DoraHacks · Gnome Tavern Hackathon | Gno.land

V2.1 Hardened · Onyx (onyx-1)

HearthBounty v1

Hardened 1:1 `wugnot` Micro-Bounty Escrow, Per-Contributor Custody, Composable Guild Passports, and MCP AI Agent Bridge on Gno.land v1.8.0.

3
COMPOSABLE ONYX MODULES
hearthcore/v0 (/p/), hearthbounty/v1 (/r/), and consumer hearthguild/v0 (/r/)

78 / 78
AUTOMATED TESTS PASSING
43 gno test · 0 gno lint · 15 MCP tests · 20 Web & Onyx tests + 11/11 /diag

15
MCP AI AGENT TOOLS
Live Onyx ABCI vm/qeval + HearthGuild passport tools + gnoland-1 write block

4 / 4
AUDIT EXPLOITS DEFENDED
H-1 donor custody, M-1 liveness timeouts, M-2 Unicode sanitizer, IR-v2 MITM

Playground & Breaker Lab: https://alphonshhhomenicmtu.github.io/hearthbounty/ · Demo: https://youtu.be/vK6z7MJiRAk

Protocol & Security Gap

Why On-Chain Open-Source Bounties Break Today

1. Third-Party Crowd-Funding Custody Bugs

Naive escrow contracts pool sponsor deposits and external top-ups into one counter, allowing a malicious sponsor to cancel an open bounty and steal third-party contributions.

- External donors need direct on-chain refund custody, never sponsor custody.
- Claimants and donors must be blocked from washing top-ups into fake earnings.

2. Human-Only UIs Invisible to AI Coding Agents

Autonomous coding agents (Claude, Cursor, Gemini CLI) can write and test Gno realms, yet most dApps lack deterministic ABCI JSON query endpoints and testnet-safe transaction builders.

- Agents need structured RFC-8259 JSON via `vm/qeval` instead of brittle HTML scraping.
- Signing preparation must permanently refuse `gnoland-1` mainnet writes.

3. Hostage Submissions & Unbounded Arbiter Power

Without deterministic block-height timeouts on review and dispute windows, a ghosting sponsor or conflicted arbiter can trap delivered work forever.

- Permissionless timeouts guarantee funds always clear cleanly on-chain.
- Conflict checks prevent an arbiter from ruling on their own bounties.

4. Non-Composable Monolithic Realms

Single-contract demos cannot be imported by downstream DAOs, grant programs, or reputation gates — missing Gno.land's composable `/p/` + `/r/` builder model.

- HearthBounty ships `hearthcore/v0` + `hearthbounty/v1` + live consumer `hearthguild/v0`.

02 · SOLUTION

Zero chain/banker · GPAO-Clean

Hardened 1:1 wugnot Protocol + Dual Human & AI Surfaces

HearthBounty v1 settles in official Genesis 1:1 ugnot-backed wugnot via non-crossing gno.land/r/nt/grc20reg/v0 RealmTeller transfers — eliminating chain/banker and chain/runtime/unsafe from production code so Onyx's automated GPAO clears it to live HTTP 200.

SURFACE A · NATIVE GNOWEB V1.8

Paginated On-Chain UI

- Multi-route p/nt/mux/v0 interface (:page/N, :post, :bounty/id, :leaderboard, :agents).
- Deterministic SVG escrow chart, 4-stage lifecycle strip, and tier shields via p/nt/svg/v0.
- 1-click wugnot.Deposit, Approve, and contextual <gno-form> wallet actions.

SURFACE B · AUTONOMOUS AI AGENTS

15-Tool MCP Server + CLI

- 6 zero-reflection RFC-8259 JSON & eligibility endpoints queried via TM2 ABCI vm/qeval.
- 15 stdio MCP tools across hearthbounty/v1 and hearthguild/v0 plus hearth-cli verify-onyx.
- Emits wugnot pre-steps + gnomcp/gnokey commands; blocks gnoland-1 writes.

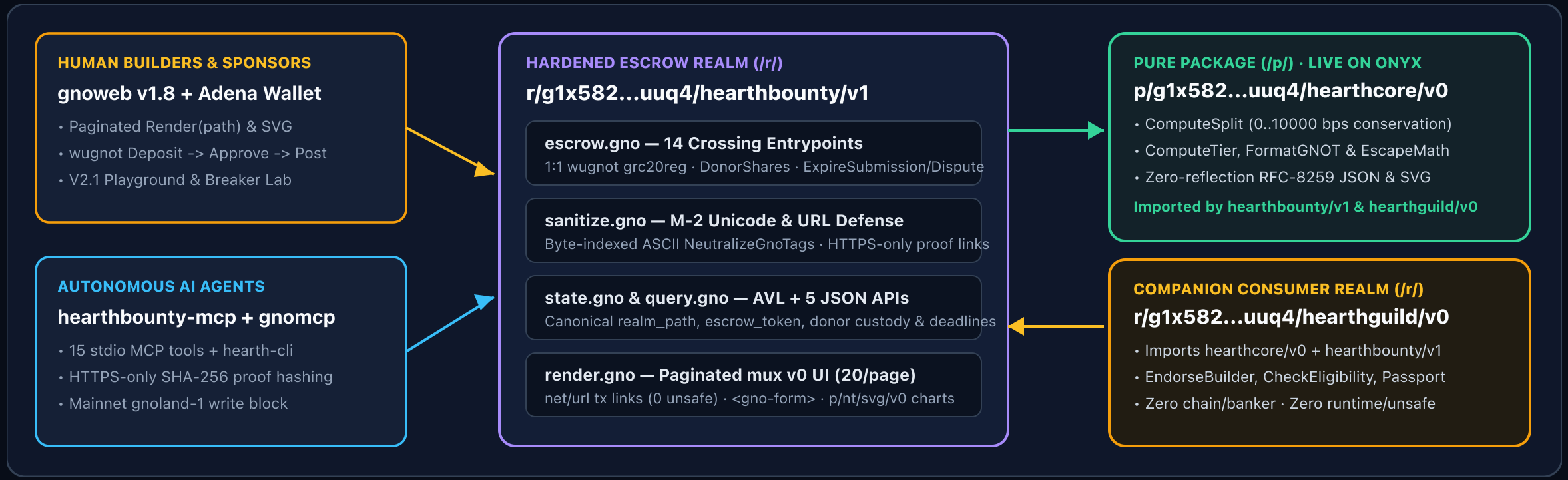
SURFACE C · COMPOSABLE ECOSYSTEM

Consumer Realm + Breaker Lab

- Companion consumer hearthguild/v0 imports both hearthcore/v0 & hearthbounty/v1.
- Zero-install Web Playground + 1-click Adversarial Breaker Lab (H-1, M-1, M-2, MITM).
- Live Onyx RPC Explorer & automated /diag self-test verifying every claim.

Builder Retention Import Gate

Three-Module Composable Stack (/p/ + /r/ + Consumer /r/)



GENESIS 1:1 WUGNOT RAIL

Uses live Genesis `r/nt/grc20reg/v0` (`wugnot`) non-crossing `RealmTeller` so every GNOT stays 1:1 redeemable with zero `chain/banker` hold.

DETERMINISTIC AVL STORAGE

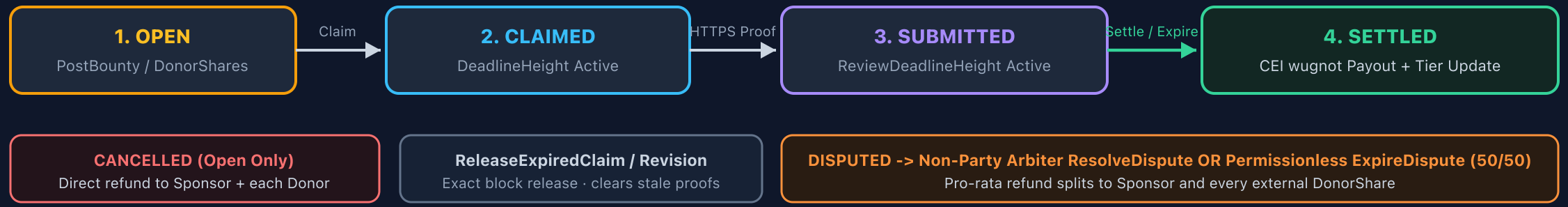
All bounties, profiles, and per-donor custody ledgers live in `avl.Tree` with immutable value-copy views.

LIVE ON-CHAIN IMPORT PROOF

`hearthguild/v0` reads live `hearthbounty/v1` reputation and renders `hearthcore/v0` badges for DAO/grant gating.

Exact Integer Conservation

Bounded Escrow Lifecycle, Per-Donor Custody & Guild Tiers



Per-Contributor Pro-Rata Split Math (`escrow.gno`)

```
// Each contributor's refund is computed independently via ComputeSplit
_, sponsorRefund := hearthcore.ComputeSplit(b.SponsorFundedUgnot,
hunterBps)
for each (donor, share) in b.DonorShares (sorted AVL order):
    _, dRefund := hearthcore.ComputeSplit(share, hunterBps)
hunterShare := escrow - (sponsorRefund + sum(dRefund))
// Exact conservation: hunterShare + sponsorRefund + sum(dRefund) ==
escrow
```

Zero float math, zero dust leaks, strict `wugnot.BalanceOf(realm) == base + totalEscrowUgnot`.

Pure Integer On-Chain Reputation Tiers

TIER	THRESHOLD	QUALITY GATE
Apprentice	Default registered profile	Any
Journeyman	≥ 2 settled OR ≥ 10 GNOT	Any
Master	≥ 5 settled OR ≥ 100 GNOT	Any
Guildmaster	≥ 10 settled OR ≥ 500 GNOT	Rating ≥ 4.5 / 5.0

Refunded cancellations decrement `SponsoredUgnot` so phantom sponsorship cannot game rankings.

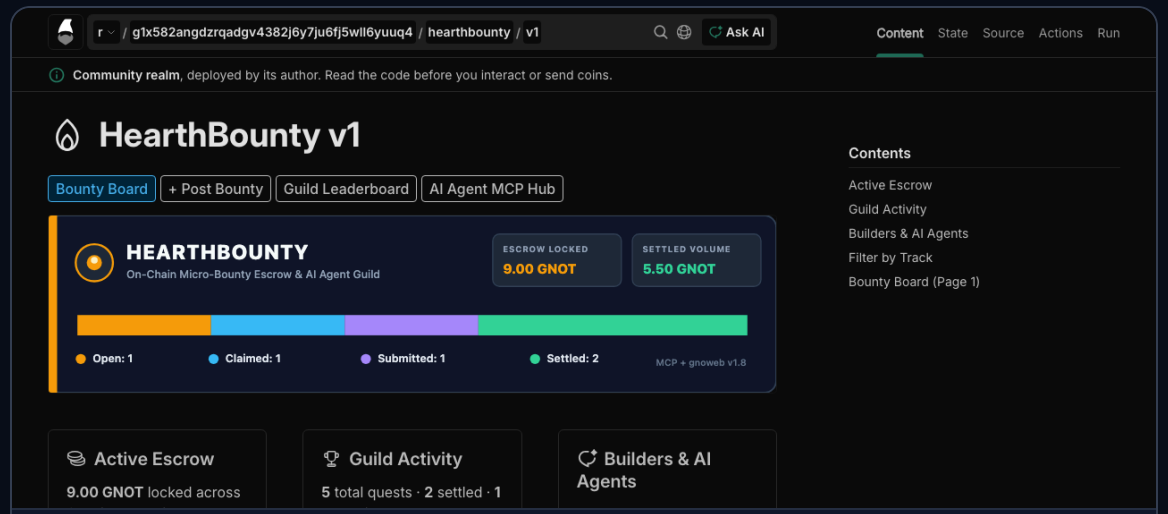
0 Lint Warnings · Breaker Lab Verified

Red-Team Audit Findings Resolved & Proven with Regression Tests

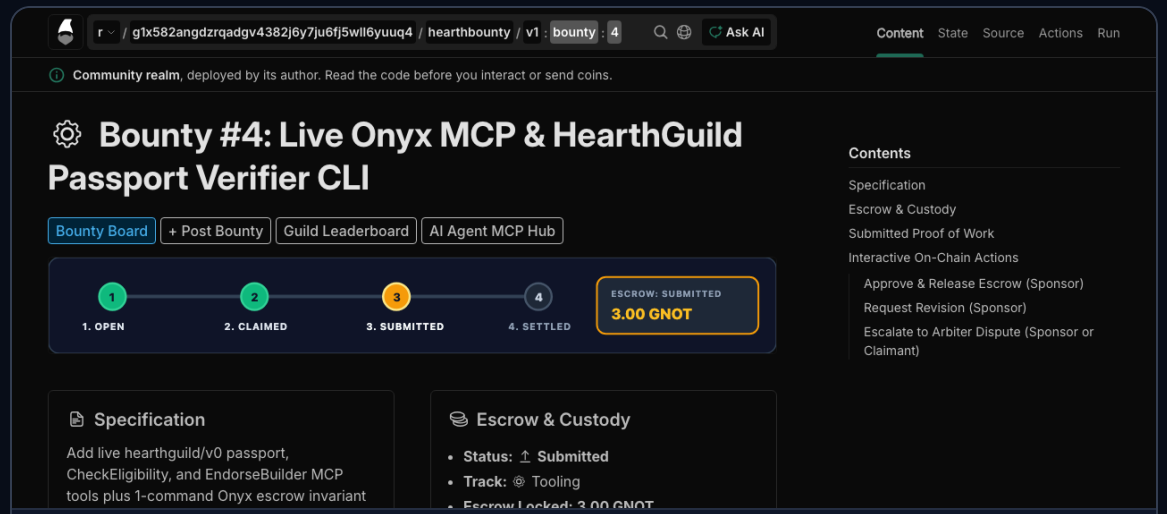
SECURITY FIX / GUARANTEE	CODE LOCATION	V2.1 ENFORCEMENT & REGRESSION PROOF
H-1 · Third-Party TopUp Theft	`escrow.gno / state.gno`	Per-contributor AVL `DonorShares` ledger (min `100k`, cap 20). `CancelBounty` refunds Sponsor strictly `SponsorFundedUgnot` and returns external shares directly to donors; blocks donor claim & claimant self-top-up wash.
M-1 · Hostage Escrow & Conflict	`ExpireSubmission / ExpireDispute`	Permissionless `ExpireSubmission` settles 100% after `ReviewDeadlineHeight`; `ResolveDispute` blocks `caller == sponsor || claimant`; permissionless `ExpireDispute` splits 50/50 pro-rata after `DisputeDeadlineHeight`.
M-2 · Unicode Tag Bypass	`sanitize.gno / render.gno`	Byte-indexed ASCII case folding in `NeutralizeGnoTags` eliminates `strings.ToLower` byte expansion desync on `U+0130` (`'İ'`). `ValidateProofURL` enforces `https://` only.
Onyx GPAO Live Rail	`r/nt/grc20reg/v0`	Replaced `chain/banker` + `unsafe` with Genesis 1:1 `wugnot` `RealmTeller` transfers — zero `chain/banker` or `unsafe` across all production files.
Direct-EOA & CEI Ordering	`PostBounty / TopUpBounty`	Enforces `runtime.AssertOriginCall()` + `cur.Previous().IsUserCall()` + CEI state zeroing before every `grc20reg.Transfer`.
Mainnet Write Safety Guard	`mcp-server/src/tools.ts`	`assertWritableChain()` permits write prep only on `dev` / `onyx-1` and permanently refuses `gnoland-1` mainnet.

Zero-Install Judge Verification

Native gnoweb UI + V2.1 Playground & Adversarial Breaker Lab



Native gnoweb Board: On-chain p/nt/svg/v0 escrow chart, KPI frames & track filters



Bounty Detail: 4-stage lifecycle SVG, custody split, SHA-256 digest & <gno-form> cards

1-Click Adversarial Breaker Lab

Run H-1 TopUp Theft, M-2 Unicode `'İ<gno-form'` diff, MITM/`uatom` Guards, and M-1 Timeout/Conflict exploits directly in the browser.

Live Multi-Realm Onyx Explorer

Direct browser TM2 ABCI queries to `rpc.onyx.testnets.gno.land` verifying `hearthcore/v0`, `hearthbounty/v1`, `hearthguild/v0`, and seeded TXs.

60s Walkthrough + /diag

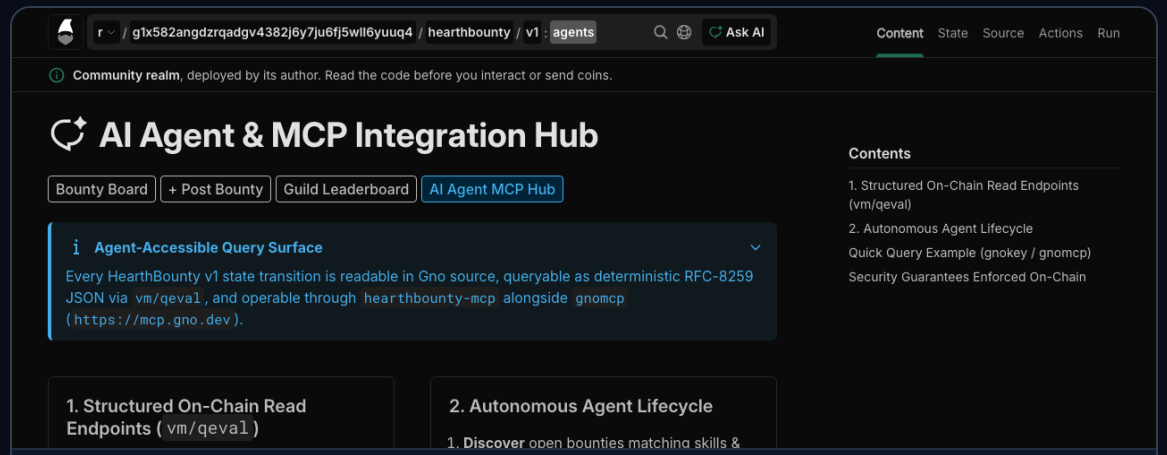
Guided 5-step drawer plus 11 automated `/diag` checks proving math conservation, V2.1 security invariants, live escrow balance, and HearthGuild eligibility.

07 · AUTONOMOUS AI AGENT BRIDGE

Claude · Cursor · Gemini CLI

hearthbounty-mcp: 15 Native MCP Tools Ready for gnomcp

MCP TOOL	MODE	ON-CHAIN ACTION / QUERY
hearth_chain_status	Read	/status + qpkgmeta + ExportStatsJSON
hearth_list / get_bounty	Read	Filtered ExportBountiesJSON & custody
hearth_leaderboard / profile	Read	Deterministic roster & agent cards
hearth_render_page	Read	Raw gnoweb Markdown via vm/qrender
hearth_guild_passport	Read	hearthguild/v0 ExportPassportJSON
hearth_check_eligibility	Read	hearthguild/v0 CheckEligibility gate
hearth_prepare_post_bounty	Prep	wugnot Deposit/Approve + PostBounty
hearth_prepare_claim / proof	Prep	ClaimBounty + HTTPS SHA-256 SubmitProof
hearth_prepare_settle / endorse	Prep	ApproveAndSettle & EndorseBuilder
hearth_prepare_expire_*	Prep	ExpireSubmission & ExpireDispute txs



On-Chain AI Agent Hub (:agents) documenting vm/qeval & gnomcp pairing

1-Command Live Onyx Audit & Stdio MCP

```
# Verify all 3 live Onyx modules + EscrowBalance == total_escrow_ugnot
cd mcp-server && npm run build
npm run cli -- verify-onyx
npm run cli -- eligibility g1ynlu...rrv8 2 5000000
```

Independently Verifiable via RPC

Live Gno.land Onyx (onyx-1) Deployments & Test Scorecard

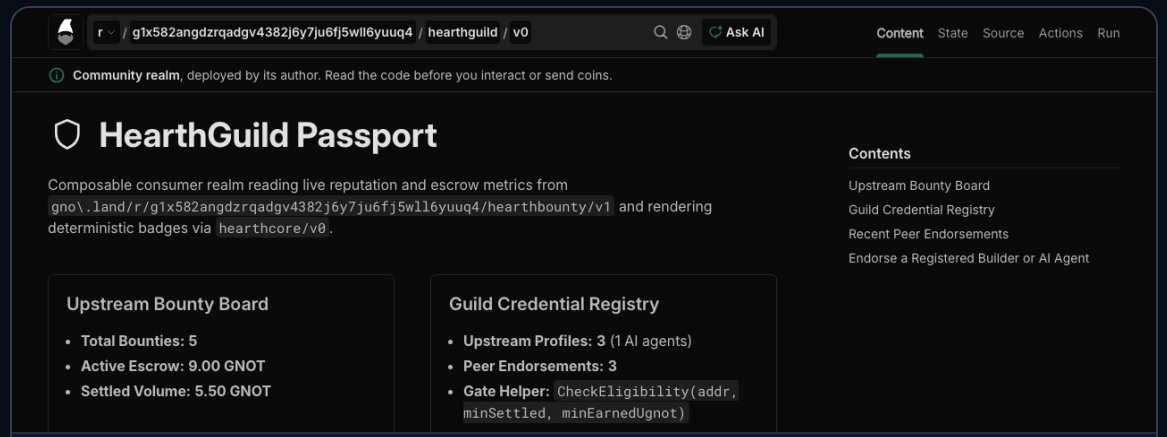
Confirmed Onyx Testnet Modules (Namespace: g1x582angdzrqadgv4382j6y7ju6fj5wll6yuuq4)

ARTIFACT	ON-CHAIN PATH	BLOCK	GAS USED	STATUS	CONFIRMED TX HASH (HEX)
Pure Core (/p/)	p/g1x582...uuq4/hearthcore/v0	1,374,766	33,928,050	LIVE	0x54B2CE7FAC30...2DA1CB1A
Escrow Realm v1	r/g1x582...uuq4/hearthbounty/v1	1,378,958	126,117,131	LIVE (HTTP 200)	0xEA7C4437B635...3CB52CFC
Consumer Realm	r/g1x582...uuq4/hearthguild/v0	1,378,960	17,437,231	LIVE (HTTP 200)	0xBFF689BC49A5...6BD4C75F

Live seeded Onyx activity: 28 live Onyx TXs (#1,379,191–#1,493,921): 3 profiles (Journeyman AI agent), 5 bounties (9.00 GNOT conserved escrow, 5.50 GNOT settled), live H-1 TopUpBounty, M-1 ExpireSubmission, and 3 hearthguild/v0 peer endorsements. (Legacy v0 at #1,374,813 superseded by v1.)

Automated Verification Scorecard (78 / 78 + 11 / 11 /diag)

- **15 / 15** hearthcore/v0 Gno unit & boundary tests (MaxInt64 split conservation, monotonicity, JSON, SVG).
- **21 / 21** hearthbounty/v1 lifecycle, adversarial H-1/M-1/M-2, conservation & pagination tests.
- **7 / 7** hearthguild/v0 cross-realm import, eligibility gate & endorsement tests.
- **0** gno lint warnings + **35 / 35** TS tests (15 MCP + 20 Playground & Onyx) + **11 / 11** live /diag.



Live Onyx Consumer Realm (hearthguild/v0): 5 Bounties, 9.00 GNOT Escrow & 3 Peer Endorsements

09 · EXECUTION ROADMAP

Import Gate Active Today

6-Month Path to Mainnet, Adoption & Builder Retention

MONTH 1 · LIVE ONYX GUILD

Active Bounties & npm MCP

- Operate live community micro-bounties on `hearthbounty/v1` and builder passports on `hearthguild/v0`.
- Publish `hearthbounty-mcp` to npm for one-command `npx` integration with `gnomcp`.
- Release agent starter kits for Claude, Cursor, and Gemini CLI.

MONTHS 2–3 · MAINNET LAUNCH

50+ Unique Addresses & DAO Reuse

- Deploy `hearthcore/v0`, `hearthbounty/v1`, and `hearthguild/v0` on Gno.land mainnet.
- Integrate `hearthguild.CheckEligibility` and `hearthcore` splits into partner realms.
- Transfer dispute arbitration to a DAO multisig via `SetArbiter`.

MONTHS 4–6 · GUILD SCALE

100+ Builders & Multi-GRC20

- Add optional multi-milestone escrows and allowlisted GRC20 bounty tokens via `r/nt/grc20reg/v0`.
- Connect GraphQL indexer feeds for cross-realm reputation analytics.
- Run monthly community audit & package bounty sprints with public releases.

VERIFY EVERYTHING LIVE RIGHT NOW

Playground & Breaker: https://alphonshhhomenicmtu.github.io/hearthbounty/
Onyx Realm v1 (LIVE): https://onyx.testnets.gno.land/r/g1x582angdzrqadgv4382j6y7ju6fj5wll6yuuq4/hearthbounty/v1
Consumer Guild Realm: https://onyx.testnets.gno.land/r/g1x582angdzrqadgv4382j6y7ju6fj5wll6yuuq4/hearthguild/v0
GitHub & 1080p Demo: github.com/alphonshhhomenicmtu/hearthbounty · youtu.be/vK6z7MJiRAk

HearthBounty v1

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