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AUDIT COMPANY

Smart Contract Security Audit

TechRate

July, 2021

Audit Details

Audited project

BABY FEG

Deployer address

0x410F284ec44c18d2A9fBAb4EEc2A4C1225ec6557

Client contacts:

BABY FEG team

Blockchain

Binance Smart Chain

Project website:

http://babyfeg.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 BABY FEG to perform an audit of smart contracts:

https://bscscan.com/address/0xd1061342B3A119Ad2247c79235ECbd51997ed8eD#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

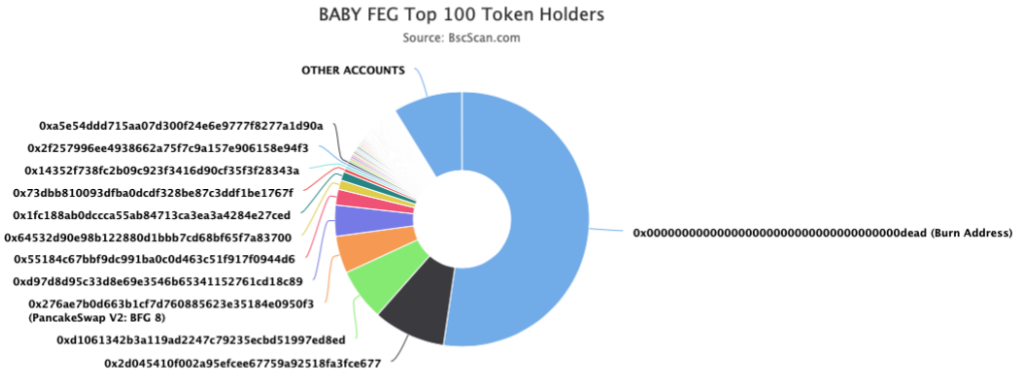
Token contract details for 01.07.2021

Contract name	BABY FEG
Contract address	0xd1061342B3A119Ad2247c79235ECbd51997ed8eD
Total supply	1,000,000,000,000,000
Token ticker	BFG
Decimals	9
Token holders	5,458
Transactions count	18,916
Top 100 holders dominance	91.19%
Liquidity fee	6
Tax fee	2
Total fees	27124037697522458864416
Uniswap V2 pair	0x276ae7b0d663b1cf7d760885623e35184e0950f3
Contract deployer address	0x410F284ec44c18d2A9fBAb4EEc2A4C1225ec6557
Contract’s current owner address	0x0000000000000000000000000000000000000000

BABY FEG Token Distribution

The top 100 holders collectively own 91.19% (911,880,661,636,066.00 Tokens) of BABY FEG

Token Total Supply: 1,000,000,000,000,000.00 Token | Total Token Holders: 5,458

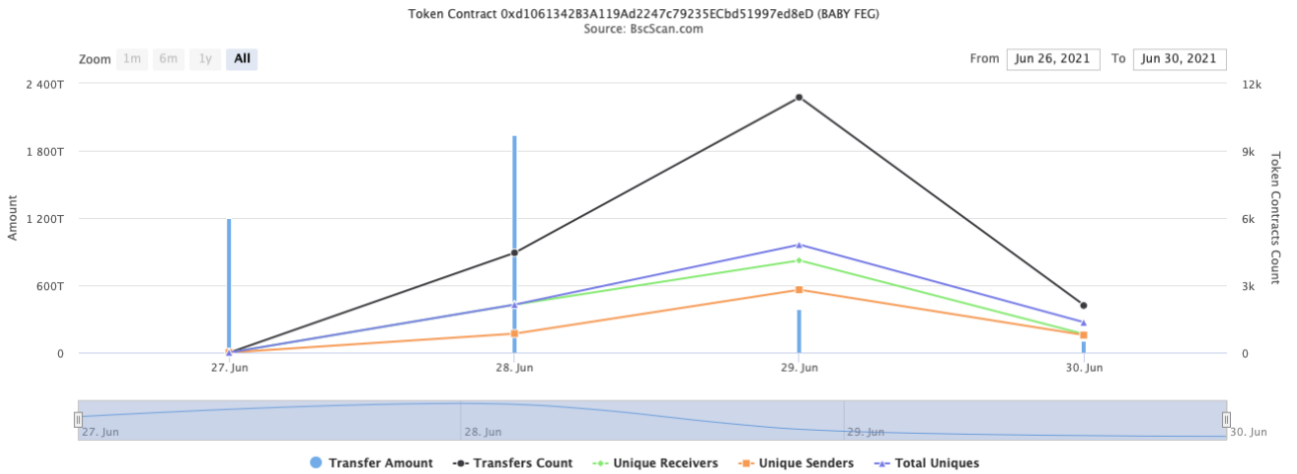


(A total of 911,880,661,636,066.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000,000.00 token)

BABY FEG Contract Interaction Details

Time Series: Token Contract Overview

Sun 27, Jun 2021 - Wed 30, Jun 2021



BABY FEG Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	Burn Address	523,500,000,000,000	52.3500%
2	0x2d045410f002a95efcee67759a92518fa3fce677	91,987,654,815,824.28153433	9.1988%
3	0xd1061342b3a119ad2247c79235ecbd51997ed8ed	65,880,504,992,899.708521239	6.5881%
4	PancakeSwap V2: BFG 8	47,097,870,153,207.196936489	4.7098%
5	0xd97d8d95c33d8e69e3546b65341152761cd18c89	39,379,697,451,699.780565257	3.9380%
6	0x55184c67bbf9dc991ba0c0d463c51f917f0944d6	20,053,097,014,955.009642659	2.0053%
7	0x64532d90e98b122880d1bbb7cd68bf65f7a83700	11,835,529,873,366.978736786	1.1836%
8	0x1fc188ab0dccca55ab84713ca3ea3a4284e27ced	11,144,764,809,287.782792271	1.1145%
9	0x73dbb810093dfba0dcdf328be87c3ddf1be1767f	4,608,260,703,605.938990232	0.4608%
10	0x14352f738fc2b09c923f3416d90cf35f3f28343a	3,679,197,221,808.73354443	0.3679%

BABY FEG LP Token Holders

Rank	Address	Quantity	Percentage
1	0xaed7e25da9d4d93bae7e7fe85e574e8a49b31a4d	4,098.963839836712408432	99.4178%
2	0x07d80ae6f36a5e08dca74ce884a24d39db9934ed	24.00222423632265 1992	0.5822%
3	0xf39feefc0f392526422ec1a43d4777824c2abfb7	0.000008268347170315	0.0000%
4	0x0000000000000000000000000000000000000000	0.000000000000001	0.0000%

Contract functions details

+ [Int] IERC20
  - [Ext] totalSupply
  - [Ext] balanceOf
  - [Ext] transfer #
  - [Ext] allowance
  - [Ext] approve #
  - [Ext] transferFrom #

+ [Lib] SafeMath
  - [Int] tryAdd
  - [Int] trySub
  - [Int] tryMul
  - [Int] tryDiv
  - [Int] tryMod
  - [Int] add
  - [Int] sub
  - [Int] mul
  - [Int] div
  - [Int] mod
  - [Int] sub
  - [Int] div
  - [Int] mod

+ Context
  - [Int] _msgSender
  - [Int] _msgData

+ [Lib] Address
  - [Int] isContract
  - [Int] sendValue #
  - [Int] functionCall #
  - [Int] functionCall #
  - [Int] functionCallWithValue #
  - [Int] functionCallWithValue #
  - [Int] functionStaticCall
  - [Int] functionStaticCall
  - [Int] functionDelegateCall #
  - [Int] functionDelegateCall #
  - [Prv] _verifyCallResult

+ Ownable (Context)
  - [Pub] <Constructor> #
  - [Pub] owner
  - [Pub] renounceOwnership #
    - modifiers: onlyOwner
  - [Pub] transferOwnership #
    - modifiers: onlyOwner

+ [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 #

+ BABYFEG (Context, IERC20, Ownable)
  - [Pub] _burn #
    - modifiers: onlyOwner
  - [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] setCharityFeePercent #
    - 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] _takeCharity #
- [Prv] calculateTaxFee
- [Prv] calculateCharityFee
- [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:

Check that the excluded array length is not too big.

Notes:

If owner would not be renounced, this will be error

Wrong burning

Issue:

- The function _burn() decrease total supply value without decreasing any users balance.

```
    function _burn(address account⬆, uint256 amount⬆) public virtual onlyOwner{
        require(account⬆ != address(0), "ERC20: burn from the zero address");

      //  _beforeTokenTransfer(account, address(0), amount);

         _tTotal -= amount⬆;
       // require(accountBalance >= amount, "ERC20: burn amount exceeds balance");
        //_balances[account] = accountBalance - amount;
      //  _totalSupply -= amount;
}
```

Recommendation:

Correct function of remove if it is not needed. Also do not forget to check allowances from addresses when burn.

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

- Owner can change the tax, charity and liquidity fee.

```
ftrace | funcSig
function setTaxFeePercent(uint256 taxFee⬆) external onlyOwner() {
    _taxFee = taxFee⬆;
}

ftrace | funcSig
function setCharityFeePercent(uint256 charityFee⬆) external onlyOwner() {
    _charityFee = charityFee⬆;
}

ftrace | funcSig
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;
    }
```

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/pages/defipresale?saleID=4747&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.