



# Smart Contract Audit

FOR  
**PEPEPUNK**

DATED : 11 May 23'



# AUDIT SUMMARY

**Project name - PEPEPUNK**

**Date:** 11 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	0	0	1
Acknowledged	0	0	0	0	0
Resolved	0	1	0	0	0



# USED TOOLS

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## Tools:

### 1- Manual Review:

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

**2- BSC Test 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 version:

The tests were performed using the contract deployed on the BSC Testnet, which can be found at the following address:

<https://testnet.bscscan.com/token/0xEe0a9C84Ab77c5Ac4b8c798f065C8AB89f28662e>

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# Token Information

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**Token Name :** PEPEPUNK

**Token Symbol:** PEPEPUNK

**Decimals:** 9

**Token Supply:** 100,000,000,000

**Token Address:**

0xf4167609449b08C49D40948aA374E3Dd5f1d3398

**Checksum:**

e0d2a997bf99f8db6f663d5b2c0c0fe9f550f6f

**Owner:**

0xE450E05d940B094dC9cf31947a7eE2977a5B7FA7

**(at time of writing the audit)**

**Deployer:**

0xE450E05d940B094dC9cf31947a7eE2977a5B7FA7

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# TOKEN OVERVIEW

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**Fees:**

Buy Fees: 0%

Sell Fees: 10%

Transfer Fees: 0%

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**Fees Privilege:** Owner

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**Ownership:** Owned

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**Minting:** No mint function

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

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**Blacklist:** No

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**Other Privileges:** changing fees - enabling trades

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# AUDIT METHODOLOGY

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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 Limit and 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



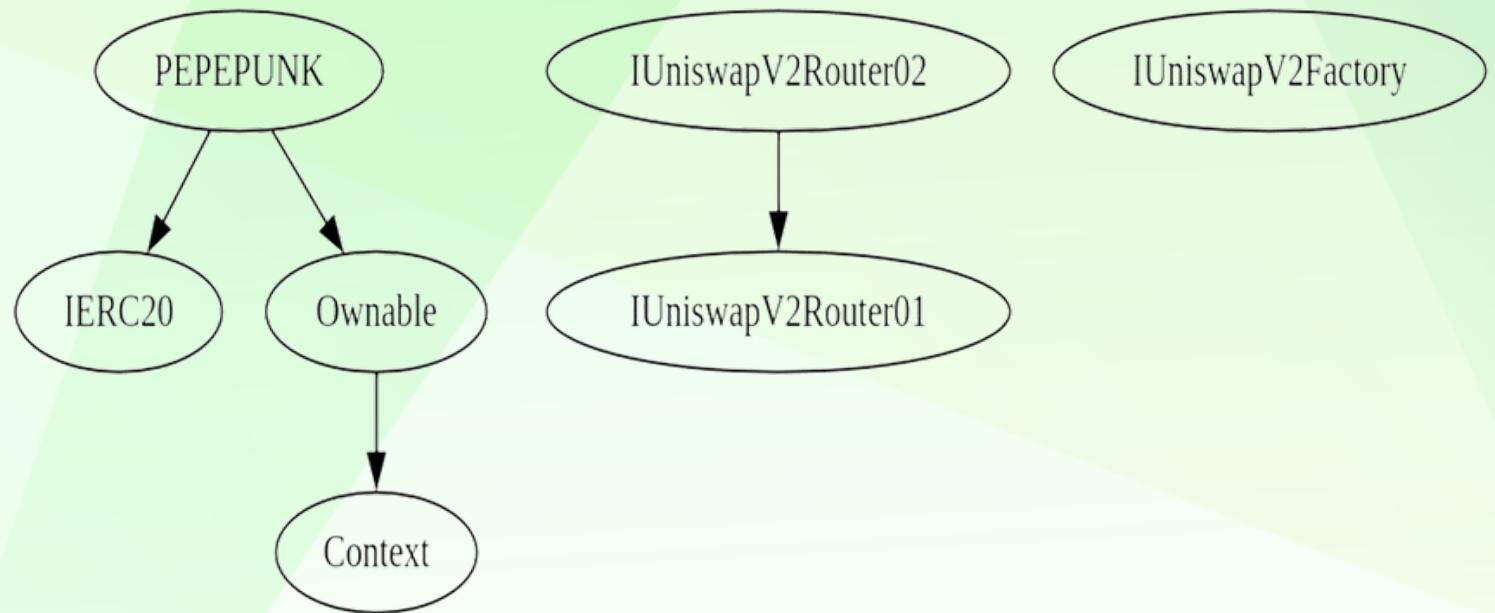
# CLASSIFICATION OF RISK

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

# INHERITANCE TREE





## POINTS TO NOTE

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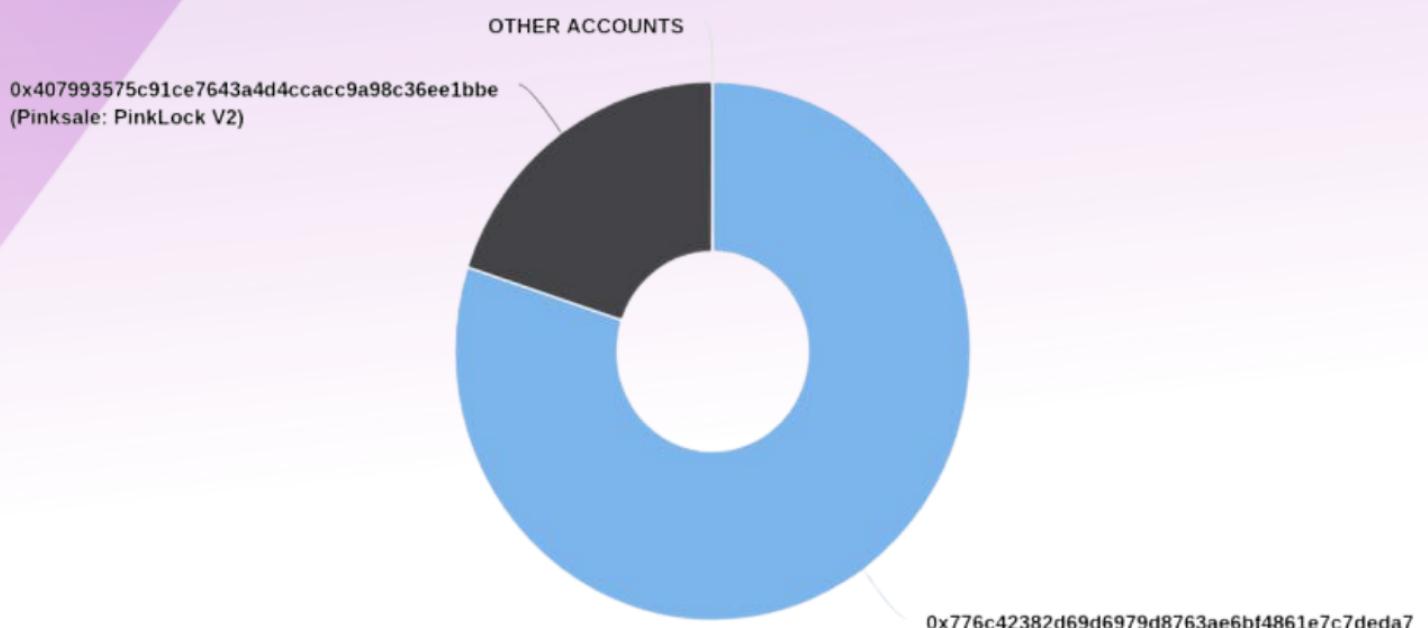
- Owner is not able to set sell tax over 10% (until 7 days after launch)
- Owner is not able to set buy or transfer tax (0% both)
- Owner is not able to set a max buy/transfer/wallet/sell amount
- Owner is not able to blacklist an arbitrary wallet
- Owner is not able to disable trades
- Owner is not able to mint new tokens
- **Owner must enable trades for holders to be able to trade**

# TOKENOMICS AT TIME OF AUDIT

## Holders at time of audit

PepeVault Top 100 Token Holders

Source: BscScan.com



# CONTRACT ASSESSMENT

Contract	Type	Bases			
	L	**Function Name**	**Visibility**	**Mutability**	**Modifiers**
**PEPEPUNK**	Implementation	IERC20, Ownable			
L   <Constructor>	Public !	● NO !			
L   <Receive Ether>	External !	● NO !			
L   totalSupply	External !	● NO !			
L   name	Public !	● NO !			
L   symbol	Public !	● NO !			
L   decimals	Public !	● NO !			
L   balanceOf	Public !	● NO !			
L   allowance	External !	● NO !			
L   approve	Public !	● NO !			
L   _approve	Internal 🔒	● ●			
L   approveMax	External !	● ● NO !			
L   transfer	External !	● ● NO !			
L   transferFrom	External !	● ● NO !			
L   _transferFrom	Internal 🔒	● ●			
L   takeFee	Internal 🔒	● ●			
L   _basicTransfer	Internal 🔒	● ●			
L   shouldTakeFee	Internal 🔒	● ●			
L   shouldDoContractSwap	Internal 🔒	● ●			
L   isFeeExcluded	Public !	● NO !			
L   doContractSwap	Internal 🔒	● ● swapping			
L   swapTokensForEth	Private 🔒	● ●			
L   setIsFeeExempt	External !	● ● onlyOwner			
L   setDoContractSwap	External !	● ● onlyOwner			
L   changeMarketingWallet	External !	● ● onlyOwner			
L   changeSellFees	External !	● ● onlyOwner			
L   enableTrading	External !	● ● onlyOwner			
L   setAuthorizedWallets	External !	● ● onlyOwner			
L   rescueBNB	External !	● ● onlyOwner			
L   changePair	External !	● ● onlyOwner			
**Ownable**	Implementation	Context			
L   <Constructor>	Public !	● NO !			
L   owner	Public !	● NO !			
L   _checkOwner	Internal 🔒	● ●			
L   renounceOwnership	Public !	● ● onlyOwner			
L   transferOwnership	Public !	● ● onlyOwner			
L   _transferOwnership	Internal 🔒	● ●			



# CONTRACT ASSESSMENT

**Context**   Implementation
L   _msgSender   Internal 🔒
L   _msgData   Internal 🔒
**IERC20**   Interface
L   totalSupply   External !     NO !
L   balanceOf   External !     NO !
L   transfer   External !     ●   NO !
L   allowance   External !     NO !
L   approve   External !     ●   NO !
L   transferFrom   External !     ●   NO !
**IUniswapV2Router02**   Interface   IUniswapV2Router01
L   removeLiquidityETHSupportingFeeOnTransferTokens   External !     ●   NO !
L   removeLiquidityETHWithPermitSupportingFeeOnTransferTokens   External !     ●   NO !
L   swapExactTokensForTokensSupportingFeeOnTransferTokens   External !     ●   NO !
L   swapExactETHForTokensSupportingFeeOnTransferTokens   External !     \$   NO !
L   swapExactTokensForETHSupportingFeeOnTransferTokens   External !     ●   NO !
**IUniswapV2Router01**   Interface
L   factory   External !     NO !
L   WETH   External !     NO !
L   addLiquidity   External !     ●   NO !
L   addLiquidityETH   External !     \$   NO !
L   removeLiquidity   External !     ●   NO !
L   removeLiquidityETH   External !     ●   NO !
L   removeLiquidityWithPermit   External !     ●   NO !
L   removeLiquidityETHWithPermit   External !     ●   NO !
L   swapExactTokensForTokens   External !     ●   NO !
L   swapTokensForExactTokens   External !     ●   NO !
L   swapExactETHForTokens   External !     \$   NO !
L   swapTokensForExactETH   External !     ●   NO !
L   swapExactTokensForETH   External !     ●   NO !
L   swapETHForExactTokens   External !     \$   NO !
L   quote   External !     NO !
L   getAmountOut   External !     NO !
L   getAmountIn   External !     NO !
L   getAmountsOut   External !     NO !
L   getAmountsIn   External !     NO !
**IUniswapV2Factory**   Interface
L   feeTo   External !     NO !
L   feeToSetter   External !     NO !

# CONTRACT ASSESSMENT

	L		getPair		External	!			NO	!			
	L		allPairs		External	!			NO	!			
	L		allPairsLength		External	!			NO	!			
	L		createPair		External	!			●		NO	!	
	L		setFeeTo		External	!			●		NO	!	
	L		setFeeToSetter		External	!			●		NO	!	

## Legend

	Symbol		Meaning	
:-----	:-----			
	●		Function can modify state	
	\\$		Function is payable	



# STATIC ANALYSIS

```
Context._msgData() (contracts/Token.sol#179-181) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code

PEPEPUNK.swapThreshold (contracts/Token.sol#495) is set pre-construction with a non-constant function or state variable:
- (_totalSupply * 1) / 10000
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#function-initializing-state

Pragma version^0.8.17 (contracts/Token.sol#5) 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

Function IUniswapV2Router01.WETH() (contracts/Token.sol#10) is not in mixedCase
Parameter PEPEPUNK.isFeeExcluded(address), _wallet (contracts/Token.sol#698) is not in mixedCase
Parameter PEPEPUNK.setDoContractSwap(bool), _enabled (contracts/Token.sol#734) is not in mixedCase
Parameter PEPEPUNK.changeMarketingWallet(address), _wallet (contracts/Token.sol#738) is not in mixedCase
Parameter PEPEPUNK.changeSellFees(uint256,uint256), _burnFee (contracts/Token.sol#743) is not in mixedCase
Parameter PEPEPUNK.changeSellFees(uint256,uint256), _marketingFee (contracts/Token.sol#744) is not in mixedCase
Parameter PEPEPUNK.setAuthorizedWallets(address,bool), _wallet (contracts/Token.sol#765) is not in mixedCase
Parameter PEPEPUNK.setAuthorizedWallets(address,bool), _status (contracts/Token.sol#766) is not in mixedCase
Parameter PEPEPUNK.changePair(address), _pair (contracts/Token.sol#778) is not in mixedCase
Variable PEPEPUNK.DEAD (contracts/Token.sol#472) is not in mixedCase
Constant PEPEPUNK.name (contracts/Token.sol#474) is not in UPPER CASE WITH underscores
Constant PEPEPUNK.symbol (contracts/Token.sol#475) is not in UPPER CASE WITH underscores
Constant PEPEPUNK.decimals (contracts/Token.sol#476) is not in UPPER CASE WITH underscores
Variable PEPEPUNK._totalSupply (contracts/Token.sol#478) is not in mixedCase
Variable PEPEPUNK.balances (contracts/Token.sol#480) is not in mixedCase
Variable PEPEPUNK.allowances (contracts/Token.sol#481) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

Reentrancy in PEPEPUNK._transferFrom(address,address,uint256) (contracts/Token.sol#613-637):
External calls:
- doContractsSwap() (contracts/Token.sol#624)
  - address(marketingWallet).transfer(swappedTokens) (contracts/Token.sol#709)
State variables written after the call(s):
- _balances[sender] = _balances[sender] - amount (contracts/Token.sol#628)
- _balances[recipient] = _balances[recipient] + amountReceived (contracts/Token.sol#633)
- amountReceived = takeFee(sender,amount) (contracts/Token.sol#630-632)
  - _balances[address(DEAD)] = _balances[address(DEAD)] + tokensToBurn (contracts/Token.sol#649-651)
  - _balances[address(this)] = _balances[address(this)] + (feeToken - tokensToBurn) (contracts/Token.sol#655-657)
Event emitted after the call(s):
- Transfer(sender,address(DEAD),tokensToBurn) (contracts/Token.sol#652)
  - amountReceived = takeFee(sender,amount) (contracts/Token.sol#630-632)
- Transfer(sender,address(this),(feeToken - tokensToBurn)) (contracts/Token.sol#658)
  - amountReceived = takeFee(sender,amount) (contracts/Token.sol#630-632)
- Transfer(sender,recipient,amountReceived) (contracts/Token.sol#635)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-4

Variable IUniswapV2Router01.addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256).amountADesired (contracts/Token.sol#15) is too similar to IUniswapV2Router01.addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256).amountBDesired (contracts/Token.sol#16)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar

PEPEPUNK.DEAD (contracts/Token.sol#472) should be constant
PEPEPUNK._totalSupply (contracts/Token.sol#478) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

PEPEPUNK.router (contracts/Token.sol#492) should be immutable
PEPEPUNK.swapThreshold (contracts/Token.sol#495) 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 functionalities have been tested, no issues were found

### 1- Adding liquidity (**passed**):

<https://testnet.bscscan.com/tx/0x054e3b78f0f8e8f26948b72e7b2f230fbf864c6678a8efa2ff79bb147cce809>

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

<https://testnet.bscscan.com/tx/0x7d7b2096d28451ba3aa80087207c28f6fc879c56b3e4ad59ca9ff0fcb4f05504>

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

<https://testnet.bscscan.com/tx/0x9f16e1bc87224d701f99cd276db2220d6527388c3f58082810a09a026e726995>

### 4- Transferring when excluded from fees (0% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x769641730acb2282b895a5ba0f35f6491371678598eb977bfd370abd38db1f46>

### 5- Buying when not excluded from fees (0% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x5a74a7e5e66d666081612086c6c74f62aab19c4a0aa11436ed194d1d0e578f3d>

### 6- Selling when not excluded from fees (up to 10% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x2b7a8a8274b10e10b73037f818379e49f583e490fca1a24ac26703270e7e3b56>



# FUNCTIONAL TESTING

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**7- Transferring when not excluded from fees (0% tax) (passed):**

<https://testnet.bscscan.com/tx/0x295384dd609ad5d54857354e107850a2d78158154e68bf3987eec05ca6617531>

**7- Internal swap (fee wallets received BNB + Burning) (passed):**

<https://testnet.bscscan.com/tx/0x2b7a8a8274b10e10b73037f818379e49f583e490fc1a24ac26703270e7e3b56>



# MANUAL TESTING

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## Centralization – Trades must be enabled

Severity: **High**

function: enableTrading

Status: **Resolved (Contract is owned by Pinksale safu developer)**

### 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(!isTradeEnabled, "Trading already enabled");  
    isTradeEnabled = true;  
    listingTime = block.timestamp;
```

### Suggestion

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

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.

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 3<sup>rd</sup> party in order to guarantee enabling of the trades (**applied**)



# MANUAL TESTING

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## Informational – Stuck ERC20 tokens

**Status:** Not Resolved

**Overview:**

ERC20 tokens sent to contract can not be rescued.

**Suggestion:**

implement a function to be able to withdraw ERC20 tokens from the contract



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