



SMART CONTRACT SECURITY AUDIT

Final report

Plan: Simple

bnbFROGE

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♦ INTRODUCTION

Implementation of ERC-20 token standard with fees on transfers. Fees are used to buy back reward token in uniswap pair.

Name	bnbFROGE
Audit date	2022-08-29 - 2022-08-29
Language	Solidity
Network	Binance Smart Chain

♦ CONTRACTS CHECKED

Name	Address
DividendDistributor	0x9db56e9f6a1f75f6558f215195a9ff780816321c
BuybackBabyToken	0x9db56e9f6a1f75f6558f215195a9ff780816321c
Clones	0x9db56e9f6a1f75f6558f215195a9ff780816321c

♦ AUDIT PROCESS

The code was audited by the team according to the following order:

Automated analysis

- ♦ Scanning the project's smart contracts with several publicly available automated Solidity analysis tools
- ♦ Manual confirmation of all the issues found by the tools

Manual audit

- ♦ Thorough manual analysis of smart contracts for security vulnerabilities
- ♦ Smart contracts' logic check

♦ ATTACKS CHECKED

Title	Check result
Unencrypted Private Data On-Chain	✓ passed
Code With No Effects	✗ failed
Message call with hardcoded gas amount	✓ passed
Typographical Error	✓ passed
DoS With Block Gas Limit	✓ passed
Presence of unused variables	✗ failed
Incorrect Inheritance Order	✓ passed
Requirement Violation	✓ passed
Weak Sources of Randomness from Chain Attributes	✓ passed
Shadowing State Variables	✓ passed
Incorrect Constructor Name	✓ passed
Block values as a proxy for time	✓ passed
Authorization through tx.origin	✓ passed

DoS with Failed Call	✓ passed
Delegatecall to Untrusted Callee	✓ passed
Use of Deprecated Solidity Functions	✓ passed
Assert Violation	✓ passed
State Variable Default Visibility	✓ passed
Reentrancy	✓ passed
Unprotected SELFDESTRUCT Instruction	✓ passed
Unprotected Ether Withdrawal	✓ passed
Unchecked Call Return Value	✓ passed
Floating Pragma	✓ passed
Outdated Compiler Version	✓ passed
Integer Overflow and Underflow	✓ passed
Function Default Visibility	✓ passed

◆ OVERVIEW OF RELEVANCE LEVELS

High relevance

Issues of high relevance may lead to losses of users' funds as well as changes of ownership of a contract or possible issues with the logic of the contract.

High-relevance issues require immediate attention and a response from the team.

Medium relevance

While issues of medium relevance don't pose as high a risk as the high-relevance ones do, they can be just as easily exploited by the team or a malicious user, causing a contract failure and damaging the project's reputation in the process. Usually, these issues can be fixed if the contract is redeployed.

Medium-relevance issues require a response from the team.

Low relevance

Issues of low relevance don't pose high risks since they can't cause damage to the functionality of the contract. However, it's still recommended to consider fixing them.

❖ ISSUES

High relevance issues

1. Excessive owner's rights (BuybackBabyToken)

- a. The owner can exclude any address from dividends reception;
- b. The owner can update the swapThreshold variable with a wrong value. This may halt the distribution of the fees for a long period of time. Enabling back swaps and liquidity adding may lead to the token price wrecking if the contract's balance is comparable to a pair reserves.

2. No error handling (BuybackBabyToken)

`_transferFrom()` and `swapBack()` functions contain empty try/catch blocks in case of reward token transfer failure. Therefore, users' shares may become unfair and inconsistent.

Medium relevance issues

1. Swaps with 100% slippage (BuybackBabyToken)

swapExactTokensForETHSupportingFeeOnTransferTokens() and swapExactETHForTokensSupportingFeeOnTransferTokens() functions call router with 100% slippage. The transactions sent from this contract may be front-run resulting in swaps with an undesired rate (sandwich attacks).

Low relevance issues

1. Lack of events (DividendDistributor)

No events are emitted in setShare(), deposit(), distributeDividend(), setDistributionCriteria()

2. Gas optimisation (DividendDistributor)

- a. rewardToken, router, _token should be marked immutable;
- b. dividendsPerShareAccuracyFactor should be const;

3. Redundant code (BuybackBabyToken)

Setter function and access modifier for buyBackers are not applied anywhere.

4. Lack of events (BuybackBabyToken)

No events are emitted in setFeeReceivers(), setSwapBackSettings(), setTargetLiquidity(), setDistributorSettings(), setFees(), setIsFeeExempt().

5. Gas optimization (BuybackBabyToken)

_name, _symbol, _totalSupply, router, pair should be marked as immutable.

6. Redundant code (Clones)

The library is not used in the contract.

✦ CONCLUSION

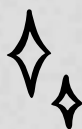
bnbFROGE DividendDistributor, BuybackBabyToken, Clones contracts were audited. 2 high, 1 medium, 6 low relevance issues were found.

❖ **DISCLAIMER**


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