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AuditAce
FROM INCEPTION TO SUCCESS

# Smart Contract Audit

FOR

# Kong Inu

DATED : 17 APRIL 23'

# AUDIT SUMMARY

**Project name** – Kong Inu

**Date**:17 April, 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 | 1 | 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 Testnet network:**
All tests were conducted on the BSC Test network, and each test has a corresponding transaction attached to it. These tests can be found in the "Functional Tests" section of the report.

**3- Slither :** The code has undergone static analysis using Slither.

**Testnet Link:** Contract has been tested on binance smart chain testnet which can be found in below link:
https://testnet.bscscan.com/address/0x3E52AEb787C10f9b275E2B361fEEe79b6bF5DceF#code

# Token Information

**Token Name** : Kong Inu

**Token Symbol**: KONG

**Decimals:** 9

**Token Supply**: 210,000,000,000,000,000

**Token Address:**
0xAC1Cd89092e04c87f13D6f80fb9A9a506468678e

**Checksum:**
7b0d6058387825c26af841b8913f24278a52984c

**Owner**:
**0xC344EA9B5ada0E9489626b5Da271d5f6E8103B7f**
**(at time of audit)**

# TOKEN OVERVIEW

**Fees:**

Buy Fees: 10%

Sell Fees: 10%

Transfer Fees: 10%

**Fees Privilege:** None

**Ownership**: Owned

**Minting:** No mint function

**Max Tx Amount/ Max Wallet Amount:** No

**Blacklist: No**

**Other Privileges**: updating liquidity threshold - excluding from fees - including in fees - including in rewards - excluding from rewards

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

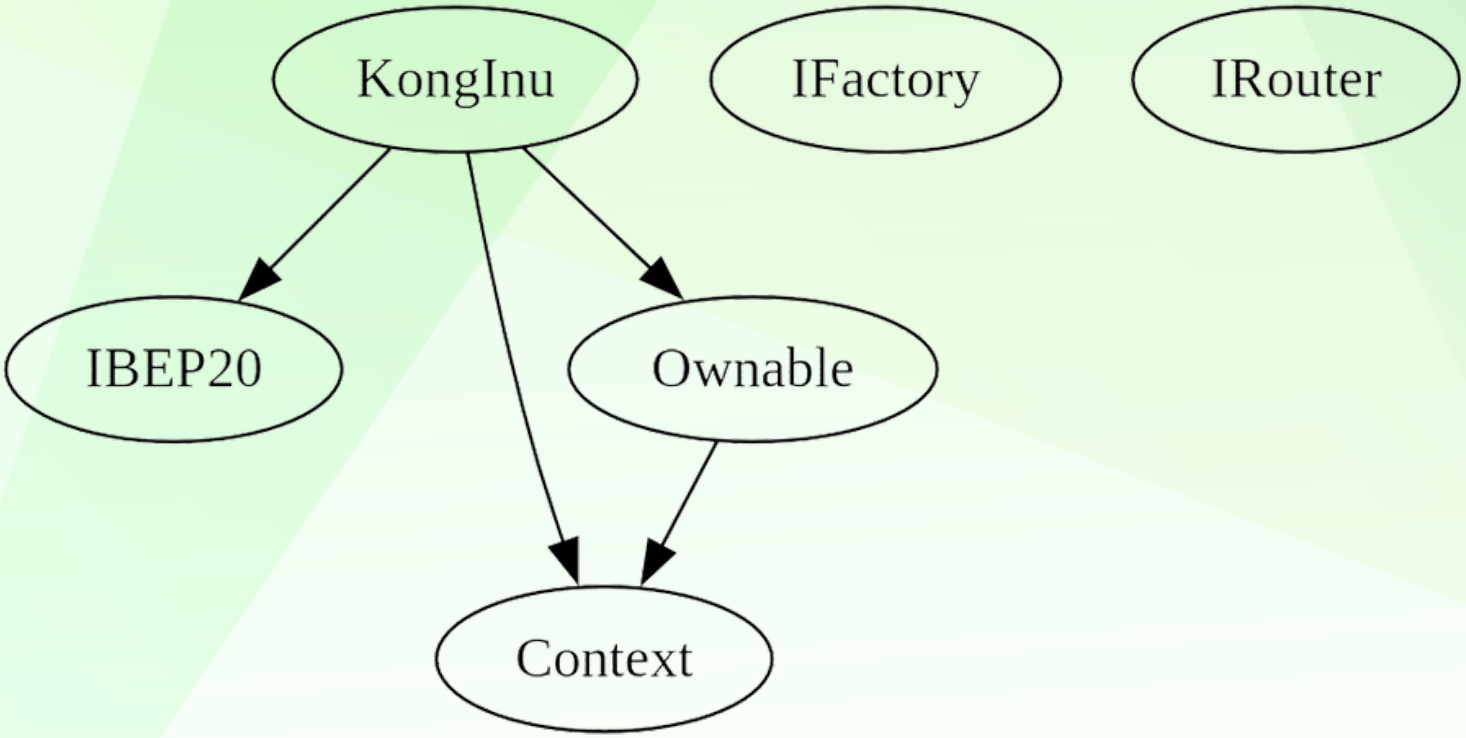
# CLASSIFICATION OF RISK

| 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 | 1 |
| Medium-Risk | 0 |
| Low-Risk | 0 |
| Gas Optimization / Suggestions | 0 |

# INHERITANCE TREE



# POINTS TO NOTE

- Owner is not able to modify buy/sell/transfer fees (10% each)
- Owner is not able to set max buy/sell/transfer/hold amount
- 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 |
| └ | transferOwnership | 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 🔒 | 🛑 | |
| | | | | |
| **KongInu** | 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 ❗ |
| └ | EnableTrading | External ❗ | 🛑 | onlyOwner |
| └ | updatedeadline | External ❗ | 🛑 | onlyOwner |
| └ | tokenFromReflection | Public ❗ | |NO ❗ |
| └ | excludeFromReward | Public ❗ | 🛑 | onlyOwner |
| └ | includeInReward | External ❗ | 🛑 | onlyOwner |
| └ | excludeFromFee | Public ❗ | 🛑 | onlyOwner |
| └ | includeInFee | Public ❗ | 🛑 | onlyOwner |
| └ | isExcludedFromFee | Public ❗ | |NO ❗ |
| └ | _reflectRfi | Private 🔐 | 🛑 | |
| └ | _takeLiquidity | Private 🔐 | 🛑 | |
| └ | _takeMarketing | Private 🔐 | 🛑 | |
| └ | _takeOps | Private 🔐 | 🛑 | |
| └ | _takeDev | Private 🔐 | 🛑 | |
| └ | _getValues | Private 🔐 | | |
| └ | _getTValues | Private 🔐 | | |
| └ | _getRValues1 | Private 🔐 | | |
| └ | _getRValues2 | Private 🔐 | | |
| └ | _getRate | Private 🔐 | | |
| └ | _getCurrentSupply | Private 🔐 | | |
| └ | _approve | Private 🔐 | 🛑 | |
| └ | _transfer | Private 🔐 | 🛑 | |
| └ | _tokenTransfer | Private 🔐 | 🛑 | |
| └ | swapAndLiquify | Private 🔐 | 🛑 | lockTheSwap |
| └ | addLiquidity | Private 🔐 | 🛑 | |
| └ | swapTokensForBNB | Private 🔐 | 🛑 | |
| └ | bulkExcludeFee | External ❗ | 🛑 | onlyOwner |
| └ | updateMarketingWallet | External ❗ | 🛑 | onlyOwner |
| └ | updateDevWallet | External ❗ | 🛑 | onlyOwner |
| └ | updateOpsWallet | External ❗ | 🛑 | onlyOwner |
| └ | updateSwapTokensAtAmount | External ❗ | 🛑 | onlyOwner |
| └ | updateSwapEnabled | External ❗ | 🛑 | onlyOwner |
| └ | rescueBNB | External ❗ | 🛑 | onlyOwner |
| └ | rescueAnyBEP20Tokens | Public ❗ | 🛑 | onlyOwner |
| └ | <Receive Ether> | External ❗ | 💵 |NO ❗ |

# CONTRACT ASSESMENT

Legend

| Symbol | Meaning |
|:--------:|-----------|
| 🛑 | Function can modify state |
| 💵 | Function is payable |

# Token Distribution

It should be noted that the owner currently holds 100% of the total supply. However, information about the distribution of these tokens is not available, and it is recommended that investors exercise caution when considering this aspect.

# STATIC ANALYSIS

```
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-3

KongInu.includeInReward(address) (contracts/Token.sol#406-417) has costly operations inside a loop:
        - _excluded.pop() (contracts/Token.sol#413)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#costly-operations-inside-a-loop

Context._msgData() (contracts/Token.sol#50-53) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code

KongInu._rTotal (contracts/Token.sol#169) 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#11) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6/0.8.16
solc-0.8.19 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#130-141):
        - (success) = recipient.call{value: amount}() (contracts/Token.sol#136)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls

Function IRouter.WETH() (contracts/Token.sol#106) is not in mixedCase
Struct KongInu.valuesFromGetValues (contracts/Token.sol#206-220) is not in CapWords
Function KongInu.EnableTrading() (contracts/Token.sol#372-377) is not in mixedCase
Parameter KongInu.updatedeadline(uint256)._deadline (contracts/Token.sol#379) is not in mixedCase
Parameter KongInu.updateSwapEnabled(bool)._enabled (contracts/Token.sol#795) is not in mixedCase
Parameter KongInu.rescueAnyBEP20Tokens(address,address,uint256)._tokenAddr (contracts/Token.sol#807) is not in mixedCase
Parameter KongInu.rescueAnyBEP20Tokens(address,address,uint256)._to (contracts/Token.sol#808) is not in mixedCase
Parameter KongInu.rescueAnyBEP20Tokens(address,address,uint256)._amount (contracts/Token.sol#809) is not in mixedCase
Constant KongInu._decimals (contracts/Token.sol#165) is not in UPPER_CASE_WITH_UNDERSCORES
Variable KongInu.genesis_block (contracts/Token.sol#173) is not in mixedCase
Constant KongInu._name (contracts/Token.sol#181) is not in UPPER_CASE_WITH_UNDERSCORES
Constant KongInu._symbol (contracts/Token.sol#182) 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#51)" inContext (contracts/Token.sol#45-54)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements

KongInu._lastSell (contracts/Token.sol#160) is never used in KongInu (contracts/Token.sol#144-819)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable

KongInu._tTotal (contracts/Token.sol#168) should be constant
KongInu.deadWallet (contracts/Token.sol#176) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

KongInu.pair (contracts/Token.sol#163) should be immutable
KongInu.router (contracts/Token.sol#162) 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 issues found**

# FUNCTIONAL TESTING

**Router (PCS V2):**
0xD99D1c33F9fC3444f8101754aBC46c52416550D1

**1- Adding liquidity (passed):**
https://testnet.bscscan.com/tx/0xe796ffa88e06cfb489e5438c2cdd63a5849f37fac3df5af6dab906af5adee7be

**2- Buying when excluded (0% tax) (passed):**
https://testnet.bscscan.com/tx/0xa57f2e06f169dbc968282d4a0c4cff963f80d4d7b8e4129fbc283030c238f85a

**3- Selling when excluded (0% tax) (passed):**
https://testnet.bscscan.com/tx/0x530562a01d4302bee0c3d63baac9a8d2c1471260f3f21affb5d897328ea34501

**4- Transferring when excluded from fees(0% tax) (passed):**
https://testnet.bscscan.com/tx/0x8efbe2b7093e23aebe65070c88185f3158f6f62f2488bb01159ecd280e6d17a6

**5- Buying when not excluded from fees (10% tax) (passed):**
https://testnet.bscscan.com/tx/0xb6c23ff15b98fc49951a7a60cf5e0ce08529a0dd7de6d3026e82bb1b9a491e00

**6- Selling when not excluded from fees (10% tax) (passed):**
https://testnet.bscscan.com/tx/0x33b1bdd799b37188210cf453b30edc1428bb79d7e8b0bac1ec10b97baf492f7d

# FUNCTIONAL TESTING

**7- Transferring when not excluded from fees (10% tax) (passed):**
https://testnet.bscscan.com/tx/0x07fa8f110f42be3a4a8566a28084962a03aef12145238a49737a99ef4c831b8d

**8- Internal swap (passed):**
**All fee wallets received BNB**
https://testnet.bscscan.com/address/0xe0a8b9318c60dcd3a533c462a25ae2ab453fc302#internaltx

# MANUAL TESTING

## Logical - Setting swap threshold to 0

**Severity:** High

**Function:** updateSwapTokensAtAmount

**Lines:** 787

**Status: Not Resolved**

**Overview:**

setting swap threshold to 0 can disable sells if contract balance is more than threshold.

```
  function updateSwapTokensAtAmount(uint256 amount) external onlyOwner {
    require(
      amount <= 42e14,
      "Cannot set swap threshold amount higher than 1% of tokens"
    );
    swapTokensAtAmount = amount * 10 ** _decimals;
  }
```

**Recommendation:**

ensure that swap threshold can not be zero.

**Example:**

```
  function updateSwapTokensAtAmount(uint256 amount) external onlyOwner {
    require(
      amount <= 42e14,
      "Cannot set swap threshold amount higher than 1% of tokens"
    );
    require(
      amount > 0,
"Cannot set swap threshold amount to 0"
    );
    swapTokensAtAmount = amount * 10 ** _decimals;
  }
```

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