LendingLedger

LP tokens on the Canto DEX and cNOTE deposits on third-party lending markets are continuously tracked byLendingLedger .

- In the case of cNOTE deposits, third-party lending markets callsync_ledger
- every time a user deposits or withdraws cNOTE.
- In the case of LP tokens, tokens should be wrapped in aLiquidityGauge
- , which callssync_ledger
- in the_afterTokenTransfer
- hook.
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Additionally, users claim incentives fromLendingLedger .

Syncing Ledger

To sync the ledger, call thesync_ledger(address _lender, int256 _delta) method. The address is that of the user (liquidity provider) and the int256 is the amount of tokens deposited/received (positive) or withdrawn/sent (negative) with 18 decimal places of precision.

Important: Thesync_ledger method reverts if the caller is not a whitelisted lending market orLiquidityGauge . As a result, lending markets integrating Liquidity Coordinator should wrap this method in a try-catch block to ensure liquidity providers can still deposit/withdraw if their market is removed from the whitelist.

ethers.js

```

Copy await LendingLedger.sync_ledger(0x..., 10000000000000000000) // 10 cNOTE deposit

```

foundry

```

Copy cast send --ledger 0x... "sync_ledger(address,int256)" 0x... 10000000000000000000

```

Claiming

To claim incentives, call theclaim(address _market) method. Previously, incentives could only be claimed for past epochs; however, incentives are now claimed for all epochs including partial incentives for the current epoch.

ethers.js

```

Copy await LendingLedger.claim(0x...) // Claim all incentives

```

foundry

```

Copy cast send --ledger 0x... "claim(address)" 0x...

```

Secondary Rewards

Third-party protocols can useLendingLedger 's deposit tracking to implement secondary token rewards, e.g. lending market governance tokens.

Within theuserInfo mapping, lending market addresses map to user addresses, which in turn map toUserInfo structs.UserInfo.secRewardDebt is the amount of secondary rewards the user is entitled to.

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Secondary Rewards