

Discovery and Provenance Metadata for Persistent Data Objects

Metadata Item	Type	Origin	R/C	Description
Identity				
Title	string	Dublin Core	R	A name given to the data object
ShortName	string	Dublin Core		A short abbreviation for the name given to the data object
Identifier	URI	Dublin Core	R	An unambiguous persistent reference to the data object within a given context
Curation				
Publisher	string	Dublin Core	R	An entity responsible for making the data object available
PublisherID	URI			The identifier for the entity responsible for making the data object available
Creator	string	Dublin Core	C	An entity primarily responsible for making the content of the data object
Creator.Logo	URL			A URL pointing to a graphical logo, which may be used to help identify the information resource
Contributor	string	Dublin Core	C	An entity responsible for making contributions to the content of the data object
Date	string	Dublin Core	R	A date associated with an event in the life cycle of the data object. Typically, Date will be associated with the creation or availability (i.e., most recent release or version) of the data object. ISO8601 is the preferred format (YYYY-MM-DD)
Version	string			A label associated with the creation or availability (i.e., most recent release or version) of the data object
Contact	string, e-mail address			The e-mail address for contacting the persons responsible for the data object
Contact.Name	string			The name of the contact
Contact.Address	string			The mailing address of the contact
Contact.Email	string			The e-mail address of the contact
Contact.Telephone	string			The telephone number of the contact
General Content Metadata				
Subject	string, list	Dublin Core		A list of the topics, object types, or other descriptive keywords about the data object
Description	string, free text	Dublin Core		An account of the content of the data object
Reference	string	Dublin Core		A bibliographic reference from which the present data object is derived or extracted
ReferenceURL	URL			A URL pointing to additional information about the data object. In general, this information should be human-readable
Type	string, list	Dublin Core	R	The nature or genre of the content of the data object
ContentLevel	string, list			A description of the content level, or intended audience
Relationship	string		R	A data object may be related to another data object in a way that is important to document, so that associated services or duplicate copies may easily be located. The highlighted values are recommended
RelationshipID	URI		C	The identifier of an associated data object. The relationship is described in the Relationship metadata element
Collection and Service Content Metadata				
Facility	string, list			The observatory or facility where the data was obtained
Instrument	string, list			The instrument used to collect the data

Coverage	string	Dublin Core		The extent of scope of the content of the data object
Coverage.Spatial	string			The sky coverage of the data object
Coverage.Spectral	string			The spectral coverage of the data object
Coverage.Spectral.Bandpass	string			A specific bandpass specification
Coverage.Spectral.CentralWavelength	string			The central wavelength of the spectral bandpass, in meters
Coverage.MinimumWavelength	string			The minimum wavelength of the spectral bandpass, in meters
Coverage.MaximumWavelength	string			The maximum wavelength of the spectral bandpass, in meters
CoverageTemporal.StartTime	string			The earliest temporal coverage of the data object
Coverage.Temporal.StopTime	string			The latest temporal coverage of the data object
Coverage.Depth	float			The (typical) depth coverage, or sensitivity, of the data object in Jy
Coverage.ObjectDensity	float			The (typical) density of objects, catalog entries, telescope pointings, etc., on the sky, in number per square degree
Coverage.ObjectCount	int			The total number of objects, catalog entries, etc., in the data object
Coverage.SkyFraction	float			The fraction of the sky represented in the observations, ranging from 0 to 1
Resolution	float			The resolution of the data object contents
Resolution.Spatial	float			The spatial (angular) resolution that is typical of the observations, in decimal degrees
Resolution.Spectral	float			The spectral resolution that is typical of the observations, given as the ratio $\lambda/\Delta\lambda$ (so that higher spectral resolution has a larger number)
Resolution.Temporal	float			The temporal resolution that is typical of the observations, given in seconds
UCD	string, list			A list of the UCDs (Unified Content Descriptors represented in the data object)
Format	string, list	Dublin Core	R	The physical or digital manifestation of the information provided by the data object: fits, jpg, ascii, csv, tsv, tar, etc.
Rights	string	Dublin Core		Information about rights held in and over the data object

Data and Metadata Quality Assessment

DataQuality	char			An overall assessment of the integrity, consistency, and level of documentation concerning uncertainty estimates and calibration procedures, of the data object provided
ResourceValidationLevel	int			A numeric grade describing the quality of the data object description and interface, when applicable, to be used to indicate the confidence an end-user can put in the data object as part of a VO application or research study
ResourceValidatedBy	URI			The IVOA identifier for the registry or organisation that set the value of ResourceValidationLevel
Uncertainty.Photometric	float			The uncertainty of the photometric measurements provided by the data object, given in Jy
Uncertainty.Spacial	float			The uncertainty of the astrometric, or positional measurements, provided by the data object, given in degrees
Uncertainty.Spectral	float			The uncertainty of the wavelengths provided by the data object, given in meters
Uncertainty.Temporal	float			The uncertainty of the temporal measurements provided by the data object, given in seconds

R *Required*

C *Required if applicable in Context*

Discovery and Provenance Metadata Values

Type values

	Description
Observation	Collection of data objects (files) associated with one or more observations
Object	Collection of data objects (files) associated with one or more celestial objects
Image	One or more 2-D images
Mosaic	Mosaic of multiple 2-D images
Cube	One or more 3-D data cubes
Spectrum	One or more 1-D spectra
LightCurve	One or more 1-D light curves
EventList	One or more event lists
Catalog	Collection of derived data, primarily in tabular form
Table	Table of values; at least two columns
Value	Single value
ValuePair	Keyword-value pair
Library	Collection of published materials (journals, books, etc.)
Simulation	Theoretical simulation or model
Survey	Collection of observations covering substantial and contiguous areas of the sky
Animation	Animation clips of astronomical phenomena
Artwork	Artist's renderings of astronomical phenomena or objects
Facsimile	Digitized facsimile of (historical) document
Historical	Historical information about astronomical objects.
Other	A data object not described by any of the above types

Relationship values

	Description
primary	The data object is the original copy, published by the creator
mirror-of	The data object is a mirror of another data object. Information gathered from the data objects is indistinguishable.
service-for	The data object is a service associated with a data collection.
derived-from	The data object is a derivative of another data object, e.g., a subset selected for a particular scientific interest, or a reprocessed data collection
copy-of	The data object is a copy of an object that was obtained from another repository
served-by	The data object can be accessed via another service resource.

DataQuality values

A

Description

Data are fully calibrated, fully documented, and suitable for professional research

B	Data are calibrated and documented, but calibration quality is inconsistent. Users are advised to check data carefully and recalibrate.
C	Data are uncalibrated.
U	Data quality is unknown. If a data object does not provide a data quality assessment, class U should be assumed.

ResourceValidationLevel
values

Description

0	The data object has a description that is stored in a registry. This level does not imply a compliant description.
1	In addition to meeting the level 0 definition, the data object description conforms syntactically to this standard and to the encoding scheme used.
2	In addition to meeting the level 1 definition, the data object description refers to an existing data object that has been demonstrated to be functionally compliant.
3	In addition to meeting the level 2 definition, the data object description has been inspected by a human and judged to comply semantically to this standard as well as meeting any additional minimum quality criteria (e.g., providing values for important but non-required metadata) set by the human inspector (see comment below).
4	In addition to meeting the level 3 definition, the data object description meets additional quality criteria set by the human inspector and is therefore considered an excellent description of the data object.