

Vether3 Smart Contract Audit Report

This report summarizes the findings of a security audit performed on the Vether3 smart contract using Slither.

1. Unchecked Low-Level Calls

- **Severity**: Medium
- **Description**: The contract uses `burnAddress.call.value(msg.value)("")` in the `receive()` and `burnE`
- **Impact**: If the `burnAddress` contract fails to execute the call, the funds will be lost.
- **Mitigation**: Replace `burnAddress.call.value(msg.value)("")` with the safer `burnAddress.transfer(ms`

2. Missing Events for Arithmetic Operations

- **Severity**: Low
- **Description**: The `upgradeV1()` and `upgradeV2()` functions modify the `upgradedAmount` state variable.
- **Impact**: This lack of transparency could make it difficult to track the amount of tokens upgraded.
- **Mitigation**: Add an event to both `upgradeV1()` and `upgradeV2()` functions that emits the updated value.

3. Timestamp-Based Vulnerability in `_updateEmission()` Function

- **Severity**: Medium
- **Description**: The `_updateEmission()` function relies on the `now` timestamp to determine if a new day has started.
- **Impact**: Malicious actors could potentially manipulate the blockchain timestamp to skip ahead in time.
- **Mitigation**: Use a block number-based mechanism to determine if a new day or era has started instead of a timestamp.

4. Potential Denial-of-Service (DoS) Attacks

- **Severity**: Low
- **Description**: While the `_updateEmission()` function updates the emission state daily, a malicious actor could trigger a DoS attack by calling the function repeatedly.
- **Impact**: A successful DoS attack could temporarily prevent the contract from functioning correctly.
- **Mitigation**: Implement measures to prevent excessive gas consumption within the `_updateEmission` function.

5. Inconsistent Naming Conventions

- **Severity**: Low
- **Description**: Several variables and functions in the contract do not follow the Solidity naming conventions.
- **Impact**: Inconsistent naming conventions make the code harder to read and understand, potentially leading to errors.
- **Mitigation**: Refactor the code to consistently follow Solidity naming conventions to enhance code readability.

6. `purgeDeployer()` Function Vulnerability

- **Severity**: Medium
- **Description**: The `purgeDeployer()` function allows the deployer to set their address to the zero address.
- **Impact**: An attacker could exploit this vulnerability to gain control over the contract and its functionality.
- **Mitigation**: Implement a check before executing the `purgeDeployer()` function to ensure that the deployer is the contract owner.

****7. Logic Flaw in `changeExcluded()` Function****

- ****Severity****: Medium
- ****Description****: The `changeExcluded()` function doesn't check if the address is already excluded before adding it.
- ****Impact****: Users might be charged unnecessary fees, leading to financial losses.
- ****Mitigation****: Implement a check to ensure that the `changeExcluded()` function only deducts the fee if the address is not already excluded.

****8. Outdated Solidity Version****

- ****Severity****: Medium
- ****Description****: The contract uses Solidity version 0.6.4, which is no longer recommended for deployment.
- ****Impact****: The use of outdated Solidity versions could expose the contract to potential vulnerabilities that have been fixed in newer versions.
- ****Mitigation****: Upgrade the contract to a supported and more secure Solidity version.

****9. Potentially Vulnerable Use of `call.value`****

- ****Severity****: Low
- ****Description****: The contract uses `call.value` to send Ether, which could pose a security risk if the recipient address is not properly validated.
- ****Impact****: Funds might be lost if the call fails.
- ****Mitigation****: Consider using the safer `transfer()` function instead of `call.value` to send Ether. This function automatically reverts if the transfer fails.

****Conclusion****

Overall, the Vether3 smart contract exhibits several vulnerabilities, with some requiring immediate attention.