# # Competitive Security Assessment

## RevoxAI

Jun 19th, 2024

Secure3

secure3.io

# Summary

This report is prepared for the project to identify vulnerabilities and issues in the smart contract source code. A group of NDA covered experienced security experts have participated in the Secure3's Audit Contest to find vulnerabilities and optimizations. Secure3 team has participated in the contest process as well to provide extra auditing coverage and scrutiny of the finding submissions.
The comprehensive examination and auditing scope includes:
• Cross checking contract implementation against functionalities described in the documents and white paper disclosed by the project owner.
• Contract Privilege Role Review to provide more clarity on smart contract roles and privilege.
• Using static analysis tools to analyze smart contracts against common known vulnerabilities patterns.
• Verify the code base is compliant with the most up-to-date industry standards and security best practices.
• Comprehensive line-by-line manual code review of the entire codebase by industry experts.
The security assessment resulted in findings that are categorized in four severity levels: Critical, Medium, Low, Informational. For each of the findings, the report has included recommendations of fix or mitigation for security and best practices.

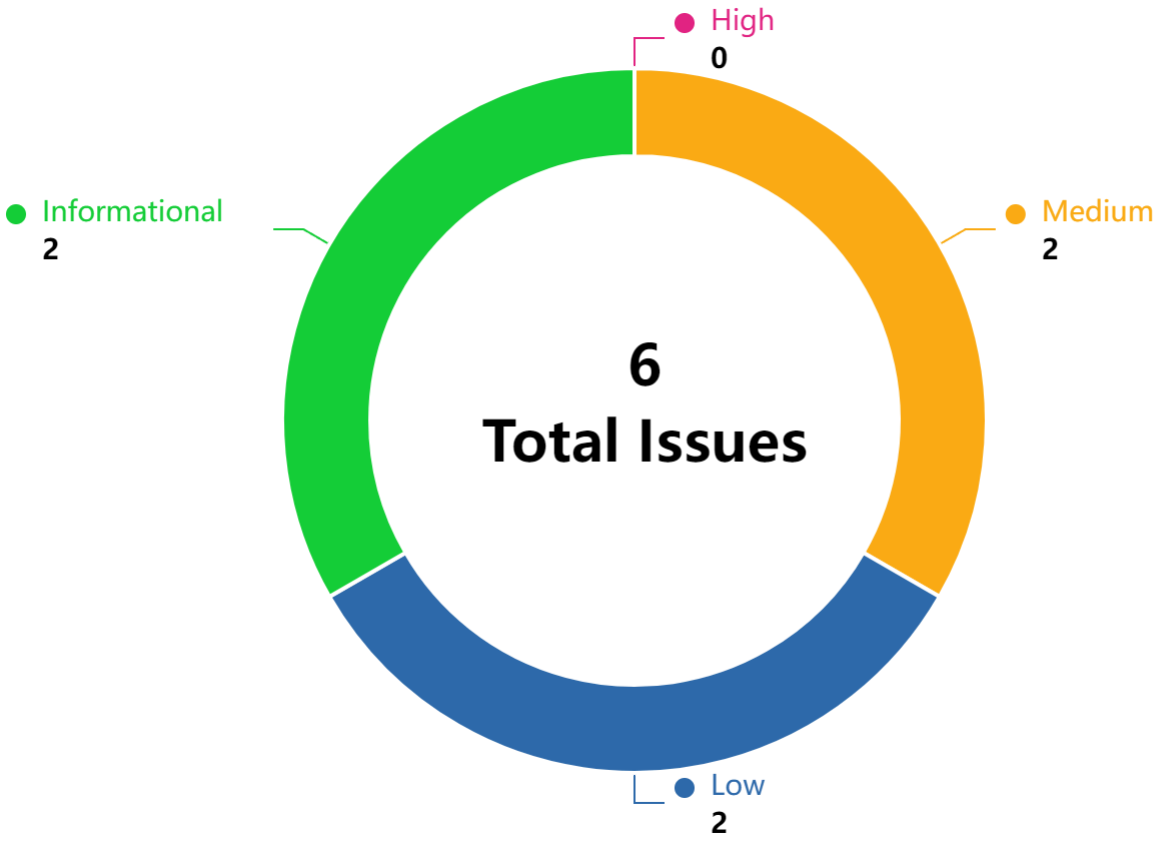
# Overview

| | |
|---|---|
| Project Name | RevoxAI |
| Language | solidity |
| Codebase | • https://github.com/readonme/contracts_solidity<br>• audit version - 30937cd582fb408f073f3c112a75e4870a790a09<br>• final version - 57bfe117bc9363dc2bf0d305c8006e1e9a0a66b9 |
| Audit Methodology | • Audit Contest<br>• Business Logic and Code Review<br>• Privileged Roles Review<br>• Static Analysis |

# Audit Scope

| File | SHA256 Hash |
| --- | --- |
| lense/LenseCore.sol | 69b6c6e10a287113e605995e1f0c88ce1d2b79c979cf1ec7107b8c519f830919 |
| curate/ReadonCurateV2.sol | 9ff5f88dbdd67486fa5dd73d0ecfb845c39d3d323b7f58a36cae60bcbfc329e3 |

# Code Assessment Findings




| ID | Name | Category | Severity | Client Response | Contributor |
|---|---|---|---|---|---|
| RAI-1 | Use safeTransfer consistently instead of transfer | Code Style | Medium | Fixed | 0xCO2 |
| RAI-2 | Interfaces have been deprecated | Code Style | Medium | Fixed | 0xCO2 |
| RAI-3 | Two-step ownership transfer | Logical | Low | Acknowledged | xyzqwe123 |
| RAI-4 | Lack of Zero Address Validation | Logical | Low | Fixed | 0xCO2, jiayeqian, xyzqwe123 |
| RAI-5 | `setDepositMap` does not check for price > 0 | Logical | Informational | Fixed | toffee |
| RAI-6 | Missing emit events | Code Style | Informational | Fixed | jiayeqian |

# RAI-1:Use safeTransfer consistently instead of transfer

| Category | Severity | Client Response | Contributor |
| --- | --- | --- | --- |
| Code Style | Medium | Fixed | 0xCO2 |

## Code Reference

- code/lense/LenseCore.sol#L79

```
79: IERC20Upgradeable(token).transfer(
```

## Description

**0xCO2:** Some tokens (like USDT) don't correctly implement the EIP20 standard and their `transfer/transferFrom` function return void instead of a boolean.

## Recommendation

**0xCO2:** Use call `safeTransfer` when transferring ERC20 tokens.

## Client Response

client response for 0xCO2: Fixed. https://github.com/readonme/contracts_solidity/commit/57bfe117bc9363dc2bf0d305c8006e1e9a0a66b9

# RAI-2:Interfaces have been deprecated

| Category | Severity | Client Response | Contributor |
| --- | --- | --- | --- |
| Code Style | Medium | Fixed | 0xCO2 |

## Code Reference

- code/lense/LenseCore.sol#L11
- code/lense/LenseCore.sol#L12

```
11: import "@openzeppelin/contracts-upgradeable/token/ERC20/IERC20Upgradeable.sol";
```

```
12: import "@openzeppelin/contracts-upgradeable/token/ERC20/utils/SafeERC20Upgradeable.sol";
```

## Description

**0xCO2:** The interfaces `IERC20Upgradeable` and `SafeERC20Upgradeable` have been deprecated now. It may cause potential conflicts.

## Recommendation

**0xCO2:** Please check here.

## Client Response

client response for 0xCO2: Fixed. https://github.com/readonme/contracts_solidity/commit/57bfe117bc9363dc2bf0d305c8006e1e9a0a66b9

# RAI-3:Two-step ownership transfer

| Category | Severity | Client Response | Contributor |
| --- | --- | --- | --- |
| Logical | Low | Acknowledged | xyzqwe123 |

## Code Reference

- code/curate/ReadonCurateV2.sol#L4
- code/curate/ReadonCurateV2.sol#L25

```
4: import "@openzeppelin/contracts-upgradeable/access/OwnableUpgradeable.sol";
```

```
25: __Ownable_init();
```

- code/lense/LenseCore.sol#L4
- code/lense/LenseCore.sol#L45

```
4: import "@openzeppelin/contracts-upgradeable/access/OwnableUpgradeable.sol";
```

```
45: __Ownable_init();
```

## Description

**xyzqwe123:** For example, transferring ownership to an incorrect account or to a contract that cannot interact with the permission system can result in irreversible losses.

## Recommendation

**xyzqwe123:** The __Ownable2Step_init() function of Ownable2StepUpgradeable.sol should be used.

## Client Response

client response for xyzqwe123: Acknowledged.

# RAI-4:Lack of Zero Address Validation

| Category | Severity | Client Response | Contributor |
| --- | --- | --- | --- |
| Logical | Low | Fixed | 0xCO2, jiayeqian, xyz qwe123 |

## Code Reference

- code/lense/LenseCore.sol#L49-L51

```
49: function setToken(address _token) external onlyOwner {
50:         token = _token;
51:     }
```

## Description

**0xCO2:** The function `setToken()` is used to set token address, however, it lacks parameter validation.
**jiayeqian:** Functon `setToken` lacks validation to check whether the parameter `_token` is the zero address, while functions `deposit/payForOnce/withdrawTokens` do not handle the case when the token address is zero.
**xyzqwe123:** If the token address is set to zero, it will cause the deposit function, payForOnce function, and withdrawTokens function to fail to execute properly.

## Recommendation

**0xCO2:** Consider that add require condition to check for zero address.
**jiayeqian:** Consider adding `require()` condition for zero address validation.

```
    function setToken(address _token) external onlyOwner {
        require(_token != address(0x0),"_token is zero address");
        token = _token;
    }
```

**xyzqwe123:** Add a zero address check.

## Client Response

client response for 0xCO2: Fixed. https://github.com/readonme/contracts_solidity/commit/57bfe117bc9363dc2bf0d305c8006e1e9a0a66b9
client response for jiayeqian: Fixed. https://github.com/readonme/contracts_solidity/commit/57bfe117bc9363dc2bf0d305c8006e1e9a0a66b9
client response for xyzqwe123: Fixed. https://github.com/readonme/contracts_solidity/commit/57bfe117bc9363dc2bf0d305c8006e1e9a0a66b9

# RAI-5: `setDepositMap` does not check for price > 0

| Category | Severity | Client Response | Contributor |
| --- | --- | --- | --- |
| Logical | Informational | Fixed | toffee |

## Code Reference

- code/lense/LenseCore.sol#L62

```
62: depositMap[tier] = price;
```

## Description

**toffee:** the price for the tier is not checked is not zero, however, in the `deposite` function it `require(amount>0,"tier not exist");`
and there is inconsistence

## Recommendation

**toffee:** add `require(price>0, "invalid price");`

## Client Response

client response for toffee: Fixed. https://github.com/readonme/contracts_solidity/commit/57bfe117bc9363dc2bf0d305c8006e1e9a0a66b9

# RAI-6:Missing emit events

| Category | Severity | Client Response | Contributor |
| --- | --- | --- | --- |
| Code Style | Informational | Fixed | jiayeqian |

## Code Reference

- code/lense/LenseCore.sol#L49
- code/lense/LenseCore.sol#L53
- code/lense/LenseCore.sol#L61

```
49: function setToken(address _token) external onlyOwner {
```

```
53: function setFeePrice(uint256 _feePrice) external onlyOwner {
```

```
61: function setDepositMap(uint256 tier,uint256 price) external onlyOwner {
```

## Description

**jiayeqian:** Functions (`setToken/setFeePrice/setDepositMap`) do not emit events, so it is difficult to track changes in the values of `token/feePrice/depositMap`.

## Recommendation

**jiayeqian:** Emit an event for gloab parameter(`token/feePrice/depositMap`) changes.

## Client Response

client response for jiayeqian: Fixed. https://github.com/readonme/contracts_solidity/commit/57bfe117bc9363dc2bf0d305c8006e1e9a0a66b9

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