



Smart Contract Security Audit Report

Monk

July 2022

Security Status



www.hacksafe.io



Audit Details



Audited project

Monk



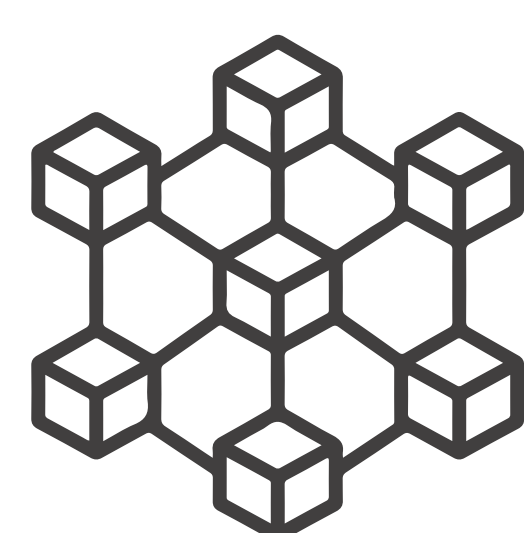
Deployer address

0x73B0f639112CF30f5BdaF9b816A3d06AFb8c5eEd



Client contacts

Monk team



Blockchain

Binance Smart Chain



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 Monk to perform an audit of smart contracts:

- <https://bscscan.com/address/0x2EC998611F585C8562c7D84CE90CAA30176e196B#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.

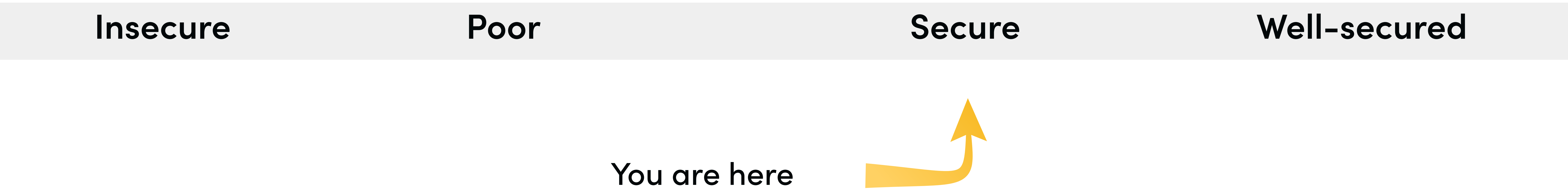
Contract Details

Token contract details for 30.07.2022

Token Type	: BEP-721
Contract name	: SamuraiLegendsNFTs
Contract address	: 0x2EC998611F585C8562c7D84CE90CAA30176e196B
Compiler version	: v0.8.4+commit.c7e474f2
Token Ticker	: Monk
Token Holders	: 119
Transactions count	: 895
Contract deployer address	: 0x73B0f639112CF30f5BdaF9b816A3d06AFb8c5eEd
Owner address	: No Owner

Audit Summary

According to the standard audit assessment, Customer's solidity smart contracts are "Secure". This token contract does not contain owner control, which do make it fully decentralized as owner does not 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 and some very low-level issues. These issues are not critical ones.

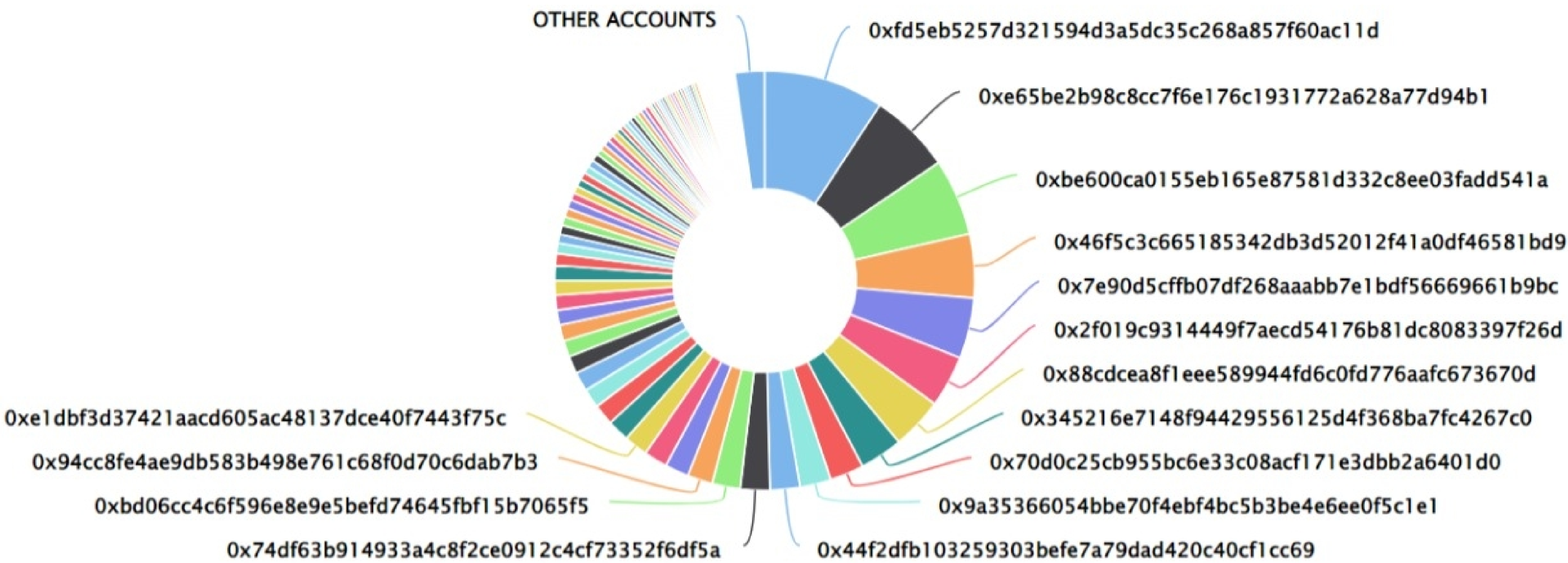
Monk Token Distribution

The top 100 holders collectively own 97.72% (857.00 Tokens) of Monk

Token Total Supply: 877.00 Token | Total Token Holders: 119

Monk Top 100 Token Holders

Source: BscScan.com



Monk Token Distribution

Monk Top 20 Token Holders

Rank	Address	Quantity	Percentage
1	0xfd5eb5257d321594d3a5dc35c268a857f60ac11d	81	9.2466%
2	0xe65be2b98c8cc7f6e176c1931772a628a77d94b1	55	6.2785%
3	0xbe600ca0155eb165e87581d332c8ee03fadd541a	52	5.9361%
4	0x46f5c3c665185342db3d52012f41a0df46581bd9	43	4.9087%
5	0x7e90d5cffb07df268aaabb7e1bdf56669661b9bc	41	4.6804%
6	0x2f019c9314449f7aecdd54176b81dc8083397f26d	35	3.9954%
7	0x88cdcea8f1eee589944fd6c0fd776aafc673670d	35	3.9954%
8	0x345216e7148f94429556125d4f368ba7fc4267c0	29	3.3105%
9	0x70d0c25cb955bc6e33c08acf171e3dbb2a6401d0	23	2.6256%
10	0x9a35366054bbe70f4ebf4bc5b3be4e6ee0f5c1e1	21	2.3973%
11	0x44f2dfb103259303befe7a79dad420c40cf1cc69	20	2.2831%
12	0x74df63b914933a4c8f2ce0912c4cf73352f6df5a	20	2.2831%
13	0xbd06cc4c6f596e8e9e5befd74645bf15b7065f5	19	2.1689%
14	0x94cc8fe4ae9db583b498e761c68f0d70c6dab7b3	17	1.9406%
15	0xa8cbdf79b889ca991547a1e5bf82d4b113288202	16	1.8265%
16	0xcf97e896e9acb1348c25d30d7679f98a38a78168	16	1.8265%
17	0xe1dbf3d37421aacd605ac48137dce40f7443f75c	16	1.8265%
18	0x3dd76e7718541a1ea8ad443ecab9f5985038c384	15	1.7123%
19	0xa0ea03cc11296cfd986bf85b9579d2c61b7e5b86	14	1.5982%
20	0x88984be619a2af43dc400aa9df62d468a5387edd	13	1.4840%

Contract functions details

SamuraiLegendsNFTs.sol

+ SamuraiLegendsNFTs (ERC721Enumerable, AccessControl)

- < constructor>
- [Ext] updateMaxSupply
 - modifiers: onlyRole
- [Ext] batchMint #
 - modifiers: onlyRole
- [Pub] mint #
 - modifiers: onlyRole
- [Int] _baseURI
- [Ext] updateTokenURI
 - modifiers: onlyRole
- [Pub] supportsInterface
- [Ext] getAllItemsOfUser

ERC721Enumerable.sol

+ ERC721Enumerable (ERC721, IERC721Enumerable)

- [Pub] supportsInterface
- [Pub] tokenOfOwnerByIndex
- [Pub] totalSupply
- [Pub] tokenByIndex
- [Int] _beforeTokenTransfer
- [Pvt] _addTokenToOwnerEnumeration
- [Pvt] _addTokenToAllTokensEnumeration
- [Pvt] _removeTokenFromOwnerEnumeration
- [Pvt] _removeTokenFromAllTokensEnumeration

AccessControl.sol

+ AccessControl (Context, IAccessControl, ERC165)

- [Pub] supportsInterface
- [Pub] hasRole
- [Int] _checkRole
- [Int] _checkRole
- [Pub] getRoleAdmin
- [Pub] grantRole
 - modifiers: onlyRole
- [Pub] revokeRole
 - modifiers: onlyRole
- [Pub] renounceRole
- [Int] _setupRole

Contract functions details

-[Int] _setRoleAdmin

-[Int] _grantRole

-[Int] _revokeRole

Counters.sol

+**[Lib]** Counters

-[Int] current

-[Int] increment

-[Int] decrement

-[Int] reset

ERC721.sol

+ERC721 (Context, ERC165, IERC721, IERC721Metadata)

-<constructor>

-[Pub] supportsInterface

-[Pub] balanceOf

-[Pub] ownerOf

-[Pub] name

-[Pub] symbol

-[Pub] tokenURI

-[Int] _baseURI

-[Pub] approve #

-[Pub] getApproved

-[Pub] setApprovalForAll #

-[Pub] isApprovedForAll

-[Pub] transferFrom #

-[Pub] safeTransferFrom #

-[Pub] safeTransferFrom #

-[Int] _safeTransfer #

-[Int] _exists #

-[Int] _isApprovedOrOwner #

-[Int] _safeMint #

-[Int] _safeMint #

-[Int] _mint #

-[Int] _burn #

-[Int] _transfer#

-[Int] _approve #

-[Int] _setApprovalForAll #

-[Pvt] _checkOnERC721Received #

Contract functions details

-[Int] _beforeTokenTransfer

-[Int] _afterTokenTransfer

IERC721Enumerable.sol

+ [Int] IERC721Enumerable (IERC721)

-[Ext] totalSupply

-[Ext] tokenOfOwnerByIndex

-[Ext] tokenByIndex

IERC721.sol

+ [Int] IERC721 (IERC165)

-[Ext] balanceOf

-[Ext] ownerOf

-[Ext] safeTransferFrom #

-[Ext] safeTransferFrom #

-[Ext] transferFrom #

-[Ext] approve #

-[Ext] setApprovalForAll #

-[Ext] getApproved #

-[Ext] isApprovedForAll

IERC721Receiver.sol

+ [Int] IERC721Receiver

-[Ext] onERC721Received

IERC721Metadata.sol

+ [Int] IERC721Metadata (IERC721)

-[Ext] name

-[Ext] symbol

-[Ext] tokenURI

Address.sol

+ [Lib] Address

-[Int] isContract

-[Int] sendValue

-[Int] functionCall

-[Int] functionCall

-[Int] functionCallWithValue

-[Int] functionCallWithValue

-[Int] functionStaticCall

-[Int] functionStaticCall

Contract functions details

- [Int] functionDelegateCall
- [Int] functionDelegateCall
- [Int] verifyCallResult

Context.sol

+ Context

- [Int] _msgSender
- [Int] _msgData

Strings.sol

+ [Lib] Strings

- [Int] toString
- [Int] toHexString
- [Int] toHexString

ERC165.sol

+ ERC165 (IERC165)

- [Pub] supportsInterface

IERC165.sol

+ ERC165

- [Ext] supportsInterface

IAccessControl.sol

+ [Int] IAccessControl

- [Ext] hasRole
- [Ext] getRoleAdmin
- [Ext] grantRole
- [Ext] revokeRole
- [Ext] renounceRole

(\$) = 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.	Low issue
19.	Incorrect Naming State Variable	Passed
20.	Too old version	Passed

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. 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 ^0.8.0 the contract should contain the following line:

```
pragma solidity 0.8.4;
```

2. Safe Open Zeppelin contracts implementation and usage.

- **Description**

The SamuraiLegendsNFTs.sol contract has direct imported openzeppelin file.

- **Recommendation**

We advise you to not use direct import of any github repository because any changes in that file may effect your contract too.

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.