TechRate

Blockchain solutions and consulting

CoinSwap

Smart Contract Security Audit

April, 2021
TechRate

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 CoinSwap to perform an audit of smart contracts:

- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/interfaces/IBEP20.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/libraries/Address.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/libraries/BEP20.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/libraries/CoinSwapVoteProxy.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/libraries/Context.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/libraries/MockBEP20.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/libraries/Multicall.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/libraries/Ownable.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/libraries/SafeBEP20.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/libraries/SafeMath.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/libraries/WBNB.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/libraries/Migrations.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/CSSReferral.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/CSSToken.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/MasterCSS.sol*
- *https://github.com/CoinSwap-Space/farm-master/blob/e4a1ab70342d494fab4 480f9bec1d558b8057286/contracts/Timelock.sol*
- *https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040 649a8eb0195399bc05a565b/contracts/interfaces/IBEP20.sol*
- *https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040 649a8eb0195399bc05a565b/contracts/interfaces/ICoinSwapCallee.sol*
- *https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040 649a8eb0195399bc05a565b/contracts/interfaces/ICoinSwapFactory.sol*
- *https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040 649a8eb0195399bc05a565b/contracts/interfaces/ICoinSwapMigrator.sol*

- https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040649a8eb0195399bc05a565b/contracts/interfaces/ICoinSwapPair.sol
- https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040649a8eb0195399bc05a565b/contracts/interfaces/ICoinSwapRouter01.sol
- https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040649a8eb0195399bc05a565b/contracts/interfaces/ICoinSwapRouter02.sol
- https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040649a8eb0195399bc05a565b/contracts/interfaces/IWBNB.sol
- https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040649a8eb0195399bc05a565b/contracts/libraries/Math.sol
- https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040649a8eb0195399bc05a565b/contracts/libraries/SafeMath.sol
- https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040649a8eb0195399bc05a565b/contracts/libraries/TransferHelper.sol
- https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040649a8eb0195399bc05a565b/contracts/libraries/UQ112x112.sol
- https://github.com/CoinSwap-Space/swap-core/blob/e1bfe3d91e6f6f7a628a494e070db1353c8c52cb/contracts/interfaces/IBEP20.sol
- https://github.com/CoinSwap-Space/swap-core/blob/e1bfe3d91e6f6f7a628a494e070db1353c8c52cb/contracts/interfaces/ICoinSwapBEP20.sol
- https://github.com/CoinSwap-Space/swap-core/blob/e1bfe3d91e6f6f7a628a494e070db1353c8c52cb/contracts/interfaces/ICoinSwapCallee.sol
- https://github.com/CoinSwap-Space/swap-core/blob/e1bfe3d91e6f6f7a628a494e070db1353c8c52cb/contracts/interfaces/ICoinSwapPair.sol
- https://github.com/CoinSwap-Space/swap-core/blob/e1bfe3d91e6f6f7a628a494e070db1353c8c52cb/contracts/interfaces/ICoinSwapFactory.sol
- https://github.com/CoinSwap-Space/swap-core/blob/e1bfe3d91e6f6f7a628a494e070db1353c8c52cb/contracts/libraries/Math.sol
- https://github.com/CoinSwap-Space/swap-core/blob/e1bfe3d91e6f6f7a628a494e070db1353c8c52cb/contracts/libraries/SafeMath.sol
- https://github.com/CoinSwap-Space/swap-core/blob/e1bfe3d91e6f6f7a628a494e070db1353c8c52cb/contracts/libraries/UQ112x112.sol
- https://github.com/CoinSwap-Space/swap-core/blob/e1bfe3d91e6f6f7a628a494e070db1353c8c52cb/contracts/CoinSwapFactory.sol
- https://github.com/CoinSwap-Space/swap-core/blob/e1bfe3d91e6f6f7a628a494e070db1353c8c52cb/contracts/CoinSwapBEP20.sol
- https://github.com/CoinSwap-Space/swap-core/blob/e1bfe3d91e6f6f7a628a494e070db1353c8c52cb/contracts/CoinSwapPair.sol
- https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040649a8eb0195399bc05a565b/contracts/CoinSwapRouter01.sol
- https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040649a8eb0195399bc05a565b/contracts/CoinSwapRouter.sol
- https://github.com/CoinSwap-Space/swap-periphery/blob/dff5c623d8a7f9040649a8eb0195399bc05a565b/contracts/CoinSwapRouter01.sol

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.

Issues Checking Status

№	Issue description.	Checking status
1	Compiler warnings.	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.	Passed
10	Methods execution permissions.	Passed
11	Economy model. If application logic is based on an incorrect economic model, the application would not function correctly and participants would incur financial losses. This type of issue is most often found in bonus rewards systems, Staking and Farming contracts, Vault and Vesting contracts, etc.	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 Zeppelin module.	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 and Owner privileges

1. Block gas limit

Issue:

The massUpdatePools function can fail due to block gas limit if the pool size is too big.

2. add function issue

Issue:

If some LP token is added to the contract twice using function add, then the total amount of reward cssReward in function updatePool will be incorrect.

Recommendation:

Add the mapping from address to bool and check that same address will not be added twice as it was done in the GooseDefi project.

3. Owner privileges

- ❏ Owner can change the bonus multiplier.
- ❏ Owner can change the stake pool id.
- ❏ Owner can change fees in the masterchef contract.

Recommendations

1. Use constant variable

Recommendation:

Use constant variable maxSupply in function mint instead of creating a new variable with the same meaning.

Conclusion

Smart contracts do not contain any high severity issues! Audited only the smart contracts from GitHub of the project.

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.