



Smart Contract Security Audit

Audit details:

Audited project:	Grizzly
Deployer address	0x8aa42bd7dceef29a366e148e25e1906ad9283b2d
Blockchain:	Binance Smart Chain
Project website:	http://www.grizzlyswap.com

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 Grizzly to perform an audit of smart contracts:

- <https://bscscan.com/address/0xDf5a096D33dE84b11041A7FF78E7008c328184ab#code>
- <https://bscscan.com/address/0x6aD77aEB7fc86751f375EA1711Dc2CB25c9d4d16#code>
- <https://bscscan.com/address/0xF5dA3062EF9786e4C20Cb0de4541D1d00D344eC6#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 12.05.2021.

Contract name:	Grizzly
Compiler version:	v0.6.12+commit.27d51765
Contract address:	0xDf5a096D33dE84b11041A7FF78E7008c328184ab
Total supply:	0
Token ticker:	GRZ
Decimals:	18
Token holders:	0
Transactions count:	0
Top 100 dominance:	0
Contract deployer address:	0x8aa42bd7dceef29a366e148e25e1906ad9283b2d
Contract's current owner address:	0x8aa42bd7dceef29a366e148e25e1906ad9283b2d

MasterChef contract details for 12.05.2021.

Contract name:	MasterChef
Compiler version:	v0.6.12+commit.27d51765
Contract address:	0x6aD77aEB7fc86751f375EA1711Dc2CB25c9d4d16
Deployer address:	0x8aa42bd7dceef29a366e148e25e1906ad9283b2d
Dev address:	0x8aa42bd7dceef29a366e148e25e1906ad9283b2d
Fee address:	0x8aa42bd7dceef29a366e148e25e1906ad9283b2d
GRZ contract address:	0xdf5a096d33de84b11041a7ff78e7008c328184ab
GRZ per block:	10000000000000000000
Contract owner address:	0x8aa42bd7dceef29a366e148e25e1906ad9283b2d
Pool length:	0
Start block:	7446000
Total alloc point:	0
Bonus multiplier:	1

MasterChef functions outline

+ ReentrancyGuard

- [Int] <Constructor> #

+ Context

- [Int] _msgSender
- [Int] _msgData

+ [Lib] Address

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

+ [Lib] SafeMath

- [Int] tryAdd
- [Int] trySub
- [Int] tryMul
- [Int] tryDiv
- [Int] tryMod
- [Int] add
- [Int] sub
- [Int] mul
- [Int] div
- [Int] mod
- [Int] sub
- [Int] div
- [Int] mod

+ 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] decimals
- [Pub] symbol
- [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 #

+ GrizzlyToken (BEP20)

- [Pub] mint #
 - modifiers: onlyOwner
- [Int] _transfer #
- [Ext] delegates
- [Ext] delegate #

- [Ext] delegateBySig #
 - [Ext] getCurrentVotes
 - [Ext] getPriorVotes
 - [Int] _delegate #
 - [Int] _moveDelegates #
 - [Int] _writeCheckpoint #
 - [Int] safe32
 - [Int] getChainId
- + MasterChef (Ownable, ReentrancyGuard)
- [Pub] <Constructor> #
 - [Ext] poolLength
 - [Pub] add #
 - modifiers: onlyOwner
 - [Pub] set #
 - modifiers: onlyOwner
 - [Pub] getMultiplier
 - [Ext] pendingGrizzly
 - [Pub] massUpdatePools #
 - [Pub] updatePool #
 - [Pub] deposit #
 - modifiers: nonReentrant
 - [Pub] withdraw #
 - modifiers: nonReentrant
 - [Pub] emergencyWithdraw #
 - modifiers: nonReentrant
 - [Int] safeGrizzlyTransfer #
 - [Pub] setDevAddress #
 - [Pub] setFeeAddress #
 - [Pub] updateEmissionRate #

(\$) = 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.	Medium issues
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

1. Wrong burning

Issue:

There is sending tokens to the dead address in overridden `_transfer` functions, instead of burning them in the token contract.

```
function _transfer(address sender↑, address recipient↑, uint256 amount↑) internal virtual override {
    if (recipient↑ == BURN_ADDRESS) {
        super._transfer(sender↑, recipient↑, amount↑);
    } else {
        // 2% of every transfer burnt
        uint256 burnAmount = amount↑.mul(2).div(100);
        // 98% of transfer sent to recipient
        uint256 sendAmount = amount↑.sub(burnAmount);
        require(amount↑ == sendAmount + burnAmount, "GRZ::transfer: Burn value invalid");

        super._transfer(sender↑, BURN_ADDRESS, burnAmount);
        super._transfer(sender↑, recipient↑, sendAmount);
        amount↑ = sendAmount;
    }
}
```

Recommendation:

There should be a burn instead of sending to the dead address.

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 `grizzlyReward` in function `updatePool` will be incorrect.

Recommendation:

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

Owner privileges

- ❑ Owner can mint any amount of tokens without any restrictions because the ownership of the token is not transferred to the MasterChef contract.

```
function mint(address _to↑, uint256 _amount↑) public onlyOwner {  
    _mint(_to↑, _amount↑);  
    _moveDelegates(address(0), _delegates[_to↑], _amount↑);  
}
```

- ❑ Owner of the masterchef can change the pool details.

Conclusion

Smart contracts contain medium, low severity issues and owner privileges!

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.