HackSafe

Smart Contract Security Audit Report

NKN

January 2023

Security Status

★★★★½

www.hacksafe.io

Audit Details

Audited project
NKN

Deployer address
0x71eb2c89999caa5326bd41c0b83b728bdc55fd10

Client contacts
NKN

Blockchain
Ethereum

Website
https://nkn.org/

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 NKN to perform an audit of smart contracts:

- https://etherscan.io/token/0x5cf04716ba20127f1e2297addcf4b5035000c9eb#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 20.01.2023

Token Type	: DEFI
Contract name	: NKNToken
Contract address	: 0x5Cf04716BA20127F1E2297AdDCf4B5035000c9eb
Total supply	: 700,000,000
Token ticker	: NKN
Decimals	: 18
Token Holders	: 18,793
Transactions count	: 161,881
Compiler version	: v0.4.25+commit.59dbf8f1
Contract deployer address	: 0x71eb2c89999caa5326bd41c0b83b728bdc55fd10
Owner address	: 0x71eB2C89999CAA5326bd41c0b83B728bDc55fd10

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

You are here

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.

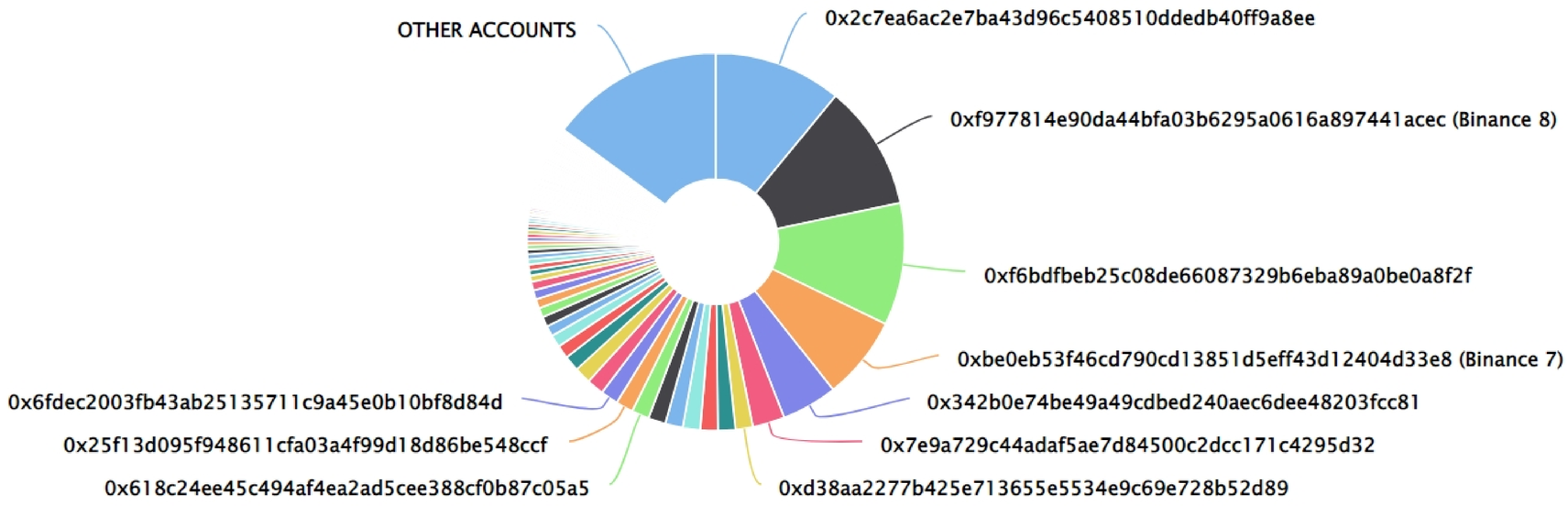
NKN Token Distribution

The top 100 holders collectively own 85.10% (595,674,349.88 Tokens) of NKN

Token Total Supply: 700,000,000.00 Token | Total Token Holders: 18,788

NKN Top 100 Token Holders

Source: Etherscan.io



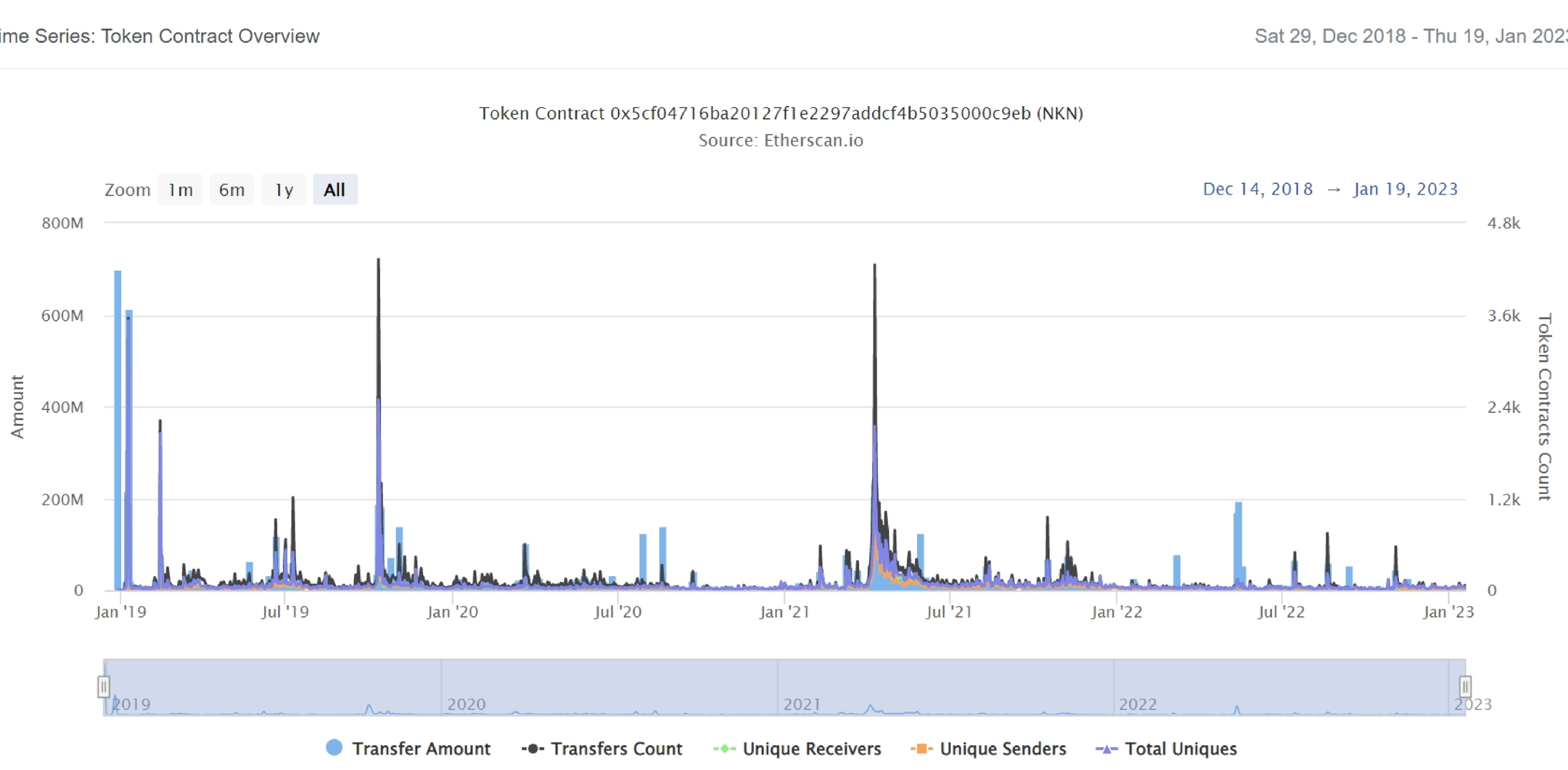
NKN Token Top 20 Token Holders

(A total of 595,674,349.88 tokens held by the top 100 accounts from the total supply of 700,000,000.00 token)

Rank	Address	Quantity (Token)	Percentage
1	0x2c7ea6ac2e7ba43d96c5408510ddedb40ff9a8ee	76,753,817	10.9648%
2	Binance 8	75,167,096.081	10.7382%
3	0xf6bdfbeb25c08de66087329b6eba89a0be0a8f2f	73,383,650.765	10.4834%
4	Binance 7	50,000,000	7.1429%
5	0x342b0e74be49a49cdbed240aec6dee48203fcc81	33,407,656.768746955771205374	4.7725%
6	0x7e9a729c44adaf5ae7d84500c2dcc171c4295d32	19,195,924.235147301417550053	2.7423%
7	0xd38aa2277b425e713655e5534e9c69e728b52d89	10,466,766.42565006434688885	1.4953%
8	0x2f334a32afe04db459fb990ed9f7801b8bc7cff8	10,466,766.42565006434688885	1.4953%
9	0x20b0831b43c8ce8bd643e2b1abb6e2fd329d490e	10,466,766.42565006434688885	1.4953%
10	0xf2d2b6286063b0199c001a2fe2b1d9603c8470d4	10,466,766.42565006434688885	1.4953%
11	0x1073094f16c7bbca1685de72695c247ffd1a5bc9	10,466,766.42565006434688885	1.4953%
12	0xa02aa0ff204073446bb78b5a69f0e12bc4037b1b	10,466,766.42565006434688885	1.4953%
13	0x618c24ee45c494af4ea2ad5cee388cf0b87c05a5	10,466,766.42565006434688885	1.4953%
14	0x25f13d095f948611cfa03a4f99d18d86be548ccf	10,466,766.42565006434688885	1.4953%
15	0x6fdec2003fb43ab25135711c9a45e0b10bf8d84d	10,466,766.42565006434688885	1.4953%
16	Coinbase 10	10,334,786.1804240133115715	1.4764%
17	0x417eae259e0f3ad171d88d87d38cae0ad091003c	9,910,924.393549969081180003	1.4158%
18	0xec544f7f07e1e7ab50e634d15bf32acfa54d8454	9,322,494.864785806677976569	1.3318%
19	0x0cde85455f818cb9aad901e5f2df9676cb3ddbf7	8,019,991.45937956	1.1457%
20	Crypto.com 5	7,345,598.779179988562828536	1.0494%

NKN Token Distribution

NKN Contract Overview



Contract functions details

+[Lib] SafeMath
    -[Int] mul
    -[Int] div
    -[Int] sub
    -[Int] add

+ERC20
    -[Pub] balanceOf
    -[Ext] transfer
    -[Ext] allowance
    -[Ext] transferFrom
    -[Ext] approve

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

+ERC20Token (ERC20, Owned)
    -[Pub] setTransferable #
      -modifiers: onlyOwner
    -[Pub] transfer #
      -modifiers: canTransfer
    -[Pub] balanceOf
    -[Pub] transferFrom #
      -modifiers: canTransfer
    -[Pub] approve #
    -[Pub] allowance
    -[Pub] $

+NKNToken (ERC20Token)
    -[Pub] <constructor> #

($) = payable function
= non-constant function

Issues Checking Status

No.	Title	Status
1.	Compiler error	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 :

- NKN Contract:
    - Owner setTransfer Boolean variable.
    - Owner can transfer/renounce ownership.

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.

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.