PMSI-SPEC-001

Canonical Hash Record Format (CHR-F)

Version: v1.0 | Status: Locked & Frozen

1. Purpose

Defines the canonical format for recording a cryptographic hash of a digital artifact in a reference-stable structure.

This specification does not verify, endorse, interpret, or validate the artifact being hashed.

2. Scope

Applies to structured publication of:

- Cryptographic hash values
- Associated algorithm identifiers
- Timestamps
- Artifact identifiers

Does not define:

- Artifact validity
- Artifact authenticity
- Legal standing
- Ownership
- Compliance

3. Canonical Record Structure

A valid CHR-F record MUST contain the following fields in the exact order specified:

1. `spec_id`
2. `spec_version`
3. `artifact_identifier`
4. `hash_algorithm`
5. `hash_value`
6. `timestamp_utc`
7. `encoding`

No additional fields are permitted in v1.0.

4. Field Definitions

4.1 spec_id

Literal string:

```
PMSI-SPEC-001
```

4.2 spec_version

Literal string:

```
v1.0
```

4.3 artifact_identifier

Constraints:

- MUST be single line
- MUST NOT contain newline characters
- MUST NOT contain colon (:)
- MUST be valid UTF-8
- Maximum length: 255 characters
- MUST NOT contain leading or trailing whitespace

4.4 hash_algorithm

Permitted values in v1.0:

- SHA-256

No other algorithm is valid under v1.0.

4.5 hash_value

For SHA-256:

- Exactly 64 characters
- Lowercase hexadecimal (0–9, a–f)
- No whitespace
- No prefix

4.6 timestamp_utc

Format:

```
YYYY-MM-DDTHH:MM:SSZ
```

Constraints:

- Must use UTC (Z)
- No fractional seconds
- No timezone offsets
- No leading or trailing whitespace

4.7 encoding

Literal string:

```
UTF-8
```

5. Canonical Serialization Rules

The record MUST:

- Be encoded in UTF-8
- Use Unix line endings (\n)
- Contain exactly one newline after each field line
- End with a single trailing newline
- Contain no trailing blank lines
- Contain exactly one space after each colon
- Contain no leading or trailing whitespace in field values

Field-value format:

```
spec_id: PMSI-SPEC-001
spec_version: v1.0
artifact_identifier: example.pdf
hash_algorithm: SHA-256
hash_value: 1afcbc5ed6dfcd17a87db8cadec4f2372087ec9fb6cd17f57668ff5d4fb729bc
timestamp_utc: 2026-02-17T14:32:05Z
encoding: UTF-8
```

Field order MUST NOT vary.

6. Validation Criteria

A CHR-F record is valid if:

- All required fields are present
- Field order matches §3
- Field values conform to §4 constraints
- Serialization conforms to §5 rules

This specification does not validate whether the hash corresponds to the artifact.

7. Versioning & Amendment

Changes to:

- Field structure
- Allowed algorithms
- Serialization rules

Require a new spec_version.

8. Exclusions

Does not:

- Certify artifacts
- Confirm authorship
- Confirm timestamp accuracy
- Provide legal standing
- Create compliance status

PMSI-SPEC-002

Canonical Version Identifier Format (VIF)

Version: v1.0 | Status: Locked & Frozen

1. Purpose

Defines the canonical structure for version identifiers used in PMSI publications.

Does not define semantic meaning of versions.

2. Canonical Version Structure

Format:

```
vMAJOR.MINOR
```

Examples:

- v0.0
- v1.0
- v12.4

3. Constraints

- MUST begin with lowercase v
- MAJOR and MINOR MUST be non-negative integers
- No leading zeros (except the single digit 0)
- Exactly one period separator
- No patch number
- No suffixes (e.g., no -beta, -rc)
- No leading or trailing whitespace

Invalid examples:

- 1.0
- V1.0
- v01.0
- v1.0.0
- v1.0-beta

4. Increment Rules

- MAJOR increment → structural change
- MINOR increment → mechanical clarification

This specification does not define criteria for increment decisions.

5. Serialization

Version string MUST appear exactly as defined.

UTF-8 encoding required.

Single line only.

Reference Identifier Structure (RID-F)

Version: v1.0 | Status: Locked & Frozen

1. Purpose

Defines the canonical structure for PMSI publication identifiers.

2. Canonical Identifier Structure

Format:

```
PMSI-[TYPE]-NNN
```

Where:

- TYPE ∈ {SPEC, DEF, CON}
- NNN = three-digit zero-padded integer

Examples:

- PMSI-SPEC-001
- PMSI-DEF-004
- PMSI-CON-002

3. Constraints

- Uppercase only
- Hyphen separators required
- NNN must be numeric
- Must be exactly three digits
- No additional suffix permitted
- No whitespace allowed

Invalid examples:

- pmsi-spec-001
- PMSI-SPEC-1
- PMSI-SPEC-001-A

4. Identifier Stability

Identifier MUST NOT change across versions.

Example:

- PMSI-SPEC-001 v1.0
- PMSI-SPEC-001 v1.1

Identifier remains identical.

5. Serialization

Identifier MUST:

- Be UTF-8 encoded
- Contain no leading or trailing whitespace
- Appear exactly as defined