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AuditAce
FROM INCEPTION TO SUCCESS

# Smart Contract Audit

FOR

# Hobbes Dog

DATED : 26 MAR 23'

# AUDIT SUMMARY

**Project name** – Hobbes Dog

**Date**: 26 March, 2023

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

**Audit Status: Passed with Critical Risk**

## Issues Found

| Status | Critical | High | Medium | Low | Suggestion |
|---|---|---|---|---|---|
| Open | 6 | 0 | 1 | 0 | 0 |
| Acknowledged | 0 | 0 | 0 | 0 | 0 |
| Resolved | 0 | 0 | 0 | 0 | 0 |

# NOTE

**Key issues identified in the audit report include:**

**Blacklisting:** The smart contract contains a function that allows the token's owner to blacklist specific addresses. This means the owner can prevent blacklisted addresses from buying, selling, or transferring the token, which could result in a loss of funds or restricted access to your investment.

**Up to 100% Tax:** The token's smart contract includes a function that enables the owner to impose a tax on transactions, with the potential to set the tax rate as high as 100%. This excessive tax rate can lead to severe losses on transactions, rendering investments in the token potentially unprofitable.

**Disabling Trades:** The contract features a function that allows the owner to disable trading at any time. This means that the owner can halt all buying and selling activities without notice, potentially trapping your funds within the token and leaving you unable to liquidate your investment.

**Resetting Anti-bot Measures:** The smart contract has a function that allows the owner to reset anti-bot measures at any time. This creates the possibility for the owner to manipulate the token's trading environment, potentially allowing bots to exploit the token's liquidity and price, which could negatively impact the token's overall stability and value.

# 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 done on Bsc Testnet 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://testnet.bscscan.com/token/0xDAeF7B109aCcc2B6967a0Cf4bBa9db8C60bEc2b3

# Token Information

**Token Name** : Hobbes Dog

**Token Symbol**: Hobbes

**Decimals:** 18

**Token Supply**: 10,000,000,000,000

**Token Address:**
0x799e8D8627073a9017866DAE8Ec471bBB4164F43

**Checksum:**
94d8a068b67e24a3073ff074c485fff2999b9c17

**Owner**:
0x9420f84a6038c49A909D933A1cC370b94c77a959
**(at time of writing the audit)**

**Network:** ARBITRUM

# TOKEN OVERVIEW

**Fees:**

Buy Fees: 5%

Sell Fees: 5%

Transfer Fees: 5%

**Fees Privilige:** Owner

**Ownership** : Owned

**Minting:** No mint function

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

**Blacklist:** No

**Other Priviliges**: disabling trades - changing fee- blacklisting - resetting anti-bot

# 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

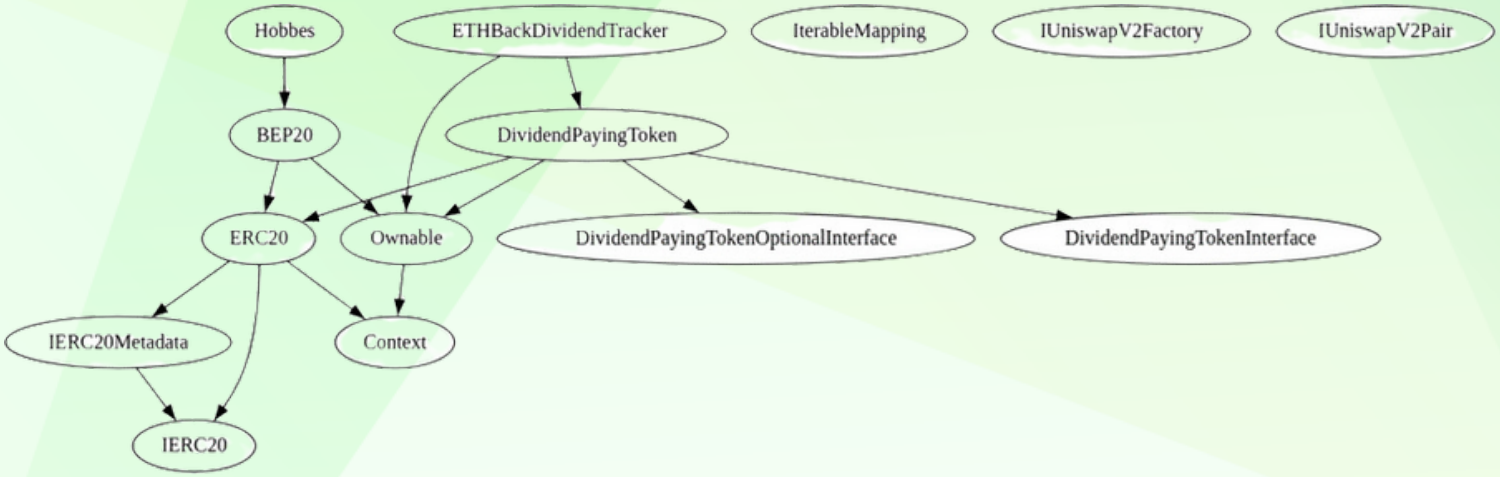
# CLASSIFICATION OF RISK

| 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 | 6 |
| High-Risk | 0 |
| Medium-Risk | 1 |
| Low-Risk | 0 |
| Gas Optimization / Suggestions | 0 |

# INHERITANCE TREE



# POINTS TO NOTE

- -Owner is able to set buy/sell/transfer fee each one up to 100%
- -Owner must enable trading for investors to be able to trade
- -Owner is able to disable trades
- -Owner is able to blacklist arbitrary wallets
- -Owner is not able to mint new tokens

# 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.

# CONTRACT ASSESMENT

| Contract | Type | Bases | | |
|:---|:---|:---|:---|:---|
| └ | **Function Name** | **Visibility** | **Mutability** | **Modifiers** |
| | | | | |
| **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 🔒 | | |
| | | | | |
| **Ownable** | Implementation | Context | | |
| └ | <Constructor> | Public ❗ | 🛑 | NO❗ |
| └ | owner | Public ❗ | | NO❗ |
| └ | renounceOwnership | Public ❗ | 🛑 | onlyOwner |
| └ | transferOwnership | Public ❗ | 🛑 | onlyOwner |
| | | | | |
| **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❗ |
| └ | approve | Public ❗ | 🛑 | NO❗ |
| └ | transferFrom | Public ❗ | 🛑 | NO❗ |
| └ | increaseAllowance | Public ❗ | 🛑 | NO❗ |
| └ | decreaseAllowance | Public ❗ | 🛑 | NO❗ |
| └ | _transfer | Internal 🔒 | 🛑 | |
| └ | _mint | Internal 🔒 | 🛑 | |

# CONTRACT ASSESMENT

| └ | _burn | Internal 🔒 | 🛑 | | |
| └ | _approve | Internal 🔒 | 🛑 | | |
| └ | _beforeTokenTransfer | Internal 🔒 | 🛑 | | |
||||||
| **BEP20** | Implementation | ERC20, Ownable |||
| └ | <Constructor> | Public ❗ | 🛑 | ERC20 |
| └ | setSwapTokensAtAmount | Public ❗ | 🛑 | onlyOwner |
| └ | <Receive Ether> | External ❗ | 💵 | NO❗ |
| └ | L | Public ❗ | 🛑 | onlyOwner |
| └ | updateDividendTracker | Public ❗ | 🛑 | onlyOwner |
| └ | updateUniswapV2Router | Public ❗ | 🛑 | onlyOwner |
| └ | excludeFromFees | Public ❗ | 🛑 | onlyOwner |
| └ | excludeMultipleAccountsFromFees | Public ❗ | 🛑 | onlyOwner |
| └ | setMarketingWallet_1 | External ❗ | 🛑 | onlyOwner |
| └ | setMarketingWallet_2 | External ❗ | 🛑 | onlyOwner |
| └ | setMarketingWallet_3 | External ❗ | 🛑 | onlyOwner |
| └ | setETHRewardsFee | External ❗ | 🛑 | onlyOwner |
| └ | setLiquiditFee | External ❗ | 🛑 | onlyOwner |
| └ | setMarketingFee | External ❗ | 🛑 | onlyOwner |
| └ | setMarketingFee_2 | External ❗ | 🛑 | onlyOwner |
| └ | setETHRewardsFee_2 | External ❗ | 🛑 | onlyOwner |
| └ | setLiquiditFee_2 | External ❗ | 🛑 | onlyOwner |
| └ | setAutomatedMarketMakerPair | Public ❗ | 🛑 | onlyOwner |
| └ | bclistAddress | Public ❗ | 🛑 | onlyOwner |
| └ | multi_bclist | Public ❗ | 🛑 | onlyOwner |
| └ | _setAutomatedMarketMakerPair | Private 🔐 | 🛑 | | |
| └ | updateGasForProcessing | Public ❗ | 🛑 | onlyOwner |
| └ | updateClaimWait | External ❗ | 🛑 | onlyOwner |
| └ | getClaimWait | External ❗ | | NO❗ |
| └ | getTotalDividendsDistributed | External ❗ | | NO❗ |
| └ | isExcludedFromFees | Public ❗ | | NO❗ |
| └ | withdrawableDividendOf | Public ❗ | | NO❗ |
| └ | dividendTokenBalanceOf | Public ❗ | | NO❗ |
| └ | excludeFromDividends | External ❗ | 🛑 | onlyOwner |
| └ | getAccountDividendsInfo | External ❗ | | NO❗ |
| └ | getAccountDividendsInfoAtIndex | External ❗ | | NO❗ |
| └ | processDividendTracker | External ❗ | 🛑 | NO❗ |
| └ | claim | External ❗ | 🛑 | NO❗ |
| └ | getLastProcessedIndex | External ❗ | | NO❗ |
| └ | getNumberOfDividendTokenHolders | External ❗ | | NO❗ |
| └ | setSwapAndLiquifyEnabled | Public ❗ | 🛑 | onlyOwner |

# CONTRACT ASSESMENT

| └ | setBurnEnable | Public ❗ | 🛑 | onlyOwner |
| --- | --- | --- | --- | --- |
| └ | setTransferFree | Public ❗ | 🛑 | onlyOwner |
| └ | _transfer | Internal 🔒 | 🛑 | |
| └ | swapAndSendToFee | Private 🔐 | 🛑 | |
| └ | swapAndLiquify | Private 🔐 | 🛑 | |
| └ | swapTokensForEth | Private 🔐 | 🛑 | |
| └ | swapTokensForETH | Private 🔐 | 🛑 | |
| └ | addLiquidity | Private 🔐 | 🛑 | |
| └ | swapAndSendDividends | Private 🔐 | 🛑 | |
| | | | | |
| **DividendPayingTokenOptionalInterface** | Interface | | | |
| └ | withdrawableDividendOf | External ❗ | | NO❗ |
| └ | withdrawnDividendOf | External ❗ | | NO❗ |
| └ | accumulativeDividendOf | External ❗ | | NO❗ |
| | | | | |
| **DividendPayingTokenInterface** | Interface | | | |
| └ | dividendOf | External ❗ | | NO❗ |
| └ | withdrawDividend | External ❗ | 🛑 | NO❗ |
| | | | | |
| **DividendPayingToken** | Implementation | ERC20, Ownable, DividendPayingTokenInterface, DividendPayingTokenOptionalInterface | | |
| └ | <Constructor> | Public ❗ | 🛑 | ERC20 |
| └ | distributeETHDividends | Public ❗ | 🛑 | onlyOwner |
| └ | withdrawDividend | Public ❗ | 🛑 | NO❗ |
| └ | _withdrawDividendOfUser | Internal 🔒 | 🛑 | |
| └ | dividendOf | Public ❗ | | NO❗ |
| └ | withdrawableDividendOf | Public ❗ | | NO❗ |
| └ | withdrawnDividendOf | Public ❗ | | NO❗ |
| └ | accumulativeDividendOf | Public ❗ | | NO❗ |
| └ | _transfer | Internal 🔒 | 🛑 | |
| └ | _mint | Internal 🔒 | 🛑 | |
| └ | _burn | Internal 🔒 | 🛑 | |
| └ | _setBalance | Internal 🔒 | 🛑 | |
| | | | | |
| **ETHBackDividendTracker** | Implementation | Ownable, DividendPayingToken | | |
| └ | <Constructor> | Public ❗ | 🛑 | DividendPayingToken |
| └ | _transfer | Internal 🔒 | 🛑 | |
| └ | withdrawDividend | Public ❗ | 🛑 | NO❗ |
| └ | excludeFromDividends | External ❗ | 🛑 | onlyOwner |
| └ | updateClaimWait | External ❗ | 🛑 | onlyOwner |
| └ | getLastProcessedIndex | External ❗ | | NO❗ |
| └ | getNumberOfTokenHolders | External ❗ | | NO❗ |

# CONTRACT ASSESMENT

| └ | getAccount | Public ❗ | | |NO❗ |
| └ | getAccountAtIndex | Public ❗ | | |NO❗ |
| └ | canAutoClaim | Private 🔐 | | | |
| └ | setBalance | External ❗ | 🛑 | | onlyOwner |
| └ | process | Public ❗ | 🛑 | |NO❗ |
| └ | processAccount | Public ❗ | 🛑 | | onlyOwner |
| | | | | | |
| **IterableMapping** | Library | | | |
| └ | get | Internal 🔒 | | | |
| └ | getIndexOfKey | Internal 🔒 | | | |
| └ | getKeyAtIndex | Internal 🔒 | | | |
| └ | size | Internal 🔒 | | | |
| └ | set | Internal 🔒 | 🛑 | | |
| └ | remove | Internal 🔒 | 🛑 | | |
| | | | | | |
| **IUniswapV2Factory** | Interface | | | |
| └ | feeTo | External ❗ | | |NO❗ |
| └ | feeToSetter | External ❗ | | |NO❗ |
| └ | getPair | External ❗ | | |NO❗ |
| └ | allPairs | External ❗ | | |NO❗ |
| └ | allPairsLength | External ❗ | | |NO❗ |
| └ | createPair | External ❗ | 🛑 | |NO❗ |
| └ | setFeeTo | External ❗ | 🛑 | |NO❗ |
| └ | setFeeToSetter | External ❗ | 🛑 | |NO❗ |
| | | | | | |
| **IUniswapV2Pair** | Interface | | | |
| └ | name | External ❗ | | |NO❗ |
| └ | symbol | External ❗ | | |NO❗ |
| └ | decimals | External ❗ | | |NO❗ |
| └ | totalSupply | External ❗ | | |NO❗ |
| └ | balanceOf | External ❗ | | |NO❗ |
| └ | allowance | External ❗ | | |NO❗ |
| └ | approve | External ❗ | 🛑 | |NO❗ |
| └ | transfer | External ❗ | 🛑 | |NO❗ |
| └ | transferFrom | External ❗ | 🛑 | |NO❗ |
| └ | DOMAIN_SEPARATOR | External ❗ | | |NO❗ |
| └ | PERMIT_TYPEHASH | External ❗ | | |NO❗ |
| └ | nonces | External ❗ | | |NO❗ |
| └ | permit | External ❗ | 🛑 | |NO❗ |
| └ | MINIMUM_LIQUIDITY | External ❗ | | |NO❗ |
| └ | factory | External ❗ | | |NO❗ |

# CONTRACT ASSESMENT

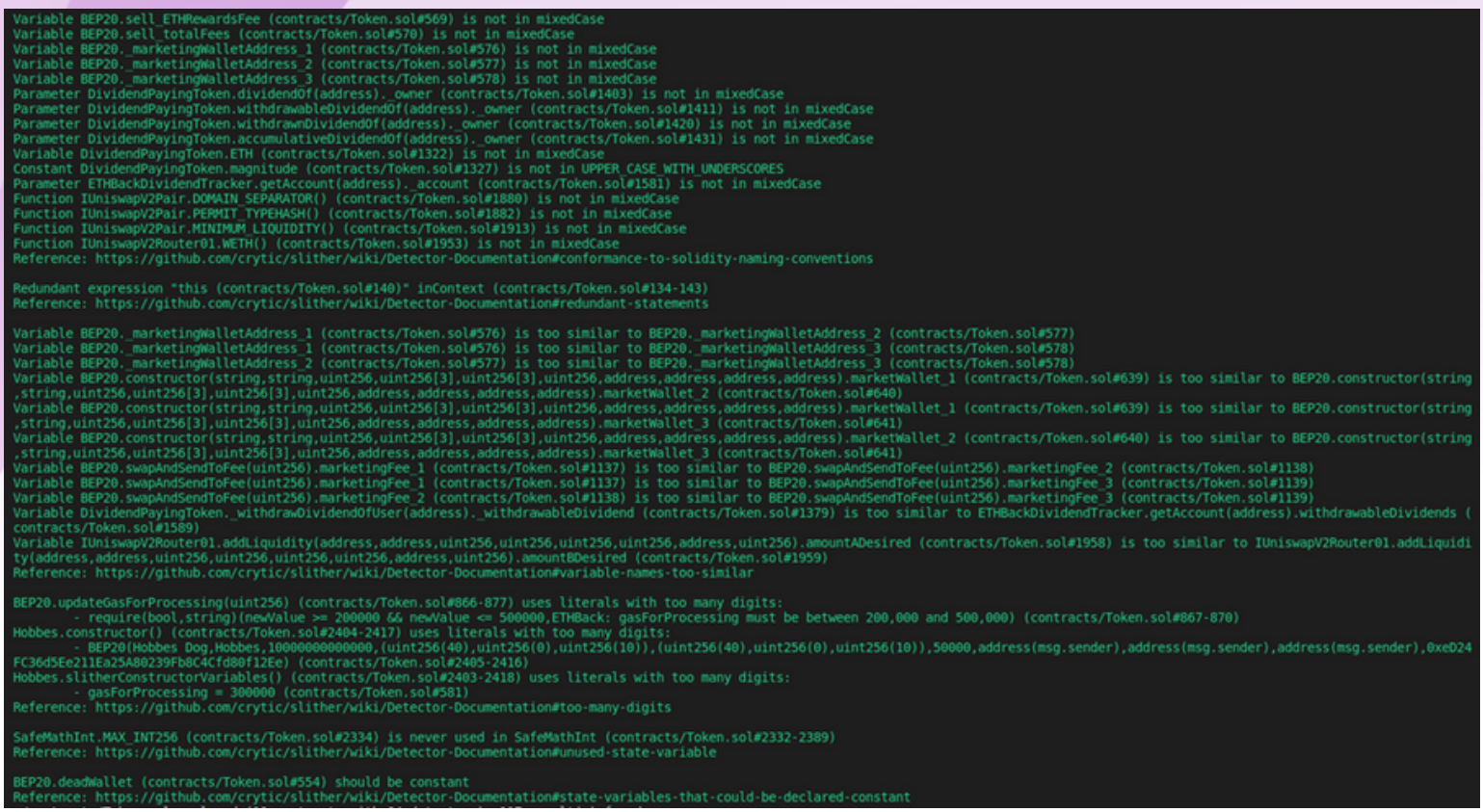
| └ | token0 | External ❗ | |NO❗ |
| --- | --- | --- | --- |
| └ | token1 | External ❗ | |NO❗ |
| └ | getReserves | External ❗ | |NO❗ |
| └ | price0CumulativeLast | External ❗ | |NO❗ |
| └ | price1CumulativeLast | External ❗ | |NO❗ |
| └ | kLast | External ❗ | |NO❗ |
| └ | mint | External ❗ | 🛑 |NO❗ |
| └ | burn | External ❗ | 🛑 |NO❗ |
| └ | swap | External ❗ | 🛑 |NO❗ |
| └ | skim | External ❗ | 🛑 |NO❗ |
| └ | sync | External ❗ | 🛑 |NO❗ |
| └ | initialize | External ❗ | 🛑 |NO❗ |
| | | | |
| **IUniswapV2Router01** | Interface | ||| | |
| └ | factory | External ❗ | |NO❗ |
| └ | WETH | External ❗ | |NO❗ |
| └ | addLiquidity | External ❗ | 🛑 |NO❗ |
| └ | addLiquidityETH | External ❗ | 💵 |NO❗ |
| └ | removeLiquidity | External ❗ | 🛑 |NO❗ |
| └ | removeLiquidityETH | External ❗ | 🛑 |NO❗ |
| └ | removeLiquidityWithPermit | External ❗ | 🛑 |NO❗ |
| └ | removeLiquidityETHWithPermit | External ❗ | 🛑 |NO❗ |
| └ | swapExactTokensForTokens | External ❗ | 🛑 |NO❗ |
| └ | swapTokensForExactTokens | External ❗ | 🛑 |NO❗ |
| └ | swapExactETHForTokens | External ❗ | 💵 |NO❗ |
| └ | swapTokensForExactETH | External ❗ | 🛑 |NO❗ |
| └ | swapExactTokensForETH | External ❗ | 🛑 |NO❗ |
| └ | swapETHForExactTokens | External ❗ | 💵 |NO❗ |
| └ | quote | External ❗ | |NO❗ |
| └ | getAmountOut | External ❗ | |NO❗ |
| └ | getAmountIn | External ❗ | |NO❗ |
| └ | getAmountsOut | External ❗ | |NO❗ |
| └ | getAmountsIn | External ❗ | |NO❗ |
| | | | |
| **IUniswapV2Router02** | Interface | IUniswapV2Router01 ||| | |
| └ | removeLiquidityETHSupportingFeeOnTransferTokens | External ❗ | 🛑 |NO❗ |
| └ | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External ❗ | 🛑 |NO❗ |
| └ | swapExactTokensForTokensSupportingFeeOnTransferTokens | External ❗ | 🛑 |NO❗ |
| └ | swapExactETHForTokensSupportingFeeOnTransferTokens | External ❗ | 💵 |NO❗ |
| └ | swapExactTokensForETHSupportingFeeOnTransferTokens | External ❗ | 🛑 |NO❗ |
| | | | |

# CONTRACT ASSESMENT

| **SafeMath** | Library | |||
| └ | add | Internal 🔒 | | |
| └ | sub | Internal 🔒 | | |
| └ | sub | Internal 🔒 | | |
| └ | mul | Internal 🔒 | | |
| └ | div | Internal 🔒 | | |
| └ | div | Internal 🔒 | | |
| └ | mod | Internal 🔒 | | |
| └ | mod | Internal 🔒 | | |
||||||
| **SafeMathInt** | Library | |||
| └ | mul | Internal 🔒 | | |
| └ | div | Internal 🔒 | | |
| └ | sub | Internal 🔒 | | |
| └ | add | Internal 🔒 | | |
| └ | abs | Internal 🔒 | | |
| └ | toUint256Safe | Internal 🔒 | | |
||||||
| **SafeMathUint** | Library | |||
| └ | toInt256Safe | Internal 🔒 | | |
||||||
| **Hobbes** | Implementation | BEP20 |||
| └ | <Constructor> | Public ❗ | 🛑 | BEP20 |

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

# STATIC ANALYSIS



```
Variable BEP20.sell_ETHRewardsFee (contracts/Token.sol#569) is not in mixedCase
Variable BEP20.sell_totalFees (contracts/Token.sol#570) is not in mixedCase
Variable BEP20._marketingWalletAddress_1 (contracts/Token.sol#576) is not in mixedCase
Variable BEP20._marketingWalletAddress_2 (contracts/Token.sol#577) is not in mixedCase
Variable BEP20._marketingWalletAddress_3 (contracts/Token.sol#578) is not in mixedCase
Parameter DividendPayingToken.dividendOf(address)._owner (contracts/Token.sol#1403) is not in mixedCase
Parameter DividendPayingToken.withdrawableDividendOf(address)._owner (contracts/Token.sol#1411) is not in mixedCase
Parameter DividendPayingToken.withdrawnDividendOf(address)._owner (contracts/Token.sol#1420) is not in mixedCase
Parameter DividendPayingToken.accumulativeDividendOf(address)._owner (contracts/Token.sol#1431) is not in mixedCase
Variable DividendPayingToken.ETH (contracts/Token.sol#1322) is not in mixedCase
Constant DividendPayingToken.magnitude (contracts/Token.sol#1327) is not in UPPER_CASE_WITH_UNDERSCORES
Parameter ETHBackDividendTracker.getAccount(address)._account (contracts/Token.sol#1581) is not in mixedCase
Function IUniswapV2Pair.DOMAIN_SEPARATOR() (contracts/Token.sol#1880) is not in mixedCase
Function IUniswapV2Pair.PERMIT_TYPEHASH() (contracts/Token.sol#1882) is not in mixedCase
Function IUniswapV2Pair.MINIMUM_LIQUIDITY() (contracts/Token.sol#1913) is not in mixedCase
Function IUniswapV2Router01.WETH() (contracts/Token.sol#1953) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

Redundant expression "this (contracts/Token.sol#140)" inContext (contracts/Token.sol#134-143)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements

Variable BEP20._marketingWalletAddress_1 (contracts/Token.sol#576) is too similar to BEP20._marketingWalletAddress_2 (contracts/Token.sol#577)
Variable BEP20._marketingWalletAddress_1 (contracts/Token.sol#576) is too similar to BEP20._marketingWalletAddress_3 (contracts/Token.sol#578)
Variable BEP20._marketingWalletAddress_2 (contracts/Token.sol#577) is too similar to BEP20._marketingWalletAddress_3 (contracts/Token.sol#578)
Variable BEP20.constructor(string,string,uint256,uint256[3],uint256[3],uint256,address,address,address,address).marketWallet_1 (contracts/Token.sol#639) is too similar to BEP20.constructor(string
,string,uint256,uint256[3],uint256[3],uint256,address,address,address,address).marketWallet_2 (contracts/Token.sol#640)
Variable BEP20.constructor(string,string,uint256,uint256[3],uint256[3],uint256,address,address,address,address).marketWallet_1 (contracts/Token.sol#639) is too similar to BEP20.constructor(string
,string,uint256,uint256[3],uint256[3],uint256,address,address,address,address).marketWallet_3 (contracts/Token.sol#641)
Variable BEP20.constructor(string,string,uint256,uint256[3],uint256[3],uint256,address,address,address,address).marketWallet_2 (contracts/Token.sol#640) is too similar to BEP20.constructor(string
,string,uint256,uint256[3],uint256[3],uint256,address,address,address,address).marketWallet_3 (contracts/Token.sol#641)
Variable BEP20.swapAndSendToFee(uint256).marketingFee_1 (contracts/Token.sol#1137) is too similar to BEP20.swapAndSendToFee(uint256).marketingFee_2 (contracts/Token.sol#1138)
Variable BEP20.swapAndSendToFee(uint256).marketingFee_1 (contracts/Token.sol#1137) is too similar to BEP20.swapAndSendToFee(uint256).marketingFee_3 (contracts/Token.sol#1139)
Variable BEP20.swapAndSendToFee(uint256).marketingFee_2 (contracts/Token.sol#1138) is too similar to BEP20.swapAndSendToFee(uint256).marketingFee_3 (contracts/Token.sol#1139)
Variable DividendPayingToken._withdrawDividendOfUser(address)._withdrawableDividend (contracts/Token.sol#1379) is too similar to ETHBackDividendTracker.getAccount(address).withdrawableDividends (
contracts/Token.sol#1589)
Variable IUniswapV2Router01.addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256).amountADesired (contracts/Token.sol#1958) is too similar to IUniswapV2Router01.addLiquidi
ty(address,address,uint256,uint256,uint256,uint256,address,uint256).amountBDesired (contracts/Token.sol#1959)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar

BEP20.updateGasForProcessing(uint256) (contracts/Token.sol#866-877) uses literals with too many digits:
        - require(bool,string)(newValue >= 200000 && newValue <= 500000,ETHBack: gasForProcessing must be between 200,000 and 500,000) (contracts/Token.sol#867-870)
Hobbes.constructor() (contracts/Token.sol#2404-2417) uses literals with too many digits:
        - BEP20(Hobbes Dog,Hobbes,10000000000000,(uint256(40),uint256(0),uint256(10)),(uint256(40),uint256(0),uint256(10)),50000,address(msg.sender),address(msg.sender),address(msg.sender),0xeD24
FC36d5Ee211Ea25A80239Fb8C4Cfd80f12Ee) (contracts/Token.sol#2405-2416)
Hobbes.slitherConstructorVariables() (contracts/Token.sol#2403-2418) uses literals with too many digits:
        - gasForProcessing = 300000 (contracts/Token.sol#581)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits

SafeMathInt.MAX_INT256 (contracts/Token.sol#2334) is never used in SafeMathInt (contracts/Token.sol#2332-2389)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable

BEP20.deadWallet (contracts/Token.sol#554) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant
```

**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):**
**liquidity added on Pancakeswap V2:**

https://testnet.bscscan.com/tx/0xff3d727b6a975dd9ef48653bccebb725a122f3a2cab0168babdf5b8bfb8e37cb

**2- Buying when trading not enabled (owner% )(Passed):**

https://testnet.bscscan.com/tx/0x94f68f89c304838ac748e46ae2594ac4268efaae55cf691b4950b7f0455561b9

**3- Selling when trading not enabled (0% )(Passed):**

https://testnet.bscscan.com/tx/0xefc4f6c56542421465475b445b83b4ec0ef6c7611c589fcba265e5d73c00db9f

**4- Transferring when trading not enabled (0% tax) (passed):**

https://testnet.bscscan.com/tx/0x4fdcb2c83d52933a0d457c6f5268e1aeb1f81127ceb65146e90985c7c2747ab5

**5- Buying when trading enabled (up to 100% tax) (passed):**

https://testnet.bscscan.com/tx/0xcb0ad894084e14ec1a967e9101ae7fe4e0984c9ddbaed32e6eec845d268a6a67

# FUNCTIONAL TESTING

**6- Selling when trading enabled (up to 100% tax) (passed):**

https://testnet.bscscan.com/tx/0x4d3c2120b3c3969fde7be4cf0845c5613d836628ea01b4f3046fd1093625a736

**7- Transferring when trading enabled (up to 100% tax) (passed):**

https://testnet.bscscan.com/tx/0x95b7413b033fd00cb81d0d1edd77ba867fd995a267f855bf245eacacff8be3c8

**8- Internal swap (passed):**
**fee receivers received ETH**
https://testnet.bscscan.com/tx/0x4d3c2120b3c3969fde7be4cf0845c5613d836628ea01b4f3046fd1093625a736

**9- Auto Liquidity (passed):**
https://testnet.bscscan.com/tx/0x4d3c2120b3c3969fde7be4cf0845c5613d836628ea01b4f3046fd1093625a736

**10- Reflections (passed):**
**BUSD tokens are distributed between holders**
https://testnet.bscscan.com/tx/0x4d3c2120b3c3969fde7be4cf0845c5613d836628ea01b4f3046fd1093625a736

**11- Auto Burning (passed):**
**Auto burning can be seen in this tx (2 new holders in each burn)**
https://testnet.bscscan.com/tx/0x4d3c2120b3c3969fde7be4cf0845c5613d836628ea01b4f3046fd1093625a736

# MANUAL TESTING

## Centralization - Owner must enable trading

**Severity**: Critical
**Function**: L
**Lines**: 640
**Status:** not resolved
**Overview:**
The owner must activate trading for investors to buy, sell, or transfer tokens. If trading remains disabled, token holders will be unable to trade their tokens.

```
function L(bool s, uint256 muchB) public onlyOwner {
    isL = s;
    lunachB = block.number;
    killNum = muchB;
}
```

**Recommendation:**
Incorporate a safety mechanism that allows investors to activate trading if a specified duration has elapsed since the conclusion of the presale.

# MANUAL TESTING

## Centralization – Owner is able to set up to 100% tax

**Severity**: Critical
**Functions**:
- setMarketingWallet_1
- setMarketingWallet_2
- setMarketingWallet_3
- setETHRewardsFee
- setLiquiditFee
- setMarketingFee
- setMarketingFee_2
- setETHRewardsFee_2
- setLiquiditFee_2

**Status:** not resolved
**Overview:**
Owner is able to set buy/sell/transfer taxes up to 100%
**Recommendation:**
set up a max limit for buy/sell/transfer

# MANUAL TESTING

## Centralization – Blacklisting

**Severity**: Critical
**Functions**: bclistAddress - multi_bclist
**Status:** not resolved
**Overview:**
The owner has the power to blacklist single or multiple wallets at their discretion. Having a blacklist feature presents a significant centralization risk and may deter potential investors from participating in the token.

```
function bclistAddress(address account, bool value) public onlyOwner {
    isbclisted[account] = value;
}

ftrace | funcSig
function multi_bclist(
    address[] calldata addresses,
    bool value
) public onlyOwner {
    require(addresses.length < 201);
    for (uint256 i; i < addresses.length; ++i) {
        isbclisted[addresses[i]] = value;
    }
}
```

**Recommendation:**

- Consider removing the blacklisting functionality to reduce centralization risk and encourage investor participation.
- If the blacklisting feature is necessary, implement proper governance mechanisms to ensure decisions are made collectively by the community, rather than solely by the owner.
- Provide clear and transparent guidelines outlining the circumstances under which an address may be blacklisted to maintain investor trust and confidence.

# MANUAL TESTING

## Centralization – disabling trades

**Severity**: Critical
**Function**: L
**Lines**: 640
**Status:** not resolved
**Overview:**
Owner is able to disable trades by setting **isL** to false.

```
function L(bool s, uint256 muchB) public onlyOwner {
    isL = s;
    lunachB = block.number;
    killNum = muchB;
}
```

.
**Recommendation:**

1. Consider removing or modifying the trade disabling functionality to reduce centralization risk and protect investor interests.
2. If trade disabling is necessary for specific situations, establish a transparent governance mechanism that involves the token's community in the decision-making process.
3. Implement a safety mechanism that automatically re-enables trading after a predetermined time period has elapsed, or allows investors to vote on re-enabling trading after a certain duration since the last disabling event. This ensures the protection of investor interests and promotes decentralized control.

# MANUAL TESTING

## Centralization – Auto-LP generated tokens are sent to marketing wallet

**Severity**: Critical
**Function**: addLiquidity
**Lines**: 1048
**Status:** not resolved
**Overview:**
The marketing wallet receives liquidity tokens generated through the auto-liquidity feature. Over time, these accumulated tokens could be exploited by a malicious actor to remove a substantial amount of tokens from the liquidity pool.

```
function addLiquidity(uint256 tokenAmount, uint256 ethAmount) private {
    // approve token transfer to cover all possible scenarios
    approve(address(this), address(uniswapV2Router), tokenAmount);

    // add the liquidity
    try
        uniswapV2Router.addLiquidityETH{value: ethAmount}(
            address(this),
            tokenAmount,
            0, // slippage is unavoidable
            0, // slippage is unavoidable
            address( marketingWalletAddress_3),
            block.timestamp
        )
    {} catch {
        emit FAILED_addLiquidityETH();
    }
}
```

.
**Recommendation:**

1. Consider redirecting the auto-generated liquidity tokens to a dedicated, auditable smart contract or multisig wallet instead of the marketing wallet. This reduces the centralization risk and potential for misuse.
2. Implement a transparent and community-driven governance process for managing the auto-generated liquidity tokens, ensuring that decisions regarding their usage are made collectively by token holders.
3. Provide clear guidelines and a rationale for the allocation of liquidity tokens to ensure transparency and maintain investor trust.
4. Burn generated liquidity tokens

# MANUAL TESTING

## Centralization – Setting total buy fees and total sell fees up to 0 can disable trades.

**Severity**: Critical
**Function**: _transfer
**Lines**: 1022-1030
**Status:** not resolved
**Overview:**
Setting buy_totalFees and sell_totalFees to 0 can disable trades if accumulated fees exceed the swap threshold, as this causes a division by zero error.

```
uint256 marketingTokens = contractTokenBalance
    .mul(buy_marketingFee + sell_marketingFee)
    .div(buy_totalFees + sell_totalFees);
if (marketingTokens > 0) swapAndSendToFee(marketingTokens);

uint256 swapTokens = contractTokenBalance
    .mul(buy_liquidityFee + sell_liquidityFee)
    .div(buy_totalFees + sell_totalFees);
if (swapTokens > 0) swapAndLiquify(swapTokens);

uint256 sellTokens = balanceOf(address(this));
if (sellTokens > 0) swapAndSendDividends(sellTokens);

swapping = false;
```

**Recommendation:**

1. Implement input validation checks to prevent the buy_totalFees and sell_totalFees values from being set to zero, thus avoiding a division by zero error and ensuring trades remain functional.
2. In case the buy_totalFees and sell_totalFees need to be set to zero for specific reasons, ensure that the contract logic can handle this scenario without causing a division by zero error or disrupting trades.
3. Provide a transparent and community-driven governance process for managing fee changes to minimize centralization risks and protect investor interests.

# MANUAL TESTING

## Compiler – Outdated compiler version

**Severity**: Medium
**Status:** not resolved
**Overview:**
The smart contract is compiled using an outdated compiler version 0.6.2, which may expose it to potential security vulnerabilities, compatibility issues, or suboptimal performance.

```
uint256 marketingTokens = contractTokenBalance
    .mul(buy_marketingFee + sell_marketingFee)
    .div(buy_totalFees + sell_totalFees);
if (marketingTokens > 0) swapAndSendToFee(marketingTokens);

uint256 swapTokens = contractTokenBalance
    .mul(buy_liquidityFee + sell_liquidityFee)
    .div(buy_totalFees + sell_totalFees);
if (swapTokens > 0) swapAndLiquify(swapTokens);

uint256 sellTokens = balanceOf(address(this));
if (sellTokens > 0) swapAndSendDividends(sellTokens);

swapping = false;
```

**Recommendation:**

1. Update the compiler version to the latest stable release (e.g., 0.8.x), ensuring that the smart contract benefits from the most recent security fixes, language features, and optimizations.
2. Carefully review the changes between the current compiler version (0.6.2) and the latest stable version to identify any breaking changes or adjustments required in the smart contract code.

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