RSW-0010 — Replication and Mirroring

Revision 0.01 | Protocol rsw/1 | Format 1 | Experimental proposal

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Experimental Project Specification. This document is an experimental specification of the Really Small Web project. It is a work in progress and has not been published as an RFC or approved as an Internet Standard.

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Post-MVP — experimental draft; not enabled in basic rsw/1

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MUST and MUST NOT indicate requirements of the described profile; SHOULD indicates a recommendation; MAY indicates an option. Experimental document, not yet ratified or implemented. The rules of RSW-0001 through RSW-0003 remain applicable.

01. Scope

Post-MVP replication and mirroring (Seed Library). The objective is to preserve the original bytes of redistributable public cartridges, not to execute code or create consensus. Manual copying in the MVP remains sufficient. A mirror does not assume the author's identity and does not replace the publication index.

02. Object and Catalog

The object is the complete PNG H_png; store and serve the exact bytes, without modifying cover, ZIP, manifest, or signature. HTTPS endpoint /rsw/<64 hex>.rsw.png, following the limits and policy of RSW-0005/0006. The mirror may offer its own catalog at /rsw-mirrors/v1/catalog.json: envelope {payload,signature}, signature in 128 hex, over ASCII("RSW/1:mirror-catalog") || NUL || JCS(payload), strict Ed25519. Exact payload: protocol="rsw/1", profile="mirrors/1", domain, public_key, sequence, objects. Domain and key follow RSW-0004/0003; sequence follows RSW-0006. objects is an array of up to 512 unique sha256: + hex strings, in lexicographic order. Limit 128 KiB and strict JSON validation. The domain must match the TLS origin; the signature binds the mirror operator, not the original author. A catalog does not say which edition is current.

03. Announcements and Resolution

RSW-0008 mirror event: exact body {domain, sha256}; public_key identifies the announcer. It is an untrusted availability hint; verify the catalog and the mirror's local binding before persisting the source. The user explicitly enables mirror domains. Given an expected H_png, try cache and previously authorized sources, then known mirrors under the RSW-0005 budget. Verify H_png and all of RSW-0001..0003; validate expected identity/edition when applicable. A mirror cannot provide a substitute with a different hash, even if the author's signature is valid. Key/name without location may still fail. No mandatory DHT search.

04. Library Policy

Opt-in operator, chooses objects with a license that permits redistribution or the corresponding authorization; content without an explicit license is not automatically redistributable. Never seed private cartridges, unsigned local files, unauthorized personal data, keys, or a private catalog. Reject invalid files. Separate objects from the privileged service and do not extract into the web root. Disk, bandwidth, and retention limits; prefer objects marked for preservation; require confirmation to delete pinned items. Removing a copy from the local mirror does not remove other copies. Do not promise recovery if all sources disappear.

05. Synchronization and Failures

Full-file transfer in the v1 experimental version, without delta, torrent, or arbitrary segments. For each source, compare the catalog sequence and payload hash as in RSW-0006; reject regressions and conflicts without affecting the authorship of stored objects. Batch synchronization requires explicit selection and a budget of object/byte counts. Do not follow peers of mirrored objects. After download, write a temporary file, validate, and move atomically into hash-addressed storage. Failures and removed files are treated as source unavailability. Avoid infinite retry and excessive parallelism.

06. Tests and Pending Items

Test origin down, legitimate mirror, wrong hash, tampered catalog, changed key, missing license, disk quota, interrupted copy, multiple packagings of the same edition, and offline recovery. Pending: implementation, paginated catalog, retention negotiation, legal policies, independent verification, and privacy review. P2P, IPFS, Blossom, and Hypercore may be future adapters, not requirements. References: RSW-0003/0005/0006/0008/0013/0016.

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