



Autumn Finance

Smart Contract Security Check

March, 2021

TechRate

Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.

Background

TechRate was commissioned by Autumn Finance to perform an audit of smart contracts:

- <https://github.com/autumn-finance/aVault/blob/6059dd29e7421b32ab45da3ef2262ee5ec7ce036/aVault.sol>

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

Issues Checking Status

№	Issue description.	Checking status
1	Compiler warnings.	No issues identified
2	Race conditions and Reentrancy.	No issues identified
3	Possible delays in data delivery.	No issues identified
4	Integer Overflow and Underflow.	No issues identified
5	Front running.	Not checked and could have issues
6	Timestamp dependence.	Not checked and could have issues
7	Oracle calls.	Not checked and could have issues
8	DoS with Revert.	Not checked and could have issues
9	DoS with block gas limit.	Not checked and could have issues
10	Methods execution permissions.	Not checked and could have issues
11	Economy model. If application logic is based on an incorrect economic model, the application would not function correctly and participants would incur financial losses. This type of issue is most often found in bonus rewards systems, Staking and Farming contracts, Vault and Vesting contracts, etc.	Not checked and could have issues
12	The impact of the exchange rate on the logic.	Not checked and could have issues
13	Private user data leaks.	Not checked and could have issues
14	Malicious Event log.	Not checked and could have issues
15	Scoping and Declarations.	Not checked and

		could have issues
16	Uninitialized storage pointers.	Not checked and could have issues
17	Arithmetic accuracy.	Not checked and could have issues
18	Design Logic.	Not checked and could have issues
19	Cross-function race conditions.	Not checked and could have issues
20	Safe Zeppelin module.	Not checked and could have issues
21	Fallback function security.	Not checked and could have issues

Conclusion

Smart contract checked partially and could have some issues in the not checked part.