RSW-0004 — URI Scheme

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

Developed by Pablo Murad — November 23, 2026 — pablo@pablomurad.com — https://rsw.works

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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MVP — experimental normative proposal

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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

Defines the syntax of RSW addresses and internal references. It does not define how to locate an object (RSW-0005), nor does it register the scheme with IANA. RSW-0001/0002/0003 remain in force. The scheme is interpreted by the reader; it requires no new port, browser extension, or operating-system registration.

02. Grammar and Canonical Form

The absolute URI is up to 512 ASCII bytes. The grammar below uses case-sensitive literals; the regular expressions are anchored and ASCII. The characters < and > are notation only.

```
rsw://&lt;domain&gt;/&lt;name&gt;[/&lt;file&gt;][?v=&lt;version&gt;][#&lt;anchor&gt;]
rsw://key/&lt;key&gt;/&lt;name&gt;[/&lt;file&gt;][?v=&lt;version&gt;][#&lt;anchor&gt;]
rsw://sha256/&lt;hex&gt;[/&lt;file&gt;][#&lt;anchor&gt;]
```

name: [a-z0-9]+(?:-[a-z0-9]+)*, 1..64 bytes (RSW-0002). key: the 52 Base32 characters of the RSW-0003 key, without ed25519:; validate canonical decoding and point. Do not confuse with a fingerprint. hex: exactly 64 [0-9a-f] digits, without the sha256: prefix; represents H_png, not H_zip nor H_cover. version: [1-9][0-9]*, maximum value 9007199254740991; no leading zero. file: exact inventory path per RSW-0001, up to 240 bytes and eight segments. When omitted, means the entrypoint. Does not allow manifest.json or signature.sig at the root as a page. anchor: [a-z0-9][a-z0-9_-]{0,63}; local navigation only; not sent to the network. Absent anchors do not invalidate the cartridge.

Domain: lowercase ASCII DNS name, at least two labels, up to 253 bytes, each label of 1..63 characters [a-z0-9-], without leading or trailing hyphen. The final label contains at least one letter. No trailing dot, literal IP, port, userinfo, IPv6, localhost, or single-label hostname. Valid IDNA A-labels are permitted; no automatic Unicode conversion is made. key and sha256 are reserved authorities. Private names are not implicitly authorized by this syntax.

The v1 reader MUST reject spaces, controls, backslashes, percent-encoding, empty segments, . and .., repeated query, unknown query, empty fragment, trailing slash, and non-canonical case. The received URI is not silently corrected. The interface MAY offer an explicit correction before parsing. No additional decoding after validation. The limit includes query and fragment.

03. Semantics

Domain + name is a mutable locator. Key + name identifies a signed publication independent of hosting. SHA-256 identifies an immutable binary object, but is not a server address; the reader still needs a known source. The v-parameter edition is an exact selection, never a lower bound. Without v, request the current known edition under RSW-0013. Historical selection does not modify the publication head. The internal file is resolved after validating the package, only inside the chosen object. The URI does not request execution, recursive import, or automatic download.

04. Internal Links

In the Text/Static profile, an internal relative reference consists of a RSW-0001 path, /path from the virtual root, or #anchor. The relative path is concatenated to the current page's directory; . or .., percent-encoding, query, or // are not admitted; the result must satisfy the limits. To navigate from a subdirectory to the root, use /path. With no path, #anchor preserves the page. Absolute rsw:// links are validated again. External HTTPS links are classified as leaving RSW, not as an internal resource; they require user action. Do not interpret javascript:, data:, file:, blob:, mailto:, or unknown schemes in the MVP profile. RSW-0011 controls click mediation and rendering.

05. Processing

Parse bytes without network access; separate authority, path, query, and fragment; classify the namespace; apply the grammar; produce a tuple {kind, domain/key/hash, name, version, file, anchor}. Absent values remain absent. The resolver receives only this tuple. The canonical text of the URI is its valid original form; do not confuse address equivalence with content equivalence. To generate links to an exact version, prefer SHA-256 when H_png is known. The key-based URI can be copied even if no known source exists.

06. Vectors and Acceptance

Valid: rsw://example.org/journal; rsw://example.org/journal/pages/about.md?v=2#intro; rsw://key/AOQQPP7TZYIL4HLQ3UMOOS6ATFT6JVRQTOSQ2XY53SDGIESVGG4A/hello. Invalid: rsw://EXAMPLE.org/journal; rsw://example.org:443/journal; rsw://example.org/a/../b; rsw://example.org/a/%2e%2e; rsw://example.org/a?v=01; rsw://example.org/a?v=2&v=3; rsw://example.org/a/; rsw://127.0.0.1/a; rsw://example.org/a#.

Syntactic rejection returns INVALID_URI. An unrecognized future namespace does not authorize an HTTPS fallback. FILE_NOT_FOUND and ANCHOR_NOT_FOUND are later results. Test roundtrip, limits, homoglyphs, encoding, reserved characters, and the separation between URI and HTTP URL.

07. Pending Items and References

Implement the parser in Go, interoperability tests, verify scheme collision, and consider provisional IANA registration. No registration is claimed. References: RFC 3986 https://www.rfc-editor.org/rfc/rfc3986.html ; RFC 7595 https://www.rfc-editor.org/rfc/rfc7595.html ; RSW-0001/0002/0003/0005/0011/0013.

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