



RugFreeCoins Audit



Rainbow Farm Token

Smart Contract Security Audit

November 01, 2021

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Audit details



Audited project

Rainbow farm Token

Contract Address

RNBO MC:

0x3298e44bB9001E7973B222ac2B4eE9dC4eFe201b



RNBZ:

0xE3db2FA2900072e4eE2215f5c25e603de0f8FdB9

RNBZ MC:

0xDE6b77E0Ae277805135B4372c4A8Acc9A07ae0A2



Client contact

Rainbow farm Team



Blockchain

Binance smart chain



Project website

<https://rainbowfarm.finance/>

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 disclaimer below – please make sure to read it in full.

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Background

Rugfreecoins was commissioned by Rainbow Farm Token to perform an audit of the smart contract.

<https://bscscan.com/address/0x7b6da6e941c46094852C2d1F187d41356FD11215>

The focus of this audit is to verify that the smart contract is secure, resilient and working according to the specifications.

The information in this report should be used to understand the risk exposure of the smart contract, project feasibility, long term sustainability and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

About the project

Rainbow Farm is a farming token built on the Binance Smart Chain.

The project has an existing token called RNBO and investors will stake RNBO token and LP to earn RNBZ that is through RNBZ MC. There is no other way to earn RNBZ and liquidity will be added after 15 days for RNBZ so the only way to get RNBZ would be through RNBO. In normal MC people can stake only if they hold RNBZ and stake it. There will be a minimum of 1000 RNBZ required to enter normal pools and farms.

They have an APR boost system that depends on how long people stay in without withdrawal and harvesting. After 1st week each day adds 1% of boost and the highest boost is 100%. Similarly, withdrawal fees post 45 days are half of the actual fees, and after 90 days no withdrawal fees. In the first week after depositing there will be a 10% penalty on the harvest.

On withdrawal, users need to have minimum required RNBZ then there will be 10% fees also while withdrawing RNBZ if the user is staking in any other pool or farm then they can withdraw all except the minimum required to stay in other farms and pools.

Potential to grow with score points

1.	Project efficiency	8/10
2.	Project uniqueness	9/10
3	Information quality	6/10
4	Service quality	8/10
5	System quality	8/10
6	Impact on the community	9/10
7	Impact on the business	9/10
8	Preparing for the future	8/10
Total Points		8.125/10

Contract details

Token contract details for 01st November 2021

Contract name	RNBOExclusiveMC
Contract address	0x3298e44bB9001E7973B222ac2B4eE9dC4eFe201b
Dev & marketing wallet	0xdbc22cdd2717bc6fd3faa3c7956cf1154222e942
Fee address	0xec50cd98a33542ffb5d1182a55c49402769ba983
Contract deployer address	0xa25A93F5029e14b8a26b871f353Fc9d0762C04Ca
Contract's current owner address	0x1f4f94db73b235287661583456381b8ff80d9460

















Contract code function details


























No	Category	Item	Result
1	Coding conventions	BRC20 Token standards	pass
		compile errors	pass
		Compiler version security	pass
		visibility specifiers	pass
		Gas consumption	low issue
		SafeMath features	pass
		Fallback usage	pass
		tx.origin usage	pass
		deprecated items	pass
		Redundant code	pass
		Overriding variables	pass
2	Function call audit	Authorization of function call	pass
		Low level function (call/delegate call) security	pass
		Returned value security	pass
		Selfdestruct function security	pass
3	Business security	Access control of owners	pass
		Business logics	pass
		Business implementations	pass
4	Integer overflow/underflow		pass
5	Reentrancy		pass
6	Exceptional reachable state		pass
7	Transaction ordering dependence		pass
8	Block properties dependence		pass
9	Pseudo random number generator (PRNG)		pass
10	DoS (Denial of Service)		pass
11	Token vesting implementation		pass
12	Fake deposit		pass
13	Event security		pass

























Contract description table
































Below table represents the summary of the contracts and methods in the token contract. We scanned the whole contract and listed down all the Interfaces, functions and implementations with its visibility and mutability.






































RNBOExclusiveMC

Contract	Type	Bases		
L	Function Name	Visibility	Mutability	Modifiers
ReentrancyGuard	Implementation			
L		Public 		NO 
Address	Library			
L	isContract	Internal 		
L	sendValue	Internal 		
L	functionCall	Internal 		
L	functionCall	Internal 		
L	functionCallWithV alue	Internal 		
L	functionCallWithV alue	Internal 		
L	_functionCallWith Value	Private 		
IERC20	Interface			


































L	totalSupply	External 		NO 
L	balanceOf	External 		NO 
L	transfer	External 		NO 
L	allowance	External 		NO 
L	approve	External 		NO 
L	transferFrom	External 		NO 
SafeMath	Library			
L	add	Internal 		
L	sub	Internal 		
L	sub	Internal 		
L	mul	Internal 		
L	div	Internal 		
L	div	Internal 		
L	mod	Internal 		
L	mod	Internal 		
SafeERC20	Library			
L	safeTransfer	Internal 		




























L	safeTransferFrom	Internal 		
L	safeApprove	Internal 		
L	safeIncreaseAllowance	Internal 		
L	safeDecreaseAllowance	Internal 		
L	_callOptionalReturn	Private 		
Context	Implementation			
L	_msgSender	Internal 		
L	_msgData	Internal 		
Ownable	Implementation	Context		
L		Internal 		
L	owner	Public 		NO 
L	renounceOwnership	Public 		onlyOwner
L	transferOwnership	Public 		onlyOwner
Roles	Library			
L	add	Internal 		
L	remove	Internal 		

L	has	Internal 		
MinterRole	Implementation	Context		
L		Public 		NO 
L	isMinter	Public 		NO 
L	addMinter	Public 		onlyMinter
L	renounceMinter	Public 		NO 
L	_addMinter	Internal 		
L	_removeMinter	Internal 		
RNBZ	Implementation	Context, IERC20, Ownable, MinterRole		
L		Public 		NO 
L	mint	Public 		onlyMinter
L	burn	Public 		NO 
L	name	Public 		NO 
L	symbol	Public 		NO 
L	decimals	Public 		NO 
L	totalSupply	Public 		NO 



L	balanceOf	Public 		NO 
L	transfer	Public 		NO 
L	allowance	Public 		NO 
L	approve	Public 		NO 
L	transferFrom	Public 		NO 
L	increaseAllowance	Public 		NO 
L	decreaseAllowance	Public 		NO 
L	_approve	Private 		
L	_transfer	Private 		
L	_getCurrentSupply	Private 		
L	safe32	Internal 		
L	getChainId	Internal 		
RainbowToken	Implementation	Context, IERC20, Ownable, MinterRole		
L		Public 		NO 
L	mint	Public 		onlyMinter
L	burn	Public 		NO 
L	name	Public 		NO 

L	symbol	Public 🔒		NO 🔒
L	decimals	Public 🔒		NO 🔒
L	totalSupply	Public 🔒		NO 🔒
L	balanceOf	Public 🔒		NO 🔒
L	transfer	Public 🔒	🔒	NO 🔒
L	allowance	Public 🔒		NO 🔒
L	approve	Public 🔒	🔒	NO 🔒
L	transferFrom	Public 🔒	🔒	NO 🔒
L	increaseAllowance	Public 🔒	🔒	NO 🔒
L	decreaseAllowance	Public 🔒	🔒	NO 🔒
L	isExcluded	Public 🔒		NO 🔒
L	excludeAccount	External 🔒	🔒	onlyOwner
L	includeAccount	External 🔒	🔒	onlyOwner
L	_approve	Private 🔒	🔒	
L	_transfer	Private 🔒	🔒	
L	_getCurrentSupply	Private 🔒		
L	delegates	External 🔒		NO 🔒
L	delegate	External 🔒	🔒	NO 🔒

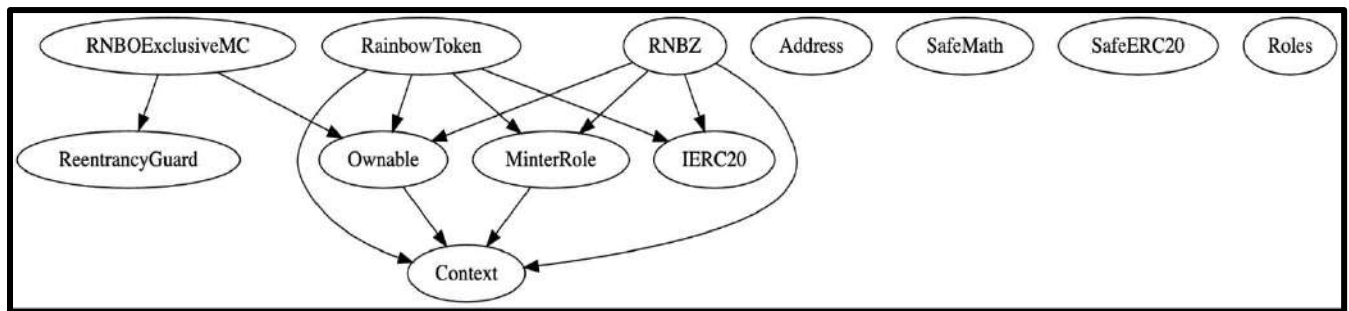
L	delegateBySig	External 		NO 
L	getCurrentVotes	External 		NO 
L	getPriorVotes	External 		NO 
L	_delegate	Internal 		
L	_moveDelegates	Internal 		
L	_writeCheckpoint	Internal 		
L	safe32	Internal 		
L	getChainId	Internal 		
RNBOExclusiveMC	Implementation	Ownable, ReentrancyGuard		
L		Public 		NO 
L	poolLength	External 		NO 
L	setMaxWithdrawFee	Public 		onlyOwner
L	setMinRNBZHolding	Public 		onlyOwner
L	add	External 		onlyOwner nonDuplicated
L	set	External 		onlyOwner
L	getMultiplier	Public 		NO 
L	pendingRNBO	External 		NO 

L	hasBalanceStaked	Internal 		
L	massUpdatePools	Public 		NO 
L	updatePool	Public 		NO 
L	deposit	Public 		nonReentrant
L	getActualWithdrawFeeRate	Public 		NO 
L	getBoostRewardRate	Public 		NO 
L	withdraw	Public 		nonReentrant
L	emergencyWithdraw	Public 		nonReentrant
L	safeRNBOTransfer	Internal 		
L	setDevAddress	External 		onlyOwner
L	setFeeAddress	External 		onlyOwner
L	updateEmissionRate	External 		onlyOwner
L	updateStartBlock	External 		onlyOwner

Legend





















Symbol	Meaning
	Function can modify state
	Function is payable




























Inheritance Hierarchy



RNBZ TOKEN



Contract	Type	Bases		
L	Function Name	Visibility	Mutability	Modifiers
IERC20	Interface			
L	totalSupply	External		NO
L	balanceOf	External		NO
L	transfer	External		NO
L	allowance	External		NO
L	approve	External		NO
L	transferFrom	External		NO
Address	Library			
L	isContract	Internal		
L	sendValue	Internal		

L	functionCall	Internal 		
L	functionCall	Internal 		
L	functionCallWithValue	Internal 		
L	functionCallWithValue	Internal 		
L	_functionCallWithValue	Private 		
SafeMath	Library			
L	add	Internal 		
L	sub	Internal 		
L	sub	Internal 		
L	mul	Internal 		
L	div	Internal 		
L	div	Internal 		
L	mod	Internal 		
L	mod	Internal 		
Context	Implementation			
L	_msgSender	Internal 		
L	_msgData	Internal 		

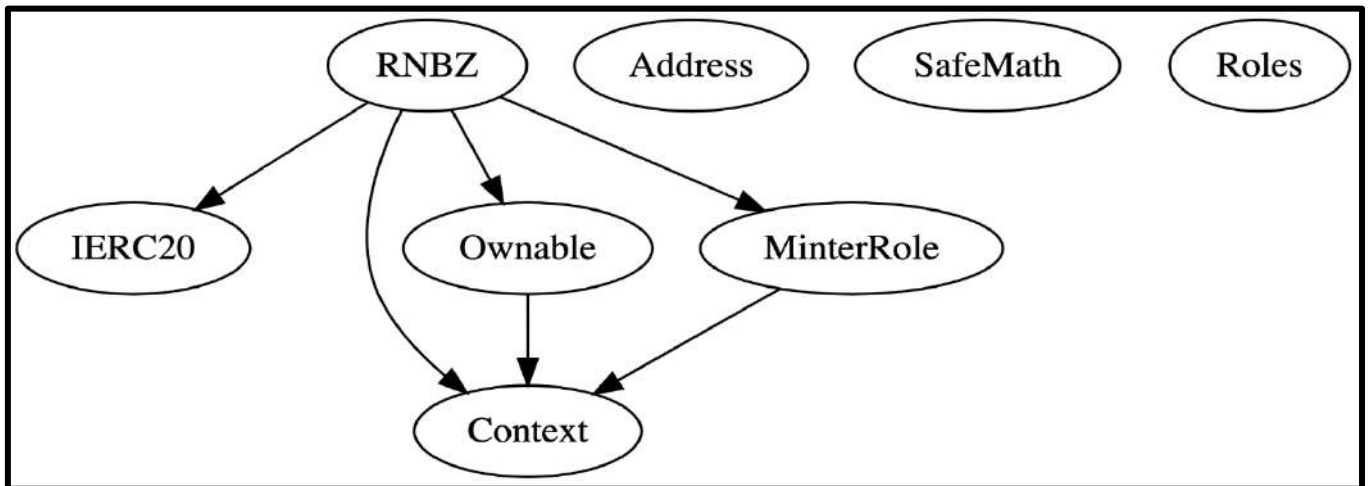
Ownable	Implementation	Context		
L		Internal 		
L	owner	Public 		NO 
L	renounceOwnership	Public 		onlyOwner
L	transferOwnership	Public 		onlyOwner
Roles	Library			
L	add	Internal 		
L	remove	Internal 		
L	has	Internal 		
MinterRole	Implementation	Context		
L		Public 		NO 
L	isMinter	Public 		NO 
L	addMinter	Public 		onlyMinter
L	renounceMinter	Public 		NO 
L	_addMinter	Internal 		
L	_removeMinter	Internal 		

RNBZ	Implementation	Context, IERC20, Ownable, MinterRole		
L		Public 🔓	🔒	NO 🔓
L	mint	Public 🔓	🔒	onlyMinter
L	burn	Public 🔓	🔒	NO 🔓
L	name	Public 🔓		NO 🔓
L	symbol	Public 🔓		NO 🔓
L	decimals	Public 🔓		NO 🔓
L	totalSupply	Public 🔓		NO 🔓
L	balanceOf	Public 🔓		NO 🔓
L	transfer	Public 🔓	🔒	NO 🔓
L	allowance	Public 🔓		NO 🔓
L	approve	Public 🔓	🔒	NO 🔓
L	transferFrom	Public 🔓	🔒	NO 🔓
L	increaseAllowance	Public 🔓	🔒	NO 🔓
L	decreaseAllowance	Public 🔓	🔒	NO 🔓
L	_approve	Private 🔒	🔒	
L	_transfer	Private 🔒	🔒	
L	_getCurrentSupply	Private 🔒		
L	safe32	Internal 🔒		
L	getChainId	Internal 🔒	🔒	





Legend































Symbol	Meaning
	Function can modify state
	Function is payable




















Inheritance Hierarchy







































































RNBZ_MasterChef








































Contract	Type	Bases		
L	Function Name	Visibility	Mutability	Modifiers
ReentrancyGuard	Implementation			
L		Public 		NO 
Address	Library			
L	isContract	Internal 		


































L	sendValue	Internal 		
L	functionCall	Internal 		
L	functionCall	Internal 		
L	functionCallWithValue	Internal 		
L	functionCallWithValue	Internal 		
L	_functionCallWithValue	Private 		
IERC20	Interface			
L	totalSupply	External 		NO 
L	balanceOf	External 		NO 
L	transfer	External 		NO 
L	allowance	External 		NO 
L	approve	External 		NO 
L	transferFrom	External 		NO 
SafeMath	Library			
L	add	Internal 		
L	sub	Internal 		
L	sub	Internal 		



































L	mul	Internal 		
L	div	Internal 		
L	div	Internal 		
L	mod	Internal 		
L	mod	Internal 		
SafeERC20	Library			
L	safeTransfer	Internal 		
L	safeTransferFrom	Internal 		
L	safeApprove	Internal 		
L	safeIncreaseAllowance	Internal 		
L	safeDecreaseAllowance	Internal 		
L	_callOptionalReturn	Private 		
Context	Implementation			
L	_msgSender	Internal 		
L	_msgData	Internal 		
Ownable	Implementation	Context		

L		Internal 		
L	owner	Public 		NO 
L	renounceOwnership	Public 		onlyOwner
L	transferOwnership	Public 		onlyOwner
Roles	Library			
L	add	Internal 		
L	remove	Internal 		
L	has	Internal 		
MinterRole	Implementation	Context		
L		Public 		NO 
L	isMinter	Public 		NO 
L	addMinter	Public 		onlyMinter
L	renounceMinter	Public 		NO 
L	_addMinter	Internal 		
L	_removeMinter	Internal 		
RNBZ	Implementation	Context, IERC20, Ownable, MinterRole		



L		Public 		NO 
L	mint	Public 		onlyMinter
L	burn	Public 		NO 
L	name	Public 		NO 
L	symbol	Public 		NO 
L	decimals	Public 		NO 
L	totalSupply	Public 		NO 
L	balanceOf	Public 		NO 
L	transfer	Public 		NO 
L	allowance	Public 		NO 
L	approve	Public 		NO 
L	transferFrom	Public 		NO 
L	increaseAllowance	Public 		NO 
L	decreaseAllowance	Public 		NO 
L	_approve	Private 		
L	_transfer	Private 		
L	_getCurrentSupply	Private 		
L	safe32	Internal 		

L	getChainId	Internal 		
RainbowToken	Implementation	Context, IERC20, Ownable, MinterRole		
L		Public 		NO 
L	mint	Public 		onlyMinter
L	burn	Public 		NO 
L	name	Public 		NO 
L	symbol	Public 		NO 
L	decimals	Public 		NO 
L	totalSupply	Public 		NO 
L	balanceOf	Public 		NO 
L	transfer	Public 		NO 
L	allowance	Public 		NO 
L	approve	Public 		NO 
L	transferFrom	Public 		NO 
L	increaseAllowance	Public 		NO 
L	decreaseAllowance	Public 		NO 
L	isExcluded	Public 		NO 

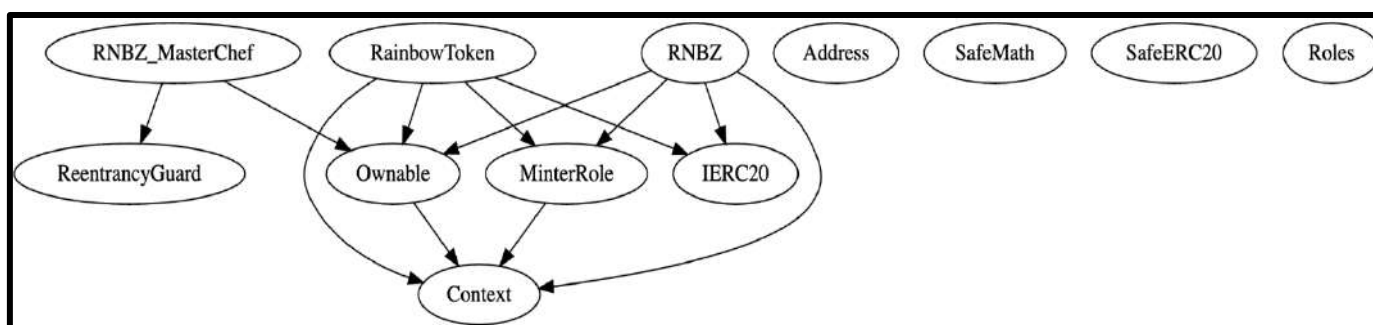
L	excludeAccount	External 		onlyOwner
L	includeAccount	External 		onlyOwner
L	_approve	Private 		
L	_transfer	Private 		
L	_getCurrentSupply	Private 		
L	delegates	External 		NO 
L	delegate	External 		NO 
L	delegateBySig	External 		NO 
L	getCurrentVotes	External 		NO 
L	getPriorVotes	External 		NO 
L	_delegate	Internal 		
L	_moveDelegates	Internal 		
L	_writeCheckpoint	Internal 		
L	safe32	Internal 		
L	getChainId	Internal 		
RNBZ_MasterChef	Implementation	Ownable, ReentrancyGuard		
L		Public 		NO 

L	poolLength	External 		NO 
L	setMaxWithdrawFee	Public 		onlyOwner
L	add	External 		onlyOwner nonDuplicated
L	set	External 		onlyOwner
L	getMultiplier	Public 		NO 
L	pendingRNBO	External 		NO 
L	massUpdatePools	Public 		NO 
L	updatePool	Public 		NO 
L	deposit	Public 		nonReentrant
L	getActualWithdrawFeeRate	Public 		NO 
L	withdraw	Public 		nonReentrant
L	emergencyWithdraw	Public 		nonReentrant
L	safeRNBZTransfer	Internal 		
L	setFeeAddress	External 		onlyOwner
L	updateEmissionRate	External 		onlyOwner
L	updateStartBlock	External 		onlyOwner

Legend

Symbol	Meaning
	Function can modify state
	Function is payable

Inheritance Hierarchy



Security issue checking status

❖ High severity issues

- No high severity issues found.

❖ Medium severity issues

- No medium severity issues found.

❖ Low severity issues

- In the includeInReward function, if they use a long wallet list there can be an OUT_OF_GAS issue, better to use a small array list at once.

```
ftrace | funcSig
function includeAccount(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];
            _isExcluded[account↑] = false;
            _excluded.pop();
            break;
        }
    }
}
```

Owner privileges

- ❖ The owner can mint new tokens.

```
ftrace | funcSig
function mint(address _to↑, uint256 amount↑)
    public
    onlyMinter
    returns (bool)
{
    require(
        _totalSupply.add(amount↑) <= _maxSupply,
        "Error::MaxSupply:Max Supply Reached"
    );
    _totalSupply = _totalSupply.add(amount↑);
    _balances[_to↑] = _balances[_to↑].add(amount↑);
    emit Transfer(msg.sender, _to↑, amount↑);
    return true;
}
```

- ❖ The owner can include and exclude wallets from limitations.

```
ftrace | funcSig
function excludeAccount(address account↑) external onlyOwner {
    require(!_isExcluded[account↑], "Account is already excluded");
    _isExcluded[account↑] = true;
    _excluded.push(account↑);
}

ftrace | funcSig
function includeAccount(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];
            _isExcluded[account↑] = false;
            _excluded.pop();
            break;
        }
    }
}
```

- ❖ The owner can change the minimum RNBZ holding amount to Enter pools.

```
ftrace | funcSig
function setMinRNBZHolding(uint256 _minRNBZ↑)
    public
    onlyOwner
    returns (bool)
{
    require(
        _minRNBZ↑ > 1 * (10**18),
        "ERR::MinRNBZ:Min RNBZ Req should be greater than 1 RNBZ"
    );
    minRNBZRequired = _minRNBZ↑;
    return true;
}
```

- ❖ The owner can add new pools.

```
// Add a new lp to the pool. Can only be called by the owner.
ftrace | funcSig
function add(
    uint256 _allocPoint↑,
    IERC20 _lpToken↑,
    uint256 _poolWithdrawFee↑
) external onlyOwner nonDuplicated(_lpToken) {
    require(poolExistence[_lpToken↑] == false, "ERR::Pool:Pool Exist");
    require(_poolWithdrawFee↑ < 500, "ERR:Fees:Max Fee 1%");
    uint256 lastRewardBlock = block.number > startBlock
        ? block.number
        : startBlock;
    totalAllocPoint = totalAllocPoint.add(_allocPoint↑);
    poolExistence[_lpToken↑] = true;
    poolInfo.push(
        PoolInfo({
            lpToken: _lpToken↑,
            allocPoint: _allocPoint↑,
            lastRewardBlock: lastRewardBlock,
            accRNBOPerShare: 0,
            poolWithdrawFee: _poolWithdrawFee↑
        })
    );
}
```

- ❖ The owner can change the allocated point and withdraw fee (maximum up to 1%) in a pool.

```
ftrace | funcSig
function set(
    uint256 _pid↑,
    uint256 _allocPoint↑,
    uint256 _poolWithdrawFee↑
) external onlyOwner {
    require(_poolWithdrawFee↑ < 100, "ERR:Fees:Max Fee 1%");
    massUpdatePools();
    totalAllocPoint = totalAllocPoint.sub(poolInfo[_pid↑].allocPoint).add(
        _allocPoint↑
    );
    poolInfo[_pid↑].allocPoint = _allocPoint↑;
    poolInfo[_pid↑].poolWithdrawFee = _poolWithdrawFee↑;
}
```

- ❖ The owner can change dev and fee address.

```
ftrace | funcSig
function setDevAddress(address _devAddress↑) external onlyOwner {
    require(
        _devAddress↑ != address(0),
        "Error::AddressChange:Dev Address cannot be 0"
    );
    devAddress = _devAddress↑;
    emit SetDevAddress(msg.sender, _devAddress↑);
}

ftrace | funcSig
function setFeeAddress(address _feeAddress↑) external onlyOwner {
    require(
        _feeAddress↑ != address(0),
        "Error::AddressChange:Fee Address cannot be 0"
    );
    feeAddress = _feeAddress↑;
    emit SetFeeAddress(msg.sender, _feeAddress↑);
}
```

- ❖ The owner can start farming.

```
ftrace | funcSig
function updateStartBlock(uint256 _startBlock↑) external onlyOwner {
    require(startBlock > block.number, "Farm already started");
    startBlock = _startBlock↑;
}
```

Audit conclusion

While conducting the audit of the Rainbow farm smart contract, it was observed that there is nothing alarming with the code and it only contains a low severity issue.