



Smart Contract Audit

FOR

\$Bcow 2.0

DATED : 3 July 23'

HIGH RISK FINDING

Centralization – Enabling Trades

Severity: **High**

function: enableTrading

Status: Not Resolved

Overview:

Owner of the contract must enable trades manually for investors, otherwise no one would be able to buy/sell/transfer their tokens.

```
function enableTrading() external onlyOwner {  
    require(tradingEnabled == false, "Trading is already enabled");  
    tradingEnabled = true;  
}
```

Suggestion

Its suggested to either enable trades prior to presale, or transfer ownership of the contract to a certified pinsale safu developer to guearanee enabling of trades.



AUDIT SUMMARY

Project name – \$Bcow 2.0

Date: 3 July, 2023

Scope of Audit- Audit Ace was consulted to conduct the smart contract audit of the solidity source codes.

Audit Status: **Passed with High Risk**

Issues Found

Status	Critical	High	Medium	Low	Suggestion
Open	0	1	0	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 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/0x6996B024A5978B31870b860A3e951F3f8074373c>



Token Information

Token Name : Babycow 2.0

Token Symbol: \$Bcow 2.0

Decimals: 9

Token Supply: 1,000,000,000

Token Address:

0x969C07a8ceD068EBc1926DB60157e0cfa1A81F38

Checksum:

eb3e8e8c1bc4f5dea1799b25ae684fed19e124cc

Owner:

0xb6B33f404Cd3eE241809bA2427F880d673b897D6
(at time of writing the audit)

Deployer:

0xb6B33f404Cd3eE241809bA2427F880d673b897D6



TOKEN OVERVIEW

Fees:

Buy Fees: 0%

Sell Fees: 5%

Transfer Fees: 0%

Fees Privilege: No fees

Ownership: Owned

Minting: none

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Privileges: - Initial distribution of the tokens
- enabling trades



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.

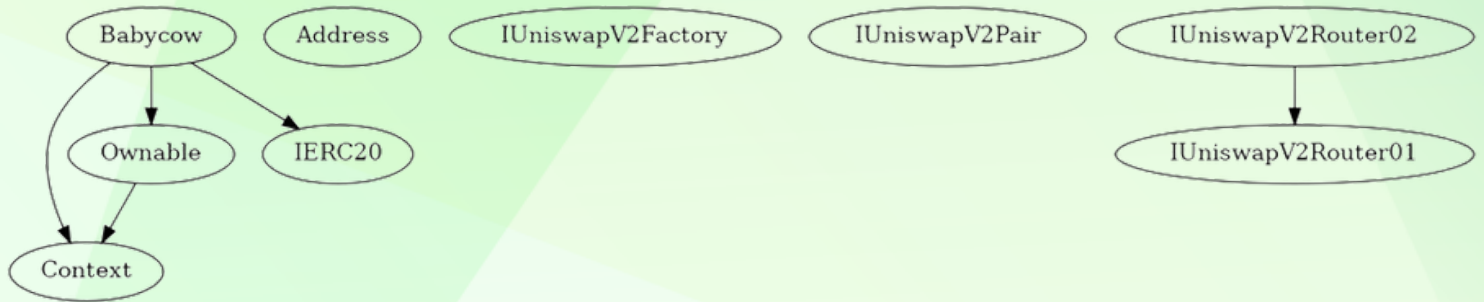
Findings

Severity

Found

◆ Critical	0
◆ High-Risk	1
◆ Medium-Risk	0
◆ Low-Risk	0
◆ Gas Optimization / Suggestions	0

INHERITANCE TREE



POINTS TO NOTE

- Owner is not change current fees (0% buy / 5% sell / 0% transfer)
 - Owner is not able to blacklist an address
 - Owner is not able to disable buy/sell/transfers
 - Owner is not able to set max wallet limit and minimum wallet limits
 - Owner is not able to mint new tokens
 - Owner must enable trades manually
-



CONTRACT ASSESMENT

Contract	Type	Bases			
:-----: :-----: :-----: :-----: :-----:					
L	**Function Name**	**Visibility**	**Mutability**	**Modifiers**	
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
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 !
Address Library					
L	isContract	Internal	🔒		
L	sendValue	Internal	🔒		●
L	functionCall	Internal	🔒		●
L	functionCall	Internal	🔒		●
L	functionCallWithValue	Internal	🔒		●
L	functionCallWithValue	Internal	🔒		●
L	_functionCallWithValue	Private	🔒		●
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 !



CONTRACT ASSESMENT

```
| L | decimals | External ! | | NO ! |
| L | totalSupply | External ! | | NO ! |
| L | balanceOf | External ! | | NO ! |
| L | allowance | External ! | | NO ! |
| L | approve | External ! | ● | NO ! |
| 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 | 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 ! |
| 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 ! |
```

CONTRACT ASSESMENT







































```

└─| getAmountIn | External ! | |NO ! |
└─| getAmountsOut | External ! | |NO ! |
└─| getAmountsIn | External ! | |NO ! |
|||||
**IUniswapV2Router02** | Interface | IUniswapV2Router01 |||
└─| removeLiquidityETHSupportingFeeOnTransferTokens | External ! | ● |NO ! |
└─| removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External ! | ● |NO ! |
└─| swapExactTokensForTokensSupportingFeeOnTransferTokens | External ! | ● |NO ! |
└─| swapExactETHForTokensSupportingFeeOnTransferTokens | External ! | 🟢 |NO ! |
└─| swapExactTokensForETHSupportingFeeOnTransferTokens | External ! | ● |NO ! |
|||||
**Babycow** | Implementation | Context, IERC20, Ownable |||
└─| <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 ! |
└─| isExcludedFromReward | Public ! | |NO ! |
└─| totalReflectionDistributed | Public ! | |NO ! |
└─| deliver | Public ! | ● |NO ! |
└─| reflectionFromToken | Public ! | |NO ! |
└─| tokenFromReflection | Public ! | |NO ! |
└─| excludeFromReward | Public ! | ● |onlyOwner |
└─| includeInReward | External ! | ● |onlyOwner |
└─| <Receive Ether> | External ! | 🟢 |NO ! |
└─| claimStuckTokens | External ! | ● |onlyOwner |
└─| _reflectFee | Private 🔒 | ● |
└─| _getValues | Private 🔒 | |
└─| _getTValues | Private 🔒 | |
└─| _getRValues | Private 🔒 | |
└─| _getRate | Private 🔒 | |
└─| _getCurrentSupply | Private 🔒 | |
└─| _takeLiquidity | Private 🔒 | ● |
└─| _takeMarketing | Private 🔒 | ● |
└─| calculateTaxFee | Private 🔒 | |

```



CONTRACT ASSESMENT

```

|  | calculateLiquidityFee | Private |  | | | | |
|  | calculateMarketingFee | Private |  | | |
|  | removeAllFee | Private |  |  | | |
|  | setBuyFee | Private |  |  | | |
|  | setSellFee | Private |  |  | | |
|  | isExcludedFromFee | Public |  | | |NO  |
|  | _approve | Private |  |  | | |
|  | enableTrading | External |  | |  | onlyOwner |
|  | _transfer | Private |  |  | | |
|  | swapAndLiquify | Private |  |  | | |
|  | swapAndSendMarketing | Private |  | |  | | |
|  | setSwapTokensAtAmount | External |  | |  | onlyOwner |
|  | setSwapEnabled | External |  | |  | onlyOwner |
|  | _tokenTransfer | Private |  |  | | |
|  | _transferStandard | Private |  |  | | |
|  | _transferToExcluded | Private |  |  | | |
|  | _transferFromExcluded | Private |  |  | | |
|  | _transferBothExcluded | Private |  |  | | |
|  | excludeFromFees | External |  | |  | onlyOwner |
|  | changeMarketingWallet | External |  | |  | onlyOwner |

```

Legend

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



STATIC ANALYSIS

```
Variable Babycow._getValues(uint256).rTransferAmount (contracts/Token.sol#606) is too similar to Babycow._transferStandard(address,address,uint256).tTransferAmount (contracts/Token.sol#854)
Variable Babycow._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#870) is too similar to Babycow._transferStandard(address,address,uint256).tTransferAmount (contracts/Token.sol#854)
Variable Babycow._getValues(uint256).rTransferAmount (contracts/Token.sol#606) is too similar to Babycow._getTVValues(uint256).tTransferAmount (contracts/Token.sol#615)
Variable Babycow._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#870) is too similar to Babycow._getTVValues(uint256).tTransferAmount (contracts/Token.sol#615)
Variable Babycow._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#852) is too similar to Babycow._getTVValues(uint256).tTransferAmount (contracts/Token.sol#615)
Variable Babycow._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#889) is too similar to Babycow._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#910)
Variable Babycow.reflectionFromToken(uint256,bool).rTransferAmount (contracts/Token.sol#549) is too similar to Babycow._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#910)
Variable Babycow._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#889) is too similar to Babycow._getValues(uint256).tTransferAmount (contracts/Token.sol#605)
Variable Babycow._getRValues(uint256,uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#628) is too similar to Babycow._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#910)
Variable Babycow.reflectionFromToken(uint256,bool).rTransferAmount (contracts/Token.sol#549) is too similar to Babycow._getValues(uint256).tTransferAmount (contracts/Token.sol#605)
Variable Babycow._getRValues(uint256,uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#628) is too similar to Babycow._getValues(uint256).tTransferAmount (contracts/Token.sol#605)
Variable Babycow._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#889) is too similar to Babycow._transferToExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#872)
Variable Babycow._getRValues(uint256,uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#628) is too similar to Babycow._transferToExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#872)
Variable Babycow._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#889) is too similar to Babycow._transferStandard(address,address,uint256).tTransferAmount (contracts/Token.sol#854)
Variable Babycow._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#889) is too similar to Babycow._getTVValues(uint256).tTransferAmount (contracts/Token.sol#615)
Variable Babycow._getValues(uint256).rTransferAmount (contracts/Token.sol#606) is too similar to Babycow._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#910)
Variable Babycow._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#870) is too similar to Babycow._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#910)
Variable Babycow.reflectionFromToken(uint256,bool).rTransferAmount (contracts/Token.sol#549) is too similar to Babycow._getTVValues(uint256).tTransferAmount (contracts/Token.sol#615)
Variable Babycow._getRValues(uint256,uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#628) is too similar to Babycow._transferStandard(address,address,uint256).tTransferAmount (contracts/Token.sol#854)
Variable Babycow._getValues(uint256).rTransferAmount (contracts/Token.sol#606) is too similar to Babycow._getValues(uint256).tTransferAmount (contracts/Token.sol#605)
Variable Babycow._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#870) is too similar to Babycow._getValues(uint256).tTransferAmount (contracts/Token.sol#605)
Variable Babycow._getRValues(uint256,uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#628) is too similar to Babycow._getTVValues(uint256).tTransferAmount (contracts/Token.sol#615)
Variable Babycow._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#852) is too similar to Babycow._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#910)
Variable Babycow._getRValues(uint256,uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#628) is too similar to Babycow._transferFromExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#891)
Variable Babycow._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#852) is too similar to Babycow._getValues(uint256).tTransferAmount (contracts/Token.sol#605)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar
```

```
Babycow.DEAD (contracts/Token.sol#405) should be constant
Babycow._decimals (contracts/Token.sol#380) should be constant
Babycow._name (contracts/Token.sol#378) should be constant
Babycow._symbol (contracts/Token.sol#379) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant
```

```
Babycow._total (contracts/Token.sol#383) should be immutable
Babycow._liquidityFeeonBuy (contracts/Token.sol#390) should be immutable
Babycow._liquidityFeeonSell (contracts/Token.sol#391) should be immutable
Babycow._marketingFeeonBuy (contracts/Token.sol#393) should be immutable
Babycow._marketingFeeonSell (contracts/Token.sol#394) should be immutable
Babycow._taxFeeonBuy (contracts/Token.sol#387) should be immutable
Babycow._taxFeeonSell (contracts/Token.sol#388) should be immutable
Babycow._totalBuyFees (contracts/Token.sol#400) should be immutable
Babycow._totalSellFees (contracts/Token.sol#401) should be immutable
Babycow._uniswapV2Pair (contracts/Token.sol#408) should be immutable
Babycow._uniswapV2Router (contracts/Token.sol#407) 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

1- Adding liquidity (passed):

<https://testnet.bscscan.com/tx/0x1c01076fcdea39ac5a79d06115bbe0c90d71a3026e0603ba8feb04a0a0d7d635>

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

<https://testnet.bscscan.com/tx/0xd1b3fc1535bc4d362241f17d73c148e2cd70e7982bf9f72e436e873c24f40fda>

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

<https://testnet.bscscan.com/tx/0xa2ed267d248734008909c7e9f1c55f490003e4aca02b823b460b6198413fb046>

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

<https://testnet.bscscan.com/tx/0xdc4e67715e3df7e8debb617fff1c59141082a502ce70612110904a005ebec1c5>

5- Buying(0% tax) (passed):

<https://testnet.bscscan.com/tx/0xff81691cb3eb97befb074e913abfd365d5a068ca0d46a699386aaec6e3433408>

6- Selling (5% tax) (passed):

<https://testnet.bscscan.com/tx/0xaa16e952662aec275c79d0627ad8ac92d8085ce0a059e43f2246b59e6369f827>



FUNCTIONAL TESTING

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

<https://testnet.bscscan.com/tx/0x23caa624064cbd9b54abf7db09ac440e2b1d0396df531494ed56e274557ff171>

4- Internal swap (passed):

<https://testnet.bscscan.com/address/0xbe09cabba1ddd2e7c3d48c771789e5d87c49b945#internaltx>

FUNCTIONAL TESTING

Centralization – Enabling Trades

Severity: **High**

function: enableTrading

Status: Not Resolved

Overview:

Owner of the contract must enable trades manually for investors, otherwise no one would be able to buy/sell/transfer their tokens.

```
function enableTrading() external onlyOwner {  
    require(tradingEnabled == false, "Trading is already enabled");  
    tradingEnabled = true;  
}
```

Suggestion

Its suggested to either enable trades prior to presale, or transfer ownership of the contract to a certified pinsale safu developer to guearantee enabling of trades.



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https://twitter.com/auditace_



<https://github.com/Audit-Ace>
