



METATRUST

Draft
Security Assessment for
**107-2022-04-jpegd
(1New-FD) (10K-FLP)**

July 23, 2023






Executive Summary

Overview			
Project Name	107-2022-04-jpegd (1New-FD) (1OK-FLP)		
Codebase URL	https://github.com/code-423n4/2022-04-jpegd		
Scan Engine	AI Analyzer		
Scan Time	2023/07/23 21:19:29		
Commit Id	e72861a		

Total			
Critical Issues	0		
High risk Issues	2		
Medium risk Issues	0		
Low risk Issues	0		
Informational Issues	0		

Critical Issues		The issue can cause large economic losses, large-scale data disorder, loss of control of authority management, failure of key functions, or indirectly affect the correct operation of other smart contracts interacting with it.
High Risk Issues		The issue puts a large number of users' sensitive information at risk or is reasonably likely to lead to catastrophic impacts on clients' reputations or serious financial implications for clients and users.
Medium Risk Issues		The issue puts a subset of users' sensitive information at risk, would be detrimental to the client's reputation if exploited, or is reasonably likely to lead to moderate financial impact.
Low Risk Issues		The risk is relatively small and could not be exploited on a recurring basis, or is a risk that the client has indicated is low-impact in view of the client's business circumstances.
Informational Issue		The issue does not pose an immediate risk but is relevant to security best practices or Defence in Depth.



	Critical Issues	0%	0
	High risk Issues	100%	2
	Medium risk Issues	0%	0
	Low risk Issues	0%	0
	Informational Issues	0%	0

Summary of Findings

MetaScan security assessment was performed on **July 23, 2023 21:19:29** on project **107-2022-04-jpegd (1New-FD) (10K-FLP)** with the repository **<https://github.com/code-423n4/2022-04-jpegd>** on branch **default branch**. The assessment was carried out by scanning the project's codebase using the scan engine **AI Analyzer**. There are in total **2** vulnerabilities / security risks discovered during the scanning session, among which **0** critical vulnerabilities, **2** high risk vulnerabilities, **0** medium risk vulnerabilities, **0** low risk vulnerabilities, **0** informational issues.

ID	Description	Severity
MSA-001	MWE-204: Unsafe First Deposit	High risk
MSA-002	MWE-200: Insecure LP Token Value Calculation	High risk



Findings

Critical (0)

No Critical vulnerabilities found here

High risk (2)

1. MWE-204: Unsafe First Deposit

 High risk Security Analyzer

First depositor can break minting of shares or drain the liquidity of all users.

File(s) Affected



contracts/vaults/yVault/yVault.sol #142-157

```
142     function deposit(uint256 _amount) public noContract(msg.sender) {
143         require(_amount > 0, "INVALID_AMOUNT");
144         uint256 balanceBefore = balance();
145         token.safeTransferFrom(msg.sender, address(this), _amount);
146         uint256 supply = totalSupply();
147         uint256 shares;
148         if (supply == 0) {
149             shares = _amount;
150         } else {
151             //balanceBefore can't be 0 if totalSupply is > 0
152             shares = (_amount * supply) / balanceBefore;
153         }
154         _mint(msg.sender, shares);
155
156         emit Deposit(msg.sender, _amount);
157     }
```

Recommendation

When totalSupply() == 0, send the first min liquidity LP tokens to the zero address to enable share dilution.

2. MWE-200: Insecure LP Token Value Calculation

 **High risk**
 **Security Analyzer**

Liquidity token value/price can be manipulated to cause flashloan attacks.

File(s) Affected

contracts/farming/yVaultLPFarming.sol #168-173

```
168     function _computeUpdate() internal view returns (uint256 newAccRewardsPerShare, uint256 currentBalance) {
169         currentBalance = vault.balanceOf(JPEG()) + jpeg.balanceOf(address(this));
170         uint256 newRewards = currentBalance - previousBalance;
171
172         newAccRewardsPerShare = accRewardPerShare + newRewards * 1e36 / totalStaked;
173     }
```

contracts/farming/yVaultLPFarming.sol #75-95

```
75     function pendingReward(address _user)
76     external
77     view
78     returns (uint256)
79     {
80         uint256 rewardShare = accRewardPerShare;
81         uint256 staked = totalStaked;
82         //if blockNumber is greater than the pool's `lastRewardBlock` the pool's `accRewardPerShare` is
83         //we need to calculate the up to date amount to return an accurate reward value
84         if (block.number > lastRewardBlock && staked > 0) {
85             (rewardShare, ) = _computeUpdate();
86         }
87         return
88         //rewards that the user had already accumulated but not claimed
89         userPendingRewards[_user] +
90         //subtracting the user's `lastAccRewardPerShare` from the pool's `accRewardPerShare` results
91         //the pool has accumulated since the user's last claim, multiplying it by the user's shares
92         //by the user
93         (balanceOf[_user] * (rewardShare - userLastAccRewardPerShare[_user])) /
94         1e36;
95     }
```

Recommendation

Do not use AMM pool or custom liquidity calculation to calculate LP token value/price.

Medium risk (0)

No Medium risk vulnerabilities found here

Low risk (0)

No Low risk vulnerabilities found here

Informational (0)

No Informational vulnerabilities found here

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