COINSCOPE

Audit Report

DogeStar

February 2022

Type	BEP20
Network	BSC
Address	0xB1eEb750fAb190CE97Aee9e65497e609042DaED7
Audited by	© coinscope

Table of Contents

Contract Review

Contract Name	DogeStar
Compiler Version	v0.8.9+commit.e5eed63a
Optimization	200 runs
Licence	
Explorer	https://bscscan.com/token/0xB1eEb750fAb190CE97Aee9e65497e609042DaED7
Symbol	DST
Decimals	9
Total Supply	1,000,000,000
Source	DogeStar.sol
Domain	

Audit Updates

Initial Audit	16th 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#L485,517,529

Description

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

```
if(!authorizations[sender] && !authorizations[recipient]){
    require(tradingOpen,"Trading not open yet");
}
```

```
require(amount <= _maxTxAmount || isTxLimitExempt[sender], "TX Limit Exceeded");
```

The contract owner has the authority to stop the sales for all users excluding the owner. The owner may take advantage of it by setting the `buybackMultiplierNumerator` to a high value.

```
function getMultipliedFee() public view returns (uint256) {
    uint256 remainingTime =
buybackMultiplierTriggeredAt.add(buybackMultiplierLength).sub(block.timestamp);
    uint256 feeIncrease =
totalFee.mul(buybackMultiplierNumerator).div(buybackMultiplierDenominator).sub(t
otalFee);
    return
totalFee.add(feeIncrease.mul(remainingTime).div(buybackMultiplierLength));
}
```

Recommendation

The contract could embody a check for not allowing setting the _maxTxAmount less than a reasonable amount. A suggested implementation could check that the maximum 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. That risk can be prevented by temporarily locking the contract or renouncing ownership.

ELFM - Exceed Limit Fees Manipulation

Criticality	critical
Location	contract.sol#L692

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 `setFees` function with a high percentage value.

```
function setFees(uint256 _liquidityFee, uint256 _reflectionFee, uint256
_marketingFee, uint256 _buybackFee, uint256 _devFee, uint256 _feeDenominator)
external authorized {
    liquidityFee = _liquidityFee;
    reflectionFee = _reflectionFee;
    marketingFee = _marketingFee;
    buybackFee = _buybackFee;
    devFee = _devFee;
    totalFee =
_liquidityFee.add(_reflectionFee).add(_marketingFee).add(_buybackFee).add(_devFe
e);
    feeDenominator = _feeDenominator;
}
```

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.

Contract Diagnostics

● Critical ● Medium ● Minor

Severity	Code	Description
●	L01	Public Function could be Declared External
●	L02	State Variables could be Declared Constant
●	L04	Conformance to Solidity Naming Conventions
●	L07	Missing Events Arithmetic

L01 - Public Function could be Declared External

Criticality	minor
Location	contract.sol#L94,101,122,479,738

Description

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

```
getUnpaidEarnings
tradingStatus
transferOwnership
unauthorize
authorize
```

Recommendation

Use the external attribute for functions never called from the contract

L02 - State Variables could be Declared Constant

Criticality	minor
Location	contract.sol#L202,215,365,364,366,372

Description

Constant state variables should be declared constant to save gas.

```
_totalSupply
ZERO
WBNB
DEAD
dividendsPerShareAccuracyFactor
```

Recommendation

Add the constant attribute to state variables that never change.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor
Location	contract.sol#L137,240,329,193,202,479,653,692,702,709 and 29 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.

```
_allowances
_balances
_maxTxAmount
_totalSupply
_decimals
_symbol
_name
ZERO
DEAD
...
```

Recommendation

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

L07 - Missing Events Arithmetic

Criticality	minor
Location	contract.sol#L240,653,663,669,692,709,714

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.

```
targetLiquidity = _target
swapThreshold = _amount
liquidityFee = _liquidityFee
_maxTxAmount = amount
buybackMultiplierNumerator = numerator
autoBuybackCap = _cap
minPeriod = _minPeriod
```

Recommendation

Emit an event for critical parameter changes.

Contract Functions

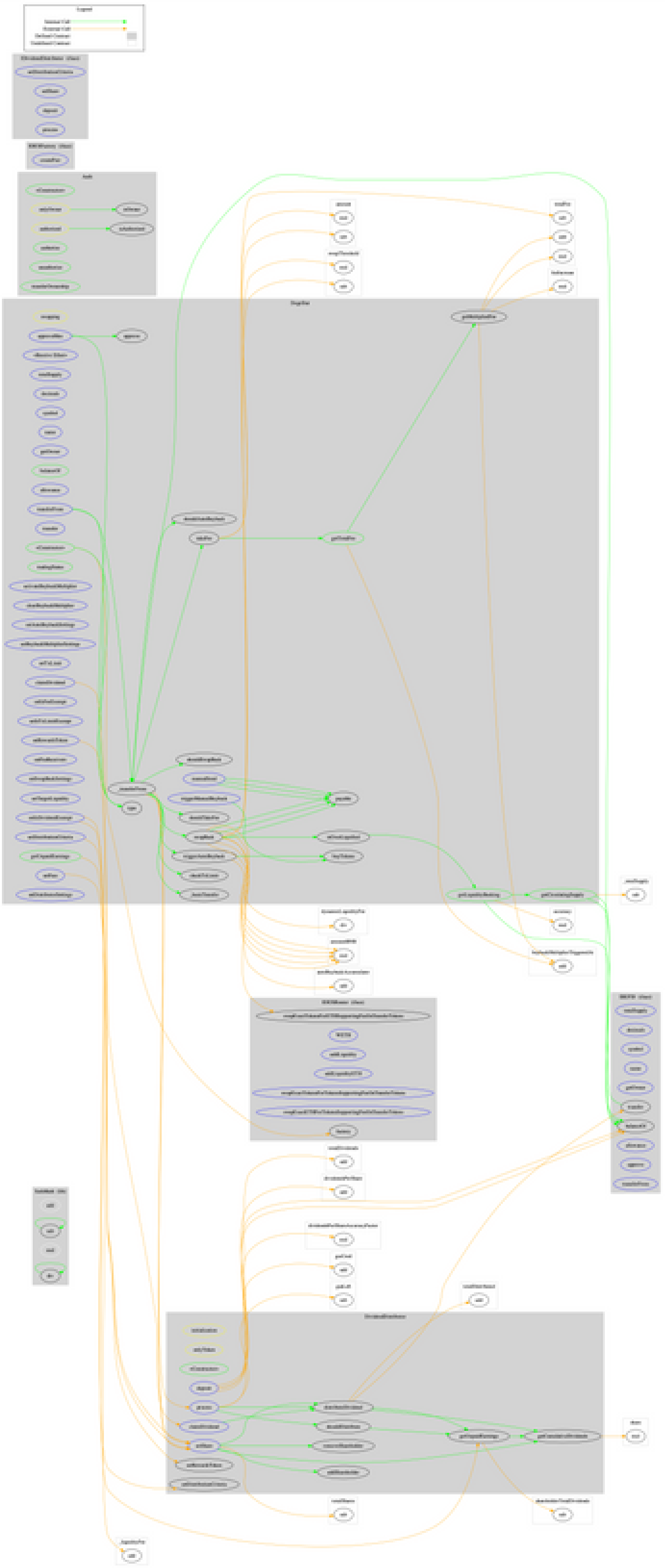
Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
SafeMath	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
IBEP20	Interface			
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
Auth	Implementation			
	<Constructor>	Public	✓	-
	authorize	Public	✓	onlyOwner
	unauthorize	Public	✓	onlyOwner
	isOwner	Public		-
	isAuthorized	Public		-
	transferOwnership	Public	✓	onlyOwner
IDEXFactory	Interface			

	createPair	External	✓	-
IDEXRouter	Interface			
	factory	External		-
	WETH	External		-
	addLiquidity	External	✓	-
	addLiquidityETH	External	Payable	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
IDividendDistributor	Interface			
	setDistributionCriteria	External	✓	-
	setShare	External	✓	-
	deposit	External	Payable	-
	process	External	✓	-
DividendDistributor	Implementation	IDividendDistributor		
	<Constructor>	Public	✓	-
	setDistributionCriteria	External	✓	onlyToken
	setShare	External	✓	onlyToken
	deposit	External	Payable	onlyToken
	process	External	✓	onlyToken
	shouldDistribute	Internal		
	distributeDividend	Internal	✓	
	claimDividend	External	✓	onlyToken
	setRewardsToken	External	✓	onlyToken
	getUnpaidEarnings	Public		-
	getCumulativeDividends	Internal		
	addShareholder	Internal	✓	
	removeShareholder	Internal	✓	

DogeStar	Implementation	IBEP20, Auth		
	<Constructor>	Public	✓	Auth
	<Receive Ether>	External	Payable	-
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	balanceOf	Public		-
	allowance	External		-
	approve	Public	✓	-
	approveMax	External	✓	-
	transfer	External	✓	-
	transferFrom	External	✓	-
	tradingStatus	Public	✓	onlyOwner
	_transferFrom	Internal	✓	
	_basicTransfer	Internal	✓	
	checkTxLimit	Internal		
	shouldTakeFee	Internal		
	getTotalFee	Public		-
	getMultipliedFee	Public		-
	takeFee	Internal	✓	
	shouldSwapBack	Internal		
	swapBack	Internal	✓	swapping
	shouldAutoBuyback	Internal		
	triggerManualBuyback	External	✓	authorized
	activateBuybackMultiplier	External	✓	authorized
	clearBuybackMultiplier	External	✓	authorized
	triggerAutoBuyback	Internal	✓	
	buyTokens	Internal	✓	swapping
	setAutoBuybackSettings	External	✓	authorized
	setBuybackMultiplierSettings	External	✓	authorized
	setTxLimit	External	✓	authorized
	setIsDividendExempt	External	✓	authorized
DogeStar	setIsFeeExempt	External	✓	authorized

	setIsTxLimitExempt	External	✓	authorized
	setFees	External	✓	authorized
	setFeeReceivers	External	✓	authorized
	setSwapBackSettings	External	✓	authorized
	setTargetLiquidity	External	✓	authorized
	manualSend	External	✓	authorized
	setDistributionCriteria	External	✓	authorized
	claimDividend	External	✓	-
	setRewardsToken	External	✓	authorized
	getUnpaidEarnings	Public		-
	setDistributorSettings	External	✓	authorized
	getCirculatingSupply	Public		-
	getLiquidityBacking	Public		-
	isOverLiquified	Public		-

Contract Flow



Summary

There are some functions that can be abused by the owner, like manipulating fees and stopping transactions. If the sale multipliers are abused by the owner, then the contract may operate as a honeypot. 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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