Security Assessment

Liquidus

Sept 30th, 2021

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Summary

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

- 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.

Overview

Project Summary

Project Name	Liquidus
Platform	BSC
Language	Solidity
Codebase	https://bscscan.com/address/0x16a75e34d19323ae1183372e9d511175009140a0#code
Commit	

Audit Summary

Delivery Date	Sept 30, 2021
Audit Methodology	Static Analysis, Manual Review
Key Components	

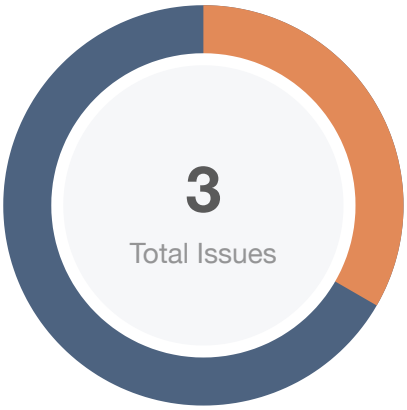
Vulnerability Summary

Vulnerability Level	Total	Pending	Declined	Acknowledged	Partially Resolved	Resolved
Critical	0	0	0	0	0	0
Major	1	0	0	0	0	1
Medium	0	0	0	0	0	0
Minor	0	0	0	0	0	0
Informational	2	2	0	0	0	0
Discussion	0	0	0	0	0	0

Audit Scope

ID			File	SHA256 Checksum

Findings



Critical	**0** (0.00%)
Major	**1** (33.33%)
Medium	**0** (0.00%)
Minor	**0** (0.00%)
Informational	**2** (66.67%)
Discussion	**0** (0.00%)

ID	Title	Category	Severity	Status
LCK-01	Unlocked Compiler Version	Language Specific	Informational	Pending
LCK-02	Initial token distribution	**Centralization / Privilege**	**Major**	Resolved
LCK-03	Proper Usage of “public” and “external” type	Coding Style	Informational	Pending

LCK-01 | Unlocked Compiler Version

Category	Severity	Location	Status
Language Specific	Informational	Liquidus.sol: 5	Pending

Description

The contract has unlocked compiler version. An unlocked compiler version in the source code of the contract permits the user to compile it at or above a particular version. This, in turn, leads to differences in the generated bytecode between compilations due to differing compiler version numbers. This can lead to an ambiguity when debugging as compiler specific bugs may occur in the codebase that would be hard to identify over a span of multiple compiler versions rather than a specific one.

Recommendation

"We advise that the compiler version is instead locked at the lowest version possible that the contract can be compiled at. For example, for version `v0.8.4` the contract should contain the following line:

```
pragma solidity 0.8.4;
```"

LCK-02 | Initial token distribution

Category	Severity	Location	Status
Centralization / Privilege	**Major**	Liquidus.sol: 303	Resolved

Description

All of the `LIQ` tokens are sent to the contract deployer when deploying the contract. This could be a centralization risk as the deployer can distribute `LIQ` tokens without obtaining the consensus of the community.

Recommendation

We recommend the team to be transparent regarding the initial token distribution process.

Alleviation

[Liquidus]: The team plan to use Unicrypt to lock the majority of token. The owner address has been renounced to zero address.

Ownership Renounce Tx:
https://bscscan.com/tx/0x749afbc47018c22b2df39d5e1048aa061cacb98a9de4d6a46c95d88c3db1ae7f

Reference: https://medium.com/@liquidus/all-tokens-locked-with-unicrypt-new-liq-token-contract-audit-14d1d3212388

LCK-03 | Proper Usage of “public” and “external” type

Category	Severity	Location	Status
Coding Style	Informational	Liquidus.sol: 440, 455	Pending

Description

Public functions that are never called by the contract could be declared as `external`. When the inputs are arrays external functions are more efficient than “public” functions.

- `burn()`
- `burnForm()`

Recommendation

We advise the client to consider using the `external` attribute for functions never called within the contract.

Appendix

Finding Categories

Centralization / Privilege

Centralization / Privilege findings refer to either feature logic or implementation of components that act against the nature of decentralization, such as explicit ownership or specialized access roles in combination with a mechanism to relocate funds.

Language Specific

Language Specific findings are issues that would only arise within Solidity, i.e. incorrect usage of private or delete.

Coding Style

Coding Style findings usually do not affect the generated byte-code but rather comment on how to make the codebase more legible and, as a result, easily maintainable.

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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