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TechRate

AUDIT COMPANY

Smart Contract Security Audit

TechRate

July, 2021

Audit Details

Audited project

BABYSEC

Deployer address

0x9CF9314b97E9b316009Afa94C6fd8DF8E134Ce0b

Client contacts:

BABYSEC team

Blockchain

Binance Smart Chain

Project website:

https://babysec.org

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 BABYSEC to perform an audit of smart contracts:

https://bscscan.com/address/0x3e8e1a1423fa137d8f72dd670eeabcd92d7d9e7f#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

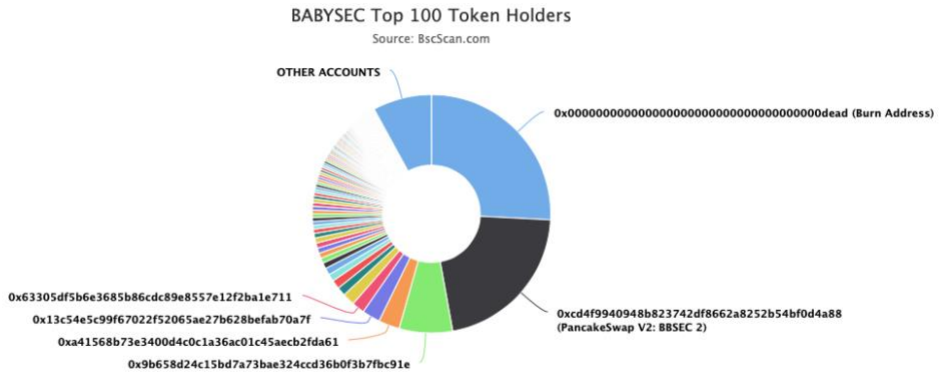
Token contract details for 31.07.2021

Contract name	BABYSEC
Contract address	0x9CF9314b97E9b316009Afa94C6fd8DF8E134Ce0b
Total supply	1,000,000,000,000,000
Token ticker	BBSEC
Decimals	9
Token holders	544
Transactions count	3,007
Top 100 holders dominance	92.02%
Liquidity fee	4
Total tax fee	15
BUSD charity address	0x152f1d8ba290f0f545a190bfe6edbae8b4abb14b
Uniswap V2 pair	0xcd4f9940948b823742df8662a8252b54bf0d4a88
Contract deployer address	0x9CF9314b97E9b316009Afa94C6fd8DF8E134Ce0b
Contract's current owner address	0x9CF9314b97E9b316009Afa94C6fd8DF8E134Ce0b

BABYSEC Token Distribution

The top 100 holders collectively own 92.02% (920,188,323,317,542.00 Tokens) of BABYSEC

Token Total Supply: 1,000,000,000,000,000.00 Token | Total Token Holders: 544

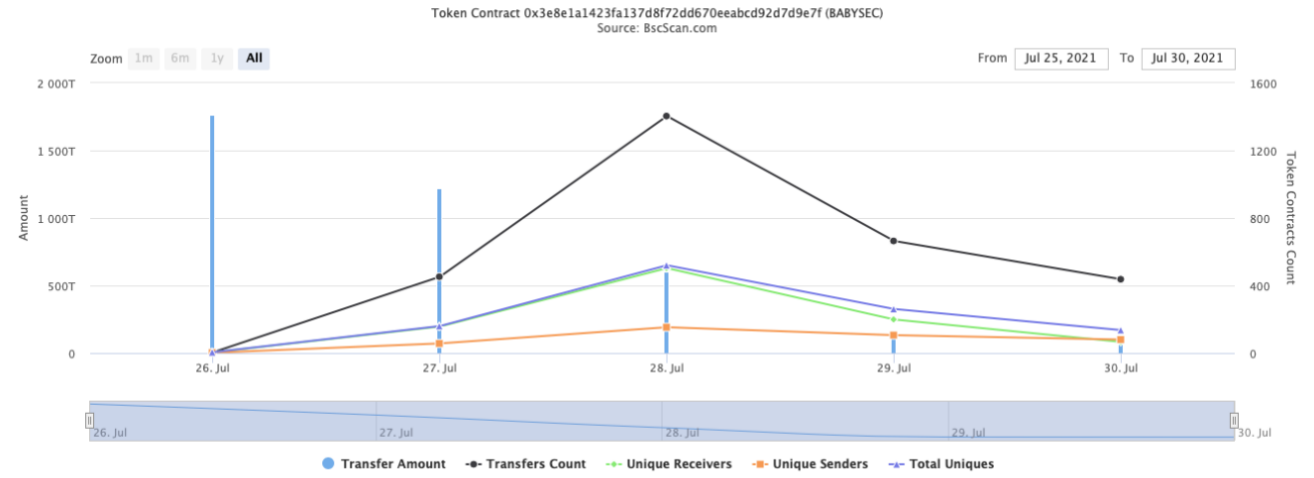


(A total of 920,188,323,317,542.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000,000.00 token)

BABYSEC Contract Interaction Details

Time Series: Token Contract Overview

Mon 26, Jul 2021 - Fri 30, Jul 2021



BABYSEC Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	Burn Address	258,194,608,302,199.085422742	25.8195%
2	PancakeSwap V2: BBSEC 2	213,277,016,632,817.603805152	21.3277%
3	0x9b658d24c15bd7a73bae324ccd36b0f3b7fbc91e	72,464,945,000,001.03924305	7.2465%
4	0xa41568b73e3400d4c0c1a36ac01c45aecb2fda61	28,644,898,100,000.85	2.8645%
5	0x13c54e5c99f67022f52065ae27b628befab70a7f	24,579,875,000,000.085	2.4580%
6	0x63305df5b6e3685b86cdc89e8557e12f2ba1e711	17,133,584,999,999.99902245	1.7134%
7	0x74f40806b0c6045d20bdd14e735a13f485d2ef40	16,879,001,750,000.595	1.6879%
8	0xca05439a0b1ca405d5d3ca789e5185c3ed4c489b	12,000,252,500,000	1.2000%
9	0xba6798ee4a4e9609ab977e53a727ccd9396a48f9	11,806,557,120,020.4	1.1807%
10	0x548e03c19a175a66912685f71e157706fee6a04d	9,790,619,999,999.99944	0.9791%

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 #

+ BABYSEC (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] minimumTokensBeforeSwapAmount
- [Prv] deliver #
- [Prv] reflectionFromToken
- [Prv] tokenFromReflection
- [Prv] _approve #
- [Prv] _transfer #
- [Prv] swapAndLiquify #
  - modifiers: lockTheSwap
- [Prv] swapTokensForEth #
- [Prv] addLiquidity #
- [Prv] _tokenTransfer #
- [Prv] _transferStandard #
- [Prv] _transferToExcluded #
- [Prv] _transferFromExcluded #
- [Prv] _transferBothExcluded #
- [Prv] _getRate
- [Prv] _getValues
- [Prv] _getTValues
- [Prv] _getRValues
- [Prv] _getCurrentSupply
- [Prv] _takeLiquidity #
- [Prv] calculateFee
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Pub] isExcludedFromFee
- [Pub] excludeFromFee #
  - modifiers: onlyOwner
- [Pub] changeRouterVersion #
  - modifiers: onlyOwner
- [Pub] includeInFee #
  - modifiers: onlyOwner
- [Ext] setTaxes #
  - modifiers: onlyOwner
- [Ext] setMaxTxAmount #
  - modifiers: onlyOwner
- [Ext] setNumTokensBeforeSwap #
  - modifiers: onlyOwner
- [Ext] setMarketingWalletAddress #

    - modifiers: onlyOwner
  - [Ext] setBusdCharityWalletAddress #
    - modifiers: onlyOwner
  - [Pub] setSwapAndLiquifyEnabled #
    - modifiers: onlyOwner
  - [Pub] setSwapAndLiquifyByLimitOnly #
    - modifiers: onlyOwner
  - [Ext] prepareForPreSale #
    - modifiers: onlyOwner
  - [Ext] prepareForLaunch #
    - modifiers: onlyOwner
  - [Prv] transferToAddressETH #
  - [Ext] <Fallback> ($)

($) = 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 `_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 setMaxTxAmount(uint256 maxTxAmount) external onlyOwner() {
    _maxTxAmount = maxTxAmount;
}
```

- Owner can exclude from the fee.

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

- Owner can change minimum tokens before swap.

```
function setNumTokensBeforeSwap(uint256 newLimit) external onlyOwner() {
    minimumTokensBeforeSwap = newLimit;
}
```

- Owner can change marketing and BUSD charity wallets.

```
ftrace | funcSig
function setMarketingWalletAddress(address newAddress) external onlyOwner() {
    marketingWalletAddress = payable(newAddress);
}

ftrace | funcSig
function setBusdCharityWalletAddress(address newAddress) external onlyOwner() {
    busdCharityWalletAddress = payable(newAddress);
}
```

- Owner can disable and enable swapAndLiquifyByLimitOnly.

```
function setSwapAndLiquifyByLimitOnly(bool newValue) public onlyOwner {
    swapAndLiquifyByLimitOnly = newValue;
}
```

- Owner can enable prepareForPreSale and prepareForLaunch presets.

```
function prepareForPreSale() external onlyOwner {
    setSwapAndLiquifyEnabled(false);
    _totalTaxPercent = 0;
    _prevTotalTaxPercent = 0;
    _maxTxAmount = 1000000000 * 10**6 * 10**9;
}
function prepareForLaunch() external onlyOwner {
    setSwapAndLiquifyEnabled(true);
    _totalTaxPercent = _burnFee.add(_liquidityFee).add(_marketingFee).add(_busdCharityFee);
    _prevTotalTaxPercent = _totalTaxPercent;
    _maxTxAmount = 3000000 * 10**6 * 10**9;
}
```

- Owner can change router address.

```
function changeRouterVersion(address newRouterAddress⬆) public onlyOwner returns(address newPairAddress⬆) {

      IUniswapV2Router02 _uniswapV2Router = IUniswapV2Router02(newRouterAddress⬆);

      newPairAddress⬆ = IUniswapV2Factory(_uniswapV2Router.factory()).getPair(address(this), _uniswapV2Router.WETH());

      if(newPairAddress⬆ == address(0)) //Create If Doesnt exist
      {
          newPairAddress⬆ = IUniswapV2Factory(_uniswapV2Router.factory())
              .createPair(address(this), _uniswapV2Router.WETH());
      }

      uniswapV2Pair = newPairAddress⬆; //Set new pair address
      uniswapV2Router = _uniswapV2Router; //Set new router address
  }
```

- Owner can change fees.

```
function setTaxes(uint256 newBurnFee⬆, uint256 newLiquidityTax⬆, uint256 newMarketingTax⬆, uint256 newBusdCharityTax⬆) external onlyOwner() {
    _burnFee = newBurnFee⬆;
    _liquidityFee = newLiquidityTax⬆;
    _marketingFee = newMarketingTax⬆;
    _busdCharityFee = newBusdCharityTax⬆;
    _totalTaxPercent = _burnFee.add(_liquidityFee).add(_marketingFee).add(_busdCharityFee);
    _prevTotalTaxPercent = _totalTaxPercent;
}
```

- Owner can lock and unlock. By the way, using these functions the owner could retake privileges 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/defipresale?saleID=1799&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.