CHAINPROOF

# Audit Report

# CHEESE AI

February 2025

| | |
|---|---|
| Type | BEP20 |
| Network | BSC |
| Address | 0xb025A7516c04B8FD12778B57b673e35dD97Ab21D |
| Audited by | © ChainProof |

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# Contract Review

| | |
|---|---|
| **Contract Name** | Cheese AI |
| **Compiler Version** | v0.8.4+commit.c7e474f2 |
| **Optimization** | 200 runs |
| **Licence** | MIT |
| **Explorer** | https://bscscan.com/token/0xb025A7516c04B8FD12778B57b673e35dD97Ab21D |
| **Symbol** | Cheese |
| **Decimals** | 18 |
| **Total Supply** | 100,000,000 |
| **Domain** | cheeseai.fun |

# Source Files

| Filename | SHA256 |
| --- | --- |
| contract.sol | 610203b5ffcb749ab1dbe1f60aec6d1bc39148eb0ea77ce69bd935137ad22fe7 |

# Audit Updates

| | |
| --- | --- |
| **Initial Audit** | February 2025 |
| **Corrected** | |

# Contract Analysis

● Critical ● Medium ● Minor ● Pass

| Severity | Code | Description |
| --- | --- | --- |
| ● | ST | Contract Owner is not able to stop or pause transactions |
| ● | OCTD | Contract Owner is not able to transfer tokens from specific address |
| ● | OTUT | Owner Transfer User's Tokens |
| ● | ELFM | Contract Owner is not able to increase fees more than a reasonable percent (25%) |
| ● | ULTW | Contract Owner is not able to increase the amount of liquidity taken by dev wallet more than a reasonable percent |

| | | |
|---|---|---|
| ● | MT | Contract Owner is not able to mint new tokens |
| ● | BT | Contract Owner is not able to burn tokens from specific wallet |
| ● | BC | Contract Owner is not able to blacklist wallets from selling |

# Contract Diagnostics

● Critical ● Medium ● Minor

| Severity | Code | Description |
|---|---|---|
| ● | L01 | Public Function could be Declared External |
| ● | L04 | Conformance to Solidity Naming Conventions |
| ● | L05 | Unused State Variable |
| ● | L07 | Missing Events Arithmetic |
| ● | L09 | Dead Code Elimination |
| ● | L12 | Using Variables before Declaration |
| ● | L14 | Uninitialized Variables in Local Scope |
| ● | L15 | Local Scope Variable Shadowing |

# L01 - Public Function could be Declared External

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L203,211,228,235,254,262,273,291,319,338,553,561,1399,1407,1424,1450,1458,1469,1487,1515,1534,1756,1764,1931,1935,1946,1954,2116,2319,2168,2187,2336,2421,2469,2724,2749,2771,2804,2830,2870,2874,2882,2894 |

## Description

Public functions that are never called by the contract should be declared external to save gas.

```
isExcludedFromDividends dividendTokenBalanceOf
withdrawableDividendOf isExcludedFromFees
updateGasForProcessing setAutomatedMarketMakerPair
excludeMultipleAccountsFromFees updateUniswapV2Router
updateDividendTracker
...
```

## Recommendation

Use the external attribute for functions never called from the contract

# L04 - Conformance to Solidity Naming Conventions

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L931,1315,1319,1328,1386,1391,1693,1725,1730,1774,1797,1798,1815,2106,2107,2108,2109,2168,2175,2187,2201,2086,2372,2601 |

## Description

Solidity defines a naming convention that should be followed. Rule exceptions:

- Allow constant variable name/symbol/decimals to be lowercase.

- Allow _ at the beginning of the mixed_case match for private variables and unused parameters.

```
_marketingWalletAddress
_account
magnitude
_owner
_symbol
_name
_rewardToken
__DividendPayingToken_init
MINIMUM_LIQUIDITY
...
```

## Recommendation

Follow the Solidity naming convention.
https://docs.soliditylang.org/en/v0.4.25/style-guide.html#naming-conventions

# L05 - Unused State Variable

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L1843,1774 |

## Description

There are segments that contain unused state variables.

```
__gap
MAX_INT256
```

## Recommendation

Remove unused state variables.

# L07 - Missing Events Arithmetic

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L2720,2786,2792,2798 |

## Description

Detected missing events for critical arithmetic parameters. There are functions that have no event emitted, so it is difficult to track off-chain changes.

```
marketingFee = value liquidityFee = value totalFees =
tokenRewardsFee.add(liquidityFee).add(marketingFee)
swapTokensAtAmount = amount
```

## Recommendation

Emit an event for critical parameter changes.

# L09 - Dead Code Elimination

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L845,879,859,1315,2220,416,1558,1889 |

## Description

Functions that are not used in the contract, and make the code's size bigger.

```
abs _transfer
_burn
__Context_init
predictDeterministi
cAddress
cloneDeterministic
```

## Recommendation

Remove unused functions.

# L12 - Using Variables before Declaration

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L3035,3034,3036 |

## Description

The contract is using a variable before the declaration. This is usually happening either if it has not been declared yet or the variable has been declared in a different scope.

```
lastProcessedIndex
iterations claims
```

## Recommendation

The variables should be declared before any usage of them.

# L14 - Uninitialized Variables in Local Scope

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L3035,3034,3036 |

## Description

The are variables that are defined in the local scope and are not initialized.

```
lastProcessedIndex
iterations claims
```

## Recommendation

All the local scoped variables should be initialized.

# L15 - Local Scope Variable Shadowing

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L2108,2109,2168,2175,2187,2201 |

## Description

The are variables that are defined in the local scope containing the same name from an upper scope.

```
_owner
_symbol
_name
```

## Recommendation

The local variables should have different names from the upper scoped variables.

# Contract Functions

| Contract | Type | Bases | | |
|---|---|---|---|---|
| | **Function Name** | **Visibility** | **Mutability** | **Modifiers** |
| | | | | |
| **IERC20** | Interface | | | |
| | totalSupply | External | | - |
| | balanceOf | External | | - |
| | transfer | External | ✓ | - |
| | allowance | External | | - |
| | approve | External | ✓ | - |
| | transferFrom | External | ✓ | - |
| | | | | |
| **IERC20Metadata** | Interface | IERC20 | | |
| | name | External | | - |
| | symbol | External | | - |
| | decimals | External | | - |
| | | | | |
| **Context** | Implementation | | | |
| | _msgSender | Internal | | |
| | _msgData | Internal | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| **ERC20** | Implementation | Context, IERC20, IERC20Metadata | | |
| | <Constructor> | Public | ✓ | - |
| | name | Public | | - |
| | symbol | Public | | - |
| | decimals | Public | | - |
| | totalSupply | Public | | - |
| | balanceOf | Public | | - |
| | transfer | Public | ✓ | - |
| | allowance | Public | | - |
| | approve | Public | ✓ | - |
| | transferFrom | Public | ✓ | - |
| | increaseAllowance | Public | ✓ | - |
| | decreaseAllowance | Public | ✓ | - |
| | _transfer | Internal | ✓ | |
| | _mint | Internal | ✓ | |
| | _burn | Internal | ✓ | |
| | _approve | Internal | ✓ | |
| | _beforeTokenTransfer | Internal | ✓ | |
| | _afterTokenTransfer | Internal | ✓ | |
| | | | | |
| **Ownable** | Implementation | Context | | |

| | | | | |
|---|---|---|---|---|
| | <Constructor> | Public | ✓ | - |
| | owner | Public | | - |
| | renounceOwnership | Public | ✓ | onlyOwner |
| | transferOwnership | Public | ✓ | onlyOwner |
| | _setOwner | Private | ✓ | |
| | | | | |
| **SafeMath** | Library | | | |
| | tryAdd | Internal | | |
| | trySub | Internal | | |
| | tryMul | Internal | | |
| | tryDiv | Internal | | |
| | tryMod | Internal | | |
| | add | Internal | | |
| | sub | Internal | | |
| | mul | Internal | | |
| | div | Internal | | |
| | mod | Internal | | |
| | sub | Internal | | |
| | div | Internal | | |
| | mod | Internal | | |
| | | | | |
| **Clones** | Library | | | |

| | | | | |
|---|---|---|---|---|
| | clone | Internal | ✓ | |

| | | | | |
|---|---|---|---|---|
| | cloneDeterministic | Internal | ✓ | |
| | predictDeterministicAddress | Internal | | |
| | predictDeterministicAddress | Internal | | |
| | | | | |
| **IUniswapV2Factory** | Interface | | | |
| | feeTo | External | | - |
| | feeToSetter | External | | - |
| | getPair | External | | - |
| | allPairs | External | | - |
| | allPairsLength | External | | - |
| | createPair | External | ✓ | - |
| | setFeeTo | External | ✓ | - |
| | setFeeToSetter | External | ✓ | - |
| | | | | |
| **IUniswapV2Router01** | Interface | | | |
| | factory | External | | - |
| | WETH | External | | - |
| | addLiquidity | External | ✓ | - |

| | | | | |
|---|---|---|---|---|
| | addLiquidityETH | External | Payable | - |
| | removeLiquidity | External | ✓ | - |
| | removeLiquidityETH | External | ✓ | - |
| | removeLiquidityWithPermit | External | ✓ | - |
| | removeLiquidityETHWithPermit | External | ✓ | - |
| | swapExactTokensForTokens | External | ✓ | - |
| | swapTokensForExactTokens | External | ✓ | - |
| | swapExactETHForTokens | External | Payable | - |
| | swapTokensForExactETH | External | ✓ | - |
| | swapExactTokensForETH | External | ✓ | - |
| | swapETHForExactTokens | External | Payable | - |
| | quote | External | | - |
| | getAmountOut | External | | - |
| | getAmountIn | External | | - |
| | getAmountsOut | External | | - |
| | getAmountsIn | External | | - |

| | | | | |
|---|---|---|---|---|
| | | | | |
| **IUniswapV2Router02** | Interface | IUniswapV2 Router01 | | |
| | removeLiquidityETHSupportingFeeOnTransferTokens | External | ✓ | - |

| | | | | |
|---|---|---|---|---|
| | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External | ✓ | - |
| | swapExactTokensForTokensSupportingFeeOnTransferTokens | External | ✓ | - |
| | swapExactETHForTokensSupportingFeeOnTransferTokens | External | Payable | - |
| | swapExactTokensForETHSupportingFeeOnTransferTokens | External | ✓ | - |
| | | | | |
| **IERC20Upgradeable** | Interface | | | |
| | totalSupply | External | | - |
| | balanceOf | External | | - |
| | transfer | External | ✓ | - |
| | allowance | External | | - |
| | approve | External | ✓ | - |
| | transferFrom | External | ✓ | - |
| | | | | |
| **IERC20MetadataUpgradeable** | Interface | IERC20Upgradeable | | |
| | name | External | | - |
| | symbol | External | | - |
| | decimals | External | | - |
| | | | | |

| | | | | |
|---|---|---|---|---|
| **Initializable** | Implementation | | | |
| | | | | |
| **ContextUpgradeable** | Implementation | Initializable | | |
| | __Context_init | Internal | ✓ | initializer |
| | __Context_init_unchained | Internal | ✓ | initializer |
| | _msgSender | Internal | | |
| | _msgData | Internal | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| **ERC20Upgradeable** | Implementation | Initializable, ContextUpgradeable, IERC20Upgradeable, IERC20MetadataUpgradeable | | |
| | __ERC20_init | Internal | ✓ | initializer |
| | __ERC20_init_unchained | Internal | ✓ | initializer |
| | name | Public | | - |
| | symbol | Public | | - |
| | decimals | Public | | - |
| | totalSupply | Public | | - |
| | balanceOf | Public | | - |

| | | | | |
|---|---|---|---|---|
| | transfer | Public | ✓ | - |
| | allowance | Public | | - |
| | approve | Public | ✓ | - |
| | transferFrom | Public | ✓ | - |
| | increaseAllowance | Public | ✓ | - |
| | decreaseAllowance | Public | ✓ | - |
| | _transfer | Internal | ✓ | |
| | _mint | Internal | ✓ | |
| | _burn | Internal | ✓ | |
| | _approve | Internal | ✓ | |
| | _beforeTokenTransfer | Internal | ✓ | |
| | _afterTokenTransfer | Internal | ✓ | |
| | | | | |
| **OwnableUpgradeable** | Implementation | Initializable, ContextUpgradeable | | |
| | __Ownable_init | Internal | ✓ | initializer |
| | __Ownable_init_unchained | Internal | ✓ | initializer |
| | owner | Public | | - |
| | renounceOwnership | Public | ✓ | onlyOwner |
| | transferOwnership | Public | ✓ | onlyOwner |

| | | | | |
|---|---|---|---|---|
| | _setOwner | Private | ✓ | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| **IUniswapV2Pair** | Interface | | | |
| | name | External | | - |
| | symbol | External | | - |
| | decimals | External | | - |
| | totalSupply | External | | - |
| | balanceOf | External | | - |
| | allowance | External | | - |
| | approve | External | ✓ | - |
| | transfer | External | ✓ | - |
| | transferFrom | External | ✓ | - |
| | DOMAIN_SEPARATOR | External | | - |
| | PERMIT_TYPEHASH | External | | - |
| | nonces | External | | - |
| | permit | External | ✓ | - |
| | MINIMUM_LIQUIDITY | External | | - |
| | factory | External | | - |
| | token0 | External | | - |

| | | | | |
|---|---|---|---|---|
| | token1 | External | | - |
| | getReserves | External | | - |
| | price0CumulativeLast | External | | - |
| | price1CumulativeLast | External | | - |
| | kLast | External | | - |
| | mint | External | ✓ | - |
| | burn | External | ✓ | - |
| | swap | External | ✓ | - |
| | skim | External | ✓ | - |
| | sync | External | ✓ | - |
| | initialize | External | ✓ | - |
| | | | | |
| **SafeMathInt** | Library | | | |
| | mul | Internal | | |
| | div | Internal | | |
| | sub | Internal | | |
| | add | Internal | | |
| | abs | Internal | | |

| | | | | |
|---|---|---|---|---|
| | toUint256Safe | Internal | | |

| | | | | |
|---|---|---|---|---|
| | | | | |
| **SafeMathUint** | Library | | | |
| | toInt256Safe | Internal | | |
| | | | | |
| **IterableMapping** | Library | | | |
| | get | Public | | - |
| | getIndexOfKey | Public | | - |
| | getKeyAtIndex | Public | | - |
| | size | Public | | - |
| | set | Public | ✓ | - |
| | remove | Public | ✓ | - |
| | | | | |
| **DividendPayingTokenInterface** | Interface | | | |
| | dividendOf | External | | - |
| | withdrawDividend | External | ✓ | - |
| | | | | |
| **DividendPayingTokenOptionalInterface** | Interface | | | |
| | withdrawableDividendOf | External | | - |

| | | | | |
|---|---|---|---|---|
| | withdrawnDividendOf | External | | - |
| | accumulativeDividendOf | External | | - |
| | | | | |
| **DividendPayingToken** | Implementation | ERC20Upgradeable, OwnableUpgradeable, DividendPayingTokenInterface, DividendPayingTokenOptionalInterface | | |
| | __DividendPayingToken_init | Internal | ✓ | initializer |
| | distributeCAKEDividends | Public | ✓ | onlyOwner |

| | | | | |
|---|---|---|---|---|
| | withdrawDividend | Public | ✓ | - |
| | _withdrawDividendOfUser | Internal | ✓ | |
| | dividendOf | Public | | - |
| | withdrawableDividendOf | Public | | - |
| | withdrawnDividendOf | Public | | - |
| | accumulativeDividendOf | Public | | - |
| | _transfer | Internal | ✓ | |
| | _mint | Internal | ✓ | |
| | _burn | Internal | ✓ | |

| | | | | |
|---|---|---|---|---|
| | _setBalance | Internal | ✓ | |
| | | | | |
| **BABYTOKENDividendTracker** | Implementation | OwnableUpgradeable, DividendPayingToken | | |
| | initialize | External | ✓ | initializer |
| | _transfer | Internal | | |
| | withdrawDividend | Public | | - |
| | excludeFromDividends | External | ✓ | onlyOwner |
| | isExcludedFromDividends | Public | | - |
| | updateClaimWait | External | ✓ | onlyOwner |
| | updateMinimumTokenBalanceForDividends | External | ✓ | onlyOwner |
| | getLastProcessedIndex | External | | - |
| | getNumberOfTokenHolders | External | | - |
| | getAccount | Public | | - |
| | getAccountAtIndex | Public | | - |
| | canAutoClaim | Private | | |
| | setBalance | External | ✓ | onlyOwner |
| | process | Public | ✓ | - |
| | processAccount | Public | ✓ | onlyOwner |

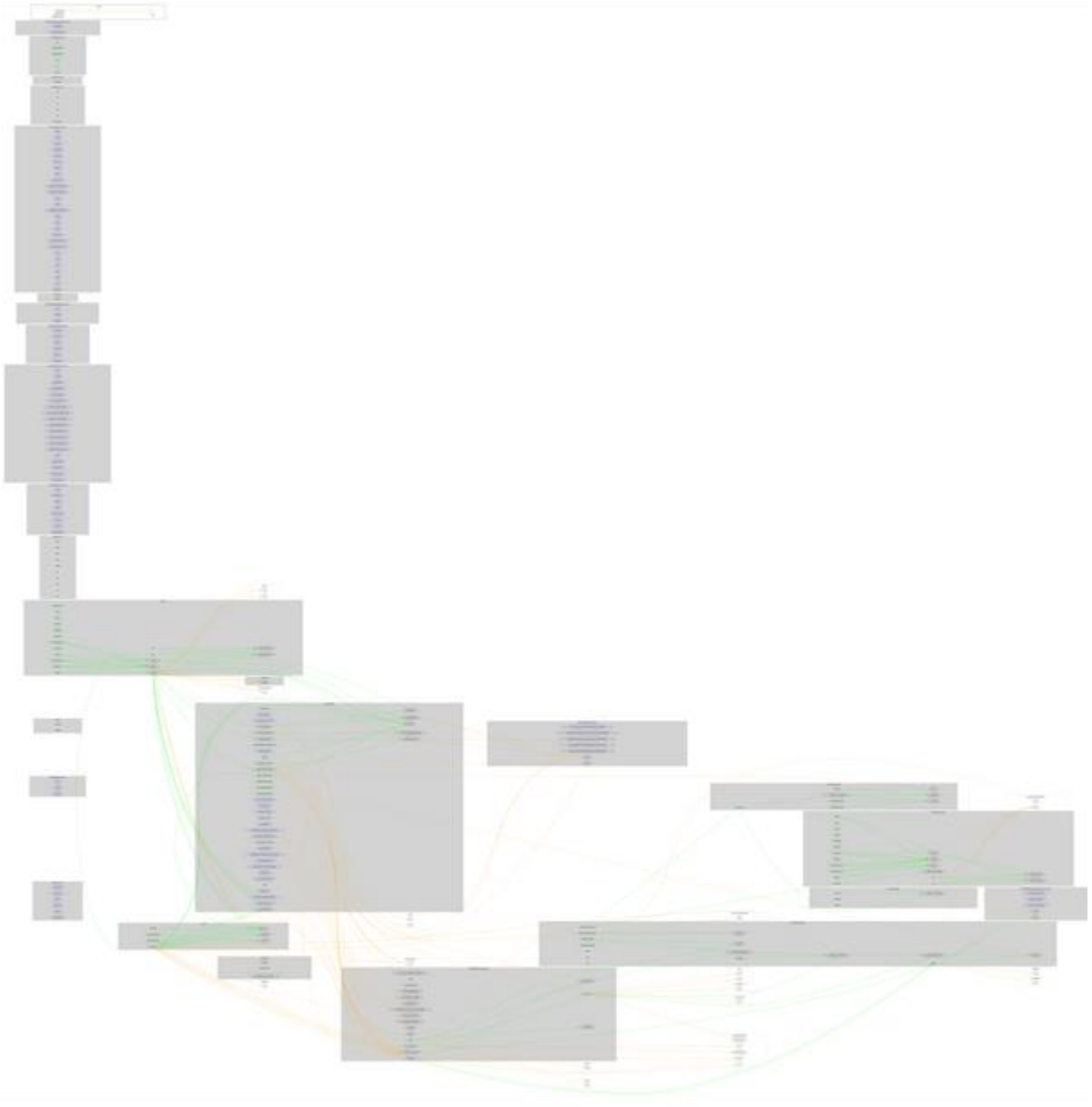
| | | | | |
|---|---|---|---|---|
| | | | | |
| **BaseToken** | Implementation | | | |
| | | | | |
| **BABYTOKEN** | Implementation | ERC20, Ownable, BaseToken | | |

| | | | | |
|---|---|---|---|---|
| | <Constructor> | Public | Payable | ERC20 |
| | <Receive Ether> | External | Payable | - |
| | setSwapTokensAtAmount | External | ✓ | onlyOwner |
| | updateDividendTracker | Public | ✓ | onlyOwner |
| | updateUniswapV2Router | Public | ✓ | onlyOwner |
| | excludeFromFees | Public | ✓ | onlyOwner |
| | excludeMultipleAccountsFromFees | Public | ✓ | onlyOwner |
| | setMarketingWallet | External | ✓ | onlyOwner |
| | setTokenRewardsFee | External | ✓ | onlyOwner |
| | setLiquiditFee | External | ✓ | onlyOwner |
| | setMarketingFee | External | ✓ | onlyOwner |
| | setAutomatedMarketMakerPair | Public | ✓ | onlyOwner |
| | _setAutomatedMarketMakerPair | Private | ✓ | |
| | updateGasForProcessing | Public | ✓ | onlyOwner |
| | updateClaimWait | External | ✓ | onlyOwner |
| | getClaimWait | External | | - |

| | | | | |
|---|---|---|---|---|
| | updateMinimumTokenBalanceForDividends | External | ✓ | onlyOwner |
| | getMinimumTokenBalanceForDividends | External | | - |
| | getTotalDividendsDistributed | External | | - |
| | isExcludedFromFees | Public | | - |
| | withdrawableDividendOf | Public | | - |
| | dividendTokenBalanceOf | Public | | - |
| | excludeFromDividends | External | ✓ | onlyOwner |
| | isExcludedFromDividends | Public | | - |
| | getAccountDividendsInfo | External | | - |
| | getAccountDividendsInfoAtIndex | External | | - |
| | processDividendTracker | External | ✓ | - |
| | claim | External | ✓ | - |
| | getLastProcessedIndex | External | | - |
| | getNumberOfDividendTokenHolders | External | | - |
| | _transfer | Internal | ✓ | |
| | swapAndSendToFee | Private | ✓ | |
| | swapAndLiquify | Private | ✓ | |
| | swapTokensForEth | Private | ✓ | |

| | | | | |
|---|---|---|---|---|
| | swapTokensForCake | Private | ✓ | |
| | addLiquidity | Private | ✓ | |
| | swapAndSendDividends | Private | ✓ | |

# Contract Flow



# Summary

CHEESE AI is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler error or critical issues. The contract Owner can access some admin functions that can not be used in a malicious way to disturb the users' transactions. There is also a limit of max fees.

# Disclaimer

All the content provided in this document is for general information only and should not be used as financial advice or a reason to buy any investment.

ChainProof team provides no guarantees against the sale of team tokens or the removal of liquidity by the project audited in this document. Always Do your own research and protect yourselves from being scammed.

The ChainProof team has audited this project for general information and only expresses their opinion based on similar projects and checks from popular diagnostic tools. Under no circumstances did ChainProof receive a payment to manipulate those results or change the awarding badge that we will be adding in our website.

Always Do your own research and protect yourselves from scams. This document should not be presented as a reason to buy or not buy any particular token.

The ChainProof team disclaims any liability for the resulting losses.

# About ChainProof

Chainproof is an Audit & KYC firm for Blockchain Projects, aimed at securing the Blockchain and the assets at risk. Chainproof is fueled by Industry grade experienced Blockchain Developers from all around the globe. From finding vulnerabilities, potential scams, malicious code mitigation, improper implementation of the token which can lead to loss of user's fund, you name it and we cover and secure them all.

Security testing and risk mitigation is given the highest priority at ChainProof. The audit process is analyzing and monitoring many aspects of the project. That way, it gives the community a good sense of security using an informative report and a generic score.

ChainProof is aiming to make crypto discoverable and efficient globally. We associate with extremely robust testing and code review, leaving no room for any security risks because, when it comes to user's funds, we need to leave no stone unturned. Cheers!

The ChainProof team

https://www.ChainProof.dev