

Pendle V2 Part 2

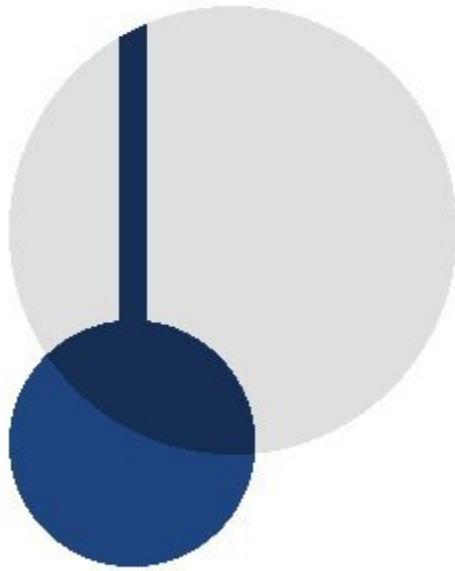


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Scope

The scope of the audit is <https://github.com/pendle-finance/pendle-core-internal-v2>, with the commit hash 2be5ad0da54f76a637ddd6a223d49aa02cb8c07f.

CelerReceiverUpg.sol
CelerSenderUpg.sol
PendleGaugeControllerBaseUpg.sol
PendleGaugeControllerMainchainUpg.sol
PendleGaugeControllerSidechainUpg.sol
PendleGauge.sol
PendleVotingControllerUpg.sol
VotingControllerStorageUpg.sol
VotingEscrowPendleMainchain.sol
VotingEscrowPendleSidechain.sol
VotingEscrowTokenBase.sol
VeBalanceLib.sol
VeHistoryLib.sol

Summary of Findings

In performing a security audit of Pendle V2, several issues of concern were found. For each finding, a summary of the issue is documented, along with any other finer details regarding the issue. Security recommendations are also provided where applicable.

The table below shows a breakdown of security findings found categorized by severity or risk and impact. A finding that has been reported is listed as pending, and if that finding is satisfactorily mitigated, it will be categorized as resolved.

Severity	Resolved	Unresolved	Total
Critical	0	0	0
High	0	0	0
Medium	0	0	0
Low	1	0	1
Info	3	0	3

Issues

PEN-001: Wrong visibility for _broadcastPosition

Severity: Low

Status: Resolved

_broadcastPosition should be an internal function instead of a public function, based on its naming format. However, even when called directly from external, it is limited to the same functionality of broadcastTotalSupply and broadcastUserPosition.

Recommendations

Make _broadcastPosition internal.

Resolution

_broadcastPosition has been made internal.

PEN-002: Minimum lock time can be introduced

Severity: Info

Status: Resolved

Considering how broadcasts are done by weeks, a minimum lock of a week could be added.

Recommendations

Add a minimum lock time for VotingEscrowPendleMainchain.

Resolution

An additional check for minimum lock time has been added.

PEN-003: Lack of check that end is lesser than allRemovedPools' length

Severity: Info

Status: Resolved

In getAllRemovedPools, end should always be lesser than allRemovedPools length. Otherwise, an end parameter provided that is larger than allRemovedPools would revert.

Recommendations

Add a check to ensure that end is lesser than the length of allRemovedPools.

Resolution

The recommended check has been added.

PEN-004: Gas optimization for _applySlopeChange return variable

Severity: Info

Status: Resolved

In _applySlopeChange, for the return statement

```
return (supply, lastSlopeChangeAppliedAt);
```

wTime instead of lastSlopeChangeAppliedAt can be used as they are the same value. wTime is a local variable while lastSlopeChangeAppliedAt is a state variable, which costs more to read.

Recommendations

Return wTime instead of lastSlopeChangeAppliedAt.

Resolution

The recommended change in the return variable has been made.