Cyberscope

Audit Report

BLACKBEARD INU

April 2022

Type	BEP20
Network	BSC
Address	0x63afe76b074f0b67feb2ea34fbdcb9b8edb96951
Audited by	© cyberscope

Table of Contents

Contract Review

Contract Name	BLACKBEARD_INU
Compiler Version	v0.8.7+commit.e28d00a7
Optimization	200 runs
Licence	MIT
Explorer	https://bscscan.com/token/0x63afe76b074f0b67feb2ea34fbdcb9b8edb96951
Symbol	BLACKBEARD
Decimals	9
Total Supply	1,000,000,000
Domain	

Source Files

Filename	**SHA256**
contract.sol	2a86dfbf6ba7adfdc9e7fba309fb492ce9ead1cfbcc81b7555092238726d4a20

Audit Updates

Initial Audit	24th April 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	medium
Location	contract.sol#L533

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 feeDenominator to zero.

```
function takeFee(address sender, address receiver, uint256 amount) internal
returns (uint256) {
        uint256 feeAmount = amount.mul(getTotalFee(receiver ==
pair)).div(feeDenominator);

        _balances[address(this)] = _balances[address(this)].add(feeAmount);
        emit Transfer(sender, address(this), feeAmount);

        return amount.sub(feeAmount);
    }
```

Recommendation

The contract could embody a check for not allowing setting the feeDenominator 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. That risk can be prevented by temporarily locking the contract or renouncing ownership.

ELFM - Exceed Limit Fees Manipulation

Criticality	critical
Location	contract.sol#L696

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 _buybackFee, uint256
_reflectionFee, uint256 _marketingFee, uint256 _feeDenominator) external
authorized {
        liquidityFee = _liquidityFee;
        buybackFee = _buybackFee;
        reflectionFee = _reflectionFee;
        marketingFee = _marketingFee;
        totalFee =
_liquidityFee.add(_buybackFee).add(_reflectionFee).add(_marketingFee);
        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.

BC - Blacklisted Contracts

Criticality	critical
Location	contract.sol#L481

Description

The contract owner has the authority to stop contracts from transactions. The owner may take advantage of it by calling the `enable_blacklist` and `manage_blacklist` functions.

```
        if(blacklistMode){
            require(!isBlacklisted[sender] &&
!isBlacklisted[recipient],"Blacklisted");
        }
```

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
	FSA	Fixed Swap Address
	L01	Public Function could be Declared External
	L02	State Variables could be Declared Constant
	L04	Conformance to Solidity Naming Conventions
	L05	Unused State Variable
	L07	Missing Events Arithmetic
	L14	Uninitialized Variables in Local Scope

FSA - Fixed Swap Address

Criticality	minor
Location	contract.sol#L426

Description

The swap address is assigned once in the constructor and it can not be changed. The decentralized swaps sometimes create a new swap version or abandon the current. A contract that cannot change the swap address may not be able to catch-up the upgrade.

```
router = IDEXRouter(0x10ED43C718714eb63d5aA57B78B54704E256024E);
pair = IDEXFactory(router.factory()).createPair(WBNB, address(this));
```

Recommendation

It could be better to allow the swap address mutation in case of future swap updates.

L01 - Public Function could be Declared External

Criticality	minor
Location	contract.sol#L99,106,127,648,654,733

Description

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

```
getUnpaidEarnings
enable_blacklist
manage_blacklist
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#L366,364,365,367,373,207,220

Description

Constant state variables should be declared constant to save gas.

```
dividendsPerShareAccuracyFactor
WBNB
_totalSupply
ZERO
DOGE
DEAD
```

Recommendation

Add the constant attribute to state variables that never change.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor
Location	contract.sol#L142,245,198,206,207,361,634,644,648,654 and 30 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

L05 - Unused State Variable

Criticality	minor
Location	contract.sol#L364

Description

There are segments that contain unused state variables.

```
DOGE
```

Recommendation

Remove unused state variables.

L07 - Missing Events Arithmetic

Criticality	minor
Location	contract.sol#L245,634,644,658,673,696,710,715

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
deadBlocks = _deadBlocks
autoBuybackCap = _cap
minPeriod = _minPeriod
```

Recommendation

Emit an event for critical parameter changes.

L14 - Uninitialized Variables in Local Scope

Criticality	minor
Location	contract.sol#L649

Description

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

```
i
```

Recommendation

All the local scoped variables should be initialized.

Contract Functions

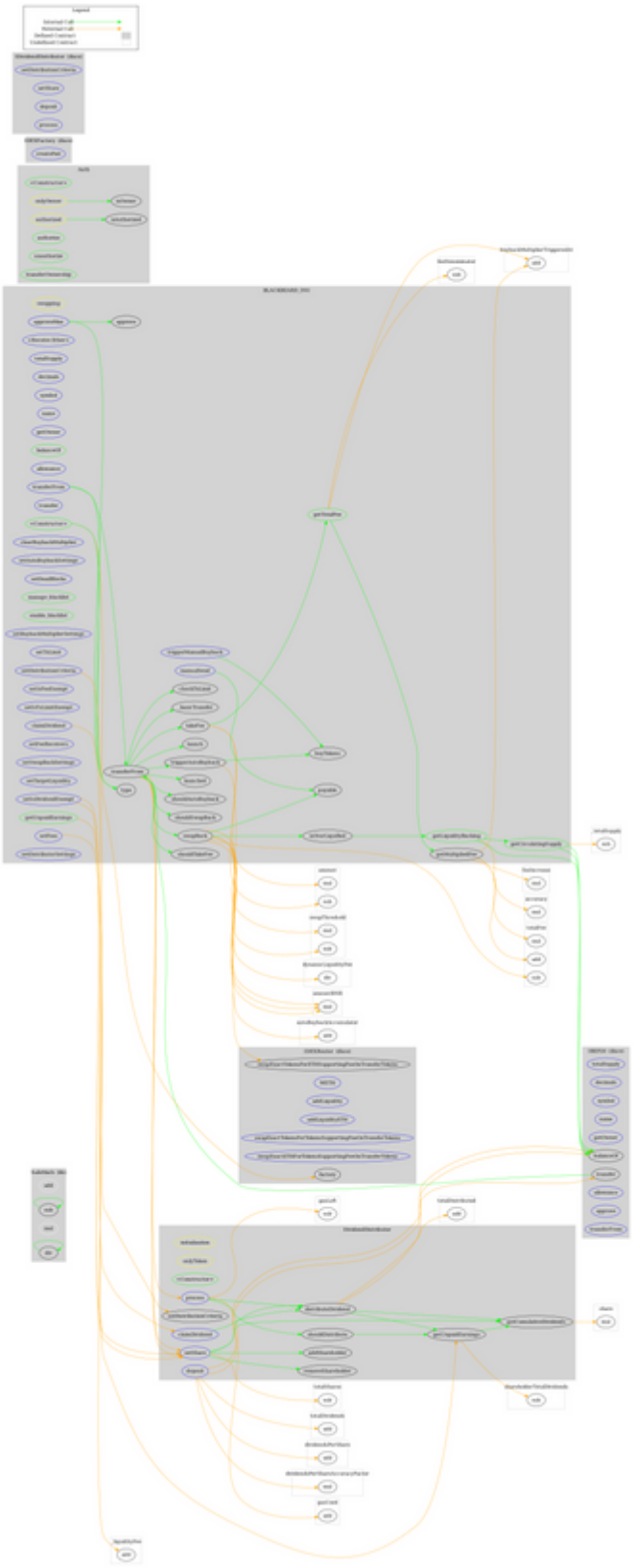
Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
SafeMath	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
IBEP20	Interface			
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	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
	getUnpaidEarnings	Public		-
	getCumulativeDividends	Internal		
	addShareholder	Internal	✓	
	removeShareholder	Internal	✓	

BLACKBEARD_INU	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	✓	-
	_transferFrom	Internal	✓	
	_basicTransfer	Internal	✓	
	checkTxLimit	Internal		
	shouldTakeFee	Internal		
	getTotalFee	Public		-
	getMultipliedFee	Public		-
	takeFee	Internal	✓	
	shouldSwapBack	Internal		
	swapBack	Internal	✓	swapping
	shouldAutoBuyback	Internal		
	triggerManualBuyback	External	✓	authorized
	clearBuybackMultiplier	External	✓	authorized
	triggerAutoBuyback	Internal	✓	
	buyTokens	Internal	✓	swapping
	setAutoBuybackSettings	External	✓	authorized
	setDeadBlocks	External	✓	authorized
	manage_blacklist	Public	✓	authorized
	enable_blacklist	Public	✓	authorized
	setBuybackMultiplierSettings	External	✓	authorized
	launched	Internal		

	launch	Internal	✓	
	setTxLimit	External	✓	authorized
	setIsDividendExempt	External	✓	authorized
	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	✓	-
	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, blacklisting wallets from transactions and stopping transactions. There is no limit for the maximum fee percentage that can be set. 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 audit and K.Y.C. service has been rebranded to Cyberscope.

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.

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

The Cyberscope team

https://www.cyberscope.io