# CERTIK

## Security Assessment

# CyberConnect - cybergraph

CertiK Assessed on Mar 4th, 2024

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## CyberConnect - cybergraph

The security assessment was prepared by CertiK, the leader in Web3.0 security.

# Executive Summary

| TYPES | ECOSYSTEM | METHODS |
|---|---|---|
| DeFi | Ethereum (ETH) | Manual Review, Static Analysis |

| LANGUAGE | TIMELINE | KEY COMPONENTS |
|---|---|---|
| Solidity | Delivered on 03/04/2024 | N/A |

**CODEBASE**
https://github.com/cyberconnecthq/cybergraph
View All in Codebase Page

**COMMITS**
23d2b2628aaaf8a133d692f20eafa5cc50ec22bb
View All in Codebase Page

# Vulnerability Summary

| 2 Total Findings | 0 Resolved | 0 Mitigated | 0 Partially Resolved | 2 Acknowledged | 0 Declined |
|---|---|---|---|---|---|

| | | | |
|---|---|---|---|
| ■ 0 | Critical | | Critical risks are those that impact the safe functioning of a platform and must be addressed before launch. Users should not invest in any project with outstanding critical risks. |
| ■ 1 | Major | 1 Acknowledged | Major risks can include centralization issues and logical errors. Under specific circumstances, these major risks can lead to loss of funds and/or control of the project. |
| ■ 0 | Medium | | Medium risks may not pose a direct risk to users' funds, but they can affect the overall functioning of a platform. |
| ■ 1 | Minor | 1 Acknowledged | Minor risks can be any of the above, but on a smaller scale. They generally do not compromise the overall integrity of the project, but they may be less efficient than other solutions. |
| ■ 0 | Informational | | Informational errors are often recommendations to improve the style of the code or certain operations to fall within industry best practices. They usually do not affect the overall functioning of the code. |

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# CODEBASE | CYBERCONNECT - CYBERGRAPH

## ▌ Repository

https://github.com/cyberconnecthq/cybergraph

## ▌ Commit

23d2b2628aaaf8a133d692f20eafa5cc50ec22bb

# AUDIT SCOPE | CYBERCONNECT - CYBERGRAPH

1 file audited  ●  1 file with Acknowledged findings

| ID | Repo | File | SHA256 Checksum |
|----|------|------|-----------------|
| ● LTP | cyberconnecthq/cybergraph | src/periphery/LaunchTokenPool.sol | 8e5d123a9ab813f99226a7d5c3b3ae84a5f5c602c536d46af061d95ebbff374d |

# APPROACH & METHODS | CYBERCONNECT - CYBERGRAPH

This report has been prepared for Cyberconnect to discover issues and vulnerabilities in the source code of the CyberConnect - cybergraph project as well as any contract dependencies that were not part of an officially recognized library. A comprehensive examination has been performed, utilizing Manual Review and Static Analysis techniques.

The auditing process pays special attention to the following considerations:

- Testing the smart contracts against both common and uncommon attack vectors.
- Assessing the codebase to ensure compliance with current best practices and industry standards.
- Ensuring contract logic meets the specifications and intentions of the client.
- Cross referencing contract structure and implementation against similar smart contracts produced by industry leaders.
- Thorough line-by-line manual review of the entire codebase by industry experts.

The security assessment resulted in findings that ranged from critical to informational. We recommend addressing these findings to ensure a high level of security standards and industry practices. We suggest recommendations that could better serve the project from the security perspective:

- Testing the smart contracts against both common and uncommon attack vectors;
- Enhance general coding practices for better structures of source codes;
- Add enough unit tests to cover the possible use cases;
- Provide more comments per each function for readability, especially contracts that are verified in public;
- Provide more transparency on privileged activities once the protocol is live.

# FINDINGS | CYBERCONNECT - CYBERGRAPH

| 2 | 0 | 1 | 0 | 1 | 0 |
|---|---|---|---|---|---|
| Total Findings | Critical | Major | Medium | Minor | Informational |

This report has been prepared to discover issues and vulnerabilities for CyberConnect - cybergraph. Through this audit, we have uncovered 2 issues ranging from different severity levels. Utilizing the techniques of Manual Review & Static Analysis to complement rigorous manual code reviews, we discovered the following findings:

| ID | Title | Category | Severity | Status |
|---|---|---|---|---|
| **LTP-01** | **Centralization Risks In LaunchTokenPool.Sol** | **Centralization** | **Major** | ● **Acknowledged** |
| LTP-02 | Incompatibility With Deflationary Tokens (Non-Standard ERC20 Token) | Volatile Code | Minor | ● Acknowledged |

# LTP-01 | CENTRALIZATION RISKS IN LAUNCHTOKENPOOL.SOL

| Category | Severity | Location | Status |
|---|---|---|---|
| Centralization | ● Major | src/periphery/LaunchTokenPool.sol: 62, 67, 76, 80 | ● Acknowledged |

## ▌ Description

In the contract `LaunchTokenPool` the role `owner` has authority over the functions shown in the diagram below.
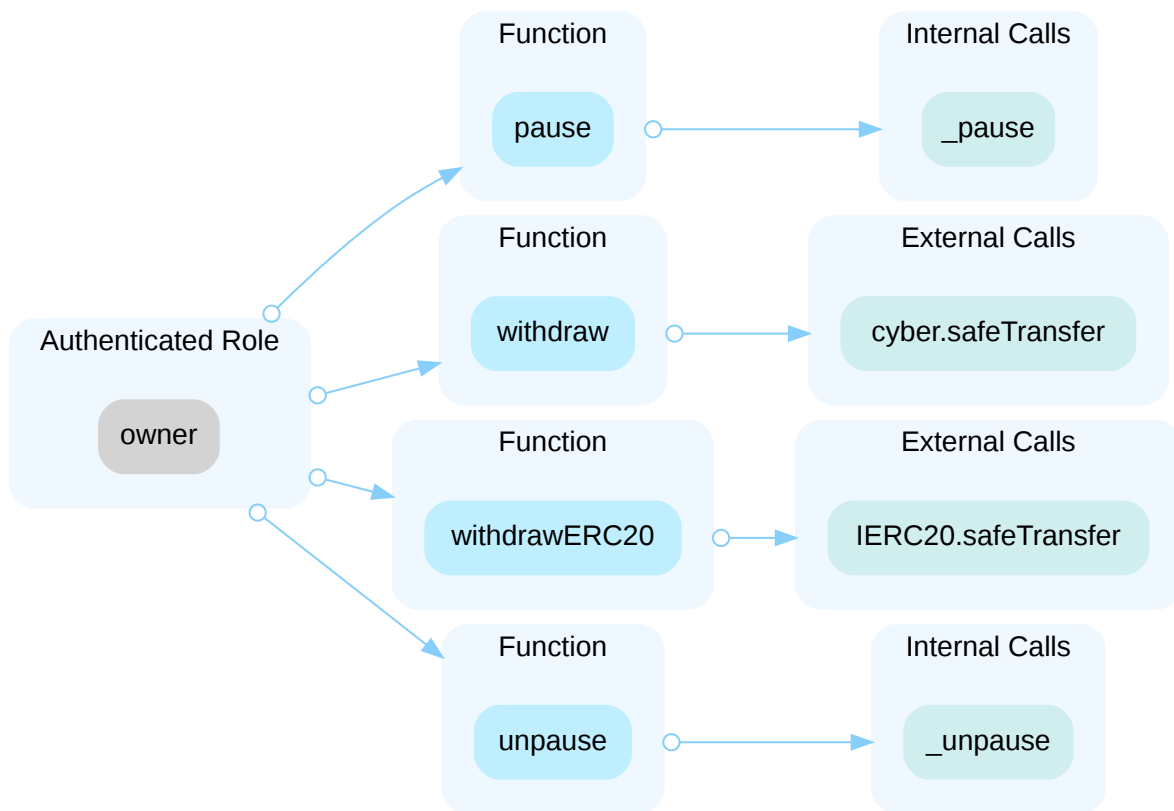


- `withdraw(address to, uint256 amount)` : Allows the owner to withdraw CYBER tokens from the contract. Accessible only by the owner.
- `withdrawERC20(address currency, address to, uint256 amount)` : Allows the owner to withdraw any ERC20 tokens from the contract. Accessible only by the owner.
- `pause()` : Allows the owner to pause the contract, which prevents deposits. Accessible only by the owner.
- `unpause()` : Allows the owner to unpause the contract, which enables deposits. Accessible only by the owner.

Any compromise to the `owner` account may allow the hacker to take advantage of this authority and update the sensitive settings and execute sensitive functionalities of the protocol.

## ▌ Recommendation

The risk describes the current project design and potentially makes iterations to improve in the security operation and level of decentralization, which in most cases cannot be resolved entirely at the present stage. We advise the client to carefully manage the privileged account's private key to avoid any potential risks of being hacked. In general, we strongly recommend centralized privileges or roles in the protocol be improved via a decentralized mechanism or smart-contract-based accounts with enhanced security practices, e.g., multisignature wallets. Indicatively, here are some feasible suggestions that would also mitigate the potential risk at a different level in terms of short-term, long-term and permanent:

**Short Term:**

Timelock and Multi sign (⅔, ⅗) combination *mitigate* by delaying the sensitive operation and avoiding a single point of key management failure.

- Time-lock with reasonable latency, e.g., 48 hours, for awareness on privileged operations;
  AND

- Assignment of privileged roles to multi-signature wallets to prevent a single point of failure due to the private key compromised;
  AND

- A medium/blog link for sharing the timelock contract and multi-signers addresses information with the public audience.

**Long Term:**

Timelock and DAO, the combination, *mitigate* by applying decentralization and transparency.

- Time-lock with reasonable latency, e.g., 48 hours, for awareness on privileged operations;
  AND

- Introduction of a DAO/governance/voting module to increase transparency and user involvement.
  AND

- A medium/blog link for sharing the timelock contract, multi-signers addresses, and DAO information with the public audience.

**Permanent:**

Renouncing the ownership or removing the function can be considered *fully resolved*.

- Renounce the ownership and never claim back the privileged roles.
  OR

- Remove the risky functionality.

## ▌ Alleviation

`[CyberConnect, 3/4/2024]` : Issue acknowledged. I won't make any changes for the current version.

our owner will be 48hour timelock

# LTP-02 | INCOMPATIBILITY WITH DEFLATIONARY TOKENS (NON-STANDARD ERC20 TOKEN)

| Category | Severity | Location | Status |
|----------|----------|----------|--------|
| Volatile Code | ● Minor | src/periphery/LaunchTokenPool.sol: 47~56 | ● Acknowledged |

## Description

The project design may not be compatible with non-standard ERC20 tokens, such as deflationary tokens or rebase tokens.

## Scenario

When transferring deflationary ERC20 tokens, the input amount may not equal the received amount due to the charged transaction fee. For example, if a user sends 100 deflationary tokens (with a 10% transaction fee), only 90 tokens actually arrive to the contract. However, a failure to discount such fees may allow the same user to withdraw 100 tokens from the contract, which causes the contract to lose 10 tokens in such a transaction.

## Recommendation

We advise the client to regulate the set of tokens supported and add necessary mitigation mechanisms to keep track of accurate balances if there is a need to support non-standard ERC20 tokens.

## Alleviation

`[CyberConnect, 3/4/2024]` : Issue acknowledged. I won't make any changes for the current version.

Cyber is not a Deflationary Token so it's fine.

# APPENDIX | CYBERCONNECT - CYBERGRAPH

## Finding Categories

| Categories | Description |
|---|---|
| Volatile Code | Volatile Code findings refer to segments of code that behave unexpectedly on certain edge cases and may result in vulnerabilities. |
| Centralization | Centralization findings detail the design choices of designating privileged roles or other centralized controls over the code. |

## Checksum Calculation Method

The "Checksum" field in the "Audit Scope" section is calculated as the SHA-256 (Secure Hash Algorithm 2 with digest size of 256 bits) digest of the content of each file hosted in the listed source repository under the specified commit.

The result is hexadecimal encoded and is the same as the output of the Linux "sha256sum" command against the target file.

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