



METATRUST

Draft  
Security Assessment for  
**105-2022-03-paladin  
(1Positive-WOI)**

July 23, 2023

## Executive Summary

Overview			
Project Name	105-2022-03-paladin (1Positive-WOI)		
Codebase URL	https://github.com/code-423n4/2022-03-paladin		
Scan Engine	AI Analyzer		
Scan Time	2023/07/23 21:13:09		
Commit Id	9fe1f38		






  

Total			
Critical Issues	0		
High risk Issues	1		
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%	1
	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 21:13:09** on project **105-2022-03-paladin (1Positive-WOI)** with the repository **<https://github.com/code-423n4/2022-03-paladin>** 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 **1** vulnerabilities / security risks discovered during the scanning session, among which **0** critical vulnerabilities, **1** high risk vulnerabilities, **0** medium risk vulnerabilities, **0** low risk vulnerabilities, **0** informational issues.

ID	Description	Severity
MSA-001	MWE-208: Wrong Order for Checkpoint	High risk

## Findings


### Critical (0)

No Critical vulnerabilities found here

### High risk (1)

#### 1. MWE-208: Wrong Order for Checkpoint

 High risk

 Security Analyzer

Invoking user checkpoint should be executed before calculating new balance, share, stake, loan or fee.

##### File(s) Affected

contracts/HolyPaladinToken.sol #1317-1330

```
1317     function _delegate(address delegator, address delegatee) internal {
1318         // Move delegation from the old delegate to the given delegatee
1319         address oldDelegatee = delegates[delegator];
1320         uint256 delegatorBalance = balanceOf(delegator);
1321         delegates[delegator] = delegatee;
1322
1323         // update the the Delegate checkpoint for the delegatee
1324         delegateCheckpoints[delegator].push(DelegateCheckpoint(safe32(block.number), delegatee));
1325
1326         emit DelegateChanged(delegator, oldDelegatee, delegatee);
1327
1328         // and write the checkpoints for Votes
1329         _moveDelegates(oldDelegatee, delegatee, delegatorBalance);
1330     }
```

##### Recommendation

Check the business logic and move the statements about invoking user checkpoint 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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