

# MSCWG Requirements Specification

Alex Ball Keith Jeffery Rebecca Koskela

The Metadata Standards Catalog Working Group (MSCWG) plans to develop the next generation of the [Metadata Standards Directory](#). In broad outline, we want the information held by the Catalog to be more structured and granular, and to provide an API so that the information may be queried by automated tools, and returned in a form that tools would be able to parse and act upon. The Catalog will also be used by the Metadata Interest Group (MIG) to store mappings to metadata packages; these packages are intended to ease the task of comparing and translating between different standards.

This document refines these broad aspirations into a more precise set of requirements, based on the set of [User Stories](#) contributed by members of the MSCWG and its predecessor, the Metadata Standards Directory Working Group (MSDWG). The User Stories themselves are not repeated in this document, but are referred to by their identifier (e.g. 'A-ID').

Each requirement consists of the following information:

- **Requirement:** The requirement itself. Some requirements have been labelled according to the aspect of the Catalog to which they relate.
- **Validation:** The User Story ID from which the requirement was derived. If the requirement is based on preserving functionality from the Metadata Standards Directory rather than a User Story, the code 'MSD' is used in place of a User Story ID.
- **Prerequisite:** An implication that the requirement has for the internal design of the Catalog.
  - Prerequisites marked '*Data*' are pieces of information that the Catalog would need to hold about a metadata scheme in order to provide the functionality.
  - Prerequisites marked '*Function*' are internal functions the Catalog would have to implement.
- **Priority:** One of the following:
  - *Must:* Meeting this requirement is an essential success criterion. The Catalog cannot be released without it being met.
  - *Should:* Meeting this requirement is a high priority but not an essential criterion. We will try hard to meet it but may release the Catalog without having done so.
  - *Could:* Meeting this requirement is a low priority. We will factor it into the design of the Catalog, so that if we do not have time or effort available to meet it prior to release, we can come back to it after release.

# System description

The Metadata Standards Catalog (MSC) will be an online application with two interfaces:

- a set of Web pages designed for human interaction (GUI);
- a Web service endpoint aimed at machine-to-machine interaction (API).

The aim of the MSC is to provide information about metadata standards and related resources/entities, to reduce the barriers to researchers using these standards to document their research data.

## Data model

The MSC will hold detailed records for metadata schemes, understood as defined sets of elements (e.g. properties, keys, relations) that may be used to describe/document datasets, particularly research datasets. These include sets that are normally serialized as a standalone document or record, and those that are normally embedded in the same file as the data themselves.

The MSC will record relationships between metadata schemes. The relationship 'is profile of' (inverse: 'has profile') indicates that the first scheme directly borrows elements from the second, though perhaps with different usage instructions.

The term 'standard' is used to mean either that the scheme is maintained by a recognized standards body (*de jure*) or that is used independently by more than one user group (*de facto*). Priority for inclusion will be given to standards and profiles of standards.

Certain properties of metadata schemes will be expressed as relationships to other records, representing other entities. Examples include tools, user organizations, standards maintaining bodies, funding bodies. Reliable external registries will be preferred if available, otherwise the MSC will hold minimal records for these entity types.

## Functional Requirements

### Search or browse

Requirement	GUI search: Responding to a search query of a metadata scheme identifier, display the corresponding record.  API search: Responding to a search query of a metadata scheme identifier, return the corresponding record.
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Validation	A-ID, P-DLREC
Prerequisite	Data: ID, Alternate ID
Priority	Must

Requirement	<p>GUI search: Responding to a search query of a metadata scheme name, display a list of matching records.</p> <p>API search: Responding to a search query of a metadata scheme name, return a list of corresponding record IDs.</p>
Validation	
Prerequisite	Data: Title
Priority	Must

Requirement	<p>GUI search: Responding to a search query of a set of subject terms, display a list of matching records.</p> <p>API search: Responding to a search query of a set of subject terms, return a list of corresponding record IDs.</p>
Validation	A-SUBJECT, F-SUBJECT, P-SUBJECT
Prerequisite	Data: Subject classification
Priority	Must

Requirement	GUI browse: Filter out records that do not match a given set of subject terms
Validation	MSD, F-FILTER
Prerequisite	Data: Subject classification
Priority	Must

Requirement	<p>GUI search: Responding to a search query of (a) a funding body or (b) a data type, display a list of matching records.</p> <p>API search: Responding to a search query of (a) a funding body or (b) a data type, return a list of corresponding record IDs.</p>
Validation	A-FUND, A-TYPE, P-SUBJECT

Prerequisite	Data: Funder, Data type <b>Any others?</b>
Priority	Should

Requirement	GUI browse: Filter out records that do not match a given set of criteria: <ul style="list-style-type: none"> <li>• Maintained by a standards body</li> <li>• Number of known user organizations (banded)</li> </ul>
Validation	F-FILTER
Prerequisite	Data: Standards maintaining body, User organizations, Standard status ( <i>de jure</i> , <i>de facto</i> , draft?, deprecated?) <b>Any others?</b>
Priority	Should

Requirement	API search: Responding to a search query of a set of element names, return a list of record IDs corresponding to metadata schemes containing those elements.
Validation	P-ID
Prerequisite	Data: Normalized specification
Priority	Should

Requirement	GUI search: Responding to a search query of a set of DOIs, display a list of matching records.  API search: Responding to a search query of a set of DOIs, return a list of corresponding record IDs.
Validation	F-SUBJECT
Prerequisite	Function: Translate abstract text/keywords into subject classification used by MSC
Priority	Could

Requirement	API search: Responding to a search query of a value encoding, return a list of record IDs corresponding to metadata schemes containing those elements, and for each, the names of elements using those encodings.
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Validation	P-DLENC
Prerequisite	Data: Normalized specification
Priority	Could

## Display

Requirement	Display list of schemes (a) that are profiles of this scheme, and (b) schemes of which this is a profile.
Validation	MSD, D-RELATE, F-COMPARE3
Prerequisite	Data: Is profile of
Priority	Must

Requirement	Display elements used for search, either directly or as a link.
Validation	MSD
Prerequisite	Data: ID, Alternate ID, Title, Subject classification, Funder, Data type, Standards body, User organizations, Normalized specification
Priority	Must

Requirement	Display other elements used by MSD.
Validation	MSD
Prerequisite	Data: Description, Native specification URL, Documentation URL, Externally maintained value constraints, Existing crosswalks, Status, Tools
Priority	Must

Requirement	API: Responding to a query of a metadata scheme identifier and an MSC record element name, return the value of that element for the given metadata scheme.
Validation	P-DLPROP
Prerequisite	—
Priority	Must

Requirement	Display version history of this scheme as a list of version numbers and corresponding dates.
Validation	D-HISTORY1
Prerequisite	Data: Versions
Priority	Should

Requirement	Display name of/link to responsible standards body.
Validation	MSD, D-BODY
Prerequisite	Data: Standards body
Priority	Should

Requirement	Display version history of this scheme as a timeline.
Validation	D-HISTORY2
Prerequisite	Data: Versions
Priority	Could

Requirement	Provide links to (internally hosted) sample records that use this scheme.
Validation	D-SAMPLE
Prerequisite	Data: Sample records
Priority	Could

Requirement	Display any community endorsements of the scheme along with a reference to the documentation for this endorsement.
Validation	D-BADGE
Prerequisite	Data: Endorsement (by whom, documentation link)
Priority	Could

Requirement	Display automatically calculated maturity rating.
Validation	D-MATURE
Prerequisite	Data: Standards body, User organizations, Versions... Function: Calculate maturity rating
Priority	Could

## Update

Requirement	GUI: Provide Web form for adding or editing records.
Validation	F-EDREC
Prerequisite	—
Priority	Must

Requirement	API: Responding to an uploaded MSC record, add it to the MSC or replace the corresponding existing record.
Validation	P-ULREC
Prerequisite	—
Priority	Should

## Compare

Requirement	GUI: Display visualizations of two metadata standards side-by-side, such that common (or similar) elements and value constraints are visible.
Validation	F-COMPARE1, F-COMPARE2, F-COMPARE3
Prerequisite	Data: Normalized specification
Priority	Should

Requirement	API: Responding to a pair of metadata scheme identifiers, return a crosswalk (or a sequence of crosswalks) for translating from the first to the second.
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Validation	P-MIGRATE, P-XWALK
Prerequisite	Data: Normalized specification, Normalized crosswalks Function: Calculate crosswalk from two specifications, Calculate migration pathway from existing crosswalks
Priority	Could

## Non-functional requirements

Requirement	Reliability: Give each metadata standard record its own Web page with a <a href="#">Cool URI</a> .
Validation	
Prerequisite	
Priority	Must

Requirement	Reliability: Evolve the public API in a backwards-compatible way.
Validation	
Prerequisite	
Priority	Must

Requirement	Usability: On form elements requiring a controlled term, prompt the user with the available options.
Validation	
Prerequisite	
Priority	Must

Requirement	Security: Allow registered users to update records, with version control to allow rollback of bad edits.
Validation	
Prerequisite	
Priority	Must

