



Smart Contract Security Audit Report

Thingschain

September 2022

Security Status



www.hacksafe.io



Audit Details



Audited project

Thingschain



Deployer address

0x3d5aE81BCB0A3fb9a12A7CF46cbff44B5F20a2C5



Client contacts

ThingsChain Team



Blockchain

Ethereum



Website

<https://thingschain.network/>

Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at 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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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.

Procedure

Step 1 - In-Depth Manual Review

Manual line-by-line code reviews to ensure the logic behind each function is sound and safe from various attack vectors. This is the most important and lengthy portion of the audit process (as automated tools often cannot find the nuances that lead to exploits such as flash loan attacks).

Step 2 - Automated Testing

Simulation of a variety of interactions with your Smart Contract on a test blockchain leveraging a combination of automated test tools and manual testing to determine if any security vulnerabilities exist.

Step 3 – Leadership Review

The engineers assigned to the audit will schedule meetings with our leadership team to review the contracts, any comments or findings, and ask questions to further apply adversarial thinking to discuss less common attack vectors.

Step 4 - Resolution of Issues

Consulting with the team to provide our recommendations to ensure the code's security and optimize its gas efficiency, if possible. We assist project team's in resolving any outstanding issues or implementing our recommendations.

Step 5 - Published Audit Report

Boiling down results and findings into an easy-to-read report tailored to the project. Our audit reports highlight resolved issues and any risks that exist to the project or its users, along with any remaining suggested remediation measures. Diagrams are included at the end of each report to help users understand the interactions which occur within the project.

Background

HackSafe was commissioned by Thingschain to perform an audit of smart contracts:

- <https://etherscan.io/address/0x72430a612adc007c50e3b6946dbb1bb0fd3101d1#code>

The purpose of the audit was to achieve the

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be understood to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

Contract Details

Token contract details for 03.09.2022

Token Type	: ERC20
Contract name	: ThingschainToken
Contract address	: 0x72430A612Adc007c50e3b6946dBb1Bb0fd3101D1
Compiler version	: v0.4.24+commit.e67f0147
Total supply	: 100,000,000,000
Token Ticker	: TIC
Decimals	: 8
Token Holders	: 4,938
Transactions count	: 30,417
Contract deployer address	: 0x3d5aE81BCB0A3fb9a12A7CF46cbff44B5F20a2C5
Owner address	: 0x3d5ae81bcb0a3fb9a12a7cf46cbff44b5f20a2c5

Social profiles

Twitter profile	: https://twitter.com/Things_chain
Coinmarketcap Profile	: https://coinmarketcap.com/currencies/thingschain/
Coingecko profile	: https://www.coingecko.com/en/coins/thingschain/
Telegram profile	: https://t.me/thingschain_group
Github profile	: https://github.com/TICnetwork

Audit Summary

According to the standard audit assessment, Customer`s solidity smart contracts are “Secure”. This token contract does contain owner control, which do not make it fully decentralized as owner does have control over smart contract.

Insecure	Poor secured	Secure	Well-secured
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We used various tools like Slither, Mythril and Remix IDE. At the same time this finding is based on critical analysis of the manual audit. All issues found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the issues checking status.

We found 0 critical, 0 high, 0 medium and 2 low and some very low-level issues. These issues are not critical ones.

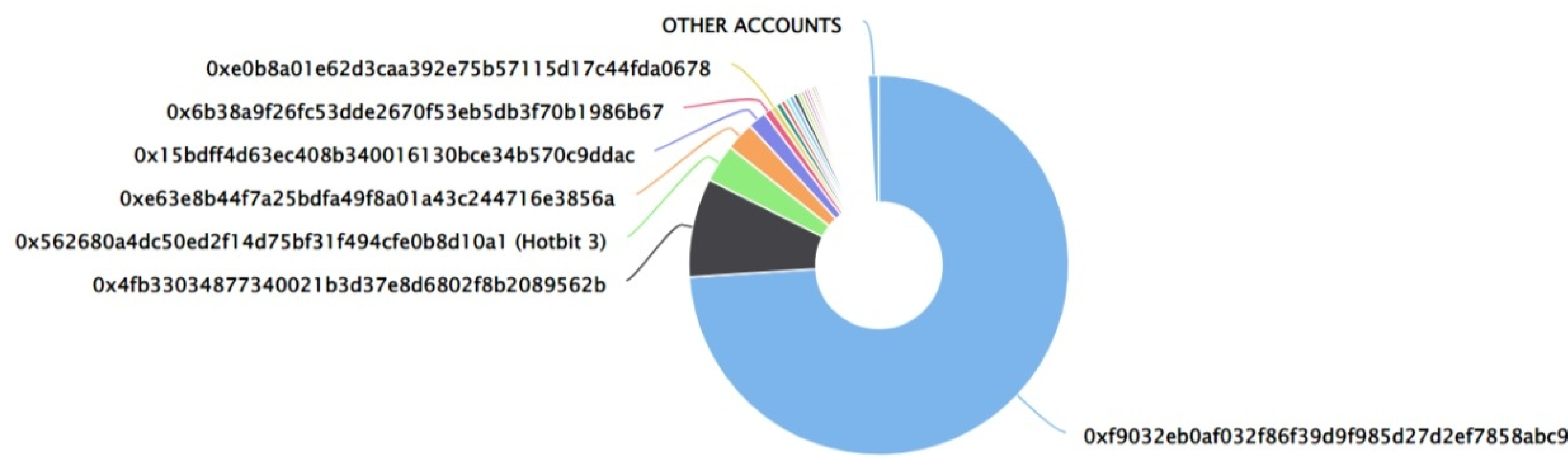
Thingschain Token Distribution

 The top 100 holders collectively own 99.09% (99,087,508,267.29 Tokens) of Thingschain

 Token Total Supply: 100,000,000,000.00 Token | Total Token Holders: 4,938


Thingschain Top 100 Token Holders

Source: Etherscan.io



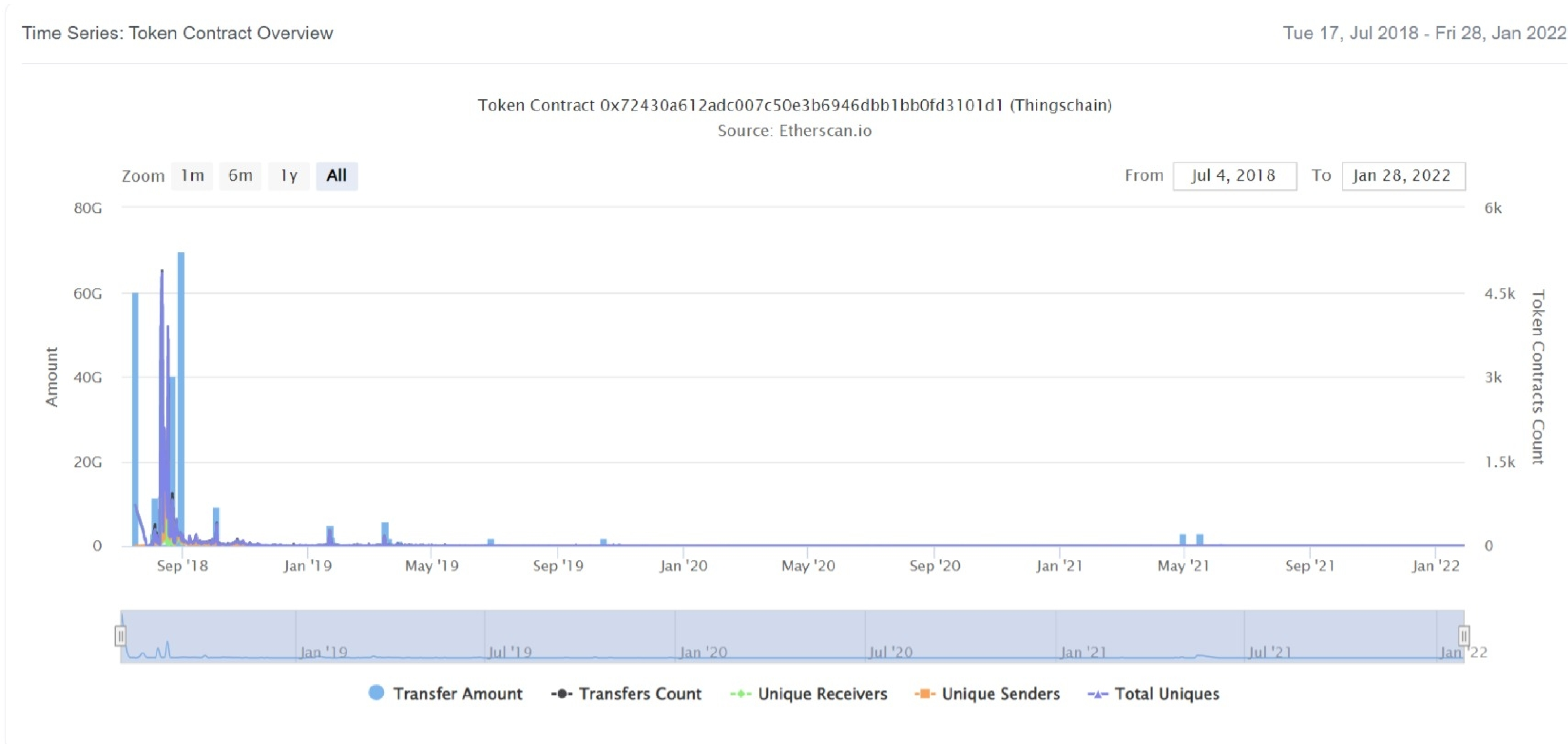
Thingschain Top 20 Token Holders

(A total of 99,087,508,267.29 tokens held by the top 100 accounts from the total supply of 100,000,000,000.00 token)

Rank	Address	Quantity (Token)	Percentage
1	 0xf9032eb0af032f86f39d9f985d27d2ef7858abc9	74,000,000,000.00000001	74.0000%
2	0x4fb33034877340021b3d37e8d6802f8b2089562b	8,430,000,000	8.4300%
3	Hotbit 3	3,240,585,727.37139752	3.2406%
4	0xe63e8b44f7a25bdfa49f8a01a43c244716e3856a	2,449,999,990	2.4500%
5	0x15bdf4d63ec408b340016130bce34b570c9ddac	1,577,988,905.46449998	1.5780%
6	0x6b38a9f26fc53dde2670f53eb5db3f70b1986b67	675,969,399.471	0.6760%
7	0xe0b8a01e62d3caa392e75b57115d17c44fda0678	500,000,000	0.5000%
8	Hotbit 2	477,165,100	0.4772%
9	0xd10bbdbd3a8a2d1c5fb661acf2d3f60459ed2d33	400,000,000	0.4000%
10	0xcf11b0af59aa55d5815e9704d7a13a474f2f174f	400,000,000	0.4000%
11	0xda2964a61518809d598e0eaf036e39888db6ebdd	398,450,000	0.3985%
12	0x31795bd1ee5fb01f12dc2a6440b7f19f8a9adf44	382,808,876.654	0.3828%
13	0x707df7d39a52aa94fe8d4f3ca126f5af0d596c0a	290,000,500	0.2900%
14	0x3bd70210ded3b14cf10cadfe60ad8a8111c3b892	287,383,068.383	0.2874%
15	0x66007849a71a5214dc986d826ca61561b9d59655	278,839,040	0.2788%
16	0x95d3173eb015d8f73516176111d62e6ee145c65e	230,988,000	0.2310%
17	0x0ee9ecb51769f6fd0bee7fd51a350dce9d8d76dc	212,274,882.5694	0.2123%
18	0xc38a1f11b61b0eb5531f64feeaa0c3e5cdad7f8a	203,928,054.602	0.2039%
19	0x6f04b3ad916b11beed1e31a3ce115e149f3703ab	203,070,100	0.2031%
20	0xb39c3301e329e6725f7a2aa7e3c2205e6f8e0938	179,000,000	0.1790%

Thingschain Token Distribution

Thingschain Contract Overview



Contract functions details

+[Lib] SafeMath

- [Int] mul
- [Int] div
- [Int] sub
- [Int] add

+Ownable

- [Pub] Ownable
- [Pub] transferOwnership #
- modifiers: onlyOwner

+ERC20Interface

- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] allowance
- [Pub] transfer #
- [Pub] approve
- [Pub] transferFrom

+ThingschainToken (ERC20Interface,Ownable)

- [Pub] ThingschainToken #
- [Pub] balanceOf
- [Pub] transfer #
- [Pub] transferFrom
- [Pub] approve
- [Pub] totalSupply
- [Pub] allowance
- [Pub] increaseApproval
- [Pub] decreaseApproval
- [Pub] transferAnyERC20Token #
- modifiers: onlyOwner
- [Pub] mint #
- modifiers: onlyOwner

(\$) = payable function

= non-constant function

Issues Checking Status

No.	Title	Status
1.	Unlocked Compiler Version	Low issue
2.	Missing Input Validation	Passed
3.	Race conditions and Reentrancy. Cross-function race conditions.	Passed
4.	Possible delays in data delivery	Passed
5.	Oracle calls.	Passed
6.	Timestamp dependence.	Passed
7.	Integer Overflow and Underflow	Passed
8.	DoS with Revert.	Passed
9.	DoS with block gas limit.	Passed
10.	Methods execution permissions.	Passed
11.	Economy model of the contract.	Passed
12.	Private use data leaks.	Passed
13.	Malicious Event log.	Passed
14.	Scoping and Declarations.	Passed
15.	Uninitialized storage pointers.	Passed
16.	Arithmetic accuracy.	Passed
17.	Design Logic.	Passed
18.	Safe Open Zeppelin contracts implementation and usage.	Passed
19.	Incorrect Naming State Variable	Passed
20.	Too old version	Low issue

Severity Definitions

Risk Level	Description
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to assets loss or data manipulations.
High	High-level vulnerabilities are difficult to exploit; however, they also have a significant impact on smart contract execution, e.g., public access to crucial functions
Medium	Medium-level vulnerabilities are important to fix; however, they can't lead to assets loss or data manipulations.
Low	Low-level vulnerabilities are mostly related to outdated, unused, etc. code snippets that can't have a significant impact on execution.

Security Issues

✔ Critical Severity Issues

No critical severity issue found.

✔ High Severity Issues

No high severity issue found.

✔ Medium Severity Issues

No medium severity issues found.

✔ Low Severity Issues

Two low severity issue found.

1. Old compiler version

- **Description**

Contract has been deployed using too old solidity version.

- **Recommendation**

It is advisable to deploy contract using any of the latest version of solidity.

2. Unlocked Compiler Version.

- **Description**

The contract utilizes an unlocked compiler version. An unlocked compiler version in the contract's source code permits the user to compile it at or above a particular version. This, in turn, leads to differences in the generated bytecode between compilations due to differing compiler version numbers. This can lead to ambiguity when debugging as compiler-specific bugs may occur in the codebase that would be difficult to identify over a span of multiple compiler versions rather than a specific one.

- **Recommendation**

It is advisable that the compiler version is alternatively locked at the lowest version possible so that the contract can be compiled. For example, for version 0.4.11 the contract should contain the following line:

```
pragma solidity 0.4.24;
```


Centralization

Owner Privileges :

- Thingschain Contract:
 - Owner can transfer ownership.
 - Owner can mint token.
 - Owner can transfer any erc20 token.

This smart contract has some functions which can be executed by the Admin (Owner) only. If the admin wallet private key would be compromised, then it would create trouble as smart contract ownership has not been renounced. Following are Admin functions functions:

- Mint
- Transferanyerc20token
- Transferownership

Conclusion

Smart contract contains low severity issues! The further transfer and operations with the fund raised are not related to this particular contract.

HackSafe note: Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner.