



Smart Contract Audit

FOR

E-Launch

DATED : 24 Apr 23'



AUDIT SUMMARY

Project name – E-Launch

Date: 24 April, 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	1	1	0	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 done on BSC Test network, each test has its transaction has attached to it.

3- Slither : Static Analysis

Testnet Link: all tests were done using this contract, tests are done on BSC Testnet

<https://testnet.bscscan.com/token/0x4Ef2c5550a82Ac0428485Df3B9f3e39615CD2fE2>



Token Information

Token Name : E-Launch

Token Symbol: Elaunch

Decimals: 9

Token Supply: 100,000,000

Token Address:

0xc4c30dAD79d227C44FB2442eA9Ef067A82397503

Checksum:

e8775b9af2c4aea7f28e2a5084aee9affffb8d36

Owner:

0x9ED0a2FCe3B4C50Ea4A323AB2a9a72499Fdc65d6

Deployer:

0xB155D5632cA5A3A76acB713f3168ABe309A49BC3



TOKEN OVERVIEW

Fees:

Buy Fees: 8%

Sell Fees: 8%

Transfer Fees: 0%

Fees Privilege: Owner

Ownership : Owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: No

Blacklist: Yes

Other Privileges: including and excluding form fee -
changing swap threshold - modify fee



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

1

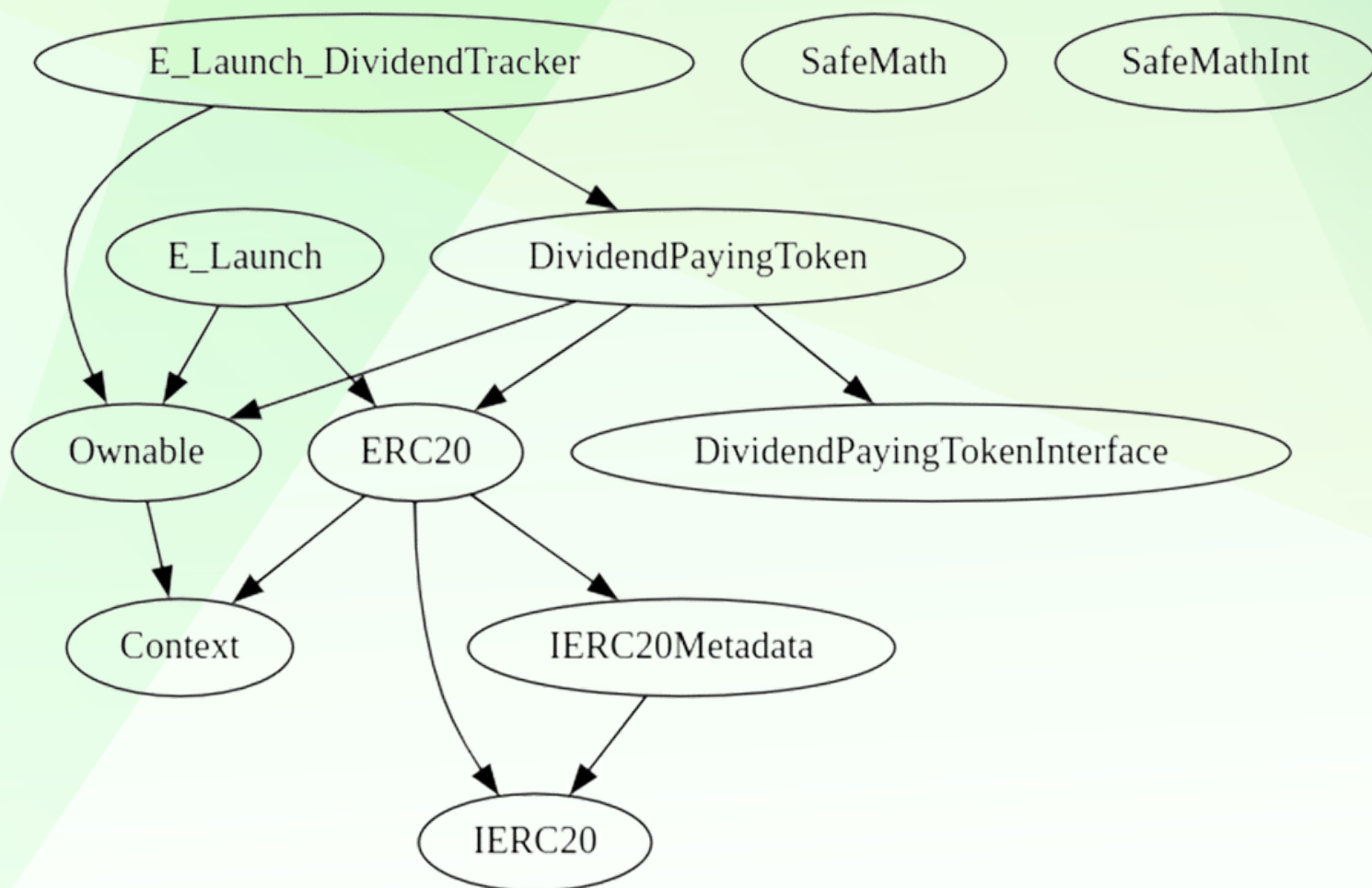
◆ Low-Risk

0

◆ Gas Optimization / Suggestions

0

INHERITANCE TREE



POINTS TO NOTE

- Owner is able to set buy/sell fees more than 8% each
 - Owner is not able to set transfer taxes (0% forever)
 - Owner is not able to set max buy/sell/transfer/hold 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 trading for holder manually
-

CONTRACT ASSESMENT

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

CONTRACT ASSESMENT

```

|  | sub | Internal | | |
|  | mul | Internal | | |
|  | div | Internal | | |
|  | div | Internal | | |
|  | mod | Internal | | |
|  | mod | Internal | | |
|  |  |  |  |  |
|  |  |  |  |  |
| **SafeMathInt** | Library | | |
|  | mul | Internal | | |
|  | div | Internal | | |
|  | sub | Internal | | |
|  | add | Internal | | |
|  | abs | Internal | | |
|  | toUint256Safe | Internal | | |
|  |  |  |  |  |
| **SafeMathUint** | Library | | |
|  | toInt256Safe | Internal | | |
|  |  |  |  |  |
| **Ownable** | Implementation | Context | | |
|  | <Constructor> | Public | | NO |
|  | owner | Public | | NO |
|  | renounceOwnership | Public | | onlyOwner |
|  | transferOwnership | Public | | onlyOwner |
|  |  |  |  |  |
| **IPair** | Interface | | |
|  | sync | External | | NO |
|  |  |  |  |  |
| **IFactory** | Interface | | |
|  | createPair | External | | NO |
|  | getPair | External | | NO |
|  |  |  |  |  |
| **IRouter** | Interface | | |
|  | factory | External | | NO |
|  | WETH | External | | NO |
|  | addLiquidityETH | External | | NO |
|  | swapExactTokensForTokensSupportingFeeOnTransferTokens | External | | NO |
|  | swapExactETHForTokens | External | | NO |
|  | swapExactTokensForETHSupportingFeeOnTransferTokens | External | | NO |
|  |  |  |  |  |
| **DividendPayingTokenInterface** | Interface | | |
|  | dividendOf | External | | NO |
|  | distributeDividends | External | | NO |

```

CONTRACT ASSESMENT

```

|  | withdrawableDividendOf | External ! | | NO! |
|  | withdrawnDividendOf | External ! | | NO! |
|  | accumulativeDividendOf | External ! | | NO! |
|  |  |
| **DividendPayingToken** | Implementation | ERC20, DividendPayingTokenInterface, Ownable |||
|  | <Constructor> | Public ! |  | ERC20 |
|  | <Receive Ether> | External ! |  | NO! |
|  | distributeDividends | Public ! |  | NO! |
|  | _withdrawDividendOfUser | Internal  |  |  |
|  | setRewardToken | External ! |  | onlyOwner |
|  | swapBnbForCustomToken | Internal  |  |  |
|  | dividendOf | Public ! | | NO! |
|  | withdrawableDividendOf | Public ! | | NO! |
|  | withdrawnDividendOf | Public ! | | NO! |
|  | accumulativeDividendOf | Public ! | | NO! |
|  | _transfer | Internal  |  |  |
|  | _tokengeneration | Internal  |  |  |
|  | _burn | Internal  |  |  |
|  | _setBalance | Internal  |  |  |
|  |  |
| **IterableMapping** | Library | |||
|  | get | Internal  | | |
|  | getIndexOfKey | Internal  | | |
|  | getKeyAtIndex | Internal  | | |
|  | size | Internal  | | |
|  | set | Internal  |  |  |
|  | remove | Internal  |  |  |
|  |  |
| **Address** | Library | |||
|  | sendValue | Internal  |  |  |
|  |  |
| **E_Launch** | Implementation | ERC20, Ownable |||
|  | <Constructor> | Public ! |  | ERC20 |
|  | <Receive Ether> | External ! |  | NO! |
|  | processDividendTracker | External ! |  | NO! |
|  | claim | External ! |  | NO! |
|  | ClearStuckBEP20Tokens | External ! |  | onlyOwner |
|  | ClearStuckBNB | External ! |  | NO! |
|  | excludeFromFees | Public ! |  | onlyOwner |
|  | excludeMultipleAccountsFromFees | Public ! |  | onlyOwner |
|  | excludeFromDividends | External ! |  | onlyOwner |
|  | setMarketingWallet | External ! |  | onlyOwner |

```

CONTRACT ASSESMENT

```

|  | setBuybackWallet | External ! |  | onlyOwner |
|  | setThresholdAmount | External ! |  | onlyOwner |
|  | updateBuyTaxes | External ! |  | onlyOwner |
|  | updateSellTaxes | External ! |  | onlyOwner |
|  | setSwapEnabled | External ! |  | onlyOwner |
|  | EnableTradingEnabled | External ! |  | onlyOwner |
|  | setBotBlocks | External ! |  | onlyOwner |
|  | setMinBalanceForDividends | External ! |  | onlyOwner |
|  | _setAutomatedMarketMakerPair | Private  |  |
|  | setGasForProcessing | External ! |  | onlyOwner |
|  | setClaimWait | External ! |  | onlyOwner |
|  | getClaimWait | External ! | |NO!|
|  | getTotalDividendsDistributed | External ! | |NO!|
|  | isExcludedFromFees | Public ! | |NO!|
|  | withdrawableDividendOf | Public ! | |NO!|
|  | getCurrentRewardToken | External ! | |NO!|
|  | dividendTokenBalanceOf | Public ! | |NO!|
|  | getAccountDividendsInfo | External ! | |NO!|
|  | getAccountDividendsInfoAtIndex | External ! | |NO!|
|  | getLastProcessedIndex | External ! | |NO!|
|  | getNumberOfDividendTokenHolders | External ! | |NO!|
|  | _transfer | Internal  |  |
|  | swapAndLiquify | Private  |  |
|  | swapTokensForBNB | Private  |  |
|  | addLiquidity | Private  |  |
| | | |
| **E_Launch_DividendTracker** | Implementation | Ownable, DividendPayingToken | |
|  | <Constructor> | Public ! |  | DividendPayingToken |
|  | _transfer | Internal  | |
|  | setMinBalanceForDividends | External ! |  | onlyOwner |
|  | excludeFromDividends | External ! |  | onlyOwner |
|  | updateClaimWait | External ! |  | onlyOwner |
|  | getLastProcessedIndex | External ! | |NO!|
|  | getNumberOfTokenHolders | External ! | |NO!|
|  | getCurrentRewardToken | External ! | |NO!|
|  | getAccount | Public ! | |NO!|
|  | getAccountAtIndex | Public ! | |NO!|
|  | canAutoClaim | Private  | |
|  | setBalance | Public ! |  | onlyOwner |
|  | process | Public ! |  |NO!|
|  | processAccount | Public ! |  | onlyOwner |

```



CONTRACT ASSESMENT

Legend

| Symbol | Meaning |

|:-----:|-----|

|  | Function can modify state |

|  | Function is payable |



STATIC ANALYSIS

```
Function IRouter.WETH() (contracts/Token.sol#739) is not in mixedCase
Parameter DividendPayingToken.dividendOf(address). owner (contracts/Token.sol#955) is not in mixedCase
Parameter DividendPayingToken.withdrawableDividendOf(address). owner (contracts/Token.sol#963) is not in mixedCase
Parameter DividendPayingToken.withdrawDividendOf(address). owner (contracts/Token.sol#972) is not in mixedCase
Parameter DividendPayingToken.accumulativeDividendOf(address). owner (contracts/Token.sol#983) is not in mixedCase
Constant DividendPayingToken.magnitude (contracts/Token.sol#829) is not in UPPER_CASE_WITH_UNDERSCORES
Contract E_Launch (contracts/Token.sol#1134-1643) is not in CapWords
Function E_Launch.ClearStuckBEP20Tokens(address) (contracts/Token.sol#1254-1263) is not in mixedCase
Function E_Launch.ClearStuckBNB() (contracts/Token.sol#1265-1268) is not in mixedCase
Parameter E_Launch.updateBuyTaxes(uint256,uint256,uint256,uint256). rewards (contracts/Token.sol#1328) is not in mixedCase
Parameter E_Launch.updateBuyTaxes(uint256,uint256,uint256,uint256). marketing (contracts/Token.sol#1329) is not in mixedCase
Parameter E_Launch.updateBuyTaxes(uint256,uint256,uint256,uint256). buyback (contracts/Token.sol#1330) is not in mixedCase
Parameter E_Launch.updateBuyTaxes(uint256,uint256,uint256,uint256). liquidity (contracts/Token.sol#1331) is not in mixedCase
Parameter E_Launch.updateSellTaxes(uint256,uint256,uint256,uint256). rewards (contracts/Token.sol#1341) is not in mixedCase
Parameter E_Launch.updateSellTaxes(uint256,uint256,uint256,uint256). marketing (contracts/Token.sol#1342) is not in mixedCase
Parameter E_Launch.updateSellTaxes(uint256,uint256,uint256,uint256). buyback (contracts/Token.sol#1343) is not in mixedCase
Parameter E_Launch.updateSellTaxes(uint256,uint256,uint256,uint256). liquidity (contracts/Token.sol#1344) is not in mixedCase
Parameter E_Launch.setSwapEnabled(bool). enabled (contracts/Token.sol#1353) is not in mixedCase
Function E_Launch.EnableTradingEnabled() (contracts/Token.sol#1357-1361) is not in mixedCase
Variable E_Launch.TradingBlock (contracts/Token.sol#1143) is not in mixedCase
Constant E_Launch.deadWallet (contracts/Token.sol#1147-1148) is not in UPPER_CASE_WITH_UNDERSCORES
Variable E_Launch.BuyFees (contracts/Token.sol#1166-1170) is not in mixedCase
Variable E_Launch.SellFees (contracts/Token.sol#1171-1175) is not in mixedCase
Variable E_Launch.isExcludedFromFees (contracts/Token.sol#1182) is not in mixedCase
Contract E_Launch.DividendTracker (contracts/Token.sol#1645-1898) is not in CapWords
Parameter E_Launch.DividendTracker.getAccount(address). account (contracts/Token.sol#1729) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

Redundant expression "this (contracts/Token.sol#14)" inContext (contracts/Token.sol#8-17)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements

Variable DividendPayingToken._withdrawDividendOfUser(address). withdrawableDividend (contracts/Token.sol#886) is too similar to E_Launch.DividendTracker.getAccount(address).withdrawableDividends (contracts/Token.sol#1737)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar

E_Launch.setGasForProcessing(uint256) (contracts/Token.sol#1390-1401) uses literals with too many digits:
- require(bool,string)(newValue >= 200000 && newValue <= 500000,GasForProcessing must be between 200,000 and 500,000) (contracts/Token.sol#1391-1394)
E_Launch.slitherConstructorVariables() (contracts/Token.sol#1134-1643) uses literals with too many digits:
- gasForProcessing = 300000 (contracts/Token.sol#1177)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits

SafeMathInt.MAX_INT256 (contracts/Token.sol#593) is never used in SafeMathInt (contracts/Token.sol#591-648)
E_Launch.currentRewardToken (contracts/Token.sol#1154) is never used in E_Launch (contracts/Token.sol#1134-1643)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable

E_Launch.currentRewardToken (contracts/Token.sol#1154) should be constant
E_Launch.launchtax (contracts/Token.sol#1180) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

DividendPayingToken.router (contracts/Token.sol#831) should be immutable
E_Launch.BuyFees (contracts/Token.sol#1166-1170) should be immutable
E_Launch.SellFees (contracts/Token.sol#1171-1175) should be immutable
E_Launch.dividendTracker (contracts/Token.sol#1145) should be immutable
E_Launch.pair (contracts/Token.sol#1138) should be immutable
E_Launch.router (contracts/Token.sol#1137) 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/0xf46296a501b3d1136380f30841777734327e47bd3e4acc44cb759b421644cb56>

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

<https://testnet.bscscan.com/tx/0x75cd5c3f2df39e29ce083e84305864f565ed912f30deda5134ba4787b7942cb6>

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

<https://testnet.bscscan.com/tx/0x0665551f473ef5b3c12ed8bcbae81743f29482cf42ba7434c47b48c269c8c540>

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

<https://testnet.bscscan.com/tx/0x6a94162a5f3963bf913c932aa6f23834b22f72b84d50ea18c48a48ac54490f15>

5- Buying when not excluded (upto 8% tax) (passed):

<https://testnet.bscscan.com/tx/0xb295ea79e7ee89ddb6afb92d53da9cd2909601e80e341b1e1f5ca9246f02b2f2>

6- Selling when not excluded (upto 8% tax) (passed):

<https://testnet.bscscan.com/tx/0xa837b1cdd1ae8f487e822749229e847d40b87fb2fa7168a252feaa90bd58df41>



FUNCTIONAL TESTING

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

<https://testnet.bscscan.com/tx/0xdc35468b160449100cb042150b705333ed59fcb431921692a3176a293a9c13de>

8- Internal swap (passed):

Marketing wallet and buyback received BNB

<https://testnet.bscscan.com/address/0x9a6d339fb20c1665e23d4e892563eaf5443ec71a#internaltx>

<https://testnet.bscscan.com/address/0x791cc7efd7506dfdbc8e5d0ebdd6d5b2e48099fb>

9- Reflections (passed):

<https://testnet.bscscan.com/tx/0xa837b1cdd1ae8f487e822749229e847d40b87fb2fa7168a252feaa90bd58df41>

10- Auto liquidity (passed):

<https://testnet.bscscan.com/token/0x3a5fb389bf4cec074b95c41a4acd35f7b53799e9?>

a=0x322dab6325de6f5bc2ba8efecc2bcbecac4f89f3

MANUAL TESTING

Centralization - Owner Must Enable Trades

Severity: High / Informational

Function: enableTradingEnabled

Lines: 1157

Status: Resolved (Safu dev enables trades)

Overview:

The owner is required to enable trading for investors. If trading remains disabled, token holders will not have the ability to buy, sell, or transfer their tokens.

```
function EnableTradingEnabled() external onlyOwner {  
    require(!tradingEnabled, "Trading is already enabled");  
    tradingEnabled = true;  
    TradingBlock = block.number;  
}
```

Recommendation:

While the presence of this function is considered a feature rather than a flaw, it is crucial to highlight the centralization risk it inherently poses. To address this issue and ensure the enablement of trades, one possible solution would be to transfer the contract's ownership to a trusted third party, such as a Pinksale Safu developer. This would help mitigate the centralization risk associated with this function.

MANUAL TESTING

Centralization - EOA receiving LP tokens

Severity: Medium

Function: addLiquidity

Lines: 1629

Status: Not Resolved

Overview:

LP tokens generated from auto-liquidity are sent to owner's wallet. This LP tokens can be used to remove a portion of liquidity pool (BNB and Tokens)

```
function addLiquidity(uint256 tokenAmount, uint256 ethAmount) private {  
    // approve token transfer to cover all possible scenarios  
    _approve(address(this), address(router), tokenAmount);  
  
    // add the liquidity  
    router.addLiquidityETH{value: ethAmount}(  
        address(this),  
        tokenAmount,  
        0, // slippage is unavoidable  
        0, // slippage is unavoidable  
        owner(),  
        block.timestamp  
    );  
}
```

Recommendation:

- Burn LP tokens
- or
- Lock LP tokens



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