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AUDIT COMPANY

Smart Contract Security Audit

TechRate

November, 2021

Audit Details

Audited project

FelizFinance

Deployer address

0x8a84f2d3c2eb5ab6ac473affe9944d270358f1c0

Client contacts:

FelizFinance team

Blockchain

Binance Smart Chain

Project website:

https://feliz-finance.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 FelizFinance to perform an audit of smart contracts:

https://bscscan.com/address/0x8bcd4b693eb0d0d441d507efa63616892e8ed51d#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

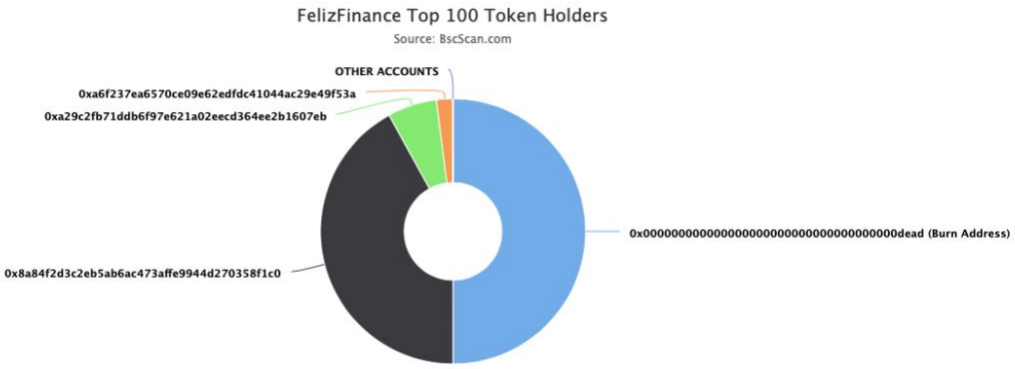
Token contract details for 29.11.2021

Contract name	FelizFinance
Contract address	0x8bcd4B693Eb0D0D441d507eFA63616892E8eD51D
Total supply	1,000,000,000,000,000
Token ticker	FELIZ
Decimals	9
Token holders	4
Transactions count	10
Top 100 holders dominance	100.00%
Liquidity fee	20
RFI fee	20
Operation/Marketing/Buyback fees	20/40/0
Uniswap V2 pair	0xdebcf48fe7eaed753ed307e888fd29fb317b8cb2
Contract deployer address	0x8a84f2d3c2eb5ab6ac473affe9944d270358f1c0
Contract's current owner address	0x8a84f2d3c2eb5ab6ac473affe9944d270358f1c0

FelizFinance Token Distribution

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

Token Total Supply: 1,000,000,000,000,000.00 Token | Total Token Holders: 4

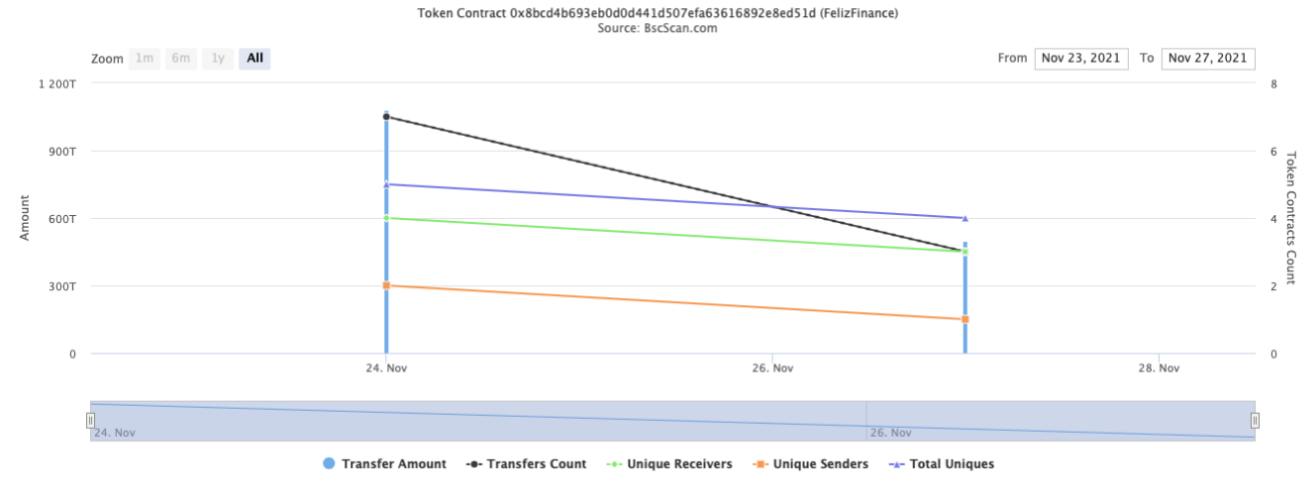


(A total of 1,000,000,000,000,000.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000,000.00 token)

FelizFinance Contract Interaction Details

Time Series: Token Contract Overview

Wed 24, Nov 2021 - Sat 27, Nov 2021



FelizFinance Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	Burn Address	500,000,000,000,000	50.0000%
2	0x8a84f2d3c2eb5ab6ac473affe9944d270358f1c0	420,000,000,000,000	42.0000%
3	0xa29c2fb71ddb6f97e621a02eecd364ee2b1607eb	60,000,000,000,000	6.0000%
4	0xa6f237ea6570ce09e62edfdc41044ac29e49f53a	20,000,000,000,000	2.0000%

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
  - [Prv] _setOwner #

+ [Int] IFactory
  - [Ext] createPair #

- [Ext] getPair

+ [Int] IRouter
  - [Ext] factory
  - [Ext] WETH
  - [Ext] addLiquidityETH ($)
  - [Ext] swapExactETHForTokensSupportingFeeOnTransferTokens ($)
  - [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #

+ FelizFinance (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] deliver #
  - [Pub] reflectionFromToken
  - [Ext] startTrading #
    - modifiers: onlyOwner
  - [Pub] tokenFromReflection
  - [Pub] excludeFromReward #
    - modifiers: onlyOwner
  - [Ext] includeInReward #
    - modifiers: onlyOwner
  - [Pub] excludeFromFee #
    - modifiers: onlyOwner
  - [Pub] includeInFee #
    - modifiers: onlyOwner
  - [Pub] isExcludedFromFee
  - [Ext] setMaxWalletPercent #
    - modifiers: onlyOwner
  - [Ext] setFeeRates #
    - modifiers: onlyOwner
  - [Ext] setSellFeeRates #
    - modifiers: onlyOwner
  - [Prv] _reflectRfi #
  - [Prv] _takeOperations #
  - [Prv] _takeBuyback #
  - [Prv] _takeLiquidity #
  - [Prv] _takeMarketing #
  - [Prv] _getValues
  - [Prv] _getTValues
  - [Prv] _getRValues
  - [Prv] _getRate
  - [Prv] _getCurrentSupply
  - [Prv] _approve #
  - [Prv] _transfer #

- [Prv] _tokenTransfer #
- [Prv] buyBackTokens #
  - modifiers: lockTheSwap
- [Prv] swapETHForTokens #
- [Prv] swapAndLiquify #
  - modifiers: lockTheSwap
- [Prv] addLiquidity #
- [Prv] swapTokensForBNB #
- [Ext] updateMarketingWallet #
  - modifiers: onlyOwner
- [Ext] updateOperationsWallet #
  - modifiers: onlyOwner
- [Ext] setMaxBuyAndSellAmount #
  - modifiers: onlyOwner
- [Ext] updateSwapTokensAtAmount #
  - modifiers: onlyOwner
- [Ext] updateSwapEnabled #
  - modifiers: onlyOwner
- [Ext] updateBuybackEnabled #
  - modifiers: onlyOwner
- [Ext] setAntibot #
  - modifiers: onlyOwner
- [Ext] setBuybackUpperLimit #
  - modifiers: onlyOwner
- [Pub] isBot
- [Ext] rescueBNB #
  - modifiers: onlyOwner
- [Ext] rescueBEP20Tokens #
  - modifiers: onlyOwner
- [Ext] setRouterAddress #
  - modifiers: onlyOwner
- [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.	Low issues
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 not 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.

2. Buy/sell issue

Issue:

- The function _transfer() checks buy and sell max amounts with equal conditions.

```
if (
    from⬆ != owner() &&
    to⬆ != owner() &&
    to⬆ != address(0) &&
    to⬆ != address(0xdead) &&
    from⬆ == pair
) {
    require(amount⬆ <= maxBuyAmount, "you are exceeding maxBuyAmount");
    uint256 walletCurrentBalance = balanceOf(to⬆);
    require(
        walletCurrentBalance + amount⬆ <= _maxWalletSize,
        "Exceeds maximum wallet token amount"
    );
}

if (
    from⬆ != owner() &&
    to⬆ != owner() &&
    to⬆ != address(0) &&
    to⬆ != address(0xdead) &&
    from⬆ == pair
) {
    require(
        amount⬆ <= maxSellAmount,
        "Amount is exceeding maxSellAmount"
    );
}
```

Recommendation:

Check logic of this part of transfer function.

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

- Owner can start trading.
- Owner can change fee rates.
- Owner can exclude from the fee.
- Owner can change _maxWalletSize value.
- Owner can change marketing and operations wallet address.
- Owner can change maxBuyAmount and maxSellAmount.
- Owner can change swapTokensAtAmount.
- Owner can enable/disable swapEnabled and buyBackEnabled.
- Owner can include in _isBot array.
- Owner can change buyBackUpperLimit.
- Owner can change router address.
- Owner can withdraw contract tokens and BNBs.

Conclusion

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

Liquidity locking details NOT provided by the team.

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.