EXTROPY.IO

Report for:

Cudo Ventures Limited

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Table of Contents

1 Using This Report

To facilitate the dissemination of the information within this report throughout your organisation, this document has been divided into the following clearly marked and separable sections.

Document Breakdown		
0	Executive Summary	Management level, strategic overview of the assessment and the risks posed to the business
1	Technical Summary	An overview of the assessment from a more technical perspective, including a defined scope and any caveats which may apply
2	Technical Findings	Detailed discussion (including evidence and recommendations) for each individual security issue which was identified
3	Methodologies	Audit process and tools used

Disclaimer

The audit makes no statements or warranty about utility of the code, safety of the code, suitability of the business model, regulatory regime for the business model, or any other statements about fitness of the code to purpose, or their bug free status. The audit documentation is for discussion purposes only.`

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Document Version Control			
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Document History			
Issue No.	**Issue Date**	**Issued By**	**Change Description**
1.0	10/12/2021	Laurence Kirk	Released to client
2.0	06/01/2022	Laurence Kirk	Released to client

Document Distribution List	
Ethan Illingworth	Cudo Ventures Limited
Laurence Kirk	CEO, Extropy

2 Executive Summary

Extropy was contracted by Cudo Ventures Limited to conduct a code review and smart contracts vulnerability assessment on a small update to their project. The initial report was conducted between 6/12/21 and 9/12/21, this final report follows up the issues highlighted in that report.

2.1 Assessment Summary

The minor issues found have been on the whole addressed, the only issues remaining are for information only.

The following table breaks down the issues which were identified by phase and severity of risk.

Phase	Description	Critical	High	Medium	Low	Info	Total
1	Initial Audit	0	0	0	2	4	6
2	Final Audit	0	0	0	0	4	4

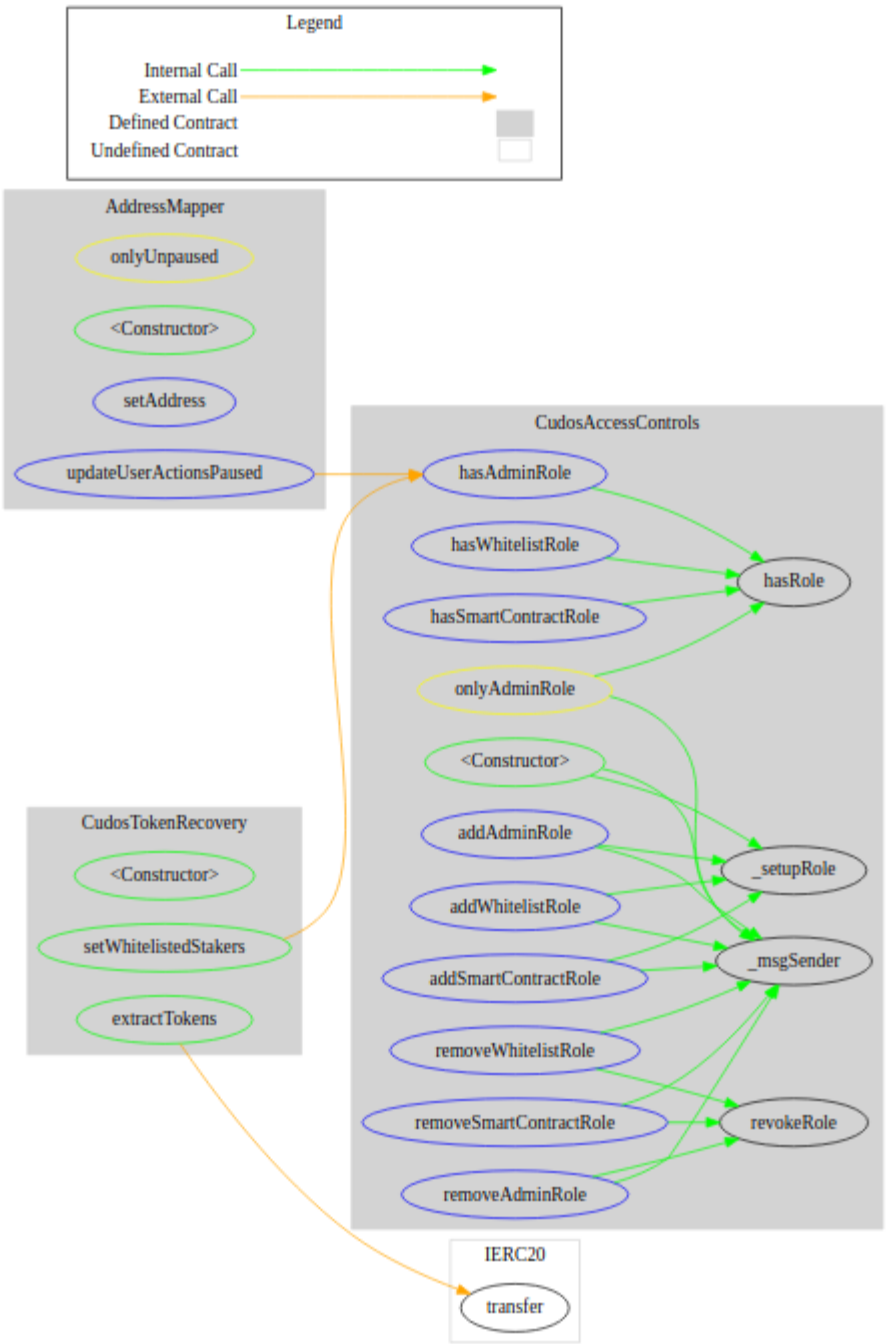
3 Technical Summary

3.1 Scope

File Name	SHA-1 Hash
src/CudosTokenRecovery.sol	98cd3aee0291f6d80f2b72667fdf3788ebd327af

The code was reassessed at commit
42aafa73a5fe7eb1fd307c8a55b97b4895023a09

3.2 Call Graph



4 Technical Findings – Code Audit

The remainder of this document is technical in nature and provides additional detail about the items already discussed, for the purposes of remediation and risk assessment.

4.1 Loops over dynamic arrays

Risk Rating	Low

The development team checked this up to a maximum number of allowable entries of 4000.

Status : Resolved

4.2 Unchecked call to external contract

Risk Rating	Low

A require statement now checks the return value of the transfer

Status : Resolved

4.3 Use library functions where possible

Risk Rating	Informational

The dev team decided that this is an acceptable issue

4.4 Limit string literals to a length of 32 bytes

Risk Rating	Informational

The dev team decided that this is an acceptable issue

4.5 Use external functions where possible

Risk Rating	Informational

The dev team decided that this is an acceptable issue

4.6 Safe transfer of admin roles

Risk Rating	Informational

The dev team decided that this is an acceptable issue

5 Tool List

The following tools were used during the assessment:

Tools Used	Description	Resources
Solidity Metrics	Static analysis	https://github.com/ConsenSys/solidity-metrics
SWC Registry	Vulnerability database	https://swcregistry.io/

5.1 Tailored Methodologies

5.1.1 Audit Goals

1. We will audit the code in accordance with the following criteria:

- **Sound Architecture**

  This audit includes assessments of the overall architecture and design choices. Given the subjective nature of these assessments, it will be up to the development team to determine whether any changes should be made.

- **Smart Contract Best Practices**

  This audit will evaluate whether the codebase follows the current established best practices for smart contract development.

- **Code Correctness**

  This audit will evaluate whether the code does what it is intended to do.

- **Code Quality**

This audit will evaluate whether the code has been written in a way that ensures readability and maintainability.

- **Security**

  This audit will look for any exploitable security vulnerabilities, or other potential threats to the users.

- **Testing and testability**

- This audit will examine how easily tested the code is, and review how thoroughly tested the code is.

Although we have commented on the application design, issues of crypto-economics, game theory and suitability for business purposes as they relate to this project are beyond the scope of this audit.

5.2 Test Methodology

The security audit is performed in two phases:

a. **Independent Code Review**

b. The code is inspected separately by four team members checking for software errors and known vulnerabilities.

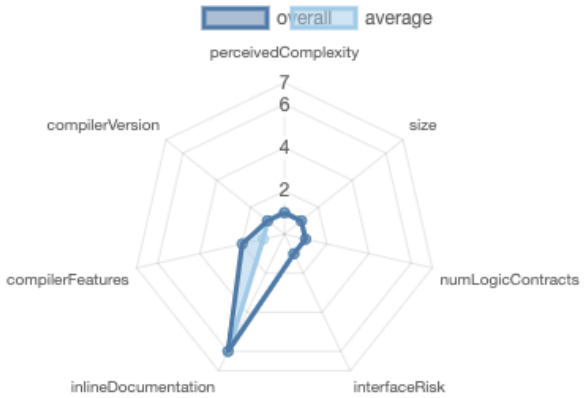
c. **Static Analysis**

   The code is subject to static analysis using Solidity Metrics

5.3 Solidity Code Metrics

File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score
src/CudosTokenRecovery.sol	1	————	50	50	37	1	29

Risk



Source Lines (sloc vs. nsloc)