



# Smart Contract Audit

FOR  
**JOKER PEPE**

DATED : 27 May 23'



# AUDIT SUMMARY

**Project name - JOKER PEPE**

**Date:** 27 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	2
Acknowledged	0	0	0	0	0
Resolved	0	0	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/address/0xbc6cde05b595b27a7827897cfb67c0143a4de79f>

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# Token Information

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**Token Name :** JOKER PEPE

**Token Symbol:** JOP

**Decimals:** 9

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

**Token Address:**

0x8c550F10A2f26313c76A22C5c90aBd298054aAD9

**Checksum:**

f803552931fc9b646677b37fdd16ec74396fdc29

**Owner:**

0x3f1006d2ee3691546EA4451a650B09E4565ec469

**Deployer:**

0x3f1006d2ee3691546EA4451a650B09E4565ec469

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# TOKEN OVERVIEW

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**Fees:**

Buy Fees: 0-18%

Sell Fees: 0-18%

Transfer Fees: 0%

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**Fees Privilege:** Owner

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**Ownership:** 0x3f1006d2ee3691546EA4451a650B09E4565ec469

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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:** Fee modification



# 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	0
◆ Medium-Risk	1
◆ Low-Risk	0
◆ Gas Optimization / Suggestions	2

# INHERITANCE TREE





## POINTS TO NOTE

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- Owner is able to change fees in range 0-18% for buy and sells (0% transfer tax)
- Owner is not able to blacklist an arbitrary address.
- Owner is not able to disable trades
- Owner is not able to limit buy/sell/transfer/wallet amounts
- Owner is not able to mint new token



# STATIC ANALYSIS

```
Reentrancy in JOKERPEPE.transferFrom(address,address,uint256) (contracts/Token.sol#276-291):
  External calls:
    - _transfer(sender,recipient,amount) (contracts/Token.sol#281)
      - _developmentAddress.transfer(amount.div(2)) (contracts/Token.sol#371)
      - _marketingAddress.transfer(amount.div(2)) (contracts/Token.sol#372)
  State variables written after the call(s):
    - _approve(sender, msgSender()), allowances[sender][_msgSender()].sub(amount,ERC20: transfer amount exceeds allowance) (contracts/Token.sol#282-289)
      - allowances[owner][spender] = amount (contracts/Token.sol#307)
  Event emitted after the call(s):
    - Approval(owner,spender,amount) (contracts/Token.sol#308)
      - approve(sender, _msgSender()), allowances[sender][_msgSender()].sub(amount,ERC20: transfer amount exceeds allowance) (contracts/Token.sol#282-289)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-4

Variable JOKERPEPE._getRValues(uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#488) is too similar to JOKERPEPE._getTValues(uint256,uint256,uint256).tTransferAmount (contracts/Token.sol#475)
Variable JOKERPEPE._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#420) is too similar to JOKERPEPE._transferStandard(address,address,uint256).tTransferAmount (contracts/Token.sol#422)
Variable JOKERPEPE._getRValues(uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#488) is too similar to JOKERPEPE._getValues(uint256).tTransferAmount (contracts/Token.sol#453)
Variable JOKERPEPE._getRValues(uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#488) is too similar to JOKERPEPE._transferStandard(address,address,uint256).tTransferAmount (contracts/Token.sol#422)
Variable JOKERPEPE._getValues(uint256).rTransferAmount (contracts/Token.sol#459) is too similar to JOKERPEPE._transferStandard(address,address,uint256).tTransferAmount (contracts/Token.sol#422)
Variable JOKERPEPE._getValues(uint256).rTransferAmount (contracts/Token.sol#459) is too similar to JOKERPEPE._getTValues(uint256,uint256,uint256).tTransferAmount (contracts/Token.sol#453)
Variable JOKERPEPE._getValues(uint256).rTransferAmount (contracts/Token.sol#459) is too similar to JOKERPEPE._getTValues(uint256,uint256,uint256).tTransferAmount (contracts/Token.sol#475)
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Variable JOKERPEPE._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#420) is too similar to JOKERPEPE._getValues(uint256).tTransferAmount (contracts/Token.sol#453)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar

JOKERPEPE.slitherConstructorConstantVariables() (contracts/Token.sol#161-569) uses literals with too many digits:
  - _tTotal = 10000000000000 * 10 ** 9 (contracts/Token.sol#169)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits

JOKERPEPE._tOwned (contracts/Token.sol#164) is never used in JOKERPEPE (contracts/Token.sol#161-569)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable

JOKERPEPE.uniswapV2Pair (contracts/Token.sol#192) should be immutable
JOKERPEPE.uniswapV2Router (contracts/Token.sol#191) 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**

# CONTRACT ASSESSMENT

Contract	Type	Bases			
	L	**Function Name**	**Visibility**	**Mutability**	**Modifiers**
		**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 !		
		**Token**   Interface			
	L	transferFrom   External !	●   NO !		
	L	transfer   External !	●   NO !		
		**IUniswapV2Factory**   Interface			
	L	createPair   External !	●   NO !		
		**IUniswapV2Router02**   Interface			
	L	swapExactTokensForETHSupportingFeeOnTransferTokens   External !	●   NO !		
	L	factory   External !	NO !		
	L	WETH   External !	NO !		
	L	addLiquidityETH   External !	S   NO !		
		**Context**   Implementation			
	L	_msgSender   Internal 🔒			
		**SafeMath**   Library			
	L	add   Internal 🔒			
	L	sub   Internal 🔒			
	L	sub   Internal 🔒			
	L	mul   Internal 🔒			
	L	div   Internal 🔒			
	L	div   Internal 🔒			
		**Ownable**   Implementation   Context			
	L	<Constructor>   Public !	●   NO !		
	L	owner   Public !	NO !		
	L	renounceOwnership   Public !	●   onlyOwner		
	L	transferOwnership   Public !	●   onlyOwner		
		**JOKERPEPE**   Implementation   Context, IERC20, Ownable			
	L	<Constructor>   Public !	●   NO !		



# CONTRACT ASSESSMENT

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   tokenFromReflection   Private 🔒
L   _approve   Private 🔒   ●
L   _transfer   Private 🔒   ●
L   swapTokensForEth   Private 🔒   ●   lockTheSwap
L   sendETHToFee   Private 🔒   ●
L   _tokenTransfer   Private 🔒   ●
L   rescueForeignTokens   Public !   ●   onlyDev
L   setNewDevAddress   Public !   ●   onlyDev
L   setNewMarketingAddress   Public !   ●   onlyDev
L   _transferStandard   Private 🔒   ●
L   _takeTeam   Private 🔒   ●
L   _reflectFee   Private 🔒   ●
L   <Receive Ether>   External !   💸   NO !
L   _getValues   Private 🔒
L   _getTValues   Private 🔒
L   _getRValues   Private 🔒
L   _getRate   Private 🔒
L   _getCurrentSupply   Private 🔒
L   manualswap   External !   ●   NO !
L   manualsend   External !   ●   NO !
L   setFee   Public !   ●   onlyDev
L   toggleSwap   Public !   ●   onlyDev
L   excludeMultipleAccountsFromFees   Public !   ●   onlyOwner

### Legend

Symbol   Meaning
:-----: -----
●   Function can modify state
💸   Function is payable



# FUNCTIONAL TESTING

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

<https://testnet.bscscan.com/tx/0x08648068a8aa60eccee0ad905f23b0c4c1573b111bd0431b01572b7be3c2980e>

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

<https://testnet.bscscan.com/tx/0xe0d4089a11b3eee9caad5d6335de3b74196931b75de932237eb4ef50da288b7b>

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

<https://testnet.bscscan.com/tx/0xf0eadd638048fd1f70ba88e1bdf3ce6091a0d03fb061563864567e975f6e1816>

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

<https://testnet.bscscan.com/tx/0xe2a918249d4a9ef7aedd24a80edc4e32531841e2e905e4f67ea55d719f636535>

## 5- Buying from a regular wallet (0-18% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x959be087d1169e21b867f231871024febf2477e2a3cdadf85cf5d76ad153d6b7>

## 6- Selling from a regular wallet (0-18% tax) (**passed**):

<https://testnet.bscscan.com/tx/0xe3f07235135d4e600c037150089976c64d2bea594180db7caeeecacd9049cfe3>

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# FUNCTIONAL TESTING

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## 7- Transferring from a regular wallet (0% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x8c710d0371bee6d61c1e6ca500d54c4a16ccfca8801ab47c8bf687a005ca15b7>

## 7- Internal swap (marketing and development wallets received BNB) (**passed**):

<https://testnet.bscscan.com/address/0x3f1006d2ee3691546EA4451a650B09E4565ec469#internaltx>



# MANUAL TESTING

**Issue Category:** Centralization – Excessive Fee

**Severity:** Medium

**Function:** setFee

**Status:** Not Resolved

**Overview:** The function setFee allows the owner to set the transaction fees for buying and selling. This buying and selling fee can be in range 0-18% for each type of tax (buy or sell)

**Code:**

solidity

```
function setFee(
    uint256 redisFeeOnBuy,
    uint256 redisFeeOnSell,
    uint256 taxFeeOnBuy,
    uint256 taxFeeOnSell
) public onlyDev {
    require(redisFeeOnBuy < 9);
    require(redisFeeOnSell < 9);
    require(taxFeeOnBuy < 9);
    require(taxFeeOnSell < 9);
    _redisFeeOnBuy = redisFeeOnBuy;
    _redisFeeOnSell = redisFeeOnSell;
    _taxFeeOnBuy = taxFeeOnBuy;
    _taxFeeOnSell = taxFeeOnSell;
}
```

**Suggestion:** Limit the maximum fee that can be set to prevent the owner from setting an excessively high fee. This can be done by modifying the require statements to a reasonable percentage.

Buy Total Fee <= 10

Sell Total Fee <= 10

Transfer Total Fee <= 10



# MANUAL TESTING

**Issue Category:** Efficiency - High Slippage Risk

**Severity:** Minor

**Function:** \_transfer

**Status:** Not Resolved

**Overview:** In the \_transfer function, it appears that the contract will try to swap all tokens in its balance for ETH whenever a transfer occurs that does not involve the owner. This can potentially lead to a situation where, if a large amount of tokens are accumulated in the contract, a huge amount of tokens will be swapped at once, leading to a high slippage. It's expected that during launch of the token, a huge amount of token get accumulated in the contract depending on the buy volume which leads to a high slippage in sell transactions (8-49%).

**Code:**

solidity

```
function _transfer(address from, address to, uint256 amount) private {
    require(from != address(0), "ERC20: transfer from the zero address");
    require(to != address(0), "ERC20: transfer to the zero address");
    require(amount > 0, "Transfer amount must be greater than zero");

    _redisFee = 0;
    _taxFee = 0;

    if (from != owner() && to != owner()) {
        uint256 contractTokenBalance = balanceOf(address(this));
        if (
            !inSwap &&
            from != uniswapV2Pair &&
            swapEnabled &&
            contractTokenBalance > 0
        ) {
            swapTokensForEth(contractTokenBalance);
            uint256 contractETHBalance = address(this).balance;
            if (contractETHBalance > 0) {
                sendETHToFee(address(this).balance);
            }
        }
    }
}
```

**Suggestion:** To mitigate the risk of high slippage, you might consider setting a swap threshold, i.e., a maximum amount of tokens that can be swapped at any single transaction. This can help prevent the contract from swapping a massive amount of tokens at once, thus preventing an excessive impact on the token's price.



# MANUAL TESTING

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**Issue Category:** Centralization – Unrestricted Withdrawal

**Severity:** Informational

**Function:** rescueForeignTokens

**Status:** Not Applicable

**Overview:** The owner has unrestricted access to withdraw any tokens from the contract. This poses a risk as it allows the owner to withdraw native tokens from the contract

**Code:**

```
function rescueForeignTokens(  
    address _tokenAddr,  
    address _to,  
    uint _amount  
) public onlyDev {  
    emit tokensRescued(_tokenAddr, _to, _amount);  
    Token(_tokenAddr).transfer(_to, _amount);  
}
```

**Suggestion:** Implement checks and balances on the owner's ability to withdraw tokens from the contract. This could be achieved by establishing multisig control, time locks, or by setting a withdrawal limit.



# DISCLAIMER

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# ABOUT AUDITACE

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We specialize in providing thorough and reliable audits for Web3 projects. With a team of experienced professionals, we use cutting-edge technology and rigorous methodologies to evaluate the security and integrity of blockchain systems. We are committed to helping our clients ensure the safety and transparency of their digital assets and transactions.



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