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AUDIT COMPANY

# Smart Contract Security Audit

TechRate

October, 2021

# Audit Details

Audited project

**BlazeBurger**

Deployer address

**0xaedae6dd5ddd8d323bc777654cda85e9e95add8c**

Client contacts:

**BlazeBurger team**

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 BlazeBurger to perform an audit of smart contracts:

https://bscscan.com/address/0xd06a0beaead446d55fa7b0cad7a9b5f68aa8a34d#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

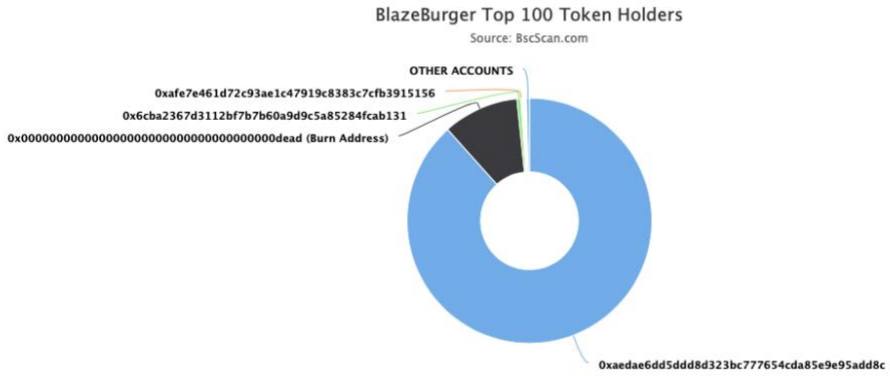
## Token contract details for 31.10.2021

| | |
|---|---|
| Contract name | BlazeBurger |
| Contract address | 0xD06A0BeaeAD446d55fA7b0Cad7a9b5F68Aa8A34d |
| Total supply | 200,000,000,000 |
| Token ticker | Btoken |
| Decimals | 9 |
| Token holders | 478 |
| Transactions count | 2,157 |
| Top 100 holders dominance | 99.61% |
| Liquidity fee | 0 |
| Tax fee | 0 |
| Total fees | 0 |
| Uniswap V2 pair | 0x5d1a1d4b4bb2a5d3e32d94d502dfcb1a84cd304e |
| Contract deployer address | 0xaedae6dd5ddd8d323bc777654cda85e9e95add8c |
| Contract's current owner address | 0xaedae6dd5ddd8d323bc777654cda85e9e95add8c |

# BlazeBurger Token Distribution

The top 100 holders collectively own 99.61% (199,217,271,139.84 Tokens) of BlazeBurger

Token Total Supply: 200,000,000,000.00 Token | Total Token Holders: 478

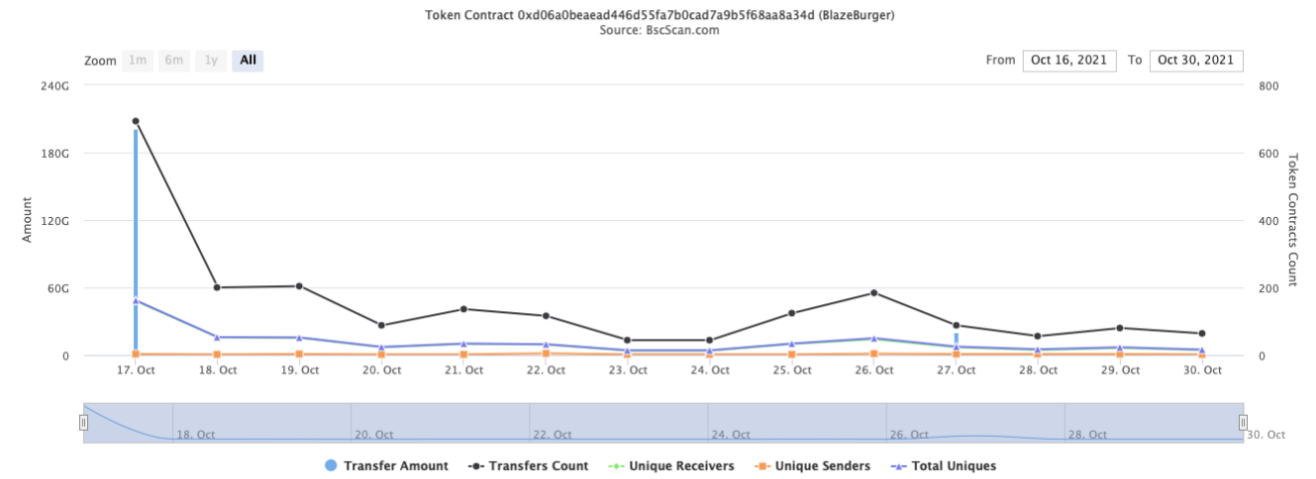



(A total of 199,217,271,139.84 tokens held by the top 100 accounts from the total supply of 200,000,000,000.00 token)

# BlazeBurger Contract Interaction Details

Time Series: Token Contract Overview

Sun 17, Oct 2021 - Sat 30, Oct 2021



# BlazeBurger Top 10 Token Holders

| Rank | Address | Quantity (Token) | Percentage |
|---|---|---|---|
| 1 | 0xaedae6dd5ddd8d323bc777654cda85e9e95add8c | 176,727,723,414.26 | 88.3639% |
| 2 | Burn Address | 20,000,000,100 | 10.0000% |
| 3 | 0x6cba2367d3112bf7b7b60a9d9c5a85284fcab131 | 998,055,838 | 0.4990% |
| 4 | 0xafe7e461d72c93ae1c47919c8383c7cfb3915156 | 86,994,000 | 0.0435% |
| 5 | 0x3b76f3ef3507f85fbc1442de70b410c7ee98e050 | 86,457,000 | 0.0432% |
| 6 | 0x8972697d67e6fa24012f68e37544191f24b9ec9b | 76,862,600 | 0.0384% |
| 7 | 0x60639d58b57160f11642616bb1cd5068b9177e3c | 68,449,600 | 0.0342% |
| 8 | 0x6d67c18e858cd0c201121fdbf94c6d553a0ba70f | 51,981,600 | 0.0260% |
| 9 | 0x58ec94d52cffd3706da7c82115561c9008fd8d18 | 47,452,900 | 0.0237% |
| 10 | 0xf7dfcd5cb081791beb3cdc7271c29c8ee860fade | 45,720,896 | 0.0229% |

# 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)
  - [Pub] <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 #

+ [Lib] Utils
  - [Int] swapTokensForEth #
  - [Int] swapETHForTokens #
  - [Int] addLiquidity #

+  ReentrancyGuard
  - [Pub] <Constructor> #

+  BlazeBurger (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
  - [Ext] startTrading #
    - modifiers: onlyOwner
  - [Pub] totalFees
  - [Pub] deliver #
  - [Pub] reflectionFromToken
  - [Pub] tokenFromReflection
  - [Pub] excludeFromReward #
    - modifiers: onlyOwner
  - [Ext] includeInReward #
    - modifiers: onlyOwner
  - [Pub] excludeFromFee #
    - modifiers: onlyOwner
  - [Pub] includeInFee #
    - modifiers: onlyOwner
  - [Pub] setMaxTxPercent #
    - modifiers: onlyOwner
  - [Pub] setMinTokenNumberToSell #
    - modifiers: onlyOwner
  - [Pub] setExcludeFromMaxTx #
    - modifiers: onlyOwner
  - [Ext] setTaxFeePercent #
    - modifiers: onlyOwner
  - [Ext] setLiquidityFeePercent #
    - modifiers: onlyOwner
  - [Ext] setMarketFeePercent #
    - modifiers: onlyOwner
  - [Ext] setDevFeePercent #
    - modifiers: onlyOwner
  - [Pub] setSwapAndLiquifyEnabled #

  - modifiers: onlyOwner
- [Ext] setReflectionFees #
  - modifiers: onlyOwner
- [Ext] setMarketAddress #
  - modifiers: onlyOwner
- [Ext] setDevAddress #
  - modifiers: onlyOwner
- [Ext] setPancakeRouter #
  - modifiers: onlyOwner
- [Ext] <Fallback> ($)
- [Int] totalFeePerTx
- [Prv] _reflectFee #
- [Prv] _getRate
- [Prv] _getCurrentSupply
- [Int] _takePoolFee #
- [Int] _takeMarketFee #
- [Int] _takeDevFee #
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Pub] isExcludedFromFee
- [Prv] _approve #
- [Prv] _transfer #
- [Prv] _tokenTransfer #
- [Prv] _transferStandard #
- [Prv] _transferToExcluded #
- [Prv] _transferFromExcluded #
- [Prv] _transferBothExcluded #
- [Prv] swapAndLiquify #

($) = 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];
            _rOwned[account] = _tOwned[account].mul(_getRate());
            _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 start trading.

```
function startTrading() external onlyOwner {
    _tradingOpen = true;
    _launchTime = block.timestamp;
}
```

- Owner include in and exclude from reward.

```
function excludeFromReward(address account) public onlyOwner {
    require(!_isExcluded[account], "Account is already excluded");
    if (_rOwned[account] > 0) {
        _tOwned[account] = tokenFromReflection(_rOwned[account]);
    }
    _isExcluded[account] = true;
    _excluded.push(account);
}

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];
            _rOwned[account] = _tOwned[account].mul(_getRate());
            _tOwned[account] = 0;
            _isExcluded[account] = false;
            _excluded.pop();
            break;
        }
    }
}
```

- Owner can include in and exclude from fee.

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

function includeInFee(address account) public onlyOwner {
    _isExcludedFromFee[account] = false;
}
```

- Owner can change the maximum transaction amount and set address to avoid this maximum.

```
// for 1% input 100
function setMaxTxPercent(uint256 maxTxAmount) public onlyOwner {
    _maxTxAmount = _tTotal.mul(maxTxAmount).div(10000);
}
function setExcludeFromMaxTx(address _address, bool value) public onlyOwner {
    _isExcludedFromMaxTx[_address] = value;
}
```

- Owner can change minimum number of tokens to sell.

```
function setMinTokenNumberToSell(uint256 _amount) public onlyOwner {
    minTokenNumberToSell = _amount;
}
```

- Owner can change the tax, liquidity, market and dev fee.

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

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

function setMarketFeePercent(uint256 marketFee) external onlyOwner {
    _marketFee = marketFee;
}

function setDevFeePercent(uint256 devFee) external onlyOwner {
    _devFee = devFee;
}
```

- Owner can change pancake router.

```
function setPancakeRouter(IPancakeRouter02 _pancakeRouter) external onlyOwner {
    pancakeRouter = _pancakeRouter;
}
```

- Owner can change fees and fee receivers addresses.

```
function setFees(
    uint256 _ecosystemFee,
    uint256 _liquidityFee,
    uint256 _buyBackFee,
    uint256 _marketingFee,
    uint256 _feeDenominator
) external onlyOwner {
    ecosystemFee = _ecosystemFee;
    liquidityFee = _liquidityFee;
    buyBackFee = _buyBackFee;
    marketingFee = _marketingFee;
    totalFee = ecosystemFee.add(liquidityFee).add(marketingFee).add(buyBackFee);
    feeDenominator = _feeDenominator;
    require(totalFee < feeDenominator / 4);
}

function setFeeReceivers(
    address _autoLiquidityReceiver,
    address _ecosystemFeeReceiver,
    address _marketingFeeReceiver,
    address _buyBackFeeReceiver
) external onlyOwner {
    autoLiquidityReceiver = _autoLiquidityReceiver;
    ecosystemFeeReceiver = _ecosystemFeeReceiver;
    marketingFeeReceiver = _marketingFeeReceiver;
    buyBackFeeReceiver = _buyBackFeeReceiver;
}
```

- Owner can enable / disable swap and liquify.

```
function setSwapAndLiquifyEnabled(bool _state) public onlyOwner {
    swapAndLiquifyEnabled = _state;
    emit SwapAndLiquifyEnabledUpdated(_state);
}
```

- Owner can enable / disable reflection fee.

```
function setReflectionFees(bool _state) external onlyOwner {
    reflectionFeesdiabled = _state;
}
```

- Owner can change market and dev address.

```
function setMarketAddress(address payable _marketAddress) external onlyOwner {
    marketWallet = _marketAddress;
}

function setDevAddress(address payable _devAddress) external onlyOwner {
    devWallet = _devAddress;
}
```

# Conclusion

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

**Liquidity locking details are NOT provided by the team.**

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