TsarChain GRAVITY Protocol — Draft v0.2 (EN)

No Corporation, No Cops, No Buzzer — Share Your ART and voice your rights!

Manifesto
GRAVITY is a protocol for loud art and louder truth. Not an NFT, not a stock, not a brand collab. Each work is a *digital monument* — permanently archived by TsarChain Storage Nodes and anchored to a block. Public comments are permanent too: once broadcast, they can't be deleted or edited. No central moderator. No free megaphone for buzzers. If someone wants to speak here, they pay — and the artist earns.

1) Core Ideas

• **Not an NFT**: No transferable ownership. GRAVITY is an archive of art & voice, not a speculation vehicle.
• **Block Anchor**: A work's identity binds its content hash with the block hash in which the upload TX is included.
• **Permanence**: Files are replicated by *Storage Nodes*; on-chain commitments reference what must exist off-chain.
• **Immutable Comments**: Each comment is a paid on-chain event; comment text is stored on-chain within safe byte limits.
• **Automatic Royalty**: 80% of every comment fee goes to the creator, 10% to the Storage Pool, ~10% to miners as fee.
• **Moderatorless**: The protocol is neutral. Local enforcement (if any) is a node operator choice.

2) Roles & Responsibilities

Creator (Artist): Uploads art, pays an upload fee, receives 80% royalty from every paid comment.
Citizen (Commenter): Pays to append a permanent comment to the work; can add an optional tip.
Miner: Validates and mines blocks; collects ~10% of each comment as transaction fee (input–output delta).
Storage Node: Permanently stores replicated copies (R). Earns 10% from comments plus a share of the upload endowment.
Indexer/Explorer: Indexes GRAVITY events and renders works & comment threads.

3) Economic Flows

3.1 Upload Fee

Creator pays based on file size: *UPLOAD_FEE_PER_100KB* with *MIN_BILLABLE_SIZE = 100KB*. Default allocation: 100% to the work's *Storage Pool* endowment to fund long-term retention (tunable in *config.py*).

3.2 Comment Fee

Each comment includes *comment_amount* (≥ *COMMENT_FEE_MIN*). Automatic split:
• 80% → creator address (royalty).
• 10% → work's *Storage Pool* (micropayment for replicas).
• ~10% → miners as fee (achieved by making total outputs = 90% of inputs).

3.3 Tips

Optional *tip_amount* goes 100% to the creator.

4) Data Model & Identifiers

4.1 Art Object

• File hash: Hc = SHA256(file_blob).
• Anchor block: Hb = block hash where the upload TX is confirmed.
• Creator: addrC (P2WPKH/P2SH depending on TsarChain config).
• **art_id** = SHA256("GRAVITY" || Hc || Hb || addrC).
• Optional metadata: mime_type, size_kb, title (≤ 64B), tags (≤ 128B).

4.2 Comment Object

• Max length: *COMMENT_MAX_BYTES* (e.g., 280B).
• **comment_id** = SHA256(art_id || txid || vout_index).
• Comment text is stored on-chain (UTF■8 → hex) via a compact data■carrier field.
• Anti■spam lever: *COMMENT_FEE_MIN* + optional wallet■UI rate limiting.

5) Storage Layer (Permanent)

• Replication factor R (default 5) using *consistent hashing* on a node ring keyed by *art_id*.
• A deterministic *Storage Pool Address* per *art_id*: *pool_addr = GRV_POOL(art_id)*.
• *Proof■of■Retention*: every *EPOCH_BLOCKS*, each storing node proves possession via random byte■range challenges; the current epoch's *pool_addr* balance is split among successful provers.
• If no new comments arrive, the initial upload fee acts as a base endowment for periodic payouts.

6) Wire Format (On■Chain Hints)

Use a compact data■carrier tag (OP_RETURN■style) for simple & deterministic indexing.

GRV_MAGIC = 0x47525631 ("GRV1")
Events: POST, COMMENT

POST payload (pseudo):
{ magic: GRV_MAGIC, event: POST, Hc, size_kb, mime, addrC, R_hint, meta_short }
Outputs: [pool_addr (upload endowment)]

COMMENT payload (pseudo):
{ magic: GRV_MAGIC, event: COMMENT, art_id, comment_utf8_hex }
Outputs: [80% → addrC, 10% → pool_addr] ; ≈10% miner fee via input–output delta.

7) Settlement & Payout

• On POST: the upload fee moves to the work's *pool_addr*. Funds unlock gradually per *EPOCH_BLOCKS* for nodes passing retention proofs.
• On COMMENT: the split in §3.2 is enforced on■chain; no centralized distributor.
• Nodes failing K consecutive epochs for a work receive no payout for those epochs (share redistributed to successful provers).

8) Limits, Abuse, and Privacy

• **Comment size**: constrained by *COMMENT_MAX_BYTES*; UTF■8 counted by bytes (emojis included).
• **Wallet rate■limit**: optional UI cooldown per address per art to reduce spam floods.
• **Pseudonymity**: comments originate from user addresses; allow new address per comment for better privacy.
• **Illegal content**: the protocol is neutral; storage is voluntary and non■custodial. Node operators may

set local policies.

9) Explorer & Indexer API (Sketch)

```
GET_ART(art_id) → { Hc, Hb, addrC, size_kb, mime, meta, replication, pool_addr }
GET_COMMENTS(art_id, paging) → list { comment_id, txid, height, addr_from, text }
GET_STORAGE_STATUS(art_id) → ring nodes, latest retention proofs, payout schedule
SEARCH(query) → text/tags (optionally mirrors off■chain index)
```

10) Worked Example

File = 720KB → billable = 800KB. UPLOAD_FEE_PER_100KB = 0.8 TSAR → upload_fee = 6.4 TSAR → pool_addr.
Comment A = 2 TSAR → 1.6 to creator, 0.2 to pool_addr, 0.2 miner fee.
Comment B with 5 TSAR tip → 1.6 royalty (from 2 TSAR) + 5.0 tip to creator; 0.2 to pool_addr; 0.2 miner fee.
Per epoch, storage nodes passing proofs split the available pool for this work.

11) Parameters (config.py)

PARAM	Default (v0.2)	Notes
UPLOAD_FEE_PER_100KB	0.8 TSAR	Upload fee per 100KB (rounded up)
MIN_BILLABLE_SIZE	100 KB	Minimum billable chunk
REPLICATION_R	5	Permanent replication factor
EPOCH_BLOCKS	720	Retention epoch (~1 day @2m/block)
COMMENT_MAX_BYTES	280	Max on■chain comment bytes
COMMENT_FEE_MIN	1 TSAR	Minimum comment fee
ROYALTY_CREATOR	0.80	Creator share of comment fee
SHARE_STORAGE	0.10	Storage pool share of comment fee
SHARE_MINER_FEE	≈0.10	Miner fee via I/O delta

12) Security Model (Short)

• TX signing follows TsarChain standards (P2WPKH/P2SH). GRAVITY adds new event types, not a new consensus.
• Clients validate file downloads via content hash Hc and block anchor Hb.
• Pool payouts are deterministic and auditable via *pool_addr* and retention logs.

13) Threat Notes & Anti■Buzzer Posture

• **Sybil Storage**: mitigated by per■epoch retention proofs & split among distinct node IDs.
• **Comment Flooding**: economic friction via *COMMENT_FEE_MIN* + wallet cooldown.
• **Content Takedown**: protocol has none. Storage is voluntary; diverse nodes = resilience. Buzzers must pay to speak — artists earn.

14) Tsar Studio Vibe Notes

We honor illegal ideas, not illegal harm. Underground by design: self■custody, no gatekeepers, receipts on■chain. *Long Live The Bootleg Monetary System.*
Tagline seeds: **“Where Designers Auction In The Dark.”** / **“Art Doesn’t Ask Permission.”**