



TechRate
AUDIT COMPANY

Smart Contract Security Audit

TechRate

July, 2021

Audit Details



Audited project

Save Baby Doge



Deployer address

0xb2b6EBA92ff089f2969390b5A832D808D5069330



Client contacts:

Save Baby Doge team



Blockchain

Binance Smart Chain



Project website:

<https://savebabydoge.com/>

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 Save Baby Doge to perform an audit of smart contracts:

<https://bscscan.com/address/0x43f102bbd52259f2cfd0ef82e8807e3610ae3e40#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 10.07.2021

Contract name	Save Baby Doge
Contract address	0x43f102bbd52259f2CFd0EF82e8807e3610aE3e40
Total supply	1,000,000,000,000,000
Token ticker	BABYDOGE
Decimals	9
Token holders	4,721
Transactions count	20,854
Top 100 holders dominance	96.10%
Liquidity fee	5
Tax fee	5
Total fees	209789996993405638850289
Uniswap V2 pair	0x9290d0929f50d903526f45f5eddaf3c79f7a4fbb
Contract deployer address	0xb2b6EBA92ff089f2969390b5A832D808D5069330
Contract's current owner address	0xb2b6eba92ff089f2969390b5a832d808d5069330

💡 The top 100 holders collectively own 96.10% (960,981,216,050,892.00 Tokens) of Save Baby Doge

Source: BscScan.com

(A total of 960,981,216,050,892.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000,000.00 token)

Mon 5, Jul 2021 - Fri 9, Jul 2021

Zoom 1m 6m 1y All

The chart displays the following data points (estimated from the graph):

Date	Transfer Amount (P)	Transfers Count (k)	Unique Receivers (k)	Unique Senders (k)	Total Uniques (k)
5. Jul	~5.2	~15.5	~12.5	~11.5	~13.5
6. Jul	~1.0	~4.0	~3.5	~3.0	~4.0
7. Jul	~0.5	~2.0	~1.5	~1.0	~2.0
8. Jul	~0.2	~0.5	~0.5	~0.5	~0.5
9. Jul	~0.1	~0.2	~0.2	~0.2	~0.2

Save Baby Doge Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	Burn Address	636,771,482,243,308.005264229	63.6771%
2	📄 0x9290d0929f50d903526f45f5edda3c79f7a4fbb	261,704,755,070,265.77516138	26.1705%
3	0x8668c310a5780fea2732985985657a155b2db566	4,433,657,490,591.44152751	0.4434%
4	0x4a23afecf8d6330d8441bde6158af9185952aea4	4,005,805,036,722.608414735	0.4006%
5	0xf00bb7602be41eb6d65509f0a83fa8b95a308e82	3,635,089,779,719.109094783	0.3635%
6	0xd19e7e271386958388b1c0077c0af451c9a94c84	2,333,866,604,346.521643805	0.2334%
7	0xaa6ec6ca5a92f6a25862a698061222a96d358eb8	2,150,989,147,992.033738713	0.2151%
8	0x03e3ea0e0e4f4371c105e4ddd9dc73d188fc9999	1,763,038,666,717.992368833	0.1763%
9	0x1684b7d55cae684ad3cd3539d54f3393ed9d3422	1,684,154,729,392.716161091	0.1684%
10	0xf274e31fb98b8d46ab20692eabe144d606d5ab18	1,496,214,476,192.119657931	0.1496%

Save Baby Doge LP Token Holders

Rank	Address	Quantity	Percentage
1	📄 0x8655e5c4d701186d16765d1cdcef6d5287e4679a	5,708.752523343465753712	97.4574%
2	0x07d80ae6f36a5e08dca74ce884a24d39db9934ed	140.431680175785545133	2.3974%
3	0xb2b6eba92f089f2969390b5a832d808d5069330	5.621208126294225253	0.0960%
4	📄 0x7536592bb74b5d62eb82e8b93b17eed4eed9a85c	2	0.0341%
5	0xdc1af0213609aba78a22570c886923c335fb7bd3	0.489481082019805819	0.0084%
6	0x7568007afabc7e8d6166405018976aa07562e2a6	0.395032190295777291	0.0067%
7	📄 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)
 - [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 #

+ CoinToken (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
- [Pub] setNumTokensSellToAddToLiquidity #
 - modifiers: onlyOwner
- [Pub] setMaxTxPercent #
 - modifiers: onlyOwner
- [Pub] setSwapAndLiquifyEnabled #
 - modifiers: onlyOwner
- [Ext] <Fallback> (\$)
- [Prv] _reflectFee #
- [Prv] _getValues
- [Prv] _getTValues
- [Prv] _getRValues
- [Prv] _getRate
- [Prv] _getCurrentSupply
- [Prv] _takeLiquidity #
- [Pub] claimTokens #
 - modifiers: onlyOwner
- [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(!_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) external onlyOwner() {
    _maxTxAmount = _tTotal.mul(maxTxPercent).div(
        10**2
    );
}
```

- Owner can exclude from the fee.

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

- Owner can claim all tokens from contract balance.

```
ftrace | funcSig
function claimTokens() public onlyOwner {
    payable(_owner).transfer(address(this).balance);
}
```

- Owner can change numTokensSellToAddToLiquidity.

```
ftrace | funcSig
function setNumTokensSellToAddToLiquidity(uint256 swapNumber) public onlyOwner {
    numTokensSellToAddToLiquidity = swapNumber * 10 ** _decimals;
}
```


- 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;
}
```

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://dxsale.app/app/v2_9/dxlockview?id=0&add=0xb2b6EBA92ff089f2969390b5A832D808D5069330&type=lplock&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.

