

Fractional 404 Hook

Fractionalize an ERC-721 into a tradeable ERC-20 book with locked Uniswap v4 liquidity.
Integration guidelines for the Hookr team.

 In partnership with Hookr (hookr.fun) for Uniswap v4 hook launches

Date: 2026-10-13
Repository commit: 810c9aaf668a | source hash: 9eace610c43f
Compiler: solc 0.8.26, Cancun, via IR (Foundry)
Tests: 18 unit
Publisher: SB (BVI) Ltd, StonkBrokers
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Status: LIVE on Robinhood Chain 4663 (redeployed 2026-10-13, HK-22 fix)
FractionalLauncher 0xCD44629152c9a7CAc2cD68bb25A2293022F3183D, fractional StonkFeeHook 0x8A6c104d8bc04E058Ca08282E605D42a84D6aaCc. This generation carries the Hookr partner fee leg: partnerBps 5000 (half of the StonkBrokers protocol leg) pointed at the Hookr Safe 0x8Fdfaa25e2E4dDa297F301ea06458f22186D6bE9 since 2026-10-11 (setPartner), so the Hookr share is paid on every flush through the permissionless flushPartner. Unit suite 18/18 plus 9/9 partner tests, full hooks ledger 162/162 (155 unit + 7 fork), audit findings HK-10, HK-13, HK-17 and HK-18 closed before deploy, HK-22 partial fill guard live, Sourcify exact match.

Source and ABIs
Contracts live under hooks/ in the StonkBrokers repository. Byte exported ABIs ship beside this guide under contracts/hooks/integration/ and are served from stonkbrosers.io/integration/hooks/.

Deployed bytecode sizes

Contract	Role	Runtime size
FractionalLauncher	NFT escrow + fraction mint	17,630 B (71.7% of EIP-170)
FractionToken	Fractional ERC-20	5,198 B (21.2% of EIP-170)
StonkFeeHook	Shared fee / lock hook	5,860 B (23.8% of EIP-170)

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1. What the hook does

A creator deposits an NFT into the launcher (plain transferFrom for collections that reject onERC721Received, matching Anvil TBA discipline). The launcher mints a fixed supply of fractional ERC-20, opens a full range v4 pool behind StonkFeeHook, and locks liquidity. Fractions trade freely. Redemption / reconstitution paths are launcher gated so the NFT cannot leave without the required fractional burn.

Use cases: Anvil style NFT liquidity without a separate AMM vault, broker / intern desk fractions, collection team treasuries.

Threat model: Robinhood Chain has no public mempool. Frame mitigations as launch economics and lock discipline, not sandwich protection.

2. Why this is not an owned root on Hookr

Custom StonkFeeHook + controller. Third party hook path: Analyze / Publish / Partner Review. Swaps via Universal Router, empty hookData.

3. Addresses

Item	Chain	Address
FractionalLauncher	Robinhood Chain 4663	0xCD44629152c9a7CAc2cD68bb25A2293022F3183D
StonkFeeHook (fractional instance)	Robinhood Chain 4663	0x8A6c104d8bc04E058Ca08282E605D42a84D6aaCc
FractionalDeployer (token + NFT code deployer)	Robinhood Chain 4663	0x3361426DEea55e88cb04cCA5cFeB46D99eB36dfF
ERC6551Registry	Robinhood Chain 4663	0x3Df336317B73e0ce417E03488abb2B79cEe2B9E4
Fractional6551Account (implementation)	Robinhood Chain 4663	0xb9D00C31F479B892Ae7F8F500dbf3FF3E41acC26
WETH	Robinhood Chain 4663	0x0Bd7D308f8E1639FAb988df18A8011f41EAcAD73
Uniswap v4 PoolManager	Robinhood Chain 4663	0x8366a39CC670B4001A1121B8F6A443A643e40951
Uniswap V4 Quoter	Robinhood Chain 4663	0x8dc178efb8111bb0973dd9d722ebff267c98f94
Universal Router 2.1.1	Robinhood Chain 4663	0x8876789976dEcBfCbBbe364623C63652db8C0904

Deploy parameters (state file hooks/deployments/fractional-hook.4663.json): owner
 0xD4aF10Bc56b08f8fc2990a3ADeeD4b757ae6A26C, protocolTo = treasury
 0xb668382cF44038a3E8140E789060F6A809787CDa, protocolBps 1000, partnerTo 0x0 (pending the Hookr CA), partnerBps
 5000, minSeedQuote 0.05 WETH, hook flags 10956. Deploy txs: code deployer
 0x081322d407ff979b6a47053ee9b7f77c6742c6af52eb55c158c1badadaff4207, registry
 0xb7f577831ab5df4552c2d98e2b9a1556d73b05f79fa297952e6aaaa4926c082d, account implementation
 0xff32e342932f08133a8d2c20c9a97636cce9ee95451e9a5a179ad26f52d0587e, launcher
 0x6a921386571e7a35cc9a4de3d631c6a6de90c1ad912d8df4ca08539b22857778, setLauncher
 0x20c6b9c69fa59f75abe1037fc5ee7795d05584d8dee49f08073600886c909efd, hook
 0x2fd5bd031f6cb90d5a1a05a2b09a5d7f880874741906b25c3a6203b1c3a93201, setHook
 0x642d9726f013db70c60f8610c6ffc46901024b9e2f477ac949988c3f7bbb6ec4, setPartner
 0xb28a1ee617cab5aa28af1a37951d8940e21809022e07b38cd793f2f035340e07. Verified: Sourcify exact match on all five
 contracts (<https://sourcify.dev/server/v2/contract/4663/0xCD44629152c9a7CAc2cD68bb25A2293022F3183D>).

Deployed size: FractionalLauncher 17,336 B (70.5% of EIP-170), FractionalDeployer 14,806 B, StonkFeeHook 5,596 B, FractionToken 5,198 B, FractionalNFT 4,899 B, ERC6551Registry 820 B, Fractional6551Account 1,765 B.

3.1 Hookr fee leg

Same split as the Battle Token Hook: $\text{protocolCut} = \text{fee} \times \text{protocolBps} / 10000$, then $\text{partnerCut} = \text{protocolCut} \times \text{partnerBps} / 10000$ is carved out of the protocol cut for Hookr (5000 bps = half of the protocol cut). The StonkBrokers treasury keeps the other half, the remainder streams to fraction holders through FractionToken.notify. While partnerTo is zero the hook books the carve under partnerAccrued[quote]; once the owner runs FractionalLauncher.setPartner(<hookrCA>, 5000) anyone releases it with StonkFeeHook.flushPartner(<quote>) and later swaps pay Hookr directly inside the swap. Events: PartnerFeeTaken, PartnerFlushed, PartnerSet.

4. Hook identity and hooklist entry

Flags match StonkFeeHook.

```
{
  "name": "Fractional 404 Hook",
  "author": "StonkBrokers",
  "address": "0x8A6c104d8bc04E058Ca08282E605D42a84D6aaCc",
  "chainId": 4663,
  "dynamicFee": false,
  "upgradeable": false,
  "requiresCustomSwapData": false,
  "vanillaSwap": true,
  "beforeSwapReturnsDelta": true,
  "afterSwapReturnsDelta": true,
  "source": "https://github.com/Clutch-L4bs/stonkbrosers/tree/main/hooks",
  "docs": "StonkBrokers-Fractional-404-Hook-Hookr-Integration.pdf",
  "tags": ["fractional", "nft", "404", "robinhood-chain"]
}
```

5. Pool keys

Field	Value
currencies	fractional token and quote (WETH), sorted
fee	10000 (1%) typical
tickSpacing	200
hooks	StonkFeeHook (fractional instance)

6. NFT deposit note

Collections without onERC721Received must use plain transferFrom into the launcher (same rule as StonkBroker TBA deposits). SafeTransferFrom may revert ERC721InvalidReceiver.

7. Swapping

Vanilla. Quote with V4 Quoter, empty hookData. Outside LP blocked while the fraction is live.

8. Contract functions

What each public surface does. Arguments match the shipped ABIs (FractionalLauncher.abi.json, FractionToken.abi.json, FractionalNFT.abi.json, Fractional6551Account.abi.json, ERC6551Registry.abi.json, StonkFeeHook.abi.json).

8.1 FractionalLauncher

Launch and 404 bridge:

Function	Who	What it does
createCollection(params)	creator	Pulls seedQuote, deploys FractionalNFT + FractionToken via the deployer, keeps creatorKeep highest NFT ids with the creator, mints pooled * 666666 fractions into a locked full range v4 pool, pages the first TBA batch. Returns (collectionId, nft, token). Reverts HookMismatch, NativeNotSupported, SeedTooSmall, BadParams. Emits CollectionCreated.
deposit(collectionId, tokenId)	holder	Vaults an NFT via plain transferFrom and mints 666,666 fractions to the caller. Reverts UnknownCollection, BadTokenId. Emits Deposited.
redeem(collectionId, tokenId)	holder	Burns 666,666 fractions and returns a vaulted NFT. Reverts NotVaulted if that id is not in the launcher. Emits Redeemed.
deployAccounts(collectionId, n)	anyone	Permissionless paging: deploys the next n ERC-6551 token bound accounts. Addresses are deterministic before deploy. Emits AccountsDeployed. Reverts AccountsComplete when done.

Function	Who	What it does
withdrawLiquidity(collectionId)	creator	After lpUnlockAt, pulls the whole locked position once. Emits LiquidityWithdrawn.

Read surface:

Function	Who	What it does
collection(id)	anyone	Full Collection struct: creator, nft, token, quote, pool, fees, snipe schedule, nftCount, accountsDeployed, unlock clocks, totalFees, liquidityPulled.
accountOf(collectionId, tokenId)	anyone	Deterministic TBA address whether or not the clone is deployed.
vaulted(collectionId)	anyone	Count of NFTs currently sitting in the launcher (redeemable).
currentSnipeBps(id)	anyone	Live decaying snipe tax from launch.
collectionOf(poolId) / collectionOfNft(nft)	anyone	Reverse lookups.
feeTerms(poolId) / onSwap(...)	StonkFeeHook	Controller callbacks. Fee remainder after creator cut streams into FractionToken via notify. Emits FeeStreamed.

Owner (no path to vaulted NFTs, fractions in the pool, or streamed fees):

Function	Who	What it does
setProtocol(to, bps) / setMinSeedQuote(v)	owner	Protocol cut and launch floor.
setPartner(to, bps)	owner	Hookr partner leg: bps of the PROTOCOL cut for to (default 0x0 / 5000 at deploy). Reverts PartnerBpsTooHigh above 10000. Emits PartnerSet.
protocolTo / protocolBps / partnerTo / partnerBps	anyone	The two fee destinations.
setHook(hook)	owner	Wire the fractional StonkFeeHook.
transferOwnership / acceptOwnership	owner / pending	Two step Ownable.

8.2 FractionToken

Share ERC-20 (666,666 per vaulted NFT). Streams quote fees to holders.

Function	Who	What it does
ERC-20 surface	anyone	Standard transfer / approve surface.
claimable(holder) / claim() / claimTo(to)	anyone / holder	Unclaimed quote drip and payout.
burn(amount)	holder	Burns fractions (used on redeem).
mint(to, amount) / notify(amount) / setExcluded(...)	launcher only	Mint on deposit / create, credit drip after swap fees, exclude PoolManager.

8.3 FractionalNFT + ERC-6551

Contract / function	Who	What it does
FractionalNFT.totalSupply() / setBaseURI	anyone / deployer	Consecutive id ERC-721. Base URI set at deploy time.
ERC6551Registry.createAccount / account	launcher / anyone	CREATE2 clones of Fractional6551Account.
Fractional6551Account.owner()	anyone	NFT owner (follows transfers).
executeCall(to, value, data) / executeTokenTransfer(token, to, amount)	TBA owner	Owner gated calls from the token bound wallet.
isValidSignature(hash, sig)	anyone	EIP-1271 against the NFT owner.

8.4 StonkFeeHook (fractional instance)

Same shared hook as Battle (BattleTokenHook-Hookr-Integration.md section 7.3, including flushPartner(quote) and partnerAccrued(quote)). Controller is the FractionalLauncher. Outside LP blocked while the collection is live.

9. Proofs

Unit suite hooks/test/Fractional.t.sol 18/18 on the deployed bytecode: deposit, mint fractions, trade, lock, redeem / reconstitute, outside LP blocked, owner bounds, plus the audit regressions test_buy_creatorCutFoldsIntoStreamWhenBlocked and test_create_badParamsMatrix. Partner leg pinned by hooks/test/Partner.t.sol. Whole hooks/ suite 142/142 including the mainnet fork tests.

Audit closure (2026-10-10, fixed before deploy, report docs/Hashlock-Certified-Audit-StonkBrokers-Hooks.pdf):

- HK-10: the ExactOutputWhileTaxed guard in the shared StonkFeeHook.beforeSwap sat below the zero fee early return, so an exact output swap on a zero fee pool slipped past it. The check now runs first.
- HK-13: snipeStartBps + max(buyFeeBps, sellFeeBps) >= 10000 is rejected at collection creation (BadParams), a 100% tax can no longer be configured.
- HK-17 (was H-1 / H-2): a fee push while totalEarningSupply == 0 used to strand the quote. FractionToken now parks it in pendingReward and _materializePending folds it into the reward index on the first earning balance.
- HK-18 (was H-3): the creator cut was a hard _safeTransfer, so a reverting creator wallet could brick every taxed swap. onSwap now uses the tolerant _tryTransfer and folds a failed creator leg into the holder stream (FeeStreamed(collectionId, streamed, paidCreator) reports which path landed).

10. Go live status

1. FractionalLauncher, FractionalDeployer, ERC6551Registry, Fractional6551Account and StonkFeeHook deployed 2026-10-10 via hooks/script/FractionalHookDeploy.s.sol on the audit fixed, partner leg bytecode (PHASE=deploy, then PHASE=verify readbacks). Two earlier same day generations with zero launches are superseded and archived: launcher 0x59c6...3B13 / hook 0x277c...2acc (fractional-hook.4663.superseded-2026-10-10.json) and launcher 0xC7E9...4238 / hook 0x7750...2AcC (fractional-hook.4663.superseded-2026-10-10b.json).
4. Hookr CA: owner setPartner(<hookrCA>, 5000) on the launcher, then anyone flushPartner(<quote>) on the hook. Pending on Hookr.
2. Addresses above are final; the hooklist entry is live. Pool keys come from CollectionCreated events.
3. Depositing a collection and trading fractions is permissionless; the owner only tunes bounded fee knobs.