



Smart Contract Audit

FOR
CAT CEO

DATED : 2 MARCH 23'



AUDIT SUMMARY

Project name – CAT CEO

Date: 2 March, 2023

Scope of Audit- Audit Ace was consulted to conduct the smart contract audit of the solidity source codes.

Audit Status: **Passed**

Issues Found

| Status | Critical | High | Medium | Low | Suggestion |
|--------------|----------|------|--------|-----|------------|
| Open | 0 | 0 | 0 | 0 | 0 |
| Acknowledged | 0 | 0 | 0 | 0 | 0 |
| Resolved | 0 | 0 | 0 | 0 | 0 |



USED TOOLS

Tools:

1- Manual Review:

a line by line code review has been performed by audit ace team.

2- BSC Test Network:

all tests were done on BSC Test network, each test has its transaction has attached to it.

3- Slither : Static Analysis

Testnet Link: all tests were done using this contract, tests are done on BSC Testnet

<https://bscscan.com/address/0x4937e7D93dd8d8e76Eb83659F109Cdc633FfDEe9#readContract>



Token Information

Token Name : CAT CEO

Token Symbol: CATCEO

Decimals: 9

Token Supply: 420,000,000,000,000,000

Token Address:

<https://bscscan.com/address/0x4937e7D93dd8d8e76Eb83659F109Cdc633FfDEe9>

Checksum:

388560a874c128a9b7669f396b80ede50a44d6ce

Owner:

0xca94554ea45D90897F46F7d12aff87e4f2D997c1

Deployer:

0xca94554ea45D90897F46F7d12aff87e4f2D997c1



TOKEN OVERVIEW

Fees:

Buy Fees: 10%

Sell Fees: 10%

Transfer Fees: 10%

Fees Privilege: Static fees

Ownership : Owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Privileges: including and excluding from rewards and fees



AUDIT METHODOLOGY

The auditing process will follow a routine as special considerations by Auditace:

- Review of the specifications, sources, and instructions provided to Auditace to make sure the contract logic meets the intentions of the client without exposing the user's funds to risk.
 - Manual review of the entire codebase by our experts, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
 - Specification comparison is the process of checking whether the code does what the specifications, sources, and instructions provided to Auditace describe.
 - Test coverage analysis determines whether the test cases are covering the code and how much code is exercised when we run the test cases.
 - Symbolic execution is analysing a program to determine what inputs cause each part of a program to execute.
 - Reviewing the codebase to improve maintainability, security, and control based on the established industry and academic practices.
-

VULNERABILITY CHECKLIST

- | | |
|------------------------------------|-------------------------------|
| ✓ Return values of low-level calls | ✓ Gasless Send |
| ✓ Private modifier | ✓ Using block.timestamp |
| ✓ Multiple Sends | ✓ Re-entrancy |
| ✓ Using Suicide | ✓ Tautology or contradiction |
| ✓ Gas Limitand Loops | ✓ Timestamp Dependence |
| ✓ Address hardcoded | ✓ Revert/require functions |
| ✓ Exception Disorder | ✓ Use of tx.origin |
| ✓ Using inline assembly | ✓ Integer overflow/underflow |
| ✓ Divide before multiply | ✓ Dangerous strict equalities |
| ✓ Missing Zero Address Validation | ✓ Using SHA3 |
| ✓ Compiler version not fixed | ✓ Using throw |
-



CLASSIFICATION OF RISK

Severity

Description

◆ Critical

These vulnerabilities could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.

◆ High-Risk

A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.

◆ Medium-Risk

A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.

◆ Low-Risk

A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.

◆ Gas Optimization /Suggestion

A vulnerability that has an informational character but is not affecting any of the code.

Findings

Severity

Found

◆ Critical

0

◆ High-Risk

0

◆ Medium-Risk

0

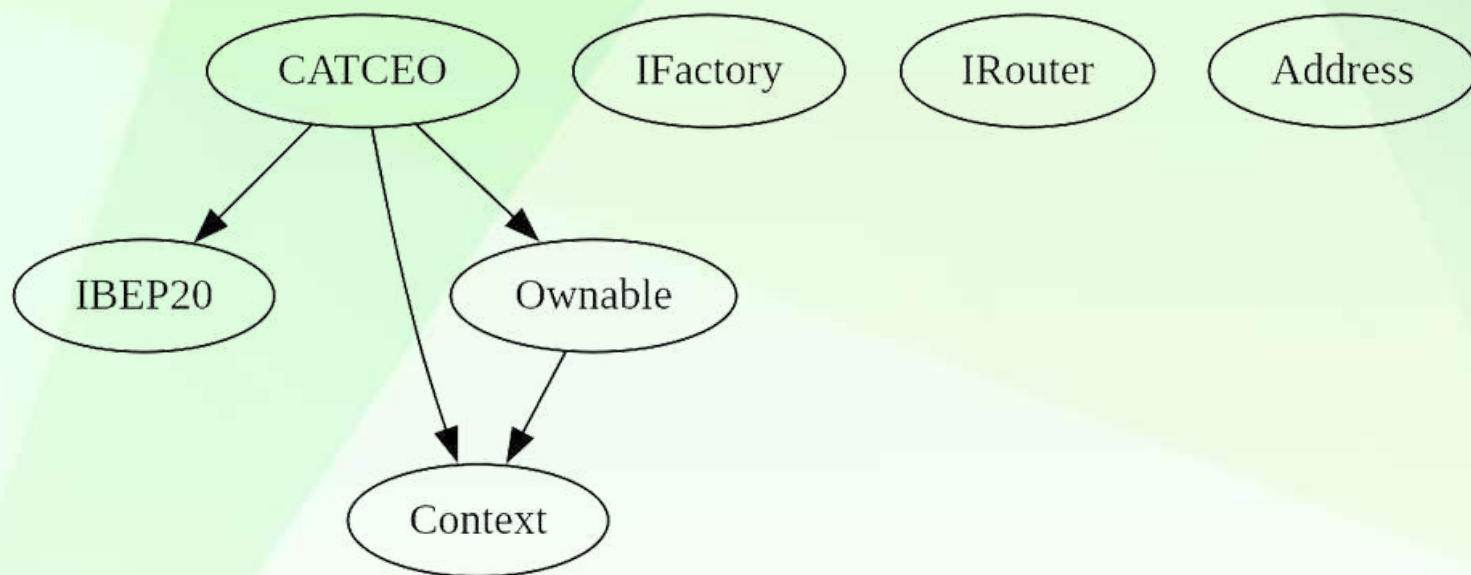
◆ Low-Risk

0

◆ Gas Optimization / Suggestions

0

INHERITANCE TREE





POINTS TO NOTE

- Owner is not able to change buy taxes (5% static)
 - Owner is not able to change sell taxes (5% static)
 - Owner is not able to change transfer taxes (5% static)
 - Owner is not able to set max wallet/transfer/buy/sell amounts
 - Owner is not able to blacklist an arbitrary wallet
 - Owner is not able to disable trades
 - Owner is not able to mint new tokens
-

CONTRACT ASSESMENT

| Contract | Type | Bases | | | |
|----------|--|----------------|--------------------------|---------------|-----------|
| └─ | **Function Name** | **Visibility** | **Mutability** | **Modifiers** | |
| | | | | | |
| | **IBEP20** | Interface | | | |
| └─ | totalSupply | External | ! | | NO ! |
| └─ | balanceOf | External | ! | | NO ! |
| └─ | transfer | External | ! | ● | NO ! |
| └─ | allowance | External | ! | | NO ! |
| └─ | approve | External | ! | ● | NO ! |
| └─ | transferFrom | External | ! | ● | NO ! |
| | | | | | |
| | **Context** | Implementation | | | |
| └─ | _msgSender | Internal | 🔒 | | |
| └─ | _msgData | Internal | 🔒 | | |
| | | | | | |
| | **Ownable** | Implementation | Context | | |
| └─ | <Constructor> | Public | ! | ● | NO ! |
| └─ | owner | Public | ! | | NO ! |
| └─ | renounceOwnership | Public | ! | ● | onlyOwner |
| └─ | _setOwner | Private | 🔒 | ● | |
| | | | | | |
| | **IFactory** | Interface | | | |
| └─ | createPair | External | ! | ● | NO ! |
| | | | | | |
| | **IRouter** | Interface | | | |
| └─ | factory | External | ! | | NO ! |
| └─ | WETH | External | ! | | NO ! |
| └─ | addLiquidityETH | External | ! | 🟢 | NO ! |
| └─ | swapExactTokensForETHSupportingFeeOnTransferTokens | External | ! | ● | NO ! |
| | | | | | |
| | **Address** | Library | | | |
| └─ | sendValue | Internal | 🔒 | ● | |
| | | | | | |
| | **CATCEO** | Implementation | Context, IBEP20, Ownable | | |
| └─ | <Constructor> | Public | ! | ● | NO ! |
| └─ | name | Public | ! | | NO ! |
| └─ | symbol | Public | ! | | NO ! |
| └─ | decimals | Public | ! | | NO ! |
| └─ | totalSupply | Public | ! | | NO ! |
| └─ | balanceOf | Public | ! | | NO ! |
| └─ | allowance | Public | ! | | NO ! |
| └─ | approve | Public | ! | ● | NO ! |



CONTRACT ASSESMENT

```
| | transferFrom | Public ! | ● | NO ! |
| | increaseAllowance | Public ! | ● | NO ! |
| | decreaseAllowance | Public ! | ● | NO ! |
| | transfer | Public ! | ● | NO ! |
| | isExcludedFromReward | Public ! | | NO ! |
| | reflectionFromToken | Public ! | | NO ! |
| | tokenFromReflection | Public ! | | NO ! |
| | excludeFromReward | Public ! | ● | onlyOwner |
| | includeInReward | External ! | ● | onlyOwner |
| | excludeFromFee | Public ! | ● | onlyOwner |
| | includeInFee | Public ! | ● | onlyOwner |
| | isExcludedFromFee | Public ! | | NO ! |
| | _reflectRfi | Private 🔒 | ● | |
| | _takeMarketing | Private 🔒 | ● | |
| | _getValues | Private 🔒 | | |
| | _getTValues | Private 🔒 | | |
| | _getRValues | Private 🔒 | | |
| | _getRate | Private 🔒 | | |
| | _getCurrentSupply | Private 🔒 | | |
| | _approve | Private 🔒 | ● | |
| | _transfer | Private 🔒 | ● | |
| | _tokenTransfer | Private 🔒 | ● | |
| | swapAndLiquify | Private 🔒 | ● | lockTheSwap |
| | swapTokensForBNB | Private 🔒 | ● | |
| | bulkExcludeFee | External ! | ● | onlyOwner |
| | <Receive Ether> | External ! | 🟢 | NO ! |
|||||
| **Node** | Implementation | ERC20, UniSwapPoolETH, RatesTracker, SellTracker, Excludes |||
| | <Constructor> | Public ! | ● | ERC20 |
| | openTrading | Public ! | ● | onlyOwner |
| | _transfer | Internal 🔒 | ● | |
| | handSwap | Internal 🔒 | ● | |
|||||
| **ERC20** | Implementation | Context, IERC20, IERC20Metadata |||
| | <Constructor> | Public ! | ● | NO ! |
| | name | Public ! | | NO ! |
| | symbol | Public ! | | NO ! |
| | decimals | Public ! | | NO ! |
| | totalSupply | Public ! | | NO ! |
| | balanceOf | Public ! | | NO ! |
| | transfer | Public ! | ● | NO ! |
| | allowance | Public ! | | NO ! |
```



CONTRACT ASSESMENT

```
| | approve | Public ! | ● | NO ! |
| | transferFrom | Public ! | ● | NO ! |
| | increaseAllowance | Public ! | ● | NO ! |
| | decreaseAllowance | Public ! | ● | NO ! |
| | _transfer | Internal 🔒 | ● | |
| | _takeTransfer | Internal 🔒 | ● | |
| | _mint | Internal 🔒 | ● | |
| | _burn | Internal 🔒 | ● | |
| | _approve | Internal 🔒 | ● | |
| | _spendAllowance | Internal 🔒 | ● | |
| | _beforeTokenTransfer | Internal 🔒 | ● | |
| | _afterTokenTransfer | Internal 🔒 | ● | |
|||||
| **IERC20** | Interface | |||
| | totalSupply | External ! | | NO ! |
| | balanceOf | External ! | | NO ! |
| | transfer | External ! | ● | NO ! |
| | allowance | External ! | | NO ! |
| | approve | External ! | ● | NO ! |
| | transferFrom | External ! | ● | NO ! |
|||||
| **IERC20Metadata** | Interface | IERC20 |||
| | name | External ! | | NO ! |
| | symbol | External ! | | NO ! |
| | decimals | External ! | | NO ! |
|||||
| **Context** | Implementation | |||
| | _msgSender | Internal 🔒 | | |
| | _msgData | Internal 🔒 | | |
|||||
| **RatesTracker** | Implementation | ERC20, SwitchTracker |||
| | <Constructor> | Public ! | ● | NO ! |
| | setDivision | Public ! | ● | onlyOwner |
| | setDistributeAt | Public ! | ● | onlyOwner |
| | setTo | Public ! | ● | onlyOwner |
| | setRatesBuy | Public ! | ● | onlyOwner |
| | setRatesSell | Public ! | ● | onlyOwner |
| | processBuyFees | Internal 🔒 | ● | |
| | processSellFees | Internal 🔒 | ● | |
| | distribute | Internal 🔒 | ● | |
|||||
| **SwitchTracker** | Implementation | Ownable |||
```

CONTRACT ASSESMENT

```

|  | setSwitch | Public ! | ● | onlyOwner |
|||||
| **Ownable** | Implementation | Context |||
|  | <Constructor> | Public ! | ● | NO ! |
|  | owner | Public ! | | NO ! |
|  | _checkOwner | Internal 🔒 | | |
|  | renounceOwnership | Public ! | ● | onlyOwner |
|  | _transferOwnership | Internal 🔒 | ● | |
|||||
| **UniSwapPoolETH** | Implementation | |||
|  | <Receive Ether> | External ! | 💰 | NO ! |
|  | createPair | Internal 🔒 | ● | |
|  | isPair | Internal 🔒 | | |
|||||
| **IRouter** | Interface | |||
|  | factory | External ! | | NO ! |
|  | WETH | External ! | | NO ! |
|  | addLiquidityETH | External ! | 💰 | NO ! |
|  | swapExactTokensForETHSupportingFeeOnTransferTokens | External ! | ● | NO ! |
|  | swapExactTokensForTokensSupportingFeeOnTransferTokens | External ! | ● | NO ! |
|  | getAmountsOut | External ! | | NO ! |
|||||
| **IFactory** | Interface | |||
|  | createPair | External ! | ● | NO ! |
|||||
| **SellTracker** | Implementation | ERC20, UniSwapPoolETH, SwitchTracker |||
|  | recordStartAt | Internal 🔒 | ● | |
|  | getPrice | Internal 🔒 | | |
|  | wrapPrice | Internal 🔒 | ● | |
|  | sellCheck | Internal 🔒 | ● | |
|||||
| **Excludes** | Implementation | Ownable |||
|  | setExclude | Internal 🔒 | ● | |
|  | setExcludes | Public ! | ● | onlyOwner |
|  | isExcludes | Internal 🔒 | | |
|  | setLiquidityer | Public ! | ● | onlyOwner |
|  | isLiquidityer | Internal 🔒 | | |
|  | removeLiquidityer | Internal 🔒 | ● | |

```

| Symbol | Meaning |

|:-----:|-----|

| ● | Function can modify state |

| 💰 | Function is payable |



STATIC ANALYSIS

```
Reentrancy in CATCEO.transferFrom(address,address,uint256) (contracts/Token.sol#251-266):
  External calls:
    - _transfer(sender,recipient,amount) (contracts/Token.sol#256)
    - (success) = recipient.call{value: amount}() (contracts/Token.sol#123)
    - router.swapExactTokensForETHSupportingFeeOnTransferTokens(tokenAmount,0,path,address(this),block.timestamp) (contracts/Token.sol#536-542)
    - address(marketingWallet).sendValue(deltaBalance) (contracts/Token.sol#523)
  External calls sending eth:
    - _transfer(sender,recipient,amount) (contracts/Token.sol#256)
    - (success) = recipient.call{value: amount}() (contracts/Token.sol#123)
  Event emitted after the call(s):
    - Approval(owner,spender,amount) (contracts/Token.sol#461)
    - approve(sender,msgSender(),currentAllowance - amount) (contracts/Token.sol#263)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-3

CATCEO.includeInReward(address) (contracts/Token.sol#341-352) has costly operations inside a loop:
  - excluded.pop() (contracts/Token.sol#348)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#costly-operations-inside-a-loop

Context.msgData() (contracts/Token.sol#45-48) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code

CATCEO._tTotal (contracts/Token.sol#151) is set pre-construction with a non-constant function or state variable:
  - (MAX - (MAX % _tTotal))
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#function-initializing-state

Pragma version"0.8.17" (contracts/Token.sol#6) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6/0.8.16
solc-0.8.18 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity

Low level call in Address.sendValue(address,uint256) (contracts/Token.sol#117-128):
  - (success) = recipient.call{value: amount}() (contracts/Token.sol#123)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls

Function IRouter.WETH() (contracts/Token.sol#93) is not in mixedCase
Struct CATCEO.valuesFromGetValues (contracts/Token.sol#175-183) is not in CapWords
Constant CATCEO.decimals (contracts/Token.sol#147) is not in UPPER_CASE_WITH_UNDERSCORES
Constant CATCEO.name (contracts/Token.sol#158) is not in UPPER_CASE_WITH_UNDERSCORES
Constant CATCEO.symbol (contracts/Token.sol#159) is not in UPPER_CASE_WITH_UNDERSCORES
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

Redundant expression "this (contracts/Token.sol#46)" inContext (contracts/Token.sol#40-49)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements

CATCEO._tTotal (contracts/Token.sol#150) should be constant
CATCEO.DeadWallet (contracts/Token.sol#155) should be constant
CATCEO.marketingWallet (contracts/Token.sol#156) should be constant
CATCEO.swapTokensAtAmount (contracts/Token.sol#153) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

CATCEO.pair (contracts/Token.sol#145) should be immutable
CATCEO.router (contracts/Token.sol#144) should be immutable
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-immutable
```

Result => A static analysis of contract's source code has been performed using slither,

No major issues were found in the output



FUNCTIONAL TESTING

Router (PCS V2):

0xD99D1c33F9fC3444f8101754aBC46c52416550D1

All the features word as expected

1- Adding liquidity (passed):

<https://testnet.bscscan.com/tx/0xc2d0a90778b6e4374ba64c7a9540e713f102c87fb49e75f6e43375740f245c36>

2- Buying when excluded (0% tax) (passed):

<https://testnet.bscscan.com/tx/0xcb2b558b7cc580f030c15e5618323c64baa9cbc4ac74a946debb42e72020d4c0>

3- Selling when excluded (0% tax) (passed):

<https://testnet.bscscan.com/tx/0xa432f1212d281f0c45113fac38689da712d0a223c7d11fa037deaf603eddee9f>

4- Transferring when excluded (0% tax) (passed):

<https://testnet.bscscan.com/tx/0x88dbb77d2b380b4480830973c51dcef0e867526d39ff7e25bded734e81ee9e9c>

5- Buying when not excluded (5% tax) (passed):

<https://testnet.bscscan.com/tx/0x8292a5d67626832429eb8859067a6dc21418ef5d1d956d5232680d361cd46b72>

6- Selling when not excluded (5% tax) (passed):

<https://testnet.bscscan.com/tx/0x2b7c128ac93eeb020ff838446c6f467bd1b8341908a3031cecd30a789596833>



FUNCTIONAL TESTING

7- Transferring when not excluded (5% tax) (passed):

<https://testnet.bscscan.com/tx/0x2a67ed838cad208136af21c367ca9320c05930840927de201c8965bde3d7111e>

8- Internal swap (passed):

marketing wallet received ETH

<https://testnet.bscscan.com/address/0xca94554ea45d90897f46f7d12aff87e4f2d997c1#internaltx>

9- Reflections (passed):

0x5d8d71b4b69857bf69c7800cdb38e22f89a5190b received reflections when was included in rewards, and after excluding it from rewards, it did not receive rewards anymore.

Also totFeesPaid shows 5501839515207546989003264 (in r format) for rfi which means reflections work.



MANUAL TESTING

NO ISSUES FOUND

A solid red rectangular bar is positioned vertically on the right side of the page, extending from approximately the middle to the bottom.



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Social Media Overview

**Here are the Social Media Accounts of
CAT CEO**



https://t.me/catceo_global



<https://twitter.com/CatCeoBSC>



<http://catceo.io/>



ABOUT AUDITACE

We specializes in providing thorough and reliable audits for Web3 projects. With a team of experienced professionals, we use cutting-edge technology and rigorous methodologies to evaluate the security and integrity of blockchain systems. We are committed to helping our clients ensure the safety and transparency of their digital assets and transactions.



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