



METATRUST






Draft
Security Assessment for
**71-2022-01-insure
(10K-FD) (1Positive-
FLP)**

July 23, 2023

Executive Summary

Overview			
Project Name	71-2022-01-insure (10K-FD) (1Positive-FLP)	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.
Codebase URL	https://github.com/code-423n4/2022-01-insure		
Scan Engine	AI Analyzer		
Scan Time	2023/07/23 23:05:15	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.
Commit Id	6313c81		
Total		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.
Critical Issues	0		
High risk Issues	2	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.
Medium risk Issues	0		
Low risk Issues	0	Informational Issue	The issue does not pose an immediate risk but is relevant to security best practices or Defence in Depth.
Informational Issues	0		



	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 23:05:15** on project **71-2022-01-insure (10K-FD) (1Positive-FLP)** with the repository <https://github.com/code-423n4/2022-01-insure> 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/IndexTemplate.sol #164-190

```
164     function deposit(uint256 _amount) public returns (uint256 _mintAmount) {
165         require(locked == false && paused == false, "ERROR: DEPOSIT_DISABLED");
166         require(_amount > 0, "ERROR: DEPOSIT_ZERO");
167
168         uint256 _supply = totalSupply();
169         uint256 _totalLiquidity = totalLiquidity();
170         vault.addValue(_amount, msg.sender, address(this));
171
172         if (_supply > 0 && _totalLiquidity > 0) {
173             _mintAmount = (_amount * _supply) / _totalLiquidity;
174         } else if (_supply > 0 && _totalLiquidity == 0) {
175             //when
176             _mintAmount = _amount * _supply;
177         } else {
178             _mintAmount = _amount;
179         }
180         emit Deposit(msg.sender, _amount, _mintAmount);
181         //mint iToken
182         _mint(msg.sender, _mintAmount);
183         uint256 _liquidityAfter = _totalLiquidity + _amount;
184         uint256 _leverage = (totalAllocatedCredit * MAGIC_SCALE_1E6) /
185             _liquidityAfter;
186         //execut adjustAlloc only when the leverage became below target - lower-slack
187         if (targetLev - parameters.getLowerSlack(address(this)) > _leverage) {
188             _adjustAlloc(_liquidityAfter);
189         }
190     }
```

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/CDSTemplate.sol #130-154

```
130     function deposit(uint256 _amount) external returns (uint256 _mintAmount) {
131         require(paused == false, "ERROR: PAUSED");
132         require(_amount > 0, "ERROR: DEPOSIT_ZERO");
133
134         //deposit and pay fees
135         uint256 _liquidity = vault.attributionValue(crowdPool); //get USDC balance with crowdPool's att
136         uint256 _supply = totalSupply();
137
138         crowdPool += vault.addValue(_amount, msg.sender, address(this)); //increase attribution
139
140         if (_supply > 0 && _liquidity > 0) {
141             _mintAmount = (_amount * _supply) / _liquidity;
142         } else if (_supply > 0 && _liquidity == 0) {
143             //when vault lose all underwritten asset =
144             _mintAmount = _amount * _supply; //dilute LP token value af. Start CDS again.
145         } else {
146             //when _supply == 0,
147             _mintAmount = _amount;
148         }
149
150         emit Deposit(msg.sender, _amount, _mintAmount);
151
152         //mint iToken
153         _mint(msg.sender, _mintAmount);
154     }
```

Recommendation

Do not use AMM pool or custom liquidity calculation to caculate 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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