CERTIK

Security Assessment

Venom-Vesting

Jul 28th, 2022

Table of Contents

Summary

This report has been prepared for Venom to discover issues and vulnerabilities in the source code of the Venom-Vesting 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	Venom-Vesting
Platform	TON VM
Language	Solidity
Codebase	https://github.com/venom-blockchain/vesting
Commit	44bdfeebfbfd00efcc46eb6c7d2e12173734bbe6 b5f04ef20e211ccc614a5c95df643bab2504ca56

Audit Summary

Delivery Date	Jul 28, 2022 UTC
Audit Methodology	Static Analysis, Manual Review

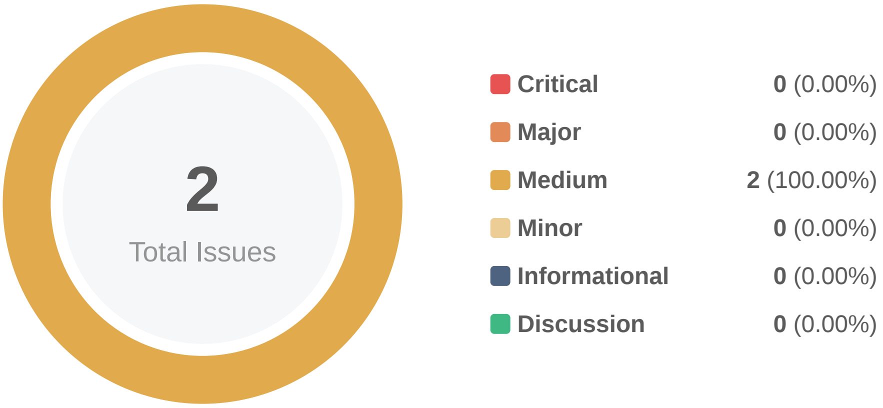
Vulnerability Summary

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

Audit Scope

ID	File	SHA256 Checksum
IFV	contracts/interfaces/IFactory.sol	79371e1fc24a883a26a389e076d34318f85822694e6c10d78d60bb943a52718d
NVV	contracts/NativeVesting.sol	5b2d4cad67b54f25cc38ad3647552dbb5b2420bbc968fa1abe1da388dbefd873
VVV	contracts/Vesting.sol	62084222d44f39524657c733712d00be6029430a35c3ca358c1e4d63027f80bf
VFV	contracts/VestingFactory.sol	f7634fd9a54d6dcc7b004e1ec9997556b62fce815482b00c0b2d56588baa0d84
WVV	contracts/Wallet.sol	e63c0faa9d87ffaf3263a23ba822734b2c75830486b56294e0903a99ba15f53a

Findings



ID	Title	Category	Severity	Status
VVC-01	Incorrect Return Value	Data Flow	● Medium	✓ Resolved
VVV-01	Out Of Scope Dependencies	Logical Issue	● Medium	ⓘ Acknowledged

VVC-01 | Incorrect Return Value

Category	Severity	Location	Status
Data Flow	● Medium	contracts/NativeVesting.sol: 77; contracts/Vesting.sol: 108	✓ Resolved

Description

The function `getDetails()` should return the `factory` address instead of `_factory`.

```
function getDetails() external view returns (
      address _user,
      address _creator,
      uint128 _vestingAmount,
      uint32 _vestingStart,
      uint32 _vestingEnd,
      uint32 _lastClaimTime,
      uint128 _balance,
      bool _filled,
      bool _vested,
      uint128 _nonce,
      address _factory
  ) {
      return (
          user, creator, vestingAmount, vestingStart, vestingEnd, lastClaimTime,
          balance, filled, vested, nonce, _factory
      );
  }
```

Recommendation

We advise the client changing `_factory` to `factory`.

Alleviation

Venom Team:

Issue acknowledged. Changes have been reflected in this commit.

VVV-01 | Out Of Scope Dependencies

Category	Severity	Location	Status
Logical Issue	● Medium	contracts/Vesting.sol: 73	ⓘ Acknowledged

Description

The contract serves as the underlying entity to interact with `TokenRoot` contracts. The scope of the audit treats contract that is out of scope as black boxes and assumes their functional correctness.

However, in the real world, those contracts can be compromised.

Recommendation

The aforementioned contracts are out of the audit scope. We encourage the team to constantly monitor the status of the those contracts and ensure its security and functionality correctness.

Optimizations

ID	Title	Category	Severity	Status
VVV-02	Missing Error Messages	Coding Style	● Optimization	✓ Resolved
VVV-03	Missing Emit Events	Coding Style	● Optimization	✓ Resolved

VVV-02 | Missing Error Messages

Category	Severity	Location	Status
Coding Style	● Optimization	contracts/Vesting.sol: 85, 89	✓ Resolved

Description

The **require** can be used to check for conditions and throw an exception if the condition is not met. It is better to provide a string message containing details about the error that will be passed back to the caller.

Recommendation

We advise adding error messages to the linked **require** statements.

Alleviation

Venom Team:

Issue acknowledged. Changes have been reflected in this commit.

VVV-03 | Missing Emit Events

Category	Severity	Location	Status
Coding Style	● Optimization	contracts/Vesting.sol: 84	✓ Resolved

Description

There should always be events emitted in the sensitive functions that are controlled by centralization roles.

Recommendation

It is recommended emitting events for the sensitive functions that are controlled by centralization roles.

Alleviation

Venom Team:

Issue acknowledged. Changes have been reflected in this commit.

Appendix

Finding Categories

Logical Issue

Logical Issue findings detail a fault in the logic of the linked code, such as an incorrect notion on how block.timestamp works.

Data Flow

Data Flow findings describe faults in the way data is handled at rest and in memory, such as the result of a struct assignment operation affecting an in-memory struct rather than an in-storage one.

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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