



# Smart Contract Security Audit

## Audit details:

Audited project:	PumaSwap
Deployer address	0xdcb547b33c2b4e086f5a8b936c84f6b470216174
Blockchain:	Binance Smart Chain
Project website:	Not provided

# 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 below disclaimer below – please make sure to read it in full.

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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

TechRate was commissioned by PumaSwap to perform an audit of smart contracts:

- <https://bscscan.com/address/0x8aaacb22b185d06c5ed62e58cd2f0e9381b7a86d#code>
- <https://bscscan.com/address/0xee61921ca013dd3fdc09965e239a9f0035453109#code>

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

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


## Contracts details

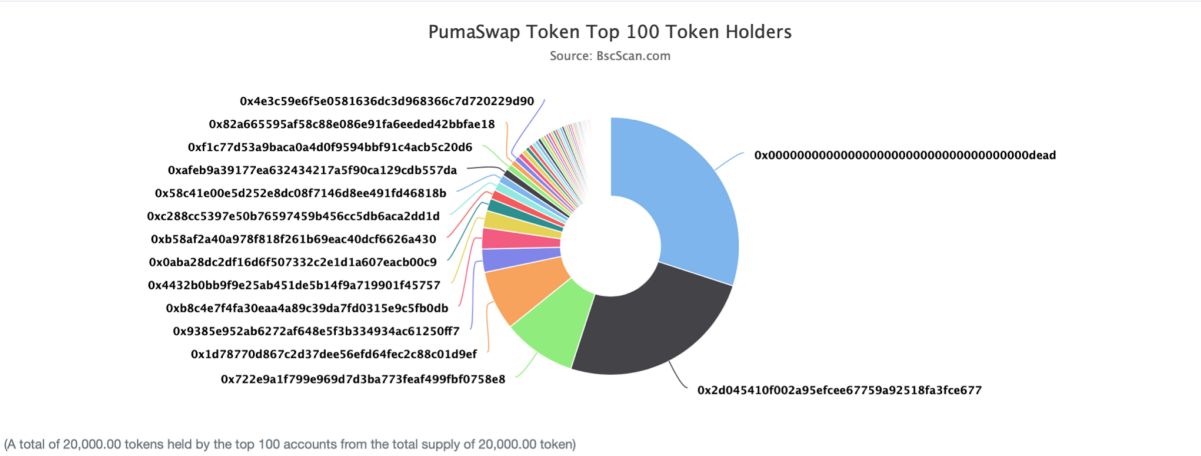
**Token contract details for 06.05.2021.**

Contract name:	PumaSwap
Compiler version:	v0.6.12+commit.27d51765
Contract address:	0x8aaacb22b185d06c5ed62e58cd2f0e9381b7a86d
Total supply:	20000000000000000000000
Token ticker:	PUMA
Decimals:	18
Token holders:	100
Transactions count:	271
Top 100 dominance:	100 %
Contract deployer address:	0xdcb547b33c2b4e086f5a8b936c84f6b470216174
Contract's current owner address:	0xee61921ca013dd3fdc09965e239a9f0035453109



# PumaSwap token distribution

 The top 100 holders collectively own 100.00% (20,000.00 Tokens) of PumaSwap Token

 Token Total Supply: 20,000.00 Token | Total Token Holders: 100



# PumaSwap top 10 token holders

Rank	Address	Quantity (Token)	Percentage
1	<a href="#">0x00dead</a>	6,000	30.0000%
2	 <a href="#">0x2d045410f002a95efcee67759a92518fa3fce677</a>	5,000	25.0000%
3	 <a href="#">0x722e9a1f799e969d7d3ba773feaf499fbf0758e8</a>	1,845.230395540719242371	9.2262%
4	<a href="#">0x1d78770d867c2d37dee56efd64fec2c88c01d9ef</a>	1,500.022234738394323453	7.5001%
5	<a href="#">0x9385e952ab6272af648e5f3b334934ac61250ff7</a>	582.14594653123964565	2.9107%
6	<a href="#">0xb8c4e7f4fa30eaa4a89c39da7fd0315e9c5fb0db</a>	536.917263617627080179	2.6846%
7	<a href="#">0x4432b0bb9f9e25ab451de5b14f9a719901f45757</a>	428.193767380046290424	2.1410%
8	<a href="#">0x0aba28dc2df16d6f507332c2e1d1a607eacb00c9</a>	311.914256252189467462	1.5596%
9	<a href="#">0xb58af2a40a978f818f261b69eac40dcf6626a430</a>	231.431166922069008967	1.1572%
10	<a href="#">0xc288cc5397e50b76597459b456cc5db6aca2dd1d</a>	225.147968407068287915	1.1257%

## MasterChef contract details for 06.05.2021.

Contract name:	MasterChef
Compiler version:	v0.6.12+commit.27d51765
Contract address:	0xee61921ca013dd3fdc09965e239a9f0035453109
Deployer address:	0xdc547b33c2b4e086f5a8b936c84f6b470216174
Fee address:	0xdc547b33c2b4e086f5a8b936c84f6b470216174
PUMA contract address:	0x8aaacb22b185d06c5ed62e58cd2f0e9381b7a86d
PUMA per block:	10000000000000000000
Contract owner address:	0xdc547b33c2b4e086f5a8b936c84f6b470216174
Pool length:	0
Start block:	7210000
Total alloc point:	0
Bonus multiplier:	1

# MasterChef functions outline

## + [Lib] Address

- [Int] isContract
- [Int] sendValue #
- [Int] functionCall #
- [Int] functionCall #
- [Int] functionCallWithValue #
- [Int] functionCallWithValue #
- [Int] functionStaticCall
- [Int] functionStaticCall
- [Prv] \_verifyCallResult

## + [Lib] SafeMath

- [Int] add
- [Int] sub
- [Int] sub
- [Int] mul
- [Int] div
- [Int] div
- [Int] mod
- [Int] mod

## + Context

- [Int] \_msgSender
- [Int] \_msgData

## + Ownable (Context)

- [Int] <Constructor> #
- [Pub] owner
- [Pub] renounceOwnership #
  - modifiers: onlyOwner
- [Pub] transferOwnership #
  - modifiers: onlyOwner

## + [Lib] SafeBEP20

- [Int] safeTransfer #
- [Int] safeTransferFrom #
- [Int] safeApprove #
- [Int] safeIncreaseAllowance #
- [Int] safeDecreaseAllowance #
- [Prv] \_callOptionalReturn #

## + [Int] IBEP20

- [Ext] totalSupply
- [Ext] decimals

- [Ext] symbol
- [Ext] name
- [Ext] getOwner
- [Ext] balanceOf
- [Ext] transfer #
- [Ext] allowance
- [Ext] approve #
- [Ext] transferFrom #

#### + BEP20 (Context, IBEP20, Ownable)

- [Pub] <Constructor> #
- [Ext] getOwner
- [Pub] name
- [Pub] symbol
- [Pub] decimals
- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] transfer #
- [Pub] allowance
- [Pub] approve #
- [Pub] transferFrom #
- [Pub] increaseAllowance #
- [Pub] decreaseAllowance #
- [Pub] mint #
  - modifiers: onlyOwner
- [Int] \_transfer #
- [Int] \_mint #
- [Int] \_burn #
- [Int] \_approve #
- [Int] \_burnFrom #

#### + PumaToken (BEP20)

- [Pub] mint #
  - modifiers: onlyOwner

#### + MasterChef (Ownable)

- [Pub] <Constructor> #
- [Ext] poolLength
- [Pub] add #
  - modifiers: onlyOwner
- [Pub] set #
  - modifiers: onlyOwner
- [Pub] getMultiplier
- [Ext] pendingPuma
- [Pub] massUpdatePools #
- [Pub] updatePool #
- [Pub] deposit #



- [Pub] withdraw #
- [Pub] emergencyWithdraw #
- [Int] safePumaTransfer #
- [Pub] setFeeAddress #
- [Pub] updateEmissionRate #
  - modifiers: onlyOwner

(\$) = payable function

# = non-constant function

# Issues Checking Status

№	Issue description.	Checking status
1	Compiler errors.	Passed
2	Race conditions and Reentrancy. Cross-function race conditions.	Passed
3	Possible delays in data delivery.	Passed
4	Oracle calls.	Passed
5	Front running.	Passed
6	Timestamp dependence.	Passed
7	Integer Overflow and Underflow.	Passed
8	DoS with Revert.	Passed
9	DoS with block gas limit.	Low issues
10	Methods execution permissions.	Passed
11	Economy model of the contract.	Passed
12	The impact of the exchange rate on the logic.	Passed
13	Private user data leaks.	Passed
14	Malicious Event log.	Passed
15	Scoping and Declarations.	Passed
16	Uninitialized storage pointers.	Passed
17	Arithmetic accuracy.	Passed
18	Design Logic.	Passed
19	Cross-function race conditions.	Passed
20	Safe Open Zeppelin contracts implementation and usage.	Passed
21	Fallback function security.	Passed

# Security Issues

## High Severity Issues

No high severity issues found.

## Medium Severity Issues

No medium severity issues found.

## Low Severity Issues

### 1. Block gas limit

Issue:

The `updateEmissionRate` function can fail due to block gas limit if the pool size is too big.

### 2. `add` function issue

Issue:

If some LP token is added to the contract twice using function `add`, then the total amount of reward `pumaReward` in function `updatePool` will be incorrect.

Recommendation:

Add the mapping from address to bool and check that same address will not be added twice.

## Conclusion

Smart contracts do not contain high severity issues!

Techrate note:

*Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner.*