Cyberscope

Audit Report

Mojo

September 2023

Network	ETH
Address	0xa79C1D3A0F0a21eC5B0Ee2f96685aaCfaCc95dFb
Audited by	© cyberscope

Analysis

● Critical ● Medium ● Minor / Informative ● Pass

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

Diagnostics

🔴 Critical 🟠 Medium ● Minor / Informative

Severity	Code	Description	Status
●	PAV	Pair Address Validation	Unresolved
●	PVC	Price Volatility Concern	Unresolved
●	MDA	Misleading Dead Address	Unresolved
●	RSW	Redundant Storage Writes	Unresolved
●	MEE	Missing Events Emission	Unresolved
●	RE	Redundant Event	Unresolved
●	RSML	Redundant SafeMath Library	Unresolved
●	IDI	Immutable Declaration Improvement	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L05	Unused State Variable	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
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●	L20	Succeeded Transfer Check	Unresolved

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Review

Contract Name	CoinToken
Compiler Version	v0.8.17+commit.8df45f5f
Optimization	200 runs
Explorer	https://etherscan.io/address/0xa79c1d3a0f0a21ec5b0ee2f96685aacfacc95dfb
Address	0xa79c1d3a0f0a21ec5b0ee2f96685aacfacc95dfb
Network	ETH
Symbol	MOJO
Decimals	18
Total Supply	10,000,000,000,000

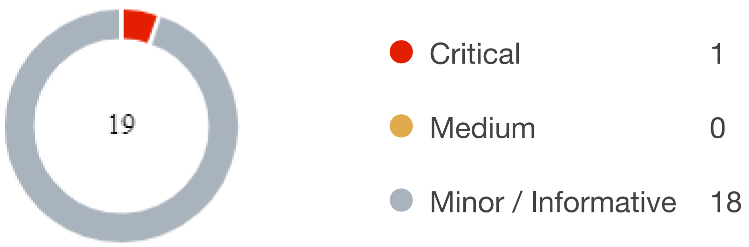
Audit Updates

Initial Audit	06 Sep 2023

Source Files

Filename	SHA256
CoinToken.sol	ff6ecea3a1100b2ee3bcd4e0acabc73b2c4d02ea71e346b284043be4cf217b98

Findings Breakdown



Severity	Unresolved	Acknowledged	Resolved	Other
● Critical	1	0	0	0
● Medium	0	0	0	0
● Minor / Informative	18	0	0	0

BC - Blacklists Addresses

Criticality	Critical
Location	CoinToken.sol#L1384
Status	Unresolved

Description

The contract owner has the authority to stop addresses from transactions. The owner may take advantage of it by calling the `EnemyAddress` function.

```
function EnemyAddress(address account, bool value) external onlyOwner{
    _isEnemy[account] = value;
}
```

Recommendation

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. Some suggestions are:

- Introduce a time-locker mechanism with a reasonable delay.
- Introduce a multi-sign wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.
- Renouncing the ownership will eliminate the threats but it is non-reversible.

PAV - Pair Address Validation

Criticality	Minor / Informative
Location	CoinToken.sol#L1379
Status	Unresolved

Description

The contract is missing address validation in the pair address argument. The absence of validation reveals a potential vulnerability, as it lacks proper checks to ensure the integrity and validity of the pair address provided as an argument. The pair address is a parameter used in certain methods of decentralized exchanges for functions like token swaps and liquidity provisions.

The absence of address validation in the pair address argument can introduce security risks and potential attacks. Without proper validation, if the owner's address is compromised, the contract may lead to unexpected behavior like loss of funds.

```
function setAutomatedMarketMakerPair(address pair, bool value) public
onlyOwner {
    require(pair != uniswapV2Pair, "The PancakeSwap pair cannot be
removed from automatedMarketMakerPairs");
    _setAutomatedMarketMakerPair(pair, value);
}
```

Recommendation

To mitigate the risks associated with the absence of address validation in the pair address argument, it is recommended to implement comprehensive address validation mechanisms. A recommended approach could be to verify pair existence in the decentralized application. Prior to interacting with the pair address contract, perform checks to verify the existence and validity of the contract at the provided address. This can be achieved by querying the provider's contract or utilizing external libraries that provide contract verification services.

PVC - Price Volatility Concern

Criticality	Minor / Informative
Location	CoinToken.sol#L1492
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 setSwapTokensAtAmount(uint256 amount) public onlyOwner {
    swapTokensAtAmount = amount;
}
```

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 total supply. Hence, the contract will guarantee that it cannot accumulate a huge amount of tokens in order to sell them.

MDA - Misleading Dead Address

Criticality	Minor / Informative
Location	CoinToken.sol#L1496
Status	Unresolved

Description

Variables can have misleading names if their names do not accurately reflect the value they contain or the purpose they serve. The contract uses some variable names that are too generic or do not clearly convey the information stored in the variable. Misleading variable names can lead to confusion, making the code more difficult to read and understand.

The contract is using the `buyDeadFee` that intuitively should send the taxed amount to the dead address. But, the `deadWallet` variable can be changed. As a result, the `buyDeadFee` will not be used for a burning mechanism.

```
function setDeadWallet(address addr) public onlyOwner {
    deadWallet = addr;
}
```

Recommendation

It's always a good practice for the contract to contain variable names that are specific and descriptive. The team is advised to keep in mind the readability of the code. The DEAD address should not be immutable.

RSW - Redundant Storage Writes

Criticality	Minor / Informative
Location	CoinToken.sol#L1375,1384,1496
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 updates variables even if its current state is the same as the one passed as an argument. As a result, the contract performs redundant storage writes.

```
function setMarketingWallet(address payable wallet) external onlyOwner{
    _marketingWalletAddress = wallet;
}

function EnemyAddress(address account, bool value) external onlyOwner{
    _isEnemy[account] = value;
}

function setDeadWallet(address addr) public onlyOwner {
    deadWallet = addr;
}
```

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.

MEE - Missing Events Emission

Criticality	Minor / Informative
Location	CoinToken.sol#L1375,1384,1496
Status	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.

```
function setMarketingWallet(address payable wallet) external onlyOwner{
    _marketingWalletAddress = wallet;
}

function EnemyAddress(address account, bool value) external onlyOwner{
    _isEnemy[account] = value;
}

function setDeadWallet(address addr) public onlyOwner {
    deadWallet = addr;
}
```

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.

RE - Redundant Event

Criticality	Minor / Informative
Location	CoinToken.sol#L1251,1260
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 events `UpdateDividendTracker` and `LiquidityWalletUpdated` are not utilized in the contract implementation. Thus, they are redundant.

```
event UpdateDividendTracker(address indexed newAddress, address indexed
oldAddress);
event LiquidityWalletUpdated(address indexed newLiquidityWallet,
address indexed oldLiquidityWallet);
```

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	CoinToken.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.

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

Recommendation

The team is advised to remove the SafeMath library. 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/v0.8.16/080-breaking-changes.html#solidity-v0-8-0-breaking-changes.

IDI - Immutable Declaration Improvement

Criticality	Minor / Informative
Location	CoinToken.sol#L1292,1314,1315
Status	Unresolved

Description

The contract declares state variables that their value is initialized once in the constructor and are not modified afterwards. The `immutable` is a special declaration for this kind of state variables that saves gas when it is defined.

```
rewardToken
_node
dividendTracker
```

Recommendation

By declaring a variable as immutable, the Solidity compiler is able to make certain optimizations. This can reduce the amount of storage and computation required by the contract, and make it more gas-efficient.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	CoinToken.sol#L539,703,704,721,791,796,864,871,878,888,1013,1161,1164,1170,1174,1178,1189,1232,1233,1234,1236,1240,1384
Status	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);
function DOMAIN_SEPARATOR() external view returns (bytes32);
function PERMIT_TYPEHASH() external pure returns (bytes32);
function MINIMUM_LIQUIDITY() external pure returns (uint);
address public REWARD_TOKEN
uint256 constant internal magnitude = 2**128
address _owner
address _account

function MAPGet(address key) public view returns (uint) {
        return tokenHoldersMap.values[key];
    }

...
```

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/v0.8.17/style-guide.html#naming-convention.

L05 - Unused State Variable

Criticality	Minor / Informative
Location	CoinToken.sol#L138
Status	Unresolved

Description

An unused state variable is a state variable that is declared in the contract, but is never used in any of the contract's functions. This can happen if the state variable was originally intended to be used, but was later removed or never used.

Unused state variables can create clutter in the contract and make it more difficult to understand and maintain. They can also increase the size of the contract and the cost of deploying and interacting with it.

```
int256 private constant MAX_INT256 = ~(int256(1) << 255)
```

Recommendation

To avoid creating unused state variables, it's important to carefully consider the state variables that are needed for the contract's functionality, and to remove any that are no longer needed. This can help improve the clarity and efficiency of the contract.

L07 - Missing Events Arithmetic

Criticality	Minor / Informative
Location	CoinToken.sol#L1493,1502,1511
Status	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.

```
swapTokensAtAmount = amount
buyTokenRewardsFee = rewardsFee
sellTokenRewardsFee = rewardsFee
```

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	CoinToken.sol#L184,210,228,242,262,898
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 abs(int256 a) internal pure returns (int256) {
    require(a != MIN_INT256);
    return a < 0 ? -a : a;
  }

function clone(address implementation) internal returns (address
instance) {
...
      mstore(ptr,
0x3d602d80600a3d3981f3363d3d373d3d3d363d73000000000000000000000000)
      mstore(add(ptr, 0x14), shl(0x60, implementation))
      mstore(add(ptr, 0x28),
0x5af43d82803e903d91602b57fd5bf30000000000000000000000000000000000)
      instance := create(0, ptr, 0x37)
    }
    require(instance != address(0), "ERC1167: create failed");
  }

...
```

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

Criticality	Minor / Informative
Location	CoinToken.sol#L1557,1561
Status	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 fees
uint256 DFee
```

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

Criticality	Minor / Informative
Location	CoinToken.sol#L816,864,871,878,888,1308
Status	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
uint256 totalSupply = totalSupply_ * (10**18)
```

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

Criticality	Minor / Informative
Location	CoinToken.sol#L817,1323,1357,1376,1497
Status	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.

```
REWARD_TOKEN = _rewardTokenAddress
uniswapV2Pair = _uniswapV2Pair
_marketingWalletAddress = wallet
deadWallet = addr
```

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

Criticality	Minor / Informative
Location	CoinToken.sol#L211,229,247
Status	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 {
            let ptr := mload(0x40)
            mstore(ptr,
0x3d602d80600a3d3981f3363d3d373d3d3d363d73000000000000000000000000)
            mstore(add(ptr, 0x14), shl(0x60, implementation))
            mstore(add(ptr, 0x28),
0x5af43d82803e903d91602b57fd5bf30000000000000000000000000000000000)
            instance := create(0, ptr, 0x37)
...
assembly {
            let ptr := mload(0x40)
            mstore(ptr,
0x3d602d80600a3d3981f3363d3d373d3d3d363d73000000000000000000000000)
            mstore(add(ptr, 0x14), shl(0x60, implementation))
            mstore(add(ptr, 0x28),
0x5af43d82803e903d91602b57fd5bf30000000000000000000000000000000000)
            instance := create2(0, ptr, 0x37, salt)
        }

...
```

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

Criticality	Minor / Informative
Location	CoinToken.sol#L2
Status	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 ^0.8.0;
```

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	CoinToken.sol#L1608
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(rewardToken).transfer(_marketingWalletAddress, newBalance)
```

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.

Functions Analysis

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
Ownable	Implementation	Context		
		Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	_transferOwnership	Internal	✓	
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-

IERC20Metadata	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-
SafeMath	Library			
	add	Internal		
	sub	Internal		
	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		
Clones	Library			
	clone	Internal	✓	
	cloneDeterministic	Internal	✓	
	predictDeterministicAddress	Internal		
	predictDeterministicAddress	Internal		
ERC20	Implementation	Context, IERC20, IERC20Metadata		
		Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-

	decreaseAllowance	Public	✓	-
	_transfer	Internal	✓	
	_cast	Internal	✓	
	_burn	Internal	✓	
	_approve	Internal	✓	
	_beforeTokenTransfer	Internal	✓	
IUniswapV2Router01	Interface			
	factory	External		-
	WETH	External		-
	addLiquidity	External	✓	-
	addLiquidityETH	External	Payable	-
	removeLiquidity	External	✓	-
	removeLiquidityETH	External	✓	-
	removeLiquidityWithPermit	External	✓	-
	removeLiquidityETHWithPermit	External	✓	-
	swapExactTokensForTokens	External	✓	-
	swapTokensForExactTokens	External	✓	-
	swapExactETHForTokens	External	Payable	-
	swapTokensForExactETH	External	✓	-
	swapExactTokensForETH	External	✓	-
	swapETHForExactTokens	External	Payable	-
	quote	External		-

	getAmountOut	External		-
	getAmountIn	External		-
	getAmountsOut	External		-
	getAmountsIn	External		-
IUniswapV2Router02	Interface	IUniswapV2Router01		
	removeLiquidityETHSupportingFeeOnTransferTokens	External	✓	-
	removeLiquidityETHWithPermitSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
IUniswapV2Factory	Interface			
	feeTo	External		-
	feeToSetter	External		-
	getPair	External		-
	allPairs	External		-
	allPairsLength	External		-
	createPair	External	✓	-
	setFeeTo	External	✓	-
	setFeeToSetter	External	✓	-

IUniswapV2Pair	Interface			
	name	External		-
	symbol	External		-
	decimals	External		-
	totalSupply	External		-
	balanceOf	External		-
	allowance	External		-
	approve	External	✓	-
	transfer	External	✓	-
	transferFrom	External	✓	-
	DOMAIN_SEPARATOR	External		-
	PERMIT_TYPEHASH	External		-
	nonces	External		-
	permit	External	✓	-
	MINIMUM_LIQUIDITY	External		-
	factory	External		-
	token0	External		-
	token1	External		-
	getReserves	External		-
	price0CumulativeLast	External		-
	price1CumulativeLast	External		-
	kLast	External		-
	burn	External	✓	-

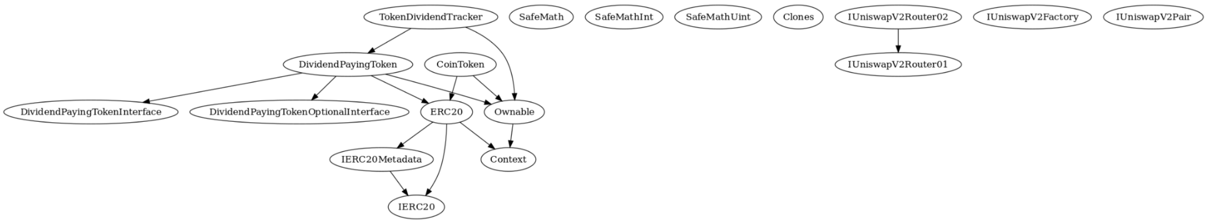
	swap	External	✓	-
	skim	External	✓	-
	sync	External	✓	-
	initialize	External	✓	-
DividendPayingTokenInterface	Interface			
	dividendOf	External		-
	withdrawDividend	External	✓	-
DividendPayingTokenOptionalInterface	Interface			
	withdrawableDividendOf	External		-
	withdrawnDividendOf	External		-
	accumulativeDividendOf	External		-
DividendPayingToken	Implementation	ERC20, Ownable, DividendPayingTokenInterface, DividendPayingTokenOptionalInterface		
		Public	✓	ERC20
	distributeCAKEDividends	Public	✓	onlyOwner
	withdrawDividend	Public	✓	-
	_withdrawDividendOfUser	Internal	✓	
	dividendOf	Public		-

	withdrawableDividendOf	Public		-
	withdrawnDividendOf	Public		-
	accumulativeDividendOf	Public		-
	_transfer	Internal	✓	
	_cast	Internal	✓	
	_burn	Internal	✓	
	_setBalance	Internal	✓	
TokenDividend Tracker	Implementation	Ownable, DividendPayingToken		
		Public	✓	DividendPaying Token
	_transfer	Internal		
	withdrawDividend	Public		-
	setMinimumTokenBalanceForDividends	External	✓	onlyOwner
	excludeFromDividends	External	✓	onlyOwner
	updateClaimWait	External	✓	onlyOwner
	getLastProcessedIndex	External		-
	getNumberOfTokenHolders	External		-
	isExcludedFromDividends	Public		-
	getAccount	Public		-
	getAccountAtIndex	Public		-
	canAutoClaim	Private		
	setBalance	External	✓	onlyOwner
	process	Public	✓	-

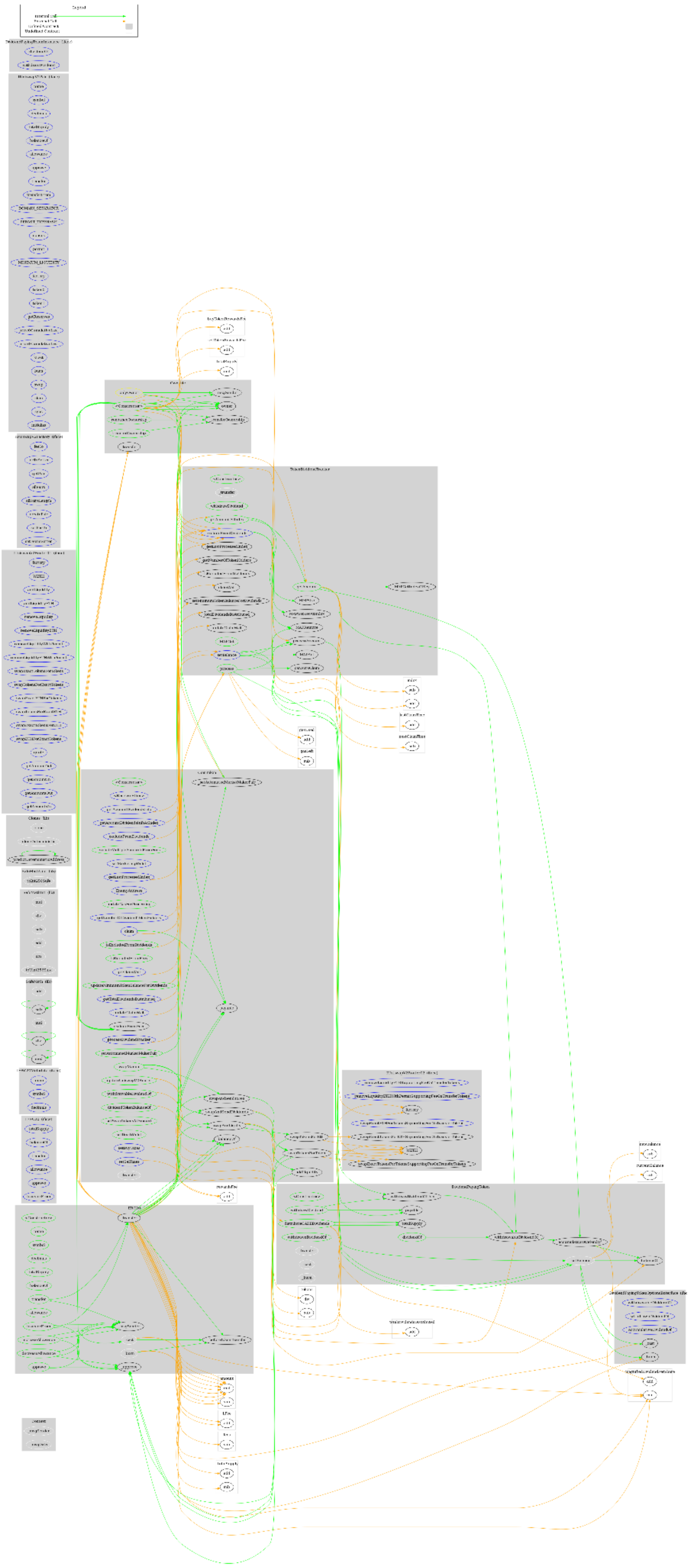
	processAccount	Public	✓	onlyOwner
	MAPGet	Public		-
	MAPGetIndexOfKey	Public		-
	MAPGetKeyAtIndex	Public		-
	MAPSize	Public		-
	MAPSet	Public	✓	-
	MAPRemove	Public	✓	-
CoinToken	Implementation	ERC20, Ownable		
		Public	Payable	ERC20
		External	Payable	-
	updateMinimumTokenBalanceForDividends	Public	✓	onlyOwner
	updateUniswapV2Router	Public	✓	onlyOwner
	excludeFromFees	Public	✓	onlyOwner
	excludeMultipleAccountsFromFees	Public	✓	onlyOwner
	setMarketingWallet	External	✓	onlyOwner
	setAutomatedMarketMakerPair	Public	✓	onlyOwner
	EnemyAddress	External	✓	onlyOwner
	_setAutomatedMarketMakerPair	Private	✓	
	updateGasForProcessing	Public	✓	onlyOwner
	updateClaimWait	External	✓	onlyOwner
	getClaimWait	External		-
	getTotalDividendsDistributed	External		-

	isExcludedFromFees	Public		-
	withdrawableDividendOf	Public		-
	dividendTokenBalanceOf	Public		-
	excludeFromDividends	External	✓	onlyOwner
	isExcludedFromDividends	Public		-
	getAccountDividendsInfo	External		-
	getAccountDividendsInfoAtIndex	External		-
	processDividendTracker	External	✓	-
	claim	External	✓	-
	getLastProcessedIndex	External		-
	getNumberOfDividendTokenHolders	External		-
	swapManual	Public	✓	onlyOwner
	setSwapTokensAtAmount	Public	✓	onlyOwner
	setDeadWallet	Public	✓	onlyOwner
	setBuyTaxes	External	✓	onlyOwner
	setSelTaxes	External	✓	onlyOwner
	_transfer	Internal	✓	
	swapAndSendToFee	Private	✓	
	swapAndLiquify	Private	✓	
	swapTokensForEth	Private	✓	
	swapTokensForToken	Private	✓	
	addLiquidity	Private	✓	
	swapAndSendDividends	Private	✓	

Inheritance Graph



Flow Graph



Summary

Mojo 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 massively blacklist addresses. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats. There is also a limit of max 25% fees.

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Cyberscope is a blockchain cybersecurity company that was founded with the vision to make web3.0 a safer place for investors and developers. Since its launch, it has worked with thousands of projects and is estimated to have secured tens of millions of investors' funds.

Cyberscope is one of the leading smart contract audit firms in the crypto space and has built a high-profile network of clients and partners.

The Cyberscope team

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