COINSCOPE

Audit Report

Cash Machine

February 2022

Type	ERC-20
Network	ETH
Address	0xf0b4eC000e1E2Ca0f8E0C1299e5EFDBAc1F94198
Audited by	© coinscope

Table of Contents

Contract Review

Contract Name	CMAC
Compiler Version	v0.8.10+commit.fc410830
Optimization	200 runs
Licence	none
Explorer	https://etherscan.io/token/0xf0b4eC000e1E2Ca0f8E0C1299e5EFDBAc1F94198
Symbol	CMAC
Decimals	18
Total Supply	1,000,000,000

Audit Updates

Initial Audit	19th of February 2022
Corrected	

Contract Analysis

🔴 Critical 🟠 Medium ⚪ Minor 🔵 Pass

Severity	Code	Description
🔴	ST	Contract Owner is not able to stop or pause transactions
🔵	OCTD	Contract Owner is not able to transfer tokens from specific address
🔵	OTUT	Owner Transfer User's Tokens
🔴	ELFM	Contract Owner is not able to increase fees more than a reasonable percent (25%)
🔵	ULTW	Contract Owner is not able to increase the amount of liquidity taken by dev wallet more than a reasonable percent
🔵	MT	Contract Owner is not able to mint new tokens
🔵	BT	Contract Owner is not able to burn tokens from specific wallet
🔴	BC	Contract Owner is not able to blacklist wallets from selling

ST - Stop Transactions

Criticality	critical
Location	contract.sol#L364

Description

The contract owner has the authority to stop users from selling by increasing the `totalFeeOnSellBPS` to very high value.

```
    uint256 fees = (amount * totalFeeOnSellBPS) / 10000;
                uint256 burnAmt = (amount * burnFeeOnSellBPS) / 10000;
                amount -= fees;
                _executeTransfer(sender, DEAD, burnAmt);
                _executeTransfer(sender, address(this), fees - burnAmt);
```

Recommendation

The contract could embody a check for not allowing setting the totalFeeOnSellBPS less than a reasonable amount. 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. That risk can be prevented by temporarily locking the contract or renouncing ownership.

ELFM - Exceed Limit Fees Manipulation

Criticality	critical
Location	contract.sol#L535,546

Description

The contract owner has the authority to increase over the allowed limit of 25%. The owner may take advantage of it by calling the `setFeeOnSell` function with high percentage values.

```
    function setFeeOnSell(
        uint256 _treasuryFee,
        uint256 _liquidityFee,
        uint256 _dividendFee,
        uint256 _burnFee
    ) external onlyOwner {
        treasuryFeeOnSellBPS = _treasuryFee;
        liquidityFeeOnSellBPS = _liquidityFee;
        dividendFeeOnSellBPS = _dividendFee;
        burnFeeOnSellBPS = _burnFee;
        totalFeeOnSellBPS = _treasuryFee + _liquidityFee + _dividendFee +
_burnFee;
    }
```

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. That risk can be prevented by temporarily locking the contract or renouncing ownership.

BC - Blacklisted Contracts

Criticality	critical
Location	contract.sol#L701

Description

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

```
    function blackListMany(address[] memory _users) public onlyOwner {
        for (uint8 i = 0; i < _users.length; i++) {
            isBlacklisted[_users[i]] = true;
        }
    }
```

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. That risk can be prevented by temporarily locking the contract or renouncing ownership.

Contract Diagnostics

🔴 Critical 🟠 Medium ⚪ Minor

Severity	Code	Description
⚪	L01	Public Function could be Declared External
⚪	L02	State Variables could be Declared Constant
⚪	L05	Unused State Variable
⚪	L04	Conformance to Solidity Naming Conventions
⚪	L09	Dead Code Elimination
⚪	L07	Missing Events Arithmetic
⚪	L14	Uninitialized Variables in Local Scope
⚪	L13	Divide before Multiply Operation

L01 - Public Function could be Declared External

Criticality	minor
Location	@openzeppelin/contracts/access/Ownable.sol#L54,62 @openzeppelin/contracts/token/ERC20/ERC20.sol#L62,70,87,178,197 contracts/CMAC.sol#L224,192,197,230,171,175,179,203,213,490 and 26 more

Description

Public functions that are never called by the contract should be declared external to save gas.

```
decimals
symbol
name
getLastClaimTime
getAccountInfo
withdrawnDividendOf
compoundAccount
processAccount
isExcludedFromDividends
...
```

Recommendation

Use the external attribute for functions never called from the contract.

L02 - State Variables could be Declared Constant

Criticality	minor
Location	contracts/CMAC.sol#L30,29,31,33,34,717,718,720

Description

Constant state variables should be declared constant to save gas.

```
lastProcessedIndex
_symbol
_name
ZERO
UNISWAPROUTER
DEAD
```

Recommendation

Add the constant attribute to state variables that never change.

L05 - Unused State Variable

Criticality	minor
Location	contracts/CMAC.sol#L31

Description

There are segments that contain unused state variables.

```
ZERO
```

Recommendation

Remove unused state variables.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor
Location	@uniswap/v2-core/contracts/interfaces/IUniswapV2Pair.sol#L18,19,36 @uniswap/v2-periphery/contracts/interfaces/IUniswapV2Router01.sol#L5 contracts/CMAC.sol#L427,510,511,512,513,514,515,516,517,536 and 32 more

Description

Solidity defines a naming convention that should be followed. Rule exceptions:

- Allow constant variable name/symbol/decimals to be lowercase.
- Allow _ at the beginning of the mixed_case match for private variables and unused parameters.

```
magnitude
UNISWAPROUTER
TeamWallets
AdvWallets
ResearchWallet
LiquidityWallet
MarketingWallet
PublicSaleWallet
PreSaleWallet
...
```

Recommendation

Follow the Solidity naming convention.
https://docs.soliditylang.org/en/v0.4.25/style-guide.html#naming-conventions

L09 - Dead Code Elimination

Criticality	minor
Location	@openzeppelin/contracts/utils/Address.sol#L80,90,109,123,169,179,142,152,27,55 and 1 more contracts/CMAC.sol#L392 @openzeppelin/contracts/utils/Context.sol#L21 @openzeppelin/contracts/token/ERC20/ERC20.sol#L275,252 and 1 more files

Description

Functions that are not used in the contract, and make the code's size bigger.

```
trySub
tryMul
tryMod
tryDiv
tryAdd
sub
mul
mod
div
...
```

Recommendation

Remove unused functions.

L07 - Missing Events Arithmetic

Criticality	minor
Location	contracts/CMAC.sol#L535,546,640,650,663

Description

Detected missing events for critical arithmetic parameters. There are functions that have no event emitted, so it is difficult to track off-chain changes.

```
maxWalletBPS = bps
maxTxBPS = bps
swapTokensAtAmount = _swapTokensAtAmount
burnFeeOnSellBPS = _burnFee
treasuryFeeBPS = _treasuryFee
```

Recommendation

Emit an event for critical parameter changes.

L14 - Uninitialized Variables in Local Scope

Criticality	minor
Location	contracts/CMAC.sol#L443,438,916,971,320

Description

The are variables that are defined in the local scope and are not initialized.

```
takeFee
info
success
swapTokensMarketing
swapTokensDividends
```

Recommendation

All the local scoped variables should be initialized.

L13 - Divide before Multiply Operation

Criticality	minor
Location	contracts/CMAC.sol#L104,433

Description

Performing divisions before multiplications may cause lose of prediction.

```
swapTokensDividends = (tokens * dividendFeeBPS) / totalFeeBPS
swapTokensMarketing = (tokens * treasuryFeeBPS) / totalFeeBPS
_mint(AdvWallets[1],100000000 / uint256(3) * (10 ** 18))
_mint(AdvWallets[0],100000000 / uint256(3) * (10 ** 18))
_mint(TeamWallets[1],200000000 / uint256(3) * (10 ** 18))
_mint(TeamWallets[0],200000000 / uint256(3) * (10 ** 18))
```

Recommendation

The multiplications should be prior to the divisions.

Contract Functions

Contract	**Type**	**Bases**		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
Ownable	Implementation	Context		
	<Constructor>	Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	_transferOwnership	Internal	✓	
ERC20	Implementation	Context, IERC20, IERC20Metadata		
	<Constructor>	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	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	
	_approve	Internal	✓	
	_beforeTokenTransfer	Internal	✓	
	_afterTokenTransfer	Internal	✓	

IERC20Metadata	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
Address	Library			
	isContract	Internal		
	sendValue	Internal	✓	
	functionCall	Internal	✓	
	functionCall	Internal	✓	
	functionCallWithValue	Internal	✓	
	functionCallWithValue	Internal	✓	
	functionStaticCall	Internal		
	functionStaticCall	Internal		
	functionDelegateCall	Internal	✓	
	functionDelegateCall	Internal	✓	
	verifyCallResult	Internal		
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
SafeMath	Library			
	tryAdd	Internal		
	trySub	Internal		
	tryMul	Internal		
	tryDiv	Internal		

	tryMod	Internal		
	add	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	mod	Internal		
	sub	Internal		
	div	Internal		
	mod	Internal		
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	✓	-

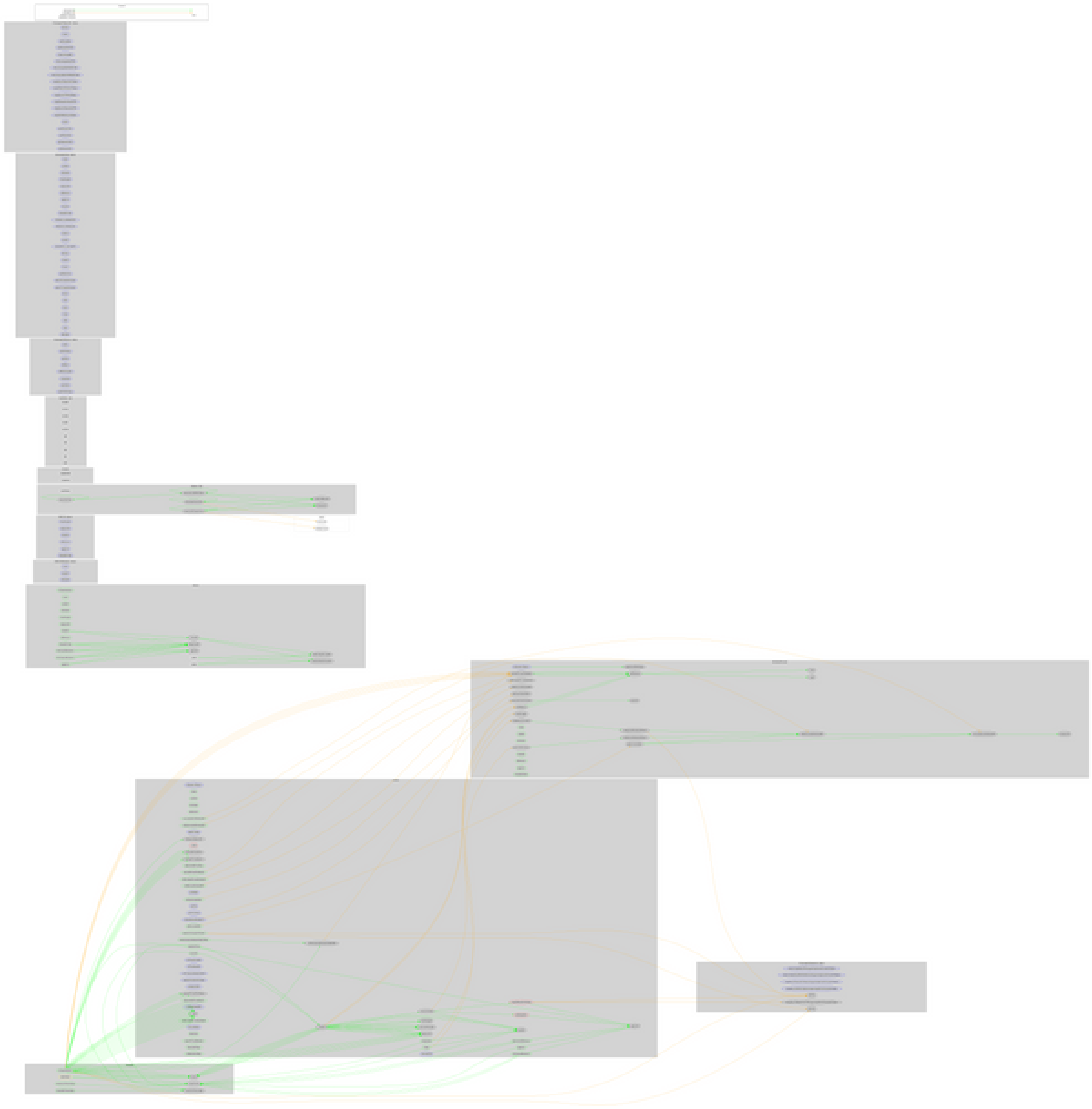
	MINIMUM_LIQUIDITY	External		-
	factory	External		-
	token0	External		-
	token1	External		-
	getReserves	External		-
	price0CumulativeLast	External		-
	price1CumulativeLast	External		-
	kLast	External		-
	mint	External	✓	-
	burn	External	✓	-
	swap	External	✓	-
	skim	External	✓	-
	sync	External	✓	-
	initialize	External	✓	-
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	✓	-
CMAC	Implementation	Ownable, IERC20		
	<Constructor>	Public	✓	-
	<Receive Ether>	External	Payable	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	allowance	Public		-
	approve	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	transfer	Public	✓	-
	transferFrom	Public	✓	-
	openTrading	External	✓	onlyOwner
	_transfer	Internal	✓	
	_executeTransfer	Private	✓	
	_approve	Private	✓	
	_mint	Private	✓	
	_burn	Private	✓	
	swapTokensForNative	Private	✓	
	addLiquidity	Private	✓	
	includeToWhiteList	Private	✓	

	_executeSwap	Private	✓	
	excludeFromFees	Public	✓	onlyOwner
	isExcludedFromFees	Public		-
	manualSendDividend	External	✓	onlyOwner
	excludeFromDividends	Public	✓	onlyOwner
	isExcludedFromDividends	Public		-
	setWallet	External	✓	onlyOwner
	setAutomatedMarketMakerPair	Public	✓	onlyOwner
	setFee	External	✓	onlyOwner
	setFeeOnSell	External	✓	onlyOwner
	_setAutomatedMarketMakerPair	Private	✓	
	updateUniswapV2Router	Public	✓	onlyOwner
	claim	Public	✓	-
	compound	Public	✓	-
	withdrawableDividendOf	Public		-
	withdrawnDividendOf	Public		-
	accumulativeDividendOf	Public		-
	getAccountInfo	Public		-
	getLastClaimTime	Public		-
	setSwapEnabled	External	✓	onlyOwner
	setTaxEnabled	External	✓	onlyOwner
	setCompoundingEnabled	External	✓	onlyOwner
	updateDividendSettings	External	✓	onlyOwner
	setMaxTxBPS	External	✓	onlyOwner
	excludeFromMaxTx	Public	✓	onlyOwner
	isExcludedFromMaxTx	Public		-
	setMaxWalletBPS	External	✓	onlyOwner
	excludeFromMaxWallet	Public	✓	onlyOwner
	isExcludedFromMaxWallet	Public		-
	rescueToken	External	✓	onlyOwner
	rescueETH	External	✓	onlyOwner
	blackList	Public	✓	onlyOwner
	removeFromBlacklist	Public	✓	onlyOwner
	blackListMany	Public	✓	onlyOwner
	unBlackListMany	Public	✓	onlyOwner

DividendTracker	Implementation	Ownable, IERC20		
	<Constructor>	Public	✓	-
	<Receive Ether>	External	Payable	-
	distributeDividends	Public	Payable	-
	setBalance	External	✓	onlyOwner
	excludeFromDividends	External	✓	onlyOwner
	isExcludedFromDividends	Public		-
	manualSendDividend	External	✓	onlyOwner
	_setBalance	Internal	✓	
	_mint	Private	✓	
	_burn	Private	✓	
	processAccount	Public	✓	onlyOwner
	_withdrawDividendOfUser	Private	✓	
	compoundAccount	Public	✓	onlyOwner
	_compoundDividendOfUser	Private	✓	
	withdrawableDividendOf	Public		-
	withdrawnDividendOf	Public		-
	accumulativeDividendOf	Public		-
	getAccountInfo	Public		-
	getLastClaimTime	Public		-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public		-
	allowance	Public		-
	approve	Public		-
	transferFrom	Public		-

Contract Flow



Summary

Cash Machine (CMAC) is a project with a friendly and growing community. The Smart Contract analysis reported no compiler error and 2 critical issues. There are some functions that can be abused by the owner, like manipulating fees up to 100% and blacklisting users from trading. The contract can also be converted into a honeypot if the admin functions are used in a malicious way. 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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Coinscope is the leading early coin listing, voting and auditing authority firm. The audit process is analyzing and monitoring many aspects of the project. That way, it gives the community a good sense of security using an informative report and a generic score.

Coinscope is aiming to make crypto discoverable and efficient globally. It provides all the essential tools to assist users draw their own conclusions.

The Coinscope.co team

https://www.coinscope.co