



TechRate
AUDIT COMPANY

Smart Contract Security Audit

TechRate

December, 2021

Audit Details



Audited project
CHEEMSINU



Deployer address
0xc5e1a2854178b152b239068f4dc8d53cc34f26c7



Client contacts:
CHEEMSINU team



Blockchain
Binance Smart Chain



Project website:
<https://cheemsinu.net/>

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 CHEEMSINU to perform an audit of smart contracts:

<https://bscscan.com/address/0xdfe6891ce8e5a5c7cf54ffde406a6c2c54145f71#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 01.12.2021

Contract name	CHEEMSINU
Contract address	0xdFE6891ce8E5a5c7Cf54fFdE406A6C2C54145F71
Total supply	6,000,000,000,000,000,000,000
Token ticker	\$CINU
Decimals	9
Token holders	11,957
Transactions count	44,032
Top 100 holders dominance	67.92%
Marketing share	100
Balance limit divider	34
Total payots	0
Team wallet	0xc5e1a2854178b152b239068f4dc8d53cc34f26c7
Contract deployer address	0xc5e1a2854178b152b239068f4dc8d53cc34f26c7
Contract's current owner address	0xc5e1a2854178b152b239068f4dc8d53cc34f26c7

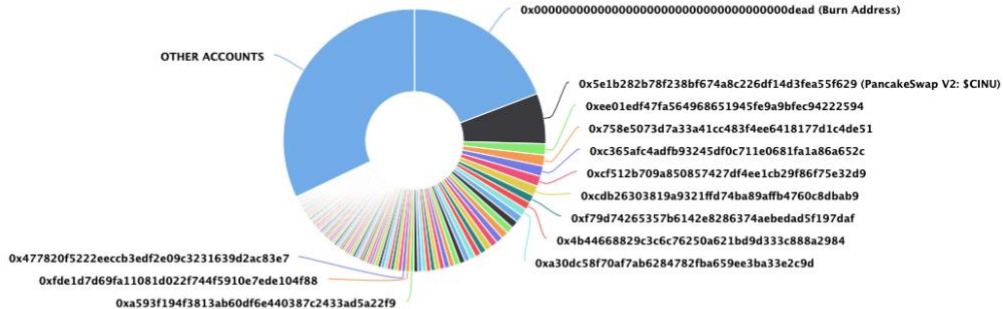
CHEEMSINU Token Distribution

💡 The top 100 holders collectively own 67.92% (4,075,135,595,492,310,000,000.00 Tokens) of CHEEMSINU

💡 Token Total Supply: 6,000,000,000,000,000,000.00 Token | Total Token Holders: 11,956

CHEEMSINU Top 100 Token Holders

Source: BscScan.com



(A total of 4,075,135,595,492,310,000,000.00 tokens held by the top 100 accounts from the total supply of 6,000,000,000,000,000,000.00 token)

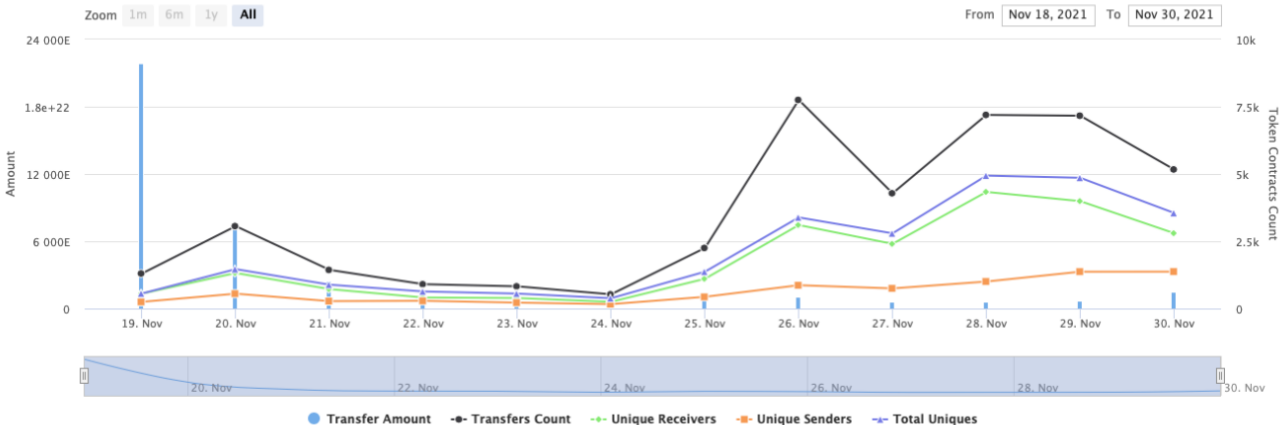
CHEEMSINU Contract Interaction Details

Time Series: Token Contract Overview

Fri 19. Nov 2021 - Tue 30. Nov 2021

Token Contract 0xdfef6891ce8e5a5c7cf54ffde406a6c2c54145f71 (CHEMSINU

Source: BscScan.com



CHEEMSINU Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	Burn Address	1,153,785,533,579,750,000,000.866412662	19.2298%
2	 PancakeSwap V2: \$CINU	372,119,145,729,475,000,000.886992132	6.2020%
3	0xee01edf47fa564968651945fe9a9bfec94222594	83,320,031,841,118,400,000.38810019	1.3887%
4	0x758e5073d7a33a41cc483f4ee6418177d1c4de51	79,921,002,668,964,400,000.889224255	1.3320%
5	0xc365afc4adfb93245df0c711e0681fa1a86a652c	77,477,890,169,225,500,000.946429773	1.2913%
6	0xcf512b709a850857427df4ee1cb29f86f75e32d9	75,054,141,891,669,000,000.565639451	1.2509%
7	0xcdb26303819a9321ffd74ba89affb4760c8dbab9	73,523,789,310,077,800,000.170394925	1.2254%
8	0xf79d74265357b6142e8286374aebdad5f197daf	57,904,524,442,052,600,000.015099244	0.9651%
9	0x4b44668829c3c6c76250a621bd9d333c888a2984	56,333,886,544,115,700,000.235647258	0.9389%
10	0xa30dc58f70af7ab6284782fba659ee3ba33e2c9d	56,048,349,913,610,100,000.607489573	0.9341%



Contract functions details

+ [Int] IBEP20

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

+ [Int] IPancakeERC20

- [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 #

+ [Int] IPancakeFactory

- [Ext] feeTo
- [Ext] feeToSetter
- [Ext] getPair
- [Ext] allPairs
- [Ext] allPairsLength
- [Ext] createPair #
- [Ext] setFeeTo #
- [Ext] setFeeToSetter #

+ [Int] IPancakeRouter01

- [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] factory

- [Ext] WETH
- [Ext] quote
- [Ext] getamountOut
- [Ext] getamountIn
- [Ext] getamountsOut
- [Ext] getamountsIn

+ [Int] IPancakeRouter02 (IPancakeRouter01)

- [Ext] removeLiquidityETHSupportingFeeOnTransferTokens #
- [Ext] removeLiquidityETHWithPermitSupportingFeeOnTransferTokens #
- [Ext] swapExactTokensForTokensSupportingFeeOnTransferTokens #
- [Ext] swapExactETHForTokensSupportingFeeOnTransferTokens (\$)
- [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #

+ Ownable

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

+ [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] EnumerableSet

- [Prv] _add #
- [Prv] _remove #
- [Prv] _contains
- [Prv] _length
- [Prv] _at
- [Int] add #
- [Int] remove #
- [Int] contains
- [Int] length
- [Int] at
- [Int] add #
- [Int] remove #
- [Int] contains
- [Int] length
- [Int] at
- [Int] add #
- [Int] remove #
- [Int] contains
- [Int] length

- [Int] at

+ CheemsInu (IBEP20, Ownable)

- [Prv] _isTeam
- [Pub] <Constructor> #
- [Prv] _transfer #
- [Prv] _taxedTransfer #
- [Prv] _feelessTransfer #
- [Prv] _calculateFee
- [Pub] isExcludedFromStaking
- [Pub] _getTotalShares
- [Prv] _addToken #
- [Prv] _removeToken #
- [Prv] _newDividendsOf
- [Prv] _distributeStake #
- [Prv] claim #
- [Prv] _swapContractToken #
 - modifiers: lockTheSwap
- [Prv] _swapTokenForBNB #
- [Prv] _addLiquidity #
- [Pub] getLiquidityReleaseTimeInSeconds
- [Pub] getBurnedTokens
- [Pub] getLimits
- [Pub] getTaxes
- [Pub] getAddressSellLockTimeInSeconds
- [Pub] getSellLockTimeInSeconds
- [Pub] getAddressBuyLockTimeInSeconds
- [Pub] getBuyLockTimeInSeconds
- [Pub] AddressResetSellLock #
- [Pub] AddressResetBuyLock #
- [Pub] getDividends
- [Pub] TeamWithdrawALLMarketingBNB #
 - modifiers: onlyOwner
- [Pub] TeamWithdrawXMarketingBNB #
 - modifiers: onlyOwner
- [Pub] TeamSwitchManualBNBConversion #
 - modifiers: onlyOwner
- [Pub] TeamChangeAntiWhale #
 - modifiers: onlyOwner
- [Pub] TeamChangeTeamWallet #
 - modifiers: onlyOwner
- [Pub] TeamChangeWalletTwo #
 - modifiers: onlyOwner
- [Pub] TeamDisableSellLock #
 - modifiers: onlyOwner
- [Pub] TeamDisableBuyLock #
 - modifiers: onlyOwner
- [Pub] TeamSetSellLockTime #
 - modifiers: onlyOwner
- [Pub] TeamSetBuyLockTime #
 - modifiers: onlyOwner
- [Pub] AddWalletExclusion #
 - modifiers: onlyOwner
- [Pub] TeamSetTaxes #
 - modifiers: onlyOwner

- [Pub] TeamChangeMarketingShare #
 - modifiers: onlyOwner
- [Pub] TeamCreateLPandBNB #
 - modifiers: onlyOwner
- [Pub] TeamUpdateLimits #
 - modifiers: onlyOwner
- [Pub] SetupEnableTrading #
 - modifiers: onlyOwner
- [Pub] SetupLiquidityTokenAddress #
 - modifiers: onlyOwner
- [Pub] TeamUnlockLiquidityInSeconds #
 - modifiers: onlyOwner
- [Prv] _prolongLiquidityLock #
- [Pub] TeamReleaseLiquidity #
 - modifiers: onlyOwner
- [Pub] TeamRemoveLiquidity #
 - modifiers: onlyOwner
- [Pub] TeamRemoveRemainingBNB #
 - modifiers: onlyOwner
- [Ext] <Fallback> (\$)
- [Ext] <Fallback> (\$)
- [Ext] getOwner
- [Ext] name
- [Ext] symbol
- [Ext] decimals
- [Ext] totalSupply
- [Ext] balanceOf
- [Ext] transfer #
- [Ext] allowance
- [Ext] approve #
- [Prv] _approve #
- [Ext] transferFrom #
- [Ext] increaseAllowance #
- [Ext] decreaseAllowance #

(\$)= 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 `_getTotalShares()` uses the loop to find and decrease shares from the `_excludedFromStaking` list. Function will be aborted with `OUT_OF_GAS` exception if there will be a long excluded addresses list.

```
function _getTotalShares() public view returns (uint256){
    uint256 shares=_circulatingSupply;
    //subtracts all excluded from shares, excluded list is limited to 30
    // to avoid creating a Honeypot through OutOfGas exeption
    for(uint i=0; i<_excludedFromStaking.length(); i++){
        shares-=balances[_excludedFromStaking.at(i)];
    }
    return shares;
}
```

Recommendation:

Check that the excluded array length is not too big.

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

- Owner can withdraw marketing balance.

```
ftrace | funcSig
function TeamWithdrawALLMarketingBNB() public onlyOwner {
    uint256 amount = marketingBalance;
    marketingBalance = 0;
    payable(TeamWallet).transfer((amount * 75) / 100);
    payable(walletTwo).transfer((amount * 25) / 100);
}

ftrace | funcSig
function TeamWithdrawXMarketingBNB(uint256 amount) public onlyOwner {
    require(amount <= marketingBalance);
    marketingBalance -= amount;
    payable(TeamWallet).transfer((amount * 75) / 100);
    payable(walletTwo).transfer((amount * 25) / 100);
}
```

- Owner can disable auto call of _swapContractToken function.

```
function TeamSwitchManualBNBConversion(bool manual) public onlyOwner{
    manualConversion=manual;
}
```

- Owner can change antiWhale.

```
function TeamChangeAntiWhale(uint256 newAntiWhale) public onlyOwner {
    antiWhale = newAntiWhale * 10**_decimals;
}
```

- Owner can change teamWallet and walletTwo addresses.

```
ftrace | funcSig
function TeamChangeTeamWallet(address newTeamWallet) public onlyOwner {
    TeamWallet = payable(newTeamWallet);
}

ftrace | funcSig
function TeamChangeWalletTwo(address newWalletTwo) public onlyOwner {
    walletTwo = payable(newWalletTwo);
}
```

- Owner can disable sell/buy lock.

```
function TeamDisableSellLock(bool disabled) public onlyOwner{
    sellLockDisabled=disabled;
}

function TeamDisableBuyLock(bool disabled) public onlyOwner {
    buyLockDisabled = disabled;
}
```


- Owner can exclude addresses.

```
function AddWalletExclusion(address exclusionAdd↑) public onlyOwner {
    _excluded.add(exclusionAdd↑);
}
```

- Owner can change sell/buy lock time.

```
function TeamSetSellLockTime(uint256 sellLockSeconds↑) public onlyOwner{
    require(sellLockSeconds↑ <= MaxSellLockTime, "Sell Lock time too high");
    sellLockTime=sellLockSeconds↑;
}

function TeamSetBuyLockTime(uint256 buyLockSeconds↑) public onlyOwner {
    require(buyLockSeconds↑ <= MaxBuyLockTime, "Buy Lock time too high");
    buyLockTime = buyLockSeconds↑;
}
```

- Owner can change taxes.

```
function TeamSetTaxes(uint8 burnTaxes↑, uint8 liquidityTaxes↑, uint8 stakingTaxes↑, uint8 buyTax↑, uint8 sellTax↑, uint8 transferTax↑) public onlyOwner{
    uint8 totalTax=burnTaxes↑+liquidityTaxes↑+stakingTaxes↑;
    require(totalTax==100, "burn+liq+marketing needs to equal 100%");

    _burnTax=burnTaxes↑;
    _liquidityTax=liquidityTaxes↑;
    _stakingTax=stakingTaxes↑;

    _buyTax=buyTax↑;
    _sellTax=sellTax↑;
    _transferTax=transferTax↑;
}
```

- Owner can change marketing share (percentage of BNB that goes to marketing).

```
function TeamChangeMarketingShare(uint8 newShare↑) public onlyOwner {
    require(newShare↑ <= 100);
    marketingShare = newShare↑;
}
```

- Owner can manually call _swapContractToken function.

```
function TeamCreateLPandBNB() public onlyOwner{
    _swapContractToken();
}
```

- Owner can enable trading(already called).

```
function SetupEnableTrading() public onlyOwner{
    ftrace | funcSig
    tradingEnabled=true;
}
```

- Owner can change liquidity token address.

```
function SetupLiquidityTokenAddress(address liquidityTokenAddress↑) public onlyOwner{
    ftrace | funcSig
    _liquidityTokenAddress=liquidityTokenAddress↑;
}
```

- Owner can increase `_liquidityUnlockTime`.

```
function TeamUnlockLiquidityInSeconds(uint256 secondsUntilUnlock) public onlyOwner{
    ftrace | funcSig
    _prolongLiquidityLock(secondsUntilUnlock+block.timestamp);
}
```

- Owner can withdraw liquidity to team wallet if it is not locked.

```
function TeamReleaseLiquidity() public onlyOwner {
    ftrace | funcSig
    //Only callable if liquidity Unlock time is over
    require(block.timestamp >= _liquidityUnlockTime, "Not yet unlocked");

    IPancakeERC20 liquidityToken = IPancakeERC20(_liquidityTokenAddress);
    uint256 amount = liquidityToken.balanceOf(address(this));

    //Liquidity release if something goes wrong at start
    liquidityToken.transfer(TeamWallet, amount);
}
```

- Owner can change balance and sell limits.

```
function TeamUpdateLimits(uint256 newBalanceLimit, uint256 newSellLimit) public onlyOwner{
    //SellLimit needs to be below 1% to avoid a Large Price impact when generating auto LP
    require(newSellLimit <= _circulatingSupply/100);
    //Adds decimals to limits
    newBalanceLimit = newBalanceLimit * 10 ** _decimals;
    newSellLimit = newSellLimit * 10 ** _decimals;
    //Calculates the target Limits based on supply
    uint256 targetBalanceLimit = _circulatingSupply / BalanceLimitDivider;
    uint256 targetSellLimit = _circulatingSupply / SellLimitDivider;

    require((newBalanceLimit >= targetBalanceLimit),
    "newBalanceLimit needs to be at least target");
    require((newSellLimit >= targetSellLimit),
    "newSellLimit needs to be at least target");

    balanceLimit = newBalanceLimit;
    sellLimit = newSellLimit;
}
```

- Owner can remove liquidity.

```
function TeamRemoveLiquidity(bool addToStaking) public onlyOwner{
    ftrace | funcSig
    //Only callable if liquidity Unlock time is over
    require(block.timestamp >= _liquidityUnlockTime, "Not yet unlocked");
    _liquidityUnlockTime = block.timestamp + DefaultLiquidityLockTime;
    IPancakeERC20 liquidityToken = IPancakeERC20(_liquidityTokenAddress);
    uint256 amount = liquidityToken.balanceOf(address(this));

    liquidityToken.approve(address(_pancakeRouter), amount);
    //Removes Liquidity and either distributes liquidity BNB to stakers, or
    // adds them to marketing Balance
    //Token will be converted
    //to Liquidity and Staking BNB again
    uint256 initialBNBBalance = address(this).balance;
    _pancakeRouter.removeLiquidityETHSupportingFeeOnTransferTokens(
        address(this),
        amount,
        0,
        0,
        address(this),
        block.timestamp
    );
    uint256 newBNBBalance = address(this).balance - initialBNBBalance;
    if (addToStaking){
        _distributeStake(newBNBBalance);
    }
    else{
        marketingBalance += newBNBBalance;
    }
}
```

- Owner can withdraw contract balance if it is not locked.

```
function TeamRemoveRemainingBNB() public onlyOwner{
    ftrace | funcSig
    require(block.timestamp >= _liquidityUnlockTime, "Not yet unlocked");
    _liquidityUnlockTime=block.timestamp+DefaultLiquidityLockTime;
    (bool sent,) =TeamWallet.call{value: (address(this).balance)}("");
    require(sent);
}
```

Conclusion

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

Liquidity locking details provided by the team:

<https://mudra.website/?certificate=yes&type=0&lp=0x5e1b282b78f238bf674a8c226df14d3fea55f629>

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.