



TechRate

AUDIT COMPANY

Smart Contract Security Audit

TechRate

June, 2021

Audit Details



Audited project

Jack Raffle



Deployer address

0x2c007F3cc5F5FE0665e60E3557495F3303afA13b



Client contacts:

Jack Raffle team



Blockchain

Binance Smart Chain



Project website:

<https://jackraffle.army/>

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 Jack Raffle to perform an audit of smart contracts:

<https://bscscan.com/address/0x32c2bdEA6EB916019e37C90650F7914A23Beb33B#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 10.06.2021

Contract name	Jack Raffle
Contract address	0x32c2bdEA6EB916019e37C90650F7914A23Beb33B
Total supply	1,000,000,000
Token ticker	JACKR
Decimals	9
Token holders	3
Transactions count	3
Top 100 holders dominance	100.00%
Liquidity fee	9
Tax fee	1
Total fees	0
Pancake V2 pair	0x7f2841520f0b428e8811097b7bf82dc6d94ef430
Contract deployer address	0x2c007F3cc5F5FE0665e60E3557495F3303afA13b
Contract's current owner address	0x2c007f3cc5f5fe0665e60e3557495f3303afa13b

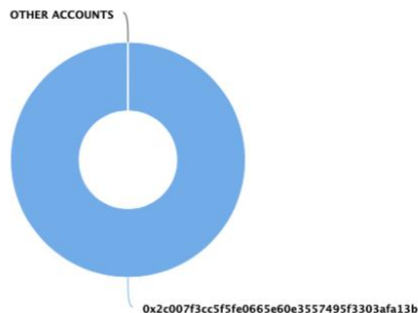
Jack Raffle Token Distribution

The top 100 holders collectively own 100.00% (1,000,000,000.00 Tokens) of Jack Raffle

Token Total Supply: 1,000,000,000.00 Token | Total Token Holders: 1

Jack Raffle Top 100 Token Holders

Source: BscScan.com



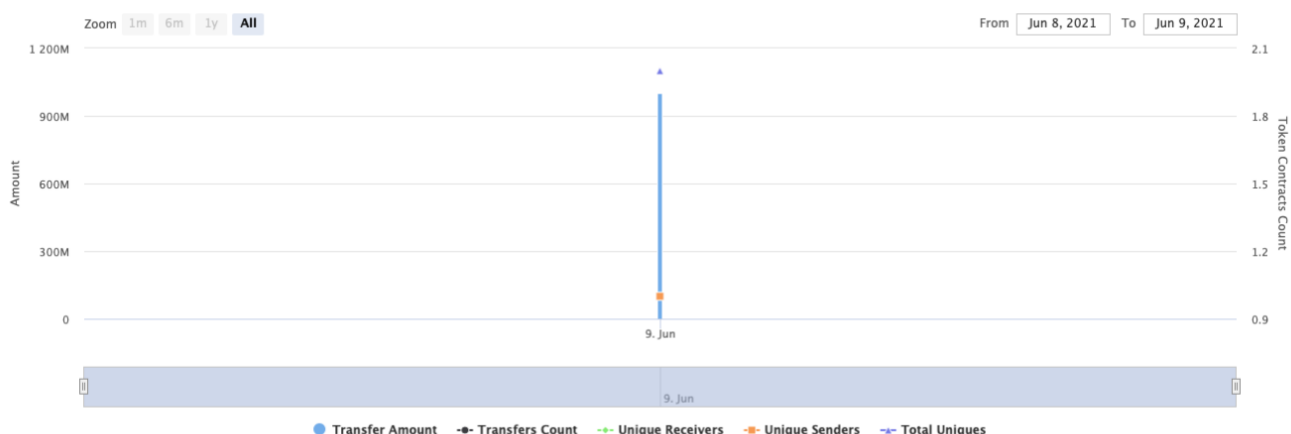
(A total of 1,000,000,000.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000.00 token)

Jack Raffle Contract Interaction Details

Time Series: Token Contract Overview

Wed 9, Jun 2021 - Wed 9, Jun 2021

Token Contract 0x32c2bdEA6EB916019e37C90650F7914A238eb338 (Jack Raffle)
Source: BscScan.com



Jack Raffle Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	0x2c007f3cc5f5fe0665e60e3557495f3303afa13b	1,000,000,000	100.0000%



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] owner
 - [Pub] renounceOwnership #
 - modifiers: onlyOwner
 - [Pub] transferOwnership #
 - modifiers: onlyOwner
 - [Pub] geUnlockTime
 - [Pub] lock #
 - modifiers: onlyOwner
 - [Pub] unlock #
- + [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> #

+ JackRaffle (Context, IBEP20, Ownable, ReentrancyGuard)

- [Pub] <Constructor> #
- [Pub] name
- [Pub] symbol
- [Pub] decimals
- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] transfer #
- [Pub] allowance
- [Pub] approve #
- [Pub] transferFrom #
- [Pub] increaseAllowance #
- [Pub] decreaseAllowance #
- [Pub] isExcludedFromReward
- [Pub] totalFees
- [Pub] deliver #
- [Pub] reflectionFromToken
- [Pub] tokenFromReflection
- [Pub] excludeFromReward #
 - modifiers: onlyOwner
- [Ext] includeInReward #
 - modifiers: onlyOwner
- [Prv] _transferBothExcluded #
- [Pub] excludeFromFee #
 - modifiers: onlyOwner
- [Pub] includeInFee #
 - modifiers: onlyOwner
- [Ext] setTaxFeePercent #
 - modifiers: onlyOwner
- [Ext] setLiquidityFeePercent #
 - 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 #
- [Pub] isExcludedFromFee
- [Prv] _approve #
- [Prv] _transfer #

- [Prv] _tokenTransfer #
- [Prv] _transferStandard #
- [Prv] _transferToExcluded #
- [Prv] _transferFromExcluded #
- [Pub] setMaxTxPercent #
 - modifiers: onlyOwner
- [Pub] setMinTokenPercToSell #
 - modifiers: onlyOwner
- [Pub] setLiquidityParts #
 - modifiers: onlyOwner
- [Pub] setBnbParts #
 - modifiers: onlyOwner
- [Pub] setRaffleWallet #
 - modifiers: onlyOwner
- [Pub] setExcludeFromMaxTx #
 - modifiers: onlyOwner
- [Pub] calculateBNBReward
- [Pub] _calculateBNBReward
- [Pub] getRewardCycleBlock
- [Pub] claimBNBReward #
 - modifiers: isHuman,nonReentrant
- [Prv] topUpClaimCycleAfterTransfer #
- [Prv] ensureMaxTxAmount #
- [Pub] disruptiveTransfer (\$)
- [Prv] swapAndLiquify #
- [Pub] activateContract #
 - modifiers: onlyOwner
- [Pub] changeThreshHoldTopUpRate #
 - modifiers: onlyOwner
- [Pub] changeRewardCycleBlock #
 - modifiers: onlyOwner
- [Pub] _calculateTopUpClaim
- [Pub] _swapTokensForEth #
- [Pub] _swapETHForTokens #
- [Pub] _addLiquidity #

(\$) = 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(!_excluded[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 and liquidity fee.

```
function setTaxFeePercent(uint256 taxFee) external onlyOwner() {
    _taxFee = taxFee;
}

function setLiquidityFeePercent(uint256 liquidityFee) external onlyOwner() {
    _liquidityFee = liquidityFee;
}
```

- Owner can change the maximum transaction amount.

```
function setMaxTxPercent(uint256 maxTxPercent) public onlyOwner() {
    _maxTxAmount = _tTotal.mul(maxTxPercent).div(10000);
}
```

- Owner can exclude from the fee.

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

- Owner can change raffle wallet address.

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

- Owner can exclude from checking max transaction amount.

```
function setExcludeFromMaxTx(address _address, bool value)
    public
    onlyOwner
{
    _isExcludedFromMaxTx[_address] = value;
}
```

- Owner can reset some contract settings to default.

```

function activateContract() public onlyOwner {
    // reward claim
    disableEasyRewardFrom = block.timestamp + 1 weeks;
    rewardCycleBlock = 7 days;
    easyRewardCycleBlock = 1 days;

    // protocol
    disruptiveCoverageFee = 2 ether;
    disruptiveTransferEnabledFrom = block.timestamp;
    setMaxTxPercent(1);
    setSwapAndLiquifyEnabled(true);

    // approve contract
    _approve(address(this), address(pancakeRouter), 2**256 - 1);
}

```

- Owner can lock and unlock. By the way, using these functions the owner could leave as owner even after the ownership was renounced.

```

//Locks the contract for owner for the amount of time provided
function lock(uint256 time) public virtual onlyOwner {
    _previousOwner = _owner;
    _owner = address(0);
    _lockTime = now + time;
    emit OwnershipTransferred(_owner, address(0));
}

//Unlocks the contract for owner when _lockTime is exceeds
function unlock() public virtual {
    require(_previousOwner == msg.sender, "You don't have permission to unlock");
    require(now > _lockTime, "Contract is locked until 7 days");
    emit OwnershipTransferred(_owner, _previousOwner);
    _owner = _previousOwner;
}

```

- Owner can set minimum tokens to sell.

```

function setMinTokenPercToSell(uint256 minPerc↑) public onlyOwner() {
    minTokenNumberToSell = _tTotal.mul(1).div(minPerc↑).div(10);
}

```

- Owner can change liquidity parts.

```

function setLiquidityParts(
    uint256 bnbPart↑,
    uint256 totalLidParts↑,
    uint256 bnbLiqAlloc↑
) public onlyOwner() {
    _bnbPart = bnbPart↑;
    _totalLiqParts = totalLidParts↑;
    _bnbLiqAlloc = bnbLiqAlloc↑;
}

```


- Owner can change BNB parts.

```
ftrace | funcSig
function setBnbParts(uint256 bnbTotalParts↑, uint256 bnbUserParts↑)
    public
    onlyOwner()
{
    _bnbTotalParts = bnbTotalParts↑;
    _bnbUserParts = bnbUserParts↑;
}
```

- Owner can change threshHoldTopUpRate.

```
ftrace | funcSig
function changeThreshHoldTopUpRate(uint256 _newrate↑) public onlyOwner {
    threshHoldTopUpRate = _newrate↑;
}
```

- Owner can change reward cycle block.

```
ftrace | funcSig
function changeRewardCycleBlock(uint256 newcycle↑) public onlyOwner {
    rewardCycleBlock = newcycle↑;
}
```

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.

Note:

The team claims to lock the liquidity later using the DXsale Platform.

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.



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