

# Smart Contract Security Audit Report

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## **Salt Fish**

April 2023

Security Status



[www.hacksafe.io](http://www.hacksafe.io)

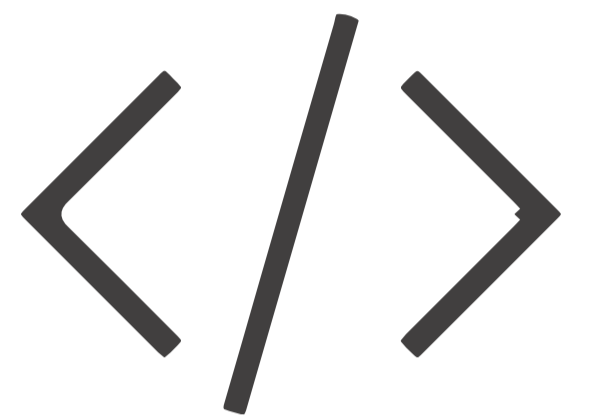


# Audit Details



## **Audited project**

Salt Fish



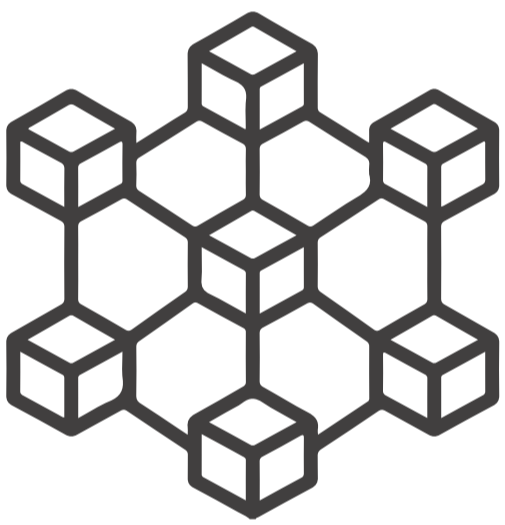
## **Deployer address**

0x884900fe4cad5f557d31921fcbd3d3f74002107b



## **Client contacts**

Salt Fish 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 Salt Fish to perform an audit of smart contracts:

- <https://bscscan.com/token/0xc4bA6B85C6E49272D47652F9471019cbd9748660#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 01.04.2023

Type	: MEME
Contract name	: SaltFish
Contract address	: 0xc4bA6B85C6E49272D47652F9471019cbd9748660
Total supply	: 1,000,000,000,000,000
Token Ticker	: SFT
Decimals	: 9
Token Holders	: 2
Transactions count	: 5
Compiler version	: v0.8.7+commit.e28d00a7
Contract deployer address	: 0x884900fe4cad5f557d31921fcbd3d3f74002107b
Owner address	: 0x884900fe4cad5f557d31921fcbd3d3f74002107b



# Audit Summary

According to the standard audit assessment, Customer`s solidity smart contracts are **“Secure”**. This token contract does contain owner control as ownership has not been renounced, 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, 1 medium and 0 low.

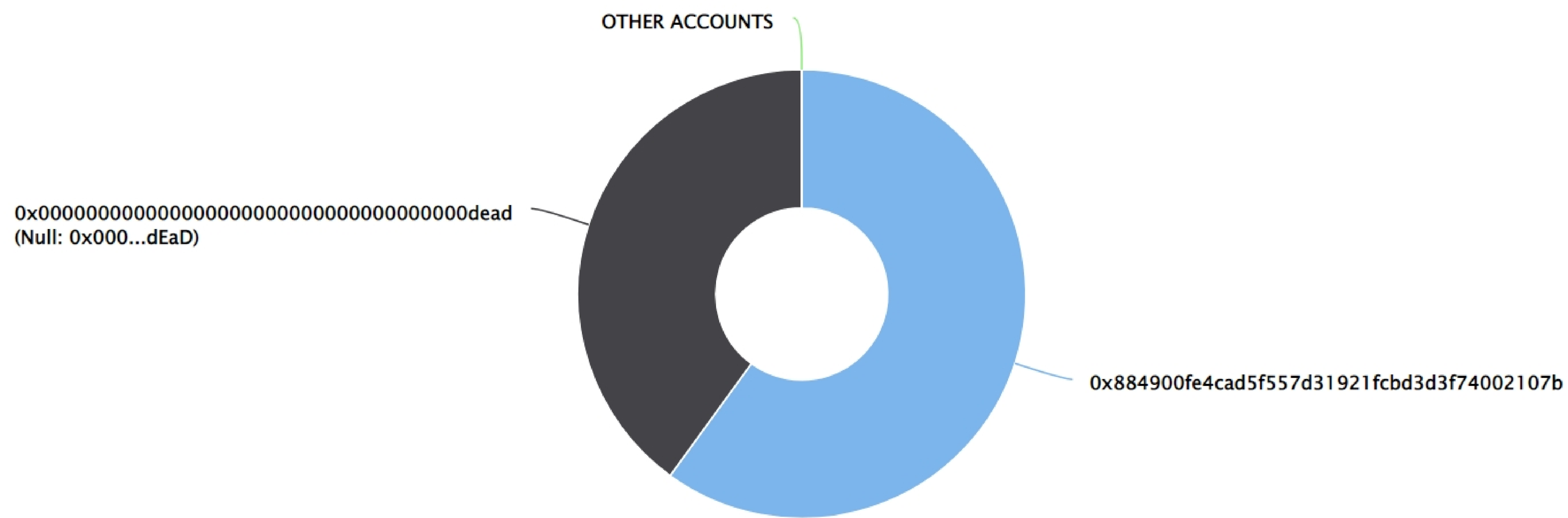
# Salt Fish Token Distribution

The top 100 holders collectively own 100.00% (1,000,000,000,000,000.00 Tokens) of Salt Fish

Token Total Supply: 1,000,000,000,000,000.00 Token | Total Token Holders: 2

## Salt Fish Top 100 Token Holders

Source: BscScan.com



## Salt Fish Token Top 02 Token Holders

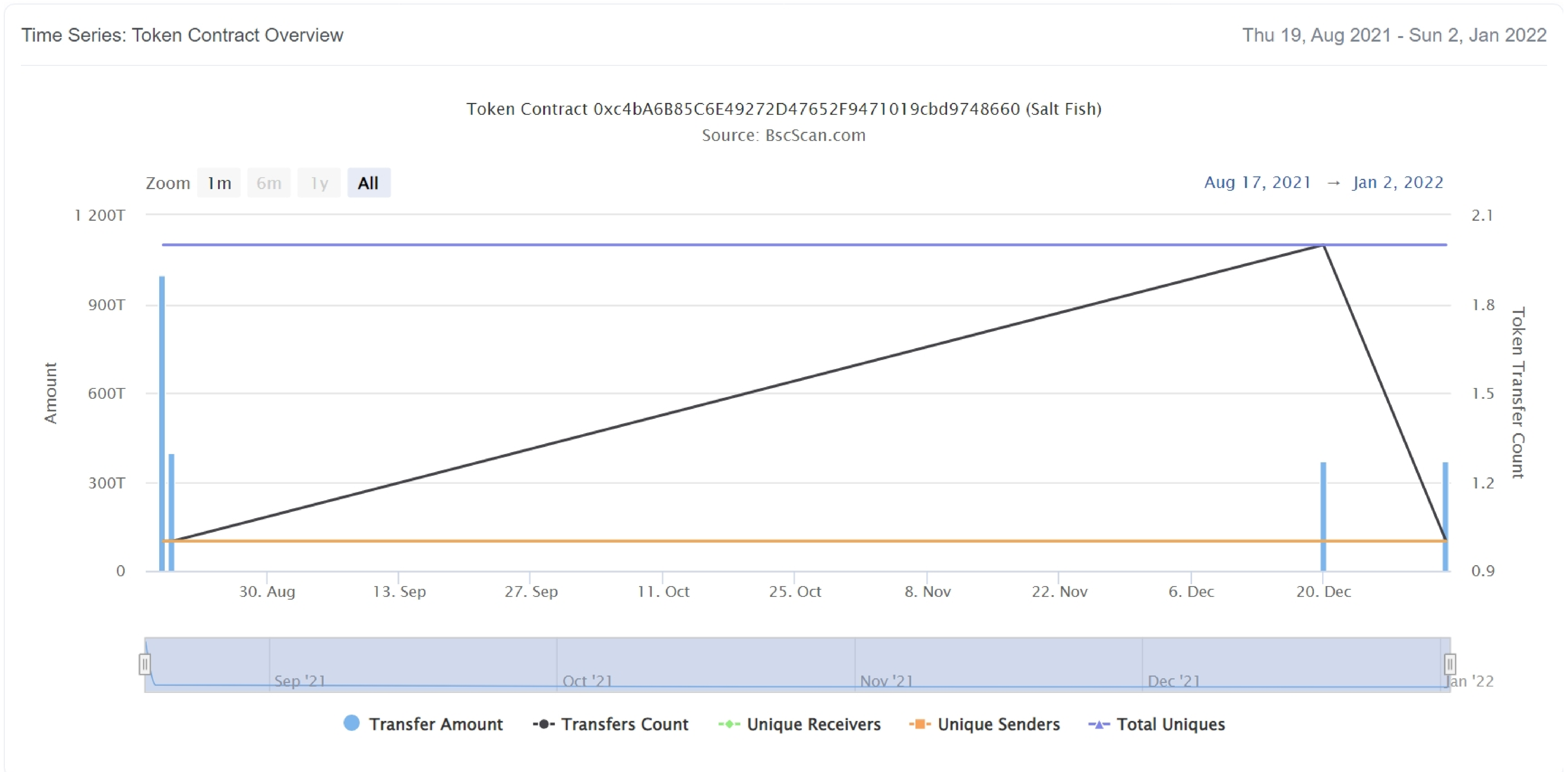
(A total of 1,000,000,000,000,000.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000,000.00 token)

Rank	Address	Quantity (Token)	Percentage
1	<a href="#">0x884900fe4cad5f557d31921fcbd3d3f74002107b</a>	600,000,000,000,000	60.0000%
2	<a href="#">Null: 0x000...dEaD</a>	400,000,000,000,000	40.0000%



# Salt Fish Token Distribution

## Salt Fish Token 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

## + [Int] IUniswapV2Factory

- [Ext] feeTo
- [Ext] feeToSetter
- [Ext] getPair
- [Ext] allPairs
- [Ext] allPairsLength
- [Ext] createPair #
- [Ext] setFeeTo #
- [Ext] setFeeToSetter #

## + [Int] IUniswapV2Pair

- [Ext] name
- [Ext] symbol
- [Ext] decimals
- [Ext] totalSupply
- [Ext] balanceOf
- [Ext] allowance
- [Ext] approve #
- [Ext] transfer #
- [Ext] transferFrom #
- [Ext] DOMAIN\_SEPARATOR
- [Ext] PERMIT\_TYPEHASH
- [Ext] nonces
- [Ext] permit #
- [Ext] MINIMUM\_LIQUIDITY
- [Ext] factory
- [Ext] token0
- [Ext] token1
- [Ext] getReserves
- [Ext] price0CumulativeLast
- [Ext] price1CumulativeLast

# Contract functions details

- [Ext] kLast
- [Ext] mint #
- [Ext] burn #
- [Ext] swap #
- [Ext] skim #
- [Ext] sync #
- [Ext] initialize #

## + [Int] IUniswapV2Router01

- [Ext] factory
- [Ext] WETH
- [Ext] addLiquidity #
- [Ext] addLiquidityETH (\$)
- [Ext] removeLiquidity #
- [Ext] removeLiquidityETH #
- [Ext] removeLiquidityWithPermit #
- [Ext] removeLiquidityETHWithPermit #
- [Ext] swapExactTokensForTokens #
- [Ext] swapTokensForExactTokens #
- [Ext] swapExactETHForTokens (\$)
- [Ext] swapTokensForExactETH #
- [Ext] swapExactTokensForETH #
- [Ext] swapETHForExactTokens (\$)
- [Ext] quote
- [Ext] getAmountOut
- [Ext] getAmountIn
- [Ext] getAmountsOut
- [Ext] getAmountsIn

## + [Int] IUniswapV2Router02 (IUniswapV2Router01)

- [Ext] removeLiquidityETHSupportingFeeOnTransferTokens #
- [Ext] removeLiquidityETHWithPermitSupportingFeeOnTransferTokens #
- [Ext] swapExactTokensForTokensSupportingFeeOnTransferTokens #
- [Ext] swapExactETHForTokensSupportingFeeOnTransferTokens (\$)
- [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #

## + SaltFish (Context, IERC20, Ownable)

- [Pub] <Constructor> #
- [Pub] name



# Contract functions details

- [Pub] symbol
- [Pub] decimals
- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] transfer #
- [Pub] allowance
- [Pub] approve #
- [Pub] transferFrom #
- [Pub] increaseAllowance #
- [Pub] decreaseAllowance #
- [Pub] isExcludedFromReward
- [Pub] totalFees
- [Pub] deliver #
- [Pub] reflectionFromToken
- [Pub] tokenFromReflection
- [Pub] excludeFromReward #
  - modifiers: onlyOwner
- [Ext] includeInReward #
  - modifiers: onlyOwner
- [Pvt] \_transferBothExcluded #
- [Pub] excludeFromFee #
  - modifiers: onlyOwner
- [Pub] includeInFee #
  - modifiers: onlyOwner
- [Ext] setTaxFeePercent #
  - modifiers: onlyOwner
- [Ext] setCharityFeePercent #
  - modifiers: onlyOwner
- [Ext] setLiquidityFeePercent #
  - modifiers: onlyOwner
- [Ext] setMaxTxPercent #
  - modifiers: onlyOwner
- [Pub] setSwapAndLiquifyEnabled #
  - modifiers: onlyOwner
- [Ext] <Fallback> (\$)
- [Pvt] \_reflectFee #
- [Pvt] \_getValues
- [Pvt] \_getTValues

# Contract functions details

- [Pvt] \_getRValues
- [Pvt] \_getRate
- [Pvt] \_getCurrentSupply
- [Pvt] \_takeLiquidity #
- [Pvt] \_takeCharity #
- [Pvt] calculateTaxFee
- [Pvt] calculateCharityFee
- [Pvt] calculateLiquidityFee
- [Pvt] removeAllFee #
- [Pvt] restoreAllFee #
- [Pub] isExcludedFromFee
- [Pvt] \_approve #
- [Pvt] \_transfer #
- [Pvt] swapAndLiquify #
  - modifiers: lockTheSwap
- [Pvt] swapTokensForEth #
- [Pvt] addLiquidity #
- [Pvt] \_tokenTransfer #
- [Pvt] \_transferStandard #
- [Pvt] \_transferToExcluded #
- [Pvt] \_transferFromExcluded #

(\$ ) = 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.	Medium Issue
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
<b>Critical</b>	Critical vulnerabilities are usually straightforward to exploit and can lead to assets loss or data manipulations.
<b>High</b>	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
<b>Medium</b>	Medium-level vulnerabilities are important to fix; however, they can't lead to assets loss or data manipulations.
<b>Low</b>	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

One medium severity issue found.

### 1. Out of gas

#### **Issue:**

- The function `includeInReward()` uses the loop to find and remove addresses from the `_excluded` list. Function will be aborted with `OUT_OF_GAS` exception if there will be a long excluded addresses list.

#### **Recommendation**

Check that the excluded array length is not too big.

## ✔ Low Severity Issues

No low severity issue found.



# Centralization

## Owner privileges :

- Salt Fish Contract:
  - Owner can include in and exclude from reward.
  - Owner can include in and exclude from fee.
  - Owner can change the tax, charity and liquidity fee.
  - Owner can change the maximum transaction amount.
  - Owner can enable / disable swap and liquify.\

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 medium 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.