



Smart Contract Audit

FOR

BabyApeCoin

DATED : 09 November 23'

MANUAL TESTING

Centralization – Owner can blacklist wallets.

Severity: High

function: blacklist

Status: Open

Overview:

The owner can blacklist wallets from transferring tokens for an indefinite period of time which is not recommended. Which can lock the user's token.

```
function blacklist(address account, bool isBlacklisted)  
external onlyOwner {  
    blacklisted[account] = isBlacklisted;  
  
    emit BlacklistUpdated(account, isBlacklisted);  
}
```

Suggestion:

There should be a locking period so that the wallet cannot be locked for an indefinite Period of time.



AUDIT SUMMARY

Project name – BabyApeCoin

Date: 09 November 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	1	0	2	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 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/0x2e57b29f5e141b1b546fe0023de7f90e592a6a45#code>



Token Information

Token Address: -

0xF80FcfaD81bFC386CE5E6515267D4a2001aFE02c

Name: BabyApeCoin

Symbol: BABYAPE

Decimals: 18

Network: ETH

Token Type: ERC20

Owner: - 0xdda9111d3E9ad58e6f74BCa014998A62cB36178b

Deployer: -

0xdda9111d3E9ad58e6f74BCa014998A62cB36178b

Token Supply: 100000000

Checksum: e1d0e4f3ac5d6777fbd4657945e19e43

Testnet version:

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

<https://testnet.bscscan.com/address/0x2e57b29f5e141b1b546fe0023de7f90e592a6a45#code>



TOKEN OVERVIEW

buy fee: 1%

Sell fee: 1%

transfer fee: 0%

Fee Privilege: Owner

Ownership: Owned

Minting: None

Max wallet: Yes

Max Trx: Yes

Blacklist: No

Other Privileges:

- Initial distribution of the tokens
 - Modifying fees
 - Enabling trades
 - bulk exempts fee
 - Modify amm, router,
- Liquidity is doing to owner wallet
-



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 Limitand 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	2
◆ Gas Optimization / Suggestions	0



POINTS TO NOTE

- Owner can renounce the ownership.
 - Owner can transfer the ownership.
 - Owner can exclude wallets from fees.
 - Owner can enable trading.
 - Owner can pause trading.
 - Owner can blacklist wallets.
 - Owner can set update threshold.
 - Owner Can set taxes upto 25%.
 - Owner can set AMMpair.
-



STATIC ANALYSIS

```
INFO:Detectors:
Reentrancy in BabyApeCoin._updateRouterV2(address) (BabyApeCoin.sol#1084-1093):
  External calls:
    - pairV2 = IUniswapV2Factory(routerV2.factory()).createPair(address(this),routerV2.WETH()) (BabyApeCoin.sol#1086)
  State variables written after the call(s):
    - _setAMMPair(pairV2,true) (BabyApeCoin.sol#1090)
      - AMMPairs[pair] = isPair (BabyApeCoin.sol#1102)
    - _excludeFromLimits(router,true) (BabyApeCoin.sol#1088)
      - isExcludedFromLimits[account] = isExcluded (BabyApeCoin.sol#1117)
    - _setAMMPair(pairV2,true) (BabyApeCoin.sol#1090)
      - isExcludedFromLimits[account] = isExcluded (BabyApeCoin.sol#1117)
  Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-2
INFO:Detectors:
Reentrancy in BabyApeCoin._transfer(address,address,uint256) (BabyApeCoin.sol#1022-1002):
  External calls:
    - _swapTokensForCoin(token2Swap) (BabyApeCoin.sol#1063)
    - routerV2.swapExactTokensForETHSupportingFeeOnTransferTokens(tokenAmount,0,path,address(this),block.timestamp) (BabyApeCoin.sol#977)
  External calls sending eth:
    - success = address(marketingAddress).send(marketingPortion) (BabyApeCoin.sol#1060)
  Event emitted after the call(s):
    - Transfer(from,to,amount) (BabyApeCoin.sol#383)
      - super._transfer(from,to,amount) (BabyApeCoin.sol#1080)
    - marketingFeeSent(marketingAddress,marketingPortion) (BabyApeCoin.sol#1070)
  Reentrancy in BabyApeCoin._updateRouterV2(address) (BabyApeCoin.sol#1084-1093):
    External calls:
      - pairV2 = IUniswapV2Factory(routerV2.factory()).createPair(address(this),routerV2.WETH()) (BabyApeCoin.sol#1086)
    Event emitted after the call(s):
      - AMMPairsUpdated(pair,isPair) (BabyApeCoin.sol#1109)
      - _setAMMPair(pairV2,true) (BabyApeCoin.sol#1090)
      - ExcludeFromLimits(account,isExcluded) (BabyApeCoin.sol#1119)
      - _setAMMPair(pairV2,true) (BabyApeCoin.sol#1090)
      - ExcludeFromLimits(account,isExcluded) (BabyApeCoin.sol#1119)
      - _excludeFromLimits(router,true) (BabyApeCoin.sol#1088)
      - RouterV2Updated(router) (BabyApeCoin.sol#1092)
  Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-3

INFO:Detectors:
Context._msgData() (BabyApeCoin.sol#151-153) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code
INFO:Detectors:
Pragma version0.8.19 (BabyApeCoin.sol#18) necessitates a version too recent to be trusted. Consider deploying with 0.8.18.
solc-0.8.19 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity
INFO:Detectors:
Function IUniswapV2Pair.DOMAIN_SEPARATOR() (BabyApeCoin.sol#715) is not in mixedCase
Function IUniswapV2Pair.PERMIT_TYPEHASH() (BabyApeCoin.sol#716) is not in mixedCase
Function IUniswapV2Pair.MINIMUM_LIQUIDITY() (BabyApeCoin.sol#733) is not in mixedCase
Function IUniswapV2Router01.WETH() (BabyApeCoin.sol#754) is not in mixedCase
Event BabyApeCoin.marketingAddressUpdated(address) (BabyApeCoin.sol#918) is not in CapWords
Event BabyApeCoin.marketingFeesUpdated(uint16,uint16,uint16) (BabyApeCoin.sol#919) is not in CapWords
Event BabyApeCoin.marketingFeeSent(address,uint256) (BabyApeCoin.sol#920) is not in CapWords
Parameter BabyApeCoin.initialize(address)._router (BabyApeCoin.sol#954) is not in mixedCase
Parameter BabyApeCoin.updateSwapThreshold(uint16)._swapThresholdRatio (BabyApeCoin.sol#980) is not in mixedCase
Parameter BabyApeCoin.marketingAddressSetup(address)._newAddress (BabyApeCoin.sol#995) is not in mixedCase
Parameter BabyApeCoin.marketingFeesSetup(uint16,uint16,uint16)._buyFee (BabyApeCoin.sol#1005) is not in mixedCase
Parameter BabyApeCoin.marketingFeesSetup(uint16,uint16,uint16)._sellFee (BabyApeCoin.sol#1005) is not in mixedCase
Parameter BabyApeCoin.marketingFeesSetup(uint16,uint16,uint16)._transferFee (BabyApeCoin.sol#1005) is not in mixedCase
Parameter BabyApeCoin.updateMaxWalletAmount(uint256)._maxWalletAmount (BabyApeCoin.sol#1122) is not in mixedCase
Variable BabyApeCoin.AMMPairs (BabyApeCoin.sol#908) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

INFO:Detectors:
Reentrancy in BabyApeCoin._transfer(address,address,uint256) (BabyApeCoin.sol#1022-1002):
  External calls:
    - success = address(marketingAddress).send(marketingPortion) (BabyApeCoin.sol#1060)
  State variables written after the call(s):
    - super._transfer(from,to,amount) (BabyApeCoin.sol#1080)
      - _balances[from] = fromBalance - amount (BabyApeCoin.sol#377)
      - _balances[to] += amount (BabyApeCoin.sol#380)
    - _marketingPending = 0 (BabyApeCoin.sol#1073)
    - _swapping = false (BabyApeCoin.sol#1077)
  Event emitted after the call(s):
    - Transfer(from,to,amount) (BabyApeCoin.sol#383)
      - super._transfer(from,to,amount) (BabyApeCoin.sol#1080)
    - marketingFeeSent(marketingAddress,marketingPortion) (BabyApeCoin.sol#1070)
  Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-4
INFO:Detectors:
Variable IUniswapV2Router01.addLiquidity(address,address,uint256,uint256,uint256,address,uint256).amountADesired (BabyApeCoin.sol#759) is too similar to IUniswapV2Router01.addLiquidity(address,address,uint256,uint256,uint256,address,uint256).amountBDesired (BabyApeCoin.sol#760)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar
INFO:Detectors:
BabyApeCoin.constructor() (BabyApeCoin.sol#931-952) uses literals with too many digits:
  - updateMaxWalletAmount(2000000000 * (10 ** decimals()) / 10) (BabyApeCoin.sol#940)
BabyApeCoin.constructor() (BabyApeCoin.sol#931-952) uses literals with too many digits:
  - _mint(supplyRecipient,10000000000 * (10 ** decimals()) / 10) (BabyApeCoin.sol#950)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits
INFO:Slither:BabyApeCoin.sol analyzed (12 contracts with 93 detectors), 29 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

1- Approve (**passed**):

<https://testnet.bscscan.com/tx/0x4f6e66277c5e25870375f773090f11b696b85528c1d76662245a9a87d17470f6>

2- Increase Allowance (**passed**):

<https://testnet.bscscan.com/tx/0x483434bd41a9aaf70533545e2db7961105a9bea47f93b61d0bc7e1953250f745>

3- Decrease Allowance (**passed**):

<https://testnet.bscscan.com/tx/0x35e7551225512f1401192edb36714372ee81cd4595ca086a629c3475592e433d>

4- Burn From(**passed**):

<https://testnet.bscscan.com/tx/0x71cacfadd9fba906be3bf417f1c3d3ed06be50f9e390318cfec2a28be7aa6f64>

5- Burn (**passed**):

<https://testnet.bscscan.com/tx/0xfdc3a7a0b9226e16a077c2a012e19e83ef97c7c3f15db578c37e26e8e96dd999>

MANUAL TESTING

Centralization – Owner can blacklist wallets.

Severity: High

function: blacklist

Status: Open

Overview:

The owner can blacklist wallets from transferring tokens for an indefinite period of time which is not recommended. Which can lock the user's token.

```
function blacklist(address account, bool isBlacklisted)  
external onlyOwner {  
    blacklisted[account] = isBlacklisted;  
  
    emit BlacklistUpdated(account, isBlacklisted);  
}
```

Suggestion:

There should be a locking period so that the wallet cannot be locked for an indefinite Period of time.

MANUAL TESTING

Centralization – Missing Zero Address

Severity: Low

function: `excludeFromLimits`

Status: Open

Overview:

functions can take a zero address as a parameter (0x00000...). If a function parameter of address type is not properly validated by checking for zero addresses, there could be serious consequences for the contract's functionality.

```
function excludeFromLimits(address account, bool  
isExcluded) external onlyOwner {  
    _excludeFromLimits(account, isExcluded);  
}
```

Suggestion:

It is suggested that the address should not be zero or dead.

MANUAL TESTING

Severity: Low

subject: Missing Events

Status: Open

Overview:

They serve as a mechanism for emitting and recording data onto the blockchain, making it transparent and easily accessible.

```
function setAMMPair(address pair, bool isPair) external  
onlyOwner {  
    require(pair != pairV2, "DefaultRouter: Cannot remove  
initial pair from list");  
  
    _setAMMPair(pair, isPair);  
}
```

Suggestion:

Add an event to these important functions where address updation is happening. This can also be marked as an indexed event for better off-chain tracking.



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