Cyberscope

Audit Report

Doge CEO

May 2023

Network   BSC

Address   0x9cbB03eFfD6FB7d79c9baB1b0cEAF4232e957521

Audited by   © cyberscope

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Review

Contract Name	DOGECEO
Compiler Version	v0.8.17+commit.8df45f5f
Optimization	200 runs
Explorer	https://bscscan.com/address/0x9cbb03effd6fb7d79c9bab1b0ceaf4232e957521
Address	0x9cbb03effd6fb7d79c9bab1b0ceaf4232e957521
Network	BSC
Symbol	DOGECEO
Decimals	9
Total Supply	405,893,054,800,781,900

Audit Updates

Initial Audit	10 May 2023

Source Files

Filename	SHA256
DOGECEO.sol	fe3d1652cf5c525117c937d759ea76ff7b2044017c8fe46446359d9014c31d4c

Findings Breakdown

	Critical	0
	Medium	0
	Minor / Informative	7

7

Severity	Unresolved	Acknowledged	Resolved	Other
● Critical	0	0	0	0
● Medium	0	0	0	0
● Minor / Informative	7	0	0	0

Analysis

● Critical   ● Medium   ● Minor / Informative   ● Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Passed
●	OCTD	Transfers Contract's Tokens	Passed
●	OTUT	Transfers User's Tokens	Passed
●	ELFM	Exceeds Fees Limit	Passed
●	ULTW	Transfers Liquidity to Team Wallet	Passed
●	MT	Mints Tokens	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Passed

Diagnostics

● Critical ● Medium ● Minor / Informative

Severity	Code	Description	Status
●	DDP	Decimal Division Precision	Unresolved
●	MTS	Misleading Total Supply	Unresolved
●	IDI	Immutable Declaration Improvement	Unresolved
●	L02	State Variables could be Declared Constant	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L05	Unused State Variable	Unresolved
●	L14	Uninitialized Variables in Local Scope	Unresolved

DDP - Decimal Division Precision

Criticality	Minor / Informative
Location	DOGECEO.sol#L652
Status	Unresolved

Description

Division of decimal (fixed point) numbers can result in rounding errors due to the way that division is implemented in Solidity. Thus, it may produce issues with precise calculations with decimal numbers.

Solidity represents decimal numbers as integers, with the decimal point implied by the number of decimal places specified in the type (e.g. decimal with 18 decimal places). When a division is performed with decimal numbers, the result is also represented as an integer, with the decimal point implied by the number of decimal places in the type. This can lead to rounding errors, as the result may not be able to be accurately represented as an integer with the specified number of decimal places.

Hence, the splitted shares will not have the exact precision and some funds may not be calculated as expected.

```
if(totalShare > 0) {
    if(buybackShare > 0) {
        uint256 buybackTokens = (contractTokenBalance * buybackShare) /
totalSha
        buyBackAndBurn(buybackTokens);
    }

    if(marketingShare > 0) {
        uint256 marketingTokens = (contractTokenBalance * marketingre) /
totalShare;
        swapAndSendMarketing(marketingTokens);
    }
}
```

Recommendation

The contract could calculate the subtraction of the divided funds in the last calculation in order to avoid the division rounding issue.

MTS - Misleading Total Supply

Criticality	Minor / Informative
Location	DOGECEO.sol#L534,904
Status	Unresolved

Description

According to the ERC20 specification, the `totalSupply()` function should return the total supply of the token. The total supply should always equal the sum of the balances. The contract does not return the `totalSupply()`. Instead, the function returns the `totalSupply()` minus the amount that has been moved to the dead address. This amount is the circulating supply of the token. Many decentralized applications and tools are calculating many indicators like the circulating supply and market cap based on the `totalSupply()`. As a result, these applications will produce misleading results.

```solidity
function totalSupply() public view override returns (uint256) {
    return _tTotalVisual;
}
...
_tTotalVisual = _tTotalVisual - newTokenBalance;
```

Recommendation

The `totalSupply()` should always equal the sum of the holder's balances. The contract should comply with this convention so that the decentralized applications will produce correct results.

IDI - Immutable Declaration Improvement

Criticality	Minor / Informative
Location	DOGECEO.sol#L354,356,360,361,363,364,366,367,369,370,372,374
Status	Unresolved

Description

The contract is using variables that initialize them only in the constructor. The other functions are not mutating the variables. These variables are not defined as `immutable`.

```
uniswapV2Pair
uniswapV2Router
taxFeeonBuy
taxFeeonSell
buyBackFeeOnBuy
buyBackFeeOnSell
marketingFeeonBuy
marketingFeeonSell
totalBuyFees
totalSellFees
marketingWallet
swapEnabled
```

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.

L02 - State Variables could be Declared Constant

Criticality	Minor / Informative
Location	DOGECEO.sol#L295,296,297
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.

```
string private _name = "Doge CEO"
string private _symbol = "DOGECEO"
uint8 private _decimals = 9
```

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

Criticality	Minor / Informative
Location	DOGECEO.sol#L114,115,131,150,301,567,571,575
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.

```solidity
function DOMAIN_SEPARATOR() external view returns (bytes32);
function PERMIT_TYPEHASH() external pure returns (bytes32);
function MINIMUM_LIQUIDITY() external pure returns (uint);
function WETH() external pure returns (address);
uint256 internal _tTotalVisual = 420e15 * (10 ** _decimals)
uint256 _amount
```

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	DOGECEO.sol#L323
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.

```
address private constant DEAD = 0x000000000000000000000000000000000000dEaD
```

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.

L14 - Uninitialized Variables in Local Scope

Criticality	Minor / Informative
Location	DOGECEO.sol#L342
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.

```
address router
```

Recommendation

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

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
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-

Address	Library			
	sendValue	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		-
	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	✓	-

DOGECEO	Implementation	Context, IERC20, Ownable		
		Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	isExcludedFromReward	Public		-
	totalReflectionDistributed	Public		-
	deliver	Public	✓	-
	reflectionFromToken	Public		-
	tokenFromReflection	Public		-
	excludeFromReward	Public	✓	onlyOwner
	includeInReward	External	✓	onlyOwner
		External	Payable	-
	_reflectFee	Private	✓	

_getValues	Private			
_getTValues	Private			
_getRValues	Private			
_getRate	Private			
_getCurrentSupply	Private			
_takeBuyback	Private	✓		
_takeMarketing	Private	✓		
calculateTaxFee	Private			
calculateBuybackFee	Private			
calculateMarketingFee	Private			
removeAllFee	Private	✓		
setBuyFee	Private	✓		
setSellFee	Private	✓		
setTransferFee	Private	✓		
isExcludedFromFee	Public		-	
_approve	Private	✓		
enableTrading	External	✓	onlyOwner	
_transfer	Private	✓		
buyBackAndBurn	Private	✓		
swapAndSendMarketing	Private	✓		
setSwapTokensAtAmount	External	✓	onlyOwner	
_tokenTransfer	Private	✓		
_transferStandard	Private	✓		

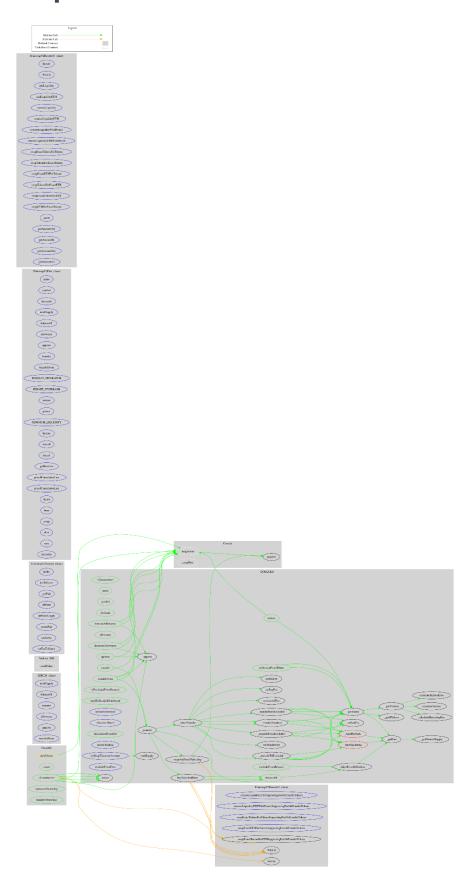|	_transferToExcluded	Private	✓	
	_transferFromExcluded	Private	✓	
	_transferBothExcluded	Private	✓	
	excludeFromFees	External	✓	onlyOwner

Inheritance Graph

Flow Graph

Summary

Doge CEO contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. Doge CEO is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler error or critical issues. The contract Owner can access some admin functions that can not be used in a malicious way to disturb the users' transactions. The fees are locked at 10%.

The contract's ownership has been relinquished, and the information regarding the transaction can be accessed through this link:

https://bscscan.com/tx/0xdacb2de3c24e664ca223c96de5b2f331c44288172fd0c59f92617ccbd934a1a2

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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

https://www.cyberscope.io