



Smart Contract Security Audit

Audit details:

Audited project:	DoubtFire
Deployer address:	0x7b4369050194cd6f43515d20cccb6df8f47dbf20
Client contacts:	DoubtFire team
Blockchain:	Binance Smart Chain
Project website:	https://doubtfire.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 DoubtFire to perform an audit of smart contracts:

- <https://bscscan.com/address/0x9d59256dE242a7452336BD0e426039C0AB6806a5#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 13.05.2021.

Contract name:	DoubtFire
Contract address:	0x9d59256dE242a7452336BD0e426039C0AB6806a5
Total supply:	1000000000000000000000000
Token ticker:	DOUBTFIRE
Decimals:	9
Token holders:	1019
Transactions count:	2565
Top 100 holders dominance:	92.12 %
Liquidity fee:	4
Tax fee:	4
Total fees:	65944043217326024774677
Uniswap V2 pair:	0xc2fc40f732a4748394f19bacb4947e8c5f7caa1c
Contract deployer address:	0x7b4369050194cd6f43515d20cccb6df8f47dbf20
Contract's current owner address:	0x7b4369050194cd6f43515d20cccb6df8f47dbf20

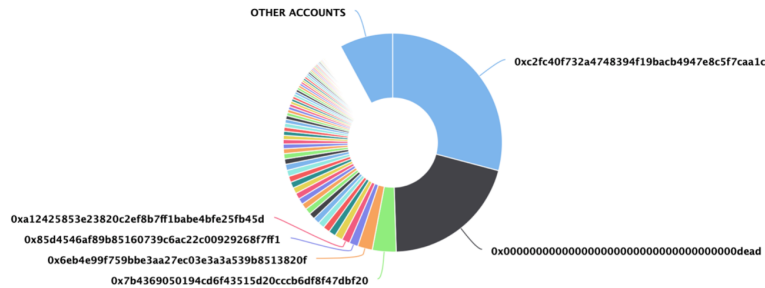
DoubtFire token distribution

The top 100 holders collectively own 92.12% (921,158,191,464,476.00 Tokens) of DoubtFire

Token Total Supply: 1,000,000,000,000.00 Token | Total Token Holders: 1,019

DoubtFire Top 100 Token Holders

Source: BscScan.com



(A total of 921,158,191,464,476.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000.00 token)

DoubtFire contract interaction details


Time Series: Token Contract Overview

Wed 12, May 2021 - Wed 12, May 2021


Token Contract 0x9d59256dE242a74523368D0e426039C0A86806a5 (DoubtFire)
Source: BscScan.com



DoubtFire top 10 token holders

Rank	Address	Quantity (Token)	Percentage
1	 0xc2fc40f732a4748394f19bacb4947e8c5f7caa1c	291,415,008,918,429.232048218	29.1415%
2	0x00000000000000000000000000000000000000dead	203,500,000,000,000	20.3500%
3	0x7b4369050194cd6f43515d20cccb6df8f47dbf20	35,142,585,337,546.975376533	3.5143%
4	0x6eb4e99f759bbe3aa27ec03e3a3a539b8513820f	21,830,087,024,028.235867177	2.1830%
5	0x85d4546af89b85160739c6ac22c00929268f7ff1	13,074,490,168,950.928209999	1.3074%
6	0xa12425853e23820c2ef8b7ff1babe4bfe25fb45d	11,741,566,600,454.618478696	1.1742%
7	0x52361e2d53580bbf5b2a5fe46f420098eb2011dd	11,692,502,003,714.572845779	1.1693%
8	0x011ea68c15f4a8316da45c1e7844311cdd0ba149	10,544,493,865,459.412026086	1.0544%
9	0x1b8268398f42d775a5592312b54601031b0629d6	9,907,960,165,580.17538033	0.9908%
10	0xc3c972f575976dece74cb19cd4d7ec4c55fd47f	9,737,552.984,431.942366637	0.9738%

DoubtFire LP token holders

Rank	Address	Quantity	Percentage
1	 0x0a14a7d1381d34db9139cafe2e82134642e8c920	6,679.446125625495684825	98.1207%
2	0x7b4369050194cd6f43515d20cccb6df8f47dbf20	71.284771557031413268	1.0472%
3	0x07d80ae6f36a5e08dca74ce884a24d39db9934ed	56.646408401774136691	0.8321%
4	 0x00	0.000000000000001	0.0000%

Contract functions details

+ [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

+ 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] 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] mint #
- [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 #

+ DoubtFire (Context, IERC20, Ownable)

- [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
- [Ext] setMaxTxPercent #
 - 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] swapAndLiquify #
 - modifiers: lockTheSwap
- [Prv] swapTokensForEth #
- [Prv] addLiquidity #
- [Prv] _tokenTransfer #
- [Prv] _transferStandard #
- [Prv] _transferToExcluded #
- [Prv] _transferFromExcluded #

(\$) = 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:

Use EnumerableSet instead of array or do not use long arrays.

Conclusion

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

Liquidity locking details for ONE year provided by the team -

<https://dxsale.app/app/pages/dxlockview?id=941&add=0&type=lpdefi&chain=BSC>

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.