



Smart Contract Audit

FOR

PepeFinance

DATED : 15 June 23'



MANUAL TESTING

Logical – 0% marketing fee can disable trades

Severity: Critical

function: _transfer

Status: Not Resolved

Overview:

Setting buyMarketingFee or sellMarketingFee to 0% can disable buy or sells. This is because fees are subtracted by 1 at _transfer function.

```
if (takeFee) {  
    // on buy  
    if (isBuy && buyTotalFees > 0) {  
        feeMarketing = amount.mul(buyMarketingFee.sub(1)).div(100);  
        feeLiquidity = amount.mul(buyLiquidityFee.add(1)).div(100);  
    }  
    // on sell  
    else if (isSell && sellTotalFees > 0) {  
        feeMarketing = amount.mul(sellMarketingFee.sub(1)).div(100);  
        feeLiquidity = amount.mul(sellLiquidityFee.add(1)).div(100);  
    }  
}
```

Suggestion

Before subtracting by 1, ensure that fees are greater than 0

```
if (takeFee) {  
    // on buy  
    if (isBuy && buyTotalFees > 0 && buyMarketingFee > 0) {  
        feeMarketing = amount.mul(buyMarketingFee.sub(1)).div(100);  
        feeLiquidity = amount.mul(buyLiquidityFee.add(1)).div(100);  
    }  
    // on sell  
    else if (isSell && sellTotalFees > 0 && sellMarketingFee > 0) {  
        feeMarketing = amount.mul(sellMarketingFee.sub(1)).div(100);  
        feeLiquidity = amount.mul(sellLiquidityFee.add(1)).div(100);  
    }  
}
```



AUDIT SUMMARY

Project name - PepeFinance

Date: 15 June, 2023

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

Audit Status: Failed

Issues Found

Status	Critical	High	Medium	Low	Suggestion
Open	0	0	1	0	1
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 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/0xca0883caff61E1C6f4751e3144567328D483782A>



Token Information

Token Name : PepeFinance

Token Symbol: PepeF

Decimals: 18

Token Supply: 1,000,000,000

Token Address:

0xe1eDC2e2350DC2E4ae179deaA8C4aa0629b7aE55

Checksum:

4815b1bf56dcc984ff23f00769acfeb984eff34b

Owner:

0x10d9d74f0ACC91FF0B3e44c0Ff2fF079ec2E33f3

Deployer:

0x10d9d74f0ACC91FF0B3e44c0Ff2fF079ec2E33f3



TOKEN OVERVIEW

Fees:

Buy Fees: 0-10%

Sell Fees: 0-10%

Transfer Fees: 0%

Fees Privilege: Owner

Ownership: owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Privileges: Initial distribution of tokens

updating 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 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



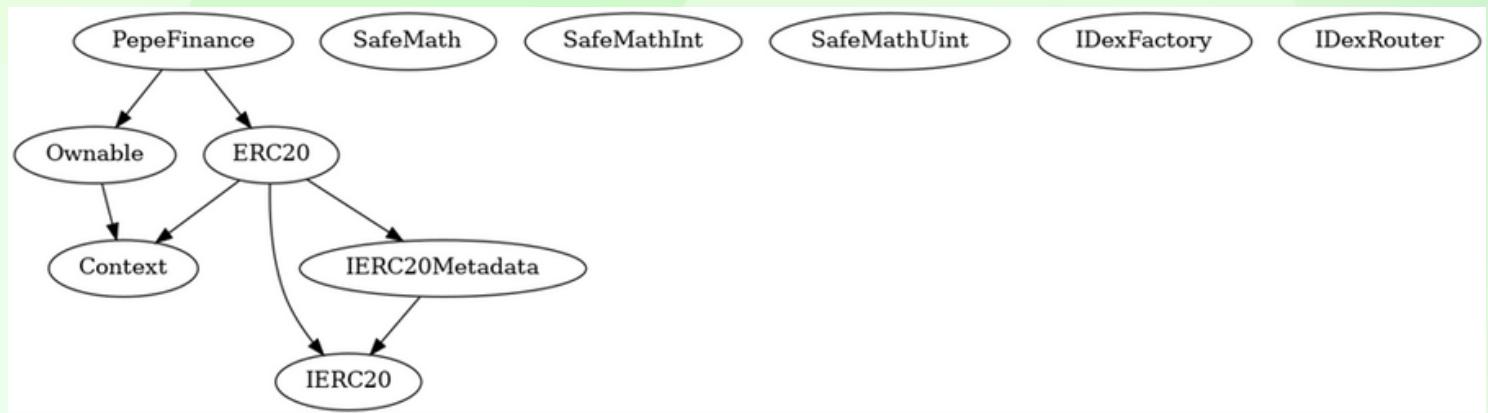
CLASSIFICATION OF RISK

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

INHERITANCE TREE





POINTS TO NOTE

- Owner is able to change buy/sell fees 0-10%
- 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



CONTRACT ASSESSMENT

Contract	Type	Bases			
	L	**Function Name**	**Visibility**	**Mutability**	**Modifiers**
		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 !
		IERC20Metadata	Interface	IERC20	
	L	name	External	!	NO !
	L	symbol	External	!	NO !
	L	decimals	External	!	NO !
		ERC20	Implementation	Context, IERC20, IERC20Metadata	
	L	<Constructor>	Public	!	● NO !
	L	name	Public	!	NO !
	L	symbol	Public	!	NO !
	L	decimals	Public	!	NO !
	L	totalSupply	Public	!	NO !
	L	balanceOf	Public	!	NO !
	L	transfer	Public	!	● NO !
	L	allowance	Public	!	NO !
	L	approve	Public	!	● NO !
	L	transferFrom	Public	!	● NO !
	L	increaseAllowance	Public	!	● NO !
	L	decreaseAllowance	Public	!	● NO !
	L	_transfer	Internal	🔒	●
	L	_mint	Internal	🔒	●
	L	_burn	Internal	🔒	●
	L	_approve	Internal	🔒	●
	L	_beforeTokenTransfer	Internal	🔒	●
		SafeMath	Library		
	L	add	Internal	🔒	
	L	sub	Internal	🔒	



CONTRACT ASSESSMENT

```
| L | sub | Internal 🔒 | |||
| L | mul | Internal 🔒 | |||
| L | div | Internal 🔒 | |||
| L | div | Internal 🔒 | |||
| L | mod | Internal 🔒 | |||
| L | mod | Internal 🔒 | |||
|||||
| **Ownable** | Implementation | Context ||
| L | <Constructor> | Public ! | ● | NO !
| L | owner | Public ! | | NO !
| L | renounceOwnership | Public ! | ● | onlyOwner | |
| L | transferOwnership | Public ! | ● | onlyOwner |
|||||
| **SafeMathInt** | Library | ||
| L | mul | Internal 🔒 | |||
| L | div | Internal 🔒 | |||
| L | sub | Internal 🔒 | |||
| L | add | Internal 🔒 | |||
| L | abs | Internal 🔒 | |||
| L | toUint256Safe | Internal 🔒 | |||
|||||
| **SafeMathUint** | Library | ||
| L | toInt256Safe | Internal 🔒 | |||
|||||
| **IDexFactory** | Interface | ||
| L | getPair | External ! | | NO !
| L | createPair | External ! | ● | NO !
|||||
| **IDexRouter** | Interface | ||
| L | factory | External ! | | NO !
| L | WETH | External ! | | NO !
| L | addLiquidityETH | External ! | | $ | NO !
| L | swapExactTokensForETHSupportingFeeOnTransferTokens | External ! | ● | NO !
||||| |
| **PepeFinance** | Implementation | ERC20, Ownable ||
| L | <Constructor> | Public ! | ● | ERC20 |
| L | <Receive Ether> | External ! | | $ | NO !
| L | updateSwapTokensAtAmount | External ! | ● | onlyOwner |
| L | updateBuyFees | External ! | ● | onlyOwner |
| L | updateSellFees | External ! | ● | onlyOwner |
| L | excludeFromMaxTransaction | Public ! | ● | onlyOwner |
| L | updateSwapBackEnabled | External ! | ● | onlyOwner |
| L | excludeFromFees | Public ! | ● | onlyOwner |
```

CONTRACT ASSESSMENT

L recoverETH External ! ● onlyOwner
L setAutomatedMarketMakerPair Public ! ● onlyOwner
L _setAutomatedMarketMakerPair Private 🔒 ●
L updateMarketingWallet External ! ● onlyOwner
L isExcludedFromFees Public ! NO !
L _transfer Internal 🔒 ●
L swapTokensForEth Private 🔒 ●
L addLiquidity Private 🔒 ●
L swapBack Private 🔒 ●
L burn External ! ● NO !

Legend

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



STATIC ANALYSIS

```
Reentrancy in PepeFinance.swapBack() (contracts/Token.sol#920-949):
  External calls:
    - swapTokensForEth(amountToSwapForETH) (contracts/Token.sol#932)
      - dexRouter.swapExactTokensForETHSupportingFeeOnTransferTokens(tokenAmount,0,path,address(this),block.timestamp) (contracts/Token.sol#896-902)
    - addLiquidity(liquidityTokens,ethForLiquidity) (contracts/Token.sol#944)
      - dexRouter.addLiquidityETH(value: ethAmount)(address(this),tokenAmount,0,0,owner(),block.timestamp) (contracts/Token.sol#910-917)
  External calls sending eth:
    - addLiquidity(liquidityTokens,ethForLiquidity) (contracts/Token.sol#944)
      - dexRouter.addLiquidityETH(value: ethAmount)(address(this),tokenAmount,0,0,owner(),block.timestamp) (contracts/Token.sol#910-917)
  Event emitted after the call(s):
    - Approval(owner,spender,amount) (contracts/Token.sol#365)
      - addLiquidity(liquidityTokens,ethForLiquidity) (contracts/Token.sol#944)
    - SwapAndLiquify(amountToSwapForETH,ethForLiquidity,tokensForLiquidity) (contracts/Token.sol#945)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-3

Context._msgData() (contracts/Token.sol#20-23) is never used and should be removed
SafeMath.mod(uint256,uint256) (contracts/Token.sol#506-508) is never used and should be removed
SafeMath.mod(uint256,uint256,string) (contracts/Token.sol#522-525) is never used and should be removed
SafeMathInt.abs(int256) (contracts/Token.sol#628-631) is never used and should be removed
SafeMathInt.add(int256,int256) (contracts/Token.sol#619-623) is never used and should be removed
SafeMathInt.div(int256,int256) (contracts/Token.sol#599-605) is never used and should be removed
SafeMathInt.mul(int256,int256) (contracts/Token.sol#587-594) is never used and should be removed
SafeMathInt.sub(int256,int256) (contracts/Token.sol#610-614) is never used and should be removed
SafeMathInt.toUint256Safe(int256) (contracts/Token.sol#633-636) is never used and should be removed
SafeMathUint.toInt256Safe(uint256) (contracts/Token.sol#640-644) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code

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-0.8.20 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity

Low level call in PepeFinance.recoverETH() (contracts/Token.sol#799-801):
  - address(msg.sender).call{value: address(this).balance}() (contracts/Token.sol#800)
Low level call in PepeFinance.swapBack() (contracts/Token.sol#920-949):
  - (success) = address(_taxWallet.marketing).call{value: address(this).balance}() (contracts/Token.sol#948)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls

Function IDexRouter.WETH() (contracts/Token.sol#654) is not in mixedCase
Parameter PepeFinance.updateBuyFees(uint256,uint256).marketingFee (contracts/Token.sol#771) is not in mixedCase
Parameter PepeFinance.updateBuyFees(uint256,uint256).liquidityFee (contracts/Token.sol#771) is not in mixedCase
Parameter PepeFinance.updateSellFees(uint256,uint256).marketingFee (contracts/Token.sol#778) is not in mixedCase
Parameter PepeFinance.updateSellFees(uint256,uint256).liquidityFee (contracts/Token.sol#778) is not in mixedCase
Constant PepeFinance.deadAddress (contracts/Token.sol#679) is not in UPPER_CASE_WITH_UNDERSCORES
Variable PepeFinance._taxWallet (contracts/Token.sol#691) is not in mixedCase
Variable PepeFinance._isExcludedMaxTransactionAmount (contracts/Token.sol#710) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

Redundant expression "this (contracts/Token.sol#21)" inContext (contracts/Token.sol#15-24)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements

PepeFinance.updateSwapTokensAtAmount(uint256) (contracts/Token.sol#765-769) uses literals with too many digits:
  - require(bool,string)(newAmount >= totalSupply() * 1 / 100000,Swap amount cannot be lower than 0.001% total supply.) (contracts/Token.sol#766)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits

SafeMathInt.MAX_INT256 (contracts/Token.sol#582) is never used in SafeMathInt (contracts/Token.sol#580-637)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable
```

**Result => A static analysis of contract's source code has been performed using slither,
No major issues were found in the output**



FUNCTIONAL TESTING

1- Adding liquidity (trades disabled) (passed):

<https://testnet.bscscan.com/tx/0x28de832ecbc300f0ac8899aea74b3e47e68a5e0e0a49ea820ccb70f185e6698b>

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

<https://testnet.bscscan.com/tx/0x0ae01fcf60f9b7a3c36e3317dd819fe194db98fe5ebe6ccc9de19b94854718b3>

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

<https://testnet.bscscan.com/tx/0xeedf88796dd5b6d4140f830a2ed59d30975e9ff5a1d82dc1acc007387c524a23>

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

<https://testnet.bscscan.com/tx/0x5eef44896a4a651067fe67b9c3fe7a5524e4dd666d0bcce2073d3b34afaaa5b7>

5- Buying when not excluded from fees (0-10% tax) (passed):

<https://testnet.bscscan.com/tx/0xc20dca395bdc66fbe4d90d167e778cc096c7da9dd5617267f0fb917dd9202c2d>



FUNCTIONAL TESTING

6- Selling when not excluded from fees (0-10% tax) (passed):

<https://testnet.bscscan.com/tx/0xa0349372c2b4836054997d970e0d82af232a994b0f347f174fa4fecdbceb6d41>

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

<https://testnet.bscscan.com/tx/0xf2ff93a73927abe1da2d92cc4a7e08359f282ef85f410a771056fd14b8a27a6b>

8- Internal swap & rewards distribution (passed):

- BNB sent to marketing wallet
- Auto-liquidity

<https://testnet.bscscan.com/tx/0xa0349372c2b4836054997d970e0d82af232a994b0f347f174fa4fecdbceb6d41>

MANUAL TESTING

Centralization – Owner receiving LP tokens

Severity: Medium

function: addLiquidity

Status: Not Resolved

Overview:

Owner is receiving LP tokens generated from auto-liquidity. This accumulated tokens can be used to remove a portion of liquidity pool.

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

    // add the liquidity
    dexRouter.addLiquidityETH{value: ethAmount}(
        address(this),
        tokenAmount,
        0, // slippage is unavoidable
        0, // slippage is unavoidable
        owner(),
        block.timestamp
    );
}
```

Suggestion

its suggested either Lock or burn new LP tokens.



MANUAL TESTING

Informational – Locked ERC20 tokens

function: ---

Status: Not Resolved

Overview:

Currently there are no functions to withdraw stuck ERC20 tokens from the contract.

Suggestion

It is suggested to implement a function for withdrawing ERC20 tokens from the contract.



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