



Smart Contract Security Audit Report

Realliq

December 2022

Security Status



www.hacksafe.io



Audit Details



Audited project

Realliq



Deployer address

0x720bf57c84b79ec000b2bf95ab02cf6218efba3c



Client contacts

Realliq 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 Realliq to perform an audit of smart contracts:

- <https://bscscan.com/token/0x19bB77FD24fc09Dd0C3E8Ea8b3781172479791E4#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

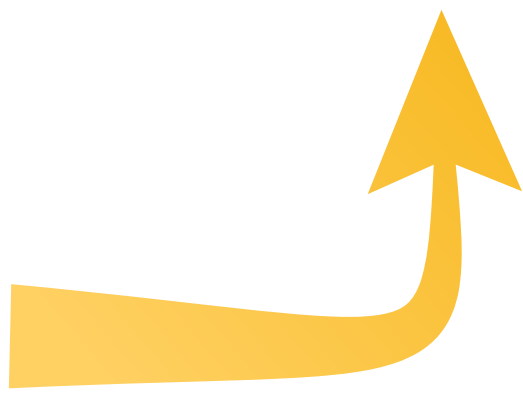
Token Type	: DEFI
Contract name	: Realliq
Contract address	: 0x19bB77FD24fc09Dd0C3E8Ea8b3781172479791E4
Total supply	: 100,000,000
Token ticker	: RLQ
Decimals	: 9
Token Holders	: 574
Transactions count	: 6,451
Compiler version	: v0.8.7+commit.e28d00a7
Contract deployer address	: 0x720bf57c84b79ec000b2bf95ab02cf6218efba3c
Owner address	: 0x941393360df4f7b0b5213936eef782de76277640

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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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.

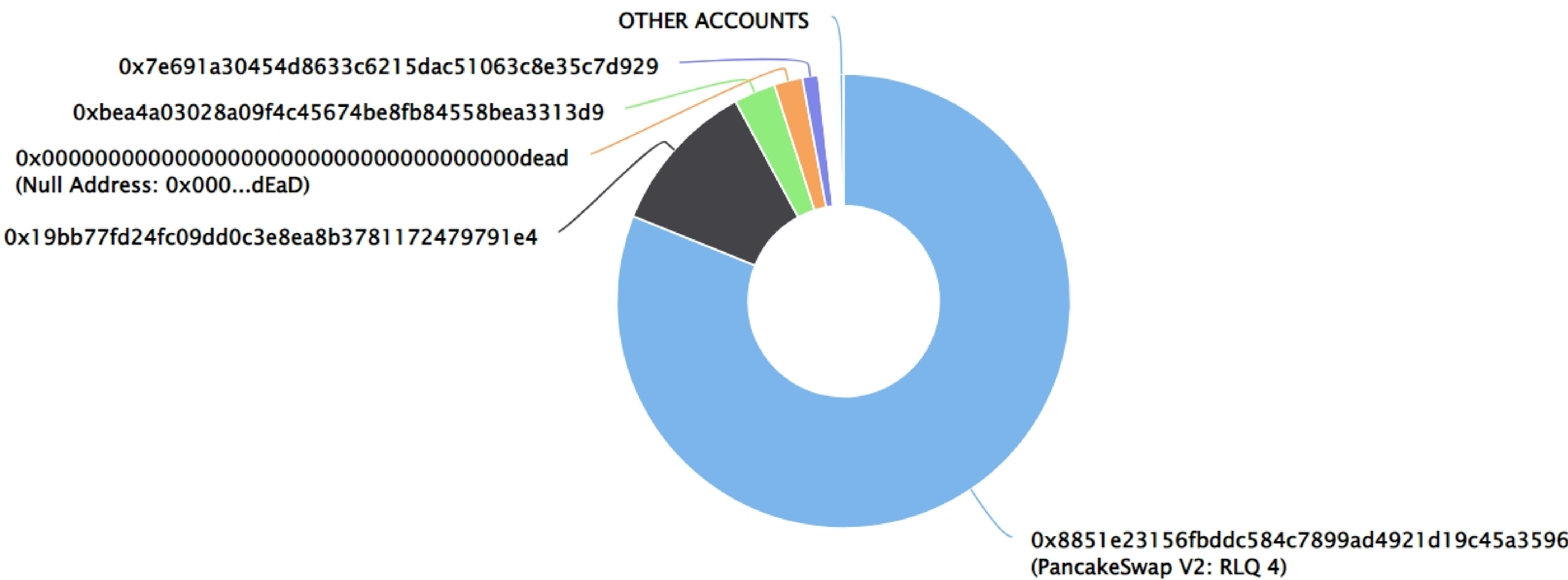
Realliq Token Distribution

💡 The top 100 holders collectively own 99.70% (99,700,113.29 Tokens) of Realliq

💡 Token Total Supply: 100,000,000.00 Token | Total Token Holders: 574






Realliq Top 100 Token Holders

Source: BscScan.com



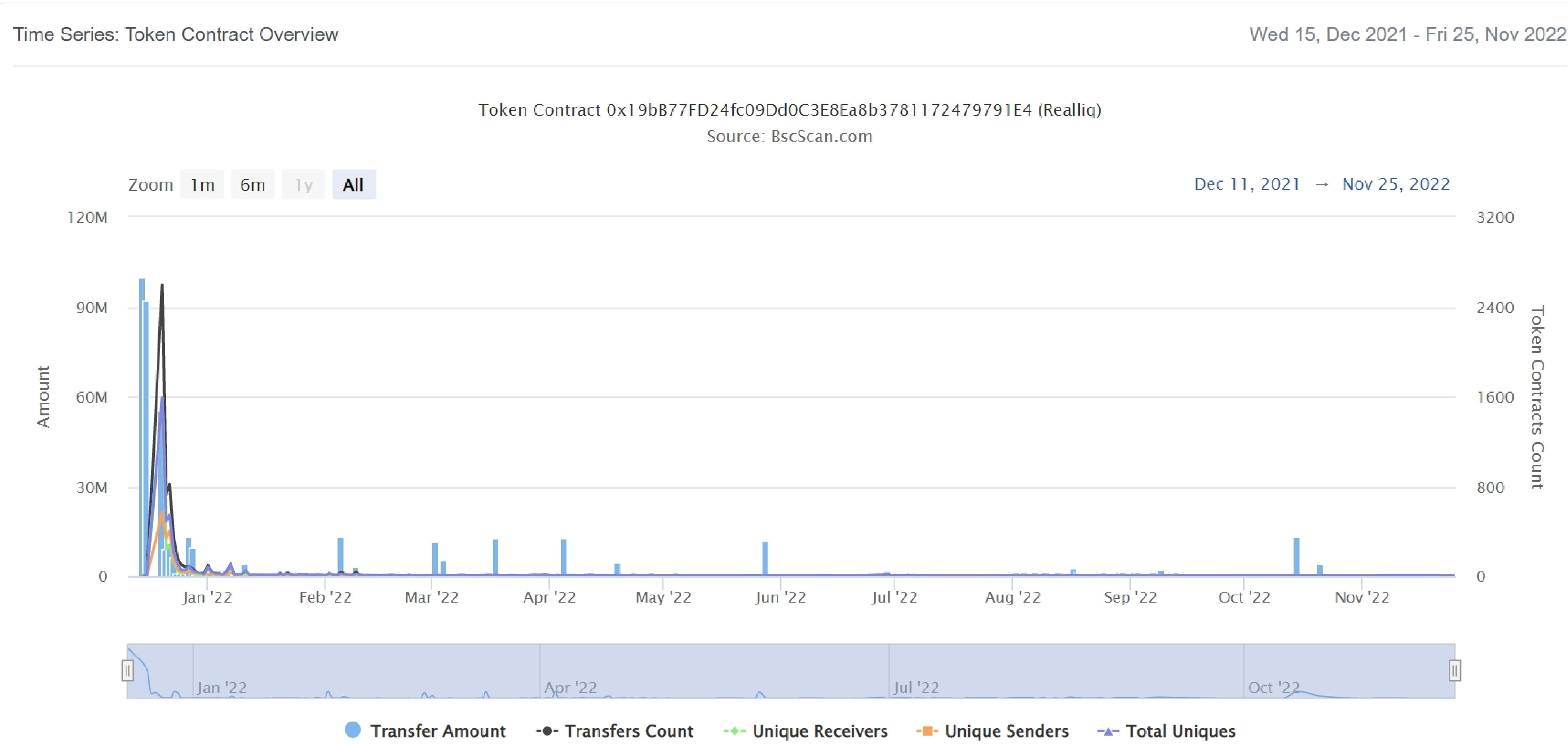
Realliq Top 20 Token Holders

(A total of 99,700,113.29 tokens held by the top 100 accounts from the total supply of 100,000,000.00 token)

Rank	Address	Quantity (Token)	Percentage
1	 PancakeSwap V2: RLQ 4	81,094,985.803603943	81.0950%
2	 0x19bb77fd24fc09dd0c3e8ea8b3781172479791e4	11,000,000.000033231	11.0000%
3	 0xbea4a03028a09f4c45674be8fb84558bea3313d9	2,963,940.72575	2.9639%
4	Null Address: 0x000...dEaD	2,018,753.615174498	2.0188%
5	 0x7e691a30454d8633c6215dac51063c8e35c7d929	1,146,663.4643828	1.1467%
6	0x995a11fe654777aec420f3663978717e31e04070	80,000	0.0800%
7	0xd379fc06e483ab52df8cdac8ef489562f5d6f960	69,808	0.0698%
8	0x24bd1921707c5378d552358cda5016f9370c4cb8	52,910.729694708	0.0529%
9	0x447604fb836642a8a9f5beff59256865cdb1fb27	50,000	0.0500%
10	 Kala Coin: KALA Token	50,000	0.0500%
11	0x410bac29273978d559303c6b3db1c9f036e49c04	50,000	0.0500%
12	0x4a7ae83397b109969b66c0d5c6a4d58ef433098a	40,000	0.0400%
13	0xac8179b1c999adaceaf92afd7ebbf6db77e12d57	40,000	0.0400%
14	0xfc26d715c0cd048d3647b3eb64dba015967caae6	40,000	0.0400%
15	0x395d74eed5e943bd6b6a9a04a83fe84898cad922	40,000	0.0400%
16	0x9039680d97c16e5c791c741592be7af5b94ab027	40,000	0.0400%
17	0xac380991486c7901b99b698e365b2e39f71fae94	40,000	0.0400%
18	0xab83f079d78ade3787312b61475e0443bf1f7d5d	40,000	0.0400%
19	0xa23764548100cfd75d869135680b346dc6f1cc08	40,000	0.0400%
20	0xf19a981c5092589615e358a4613e999e58dc9c7b	40,000	0.0400%

Realliq Token Distribution

Realliq Contract Overview



Contract functions details

+[Int] IERC20

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

+[Lib] SafeMath

- [Int] tryAdd
- [Int] trySub
- [Int] tryMul
- [Int] tryDiv
- [Int] tryMod
- [Int] add
- [Int] sub
- [Int] mul
- [Int] div
- [Int] mod
- [Int] sub
- [Int] div
- [Int] mod

+Context

- [Int] _msgSender
- [Int] _msgData

+[Lib] Address

- [Int] isContract
- [Int] sendValue #
- [Int] functionCall #
- [Int] functionCall #
- [Int] functionCallWithValue #
- [Int] functionCallWithValue #
- [Int] functionStaticCall
- [Int] functionStaticCall
- [Int] functionDelegateCall #
- [Int] functionDelegateCall #
- [Pvt] _verifyCallResult

Contract functions details

+Ownable (Context)

- [Pub] <Constructor >#
- [Pub] owner
- [Pub] renounceOwnership #
 - modifiers: onlyOwner
- [Pub] transferOwnership #
 - modifiers: onlyOwner

+Realliq (Context, IERC20, Ownable)

- [Pub] # <Constructor >
- [Pub] name
- [Pub] symbol
- [Pub] decimals
- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] transfer #
- [Pub] allowance
- [Pub] approve #
- [Pub] transferFrom #
- [Pub] increaseAllowance #
- [Pub] decreaseAllowance #
- [Pub] deliver #
- [Pvt] tokenFromReflection
- [Pvt] _transferBothExcluded #
- [Pub] excludeFromFee #
 - modifiers: onlyOwner
- [Pub] includeInFee #
 - modifiers: onlyOwner
- [Ext] setTaxFeePercent #
 - modifiers: onlyOwner
- [Ext] setRndFeePercent #
 - modifiers: onlyOwner
- [Ext] setStakingrewardFeePercent #
 - modifiers: onlyOwner
- [Pvt] _reflectFee #
- [Pvt] _getValues
- [Pvt] _getTValues
- [Pvt] _getRValues

Contract functions details

- [Pvt] _getRate
- [Pvt] _getCurrentSupply
- [Pvt] _takeRnd #
- [Pvt] _takeStakingreward #
- [Pvt] calculateTaxFee
- [Pvt] calculateRndFee
- [Pvt] calculateStakingrewardFee
- [Pvt] removeAllFee #
- [Pvt] restoreAllFee #
- [Pub] isExcludedFromFee
- [Pvt] _approve #
- [Pvt] _transfer #
- [Pvt] _tokenTransfer #
- [Pvt] _transferStandard #
- [Pvt] _transferToExcluded #
- [Pvt] _transferFromExcluded #

(\$) = 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	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 issue found.

✓ Low Severity Issues

One 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 ^0.8.7 the contract should contain the following line:

```
pragma solidity 0.8.7;
```

Centralization

Owner privileges :

- Realliq Contract:
 - Owner can exclude/include from fee.
 - Owner can set tax fee percent.
 - Owner can set rnd fee percent.
 - Owner can set staking reward fee percent.
 - 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. Following are Admin functions:

- `renounceOwnership`
- `transferOwnership`
- `excludeFromFee`
- `includeInFee`
- `settaxFeePercent`
- `setrndFeePercent`
- `setstakingrewardFeePercent`

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.