



**TechRate**

AUDIT COMPANY

# Smart Contract Security Audit

# Audit Details



Audited project

**Afrostar**



Deployer address

**0xff2555284a48fa72099ceb7233546dc769bf7ea1**



Client contacts:

**Afrostar 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 Afrostar to perform an audit of smart contracts:

<https://bscscan.com/address/0x2F4e9c97aAFFD67D98A640062d90e355B4a1C539#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 23.09.2021

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Contract name	Afrostar
Contract address	0x2F4e9c97aAFFD67D98A640062d90e355B4a1C539
Total supply	1,000,000,000,000,000
Token ticker	AFRO
Decimals	9
Token holders	1
Transactions count	1
Top 100 holders dominance	100.00%
Liquidity fee	8
Tax fee	2
Buyback fee	2
Marketing fee	6
Total fees	0
Uniswap V2 pair	0x55e5c2ab8e43109602826b9816172990efe4f2ad
Contract deployer address	0xff2555284a48fa72099ceb7233546dc769bf7ea1
Contract's current owner address	0xff2555284a48fa72099ceb7233546dc769bf7ea1

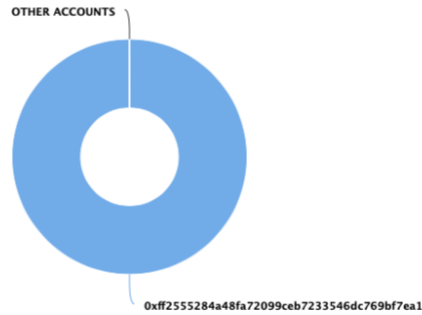
# Afrostar Token Distribution

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

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

## Afrostar Top 100 Token Holders

Source: BscScan.com



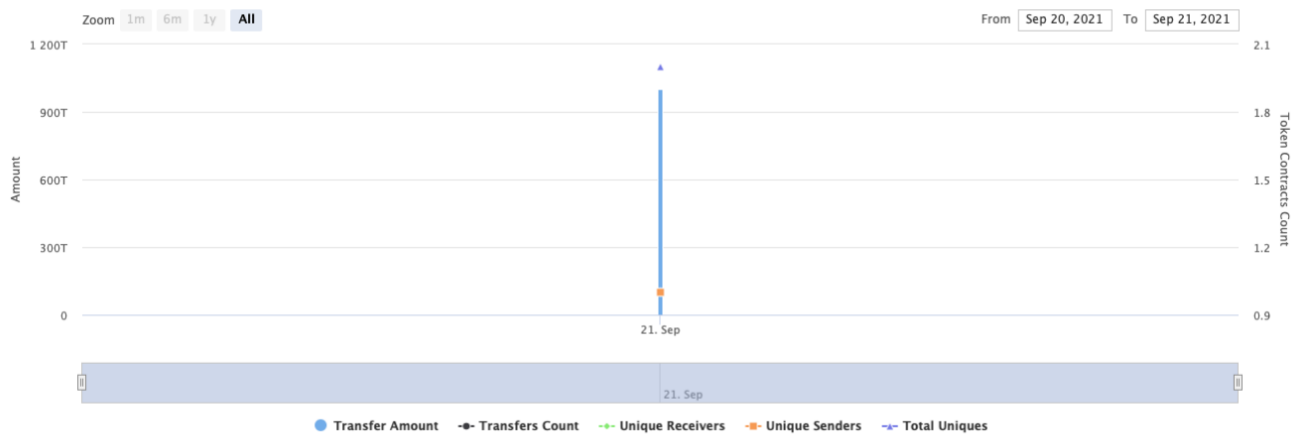
(A total of 1,000,000,000,000.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000.00 token)

# Afrostar Contract Interaction Details

Time Series: Token Contract Overview

Tue 21, Sept 2021 - Tue 21, Sept 2021

Token Contract 0x2F4e9c97aAFFD67D98A640062d90e35584a1C539 (Afrostar)  
Source: BscScan.com



# Afrostar Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	<a href="#">0xff2555284a48fa72099ceb7233546dc769bf7ea1</a>	1,000,000,000,000,000	100.0000%



# Contract functions details

- + Context
  - [Int] \_msgSender
  - [Int] \_msgData
- + [Int] IERC20
  - [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
- + [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] getUnlockTime
  - [Pub] getTime
  - [Pub] lock #
    - modifiers: onlyOwner
  - [Pub] unlock #
- + [Int] IUniswapV2Factory
  - [Ext] feeTo
  - [Ext] feeToSetter
  - [Ext] getPair
  - [Ext] allPairs
  - [Ext] allPairsLength
  - [Ext] createPair #



- [Ext] setFeeTo #
- [Ext] setFeeToSetter #
- + [Int] IUniswapV2Pair
  - [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] burn #
  - [Ext] swap #
  - [Ext] skim #
  - [Ext] sync #
  - [Ext] initialize #
- + [Int] IUniswapV2Router01
  - [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] IUniswapV2Router02 (IUniswapV2Router01)
  - [Ext] removeLiquidityETHSupportingFeeOnTransferTokens #
  - [Ext] removeLiquidityETHWithPermitSupportingFeeOnTransferTokens #

- [Ext] swapExactTokensForTokensSupportingFeeOnTransferTokens #
  - [Ext] swapExactETHForTokensSupportingFeeOnTransferTokens (\$)
  - [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #
- + CoinToken (Context, IERC20, Ownable)
- [Pub] <Constructor> #
  - [Pub] goLive #
    - modifiers: onlyOwner
  - [Pub] setBotKillerMinutes #
    - modifiers: onlyOwner
  - [Pub] setPresaleDate #
    - 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] isExcludedFromReward
  - [Pub] totalFees
  - [Pub] minimumTokensBeforeSwapAmount
  - [Pub] setMinimumTokensBeforeSwapAmount #
    - modifiers: onlyOwner
  - [Pub] setMaxWalletBalance #
    - modifiers: onlyOwner
  - [Pub] buyBackUpperLimitAmount
  - [Pub] deliver #
  - [Pub] reflectionFromToken
  - [Pub] tokenFromReflection
  - [Pub] excludeFromReward #
    - modifiers: onlyOwner
  - [Ext] includeInReward #
    - modifiers: onlyOwner
  - [Pub] setDevWallet #
    - modifiers: onlyOwner
  - [Prv] \_approve #
  - [Prv] \_transfer #
  - [Prv] \_botKiller #
  - [Ext] setStakeDuration #
    - modifiers: onlyOwner
  - [Ext] unStakeTokens #
    - modifiers: onlyOwner
  - [Prv] \_validateStakeTransfer #
  - [Pub] enableLiquify #
    - modifiers: onlyOwner
  - [Pub] setLiquifyFee #
    - modifiers: onlyOwner
  - [Pub] setStakingReleaseIntervalDays #
    - modifiers: onlyOwner
  - [Pub] setLiquifyFeeBuy #

- modifiers: onlyOwner
- [Pub] setLiquifyFeeSell #
  - modifiers: onlyOwner
- [Pub] setMarketingFee #
  - modifiers: onlyOwner
- [Pub] setBuyBackFee #
  - modifiers: onlyOwner
- [Pub] setWaleTaxFeePer1000th #
  - modifiers: onlyOwner
- [Prv] swapTokens #
  - modifiers: lockTheSwap
- [Prv] buyBackTokens #
  - modifiers: lockTheSwap
- [Prv] swapTokensForUSD #
- [Prv] swapTokensForEth #
- [Prv] swapETHForTokens #
- [Ext] \_swapAndLiquify #
  - modifiers: onlyOwner,lockTheSwap
- [Ext] \_addLiquidity #
  - modifiers: onlyOwner,lockTheSwap
- [Prv] swapAndLiquify #
  - modifiers: lockTheSwap
- [Prv] addLiquidity #
- [Prv] \_tokenTransfer #
- [Prv] \_transferStandard #
- [Prv] \_transferToExcluded #
- [Prv] \_transferFromExcluded #
- [Prv] \_transferBothExcluded #
- [Prv] \_reflectFee #
- [Prv] \_getValues
- [Prv] \_getTValues
- [Prv] \_getRValues
- [Prv] \_getRate
- [Prv] \_getCurrentSupply
- [Prv] \_takeLiquidity #
- [Prv] calculateTaxFee
- [Pub] calculateLiquidityFee
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Pub] isExcludedFromFee
- [Pub] excludeFromFee #
  - modifiers: onlyOwner
- [Pub] includeInFee #
  - modifiers: onlyOwner
- [Ext] setTaxFeePercent #
  - modifiers: onlyOwner
- [Ext] setLiquidityFeePercent #
  - modifiers: onlyOwner
- [Ext] setMarketingDivisor #
  - modifiers: onlyOwner
- [Ext] setNumTokensSellToAddToLiquidity #
  - modifiers: onlyOwner
- [Ext] setBuybackUpperLimit #
  - modifiers: onlyOwner
- [Ext] setMarketingAddress #

- modifiers: onlyOwner
- **[Pub]** setSwapAndLiquifyEnabled **#**
  - modifiers: onlyOwner
- **[Pub]** setBuyBackEnabled **#**
  - modifiers: onlyOwner
- **[Ext]** prepareForPreSale **#**
  - modifiers: onlyOwner
- **[Ext]** afterPreSale **#**
  - modifiers: onlyOwner
- **[Prv]** transferToAddressETH **#**
- **[Ext]** <Fallback> (\$) **#**
- **[Pub]** withdraw **#**
  - modifiers: onlyOwner
- **[Pub]** setBuyLimit **#**
  - modifiers: onlyOwner
- **[Ext]** setSellLimit **#**
  - modifiers: onlyOwner
- **[Pub]** setDailySellLimit **#**
  - modifiers: onlyOwner
- **[Prv]** \_checkBuySellLimits **#**
- **[Prv]** isBuyOrder
- **[Prv]** isSellOrder
- **[Ext]** setUniswapUSDAddress **#**
  - modifiers: onlyOwner

(**\$**) = 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 medium 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 call goLive() function (launch contract).
- Owner can change botKillerLimitMinutes.
- Owner can change presaleDate value.
- Owner can change minimum number of tokens to add to liquidity.
- Owner can change maxWalletBalance.
- Owner can add addresses to devWallets list.
- Owner can change stake duration.
- Owner can change stakeBalance of any address.
- Owner can enable/disable liquify.
- Owner can change liquify(general/buy/sell) fee.
- Owner can change stakingReleaseIntervalDays.
- Owner can change marketing and buyback fees.
- Owner can change waleTaxFeePer1000th value.
- Owner can manually swap and liquify and add liquidity.
- Owner can change tax and liquidity fees.
- Owner can exclude from the fee.
- Owner can change marketingDivisor.
- Owner can change buyBackUpperLimit.
- Owner can change marketing address.
- Owner can enable and disable buyback and swap and liquify.
- Owner can enable before and after presale modes.
- Owner can withdraw contract BNBs.
- Owner can change buy, sell and dailySell limits values.
- Owner can change uniswapUSD address.

# Conclusion

Smart contracts contain low severity issues! Liquidity pair contract's security is not checked due to out of scope. The further transfers and operations with the funds raise are not related to this particular contract.

Liquidity locking details NOT provided by the team.

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## *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.*