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AuditAce

FROM INCEPTION TO SUCCESS

Smart Contract Audit

FOR

Pepe Gangster

DATED : 14 May 23'

AUDIT SUMMARY

Project name – Pepe Gangster

Date: 14 May, 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	1	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://testnet.bscscan.com/tx/0x634f6cbeb1c5e3b29869628385616cf622670cf1223aa69720a49ea41f89aa70

Token Information

Token Name : Pepe Gangster

Token Symbol: PEPEG

Decimals: 9

Token Supply:1,000,000,000,000

Token Address:
0x8481c3Da0b3084664050acd956a2081dA3Aae5A0

Checksum:
b5bb614de2020c290c8d9c47740f00045d91de46

Owner:
0xBbCe79A675324713d6F2A933BC7af22e5D9925d2

TOKEN OVERVIEW

Fees:

Buy Fees: upto 5%

Sell Fees: upto 5 %

Transfer Fees: upto 5%

Fees Privilige: none

Ownership : owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Priviliges: changing swap threshold - enabling trades

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.

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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

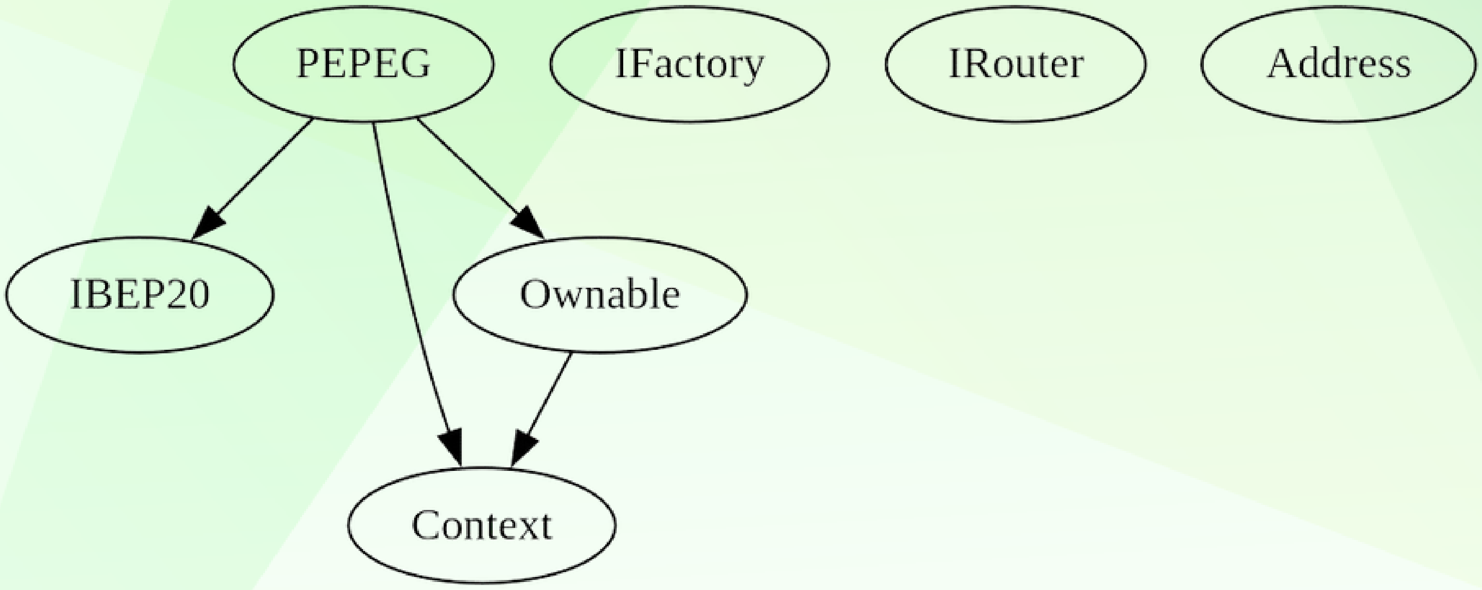
CLASSIFICATION OF RISK

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	0
🟧 Medium-Risk	1
🟨 Low-Risk	0
🟦 Gas Optimization / Suggestions	0

INHERITANCE TREE



POINTS TO NOTE

- **Owner is not able to change fees (5% for each type of tax)**
- Owner is not able to blacklist an arbitrary address.
- Owner is not able to disable trades
- Owner is not able to set max buy/sell/transfer/hold amount to 0
- Owner is not able to mint new tokens
- Owner must enable trades manually

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 🔒	🛑	
PEPEG	Implementation	Context, IBEP20, Ownable		
└	<Constructor>	Public ❗️	🛑	NO❗️
└	name	Public ❗️		NO❗️
└	symbol	Public ❗️		NO❗️
└	decimals	Public ❗️		NO❗️
└	totalSupply	Public ❗️		NO❗️
└	balanceOf	Public ❗️		NO❗️

CONTRACT ASSESMENT

```
| └ | allowance | Public ❗ |   |NO❗ |
| └ | approve | Public ❗ | 🛑  |NO❗ |
| └ | 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 |
```

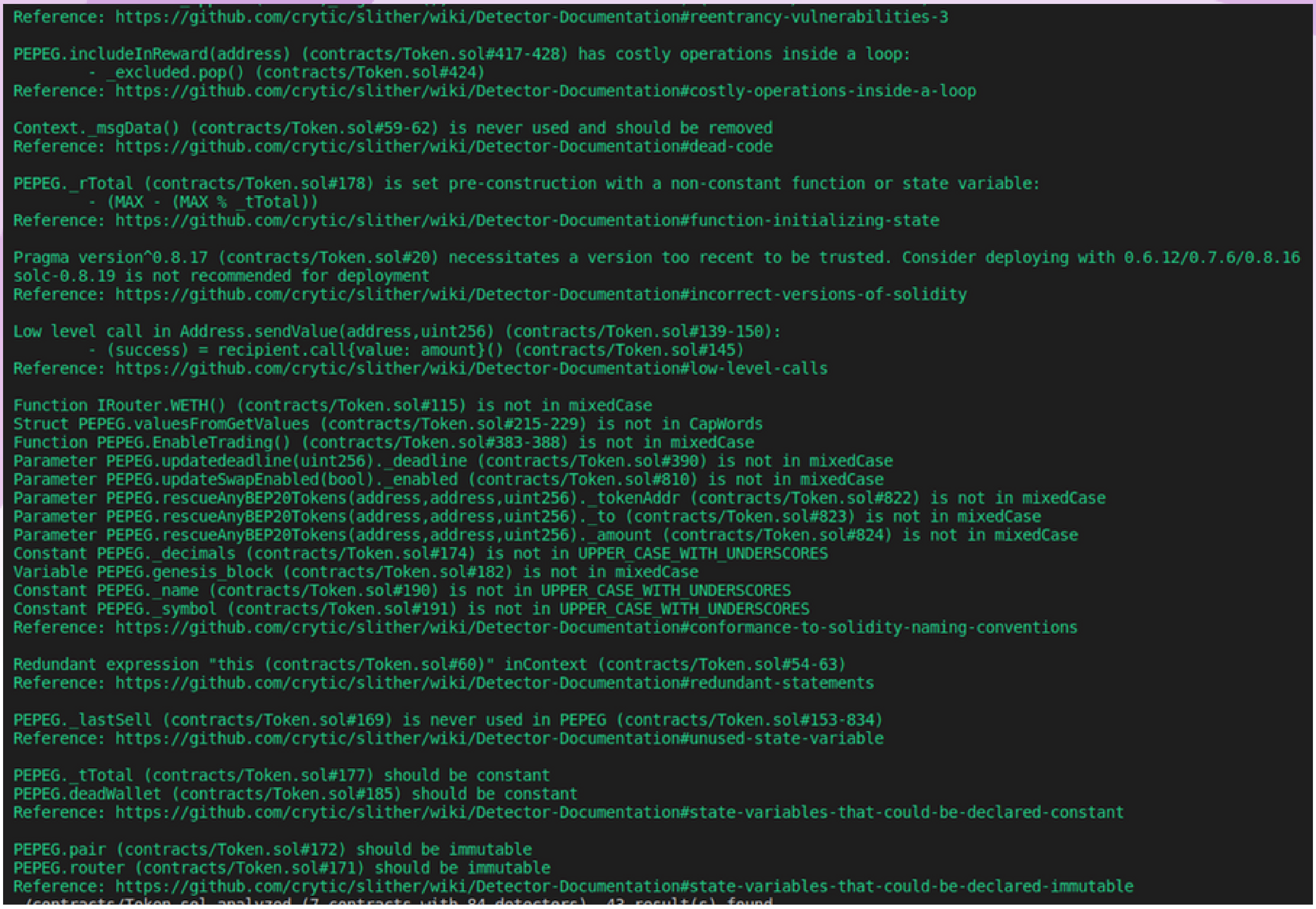
CONTRACT ASSESMENT

| └ | <Receive Ether> | External ❗ | 💵 |NO❗ |

Legend

Symbol	Meaning
🛑	Function can modify state
💵	Function is payable

STATIC ANALYSIS



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

PEPEG.includeInReward(address) (contracts/Token.sol#417-428) has costly operations inside a loop:
        - _excluded.pop() (contracts/Token.sol#424)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#costly-operations-inside-a-loop

Context._msgData() (contracts/Token.sol#59-62) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code

PEPEG._rTotal (contracts/Token.sol#178) 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#20) 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#139-150):
        - (success) = recipient.call{value: amount}() (contracts/Token.sol#145)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls

Function IRouter.WETH() (contracts/Token.sol#115) is not in mixedCase
Struct PEPEG.valuesFromGetValues (contracts/Token.sol#215-229) is not in CapWords
Function PEPEG.EnableTrading() (contracts/Token.sol#383-388) is not in mixedCase
Parameter PEPEG.updatedeadline(uint256)._deadline (contracts/Token.sol#390) is not in mixedCase
Parameter PEPEG.updateSwapEnabled(bool)._enabled (contracts/Token.sol#810) is not in mixedCase
Parameter PEPEG.rescueAnyBEP20Tokens(address,address,uint256)._tokenAddr (contracts/Token.sol#822) is not in mixedCase
Parameter PEPEG.rescueAnyBEP20Tokens(address,address,uint256)._to (contracts/Token.sol#823) is not in mixedCase
Parameter PEPEG.rescueAnyBEP20Tokens(address,address,uint256)._amount (contracts/Token.sol#824) is not in mixedCase
Constant PEPEG._decimals (contracts/Token.sol#174) is not in UPPER_CASE_WITH_UNDERSCORES
Variable PEPEG.genesis_block (contracts/Token.sol#182) is not in mixedCase
Constant PEPEG._name (contracts/Token.sol#190) is not in UPPER_CASE_WITH_UNDERSCORES
Constant PEPEG._symbol (contracts/Token.sol#191) 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#60)" inContext (contracts/Token.sol#54-63)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements

PEPEG._lastSell (contracts/Token.sol#169) is never used in PEPEG (contracts/Token.sol#153-834)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable

PEPEG._tTotal (contracts/Token.sol#177) should be constant
PEPEG.deadWallet (contracts/Token.sol#185) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

PEPEG.pair (contracts/Token.sol#172) should be immutable
PEPEG.router (contracts/Token.sol#171) should be immutable
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-immutable
 (contracts/Token.sol analyzed (7 contracts with 84 detectors), 43 result(s) found
```

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 functionalities have been tested, no issues were found

1- Adding liquidity **(passed):**
https://testnet.bscscan.com/tx/0xbff3d2ee08bc34c7c4ee87092c78971f101c9446cfe1b46791ee64638e238fdf

2- Buying when excluded (0% tax) **(passed):**
https://testnet.bscscan.com/tx/0xa35404088c75c6fd0cc763a0c1f58a9625543a8aab0f596c1dc6d4c8e0362b56

3- Selling when excluded (0% tax) **(passed):**
https://testnet.bscscan.com/tx/0x463f66297b155b371fcf24d89a5341f2812e351be7e62c852f4c583d54b06f84

4- Transferring when excluded (0% tax) **(passed):**
https://testnet.bscscan.com/tx/0xa8bb9ef5114b0d8e7edb423902ead674f9038dbc16c23589983b4f9415b41e59

5- Buying when not excluded (5% tax) **(passed):**
https://testnet.bscscan.com/tx/0x8b6262b3190e0c2426313d5b53dca24a37e21c6c92e3c7201e8da7fe19eccb36

6- Selling when not excluded (5% tax) **(passed):**
https://testnet.bscscan.com/tx/0x634f6cbeb1c5e3b29869628385616cf622670cf1223aa69720a49ea41f89aa70

FUNCTIONAL TESTING

7- Transferring when not excluded (5% tax) (passed):
https://testnet.bscscan.com/tx/0x61870d3f8806e5410d01c137212a22db3f75235f9d587defc6880e42a337f66c

8- Internal swap (marketing + liquidity) (passed):
https://testnet.bscscan.com/tx/0x634f6cbeb1c5e3b29869628385616cf622670cf1223aa69720a49ea41f89aa70

MANUAL TESTING

Centralization – Trades must be enabled

Severity: Medium

function: EnableTrading

Status: Resolved (Safu dev)

Overview:

The smart contract owner must enable trades for holders. If trading remain disabled, no one would be able to buy/sell/transfer tokens.

```
function EnableTrading() external onlyOwner {
    require(!tradingEnabled, "Cannot re-enable trading");
    tradingEnabled = true;
    swapEnabled = true;
    genesis_block = block.number;
}
```

Suggestion

To mitigate this centralization issue, we propose the following options:

1. Renounce Ownership: Consider relinquishing control of the smart contract by renouncing ownership. This would remove the ability for a single entity to manipulate the router, reducing centralization risks.
2. Multi-signature Wallet: Transfer ownership to a multi-signature wallet. This would require multiple approvals for any changes to the mainRouter, adding an additional layer of security and reducing the centralization risk.
3. Transfer ownership to a trusted and valid 3rd party in order to guarantee enabling of the trades

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