



Smart Contract Security Audit Report

Hakka Finance

December 2022

Security Status



www.hacksafe.io



Audit Details



Audited project

Hakka Finance



Deployer address

0x1d075f1f543bb09df4530f44ed21ca50303a65b2



Client contacts

Hakka Finance 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 Hakka Finance to perform an audit of smart contracts:

- <https://etherscan.io/token/0x0E29e5AbB5FD88e28b2d355774e73BD47dE3bcd#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 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 21.12.2022

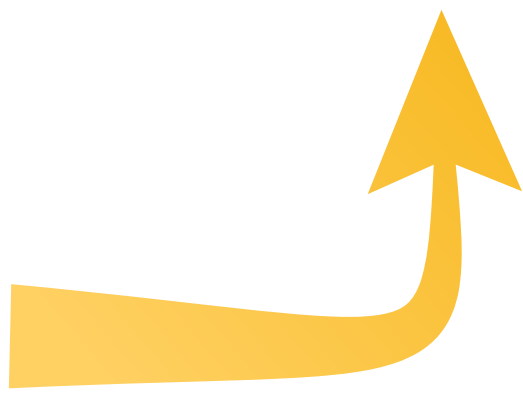
Token Type	: DEFI
Contract name	: Hakka
Contract address	: 0x0E29e5AbbB5FD88e28b2d355774e73BD47dE3bcd
Total supply	: 635,373,981.483935493829487614
Token ticker	: HAKKA
Decimals	: 18
Token Holders	: 4,409
Transactions count	: 132,690
Compiler version	: v0.5.16+commit.9c3226ce
Contract deployer address	: 0x1d075f1f543bb09df4530f44ed21ca50303a65b2
Owner address	: 0xF2B8f214Dc81b849ed3BDCAEdA6c8c39625c500A

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.

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 1 low.

Hakka Finance Token Distribution

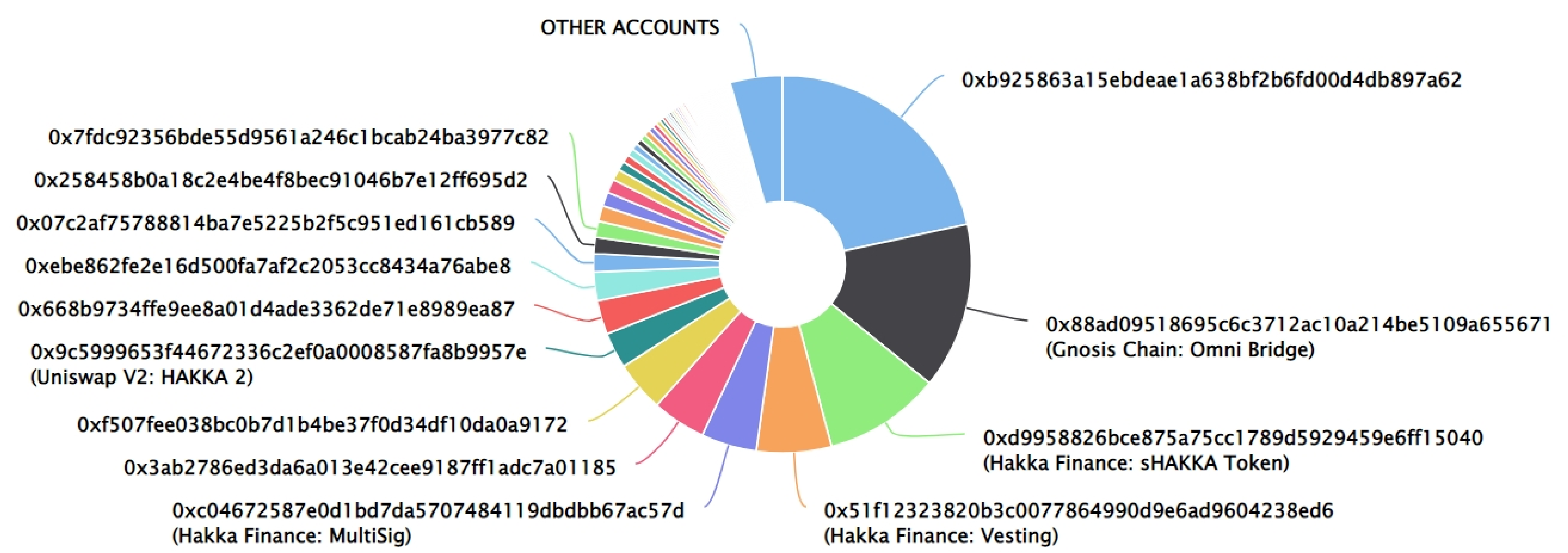
 The top 100 holders collectively own 95.54% (607,004,894.50 Tokens) of Hakka Finance



Token Total Supply: 635,373,981.48 Token | Total Token Holders: 4,409









Hakka Finance Top 100 Token Holders

Source: Etherscan.io



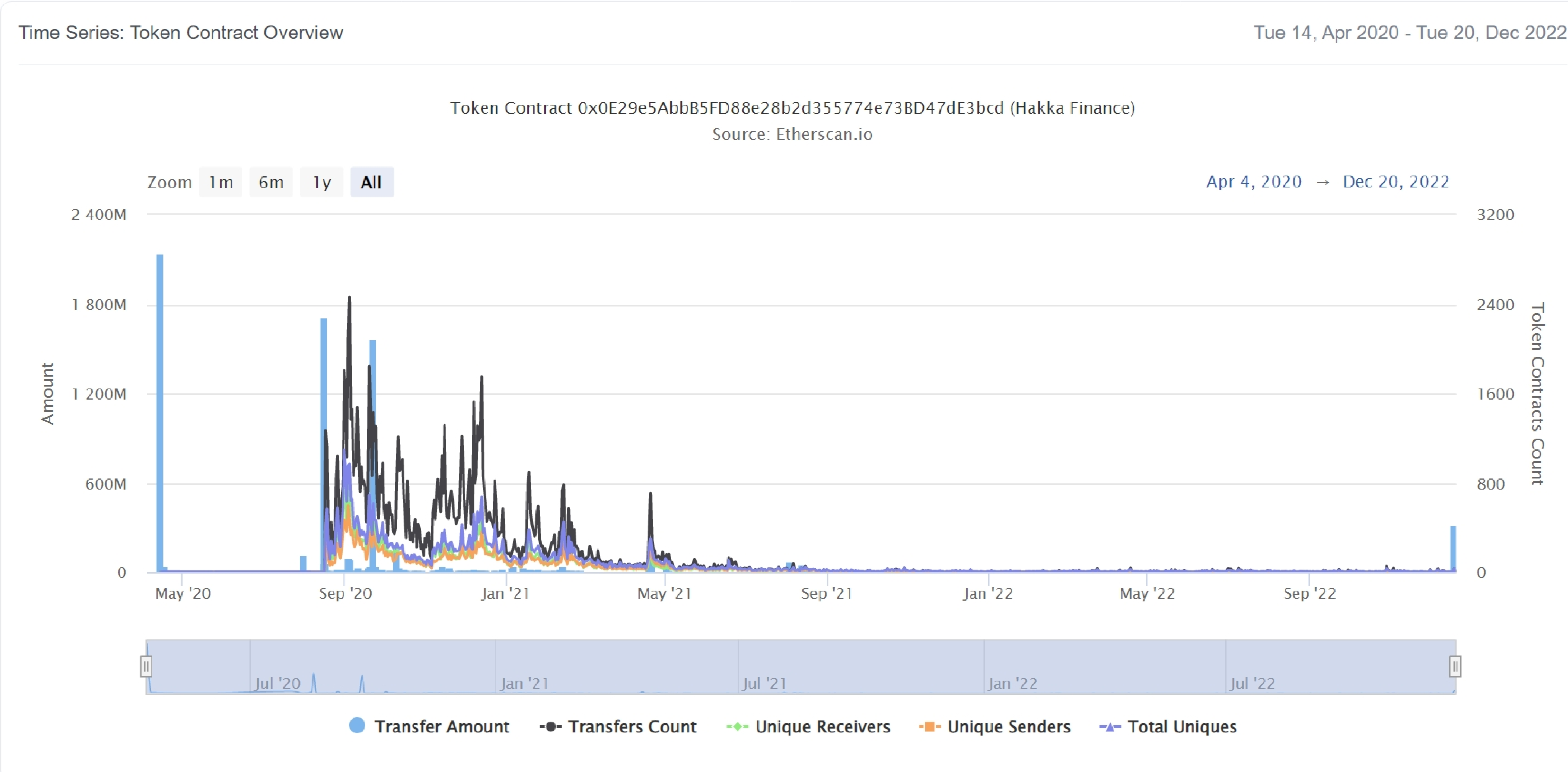
Hakka Finance Top 20 Token Holders

(A total of 607,004,894.50 tokens held by the top 100 accounts from the total supply of 635,373,981.48 token)

Rank	Address	Quantity (Token)	Percentage
1	 0xb925863a15ebdeae1a638bf2b6fd00d4db897a62	137,343,811.938779376853021388	21.6162%
2	 Gnosis Chain: Omni Bridge	90,355,142.517561528052540976	14.2208%
3	 Hakka Finance: sHAKKA Token	63,433,953.298789954494372737	9.9837%
4	 Hakka Finance: Vesting	40,711,710.104370966939707016	6.4075%
5	 Hakka Finance: MultiSig	30,226,168.4478	4.7572%
6	0x3ab2786ed3da6a013e42cee9187ff1adc7a01185	29,285,999	4.6093%
7	0xf507fee038bc0b7d1b4be37f0d34df10da0a9172	27,333,333	4.3019%
8	 Uniswap V2: HAKKA 2	19,533,585.305905452652491087	3.0743%
9	0x668b9734ffe9ee8a01d4ade3362de71e8989ea87	18,616,842.758055609635720954	2.9301%
10	0xebe862fe2e16d500fa7af2c2053cc8434a76abe8	15,519,296.728762096607798533	2.4425%
11	0x07c2af75788814ba7e5225b2f5c951ed161cb589	10,000,000	1.5739%
12	0x258458b0a18c2e4be4f8bec91046b7e12ff695d2	8,763,496.058210473222805888	1.3793%
13	0x7fdc92356bde55d9561a246c1bcab24ba3977c82	8,698,266	1.3690%
14	 Balancer: HAKKA/BHSc\$ 50/50	8,511,241.029061564600659791	1.3396%
15	0x4513dcb85fbc4e96197c4e11bffdf23792d29380	7,651,733	1.2043%
16	0xf2552ec2e1a662a8039efc25fbf8e1d533a08c5b	7,485,323.643486360568388979	1.1781%
17	 0xf4d1f9674c8e9f29a69dc2e6f841292e675b7977	6,092,647.326211561731127262	0.9589%
18	0x4d3fc3ecd66bf1ba88cdd8509331bd45968aff6	4,885,000	0.7688%
19	Hakka Finance: Deployer	4,316,290.263794231732961247	0.6793%
20	0xe7e1872529478fb6205128c0e9556835d11762b0	4,118,562.553975220545818431	0.6482%

Hakka Finance Token Distribution

Hakka Finance Contract Overview



Contract functions details

+Ownable

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

+ApproveAndCallFallBack

- [Ext] receiveApproval

+Hakka (Ownable)

- [Int] add
- [Int] sub
- [Pub] <constructor>
- [Ext] transfer #
- [Pub] transferFrom #
- [Ext] mint #
- modifiers: onlyOwner
- [Ext] burn #
- [Ext] approve #
- [Ext] approveAndCall #
- [Ext] permit

(\$) = payable function

= non-constant function

Issues Checking Status

No.	Title	Status
1.	Unlocked Compiler Version	Passed
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

One 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.

Centralization

Owner privileges :

- Hakka Finance Contract:
 - Owner can transfer ownership.
 - Owner can mint 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
- mint

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.