ASTROBIATECH
BLOCKCHAIN SECURITY

MADE IN INDIA
BLOCKCHAIN SECURITY

SECURITY ASSESSMENT REPORT

PREPARED FOR

Kermit The Pepe

@astrobiatech

Nov
2023

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SCOPE OF AUDIT

The scope of this audit was to analyze and document the Kermit The Pepe smart contract codebase for quality, security, and correctness.

CHECKED VULNERABILITIES

We have scanned the smart contract for commonly known and morespecific vulnerabilities. Here are some of the commonly known vulnerabilities that we considered:

- Re-entrancy
- Timestamp Dependence
- Gas Limit and Loops
- DoS with Block Gas Limit
- Transaction-Ordering Dependence
- Use of tx.origin
- Exception disorder
- Gasless send
- Balance equality
- Byte array
- Transfer forwards all gas
- ERC20 API violation
- Malicious libraries
- Compiler version not fixed
- Redundant fallback function
- Send instead of transfer
- Style guide violation
- Unchecked external call
- Unchecked math
- Unsafe type inference
- Implicit visibility level

TECHNIQUES & METHODS

Throughout the audit of smart contract, care was taken to ensure:

- The overall quality of code.
- Use of best practices.
- Code documentation and comments match logic and expected behaviour.
- Token distribution and calculations are as per the intended behaviour mentioned in the whitepaper.
- Implementation of ERC-20 token standards.
- Efficient use of gas.
- Code is safe from re-entrancy and other vulnerabilities.

The following techniques, methods and tools were used to review all thesmart contracts.

Static Analysis

Static Analysis of Smart Contracts was done to identify contract vulnerabilities. In this step a series of automated tools are used to testsecurity of smart contracts.

Code Review / Manual Analysis

Manual Analysis or review of code was done to identify new vulnerability or verify the vulnerabilities found during the static analysis.Contracts were completely manually analyzed, their logic was checkedand compared with the one described in the whitepaper. Besides, the results of automated analysis were manually verified.

ISSUE CATEGORIES

Every issue in this report has been assigned with a severity level. There are four levels of severity and each of them has been explained below.

➢ HIGH SEVERITY ISSUES

A high severity issue or vulnerability means that your smart contract can be exploited. Issues on this level are critical to the smart contract's performance or functionality and we recommend these issues to be fixed before movingto a live environment.

➢ MEDIUM SEVERITY ISSUES

The issues marked as medium severity usually arise because of errors and deficiencies in the smart contract code. Issues on this level could potentially bring problems and they should still be fixed.

➢ LOW SEVERITY ISSUES

Low level severity issues can cause minor impact and or are just warningsthat can remain unfixed for now. It would be better to fix these issues atsome point in the future.

➢ INFORMATIONAL

These are severity four issues which indicate an improvement request, ageneral question, a cosmetic or documentation error, or a request for information. There is low-to-no impact.

ISSUES TABLE

TYPE	HIGH	MEDIUM	LOW	INFORMATIONAL
OPEN	1	0	0	0
ACKNOWLWDGENT	-	-	-	-
CLOSED	-	-	-	-

INTRODUCTION

On 15-11-2023 – Astrobiatech Blockchain Security Team performed security audit for Kermit The Pepe smart contract.

CONTRACT NAME	Kermit The Pepe
CONTRACT ADDRESS	0x9d612792f88869f20936c7981bb28fc68008ea20
BLOCKCHAIN	Binance Smart Chain

OVERVIEW

CONTRACT ADDRESS
0x9d612792f88869f20936c7981bb28fc68008ea20

CONTRACT NAME
KermitThePepe

CONTRACT CREATOR
0x2a08C7DEdcB187aD0E36F5D5cC397aDf65c0EeF1

OWNER ADDRESS
0x2a08C7DEdcB187aD0E36F5D5cC397aDf65c0EeF1

SOURCE CODE
Contract Source Code Verified at Binance Smart Chain

OTHER SETTINGS
default evmVersion, MIT license

COMPILER VERSION
v0.8.19+commit.7dd6d404

OPTIMIZATION ENABLED
Yes with 200 runs

Code is truncated to fit the constraints of this document.
https://bscscan.com/token/0x9d612792f88869f20936c7981bb28fc68008ea20#code

MANUAL ANALYSIS FINDINGS

HIGH

1. Owner can set Trading Fee more than 25%

Description:-

The contract allows the owner to dynamically set fees for buying and selling operations through the functions setBuyFee, setSellFee, and setBothFees. These functions take three parameters representing reflection, liquidity, and marketing fees, each specified as uint8 values. However, there is no explicit check within these functions to ensure that the sum of the provided fees does not exceed 100%.

Recommendation:-

To mitigate the risk associated with setting fees exceeding 100%, it is strongly recommended to implement a check within the fee-setting functions. This check should ensure that the total sum of reflection, liquidity, and marketing fees does not surpass 25%.

AUTOMATED ANALYSIS

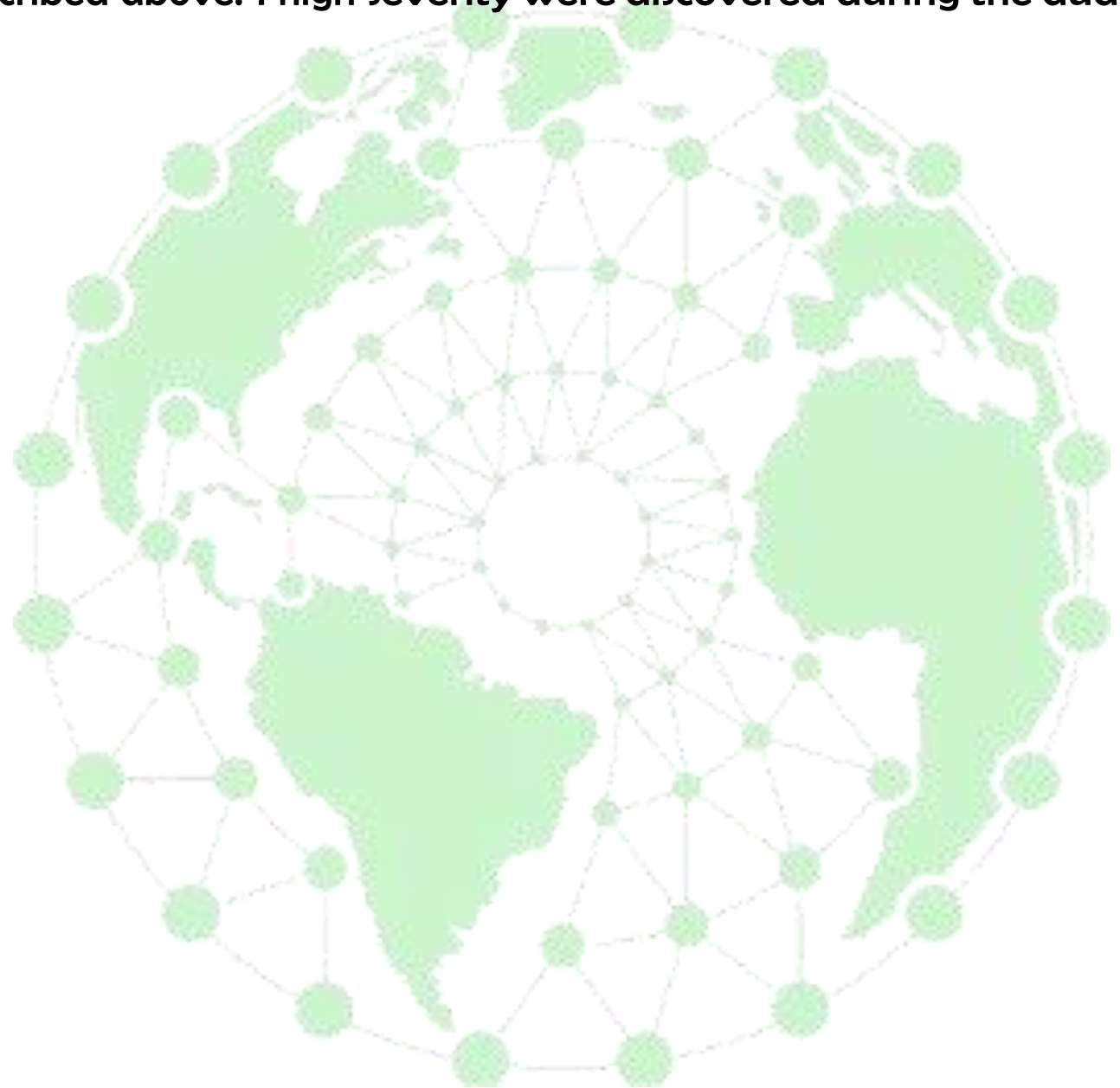
```
INFO:Detectors:
 Reentrancy in KermitThePepe._transfer(address,address,uint256) (token.sol#1376-1436):
        External calls:
        - swapAndLiquify(contractTokenBalance) (token.sol#1407)
                - uniswapV2Router.addLiquidityETH{value: ethAmount}(address(this),tokenAmount,0,0,address(this),block.timestamp) (token.sol#1491-1498)
                - uniswapV2Router.swapExactTokensForETHSupportingFeeOnTransferTokens(tokenAmount,0,path,address(this),block.timestamp) (token.sol#1477-1483)
        External calls sending eth:
        - swapAndLiquify(contractTokenBalance) (token.sol#1407)
                - uniswapV2Router.addLiquidityETH{value: ethAmount}(address(this),tokenAmount,0,0,address(this),block.timestamp) (token.sol#1491-1498)
                - address(_marketingAddress).transfer(marketingAmt) (token.sol#1462)
        State variables written after the call(s):
        - _tokenTransfer(from,to,amount,takeFee) (token.sol#1435)
                - _rOwned[address(this)] = _rOwned[address(this)].add(rWallet) (token.sol#1309)
                - _rOwned[address(this)] = _rOwned[address(this)].add(rLiquidity) (token.sol#1301)
                - _rOwned[sender] = _rOwned[sender].sub(rAmount) (token.sol#1551)
                - _rOwned[sender] = _rOwned[sender].sub(rAmount) (token.sol#1579)
                - _rOwned[sender] = _rOwned[sender].sub(rAmount) (token.sol#1636)
                - _rOwned[recipient] = _rOwned[recipient].add(rTransferAmount) (token.sol#1552)
                - _rOwned[sender] = _rOwned[sender].sub(rAmount) (token.sol#1608)
                - _rOwned[recipient] = _rOwned[recipient].add(rTransferAmount) (token.sol#1581)
                - _rOwned[recipient] = _rOwned[recipient].add(rTransferAmount) (token.sol#1609)
                - _rOwned[recipient] = _rOwned[recipient].add(rTransferAmount) (token.sol#1638)
        KermitThePepe._rOwned (token.sol#854) can be used in cross function reentrancies:
        - KermitThePepe._getCurrentSupply() (token.sol#1283-1296)
        - KermitThePepe._takeLiquidity(uint256) (token.sol#1298-1304)
        - KermitThePepe._takeWalletFee(uint256) (token.sol#1306-1312)
        - KermitThePepe._transferBothExcluded(address,address,uint256) (token.sol#1616-1643)
        - KermitThePepe._transferFromExcluded(address,address,uint256) (token.sol#1588-1614)
        - KermitThePepe._transferStandard(address,address,uint256) (token.sol#1532-1557)
        - KermitThePepe._transferToExcluded(address,address,uint256) (token.sol#1560-1586)
        - KermitThePepe.balanceOf(address) (token.sol#971-974)
        - KermitThePepe.constructor() (token.sol#925-953)
        - KermitThePepe.deliver(uint256) (token.sol#1057-1081)
        - KermitThePepe.excludeFromReward(address) (token.sol#1129-1136)
        - _tokenTransfer(from,to,amount,takeFee) (token.sol#1435)
                - _rTotal = _rTotal.sub(rFee) (token.sol#1229)
        KermitThePepe._rTotal (token.sol#867) can be used in cross function reentrancies:
        - KermitThePepe._getCurrentSupply() (token.sol#1283-1296)
        - KermitThePepe._reflectFee(uint256,uint256) (token.sol#1228-1231)
        - KermitThePepe.constructor() (token.sol#925-953)
        - KermitThePepe.deliver(uint256) (token.sol#1057-1081)
        - KermitThePepe.tokenFromReflection(uint256) (token.sol#1111-1122)
        - _tokenTransfer(from,to,amount,takeFee) (token.sol#1435)
                - _tOwned[address(this)] = _tOwned[address(this)].add(tWallet) (token.sol#1311)
                - _tOwned[address(this)] = _tOwned[address(this)].add(tLiquidity) (token.sol#1303)
                - _tOwned[sender] = _tOwned[sender].sub(tAmount) (token.sol#1607)
                - _tOwned[sender] = _tOwned[sender].sub(tAmount) (token.sol#1635)
                - _tOwned[recipient] = _tOwned[recipient].add(tTransferAmount) (token.sol#1580)
                - _tOwned[recipient] = _tOwned[recipient].add(tTransferAmount) (token.sol#1637)
        KermitThePepe._tOwned (token.sol#855) can be used in cross function reentrancies:
        - KermitThePepe._getCurrentSupply() (token.sol#1283-1296)
        - KermitThePepe._takeLiquidity(uint256) (token.sol#1298-1304)
        - KermitThePepe._takeWalletFee(uint256) (token.sol#1306-1312)
        - KermitThePepe._transferBothExcluded(address,address,uint256) (token.sol#1616-1643)
        - KermitThePepe._transferFromExcluded(address,address,uint256) (token.sol#1588-1614)
        - KermitThePepe._transferToExcluded(address,address,uint256) (token.sol#1560-1586)
        - KermitThePepe.balanceOf(address) (token.sol#971-974)
        - KermitThePepe.excludeFromReward(address) (token.sol#1129-1136)
        - KermitThePepe.includeInReward(address) (token.sol#1138-1149)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities
INFO:Detectors:
KermitThePepe.swapAndLiquify(uint256) (token.sol#1438-1466) performs a multiplication on the result of a division:
        - unitBalance = deltaBalance / (denominator - (buyFee.liquidity + sellFee.liquidity)) (token.sol#1449)
        - ethToAddLiquidityWith = unitBalance * (buyFee.liquidity + sellFee.liquidity) (token.sol#1450)
KermitThePepe.swapAndLiquify(uint256) (token.sol#1438-1466) performs a multiplication on the result of a division:
        - unitBalance = deltaBalance / (denominator - (buyFee.liquidity + sellFee.liquidity)) (token.sol#1449)
        - marketingAmt = unitBalance * 2 * (buyFee.marketing + sellFee.marketing) (token.sol#1458)
KermitThePepe.slitherConstructorVariables() (token.sol#848-1655) performs a multiplication on the result of a division:
        - _maxTxAmount = _tTotal.div(1000).mul(3) (token.sol#901)
KermitThePepe.slitherConstructorVariables() (token.sol#848-1655) performs a multiplication on the result of a division:
        - numTokensSellToAddToLiquidity = _tTotal.div(1000).mul(3) (token.sol#902)
KermitThePepe.slitherConstructorVariables() (token.sol#848-1655) performs a multiplication on the result of a division:
        - _maxWalletSize = _tTotal.div(1000).mul(3) (token.sol#903)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#divide-before-multiply
INFO:Detectors:
KermitThePepe.addLiquidity(uint256,uint256) (token.sol#1486-1499) ignores return value by uniswapV2Router.addLiquidityETH{value:
ethAmount}(address(this),tokenAmount,0,0,address(this),block.timestamp) (token.sol#1491-1498)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-return
```

FUNCTIONAL ANALYSIS

INHERITANCE TREE

SUMMARY

In this report, we have considered the security of the Kermit The Pepe smart contract. We performed our audit according to the procedure described above. 1 high severity were discovered during the audit.



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