DeHacker

Code Security Assessment

Kishu Inu

Aug 9th, 2023

Contents

Summary

DeHacker's objective was to evaluate the repository for security-related issues, code quality, and adherence to specification and best practices.
Possible issues we looked for included (but are not limited to):

- Transaction-ordering dependence
- Timestamp dependence
- Mishandled exceptions and call stack limits
- Unsafe external calls
- Integer overflow/underflow
- Number rounding errors
- Reentrancy and cross-function vulnerabilities
- Denial of service/logical oversights
- Access control
- Centralization of power
- Business logic contradicting the specification
- Code clones, functionality duplication
- Gas usage
- Arbitrary token minting

Issue Categories

Every issue in this report was assigned a severity level from the following:

Critical severity issues

A vulnerability that can disrupt the contract functioning in a number of scenarios or creates a risk that the contract may be broken.

Major severity issues

A vulnerability that affects the desired outcome when using a contract or provides the opportunity to use a contract in an unintended way.

Medium severity issues

A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.

Minor severity issues

A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.

Informational

A vulnerability that has informational character but is not affecting any of the code.

Overview

Project Summary

Project Name	Kishu Inu
Platform	Ethereum
Website	https://kishu.com/
Type	meme
Language	Solidity

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	1	0	0	1	0	0
Informational	4	0	0	4	0	0
Discussion	0	0	0	0	0	0

Audit scope

ID	File	SHA256 Checksum
KIK	Kishu-Inu/Kishu Inu	1c25e0bbe51b5c4ef34b904e9a249b831ae4d5ec7cad9aa7f9ff9239858547ef

Findings

ID	Category	Severity	Status
KIK-01	Logical Issue	Minor	Acknowledged
KIK-02	Logical Issue	Informational	Acknowledged
KIK-03	Gas Optimization	Informational	Acknowledged
KIK-04	Coding Style	Informational	Acknowledged
KIK-05	Centralization /Privilege	Major	Resolved
KIK-06	Mathematical Operations	Informational	Acknowledged

MINOR

KIK-01 | Incorrect Error Message

Category	Severity	Location	Status
Logical Issue	Minor	Kishu-Inu/Kishu Inu: 556	Acknowledged

Description

The error message in require(_isExcluded[account], "Account is already excluded") does notdescribe the error correctly.

Recommendation

The message "Account is already excluded" can be changed to "Account is not excluded".

INFORMATIONAL

CKIK-02 | Redundant Code

Category	Severity	Location	Status
Logical Issue	Informational	Kishu-Inu/Kishu Inu: 587	Acknowledged

Description

The condition !_isExcluded[sender] && !_isExcluded[recipient] can be included in else.

Recommendation

The following code can be removed:

```
1 ... else if (!_isExcluded[sender] && !_isExcluded[recipient]) {
2     _transferStandard(sender, recipient, amount);
3 } ...
```

INFORMATIONAL

KIK-03 | Variable could be declared as constant

Category	Severity	Location	Status
Gas Optimization	Informational	Kishu-Inu/ Kishu Inu: 443~445	Acknowledged

Description

Variables _name , _symbol and _decimals could be declared as constant since these state variables arenever to be changed.

Recommendation

We advise the client to declare those variables as constant .

INFORMATIONAL

KIK-04 | Missing Events for Significant Transactions

Category	Severity	Location	Status
Coding Style	Informational	Kishu-Inu/Kishu Inu: 514~518, 546 ~553, 555~566	Acknowledged

Description

In contract KishuInu , the above linked functions can change state variables. However, these functions donot emit events to pass the changes out of chain.

Recommendation

We advise the client to consider adding events for those sensitive actions, and emit them in the functions.

MAJOR

KIK-05 | Privileged Ownership

Category	Severity	Location	Status
Centralization / Privilege	Major	Kishu-Inu/ Kishu Inu	Resolved

Description

The owner of contract KishuInu has the permission to:1. exclude/include addresses from rewards/fees,2. set _maxTxAmount , without obtaining the consensus of the community.

Recommendation

We advise the client to carefully manage the owner account's private key to avoid any potential risks
ofbeing hacked. In general, we strongly recommend centralized privileges or roles in the protocol to
beimproved via a decentralized mechanism or via smart-contract-based accounts with enhanced
securitypractices, e.g. Multisignature wallets. Here are some feasible solutions that would also mitigate thepotential risk:

Time-lock with reasonable latency, i.e. 48 hours, for awareness on privileged operations;
Assignment of privileged roles to multi-signature wallets to prevent a single point of failure due to the private key;
Introduction of a DAO/governance/voting module to increase transparency and user involvement.

INFORMATIONAL

KIK-06 | Division Before Multiplication

Category	Severity	Location	Status
Mathematical Operations	Informational	Kishu-Inu/ Kishu Inu: 645	Acknowledged

Description

Mathematical operation in the aforementioned function performs division before multiplication. Performingmultiplication before division can sometimes avoid loss of precision.

Recommendation

We advise the client to apply multiplications before divisions if integer overflow would not happen infunction _getTValues() .

Disclaimer

This report is based on the scope of materials and documentation provided for a limited review at the time provided. Results may not be complete nor inclusive of all vulnerabilities. The review and this report are provided on an as-is, where-is, and as-available basis. You agree that your access and/or use, including but not limited to any associated services, products, protocols, platforms, content, and materials, will be at your sole risk. Blockchain technology remains under development and is subject to unknown risks and flaws. The review does not extend to the compiler layer, or any other areas beyond the programming language, or other programming aspects that could present security risks. A report does not indicate the endorsement of any particular project or team, nor guarantee its security. No third party should rely on the reports in any way, including for the purpose of making any decisions to buy or sell a product, service or any other asset. To the fullest extent permitted by law, we disclaim all warranties, expressed or implied, in connection with this report, its content, and the related services and products and your use thereof, including, without limitation, the implied warranties of merchantability, fitness for a particular purpose, and non-infringement. We do not warrant, endorse, guarantee, or assume responsibility for any product or service advertised or offered by a third party through the product, any open source or third-party software, code, libraries, materials, or information linked to, called by, referenced by or accessible through the report, its content, and the related services and products, any hyperlinked websites, any websites or mobile applications appearing on any advertising, and we will not be a party to or in any way be responsible for monitoring any transaction between you and any third-party providers of products or services. As with the purchase or use of a product or service through any medium or in any environment, you should use your best judgment and exercise caution where appropriate.

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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.

Coding Style

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

Volatile Code

Volatile Code findings refer to segments of code that behave unexpectedly on certain edge cases that may result in a vulnerability.

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.

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.

About

DeHacker is a team of auditors and white hat hackers who perform security audits and assessments. With decades of experience in security and distributed systems, our experts focus on the ins and outs of system security. Our services follow clear and prudent industry standards. Whether it's reviewing the smallest modifications or a new platform, we'll provide an in-depth security survey at every stage of your company's project. We provide comprehensive vulnerability reports and identify structural inefficiencies in smart contract code, combining high-end security research with a real-world attacker mindset to reduce risk and harden code.

BLOCKCHAIINS

- Ethereum
- Cosmos
- Eos
- Substrate

TECH STACK

- Python
- Solidity
- Rust
- c++

CONTACTS

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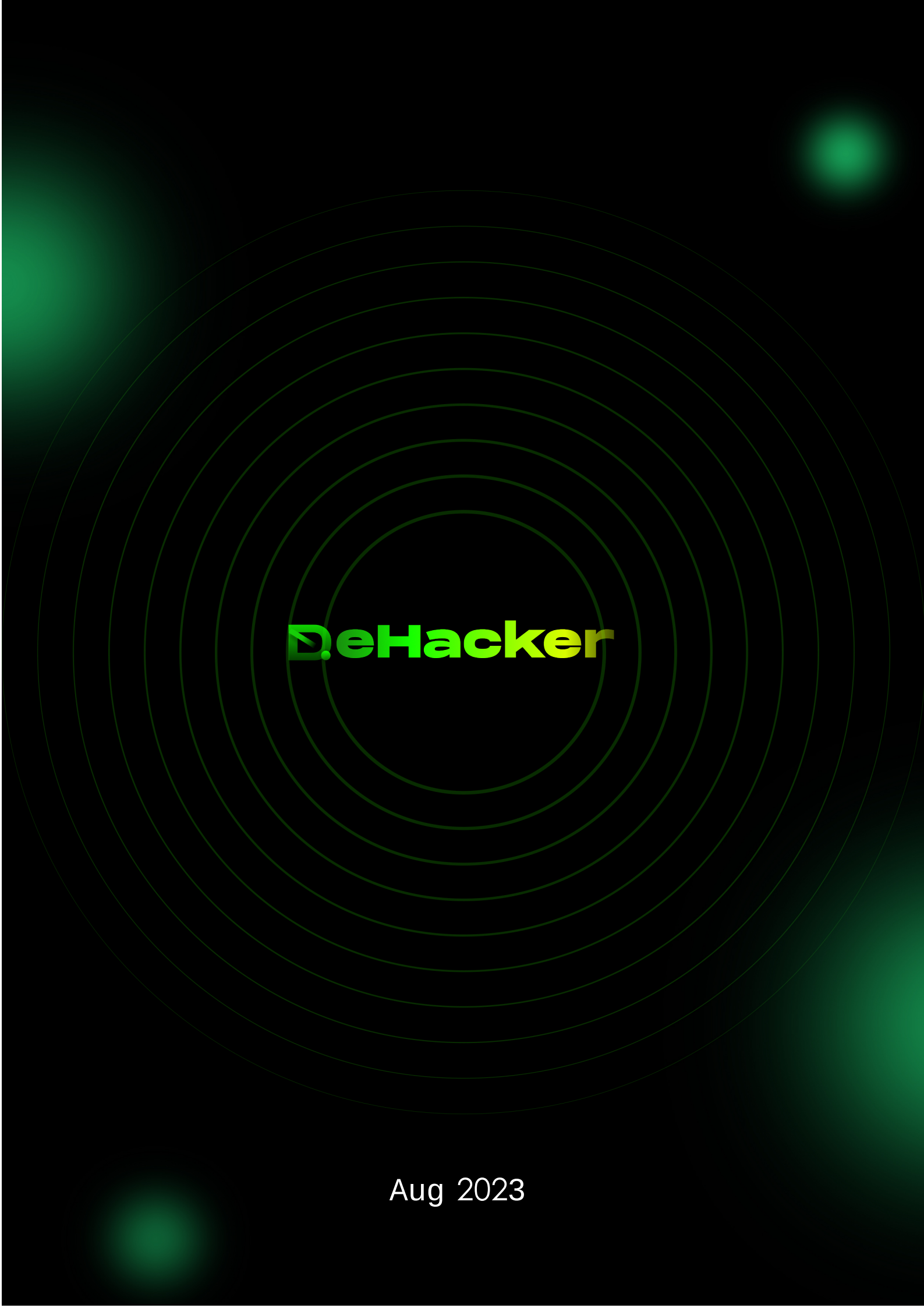

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