τDOGE

Smart Contract Audit Report

SYSFIXED

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
τDOGE	τDOGE	Binance Smart Chain

Addresses

Contract address	0xe550a593d09fbc8dcd557b5c88cea6946a8b404a
Contract deployer address	0xAd3784cD071602d6c9c2980d8e0933466C3F0a0a

Project Website

https://www.btcst.finance/

Codebase

https://bscscan.com/address/0xe550a593d09fbc8dcd557b5c88cea6946a8b404a#code

SUMMARY

Proof-of-work ("PoW") cryptocurrencies are securing significant amounts of value. At the time of this writing, Bitcoin's commonly referred to market capitalization alone is about $1 trillion US dollars. Many PoW blockchains, however, have limited support for decentralized finance ("DeFi"). A gap exists between DeFi as a set of developing financial protocols and PoW assets as the primary value stores for cryptocurrencies. Wrapping can ferry PoW cryptocurrencies into DeFi. Nonetheless, the trust models from "wrapped" frameworks introduce an intermediary with a new attack surface. Trustworthy centralized custodians are rare and often involve onerous restrictions. Non-custodial synthetic cryptocurrencies consequently surface as a potential solution. These synthetic assets substitute PoW assets by maintaining price pegs with their non-synthetic counterparts. In other words, the strength of the pegs determines the efficacy of synthetic help. Empirical evidence from projects that include prominent algorithmic stablecoins has shown the peg weak for the current generation of non-custodial artificial two cryptocurrencies. The reason for pegging failure appears to be these synthetics' lack of value support from outside their systems. Internal pegging mechanisms become irrelevant when users lose confidence in the systems in their entirety. We propose the τ protocol to solve this problem. The τ protocol synthesizes the process through which PoW cryptocurrencies are mined and introduces external value support as part of its price-pegging mechanism. PoW cryptocurrencies synthesized through the τ protocol should demonstrate strong price pegs and form a reliable basis for DeFi products.

Contract Summary

Documentation Quality

τDOGE provides a very good documentation with standard of solidity base code.

- The technical description is provided clearly and structured and also dont have any high risk issue.

Code Quality

The Overall quality of the basecode is standard.

- Standard solidity basecode and rules are already followed by τDOGE with the discovery of several low issues.

Test Coverage

Test coverage of the project is 100% (Through Codebase)

Audit Findings Summary

- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 273, 353, 273 and 353.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 9, 87, 253 and 331.

CONCLUSION

We have audited the τDOGE Project released on May 2021 to discover issues and identify potential security vulnerabilities in τDOGE Project. This process is used to find technical issues and security loopholes which might be found in the smart contract.

The security audit report provides satisfactory results with low-risk issues.

The issues in the τDOGE smart contract code do not pose a considerable risk. The writing of the contract is close to the standard of writing contracts in general. The low-risk issues are some arithmetic operation issues, and a floating pragma is set. The current pragma Solidity directive is "^0.6.0". Specifying a fixed compiler version is recommended to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

AUDIT RESULT

Article	Category	Description	Result
Default Visibility	SWC-100 SWC-108	Functions and state variables visibility should be set explicitly. Visibility levels should be specified consciously.	PASS
Integer Overflow and Underflow	SWC-101	If unchecked math is used, all math operations should be safe from overflows and underflows.	ISSUE FOUND
Outdated Compiler Version	SWC-102	It is recommended to use a recent version of the Solidity compiler.	PASS
Floating Pragma	SWC-103	Contracts should be deployed with the same compiler version and flags that they have been tested thoroughly.	ISSUE FOUND
Unchecked Call Return Value	SWC-104	The return value of a message call should be checked.	PASS
Unprotected Ether Withdrawal	SWC-105	Due to missing or insufficient access controls, malicious parties can withdraw from the contract.	PASS
SELFDESTRUCT Instruction	SWC-106	The contract should not be self-destructible while it has funds belonging to users.	PASS
Reentrancy	SWC-107	Check effect interaction pattern should be followed if the code performs recursive call.	PASS
Uninitialized Storage Pointer	SWC-109	Uninitialized local storage variables can point to unexpected storage locations in the contract.	PASS
Assert Violation	SWC-110 SWC-123	Properly functioning code should never reach a failing assert statement.	PASS
Deprecated Solidity Functions	SWC-111	Deprecated built-in functions should never be used.	PASS
Delegate call to Untrusted Callee	SWC-112	Delegatecalls should only be allowed to trusted addresses.	PASS

DoS (Denial of Service)	SWC-113 SWC-128	Execution of the code should never be blocked by a specific contract state unless required.	PASS
Race Conditions	SWC-114	Race Conditions and Transactions Order Dependency should not be possible.	PASS
Authorization through tx.origin	SWC-115	tx.origin should not be used for authorization.	PASS
Block values as a proxy for time	SWC-116	Block numbers should not be used for time calculations.	PASS
Signature Unique ID	SWC-117 SWC-121 SWC-122	Signed messages should always have a unique id. A transaction hash should not be used as a unique id.	PASS
Incorrect Constructor Name	SWC-118	Constructors are special functions that are called only once during the contract creation.	PASS
Shadowing State Variable	SWC-119	State variables should not be shadowed.	PASS
Weak Sources of Randomness	SWC-120	Random values should never be generated from Chain Attributes or be predictable.	PASS
Write to Arbitrary Storage Location	SWC-124	The contract is responsible for ensuring that only authorized user or contract accounts may write to sensitive storage locations.	PASS
Incorrect Inheritance Order	SWC-125	When inheriting multiple contracts, especially if they have identical functions, a developer should carefully specify inheritance in the correct order. The rule of thumb is to inherit contracts from more /general/ to more /specific/.	PASS
Insufficient Gas Griefing	SWC-126	Insufficient gas griefing attacks can be performed on contracts which accept data and use it in a sub-call on another contract.	PASS
Arbitrary Jump Function	SWC-127	As Solidity doesnt support pointer arithmetics, it is impossible to change such variable to an arbitrary value.	PASS

Typographical Error	SWC-129	A typographical error can occur for example when the intent of a defined operation is to sum a number to a variable.	PASS
Override control character	SWC-130	Malicious actors can use the Right-To-Left-Override unicode character to force RTL text rendering and confuse users as to the real intent of a contract.	PASS
Unused variables	SWC-131 SWC-135	Unused variables are allowed in Solidity and they do not pose a direct security issue.	PASS
Unexpected Ether balance	SWC-132	Contracts can behave erroneously when they strictly assume a specific Ether balance.	PASS
Hash Collisions Variable	SWC-133	Using abi.encodePacked() with multiple variable length arguments can, in certain situations, lead to a hash collision.	PASS
Hardcoded gas amount	SWC-134	The transfer() and send() functions forward a fixed amount of 2300 gas.	PASS
Unencrypted Private Data	SWC-136	It is a common misconception that private type variables cannot be read.	PASS

SMART CONTRACT ANALYSIS

Started	Friday May 14 2021 21:28:25 GMT+0000 (Coordinated Universal Time)
Finished	Saturday May 15 2021 07:33:54 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	AdminUpgradeabilityProxy.sol

Detected Issues

ID	Title	Severity	Status
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED	low	acknowledged
SWC-101	COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 273

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- AdminUpgradeabilityProxy.sol

Locations

```
272   constructor(address _logic, bytes memory _data) public payable {
273   assert(IMPLEMENTATION_SLOT ==
bytes32(uint256(keccak256('eip1967.proxy.implementation')) - 1));
274   _setImplementation(_logic);
275   if(_data.length > 0) {
276   (bool success,) = _logic.delegatecall(_data);
277
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 353

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- AdminUpgradeabilityProxy.sol

Locations

```
352   constructor(address _logic, address _admin, bytes memory _data)
UpgradeabilityProxy(_logic, _data) public payable {
353   assert(ADMIN_SLOT == bytes32(uint256(keccak256('eip1967.proxy.admin')) - 1));
354   _setAdmin(_admin);
355   }
356
357
```

SWC-101 | COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED

LINE 273

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- AdminUpgradeabilityProxy.sol

Locations

```
272   constructor(address _logic, bytes memory _data) public payable {
273   assert(IMPLEMENTATION_SLOT ==
bytes32(uint256(keccak256('eip1967.proxy.implementation')) - 1));
274   _setImplementation(_logic);
275   if(_data.length > 0) {
276   (bool success,) = _logic.delegatecall(_data);
277
```

SWC-101 | COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED

LINE 353

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- AdminUpgradeabilityProxy.sol

Locations

```
352   constructor(address _logic, address _admin, bytes memory _data)
UpgradeabilityProxy(_logic, _data) public payable {
353   assert(ADMIN_SLOT == bytes32(uint256(keccak256('eip1967.proxy.admin')) - 1));
354   _setAdmin(_admin);
355   }
356
357
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 9

low SEVERITY

The current pragma Solidity directive is ""^0.6.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- AdminUpgradeabilityProxy.sol

Locations

```
8
9   pragma solidity ^0.6.0;
10
11   /**
12   * @title Proxy
13
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 87

low SEVERITY

The current pragma Solidity directive is "">=0.6.2<0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- AdminUpgradeabilityProxy.sol

Locations

```
86
87   pragma solidity >=0.6.2 <0.8.0;
88
89   /**
90   * @dev Collection of functions related to the address type
91
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 253

low SEVERITY

The current pragma Solidity directive is ""^0.6.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- AdminUpgradeabilityProxy.sol

Locations

```
252
253   pragma solidity ^0.6.0;
254
255
256
257
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 331

low SEVERITY

The current pragma Solidity directive is ""^0.6.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- AdminUpgradeabilityProxy.sol

Locations

```
330
331   pragma solidity ^0.6.0;
332
333
334   /**
335
```

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This is a limited report on our findings based on our analysis, in accordance with good industry practice as of the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

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ABOUT US

Sysfixed is a blockchain security certification organization established in 2021 with the objective to provide smart contract security services and verify their correctness in blockchain-based protocols. Sysfixed automatically scans for security vulnerabilities in Ethereum and other EVM-based blockchain smart contracts. Sysfixed a comprehensive range of analysis techniques—including static analysis, dynamic analysis, and symbolic execution—can accurately detect security vulnerabilities to provide an in-depth analysis report. With a vibrant ecosystem of world-class integration partners that amplify developer productivity, Sysfixed can be utilized in all phases of your project's lifecycle. Our team of security experts is dedicated to the research and improvement of our tools and techniques used to fortify your code.