



METATRUST

Draft  
Security Assessment for  
**67-2022-01-  
sandclock (10K-FLP)  
(1Positive-WOI)**

July 23, 2023






## Executive Summary

Overview			
Project Name	67-2022-01-sandclock (1OK-FLP) (1Positive-WOI)	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-sandclock		
Scan Engine	AI Analyzer		
Scan Time	2023/07/23 23:17:41	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	5b26316		
		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.

Total	
Critical Issues	0
High risk Issues	2
Medium risk Issues	0
Low risk Issues	0
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 23:17:41** on project **67-2022-01-sandclock (10K-FLP) (1Positive-WOI)** with the repository **<https://github.com/code-423n4/2022-01-sandclock>** 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-200: Insecure LP Token Value Calculation	High risk
MSA-002	MWE-209: Wrong Order for Interest or ExchangeRate	High risk


## Findings

### Critical (0)

No Critical vulnerabilities found here

### High risk (2)

#### 1. 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



sandclock/contracts/strategy/NonUSTStrategy.sol #120-136

```
120     function investedAssets ()
121         external
122         view
123         override(BaseStrategy)
124         returns (uint256)
125     {
126         uint256 underlyingBalance = _getUnderlyingBalance();
127         uint256 aUstBalance = _getAUstBalance() + pendingRedeems;
128
129         uint256 ustAssets = ((exchangeRateFeeder.exchangeRateOf(
130             address(aUstToken),
131             true
132         ) * aUstBalance) / 1e18) + pendingDeposits;
133         return
134             underlyingBalance +
135             curvePool.get_dy_underlying(ustI, underlyingI, ustAssets);
136     }
```

##### Recommendation

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

## 2. MWE-209: Wrong Order for Interest or ExchangeRate

 High risk Security Analyzer

Update of interest or exchange rate should be executed before calculating new balance, share, stake, loan or fee.

### File(s) Affected

sandclock/contracts/strategy/BaseStrategy.sol #263-277

```
263     function investedAssets()
264         external
265         view
266         virtual
267         override(IStrategy)
268         returns (uint256)
269     {
270         uint256 underlyingBalance = _getUnderlyingBalance() + pendingDeposits;
271         uint256 aUstBalance = _getAUstBalance() + pendingRedeems;
272
273         return
274             underlyingBalance +
275             ((exchangeRateFeeder.exchangeRateOf(address(aUstToken), true) *
276              aUstBalance) / 1e18);
277     }
```

### Recommendation

Check the business logic and move the statements about updating exchange rate or interest forward.

## 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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