#HashEx
BLOCKCHAIN SECURITY

AVANA token

smart contracts final audit report

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Contents

1. Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice 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 disclaimer below – please make sure to read it in full.

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2. Overview

HashEx was commissioned by the AVANA team to perform an audit of their smart contract. The audit was conducted between 2023-01-18 and 2023-01-18.

The purpose of this audit was to achieve the following:

- Identify potential security issues with smart contracts
- Formally check the logic behind given smart contracts.

Information in this report should be used for understanding the risk exposure of smart contracts, and as a guide to improving the security posture of smart contracts by remediating the issues that were identified.

The code is available at 0xf84C55e79858B448c3015c3a1A55efED9EdF69c7 in the Binance Smart Chain (BSC) network.

2.1 Summary

Project name	AVANA token
URL	https://avanatoken.com
Platform	Binance Smart Chain
Language	Solidity

2.2 Contracts

Name	Address
CoinToken	0xf84C55e79858B448c3015c3a1A55efED9EdF69c7
ERC20	

3. Found issues

Low	2 (40%)
Info	3 (60%)

C1. CoinToken

ID	Severity	Title	Status
C1-01	Info	Import of OpenZeppelin contracts	Open

C2. ERC20

ID	Severity	Title	Status
C2-01	Low	Incorrect decimals type	Open
C2-02	Low	Gas optimizations	Open
C2-03	Info	Irrelevant comments	Open
C2-04	Info	Typos	Open

4. Contracts

C1. CoinToken

Overview

An implementation of the ERC-20 token standard made with slightly modified OpenZeppelin contracts.

Issues

C1-01 Import of OpenZeppelin contracts

Info Open

We recommend importing contracts from the OpenZeppelin library without modifying them. Any additional functionality may be introduced via overriding since all OpenZeppelin contracts support it.

C2. ERC20

Overview

Modified version of OpenZeppelin's implementation of ERC-20 token with removed `_beforeTokenTransfer()` and `_afterTokenTransfer()` transfer hooks, overridden `decimals()` function and modified constructor.

Issues

C2-01 Incorrect decimals type

Low Open

The ERC20 standard states that the `decimals()` function of a token should return `uint8`. Instead, a `uint256` value is returned.

```
    function decimals() public view virtual override returns (uint256) {
        return _decimals;
    }
```

C2-02 Gas optimizations

Low Open

Since the ERC0 contract is not imported from OpenZeppelin directly, a few gas optimizations could be implemented:

1. The variables `_decimals`, `_name`, and `_symbol` should be declared immutable.
2. The `name()`, `symbol()`, `decimals()`, `totalSupply()`, `balanceOf()`, `allowance()`, `approve()`, `increaseAllowance()`, `decreaseAllowance()`, `transfer()`, and `transferFrom()` functions should have `external` visibility.

C2-03 Irrelevant comments

Info Open

The NatSpec description of the constructor section should be reworked since it's inherited from OpenZeppelin's ERC20 contract but the constructor's contents were modified making the description semi-irrelevant.

C2-04 Typos

Info Open

Typos reduce the code's readability. Typo in 'defaut'.

5. Conclusion

2 low severity issues were found during the audit. No issues were resolved in the update.

Appendix A. Issues' severity classification

- **Critical.** Issues that may cause an unlimited loss of funds or entirely break the contract workflow. Malicious code (including malicious modification of libraries) is also treated as a critical severity issue. These issues must be fixed before deployments or fixed in already running projects as soon as possible.
- **High.** Issues that may lead to a limited loss of funds, break interaction with users, or other contracts under specific conditions. Also, issues in a smart contract, that allow a privileged account the ability to steal or block other users' funds.
- **Medium.** Issues that do not lead to a loss of funds directly, but break the contract logic. May lead to failures in contracts operation.
- **Low.** Issues that are of a non-optimal code character, for instance, gas optimization tips, unused variables, errors in messages.
- **Informational.** Issues that do not impact the contract operation. Usually, informational severity issues are related to code best practices, e.g. style guide.

Appendix B. List of examined issue types

- Business logic overview
- Functionality checks
- Following best practices
- Access control and authorization
- Reentrancy attacks
- Front-run attacks
- DoS with (unexpected) revert
- DoS with block gas limit
- Transaction-ordering dependence
- ERC/BEP and other standards violation
- Unchecked math
- Implicit visibility levels
- Excessive gas usage
- Timestamp dependence
- Forcibly sending ether to a contract
- Weak sources of randomness
- Shadowing state variables
- Usage of deprecated code

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