



Smart Contract Security Audit Report

CPAY

October 2022

Security Status



www.hacksafe.io



Audit Details



Audited project

CPAY



Deployer address

0x0010a75a2f4b938d843634256eC2f8540a6a3D37



Client contacts

CPAY Team



Blockchain

Ethereum



Website

<https://ico.cryptopay.me/>

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.

Procedure

Step 1 - In-Depth Manual Review

Manual line-by-line code reviews to ensure the logic behind each function is sound and safe from various attack vectors. This is the most important and lengthy portion of the audit process (as automated tools often cannot find the nuances that lead to exploits such as flash loan attacks).

Step 2 - Automated Testing

Simulation of a variety of interactions with your Smart Contract on a test blockchain leveraging a combination of automated test tools and manual testing to determine if any security vulnerabilities exist.

Step 3 – Leadership Review

The engineers assigned to the audit will schedule meetings with our leadership team to review the contracts, any comments or findings, and ask questions to further apply adversarial thinking to discuss less common attack vectors.

Step 4 - Resolution of Issues

Consulting with the team to provide our recommendations to ensure the code's security and optimize its gas efficiency, if possible. We assist project team's in resolving any outstanding issues or implementing our recommendations.

Step 5 - Published Audit Report

Boiling down results and findings into an easy-to-read report tailored to the project. Our audit reports highlight resolved issues and any risks that exist to the project or its users, along with any remaining suggested remediation measures. Diagrams are included at the end of each report to help users understand the interactions which occur within the project.

Background

HackSafe was commissioned by CPAY to perform an audit of smart contracts:

- <https://etherscan.io/token/0x0Ebb614204E47c09B6C3FeB9AAeCad8EE060E23E#code>

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 understood 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.

Contract Details

Token contract details for 12.10.2022

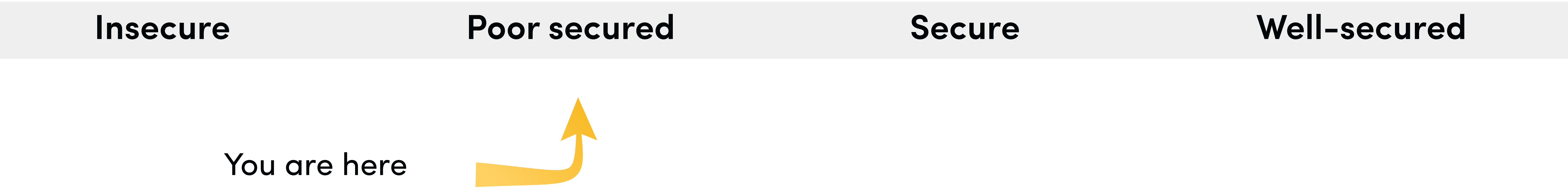
Token Type	: ERC20
Contract name	: CPAYToken
Contract address	: 0x0Ebb614204E47c09B6C3FeB9AAeCad8EE060E23E
Total supply	: 90,414,745
Token ticker	: CPAY
Decimals	: 0
Token holders	: 2,442
Transactions count	: 7,925
Compiler version	: v0.4.16+commit.d7661dd9
Contract deployer address	: 0x0010a75a2f4b938d843634256eC2f8540a6a3D37
Owner address	: 0x0010a75a2f4b938d843634256eC2f8540a6a3D37

Social profiles

Telegram profile	: https://t.me/cryptopayico
Twitter profile	: https://twitter.com/cryptopay
Coinmarketcap profile	: https://coinmarketcap.com/currencies/cryptopay/
Coingecko profile	: https://www.coingecko.com/en/coins/cryptopay/

Audit Summary

According to the standard audit assessment, Customer`s solidity smart contracts are **“Poor secure”**. This token contract does contain owner control, which do not make it fully decentralized as owner does have control over smart contract. Contract contain self-destruct function which can destroy contract’s function.



We used various tools like Slither, Mythril and Remix IDE. At the same time this finding is based on critical analysis of the manual audit. All issues found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the issues checking status.

We found 0 critical, 0 high, 0 medium and 1 low and some very low-level issues. Contract have self-destruct function which issue is not critical ones.

CPAY Token Distribution

 The top 100 holders collectively own 89.90% (81,280,585.00 Tokens) of CPAY

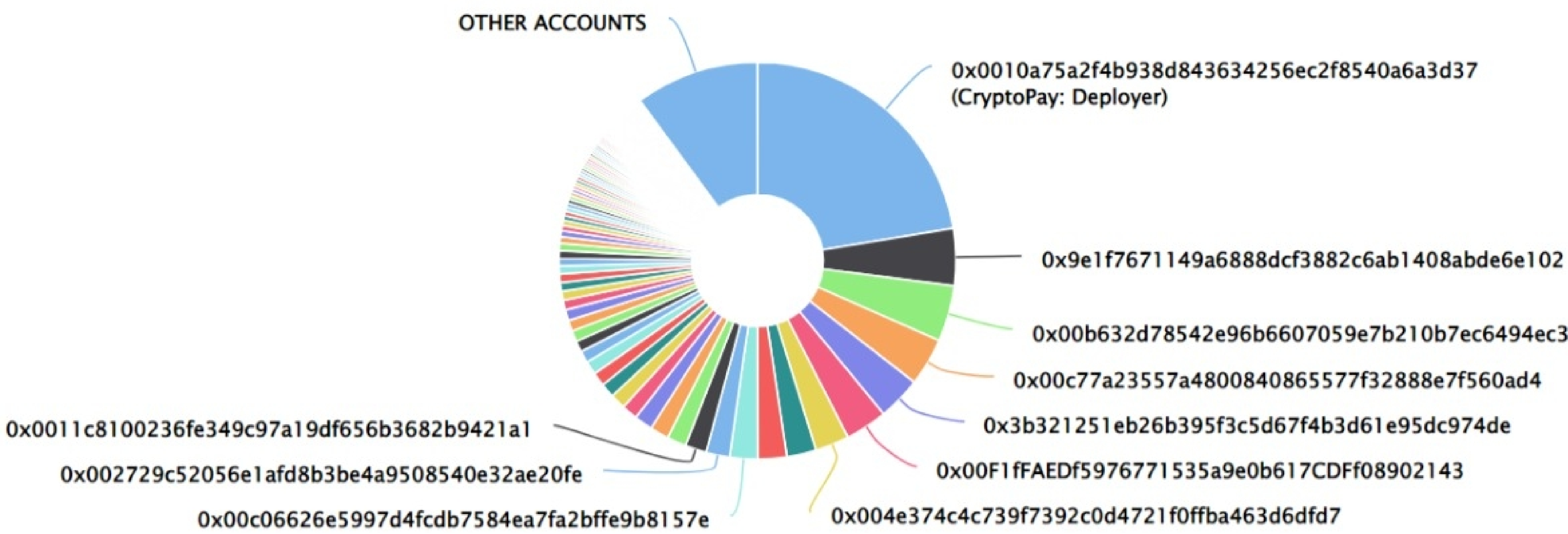
 Token Total Supply: 90,414,745.00 Token

|

Total Token Holders: 2,442

CPAY Top 100 Token Holders

Source: Etherscan.io



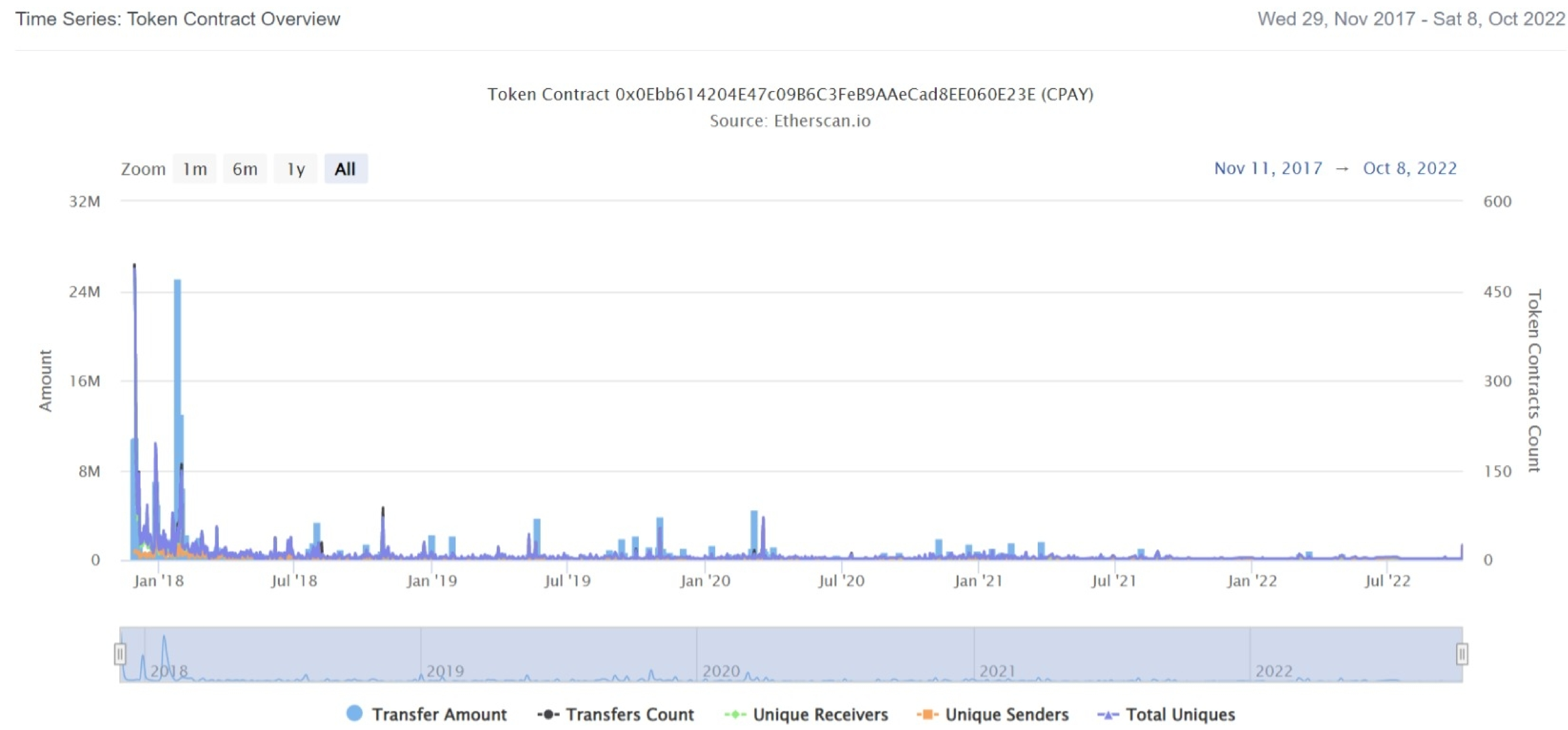
CPAY Top 20 Token Holders

(A total of 81,280,585.00 tokens held by the top 100 accounts from the total supply of 90,414,745.00 token)

Rank	Address	Quantity (Token)	Percentage
1	CryptoPay: Deployer	20,241,984	22.3879%
2	0x9e1f7671149a6888dcf3882c6ab1408abde6e102	4,207,793	4.6539%
3	0x00b632d78542e96b6607059e7b210b7ec6494ec3	4,128,781	4.5665%
4	0x00c77a23557a4800840865577f32888e7f560ad4	3,524,148	3.8978%
5	0x3b321251eb26b395f3c5d67f4b3d61e95dc974de	3,201,600	3.5410%
6	0x00F1fFAEDf5976771535a9e0b617CDFf08902143	3,092,761	3.4206%
7	0x004e374c4c739f7392c0d4721f0ffba463d6dfd7	2,510,495	2.7766%
8	0x00df1c1c9e9f9e65af58ca0a25fc611ac2cdca6b	2,164,956	2.3945%
9	0x00be5cbdb34636ab56efa6f8f06cf1c147dc5cbb	2,114,282	2.3384%
10	0x00c06626e5997d4fcd7584ea7fa2bffe9b8157e	2,063,435	2.2822%
11	0x002729c52056e1afd8b3be4a9508540e32ae20fe	1,738,493	1.9228%
12	0x0011c8100236fe349c97a19df656b3682b9421a1	1,575,398	1.7424%
13	0x00956fb9e46be56eb2c9534a4dc39f2696bfaa19	1,426,947	1.5782%
14	0x00b8e8ac511057c9b6410089934fa54ee58ccb84	1,377,935	1.5240%
15	0x00b43b2b0e330ca34aa6880a4c62117835aae408	1,347,583	1.4904%
16	0x00b6c18296cca0d7815301725070659b92307772	1,178,931	1.3039%
17	0x006b0a4ea649e2395749ded20935e01f0dab096a	1,138,283	1.2590%
18	0x00d4608056611703cbc2ecc36c41de8ee65b27e2	1,049,582	1.1609%
19	0x1a9ea50b5078b688564c28d3aa323d5de4a08734	1,016,983	1.1248%
20	0x7c6cdadf75f1ce79a6ba5ac47dcf51c6e44ab633	1,004,374	1.1109%

CPAY Token Distribution

CPAY Contract Overview



Contract functions details

+ ERC20Interface

- totalSupply
- balanceOf
- transfer
- transferFrom
- approve
- allowance

+CPAYToken (ERC20Interface)

- CPAYToken
- totalSupply
- balanceOf
- transfer #
 - modifiers: whenNotPaused
- transferFrom #
 - modifiers: whenNotPaused
- approve #
 - modifiers: whenNotPaused
- allowance
- increaseApproval #
 - modifiers: whenNotPaused
- decreaseApproval #
 - modifiers: whenNotPaused
- burn #
- mint #
 - modifiers: onlyOwner
- pause #
 - modifiers: onlyOwner, whenNotPaused
- unpause #
 - modifiers: onlyOwner, whenPaused
- destroy #
 - modifiers: onlyOwner
- transferOwnership #
 - modifiers: onlyOwner
- [Ext] reclaimToken #
 - modifiers: onlyOwner
- asyncSend #
 - modifiers: onlyOwner

Contract functions details

- withdrawPayments #
- withdrawToAdress #
- modifiers: onlyOwner

+[Lib] SafeMath

- [Int] mul
- [Int] div
- [Int] sub
- [Int] add

(\$) = payable function

= non-constant function

Issues Checking Status

No.	Title	Status
1.	Unlocked Compiler Version	Passed
2.	Missing Input Validation	Passed
3.	Race conditions and Reentrancy. Cross-function race conditions.	Passed
4.	Possible delays in data delivery	Passed
5.	Oracle calls.	Passed
6.	Timestamp dependence.	Passed
7.	Integer Overflow and Underflow	Passed
8.	DoS with Revert.	Passed
9.	DoS with block gas limit.	Passed
10.	Methods execution permissions.	Passed
11.	Economy model of the contract.	Passed
12.	Private use data leaks.	Passed
13.	Malicious Event log.	Passed
14.	Scoping and Declarations.	Passed
15.	Uninitialized storage pointers.	Passed
16.	Arithmetic accuracy.	Passed
17.	Design Logic.	Passed
18.	Safe Open Zeppelin contracts implementation and usage.	Passed
19.	Incorrect Naming State Variable	Passed
20.	Too old version	Low issue

Severity Definitions

Risk Level	Description
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to assets loss or data manipulations.
High	High-level vulnerabilities are difficult to exploit; however, they also have a significant impact on smart contract execution, e.g., public access to crucial functions
Medium	Medium-level vulnerabilities are important to fix; however, they can't lead to assets loss or data manipulations.
Low	Low-level vulnerabilities are mostly related to outdated, unused, etc. code snippets that can't have a significant impact on execution.

Security Issues

✔ Critical Severity Issues

No critical severity issue found.

✔ High Severity Issues

No high severity issues found.

✔ Medium Severity Issues

No medium severity issue found.

✔ Low Severity Issues

One low severity issue found.

1. Old compiler version

- **Description**

Contract has been deployed using too old solidity version.

- **Recommendation**

It is advisable to deploy contract using any of the latest version of solidity.

Centralization

Owner Privileges :

- CPAY Contract:
 - Owner can set owner.
 - Owner can pause and unpause transfers.
 - Owner can destroy contract.
 - Owner can reclaim tokens.
 - Owner can mint tokens.

This smart contract has some functions which can be executed by the admin (Owner) only. If the admin wallet private key would be compromised, **then it would create trouble as owner can destroy smart contract**, as smart contract ownership has not been renounced. Following are Admin functions:

- Mint
- Pause
- Unpause
- Destroy
- Transferownership
- Reclaimtoken
- Asyncsend
- Withdrawtoaddress

Conclusion

Smart contract contains low severity issues! The further transfer and operations with the fund raised are not related to this particular contract.

HackSafe note: Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner.