in the long term. The smart contract has hard caps for the fee levels: in any case they will never exceed 2%.

The DEX contract will provide the following exchange features:

- Buy tokens with exact input in USDT
- Buy tokens with exact input in USDT and send them to a recipient
- Sell tokens with exact input in USTX
- Sell tokens with exact input in USTX and send USDT to a recipient

Each operation will be carried out using Tronlink interface directly from the DEX website, protected by TLS. Two signatures will be needed to complete every transaction: approve and transact. The network fees will be paid using Tron native blockchain, so a small amount of TRX is required to be present in the wallet of the user. The fees will be lower than 20TRX, even down to zero if the user has enough Energy and Bandwidth available.

## Transparency

One of the main risks for an early token/coin adopter is being scammed by the team proposing the project. For this precise reason our main goal has been from the beginning to build a trustless and decentralized system. That's why the smart contracts will manage most of the token and DEX operation autonomously. The team will not be allowed to tamper with the contract parameters outside predefined levels, hard coded in the contract code and visible to anyone, because the code is open source.

Another risk related to traditional DEX based systems is rug pull, where the owner of the currency removes all the liquidity from the trading pool, usually after having created a lot of hype on social media. The USTX DEX contract does not implement any function to withdraw the USDT liquidity from the pool.

Smart contracts are very powerful systems that enable the implementation of transactions between individuals without relying on trust on each part involved. This is true if the contract itself is built without malicious intent. That's why all USTX contracts will be audited to make sure that no security risk or fraud will be possible, before going into mainnet and before the launchpad begins.

Another important aspect from the user point of view is the possibility to know the internal reserve level, to make sure that the token value is actually backed by the expected amount of collateral. Stablecoins backed by FIAT use external auditors to certify the amount of reserve currency. Since USTX DEX internal reserves are in USDT and everything happens on-chain, all the user needs to do is visit the Tron blockchain explorer and look at the balances in the DEX contract. Everything is in plain sight and impossible to be tampered.

The smart contracts will be audited by an independent third party to ensure that they work as designed.

## Risks

The implementation of transparency oriented features increases some of the possible risks. If the DEX contract for some reason has a bug, it will not be possible to fix it, since the contract code is not updatable. If the contract was updatable, it would mean that the team could at any time change it and, for example, add a withdraw function to empty the reserve. The contract will be audited after private and community testnet debugging sessions, but 0% risk is not possible.

Another risk derives from the adoption of USDT as reserve token. The DEX functionality depends on USDT, which is centrally managed. If anything happens to USDT there could be negative impact on the DEX functionality and consequent loss of value.

As the project title says, this is an experiment, and should be treated as such. Each participant should consider all the risks, the ones stated above and those that generally apply to community projects in the crypto space.

## Applications

We want USTX to be a real world use token. The token and DEX embedded features should represent positive factors to help in adoption:

- Guaranteed intrinsic value, backed by the USDT reserve.
- Low transaction fees, thanks to DPOS model of the underlying blockchain (Tron).
- Low environmental impact, thanks to DPOS model of the underlying blockchain (Tron).
- Low volatility. For a currency to be used to purchase goods, the value should not oscillate as much as cryptocurrency normally do.
- Trustless. No-one wants to be scammed.
- Compatible with existing infrastructure. All it's needed is a Tronlink wallet.