



RugFreeCoins Audit



POPCAT Token Audit

Smart Contract Security Audit

September 2, 2021

Contents

Audit details	1
Disclaimer	2
Background	3
About the project	4
Target market and the concept	7
Potential to grow with score points	9
Total Points	9
Contract details	10
Token distribution	11
Contract code function details	12
Contract description table	13
Security issue checking status	18
Owner privileges	19
Audit conclusion	24

Audit details



Audited project

POPCAT Token



Contract Address

0x2e742b0298DA565b40051215e791A6c0CB296a70



Client contact

POPCAT Token Team



Blockchain

Binance smart chain



Project website

<https://popcat.cc/>

Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the disclaimer below – please make sure to read it in full.

DISCLAIMER: By reading this report or any part of it, you agree to the terms of this disclaimer. If you do not agree to the terms, then please immediately cease reading this report, and delete and destroy any and all copies of this report downloaded and/or printed by you. This report is provided for information purposes only and on a non-reliance basis, and does not constitute investment advice. No one shall have any right to rely on the report or its contents, and Rugfreecoins and its affiliates (including holding companies, shareholders, subsidiaries, employees, directors, officers and other representatives) (Rugfreecoins) owe no duty of care towards you or any other person, nor does Rugfreecoins make any warranty or representation to any person on the accuracy or completeness of the report. The report is provided "as is", without any conditions, warranties or other terms of any kind except as set out in this disclaimer, and Rugfreecoins hereby excludes all representations, warranties, conditions and other terms (including, without limitation, the warranties implied by law of satisfactory quality, fitness for purpose and the use of reasonable care and skill) which, but for this clause, might have effect in relation to the report. Except and only to the extent that it is prohibited by law, Rugfreecoins hereby excludes all liability and responsibility, and neither you nor any other person shall have any claim against Rugfreecoins, for any amount or kind of loss or damage that may result to you or any other person (including without limitation, any direct, indirect, special, punitive, consequential or pure economic loss or damages, or any loss of income, profits, goodwill, data, contracts, use of money, or business interruption, and whether in delict, tort (including without limitation negligence), contract, breach of statutory duty, misrepresentation (whether innocent or negligent) or otherwise under any claim of any nature whatsoever in any jurisdiction) in any way arising from or connected with this report and the use, inability to use or the results of use of this report, and any reliance on this report. The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.

Background

Rugfreecoins was commissioned by POPCAT to perform an audit of the smart contract.

<https://bscscan.com/token/0x2e742b0298DA565b40051215e791A6c0CB296a70>

The focus of this audit is to verify that the smart contract is secure, resilient and working according to the specifications.

The information in this report should be used to understand the risk exposure of the smart contract, project feasibility, long term sustainability and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

About the project

POPCAT is a token built on the Binance Smart Chain. Each transaction, purchase incur a 12% fee, and sales incur an 13% fee.

Features

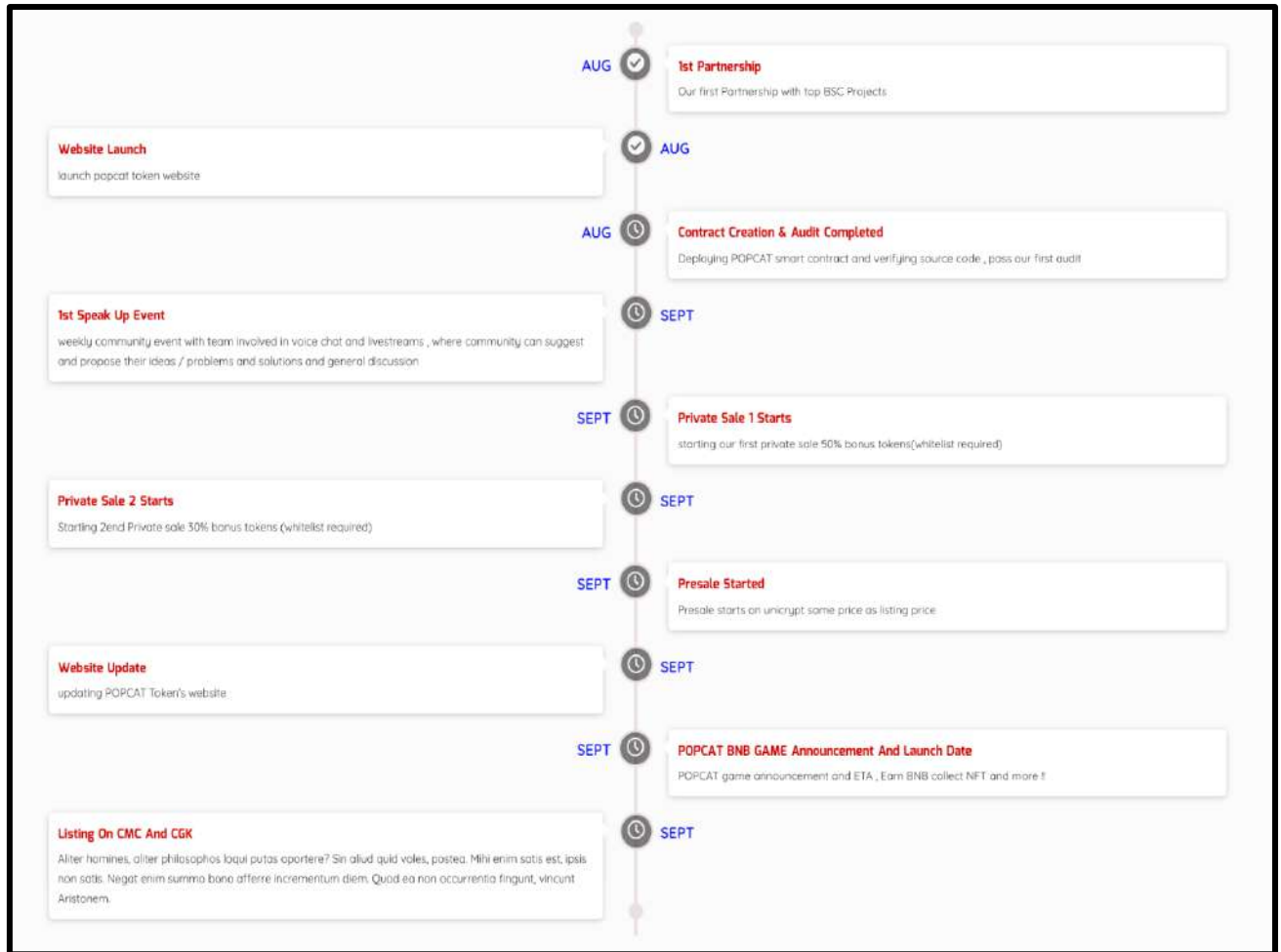
- ❖ **8%** of each transaction when buying and equally increased value when selling gets converted to BUSD and is split amongst all holders. The holders will be eligible to receive tokens everyone hour and rewards are proportional to how many tokens each individual holds.
- ❖ The liquidity fee of 2%, which is a redistribution mechanism that ensures the trading pool always has sufficient liquidity. This is a key element for decentralized exchanges like Pancakeswap.
- ❖ The **sustainability fee of 2% marketing** is what allows POPCAT to hold the aforementioned promise. Tokens will be swapped into BNB and will be sent to a marketing wallet per transaction. This way, POPCAT will have enough funds to promote the coin and spend for future development without selling tokens as the traditional way.
- ❖ POPCAT will help increase returns for investors, which will be exchanging 2% of the tax for Bnb buys back from the supply every minute and burn all tokens bought automatically.

Tokenomics

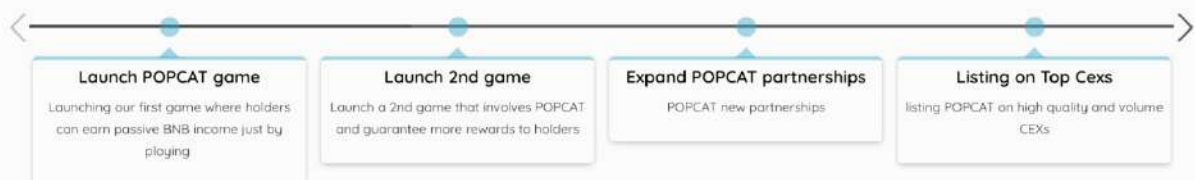
11% fee when buying & selling

- ❖ 5% of trade goes to holders' pockets in BUSD.
- ❖ 2% of trade goes to the liquidity pool.
- ❖ 2% of trade goes to buyback & burn tokens.
- ❖ 2% of trade goes to marketing.
- ❖ After each buyback, transaction fees for sales are doubled for 10 minutes.

Roadmap



Next Targets





Target market and the concept

Target market

- ❖ Anyone who's interested in Crypto space with long term investment plans.
- ❖ Anyone who's ready to earn a passive income in BUSD by holding tokens.
- ❖ Anyone who's interested in trading tokens.
- ❖ Anyone who's interested in taking part with the future games that's going to be built by the POPCAT team.
- ❖ Anyone who's interested in taking part in the NFT market.
- ❖ Anyone who's interested in taking part with the project's marketing activities and referral program and get paid in BNBs.
- ❖ Anyone who's interested in making financial transactions with any other party using POPCAT or BUSD as the currency.

Core concept

The BUSD reward system

5% of each transaction gets converted to BUSD and is split amongst all holders. The rewards are sent to holders that have, holders will be eligible to receive tokens every one hour and rewards are proportional to how many tokens each individual holds.

Sustainable mechanism

The **liquidity fee of 2%**, which is a redistribution mechanism that ensures the trading pool always has sufficient liquidity.

The **fee of 2% marketing** is what allows POPCAT to promote the token and use funds to further development of the platform. Tokens will be swapped into BNB and will be sent to a marketing wallet per transaction. This way, POPCAT will have access to the funds without selling tokens as the traditional way, which will enable them to consume funds without hurting the project.

The buyback and burn mechanism collect 2% tax on each transaction, which is stored inside the contract. Whenever a buy or sell occurs, a fraction of the buyback amount is used to automatically purchase tokens from the liquidity pool. Those tokens are immediately burned after purchase, which keeps the token price stable.

when panic sell occurs, the buyback whale is triggered and double The buy-back amount for an adjustable Timeframe.

The future plan

NFT & gaming platform

- ❖ POPCAT Team is developing an NFT market and a unique and funny game that rewards holders with BNB while playing beside BUSD reflection ! the more you play the more you earn!



Unique Referral Program for Shillers

- ❖ POPCAT is considering their hard workers and shillers, rewarding them with a unique referral program while doing their regular shilling and inviting activity. Each buy from their unique link (related to wallet addy) they get an instant BNB reward without the need to claim, once a buy transaction has been confirmed from the invite, they get 5% commission in BNB to their wallet instantly.

POPCAT chart website development

Develop POPCAT DEX platform where people can place orders, swap, buy & sell in all networks.

Potential to grow with score points

1.	Project efficiency	10/10
2.	Project uniqueness	9/10
3	Information quality	9/10
4	Service quality	10/10
5	System quality	10/10
6	Impact on the community	10/10
7	Impact on the business	10/10
8	Preparing for the future	10/10
Total Points		9.75/10

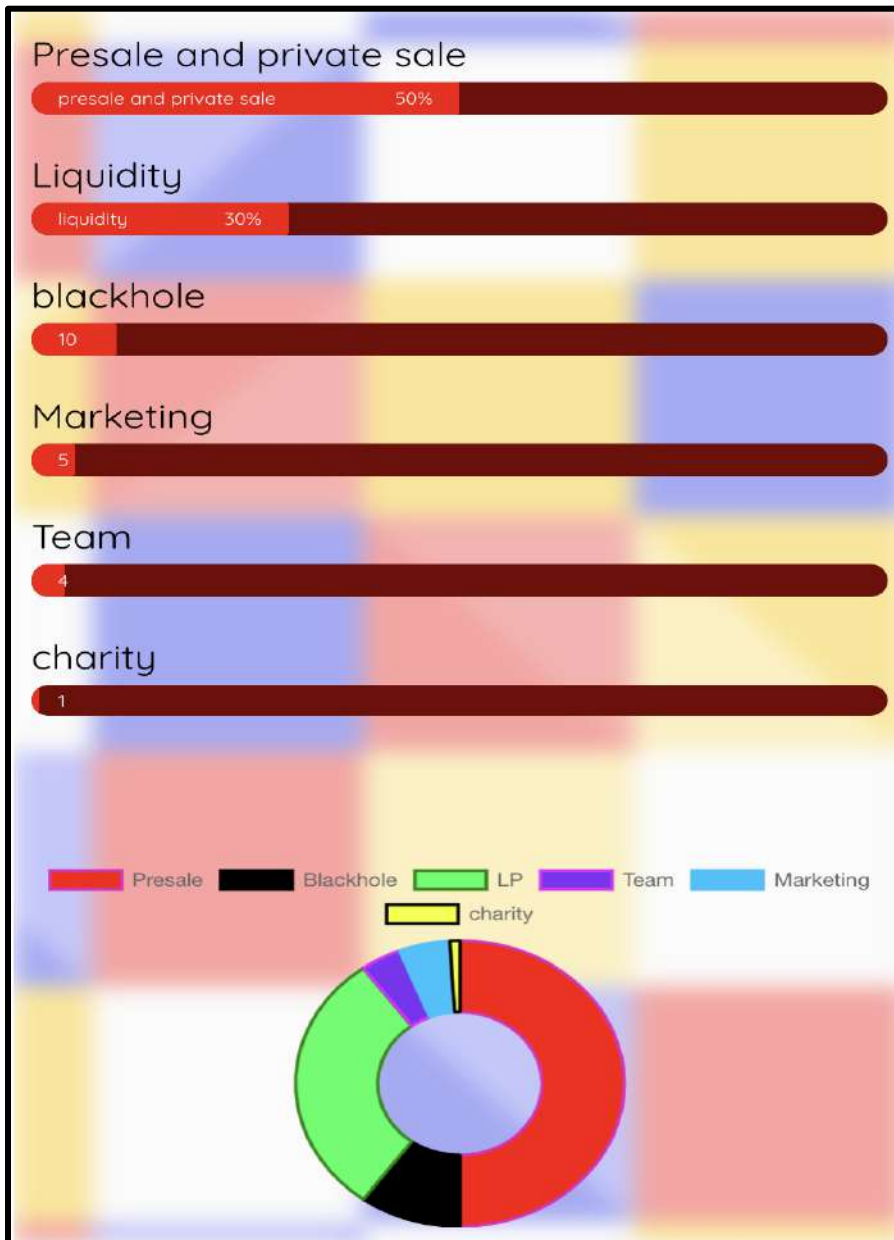
Contract details

Token contract details for 02nd September 2021

Contract name	POPCAT
Contract address	0x2e742b0298DA565b40051215e791A6c0CB296a70
Token supply	1,000,000,000,000,000
Token ticker	PCAT
Decimals	9
Token holders	4
Transaction count	5
Auto liquidity receiver	0x6b8868a972139598e0d53a7a6573d2432484d1a9
Marketing wallet address	0xc193397e7ceb113702c83511c165f1d7eec7a0aa
Contract deployer address	0x1Df925D52a7dade6411Cf669fa796F1e62bBc509
Contract's current owner address	0x08a6c380c58f38ca6dd71ea894511fde596ae65d

Token distribution

Tokens are distributed as follows:

















































Contract code function details
























No	Category	Item	Result
1	Coding conventions	BRC20 Token standards	pass
		compile errors	pass
		Compiler version security	pass
		visibility specifiers	pass
		Gas consumption	pass
		SafeMath features	pass
		Fallback usage	pass
		tx.origin usage	pass
		deprecated items	pass
		Redundant code	pass
		Overriding variables	pass
2	Function call audit	Authorization of function call	pass
		Low level function (call/delegate call) security	pass
		Returned value security	pass
		Selfdestruct function security	pass
3	Business security	Access control of owners	pass
		Business logics	pass
		Business implementations	pass
4	Integer overflow/underflow		pass
5	Reentrancy		pass
6	Exceptional reachable state		pass
7	Transaction ordering dependence		pass
8	Block properties dependence		pass
9	Pseudo random number generator (PRNG)		pass
10	DoS (Denial of Service)		pass
11	Token vesting implementation		pass
12	Fake deposit		pass
13	Event security		pass























































Contract description table

Below table represents the summary of the contracts and methods in the token contract. We scanned the whole contract and listed down all the Interfaces, functions and implementations with its visibility and mutability.



Contract	Type	Bases		
L	Function Name	Visibility	Mutability	Modifiers
SafeMath	Library			
L	add	Internal 		
L	sub	Internal 		
L	sub	Internal 		
L	mul	Internal 		
L	div	Internal 		
L	div	Internal 		
IBEP20	Interface			
L	totalSupply	External 		NO 
L	decimals	External 		NO 
L	symbol	External 		NO 
L	name	External 		NO 
L	getOwner	External 		NO 
L	balanceOf	External 		NO 
L	transfer	External 		NO 
L	allowance	External 		NO 
L	approve	External 		NO 
L	transferFrom	External 		NO 
Auth	Implementation			
L		Public 		NO 

L	authorize	Public ¶		onlyOwner
L	unauthorize	Public ¶		onlyOwner
L	isOwner	Public ¶		NO¶
L	isAuthorized	Public ¶		NO¶
L	transferOwnership	Public ¶		onlyOwner
IDEXFactory	Interface			
L	createPair	External ¶		NO¶
IDEXRouter	Interface			
L	factory	External ¶		NO¶
L	WETH	External ¶		NO¶
L	addLiquidity	External ¶		NO¶
L	addLiquidityETH	External ¶		NO¶
L	swapExactTokensForTokensSupportingFeeOnTransferTokens	External ¶		NO¶
L	swapExactETHForTokensSupportingFeeOnTransferTokens	External ¶		NO¶
L	swapExactTokensForETHSupportingFeeOnTransferTokens	External ¶		NO¶
IDividendDistributor	Interface			
L	setDistributionCriteria	External ¶		NO¶
L	setShare	External ¶		NO¶
L	deposit	External ¶		NO¶
L	process	External ¶		NO¶
DividendDistributor	Implementation	IDividendDistributor		
L		Public ¶		NO¶
L	setDistributionCriteria	External ¶		onlyToken

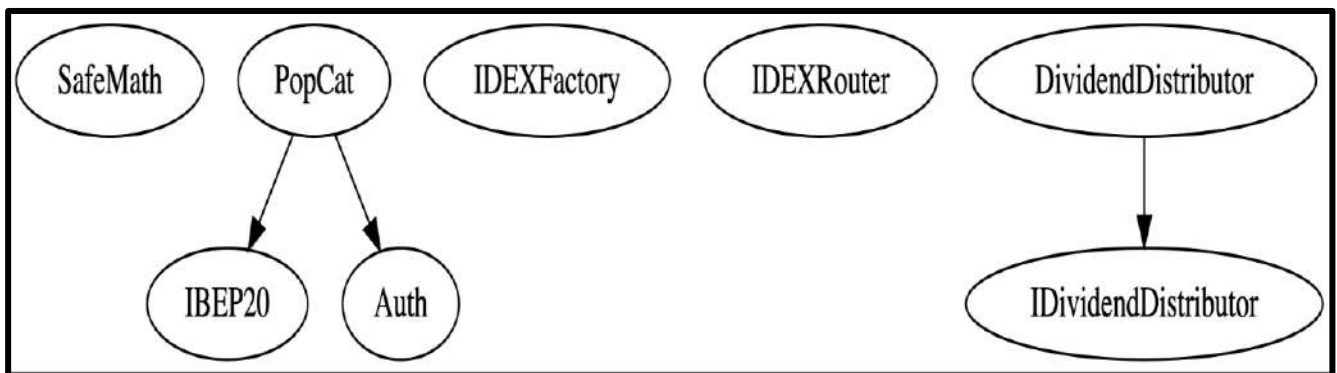
L	setShare	External !		onlyToken
L	deposit	External !		onlyToken
L	process	External !		onlyToken
L	shouldDistribute	Internal 		
L	distributeDividend	Internal 		
L	claimDividend	External !		NO!
L	getUnpaidEarnings	Public !		NO!
L	getCumulativeDividends	Internal 		
L	addShareholder	Internal 		
L	removeShareholder	Internal 		
PopCat	Implementation	IBEP20, Auth		
L		Public !		Auth
L		External !		NO!
L	totalSupply	External !		NO!
L	decimals	External !		NO!
L	symbol	External !		NO!
L	name	External !		NO!
L	getOwner	External !		NO!
L	balanceOf	Public !		NO!
L	allowance	External !		NO!
L	approve	Public !		NO!
L	approveMax	External !		NO!
L	transfer	External !		NO!
L	transferFrom	External !		NO!
L	_transferFrom	Internal 		
L	_basicTransfer	Internal 		
L	checkTxLimit	Internal 		

L	shouldTakeFee	Internal 		
L	getTotalFee	Public 		NO 
L	getMultipliedFee	Public 		NO 
L	takeFee	Internal 		
L	shouldSwapBack	Internal 		
L	swapBack	Internal 		swapping
L	shouldAutoBuyback	Internal 		
L	triggerZeusBuyback	External 		authorized
L	clearBuybackMultiplier	External 		authorized
L	setTakeFess	External 		authorized
L	triggerAutoBuyback	Internal 		
L	buyTokens	Internal 		swapping
L	setAutoBuybackSettings	External 		authorized
L	setBuybackMultiplierSettings	External 		authorized
L	launched	Internal 		
L	launch	Internal 		
L	setTxLimit	External 		authorized
L	setIsDividendExempt	External 		authorized
L	setIsFeeExempt	External 		authorized
L	setIsTxLimitExempt	External 		authorized
L	setFees	External 		authorized
L	setFeeReceivers	External 		authorized
L	setSwapBackSettings	External 		authorized
L	setTargetLiquidity	External 		authorized
L	setDistributionCriteria	External 		authorized
L	setDistributorSettings	External 		authorized
L	getCirculatingSupply	Public 		NO 
L	getLiquidityBacking	Public 		NO 
L	isOverLiquified	Public 		NO 

Legend

Symbol	Meaning
	Function can modify state
	Function is payable

Inheritance Hierarchy



Security issue checking status

❖ High severity issues

- No high severity issues found.

❖ Medium severity issues

- No medium severity issues found.

❖ Low severity issues

- No low severity issues found.

Owner privileges

- ❖ The owner can Authorize/Unauthorize wallets.

```
/**
 * Authorize address. Owner only
 */
ftrace | funcSig
function authorize(address adr↑) public onlyOwner {
    authorizations[adr↑] = true;
}

/**
 * Remove address' authorization. Owner only
 */
ftrace | funcSig
function unauthorize(address adr↑) public onlyOwner {
    authorizations[adr↑] = false;
}
```

- ❖ The owner can transfer ownership.

```
ftrace | funcSig
function transferOwnership(address payable adr↑) public onlyOwner {
    owner = adr↑;
    authorizations[adr↑] = true;
    emit OwnershipTransferred(adr↑);
}
```

- ❖ The owner can trigger buy back manually.

```
ftrace | funcSig
function triggerZeusBuyback(uint256 amount↑, bool triggerBuybackMultiplier↑)
    external
    authorized
{
    buyTokens(amount↑, DEAD);
    if (triggerBuybackMultiplier↑) {
        buybackMultiplierTriggeredAt = block.timestamp;
        emit BuybackMultiplierActive(buybackMultiplierLength);
    }
}
```

- ❖ The owner can enable/disable fees.

```
ftrace | funcSig
function setTakeFess(bool status↑) external authorized {
    takeFees = status↑;
}
```

- ❖ The owner can set auto buy back settings.

```
ftrace | funcSig
function setAutoBuybackSettings(
    bool _enabled↑,
    uint256 _cap↑,
    uint256 _amount↑,
    uint256 _period↑
) external authorized {
    autoBuybackEnabled = _enabled↑;
    autoBuybackCap = _cap↑;
    autoBuybackAccumulator = 0;
    autoBuybackAmount = _amount↑;
    autoBuybackBlockPeriod = _period↑;
    autoBuybackBlockLast = block.number;
}
```

- ❖ The owner can change buy back multiplier settings.

```
ftrace | funcSig
function setBuybackMultiplierSettings(
    uint256 numerator↑,
    uint256 denominator↑,
    uint256 length↑
) external authorized {
    require(numerator↑ / denominator↑ <= 2 && numerator↑ > denominator↑);
    buybackMultiplierNumerator = numerator↑;
    buybackMultiplierDenominator = denominator↑;
    buybackMultiplierLength = length↑;
}
```

- ❖ The owner can change the max transaction limit.

```
ftrace | funcSig
function setTxLimit(uint256 amount↑) external authorized {
    require(amount↑ >= totalSupply / 1000);
    _maxTxAmount = amount↑;
}
```

- ❖ The owner can exempt wallets from dividend.

```
ftrace | funcSig
function setIsDividendExempt(address holder↑, bool exempt↑)
    external
    authorized
{
    require(holder↑ != address(this) && holder↑ != pair);
    isDividendExempt[holder↑] = exempt↑;
    if (exempt↑) {
        distributor.setShare(holder↑, 0);
    } else {
        distributor.setShare(holder↑, balances[holder↑]);
    }
}
```


- ❖ The owner can exempt wallets from fees.

```
ftrace | funcSig
function setIsFeeExempt(address holder↑, bool exempt↑) external authorized {
    isFeeExempt[holder↑] = exempt↑;
}
```

- ❖ The owner can exempt wallets from the max transaction limit.

```
ftrace | funcSig
function setIsTxLimitExempt(address holder↑, bool exempt↑)
    external
    authorized
{
    isTxLimitExempt[holder↑] = exempt↑;
}
```

- ❖ The owner can change all fees.

```
ftrace | funcSig
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↑;
    require(totalFee < feeDenominator / 4);
}
```

- ❖ The owner can change liquidity LP token receiver and marketing fee receiver.

```
ftrace | funcSig
function setFeeReceivers(
    address _autoLiquidityReceiver↑,
    address _marketingFeeReceiver↑
) external authorized {
    autoLiquidityReceiver = _autoLiquidityReceiver↑;
    marketingFeeReceiver = _marketingFeeReceiver↑;
}
```

- ❖ The owner can change swap back settings.

```
ftrace | funcSig
function setSwapBackSettings(bool _enabled↑, uint256 _amount↑)
    external
    authorized
{
    swapEnabled = _enabled↑;
    swapThreshold = _amount↑;
}
```

- ❖ The owner can change the minimum distribution time and amount.

```
ftrace | funcSig
function setDistributionCriteria(
    uint256 _minPeriod↑,
    uint256 _minDistribution↑
) external authorized {
    distributor.setDistributionCriteria(_minPeriod↑, _minDistribution↑);
}
```

Audit conclusion

While conducting the audit of the POPCAT smart contract, it was observed that there is nothing alarming with the code.