



Smart Contract Audit

FOR
BART INU
DATED : 10 august 23'



AUDIT SUMMARY

Project name -BART INU

Date: 10 august, 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	0	1	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/token/0x19eC4495e87CAE824f23397e8E433Cb2Db503DA6>



Token Information

Token Name : BART INU

Token Symbol: BARTINU

Decimals: 18

Token Supply: 100,000,000

Token Address: -

Checksum:

49e8a3a96f977ca1c64e75be2d1edbdfc5648f89

Owner:-

(at time of writing the audit)

Deployer:-



TOKEN OVERVIEW

Fees:

Buy Fees: 0-25%

Sell Fees: 0-25%

Transfer Fees: 0%

Fees Privilege: owner

Ownership: not owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: no

Blacklist: No

Other Privileges: Initial distribution of the tokens
modifying 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



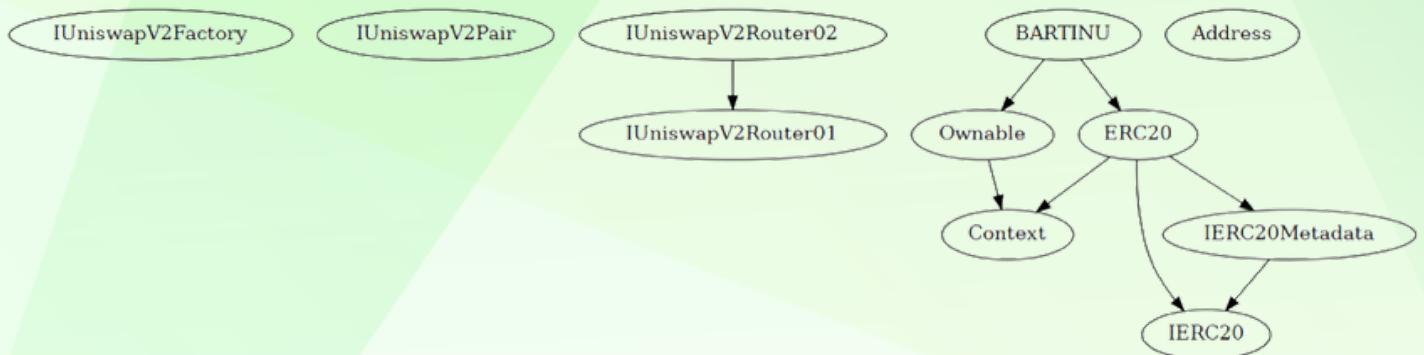
CLASSIFICATION OF RISK

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

INHERITANCE TREE





POINTS TO NOTE

- Owner is able to update buy and sell fees (0-25%)
- Owner is not able to set fee on transfers
- Owner is not able to blacklist an address
- Owner is not able to set maximum wallet and maximum buy/sell limits
- Owner is not able to mint new tokens
- Owner is not able to disable trades

CONTRACT ASSESSMENT

Contract	Type	Bases			
L	**Function Name**	**Visibility**	**Mutability**	**Modifiers**	
IUniswapV2Factory	Interface				
L	feeTo External !	NO !			
L	feeToSetter External !	NO !			
L	getPair External !	NO !			
L	allPairs External !	NO !			
L	allPairsLength External !	NO !			
L	createPair External !	 NO !			
L	setFeeTo External !	 NO !			
L	setFeeToSetter External !	 NO !			
IUniswapV2Pair	Interface				
L	name External !	NO !			
L	symbol External !	NO !			
L	decimals External !	NO !			
L	totalSupply External !	NO !			
L	balanceOf External !	NO !			
L	allowance External !	NO !			
L	approve External !	 NO !			

CONTRACT ASSESSMENT

```

| L | transfer | External ! | ⚡ | NO ! |
| L | transferFrom | External ! | ⚡ | NO ! |
| L | DOMAIN_SEPARATOR | External ! | NO ! |
| L | PERMIT_TYPEHASH | External ! | NO ! |
| L | nonces | External ! | NO ! |
| L | permit | External ! | ⚡ | NO ! |
| L | MINIMUM_LIQUIDITY | External ! | NO ! |
| L | factory | External ! | NO ! |
| L | token0 | External ! | NO ! |
| L | token1 | External ! | NO ! |
| L | getReserves | External ! | NO ! |
| L | price0CumulativeLast | External ! | NO ! |
| L | price1CumulativeLast | External ! | NO ! |
| L | kLast | External ! | NO ! |
| L | mint | External ! | ⚡ | NO ! |
| L | burn | External ! | ⚡ | NO ! |
| L | swap | External ! | ⚡ | NO ! |
| L | skim | External ! | ⚡ | NO ! |
| L | sync | External ! | ⚡ | NO ! |
| L | initialize | External ! | ⚡ | NO ! |
|||||
| **IUniswapV2Router01** | Interface | ||
| L | factory | External ! | NO ! |
| L | WETH | External ! | NO ! |
| L | addLiquidity | External ! | ⚡ | NO ! |
| L | addLiquidityETH | External ! | 💸 | NO ! |
| L | removeLiquidity | External ! | ⚡ | NO ! |
| L | removeLiquidityETH | External ! | ⚡ | NO ! |
| L | removeLiquidityWithPermit | External ! | ⚡ | NO ! |
| L | removeLiquidityETHWithPermit | External ! | ⚡ | NO ! |
| L | swapExactTokensForTokens | External ! | ⚡ | NO !

```

CONTRACT ASSESSMENT

```

| L | swapTokensForExactTokens | External ! | ⚡ | NO ! |
| L | swapExactETHForTokens | External ! | ⚡ | NO ! |
| L | swapTokensForExactETH | External ! | ⚡ | NO ! |
| L | swapExactTokensForETH | External ! | ⚡ | NO ! |
| L | swapETHForExactTokens | External ! | ⚡ | NO ! |
| L | quote | External ! | NO ! |
| L | getAmountOut | External ! | NO ! |
| L | getAmountIn | External ! | NO ! |
| L | getAmountsOut | External ! | NO ! |
| L | getAmountsIn | External ! | NO ! |
|||||
| **IUniswapV2Router02** | Interface | IUniswapV2Router01 ||
| L | removeLiquidityETHSupportingFeeOnTransferTokens | External ! | ⚡ |
NO ! |
| L | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External ! | |
| ⚡ | NO ! |
| L | swapExactTokensForTokensSupportingFeeOnTransferTokens | External ! |
| ⚡ | NO ! |
| L | swapExactETHForTokensSupportingFeeOnTransferTokens | External ! | ⚡ |
NO ! |
| L | swapExactTokensForETHSupportingFeeOnTransferTokens | External ! | ⚡ |
NO ! |
||||| |
| **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 ||

```

CONTRACT ASSESSMENT

```

| L | name | External ! | |NO ! | |
| L | symbol | External ! | |NO ! |
| L | decimals | External ! | |NO ! |
|||||
| **Address** | Library | ||
| L | isContract | Internal 🔒 | ||
| L | sendValue | Internal 🔒 | ⚡ | ||
| L | functionCall | Internal 🔒 | ⚡ | ||
| L | functionCall | Internal 🔒 | ⚡ | ||
| L | functionCallWithValue | Internal 🔒 | ⚡ | ||
| L | functionCallWithValue | Internal 🔒 | ⚡ | ||
| L | functionStaticCall | Internal 🔒 | ||
| L | functionStaticCall | Internal 🔒 | ||
| L | functionDelegateCall | Internal 🔒 | ⚡ | ||
| L | functionDelegateCall | Internal 🔒 | ⚡ | ||
| L | verifyCallResultFromTarget | Internal 🔒 | ||
| L | verifyCallResult | Internal 🔒 | ||
| L | _revert | Private 🔑 | ||
|||||
| **Context** | Implementation | ||
| L | _msgSender | Internal 🔒 | ||
| L | _msgData | Internal 🔒 | ||
|||||
| **Ownable** | Implementation | Context ||
| L | <Constructor> | Public ! | ⚡ | NO ! |
| L | owner | Public ! | |NO ! |
| L | renounceOwnership | Public ! | ⚡ | onlyOwner |
| L | transferOwnership | Public ! | ⚡ | onlyOwner |
|||||
| **ERC20** | Implementation | Context, IERC20, IERC20Metadata ||
| L | <Constructor> | Public ! | ⚡ | NO ! |
| L | name | Public ! | |NO ! |
| L | symbol | Public ! | |NO ! |

```

CONTRACT ASSESSMENT

```

| 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 🔒 | 🔴 |||
| L | _afterTokenTransfer | Internal 🔒 | 🔴 |||
|||||||
| **BARTINU** | Implementation | ERC20, Ownable ||
| L | <Constructor> | Public ! | 🔴 | ERC20 |
| L | <Receive Ether> | External ! | 💸 | NO !
| L | claimStuckTokens | External ! | 🔴 | onlyOwner | |
| L | excludeFromFees | External ! | 🔴 | onlyOwner |
| L | isExcludedFromFees | Public ! | NO ! |
| L | updateBuyFees | External ! | 🔴 | onlyOwner |
| L | updateSellFees | External ! | 🔴 | onlyOwner |
| L | changeMarketingWallet | External ! | 🔴 | onlyOwner |
| L | changeDevWallet | External ! | 🔴 | onlyOwner |
| L | _transfer | Internal 🔒 | 🔴 |||
| L | setSwapTokensAtAmount | External ! | 🔴 | onlyOwner |
| L | swapAndSendMarketing | Private 🔒 | 🔴 |||
| L | swapAndSendDev | Private 🔒 | 🔴 |||

```

CONTRACT ASSESSMENT

Legend

Symbol	Meaning
	Function can modify state
	Function is payable



STATIC ANALYSIS

```
INFO:Detectors:  
Pragma version<=0.8.17 (contracts/Token.sol#3) allows old versions  
solc-0.8.17 is not recommended for deployment  
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity  
INFO:Detectors:  
Low level call in Address.sendValue(address,uint256) (contracts/Token.sol#421-432):  
- (success) = recipient.call{value: amount}() (contracts/Token.sol#427)  
Low level call in Address.functionCallWithValue(address,bytes,uint256,string) (contracts/Token.sol#510-530):  
- (success,returnData) = target.call{value: value}(data) (contracts/Token.sol#520-522)  
Low level call in Address.functionStaticCall(address,bytes,string) (contracts/Token.sol#556-569):  
- (success,returnData) = target.staticcall(data) (contracts/Token.sol#561)  
Low level call in Address.functionDelegateCall(address,bytes,string) (contracts/Token.sol#595-608):  
- (success,returnData) = target.delegatecall(data) (contracts/Token.sol#600)  
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls  
INFO:Detectors:  
Function IUniswapV2Pair.DOMAIN_SEPARATOR() (contracts/Token.sol#65) is not in mixedCase  
Function IUniswapV2Pair.PERMIT_TYPEHASH() (contracts/Token.sol#67) is not in mixedCase  
Function IUniswapV2Pair.MINIMUM_LIQUIDITY() (contracts/Token.sol#88) is not in mixedCase  
Function IUniswapV2Router01.WETH() (contracts/Token.sol#138) is not in mixedCase  
Parameter BARTINU.updateBuyFees(uint256,uint256)._marketingFeeOnBuy (contracts/Token.sol#1027) is not in mixedCase  
Parameter BARTINU.updateBuyFees(uint256,uint256)._DevFeeOnBuy (contracts/Token.sol#1028) is not in mixedCase  
Parameter BARTINU.updateSellFees(uint256,uint256)._marketingFeeOnSell (contracts/Token.sol#1044) is not in mixedCase  
Parameter BARTINU.updateSellFees(uint256,uint256)._DevFeeOnSell (contracts/Token.sol#1045) is not in mixedCase  
Parameter BARTINU.changeMarketingWallet(address)._marketingWallet (contracts/Token.sol#1061) is not in mixedCase  
Parameter BARTINU.changeDevWallet(address)._DevWallet (contracts/Token.sol#1076) is not in mixedCase  
Variable BARTINU.DevFeeOnBuy (contracts/Token.sol#918) is not in mixedCase  
Variable BARTINU.DevFeeOnSell (contracts/Token.sol#919) is not in mixedCase  
Variable BARTINU.DevWallet (contracts/Token.sol#927) is not in mixedCase  
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions  
INFO:Detectors:  
Redundant expression "this (contracts/Token.sol#676)" inContext (contracts/Token.sol#670-679)  
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements  
INFO:Detectors:  
Variable IUniswapV2Router01.addLiquidity(address,address,uint256,uint256,uint256,address,uint256).amountADesired (contracts/Token.sol#143) is too similar to IUniswapV2Router01.addLiquidity(address,address,uint256,uint256,uint256,address,uint256).amountBDesired (contracts/Token.sol#144)  
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar  
INFO:Detectors:  
BARTINU.maxFee (contracts/Token.sol#924) should be immutable  
BARTINU.uniswapV2Pair (contracts/Token.sol#911) should be immutable  
BARTINU.uniswapV2Router (contracts/Token.sol#910) 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

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

<https://testnet.bscscan.com/tx/0xc0a23f15d5f52d1672a6422fc54dae8872858a7b66dc333b93f08880fc0a4c9>

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

<https://testnet.bscscan.com/tx/0x35cb633a4289d59a8a52e7319d510df31339e9712d86f7db6f419759b4df03d8>

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

<https://testnet.bscscan.com/tx/0x22eb6ea7087933ede8eb915312c4e38a03095d5102f7c71fed560cec2bdbf952>

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

<https://testnet.bscscan.com/tx/0x22eb6ea7087933ede8eb915312c4e38a03095d5102f7c71fed560cec2bdbf952>

5- Buying when not excluded from fees (0-25% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x6ff99a58b54b3095df6628383e963cb8b28705c6c8496d716dabf39ec62e74bf>

6- Selling when not excluded from fees (0-25% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x46d12fab6114ff344fcf71ed1938c532a414c577bc30267cd7ae6ea275c731f1>



FUNCTIONAL TESTING

7- Transferring (0% tax) (passed):

<https://testnet.bscscan.com/tx/0xecbed5ba5d5e9ea87f9720036474cad81a7b6359c7f56a1c4e17f1b5b217894d>

8- Internal swap(ETH sent to marketing wallet) (passed):

<https://testnet.bscscan.com/tx/0x46d12fab6114ff344fcf71ed1938c532a414c577bc30267cd7ae6ea275c731f1>



MANUAL TESTING

Logical – Setting marketing and Development wallet

Severity: Low

function: changeMarketingWallet - changeDevWallet

Status: Not Resolved

Overview:

Setting marketing or development wallet to a contract that rejects receiving ETH could revert internal swaps. This is because return value of low-level call to this contracts required to be true

```
function sendValue(address payable recipient, uint256 amount) internal {
    require(
        address(this).balance >= amount,
        "Address: insufficient balance"
    );
    (bool success, ) = recipient.call{value: amount}("");
    require(
        success,
        "Address: unable to send value, recipient may have reverted"
    );
}
```

Suggestion

Ignore return value of low-level calls to this wallets

```
function sendValue(address payable recipient, uint256 amount) internal {
    require(
        address(this).balance >= amount,
        "Address: insufficient balance"
    );
    (bool success, ) = recipient.call{value: amount}("");
}
```



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