Code security assessment

CRYPTOHOTS

CRYPTO
ALERT
NFT

BLOCKCHAIN SECURITY ANALYSIS GROUP

April 2022

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Synopsis

This audit has been conducted by request of the CRYPTOHOTS project development team to evaluate its smart contracts' code for vulnerabilities or issues, as well as the soundness of its code architecture.

Our analysis unit conducted both automated and manual analysis, including line-by-line examination by our team's experts, checking the whole code for potential vulnerabilities, compiling errors, timestamp / order dependecies, reentrancy errors, known attack vectors and coding best practices.

The contracts were then test-deployed for extensive live testing of all their functionalities including interactions with multiple clients.

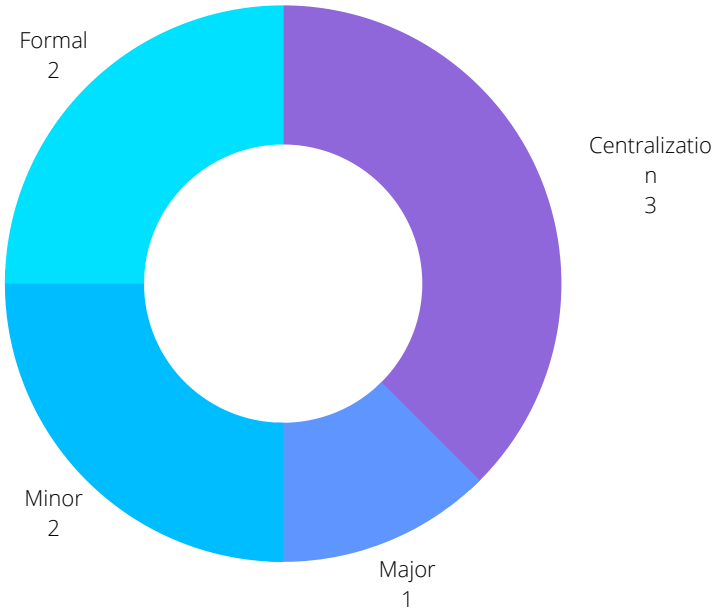
After our initial analysis, recommendations were made to the development team. All the issues found were completely resolved or adequately alleviated.

This document provides a full report of any isues found as well as the development team's response to them.

Overview

Project details	
Name	Cryptohots
Web	https://cryptohots.me/
Blockchain	Binance Smart Chain
Environment	EVM
Language	Solidity
Compiler version	0.8.13
Contracts Audited	tokenhots.sol, nft_classic_common.sol, nft_classic_infrecuent.sol, nft_classic_legenday.sol, nft_classic_mythic.sol, nft_classic_rare.sol
Contract Source	https://github.com/LuchoGuzman/CryptoHots.git
Methodologies used	Automated check, manual check, line by line code review, tests deployment and live testing.

Findings summary



Formal: Comments on coding style and best practices issues. Mostly subjective.

Minor: Low-risk issues that cannot harm the contract's execution or expected behaviour.

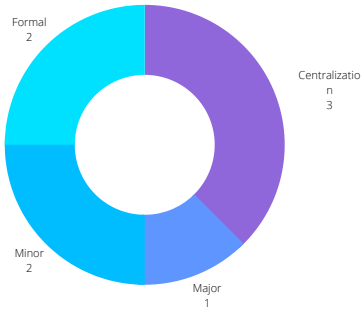
Major: Medium-risk issues that can harm the contract or it's expected behaviour in a limited way.

Critical: High-risk issues that can seriously harm the contract or compromise the ecosystem's security.

Centralization: Excess of centralized privilege can potentially represent a unfair playground for holders and investors.

Severity Level	Found	Objected	Noted	Mitigated	Resolved
Formal	2	0	1	0	1
Minor	2	0	0	0	2
Major	1	0	0	0	1
Centralization	3	0	0	3	0
Critical	0	0	0	0	0

Findings details



Formal aspects FO

- FO1: Functions with unclear names that do not follow Solidity's best practices recommendations.

  Resolution: the team agreed to folllow Solidity's recommended naming conventions.

- FO2: Libraries safemath and safecast are imported but not actually used in the contract.

  Team's answer: We agreed they might be redundant but we feel they improve the contract's safety.

Minor Issues MI

- MI1: Functions requiring onlyOwner modifier could be declared external instead of public.

  Resolution: Function type declaration was updated.

- MI2: Upper fee limit not working as expected.

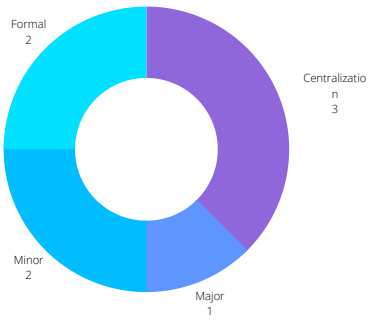
  Resolution: Code was updated and tested to work as intended.

Major Issues MA

- MA1: Potencially exploitable order dependence issue on transfer function.

  Resolution: Function have been rewritten to completely eliminate the risk.

Findings details



Centralization Issues CN

- Owner has several centralized privileges. In the event of foul play or compromise of the owner wallet, an attacker would be able to:
- CN1: Pause the contract's execution.
- CN2: Change fees, maximum transfer amount and maximum wallet size.
- CN3: Change the fee-receiving addresses.

Mitigation: limits were added to the centralized functions on findings CN2 and CN3 to eliminate the risk of creating a honeypot.
Additionally, the team reported they plan to renounce ownership of the contract after listing, which would completely resolve the issues.

Final considerations

A total of 6 smart contracts were audited: An erc20 token (tokenhots.sol) and 6 non-fubgible erc721 NFTs (nft_classic_common.sol, nft_classic_infrecuent.sol, nft_classic_legenday.sol, nft_classic_mythic.sol nft_classic_rare.sol).

In the submitted ERC20 Token contract:

No critical or high risk issues were found.
One mayor, one formal and two minor issues were completely resolved in the updated version of the contract.
One formal issue was noted.
Three centralization issues were found. Two of them were adequately mitigated. The development team must add safeguard to the owner wallet, like a multisign system. Renouncing ownership would completely resolve any leftover centralization issues.

No issues were found in the submitted ERC721 contracts.

Disclaimer

The information here provided is not, and must not be considered, endorsement, approval or disapproval of the audited project.
This audit report DOES NOT CONSTITUTE INVESTMENT ADVICE. It's scope is limited the technical and centralization aspects of the summited Smart Contracts.
Our team HAS NOT MADE ANY EVALUATION of the project's viability or economic design. Neither do we make any claims about the development team's ability, proficiency or well meaning.
This audit does not constitute any warranty of the absolute bug-free nature of the code or associated technologies used. Neither can it foresee any unwanted results of its interaction with third party solutions like daps, exchanges, in-game databases, or similar.
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