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AUDIT COMPANY

Smart Contract Security Audit

TechRate

May, 2021

Audit Details

Audited project

Cosmic Egg 2.0

Deployer address

0x981419bdb15340e928182e7B9a0A04824031c353

Client contacts:

Cosmic Egg 2.0 team

Blockchain

Binance Smart Chain

Project website:

https://cosmicegg.io/

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 Cosmic Egg 2.0 to perform an audit of smart contracts:

https://bscscan.com/address/0xda8357f539a66b12e4c5f73485630352d140e585#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

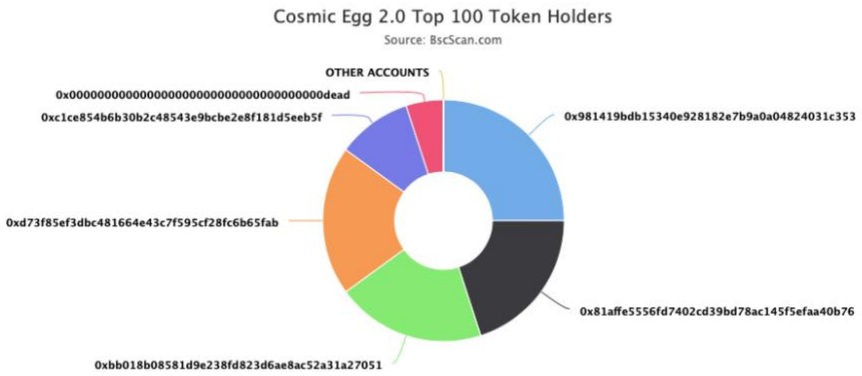
Token contract details for 01.06.2021

Contract name	Cosmic Egg 2.0
Contract address	0xda8357f539A66B12e4c5F73485630352D140E585
Total supply	10_000_000_000
Token ticker	CEGG
Decimals	9
Token holders	6
Transactions count	6
Top 100 holders dominance	100.00%
Liquidity fee	6
Tax fee	2
Total fees	0
Pancake V2 pair	0x37cbb0197ca187cbbfef33d38459ccc618a80fb7
Contract deployer address	0x981419bdb15340e928182e7B9a0A04824031c353
Contract's current owner address	0x981419bdb15340e928182e7b9a0a04824031c353

Cosmic Egg 2.0 Token Distribution

The top 100 holders collectively own 100.00% (10,000,000,000.00 Tokens) of Cosmic Egg 2.0

Token Total Supply: 10,000,000,000.00 Token | Total Token Holders: 6

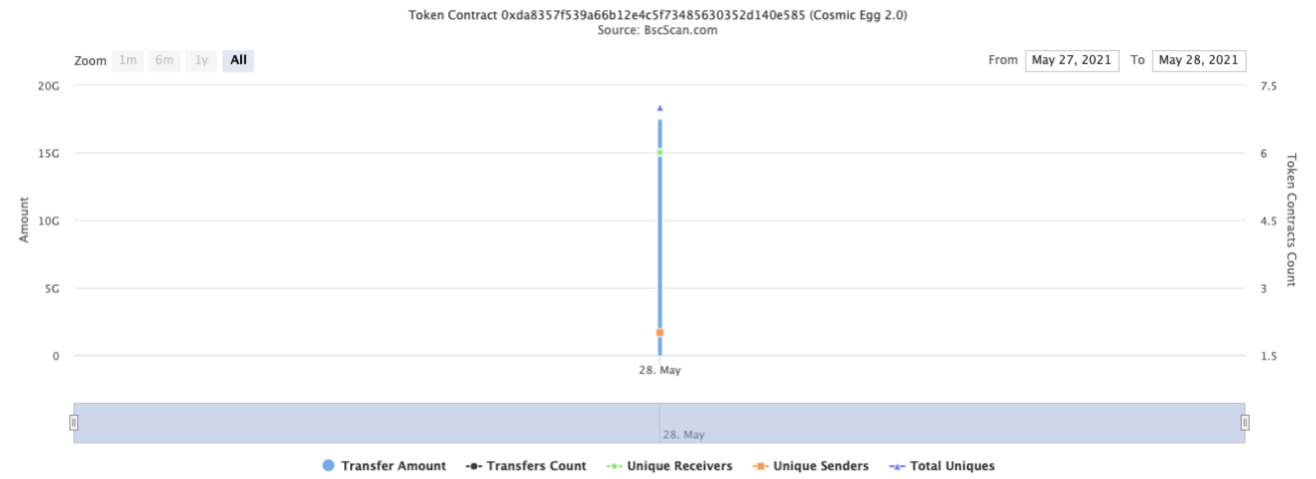


(A total of 10,000,000,000.00 tokens held by the top 100 accounts from the total supply of 10,000,000,000.00 token)

Cosmic Egg 2.0 Contract Interaction Details

Time Series: Token Contract Overview

Fri 28, May 2021 - Fri 28, May 2021



Cosmic Egg 2.0 Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	0x981419bdb15340e928182e7b9a0a04824031c353	2,500,000,000	25.0000%
2	0x81affe5556fd7402cd39bd78ac145f5efaa40b76	2,000,000,000	20.0000%
3	0xbb018b08581d9e238fd823d6ae8ac52a31a27051	2,000,000,000	20.0000%
4	0xd73f85ef3dbc481664e43c7f595cf28fc6b65fab	2,000,000,000	20.0000%
5	0xc1ce854b6b30b2c48543e9bcbe2e8f181d5eeb5f	1,000,000,000	10.0000%
6	0x000000000000000000000000000000000000dead	500,000,000	5.0000%

Contract functions details

+ [Int] IBEP20
  - [Ext] totalSupply
  - [Ext] balanceOf
  - [Ext] transfer #
  - [Ext] allowance
  - [Ext] approve #
  - [Ext] transferFrom #

+ [Lib] SafeMath
  - [Int] add
  - [Int] sub
  - [Int] sub
  - [Int] mul
  - [Int] div
  - [Int] div
  - [Int] mod
  - [Int] mod

+ Context
  - [Int] _msgSender
  - [Int] _msgData

+ [Lib] Address
  - [Int] isContract
  - [Int] sendValue #
  - [Int] functionCall #
  - [Int] functionCall #
  - [Int] functionCallWithValue #
  - [Int] functionCallWithValue #
  - [Prv] _functionCallWithValue #

+ Ownable (Context)
  - [Int] <Constructor> #
  - [Pub] transferOwnership #
    - modifiers: onlyOwner
  - [Pub] owner
  - [Pub] lockedLiquidity
  - [Pub] DonationWallet
  - [Pub] MarketingWallet
  - [Pub] burn
  - [Pub] renounceOwnership #
    - modifiers: onlyOwner
  - [Pub] setDonationWalletAddress #
    - modifiers: onlyOwner
  - [Pub] setMarketingWalletAddress #
    - modifiers: onlyOwner

+ [Int] IPancakeFactory
  - [Ext] feeTo
  - [Ext] feeToSetter
  - [Ext] getPair

- [Ext] allPairs
- [Ext] allPairsLength
- [Ext] createPair #
- [Ext] setFeeTo #
- [Ext] setFeeToSetter #

+ [Int] IPancakePair
- [Ext] name
- [Ext] symbol
- [Ext] decimals
- [Ext] totalSupply
- [Ext] balanceOf
- [Ext] allowance
- [Ext] approve #
- [Ext] transfer #
- [Ext] transferFrom #
- [Ext] DOMAIN_SEPARATOR
- [Ext] PERMIT_TYPEHASH
- [Ext] nonces
- [Ext] permit #
- [Ext] MINIMUM_LIQUIDITY
- [Ext] factory
- [Ext] token0
- [Ext] token1
- [Ext] getReserves
- [Ext] price0CumulativeLast
- [Ext] price1CumulativeLast
- [Ext] kLast
- [Ext] mint #
- [Ext] burn #
- [Ext] swap #
- [Ext] skim #
- [Ext] sync #
- [Ext] initialize #

+ [Int] IPancakeRouter01
- [Ext] factory
- [Ext] WETH
- [Ext] addLiquidity #
- [Ext] addLiquidityETH ($)
- [Ext] removeLiquidity #
- [Ext] removeLiquidityETH #
- [Ext] removeLiquidityWithPermit #
- [Ext] removeLiquidityETHWithPermit #
- [Ext] swapExactTokensForTokens #
- [Ext] swapTokensForExactTokens #
- [Ext] swapExactETHForTokens ($)
- [Ext] swapTokensForExactETH #
- [Ext] swapExactTokensForETH #
- [Ext] swapETHForExactTokens ($)
- [Ext] quote
- [Ext] getAmountOut
- [Ext] getAmountIn
- [Ext] getAmountsOut
- [Ext] getAmountsIn

+ [Int] IPancakeRouter02 (IPancakeRouter01)
  - [Ext] removeLiquidityETHSupportingFeeOnTransferTokens #
  - [Ext] removeLiquidityETHWithPermitSupportingFeeOnTransferTokens #
  - [Ext] swapExactTokensForTokensSupportingFeeOnTransferTokens #
  - [Ext] swapExactETHForTokensSupportingFeeOnTransferTokens ($)
  - [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #

+ ReentrancyGuard
  - [Pub] <Constructor> #

+ CosmicEggCEGG (Context, IBEP20, Ownable, ReentrancyGuard)
  - [Pub] <Constructor> #
  - [Pub] setRouterAddress #
    - modifiers: onlyOwner
  - [Pub] name
  - [Pub] symbol
  - [Pub] decimals
  - [Pub] totalSupply
  - [Pub] balanceOf
  - [Pub] transfer #
  - [Pub] allowance
  - [Pub] approve #
  - [Pub] transferFrom #
  - [Pub] increaseAllowance #
  - [Pub] decreaseAllowance #
  - [Pub] DonationWalletPercentageOfLiquidity
  - [Pub] MarketingWalletPercentageOfLiquidity
  - [Pub] totalFees
  - [Pub] totalDonationWalletCollected
  - [Pub] totalMarketingWalletCollected
  - [Pub] deliver #
  - [Pub] reflectionFromToken
  - [Pub] tokenFromReflection
  - [Pub] excludeFromReward #
    - modifiers: onlyOwner
  - [Ext] includeInReward #
    - modifiers: onlyOwner
  - [Pub] isExcludedFromReward
  - [Pub] devWallet
  - [Ext] setAsDevWallet #
    - modifiers: onlyOwner
  - [Pub] excludeFromFee #
    - modifiers: onlyOwner
  - [Pub] includeInFee #
    - modifiers: onlyOwner
  - [Ext] setTaxFeePercent #
    - modifiers: onlyOwner
  - [Ext] setLiquidityFeePercent #
    - modifiers: onlyOwner
  - [Pub] setDonationWalletPercentageOfLiquidity #
    - modifiers: onlyOwner
  - [Pub] setMarketingWalletPercentageOfLiquidity #
    - modifiers: onlyOwner
  - [Ext] setMaxTxPercent #

  - modifiers: onlyOwner
- [Ext] setNumTokensSellToAddToLiquidity #
  - modifiers: onlyOwner
- [Pub] setSwapAndLiquifyEnabled #
  - modifiers: onlyOwner
- [Ext] <Fallback> ($)
- [Prv] _reflectFee #
- [Prv] _getValues
- [Prv] _getTValues
- [Prv] _getRValues
- [Prv] _getRate
- [Prv] _getCurrentSupply
- [Prv] _takeLiquidity #
- [Prv] calculateTaxFee
- [Prv] calculateLiquidityFee
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Prv] setDevWalletFee #
- [Pub] isExcludedFromFee
- [Prv] _approve #
- [Prv] _transfer #
- [Pub] manualSwapAndLiquidfy #
  - modifiers: onlyOwner
- [Pub] collectDonationAndMarketing #
  - modifiers: onlyOwner
- [Prv] swapAndLiquify #
  - modifiers: lockTheSwap
- [Prv] swapTokensForETH #
- [Prv] addLiquidity #
- [Prv] _tokenTransfer #
- [Prv] _transferStandard #
- [Prv] _transferToExcluded #
- [Prv] _transferFromExcluded #
- [Prv] _transferBothExcluded #

($) = 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. Out of gas

Issue:

- The function includeInReward() uses the loop to find and remove addresses from the _excluded list. Function will be aborted with OUT_OF_GAS exception if there will be a long excluded addresses list.

```
function includeInReward(address account⬆) external onlyOwner() {
    require(_isExcluded[account⬆], "Account is already excluded");
    for (uint256 i = 0; i < _excluded.length; i++) {
        if (_excluded[i] == account⬆) {
            _excluded[i] = _excluded[_excluded.length - 1];
            _tOwned[account⬆] = 0;
            _isExcluded[account⬆] = false;
            _excluded.pop();
            break;
        }
    }
}
```

- The function _getCurrentSupply also uses the loop for evaluating total supply. It also could be aborted with OUT_OF_GAS exception if there will be a long excluded addresses list.

```
function _getCurrentSupply() private view returns (uint256, uint256) {
    uint256 rSupply = _rTotal;
    uint256 tSupply = _tTotal;
    for (uint256 i = 0; i < _excluded.length; i++) {
        if (
            _rOwned[_excluded[i]] > rSupply ||
            _tOwned[_excluded[i]] > tSupply
        ) return (_rTotal, _tTotal);
        rSupply = rSupply.sub(_rOwned[_excluded[i]]);
        tSupply = tSupply.sub(_tOwned[_excluded[i]]);
    }
    if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
    return (rSupply, tSupply);
}
```

Recommendation:

Check that the excluded array length is not too big.

Owner privileges (In the period when the owner is not renounced)

- Owner can change the tax, donation, marketing and liquidity fee.

```
// set fee, liquidity fee, donation fee and marketing fee %
// they are all against "transaction amount"
function setTaxFeePercent(uint256 taxFee) external onlyOwner {
    // holders reward fee, initially 2%
    _taxFee = taxFee;
}
function setLiquidityFeePercent(uint256 liquidityFee) external onlyOwner {
    // liquidity fee, initially 6%
    // (NOTE: this includes the donation and marketing, see "swapAndLiquify" function for more detail)
    _liquidityFee = liquidityFee;
}
function setDonationWalletPercentageOfLiquidity(uint256 inputDonationWalletPercentageOfLiquidity) public onlyOwner {
    // for donation, initially 1%
    _DonationWalletPercentageOfLiquidity = inputDonationWalletPercentageOfLiquidity;
}
function setMarketingWalletPercentageOfLiquidity(uint256 inputMarketingWalletPercentageOfLiquidity) public onlyOwner {
    // for marketing, initially 1%
    _MarketingWalletPercentageOfLiquidity = inputMarketingWalletPercentageOfLiquidity;
}
```

- Owner can change the maximum transaction amount.

```
function setMaxTxPercent(uint256 maxTxPercent⬆) external onlyOwner() {
    _maxTxAmount = _tTotal.mul(maxTxPercent⬆).div(
        10**2
    );
}
```

- Owner can exclude from the fee.

```
function excludeFromFee(address account⬆) public onlyOwner {
    _isExcludedFromFee[account⬆] = true;
}
```

- Owner can include in dev fee.

```
function setAsDevWallet(address account) external onlyOwner() {
    _isDevWallet[account] = true;
}
```

- **Owner can call manualSwapAndLiquidfy() function.**

```
function manualSwapAndLiquidfy(uint256 amount⬆) public onlyOwner
{
    require(amount⬆ <= balanceOf(address(this)), "Amount must be less than contract balance");
    if(amount⬆ >= _maxTxAmount)
    {
        amount⬆ = _maxTxAmount;
    }
    if (
        swapAndLiquifyEnabled
    ) {
        swapAndLiquify(amount⬆);
    }
}
```

- **Owner can change donation and marketing addresses.**

```
function setDonationWalletAddress(address payable DonationWalletAddress) public virtual onlyOwner
{
    require(_DonationWallet == address(0), "DonationWallet address cannot be changed once set");
    _DonationWallet = DonationWalletAddress;
}

function setMarketingWalletAddress(address payable MarketingWalletAddress) public virtual onlyOwner
{
    require(_MarketingWallet == address(0), "MarketingWallet address cannot be changed once set");
    _MarketingWallet = MarketingWalletAddress;
}
```

Conclusion

Smart contracts contain low severity issues! Liquidity pair contract's security is not checked due to out of scope.

Liquidity locking details NOT provided by the team.

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.