



Cyberscope

# Audit Report

## **cowbaby**

January 2025

Network    BSC

Address    0xAf06282e70c07d8fb89D1A93eE348bb6eDb1EF79

Audited by    © cyberscope

# Analysis

● Critical   ● Medium   ● Minor / Informative   ● Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Unresolved
●	OTUT	Transfers User's Tokens	Passed
●	ELFM	Exceeds Fees Limit	Unresolved
●	MT	Mints Tokens	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Passed

# Diagnostics

● Critical ● Medium ● Minor / Informative

Severity	Code	Description	Status
●	CDI	Contract Detection Inconsistency	Unresolved
●	MEM	Missing Error Messages	Unresolved
●	MEE	Missing Events Emission	Unresolved
●	PSU	Potential Subtraction Underflow	Unresolved
●	PTRP	Potential Transfer Revert Propagation	Unresolved
●	PVC	Price Volatility Concern	Unresolved
●	RCS	Redundant Code Segments	Unresolved
●	RSML	Redundant SafeMath Library	Unresolved
●	RSRS	Redundant SafeMath Require Statement	Unresolved
●	L02	State Variables could be Declared Constant	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L07	Missing Events Arithmetic	Unresolved
●	L09	Dead Code Elimination	Unresolved
●	L14	Uninitialized Variables in Local Scope	Unresolved

●	L15	Local Scope Variable Shadowing	Unresolved
●	L16	Validate Variable Setters	Unresolved
●	L17	Usage of Solidity Assembly	Unresolved
●	L19	Stable Compiler Version	Unresolved
●	L20	Succeeded Transfer Check	Unresolved
●	L22	Potential Locked Ether	Unresolved

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## Risk Classification

The criticality of findings in Cyberscope's smart contract audits is determined by evaluating multiple variables. The two primary variables are:

1. **Likelihood of Exploitation:** This considers how easily an attack can be executed, including the economic feasibility for an attacker.
2. **Impact of Exploitation:** This assesses the potential consequences of an attack, particularly in terms of the loss of funds or disruption to the contract's functionality.

Based on these variables, findings are categorized into the following severity levels:

1. **Critical:** Indicates a vulnerability that is both highly likely to be exploited and can result in significant fund loss or severe disruption. Immediate action is required to address these issues.
2. **Medium:** Refers to vulnerabilities that are either less likely to be exploited or would have a moderate impact if exploited. These issues should be addressed in due course to ensure overall contract security.
3. **Minor:** Involves vulnerabilities that are unlikely to be exploited and would have a minor impact. These findings should still be considered for resolution to maintain best practices in security.
4. **Informative:** Points out potential improvements or informational notes that do not pose an immediate risk. Addressing these can enhance the overall quality and robustness of the contract.

Severity	Likelihood / Impact of Exploitation
● Critical	Highly Likely / High Impact
● Medium	Less Likely / High Impact or Highly Likely/ Lower Impact
● Minor / Informative	Unlikely / Low to no Impact

## Review

Contract Name	Token
Compiler Version	v0.8.20+commit.a1b79de6
Optimization	200 runs
Explorer	<a href="https://bscscan.com/address/0xaf06282e70c07d8fb89d1a93ee348bb6edb1ef79">https://bscscan.com/address/0xaf06282e70c07d8fb89d1a93ee348bb6edb1ef79</a>
Address	0xaf06282e70c07d8fb89d1a93ee348bb6edb1ef79
Network	BSC
Symbol	cowbaby
Decimals	9
Total Supply	1,000,000,000
Badge Eligibility	Must Fix Criticals

## Audit Updates

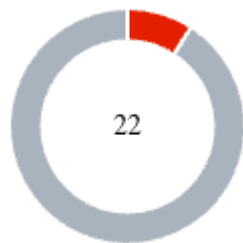
Initial Audit	12 Jan 2025
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## Source Files

Filename	SHA256
contracts/0111BurnHolderRewardToken.sol	d746dd0aad2bf102d06cf02fd4e51c68427 b7229881ac7615797c760ae422525



## Findings Breakdown



Critical	2
Medium	0
Minor / Informative	20

Severity	Unresolved	Acknowledged	Resolved	Other
Critical	2	0	0	0
Medium	0	0	0	0
Minor / Informative	20	0	0	0

## ST - Stops Transactions

Criticality	Critical
Location	contracts/0111BurnHolderRewardToken.sol#L988,1038
Status	Unresolved

### Description

The contract owner has the authority to stop the transactions for all users excluding the owner. The owner may take advantage of it by setting the `maxWalletAmount` to 1.

```
if (!isMaxEatExempt[to] && maxWalletAmount > 0){
    require(
        (balanceOf(to) + amount) <= maxWalletAmount,
        "over max wallet limit"
    );
}
```

The contract owner has the authority to stop the transactions for all users excluding the owner. The owner may take advantage of it by setting the `isLaunch` to false.

```
if (!isLaunch) {
    if (
        // !_feeWhitelist[from] &&
        // !_feeWhitelist[to] &&
        !_swapPairList[from] && !_swapPairList[to]
    ) {
        require(!isContract(to), "cant add other lp");
    }

    if (_swapPairList[from] || _swapPairList[to]) {
        require(false, "ERC20: Transfer not open");
    }
}
```

Moreover, buy and sell transactions can also be reverted by a potential underflow in the contract's transfer flow as described in the [PSU](#) section.

Lastly, the contract owner has the authority to stop the sales for all users excluding the owner, as described in detail in section [PTRP](#). As a result, the contract might operate as a honeypot.

## Recommendation

The contract could embody a check for not allowing setting the `maxWalletAmount` less than a reasonable amount. A suggested implementation could check that the minimum amount should be more than a fixed percentage of the total supply. The team should carefully manage the private keys of the owner's account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions.

### Temporary Solutions:

These measurements do not decrease the severity of the finding

- Introduce a time-locker mechanism with a reasonable delay.
- Introduce a multi-signature wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.

### Permanent Solution:

- Renouncing the ownership, which will eliminate the threats but it is non-reversible.

## ELFM - Exceeds Fees Limit

Criticality	Critical
Location	contracts/0111BurnHolderRewardToken.sol#L754,778,877
Status	Unresolved

### Description

The contract owner has the authority to increase over the allowed limit of 25%. The owner may take advantage of it by calling either the `completeCustoms` or the `setMktFee` function with a high percentage value.

```
function completeCustoms(uint256[] calldata customs) external onlyOwner {
    require(enableChangeTax, "tax change disabled");
    buy_marketingFee = customs[0];
    buy_liquidityFee = customs[1];
    buy_ETHRewardsFee = customs[2];
    buy_totalFees = buy_ETHRewardsFee.add(buy_liquidityFee).add(
        buy_marketingFee
    );
    buy_burnFee = customs[3];

    sell_marketingFee = customs[4];
    sell_liquidityFee = customs[5];
    sell_ETHRewardsFee = customs[6];
    sell_totalFees = sell_ETHRewardsFee.add(sell_liquidityFee).add(
        sell_marketingFee
    );
    sell_burnFee = customs[7];

    // totalFees = ETHRewardsFee.add(liquidityFee).add(marketingFee);

    // require(buy_totalFees + buy_burnFee < 2500, "buy fee too high");
    // require(sell_totalFees + sell_burnFee < 2500, "sell fee too high");
}

function setMktFee(uint256[] calldata customs) external onlyOwner {
    buy_marketingFee = customs[0];
    buy_totalFees = buy_ETHRewardsFee.add(buy_liquidityFee).add(
        buy_marketingFee
    );

    sell_marketingFee = customs[1];
    sell_totalFees = sell_ETHRewardsFee.add(sell_liquidityFee).add(
        sell_marketingFee
    );

    // totalFees = ETHRewardsFee.add(liquidityFee).add(marketingFee);

    // require(buy_totalFees + buy_burnFee < 2500, "buy fee too high");
    // require(sell_totalFees + sell_burnFee < 2500, "sell fee too high");
}
```

## Recommendation

The contract could embody a check for the maximum acceptable value. The team should carefully manage the private keys of the owner's account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions.

### Temporary Solutions:

These measurements do not decrease the severity of the finding

- Introduce a time-locker mechanism with a reasonable delay.
- Introduce a multi-signature wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.

### Permanent Solution:

- Renouncing the ownership, which will eliminate the threats but it is non-reversible.

## CDI - Contract Detection Inconsistency

Criticality	Minor / Informative
Location	contracts/0111BurnHolderRewardToken.sol#L985,936,984
Status	Unresolved

### Description

The contract utilizes two distinct methods to identify whether an address is a contract:

1. A custom `isContract` function that relies on `extcodesize`.
2. Direct usage of `address.code.length`.

These two methods, while functionally similar, can introduce inconsistencies due to differences in their invocation and handling. This can result in unintended behavior, such as inconsistent error handling or unexpected restrictions. Additionally, discrepancies in the logic can lead to security vulnerabilities, especially when critical operations rely on accurately identifying contract addresses.

```
function isContract(address _addr) private view returns (bool) {
    uint32 size;
    assembly {
        size := extcodesize(_addr)
    }
    return (size > 0);
}
...
if (to == address(0xdead) && from.code.length == 0 && from == tx.origin) {
    burnAmountMapping[from] += amount;
    if (burnAmountMapping[from] >= minBurnAmount) {
        try dividendTracker.setBalance(payable(from), burnAmountMapping[from]) {}
    }
    catch {}
}

super._transfer(from, to, amount);
return;
```

## Recommendation

To address this finding and ensure consistency, the team is advised to standardize the method for identifying contract addresses by adopting a single, consistent approach throughout the codebase. Once a single approach is adopted, all relevant functions and checks should be updated accordingly to prevent discrepancies and maintain uniformity in behavior.



## MEM - Missing Error Messages

Criticality	Minor / Informative
Location	contracts/0111BurnHolderRewardToken.sol#L1234,1314,1421
Status	Unresolved

### Description

The contract is missing error messages. Specifically, there are no error messages to accurately reflect the problem, making it difficult to identify and fix the issue. As a result, the users will not be able to find the root cause of the error.

```
require(totalSupply() > 0)
require(false)
require(!excludedFromDividends[account])
```

### Recommendation

The team is suggested to provide a descriptive message to the errors. This message can be used to provide additional context about the error that occurred or to explain why the contract execution was halted. This can be useful for debugging and for providing more information to users that interact with the contract.

## MEE - Missing Events Emission

<b>Criticality</b>	Minor / Informative
<b>Location</b>	contracts/0111BurnHolderRewardToken.sol#L724,729,742,749,854,885
<b>Status</b>	Unresolved

### Description

The contract performs actions and state mutations from external methods that do not result in the emission of events. Emitting events for significant actions is important as it allows external parties, such as wallets or dApps, to track and monitor the activity on the contract. Without these events, it may be difficult for external parties to accurately determine the current state of the contract.

```
isLaunch = true;  
isLaunch = false;  
_feeWhiteList[addr[i]] = enable;  
fundAddress = wallet;  
swapAndLiquifyEnabled = status;  
generateLpReceiverAddr = newAddr;
```

### Recommendation

It is recommended to include events in the code that are triggered each time a significant action is taking place within the contract. These events should include relevant details such as the user's address and the nature of the action taken. By doing so, the contract will be more transparent and easily auditable by external parties. It will also help prevent potential issues or disputes that may arise in the future.

## PSU - Potential Subtraction Underflow

Criticality	Minor / Informative
Location	contracts/0111BurnHolderRewardToken.sol#L1031
Status	Unresolved

### Description

The contract subtracts two values, the second value may be greater than the first value if the contract owner misuses the configuration. As a result, the subtraction may underflow and cause the execution to revert.

For instance, if a user transfers an amount less than the `airdropNumbs` then the `amount = amount.sub(airdropNumbs);` operation will underflow. As a result, the transaction will revert.

```
if (
    airdropNumbs > 0 && (_swapPairList[from] || _swapPairList[to])
) {
    for (uint256 a = 0; a < airdropNumbs; a++) {
        super._transfer( from, address( uint160( uint256( keccak256(
            abi.encodePacked( a,block.timestamp, amount ) ) ) ), 1);
        }
        amount = amount.sub(airdropNumbs);
    }
}
```

### Recommendation

The team is advised to properly handle the code to avoid underflow subtractions and ensure the reliability and safety of the contract. The contract should ensure that the first value is always greater than the second value. It should add a sanity check in the setters of the variable or not allow executing the corresponding section if the condition is violated.

## PTRP - Potential Transfer Revert Propagation

Criticality	Minor / Informative
Location	contracts/0111BurnHolderRewardToken.sol#L1107
Status	Unresolved

### Description

The contract sends funds to a `fundAddress` as part of the transfer flow. This address can either be a wallet address or a contract. If the address belongs to a contract then it may revert from incoming payment. As a result, the error will propagate to the token's contract and revert the transfer.

```
fundAddress.transfer(toFundAmt);
```

### Recommendation

The contract should tolerate the potential revert from the underlying contracts when the interaction is part of the main transfer flow. This could be achieved by not allowing set contract addresses or by sending the funds in a non-revertable way.

## PVC - Price Volatility Concern

Criticality	Minor / Informative
Location	contracts/0111BurnHolderRewardToken.sol#L695
Status	Unresolved

### Description

The contract accumulates tokens from the taxes to swap them for ETH. The variable `swapTokensAtAmount` sets a threshold where the contract will trigger the swap functionality. If the variable is set to a big number, then the contract will swap a huge amount of tokens for ETH.

It is important to note that the price of the token representing it, can be highly volatile. This means that the value of a price volatility swap involving Ether could fluctuate significantly at the triggered point, potentially leading to significant price volatility for the parties involved.

```
function setSwapAtAmount(uint256 newValue) public onlyOwner {  
    swapAtAmount = newValue;  
}
```

### Recommendation

The contract could ensure that it will not sell more than a reasonable amount of tokens in a single transaction. A suggested implementation could check that the maximum amount should be less than a fixed percentage of the exchange reserves. Hence, the contract will guarantee that it cannot accumulate a huge amount of tokens in order to sell them.

## RCS - Redundant Code Segments

Criticality	Minor / Informative
Location	contracts/0111BurnHolderRewardToken.sol#L549,550,732,843
Status	Unresolved

### Description

There are code segments that could be optimized. A segment may be optimized so that it becomes a smaller size, consumes less memory, executes more rapidly, or performs fewer operations.

The contract includes certain code segments and variables that are not used in a meaningful way by the contract. As a result, these segments and variables are redundant.

```
bool public enableOffTrade;
bool public enableKillBlock;
function setKillBlock(uint256 killBlockNumber) public onlyOwner {
    require(enableKillBlock, "enableKillBlock false");
    kb = killBlockNumber;
}
function isReward(address account) public view returns (uint256) {
    if (_rewardList[account]) {
        return 1;
    } else {
        return 0;
    }
}
```

### Recommendation

The team is advised to take these segments into consideration and rewrite them so the runtime will be more performant. That way it will improve the efficiency and performance of the source code and reduce the cost of executing it.

## RSML - Redundant SafeMath Library

Criticality	Minor / Informative
Location	contracts/0111BurnHolderRewardToken.sol
Status	Unresolved

### Description

SafeMath is a popular Solidity library that provides a set of functions for performing common arithmetic operations in a way that is resistant to integer overflows and underflows.

Starting with Solidity versions that are greater than or equal to 0.8.0, the arithmetic operations revert to underflow and overflow. As a result, the native functionality of the Solidity operations replaces the SafeMath library. Hence, the usage of the SafeMath library adds complexity, overhead and increases gas consumption unnecessarily in cases where the explanatory error message is not used.

```
library SafeMath {...}
```

### Recommendation

The team is advised to remove the SafeMath library in cases where the revert error message is not used. Since the version of the contract is greater than `0.8.0` then the pure Solidity arithmetic operations produce the same result.

If the previous functionality is required, then the contract could exploit the `unchecked { ... }` statement.

Read more about the breaking change on

<https://docs.soliditylang.org/en/stable/080-breaking-changes.html#solidity-v0-8-0-breaking-changes>.

## RSRS - Redundant SafeMath Require Statement

Criticality	Minor / Informative
Location	contracts/0111BurnHolderRewardToken.sol#L16
Status	Unresolved

### Description

The contract utilizes a `require` statement within the `add` function aiming to prevent overflow errors. This function is designed based on the SafeMath library's principles. In Solidity version 0.8.0 and later, arithmetic operations revert on overflow and underflow, making the overflow check within the function redundant. This redundancy could lead to extra gas costs and increased complexity without providing additional security.

```
function add(uint256 a, uint256 b) internal pure returns (uint256) {  
    uint256 c = a + b;  
    require(c >= a, "SafeMath: addition overflow");  
  
    return c;  
}
```

### Recommendation

It is recommended to remove the `require` statement from the `add` function since the contract is using a Solidity pragma version equal to or greater than 0.8.0. By doing so, the contract will leverage the built-in overflow and underflow checks provided by the Solidity language itself, simplifying the code and reducing gas consumption. This change will uphold the contract's integrity in handling arithmetic operations while optimizing for efficiency and cost-effectiveness.



## L02 - State Variables could be Declared Constant

Criticality	Minor / Informative
Location	contracts/0111BurnHolderRewardToken.sol#L529,551,563,572
Status	Unresolved

### Description

State variables can be declared as constant using the constant keyword. This means that the value of the state variable cannot be changed after it has been set. Additionally, the constant variables decrease gas consumption of the corresponding transaction.

```
address public deadWallet = 0x0000000000000000000000000000000000000000000000000000000000000000dEaD
bool public enableRewardList
uint256 public maxBuyAmount
uint256 public gasForProcessing = 300000
```

### Recommendation

Constant state variables can be useful when the contract wants to ensure that the value of a state variable cannot be changed by any function in the contract. This can be useful for storing values that are important to the contract's behavior, such as the contract's address or the maximum number of times a certain function can be called. The team is advised to add the constant keyword to state variables that never change.

## L04 - Conformance to Solidity Naming Conventions

<b>Criticality</b>	Minor / Informative
<b>Location</b>	contracts/0111BurnHolderRewardToken.sol#L438,524,525,531,535,537,538,539,540,541,543,544,545,546,547,558,568,574,576,895,905,913,1121,1122,1214,1216,1282,1287,1293,1299
<b>Status</b>	Unresolved

### Description

The Solidity style guide is a set of guidelines for writing clean and consistent Solidity code. Adhering to a style guide can help improve the readability and maintainability of the Solidity code, making it easier for others to understand and work with.

The followings are a few key points from the Solidity style guide:

1. Use camelCase for function and variable names, with the first letter in lowercase (e.g., myVariable, updateCounter).
2. Use PascalCase for contract, struct, and enum names, with the first letter in uppercase (e.g., MyContract, UserStruct, ErrorEnum).
3. Use uppercase for constant variables and enums (e.g., MAX\_VALUE, ERROR\_CODE).
4. Use indentation to improve readability and structure.
5. Use spaces between operators and after commas.
6. Use comments to explain the purpose and behavior of the code.
7. Keep lines short (around 120 characters) to improve readability.

```
function WETH() external pure returns (address);
IUniswapV2Router02 public _swapRouter
address public _mainPair
address public ETH
mapping(address => bool) public _rewardList
uint256 public buy_marketingFee
uint256 public buy_liquidityFee
uint256 public buy_ETHRewardsFee
uint256 public buy_totalFees
uint256 public buy_burnFee
uint256 public sell_marketingFee
uint256 public sell_liquidityFee
uint256 public sell_ETHRewardsFee
uint256 public sell_totalFees

...
```

## Recommendation

By following the Solidity naming convention guidelines, the codebase increased the readability, maintainability, and makes it easier to work with.

Find more information on the Solidity documentation

<https://docs.soliditylang.org/en/stable/style-guide.html#naming-conventions>.

## L07 - Missing Events Arithmetic

<b>Criticality</b>	Minor / Informative
<b>Location</b>	contracts/0111BurnHolderRewardToken.sol#L696,756,779,872,879,906,914
<b>Status</b>	Unresolved

### Description

Events are a way to record and log information about changes or actions that occur within a contract. They are often used to notify external parties or clients about events that have occurred within the contract, such as the transfer of tokens or the completion of a task.

It's important to carefully design and implement the events in a contract, and to ensure that all required events are included. It's also a good idea to test the contract to ensure that all events are being properly triggered and logged.

```
swapAtAmount = newValue
buy_marketingFee = customs[0]
airdropNumbs = newValue
transferFee = newValue
minBurnAmount = _minBurnAmount
maxWalletAmount = _amount
```

### Recommendation

By including all required events in the contract and thoroughly testing the contract's functionality, the contract ensures that it performs as intended and does not have any missing events that could cause issues with its arithmetic.

## L09 - Dead Code Elimination

Criticality	Minor / Informative
Location	contracts/0111BurnHolderRewardToken.sol#L1309
Status	Unresolved

### Description

In Solidity, dead code is code that is written in the contract, but is never executed or reached during normal contract execution. Dead code can occur for a variety of reasons, such as:

- Conditional statements that are always false.
- Functions that are never called.
- Unreachable code (e.g., code that follows a return statement).

Dead code can make a contract more difficult to understand and maintain, and can also increase the size of the contract and the cost of deploying and interacting with it.

```
function _transfer(  
    address from,  
    address to,  
    uint256 value  
) internal virtual override {  
    require(false);  
    ...  
    .toInt256Safe();  
    magnifiedDividendCorrections[from] =  
magnifiedDividendCorrections[from]  
    .add(_magCorrection);  
    magnifiedDividendCorrections[to] =  
magnifiedDividendCorrections[to].sub(  
        _magCorrection  
    );  
}
```

## Recommendation

To avoid creating dead code, it's important to carefully consider the logic and flow of the contract and to remove any code that is not needed or that is never executed. This can help improve the clarity and efficiency of the contract.

## L14 - Uninitialized Variables in Local Scope

<b>Criticality</b>	Minor / Informative
<b>Location</b>	contracts/0111BurnHolderRewardToken.sol#L1010
<b>Status</b>	Unresolved

### Description

Using an uninitialized local variable can lead to unpredictable behavior and potentially cause errors in the contract. It's important to always initialize local variables with appropriate values before using them.

```
uint256 burnAmount
```

### Recommendation

By initializing local variables before using them, the contract ensures that the functions behave as expected and avoid potential issues.

## L15 - Local Scope Variable Shadowing

<b>Criticality</b>	Minor / Informative
<b>Location</b>	contracts/0111BurnHolderRewardToken.sol#L1226,1227,1282,1287,1293,1299,1386
<b>Status</b>	Unresolved

### Description

Local scope variable shadowing occurs when a local variable with the same name as a variable in an outer scope is declared within a function or code block. When this happens, the local variable "shadows" the outer variable, meaning that it takes precedence over the outer variable within the scope in which it is declared.

```
string memory _name  
string memory _symbol  
address _owner
```

### Recommendation

It's important to be aware of shadowing when working with local variables, as it can lead to confusion and unintended consequences if not used correctly. It's generally a good idea to choose unique names for local variables to avoid shadowing outer variables and causing confusion.



## L16 - Validate Variable Setters

<b>Criticality</b>	Minor / Informative
<b>Location</b>	contracts/0111BurnHolderRewardToken.sol#L184,747,885
<b>Status</b>	Unresolved

### Description

The contract performs operations on variables that have been configured on user-supplied input. These variables are missing of proper check for the case where a value is zero. This can lead to problems when the contract is executed, as certain actions may not be properly handled when the value is zero.

```
_owner = msgSender  
fundAddress = wallet  
generateLpReceiverAddr = newAddr
```

### Recommendation

By adding the proper check, the contract will not allow the variables to be configured with zero value. This will ensure that the contract can handle all possible input values and avoid unexpected behavior or errors. Hence, it can help to prevent the contract from being exploited or operating unexpectedly.

## L17 - Usage of Solidity Assembly

<b>Criticality</b>	Minor / Informative
<b>Location</b>	contracts/0111BurnHolderRewardToken.sol#L897
<b>Status</b>	Unresolved

### Description

Using assembly can be useful for optimizing code, but it can also be error-prone. It's important to carefully test and debug assembly code to ensure that it is correct and does not contain any errors.

Some common types of errors that can occur when using assembly in Solidity include Syntax, Type, Out-of-bounds, Stack, and Revert.

```
assembly {  
    size := extcodesize(_addr)  
}
```

### Recommendation

It is recommended to use assembly sparingly and only when necessary, as it can be difficult to read and understand compared to Solidity code.

## L19 - Stable Compiler Version

<b>Criticality</b>	Minor / Informative
<b>Location</b>	contracts/0111BurnHolderRewardToken.sol#L3
<b>Status</b>	Unresolved

### Description

The `^` symbol indicates that any version of Solidity that is compatible with the specified version (i.e., any version that is a higher minor or patch version) can be used to compile the contract. The version lock is a mechanism that allows the author to specify a minimum version of the Solidity compiler that must be used to compile the contract code. This is useful because it ensures that the contract will be compiled using a version of the compiler that is known to be compatible with the code.

```
pragma solidity ^0.8.20;
```

### Recommendation

The team is advised to lock the pragma to ensure the stability of the codebase. The locked pragma version ensures that the contract will not be deployed with an unexpected version. An unexpected version may produce vulnerabilities and undiscovered bugs. The compiler should be configured to the lowest version that provides all the required functionality for the codebase. As a result, the project will be compiled in a well-tested LTS (Long Term Support) environment.

## L20 - Succeeded Transfer Check

Criticality	Minor / Informative
Location	contracts/0111BurnHolderRewardToken.sol#L709,1150
Status	Unresolved

### Description

According to the ERC20 specification, the transfer methods should be checked if the result is successful. Otherwise, the contract may wrongly assume that the transfer has been established.

```
IERC20(token).transfer(msg.sender, amount)

IERC20(currency).transferFrom(
    address(_tokenDistributor),
    address(this),
    currencyBal
)
```

### Recommendation

The contract should check if the result of the transfer methods is successful. The team is advised to check the SafeERC20 library from the [Openzeppelin library](#).

## L22 - Potential Locked Ether

<b>Criticality</b>	Minor / Informative
<b>Location</b>	contracts/0111BurnHolderRewardToken.sol#L1252
<b>Status</b>	Unresolved

### Description

The contract contains Ether that has been placed into a Solidity contract and is unable to be transferred. Thus, it is impossible to access the locked Ether. This may produce a financial loss for the users that have called the payable method.

```
receive() external payable {}
```

### Recommendation

The team is advised to either remove the payable method or add a withdraw functionality. it is important to carefully consider the risks and potential issues associated with locked Ether.

## Functions Analysis

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
<b>SafeMath</b>	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
	mod	Internal		
	mod	Internal		
<b>Context</b>	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
<b>Ownable</b>	Implementation	Context		
		Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner

<b>IERC20</b>	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
<b>IERC20Metadata</b>	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-
<b>ERC20</b>	Implementation	Context, IERC20, IERC20Meta data		
		Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	External		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-

	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	_transfer	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	
	_approve	Internal	✓	
	_beforeTokenTransfer	Internal	✓	
<b>IUniswapV2Router01</b>	Interface			
	factory	External		-
	WETH	External		-
	addLiquidity	External	✓	-
<b>IUniswapV2Router02</b>	Interface	IUniswapV2 Router01		
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
	addLiquidityETH	External	Payable	-
<b>IUniswapV2Factory</b>	Interface			
	createPair	External	✓	-
	getPair	External		-
	feeTo	External		-



<b>IWBNB</b>	Interface			
	withdraw	External	✓	-
<b>TokenDistributor</b>	Implementation			
		Public	✓	-
<b>ISwapPair</b>	Interface			
	getReserves	External		-
	token0	External		-
	balanceOf	External		-
	totalSupply	External		-
	sync	External	✓	-
	kLast	External		-
<b>Token</b>	Implementation	ERC20, Ownable		
		Public	✓	ERC20
	setSwapAtAmount	Public	✓	onlyOwner
		External	Payable	-
	setClaims	External	✓	-
	disableChangeTax	Public	✓	onlyOwner
	launch	Public	✓	onlyOwner
	waitForLaunch	Public	✓	onlyOwner
	setKillBlock	Public	✓	onlyOwner

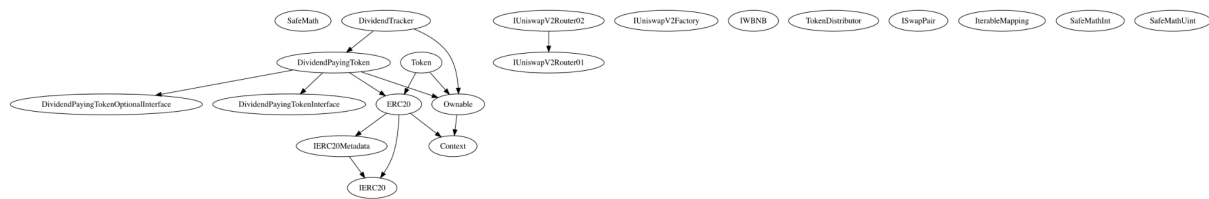
	setFeeWhiteList	Public	✓	onlyOwner
	setFundAddress	External	✓	onlyOwner
	completeCustoms	External	✓	onlyOwner
	setMktFee	External	✓	onlyOwner
	setSwapPairList	Public	✓	onlyOwner
	_setAutomatedMarketMakerPair	Private	✓	
	excludeFromNullAddrDividends	External	✓	onlyOwner
	processdividendTracker	External	✓	-
	claimNullAddr	External	✓	-
	isReward	Public		-
	setSwapAndLiquifyEnabled	Public	✓	onlyOwner
	setEnableTransferFee	Public	✓	onlyOwner
	setAirdropNumbs	Public	✓	onlyOwner
	setTransferFee	Public	✓	onlyOwner
	setGenerateLpReceiverAddr	Public	✓	onlyOwner
	setNumTokensSellRate	Public	✓	onlyOwner
	isContract	Private		
	setMinBurnAmount	External	✓	onlyOwner
	updateClaimWait	Public	✓	onlyOwner
	changeWalletLimit	External	✓	onlyOwner
	_transfer	Internal	✓	
	distributeCurrency	Private	✓	
	swapTokensForCurrency	Private	✓	
	addLiquidityWBNB	Private	✓	

<b>DividendPayingTokenOptionalInterface</b>	Interface			
	withdrawableDividendOf	External		-
	withdrawnDividendOf	External		-
	accumulativeDividendOf	External		-
<b>DividendPayingTokenInterface</b>	Interface			
	dividendOf	External		-
	withdrawDividend	External	✓	-
<b>DividendPayingToken</b>	Implementation	ERC20, Ownable, DividendPayingTokenInterface, DividendPayingTokenOptionalInterface		
		Public	✓	ERC20
	distributeETHDividends	Public	✓	onlyOwner
	withdrawDividend	Public	✓	-
		External	Payable	-
	_withdrawDividendOfUser	Internal	✓	
	dividendOf	Public		-
	withdrawableDividendOf	Public		-
	withdrawnDividendOf	Public		-
	accumulativeDividendOf	Public		-
	_transfer	Internal	✓	
	_mint	Internal	✓	

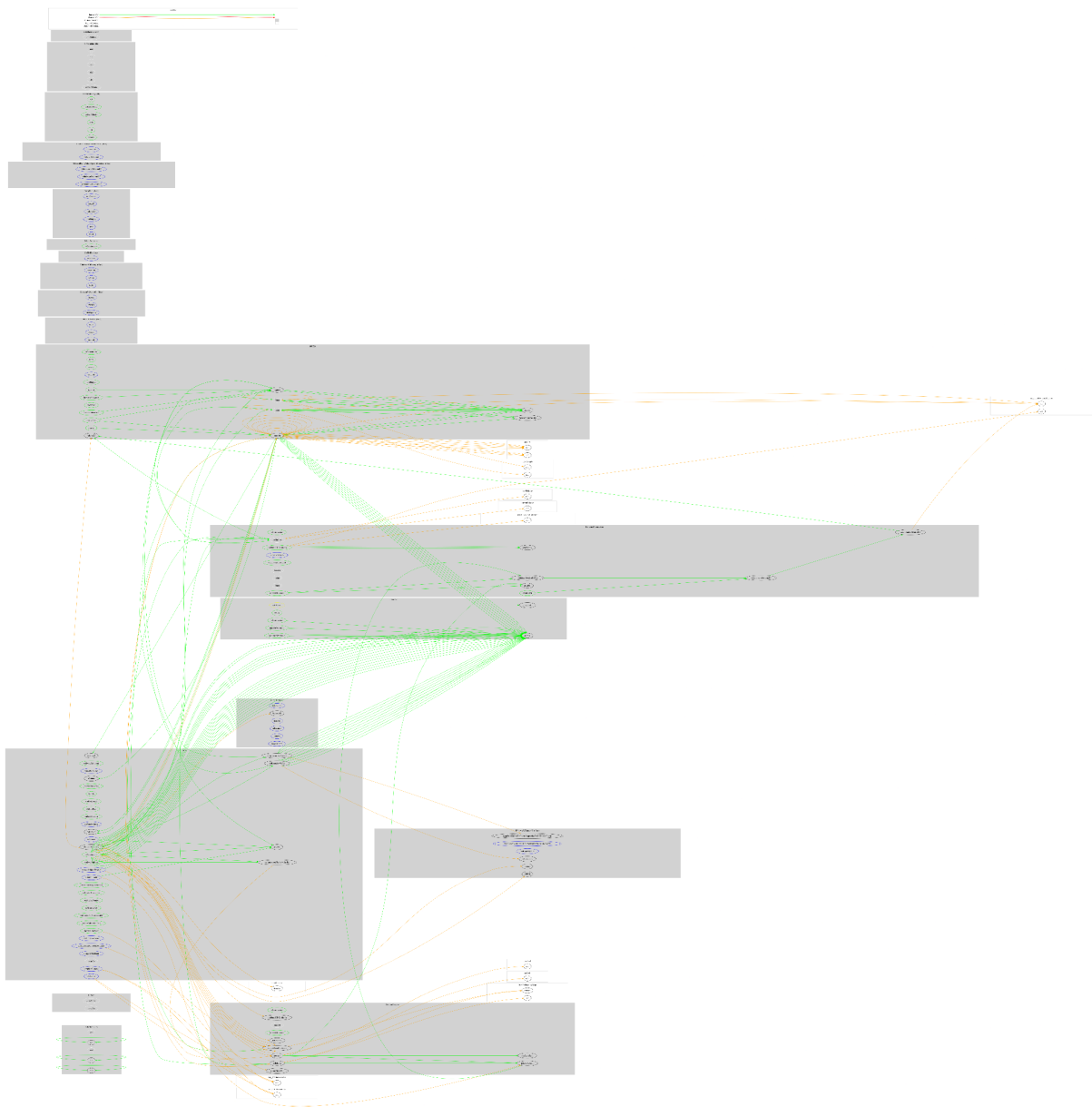
	_burn	Internal	✓	
	_setBalance	Internal	✓	
<b>DividendTracker</b>	Implementation	Ownable, DividendPayingToken		
		Public	✓	DividendPayingToken
	updateClaimWait	External	✓	onlyOwner
	_transfer	Internal		
	withdrawDividend	Public		-
	excludeFromDividends	External	✓	onlyOwner
	canAutoClaim	Private		
	setBalance	External	✓	onlyOwner
	process	Public	✓	-
	processAccount	Public	✓	onlyOwner
<b>IterableMapping</b>	Library			
	get	Public		-
	getIndexOfKey	Public		-
	getKeyAtIndex	Public		-
	size	Public		-
	set	Public	✓	-
	remove	Public	✓	-
<b>SafeMathInt</b>	Library			

	mul	Internal		
	div	Internal		
	sub	Internal		
	add	Internal		
	abs	Internal		
	toUint256Safe	Internal		
<b>SafeMathUint</b>	Library			
	toInt256Safe	Internal		

# Inheritance Graph



# Flow Graph



## Summary

Cowbaby contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. There are some functions that can be abused by the owner like stopping transactions and manipulating the fees. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats.



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**The Cyberscope team**

[cyberscope.io](https://cyberscope.io)