CERTIK

Security Assessment

DePocket

Oct 4th, 2021

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Summary

This report has been prepared for DePocket to discover issues and vulnerabilities in the source code of the DePocket 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	DePocket
Platform	BSC
Language	Solidity
Codebase	https://github.com/depocket/depocket-token-contracts
Commit	22ec2f9b2ff42a6a689f84ae1877c594c4ea884a

Audit Summary

Delivery Date	Oct 04, 2021
Audit Methodology	Static Analysis, Manual Review
Key Components	

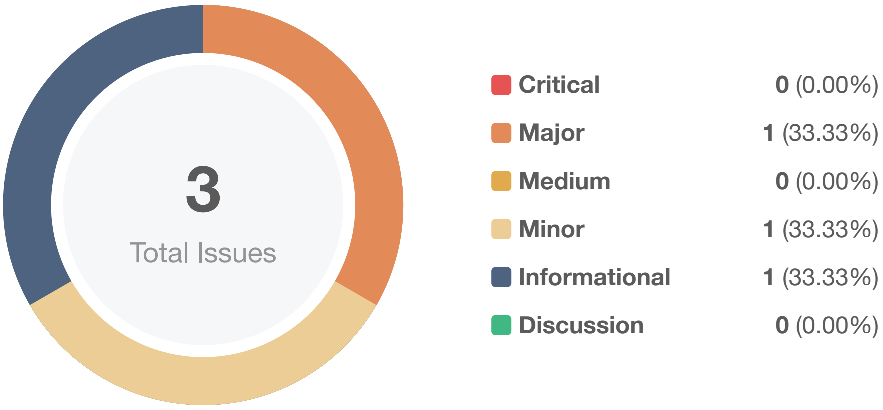
Vulnerability Summary

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

Audit Scope

ID	File	SHA256 Checksum
DPD	DePocket.sol	0a045694ed899d5b92e8afbe73679289003d67c5c0abc4ec53370424a2e0a882

Findings



ID	Title	Category	Severity	Status
DPD-01	Potential Front-Running Risk	Volatile Code	Minor	Acknowledged
DPD-02	Initial Token Distribution	**Centralization / Privilege**	**Major**	Acknowledged
DPD-03	Unlocked Compiler Version	Language Specific	Informational	Acknowledged

DPD-01 | Potential Front-Running Risk

Category	Severity	Location	Status
Volatile Code	Minor	DePocket.sol: 22	Acknowledged

Description

Malicious hackers may observe the pending transaction which will execute the `initialize()` function, and launch a similar transaction but with the hacker's address of owner and gain the ownership of the contract.

Recommendation

We advise the client to design functionality to only allow a specific user to execute the initialize function with `ownable.sol` library.

Example:

```
constructor() public {
    _owner = msg.sender;
}

function initialize(string memory name, string memory symbol, uint256 totalSupply, uint8
decimals) public onlyOwner initializer {
    _name = name;
    _symbol = symbol;
    _decimals = decimals;
    _mint(owner(), totalSupply);
}
```

Alleviation

`[DePocket team]`: We have deployed our DePocket contract on Binance Smart Chain at: 0xb8c82db931cb82a1cd84758e02dd619cff057add Luckily, The hacker doesn't gain the ownership of the contract. The initialize() function can be called only once at initialize time of the contract. So I think this vulnerability is not the risk for the deployed contract until now. I know that we don't need to fix the deployed contract.

DPD-02 | Initial Token Distribution

Category	Severity	Location	Status
Centralization / Privilege	**Major**	DePocket.sol: 27	Acknowledged

Description

All of the DePocket tokens are sent to the contract deployer when deploying the contract. This could be a centralization risk as the deployer can distribute DePocket tokens without obtaining the consensus of the community.

Recommendation

We recommend the team to be transparent regarding the initial token distribution process.

Alleviation

`[DePocket team]`: We had sent the token to the deployer address at the initial time. After that we separate the supply of the token to more pieces, each piece we send to separate team members and special users to control the amount of the token before the presale, private sale or the IDO. We will send each piece of the token to the separate Multisig wallet (Gnosis is a common) later (before the IDO time) to adapt with our tokenomics. With these strategies I think it will be transparent regarding the initial token distribution process.

DPD-03 | Unlocked Compiler Version

Category	Severity	Location	Status
Language Specific	Informational	DePocket.sol: 3	Acknowledged

Description

The contract has unlocked compiler version. An unlocked compiler version in the source code of the contract permits the user to compile it at or above a particular version. This, in turn, leads to differences in the generated bytecode between compilations due to differing compiler version numbers. This can lead to an ambiguity when debugging as compiler specific bugs may occur in the codebase that would be hard to identify over a span of multiple compiler versions rather than a specific one.

Recommendation

We advise that the compiler version is instead locked at the lowest version possible that the contract can be compiled at. For example, for version `v0.6.2` the contract should contain the following line:

```
pragma solidity 0.6.2;
```

Alleviation

`[DePocket team]`: At the deployed time, we had confirmed the version of the compiler at the compile time and fixed the compiler version by truffle config. So I can consider that I will be able to take it easily to debug. This also does not affect the user any time.

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.

Volatile Code

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

Language Specific

Language Specific findings are issues that would only arise within Solidity, i.e. incorrect usage of private or delete.

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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