



Smart Contract Security Audit Report

IOI Token

December 2022

Security Status



www.hacksafe.io



Audit Details



Audited project

IOI Token



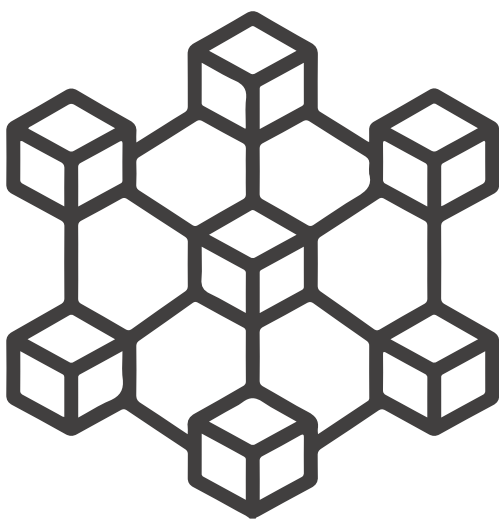
Deployer address

0x01c589991b5936d063364f882630a171e3d5d990



Client contacts

IOI Token Team



Blockchain

Ethereum



Website

Not provided

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 IOI Token perform an audit of smart contracts:

- <https://etherscan.io/token/0x8b3870df408ff4d7c3a26df852d41034eda11d81#code>

The purpose of the audit was to achieve the following:

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

The information in this report should be 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 07.12.2022

Token Type	: Gaming
Contract name	: IOI
Contract address	: 0x8B3870Df408fF4D7C3A26DF852D41034eDa11d81
Total supply	: 46,883,719.88372
Token ticker	: IOI
Decimals	: 6
Token Holders	: 1,659
Transactions count	: 28,123
Compiler version	: v0.6.0+commit.26b70077
Contract deployer address	: 0x01c589991b5936d063364f882630a171e3d5d990
Owner address	: 0x01C589991B5936d063364F882630a171E3d5D990

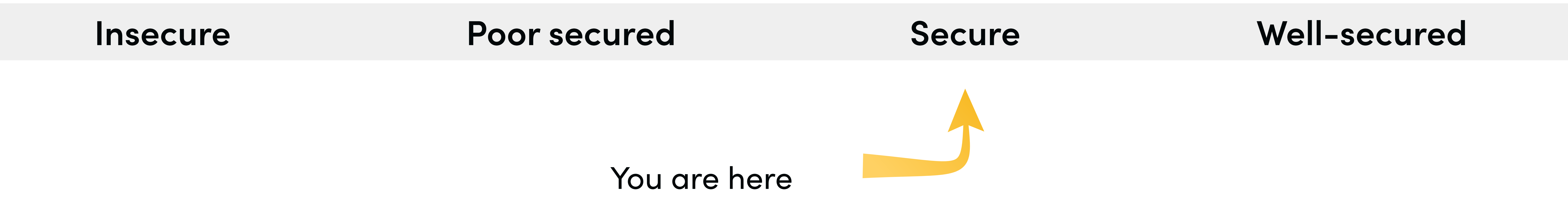
Social profiles

Coinmarketcap profile : <https://coinmarketcap.com/currencies/trade-race-manager/>

Coingecko profile : <https://www.coingecko.com/en/coins/ioi-token/>

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.



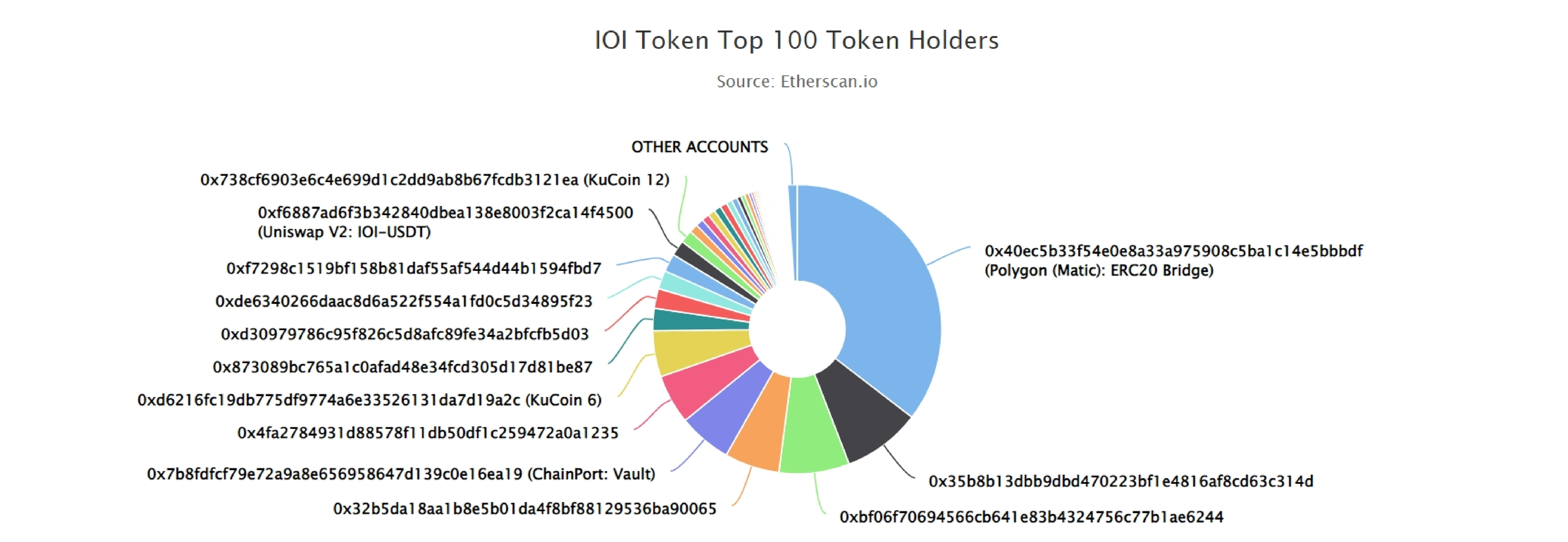
We used various tools like Slither, Mythril and Remix IDE. At the same time this finding is based on critical analysis of the manual audit. All issues found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the issues checking status.

We found 0 critical, 0 high, 0 medium and 2 low.

IOI Token Distribution






 The top 100 holders collectively own 98.92% (46,377,739.72 Tokens) of IOI Token

 Token Total Supply: 46,883,719.88 Token | Total Token Holders: 1,659



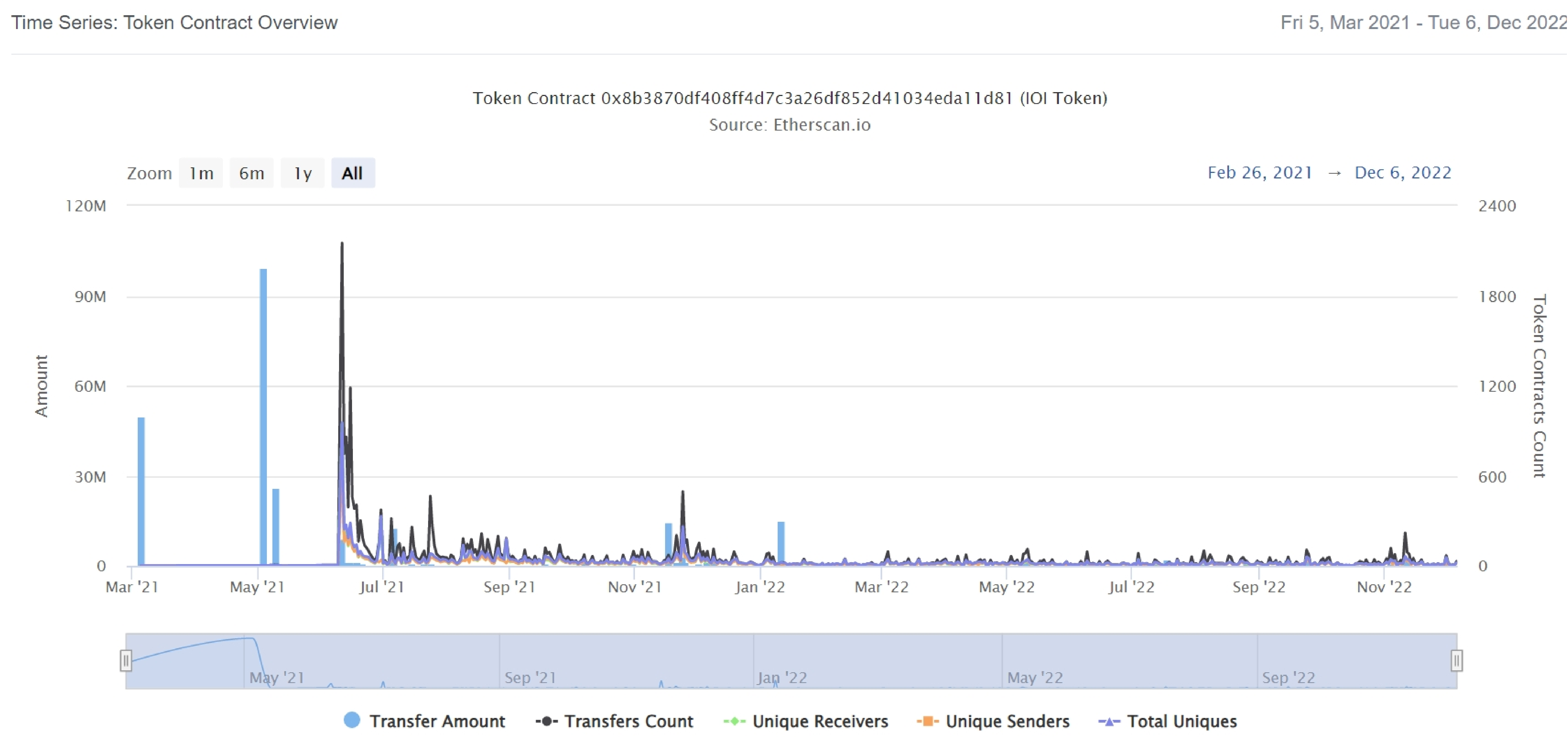
IOI Token Top 20 Token Holders

(A total of 46,377,739.72 tokens held by the top 100 accounts from the total supply of 46,883,719.88 token)

Rank	Address	Quantity (Token)	Percentage
1	 Polygon (Matic): ERC20 Bridge	16,608,276.899508	35.4244%
2	0x35b8b13dbb9dbd470223bf1e4816af8cd63c314d	4,088,550	8.7206%
3	0xbf06f70694566cb641e83b4324756c77b1ae6244	3,700,000	7.8919%
4	0x32b5da18aa1b8e5b01da4f8bf88129536ba90065	2,882,358	6.1479%
5	 ChainPort: Vault	2,787,159	5.9448%
6	0x4fa2784931d88578f11db50df1c259472a0a1235	2,599,300	5.5441%
7	KuCoin 6	2,418,684	5.1589%
8	0x873089bc765a1c0afad48e34fcd305d17d81be87	1,169,900	2.4953%
9	0xd30979786c95f826c5d8afc89fe34a2bfcfb5d03	1,029,397.958654	2.1956%
10	 0xde6340266daac8d6a522f554a1fd0c5d34895f23	975,518	2.0807%
11	0xf7298c1519bf158b81daf55af544d44b1594fbd7	940,192	2.0054%
12	 Uniswap V2: IOI-USDT	815,328.810415	1.7390%
13	KuCoin 12	673,304.80027	1.4361%
14	0x2e0739aa1d1f5499236ced412ab6c1e707066fd5	462,800	0.9871%
15	0xd2337058ef96b3e2675b0f1cc0f0ef0b2d425f6a	405,001	0.8638%
16	 0x763a0ca93af05ade98a52dc1e5b936b89bf8b89a	390,741.375185	0.8334%
17	0x38d322ed074cfd92e41dcfd499ad7dfb65634481	384,757.676655	0.8207%
18	0x30741289523c2e4d2a62c7d6722686d14e723851	368,237.717312	0.7854%
19	0x99a429861bd9de81941626c4513b3b86654b3d4a	365,000	0.7785%
20	Gate.io	302,347.422007	0.6449%

IOI Token Distribution

IOI Token Overview



Contract functions details

+ERC20Interface

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

+Owned

- [Pub] <constructor>
- [Pub] transferOwnership #
 - modifiers: onlyOwner
- [Pub] acceptOwnership #

+TokenRecipient

- [Pub] receiveApproval

+Token(ERC20Interface, Owned)

- [Pub] balanceOf
- [Pub] transfer #
- [Pub] transferFrom #
- [Pub] approve #
- [Pub] allowance
- [Pub] transferAnyERC20Token #
 - modifiers: onlyOwner
- [Pub] approveAndCall
- [Pub] burn #
- [Pub] burnFrom #
- [Int] _transfer #

+IOIToken (Token)

- [Pub] <constructor>
- [Ext] <fallback> \$
- [Ext] <receive> \$

+IOI (IOIToken)

- [Pub] constructor #

(\$) = 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 issue found.

✔ Low Severity Issues

Two low severity issue found.

1. 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 ^0.6.0 the contract should contain the following line:

```
pragma solidity 0.6.0;
```

2. 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.

Centralization

Owner privileges :

- IOI Token Contract:
 - Owner can transfer ownership.
 - Owner can transfer any ERC20 tokens.

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:

- `transferOwnership`
- `transferAnyERC20Token`

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.