

AuditBlock

CHCstake

v0. 0.8.19+commit.7dd6d404
v0.8.19

✦ Low-Risk

Low-risk code

✦ Medium-Risk

Medium-risk code

✦ High-Risk

High-risk code

[Disclaimer]

AuditBlock is not liable for any financial losses incurred due to its services. The information provided in this contract audit should not be considered financial advice. Please conduct your research to make informed decisions.

Types of Severities

High

A high-severity issue or vulnerability means that your smart contract can be exploited. Issues on this level are critical to the smart contract's performance or functionality, and we recommend these issues be fixed before moving to a live environment.

Medium

The issues marked as medium severity usually arise because of errors and deficiencies in the smart contract code. Issues on this level could potentially bring problems, and they should still be fixed.

Low

Low-level severity issues can cause minor impact and or are just warnings that can remain unfixed for now. It would be better to fix these issues at some point in the future.

Informational

These are severity issues that indicate an improvement request, a general question, a cosmetic or documentation error, or a request for information. There is low-to-no impact.

Techniques and Methods

The overall quality of code.

- Use of best practices.
- Code documentation and comments match logic and expected behavior.
- Token distribution and calculations are as per the intended behavior mentioned in the whitepaper.
- implementation of ERC-20 token standards.
- Efficient use of gas.
- Code is safe from re-entrance and other vulnerabilities.

The following techniques, methods, and tools were used to review all the smart contracts.

Structural Analysis

In this step, we have analyzed the design patterns and structure of smart contracts. A thorough check was done to ensure the smart contract is structured in a way that will not result in future problems.

Static Analysis

Static analysis of smart contracts was done to identify contract vulnerabilities. In this step, a series of automated tools are used to test the security of smart contracts.

Code Review / Manual Analysis

Manual analysis or review of code was done to identify new vulnerabilities or verify the vulnerabilities found during the static analysis. Contracts were completely manually analyzed, and their logic was checked and compared with the one described in the whitepaper. Besides, the results of the automated analysis were manually verified.

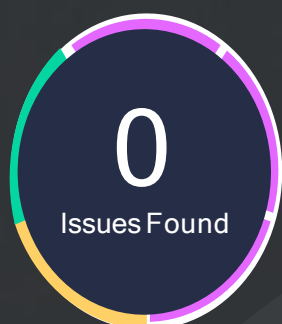
Gas Consumption

In this step, we have checked the behavior of smart contracts in production. Checks were done to know how much gas gets consumed and the possibilities of optimization of code to reduce gas consumption.

Tools and Platforms Used for Audit

Remix IDE, Truffle, Truffle Team, Solhint, Mythril, Slither, Solidity statistic analysis.

| | |
|----------------|--|
| Name | CHCstake |
| Method | Manual Review, Functional Testing, Automated Testing etc. |
| Scope of Audit | The scope of this audit was to analyze the contract codebase for quality, security, and correctness. |
| Audit Team | AuditBlock |



| | High | Medium | Low | Informational |
|---------------------------|------|--------|-----|---------------|
| Open Issues | 0 | 0 | 0 | 0 |
| Acknowledged Issues | 0 | 0 | 0 | 0 |
| Partially Resolved Issues | 0 | 0 | 0 | 1 |
| Resolved Issues | 0 | 0 | 0 | 0 |

| ID | File Name | Audit Status |
|-------|---------------|--------------|
| 10020 | HCHCstake.sol | Pass |

Smart Contract Weakness Classification (SWC) Vulnerabilities for Attacks

- ✓ Re-entrancy
- ✓ Timestamp Dependence
- ✓ Gas Limit and Loops
- ✓ Exception Disorder
- ✓ Gasless Send
- ✓ Use of tx.origin
- ✓ Compiler version not fixed
- ✓ Address hardcoded
- ✓ Divide before multiply
- ✓ Integer overflow/underflow
- ✓ Dangerous strict equalities
- ✓ Tautology or contradiction
- ✓ Missing Zero Address Validation
- ✓ Return values of low-level calls
- ✓ Revert/require functions
- ✓ Private modifier
- ✓ Using block.timestamp
- ✓ Multiple Sends
- ✓ Using SHA3
- ✓ Using suicide
- ✓ Using throw
- ✓ Using inline assembly

Phase 1

High Severity Issues

No issues found

Medium Severity Issues

No issues found

Low Severity Issues

No issues found

Informational Severity Issues

1. Incorrect erc20 interface!

```
33     function approve(address spender, uint256 value) external;
34
35     function transfer(address to, uint256 value) external;
36
37     function transferFrom(
38         address from,
39         address to,
40         uint256 value
41     ) external;
42 }
```

Description

Our auditor identified that your contract has an incorrect ERC20 interface. If the contract interacts with these functions, they will fail to execute, as the return value is missing.

Recommendation

It is important to either double-check your ERC20 function definitions to ensure they have the appropriate return values and types, or thoroughly test your method functionality to understand how it works.

Status

Acknowledged

Phase 2

ERC20 (contracts/CHCstake.sol#9-42) has incorrect ERC20 function interface:IERC20.approve(address,uint256) (contracts/CHCstake.sol#33)
IERC20 (contracts/CHCstake.sol#9-42) has incorrect ERC20 function interface:IERC20.transfer(address,uint256) (contracts/CHCstake.sol#35)
IERC20 (contracts/CHCstake.sol#9-42) has incorrect ERC20 function interface:IERC20.transferFrom(address,address,uint256) (contracts/CHCstake.sol#37-41)
Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-erc20-interface>

Reentrancy in CHCstake.unstake(uint256) (contracts/CHCstake.sol#398-426):

External calls:

- harvest(index) (contracts/CHCstake.sol#406)
 - rewardToken.transfer(msg.sender,rewardTillNow) (contracts/CHCstake.sol#438-441)
- rewardToken.transfer(msg.sender,stakersRecord[msg.sender][index].rewardTokenAmount)

(contracts/CHCstake.sol#410-413)

State variables written after the call(s):

- Stakers[msg.sender].totalUnstakedTokenUser =

Stakers[msg.sender].totalUnstakedTokenUser.add(stakersRecord[msg.sender][index].amount)
(contracts/CHCstake.sol#418-420)

CHCstake.Stakers (contracts/CHCstake.sol#335) can be used in cross function reentrancies:

- CHCstake.Stakers (contracts/CHCstake.sol#335)
- CHCstake.realtimeReward(address) (contracts/CHCstake.sol#496-514)
- CHCstake.stake(uint256,uint256,address) (contracts/CHCstake.sol#362-396)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-1>

CHCstake.stake(uint256,uint256,address) (contracts/CHCstake.sol#362-396) contains a tautology or contradiction:

- require(bool,string)(timeperiod >= 0 && timeperiod <= 3,Invalid Time Period)

(contracts/CHCstake.sol#363)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#tautology-or-contradiction>

CHCstake.getAmountOut(uint256) (contracts/CHCstake.sol#462-470) ignores return value by (price) = BNB_FEED.latestRoundData() (contracts/CHCstake.sol#463)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#unused-return>

HCstake.setFeedDivider(uint256) (contracts/CHCstake.sol#653-655) should emit an event for:

- feedDivider = _divide (contracts/CHCstake.sol#654)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#missing-events-arithmetic>

Reentrancy in CHCstake.unstake(uint256) (contracts/CHCstake.sol#398-426):

External calls:

- harvest(index) (contracts/CHCstake.sol#406)
 - rewardToken.transfer(msg.sender,rewardTillNow) (contracts/CHCstake.sol#438-441)
- rewardToken.transfer(msg.sender,stakersRecord[msg.sender][index].rewardTokenAmount)

(contracts/CHCstake.sol#410-413)

State variables written after the call(s):

- totalUnStakedToken = totalUnStakedToken.add(stakersRecord[msg.sender][index].amount)

(contracts/CHCstake.sol#415-417)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-2>

Phase 2

Pragma version=0.8.19 (contracts/CHCstake.sol#7) necessitates a version too recent to be trusted. Consider deploying with 0.8.18.

solc-0.8.19 is not recommended for deployment

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity>
INFO:Detectors:

Function IPancakeRouter01.WETH() (contracts/CHCstake.sol#46) is not in mixedCase

Parameter CHCstake.stake(uint256,uint256,address)._referrer (contracts/CHCstake.sol#362) is not in mixedCase

Parameter CHCstake.getAmountOut(uint256)._amount (contracts/CHCstake.sol#462) is not in mixedCase

Function CHCstake.SetStakeLimits(uint256,uint256) (contracts/CHCstake.sol#517-520) is not in mixedCase

Parameter CHCstake.SetStakeLimits(uint256,uint256)._min (contracts/CHCstake.sol#517) is not in mixedCase

Parameter CHCstake.SetStakeLimits(uint256,uint256)._max (contracts/CHCstake.sol#517) is not in mixedCase

Function CHCstake.SetStakeDuration(uint256,uint256,uint256,uint256) (contracts/CHCstake.sol#522-532) is not in mixedCase

Function CHCstake.SetStakeBonus(uint256,uint256,uint256,uint256) (contracts/CHCstake.sol#534-544) is not in mixedCase

Parameter CHCstake.getlevelrefcount(address)._user (contracts/CHCstake.sol#553) is not in mixedCase

Parameter CHCstake.setFeedDivider(uint256)._divide (contracts/CHCstake.sol#653) is not in mixedCase

Parameter CHCstake.setRouterAddress(address)._routerAddress (contracts/CHCstake.sol#657) is not in mixedCase

Parameter CHCstake.setBNBFeedAddress(address)._feedAddress (contracts/CHCstake.sol#661) is not in mixedCase

Parameter CHCstake.setReferralLevel(uint256[5])._levelRate (contracts/CHCstake.sol#665) is not in mixedCase

Parameter CHCstake.setStakeToken(address)._stakeAddress (contracts/CHCstake.sol#669) is not in mixedCase

Parameter CHCstake.setrewardToken(address)._rewardAddress (contracts/CHCstake.sol#673) is not in mixedCase

Variable CHCstake.Duration (contracts/CHCstake.sol#299) is not in mixedCase

Variable CHCstake.Bonus (contracts/CHCstake.sol#300) is not in mixedCase

Variable CHCstake.ROUTER_ADDRESS (contracts/CHCstake.sol#303) is not in mixedCase

Variable CHCstake.BNB_FEED (contracts/CHCstake.sol#304) is not in mixedCase

Variable CHCstake.Stakers (contracts/CHCstake.sol#335) is not in mixedCase

Variable CHCstake.StakersID (contracts/CHCstake.sol#336) is not in mixedCase

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions>
INFO:Detectors:

Variable

IPancakeRouter01.addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256).amountA Desired (contracts/CHCstake.sol#51) is too similar to

IPancakeRouter01.addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256).amountB Desired (contracts/CHCstake.sol#52)

Variable CHCstake.ROUTER_ADDRESS (contracts/CHCstake.sol#303) is too similar to

CHCstake.setRouterAddress(address)._routerAddress (contracts/CHCstake.sol#657)Reference:

<https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar>

INFO:Detectors:

Loop condition i < refLevelRate.length (contracts/CHCstake.sol#569) should use cached array length instead of referencing `length` member of the storage array.

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#cache-array-length>

INFO:Detectors:

CHCstake.percentDivider (contracts/CHCstake.sol#296) should be immutable

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-immutable>

Closing Summary

In this report, we have considered the security of this **CHCstake contract**. We performed our audit according to the procedure described above.

Several issues were identified during the audit and classified by severity. Recommendations and best practices were provided to improve code quality and security posture. The team has acknowledged all findings.

Disclaimer

AuditBlock does not provide security warranties, investment advice, or endorsements of any platform. This audit does not guarantee the security or correctness of the audited smart contracts. The statements made in this document should not be interpreted as investment or legal advice. The authors are not liable for any decisions made based on the information in this document. Securing smart contracts is an ongoing process. A single audit is not sufficient. We recommend that the platform's development team implement a bug bounty program to encourage further analysis of the smart contract by other third parties

<https://auditblock.report>

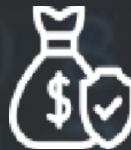
AuditBlock

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100+

Audits Completed



\$1M

Secured



100K

Lines of Code Audited

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