

# Emergency Management Metadata Profile of ISO 19115-1:2014/AMD 1:2018

GEOSCIENCE AUSTRALIA

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# Revision History

Date	Version	Author	Description
2021-04-13	1	Martin Capobianco	Creation of Draft
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# 1 Overview

The purpose of this document is to define an Emergency Management (EM) Metadata Profile Extension to the ISO 19115-1:2014/AMD 1:2018 to identify the metadata required to accurately describe EM resources. The EM Metadata Profile is designed to support the documentation and discovery of EM datasets, services and other resources. This version of the Profile was developed to reflect extensions made to the current version of the international metadata standard: ISO 19115-1:2014/AMD 1:2018.

## 1.1 Contact Details

The EM metadata Profile is maintained by the Spatial Data Architecture Section National Location Information Branch Place, Space & Communities Division, Geoscience Australia.

## 1.2 References

The following normative documents contain important requisite references for the application of this profile.

- AS/NZS ISO 19115.1:2015, Geographic information – Metadata *{equivalent to ISO 19115-1:2014}*
- ISO 19115-1:2014/AMD 1:2018, Geographic information – Metadata – Part 1: Fundamentals Amendment 1
- ISO 19115-3:2016, Geographic information – Metadata – Part 3: XML schema implementation for fundamental concepts
- ISO 19119:2016, Geographic information – Services
- ISO 19106:2004, Geographic Information – Profiles
- ISO/IEC 19501:2005, Information technology – Open Distributed Processing – Unified Modelling Language (UML) Version 1.4.2

# 2 EM Metadata Profile Extension to the ISO 19115-1:2014/AMD 1:2018

## 2.1 Introduction

The International Standard ISO 19115-1:2014/AMD 1:2018 (Geographic information – Metadata) defines more than 300 metadata elements, with most of these being listed as Optional. The ISO standard states that individual communities may develop a Profile of the International Standard. The conditionality of a select set of metadata elements may be raised but never reduced for a set of users – optional -> conditional or mandatory but never the other way. A community may also want to establish additional metadata elements that are not in the International Standard. A profile should establish domains for all metadata elements. The rules for creating profiles are described in the International Standard Geographic Information – Profiles (ISO 19106:2004).

ISO 19106 stipulates particular terminology that must be used when any variation is made to a Standard, namely referring to changes as an Extension.

It should be noted that there are no 'new' elements in the EM Metadata Profile. The obligation levels of 17 elements from ISO 19115-1:2014/AMD 1:2018 have been changed, and according to ISO 19106, they form an 'extension' to ISO 19115-1:2014/AMD 1:2018.

- This document highlights all mandatory and conditional packages/entities from ISO 19115-1:2014/AMD 1:2018.
- All other entities and packages remain available and can be used as required to describe datasets and datasets.
- The other entities and packages have to be used as defined by ISO 19115-1:2014/AMD 1:2018.

## 2.2 Metadata packages

The ISO 19115-1:2014/AMD 1:2018 presents metadata for geographic information in UML Packages. Each package contains one or more entities (UML Classes), which can be specialised (subclassed) or generalised (superclassed). Entities contain elements (UML class attributes) which identify the discrete properties of metadata. Entities may be related to one or more other entities. Entities can be aggregated and repeated as necessary to meet: (1) the mandatory requirements stated in this Standard; (2) additional user requirements.

This document provides UML diagrams only for the packages containing variations to the ISO 19115-1:2014/AMD 1:2018. The elements from EM Metadata Profile are specified in the UML model diagrams and data dictionary for each package, which can be found in Annex A and Annex B respectively. The relationship between metadata packages and metadata entities is shown in the Table 1.

*Table 1: Relationship between packages of metadata and metadata entities*

Package	Entity	UML Diagram	Data Dictionary (Dd)
Metadata entity set information	MD_Metadata	A.2.1	B.2.1
Identification information	MD_Identification	A.2.2	B.2.2
Constraint information	MD_Constraints	A.2.3	B.2.4
Lineage	LI_Lineage	A.2.4	B.2.6
Maintenance information	MD_Maintenance	A.2.5	B.2.7
Reference System Information	MD_ReferenceSystem	A.2.7	B.2.8



## 2.3 Package descriptions

This subsection provides an overview of the packages containing properties whose constraints have been changed by this profile.

### 2.3.1 Metadata entity set information (MD\_Metadata)

Metadata entity set information consists of the entity (UML class) MD\_Metadata, which is mandatory. The MD\_Metadata entity contains both mandatory and optional metadata elements (UML attributes). Table 2 defines properties of the MD\_Metadata entity that have been changed by this profile.

Table 2: Metadata entity set information (Table B.1)

Dd #	Name	Definition	Change from the ISO 19115-1
16	metadataIdentifier	unique Identifier for this metadata record	Optional → Mandatory
27	referenceSystemInfo	description of the spatial and temporal reference systems used in the resource	Optional → Conditional
34	metadataConstraints	restrictions on the access and use of metadata	Optional → Mandatory
37	resourceLineage	information about the provenance, source(s), and/or the production process(es) applied to the resource	Optional → Mandatory

### 2.3.2 Identification information (MD\_Identification)

Identification information supports the provision of information to uniquely identify the resource. It includes information about the citation for the resource, an abstract, the purpose, credits, status of the resource and points of contact. The MD\_Identification entity is mandatory. The MD\_Identification entity MUST be specialised (subclassed) as MD\_ServiceIdentification when used to describe services or MD\_DataIdentification when used to identify other resources.

Table 3 defines properties of the MD\_Identification entity that have been changed by this profile.

Table 3: Identification Entity Set Information

Dd #	Name	Definition	Change from the ISO 19115-1
48	pointOfContact	identification of, and means of communication with, person(s) and organization(s) associated with the resource(s)	Optional → Mandatory
52	topicCategory	main theme(s) of the resource	Conditional → Mandatory
56	<i>Role name:</i> resourceMaintenance	information about the frequency of resource updates, and the scope of those updates	Optional → Mandatory

Dd #	Name	Definition	Change from the ISO 19115-1
61	<i>Role name:</i> resourceConstraints	information about constraints which apply to the resource(s)	Optional → Mandatory
59	<i>rolename:</i> descriptiveKeywords	category keywords, their type, and reference source	Optional → Mandatory

### 2.3.3 Citation, responsibility, and party information (CI\_Citation, CI\_Responsibility, and CI\_Party)

*This package provides a standardised method for citing a resource, as well as information about the party responsible for a resource. Citations use CI\_Citation and cite the party responsible using CI\_Responsibility. CI\_Responsibility may be used without CI\_Citation. CI\_Responsibility is an aggregate of one or more parties (CI\_Party). CI\_Party may be specified as CI\_Individual and/or CI\_Organisation. Table 4 defines properties of the CI\_Citation entity that have been changed by this profile.*

Table 4: Citation Entity Set Information

Dd #	Name	Definition	Change from the ISO 19115-1
364	date	reference date for the cited resource	Optional → Mandatory
367	identifier	value uniquely identifying an object within a namespace	Optional → Mandatory
368	citedResponsibleParty	roles, name, contact, and position information for an individual or organisation that is responsible for the resource	Optional → Mandatory

### 2.3.4 Constraint information (MD\_Constraints)

Constraint information supports the provision of information concerning the legal and security constraints placed on data and metadata. The MD\_Constraints entity is mandatory for both resource and metadata. Metadata constraints must be specified as MD\_SecurityConstraints. Resource constraints must be specified as MD\_SecurityConstraints and MD\_LegalConstraints.

Table 5 defines properties of the MD\_Constraints entity that have been changed by this profile.

Table 5: Constraint Entity Set Information

Dd#	Name	Definition	Change from the ISO 19115-1
102	reference	citation for the limitation or constraint. example: Copyright statement, licence agreement, etc.	Optional → Mandatory

Table 6 defines properties of the MD\_LegalConstraints entity that have been changed by this profile.

Table 6: Legal Constraint Entity Set Information

Dd#	Name	Definition	Change from the ISO 19115
106	accessConstraints	access constraints applied to assure the protection of privacy or intellectual property, and any special restrictions or limitations on obtaining the resource or metadata	Conditional → Conditional (changed condition)
107	useConstraints	constraints applied to assure the protection of privacy or intellectual property, and any special restrictions or limitations or warnings on using the resource or metadata	Conditional → Conditional (changed condition)

### 2.3.5 Lineage information (LI\_Lineage)

This package supports the provision of metadata concerning the production processes used in producing a resource. It is mandatory and contains a statement about the lineage information. The “statement” element is mandatory.

Table 7 defines properties of the LI\_Lineage entity that have been changed by this profile.

Table 7: Lineage Entity Set Information

Dd#	Name	Definition	Change from the ISO 19115
119	statement	general explanation of the data producer’s knowledge about the lineage of a dataset	Optional → Mandatory

### 2.3.6 Reference information (MD\_ReferenceSystem)

This package supports the metadata identifying the spatial, temporal and parametric reference system(s) used by a resource in one class, MD\_ReferenceSystem. Table 8 defines properties of the MD\_ReferenceSystem entity that have been changed by this profile.

Table 8: Reference System Entity Set Information

Dd#	Name	Definition	Change from the ISO 19115
179	referenceSystemIdentifier	Identifier and codespace for reference system	Optional → Conditional

## 2.4 Core metadata for geographic resources

ISO 19115-1 defines an extensive set of metadata elements. The EM Metadata Profile prescribes only a subset of these elements, representing the minimum set of metadata elements recommended to identify and describe an EM resource, typically for cataloguing purposes. The resulting catalogue of records enable us to answer the following types of questions: “What is the resource” (‘identification’), “Where is the spatial location of the resource?” (‘extents’), “When was the resource created, revised, published or deprecated?” (‘date’), “Who is responsible or the contact for the resource?” (‘pointOfContact and citedResponsibleParty’), “How can the resource be used or accessed?” (‘constraints’). Using the recommended optional elements in addition to the mandatory elements will increase interoperability, allowing users to understand without ambiguity the data and the related metadata provided by either the producer or the distributor. The EM Profile includes the core metadata elements defined in ISO 19115-1. Table 9.a and 9.b lists elements that the EM Metadata Profile recognises as the best practice in describing geographic datasets and services.

Table 9.a: Core metadata for datasets

Name	ISO19115-1 Ref Num	Obligation	Path
Metadata Identifier	16	M	MD_Metadata.metadataIdentifier
Default Locale (Metadata)	17	C	MD_Metadata.defaultLocale
Resource Scope	40	M	MD_Metadata.metadataScope>MD_MetadataScope.resourceScope
Contact	19	M	MD_Metadata.contact>CI_Responsibility
Date Info (Metadata)	20	M	MD_Metadata.dateInfo
Metadata Standard	21	O	MD_Metadata.metadataStandard
Metadata Profile	22	O	MD_Metadata.metadataProfile
Metadata Linkage	25	O	MD_Metadata.metadataLinkage>CI_OnlineResource.linkage
Metadata Constraints	34	M	MD_Metadata.metadataConstraints
Title	362	M	MD_Metadata.identificationInfo>MD_DataIdentification.citation>CI_Citation.title
Date (Resource)	364	M	MD_Metadata.identificationInfo>MD_DataIdentification.citation>CI_Citation.date
Identifier (Resource)	367	M	MD_Metadata.identificationInfo>MD_DataIdentification.citation>CI_Citation.identifier
Abstract	44	M	MD_Metadata.identificationInfo>MD_DataIdentification.abstract
Resource Point of Contact	48	M	MD_Metadata.identificationInfo>MD_DataIdentification.pointOfContact
Topic Category	52	M	MD_Metadata.identificationInfo>MD_DataIdentification.topicCategory

Name	ISO19115-1 Ref Num	Obligation	Path
Resource Maintenance	141	M	MD_Metadata.identificationInfo>MD_DataIdentification.resourceMaintenance>MD_MaintenanceInformation.maintenanceAndUpdateFrequency
Resource Constraints	61	M	MD_Metadata.identificationInfo>MD_DataIdentification.resourceConstraints
Default Locale (Resource)	64	C	MD_Metadata.identificationInfo>MD_DataIdentification.defaultLocale>PT_Locale
Supplemental Information	67	O	MD_Metadata.identificationInfo>MD_DataIdentification.supplementalInformation
Descriptive Keywords	59	M	MD_Metadata.identificationInfo>MD_DataIdentification.descriptiveKeywords>MD_Keywords.keyword
Resource Lineage	119	M	MD_Metadata.resourceLineage>LI_Lineage.statement
Source Description	133	O	MD_Metadata.resourceLineage>LI_Lineage.source>LI_Source.description
Reference System	180	C	MD_Metadata.referenceSystemInfo>MD_ReferenceSystem.referenceSystemIdentifier>MD_Identifier
Geographic Extent	340	C	MD_Metadata.identificationInfo>MD_DataIdentification.extent>EX_Extent.geographicElement>EX_GeographicBoundingBox
Temporal Extent	351	C	MD_Metadata.identificationInfo>MD_DataIdentification.extent>EX_Extent.temporalElement>EX_TemporalExtent
Vertical Extent	356	C	MD_Metadata.identificationInfo>MD_DataIdentification.extent>EX_Extent.verticalExtent>EX_VerticalExtent
Browse Graphic	57	O	MD_Metadata.identificationInfo>MD_DataIdentification.graphicOverview
Responsible Party	376	M	MD_Metadata.identificationInfo>MD_DataIdentification.citation>CI_Citation.citedResponsibleParty

Table 10.b: Core metadata for services

Name	ISO19115-1 Ref Num	Obligation	Path
Metadata Identifier	16	M	MD_Metadata.metadataIdentifier
Default Locale (Metadata)	17	C	MD_Metadata.defaultLocale
Resource Scope	40	M	MD_Metadata.metadataScope>MD_MetadataScope.resourceScope
Contact	19	M	MD_Metadata.contact
Date Info (Metadata)	20	M	MD_Metadata.dateInfo
Metadata Standard	21	O	MD_Metadata.metadataStandard
Metadata Profile	22	O	MD_Metadata.metadataProfile
Metadata Linkage	25	O	MD_Metadata.metadataLinkage>CI_OnlineResource.linkage

Name	ISO19115-1 Ref Num	Obligation	Path
Metadata Constraints	34	M	MD_Metadata.metadataConstraints
Service Title	362	M	MD_Metadata.identificationInfo>SV_ServiceIdentification.citation>CI_Citation.title
Responsible Party	376	M	MD_Metadata.identificationInfo>SV_ServiceIdentification.citation>CI_Citation.citedResponsibleParty
Date (Resource)	364	M	MD_Metadata.identificationInfo>SV_ServiceIdentification.citation>CI_Citation.date
Identifier (Resource)	367	M	MD_Metadata.identificationInfo>SV_ServiceIdentification.citation>CI_Citation.identifier
Service Abstract	44	M	MD_Metadata.identificationInfo>SV_ServiceIdentification.abstract
Resource Point of Contact	48	M	MD_Metadata.identificationInfo>SV_ServiceIdentification.pointOfContact
Topic Category	52	M	MD_Metadata.identificationInfo>SV_ServiceIdentification.topicCategory
Resource Maintenance	141	M	MD_Metadata.identificationInfo>SV_ServiceIdentification.resourceMaintenance>MD_MaintenanceInformation.maintenanceAndUpdateFrequency
Resource Constraints	61	M	MD_Metadata.identificationInfo>SV_ServiceIdentification.resourceConstraints
Descriptive Keywords	59	M	MD_Metadata.identificationInfo>SV_ServiceIdentification.descriptiveKeywords>MD_Keywords.keyword
Resource Lineage	119	M	MD_Metadata.resourceLineage>LI_Lineage.statement
Source Description	133	O	MD_Metadata.resourceLineage>LI_Lineage.source>LI_Source.description
Connect Point	317	M	MD_Metadata.identificationInfo>SV_ServiceIdentification.containsOperations>SV_OperationMetadata.connectPoint>CI_OnlineResource.cit:linkage
Service Type	301	M	MD_Metadata.identificationInfo>SV_ServiceIdentification.serviceType
Browse Graphic	57	O	MD_Metadata.identificationInfo>SV_ServiceIdentification.graphicOverview
Reference System	180	C	MD_Metadata.referenceSystemInfo>MD_ReferenceSystem.referenceSystemIdentifier>MD_Identifier

# Annex A : GA Profile Metadata Schemas (UML)

## Unified Modelling Language (UML) diagrams

Annex A provides the metadata schemas in the form of Unified Modelling Language (UML) diagrams. These diagrams, in conjunction with the data dictionary presented in Annex B, serve to fully define the total abstract model for metadata.

### A.1 Metadata UML models

Metadata for describing geographic data is defined using an abstract object model in the Unified Modelling Language (UML). The following diagrams provide “views,” which are portions of the total abstract model for metadata. Each diagram defines a metadata section (UML package) of related entities, elements, data types, and code lists. Related entities, which are defined in another diagram, are shown with elements suppressed and the defining package specified under the entity name in parenthesis. Throughout the following models, entities may have mandatory and/or optional elements and associations. In some cases, optional entities may have mandatory elements; those elements become mandatory only if the optional element is used.

The data dictionary for the UML class diagrams is listed in Annex B.

## A.2 Metadata package UML diagrams

### A.2.1 Metadata entity set information

The MD\_Metadata class shows containment relationships with the other metadata classes which define metadata for geospatial data. Refer to B.2.1 for the data dictionary for this diagram.

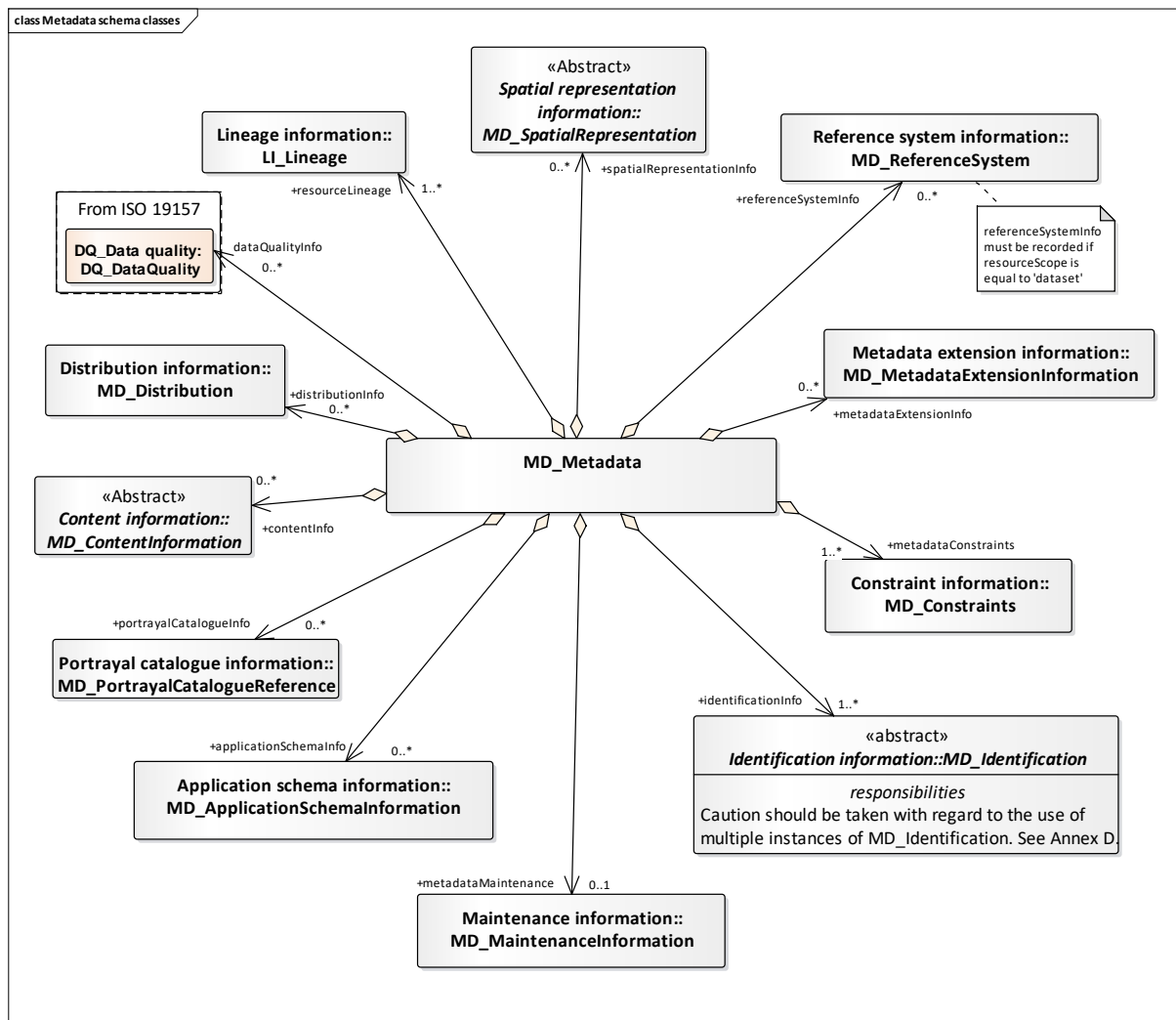


Figure 1: Metadata schema classes



The UML for identification information defines the metadata classes required to identify metadata itself. Refer to B.2.1 for the data dictionary for this diagram.

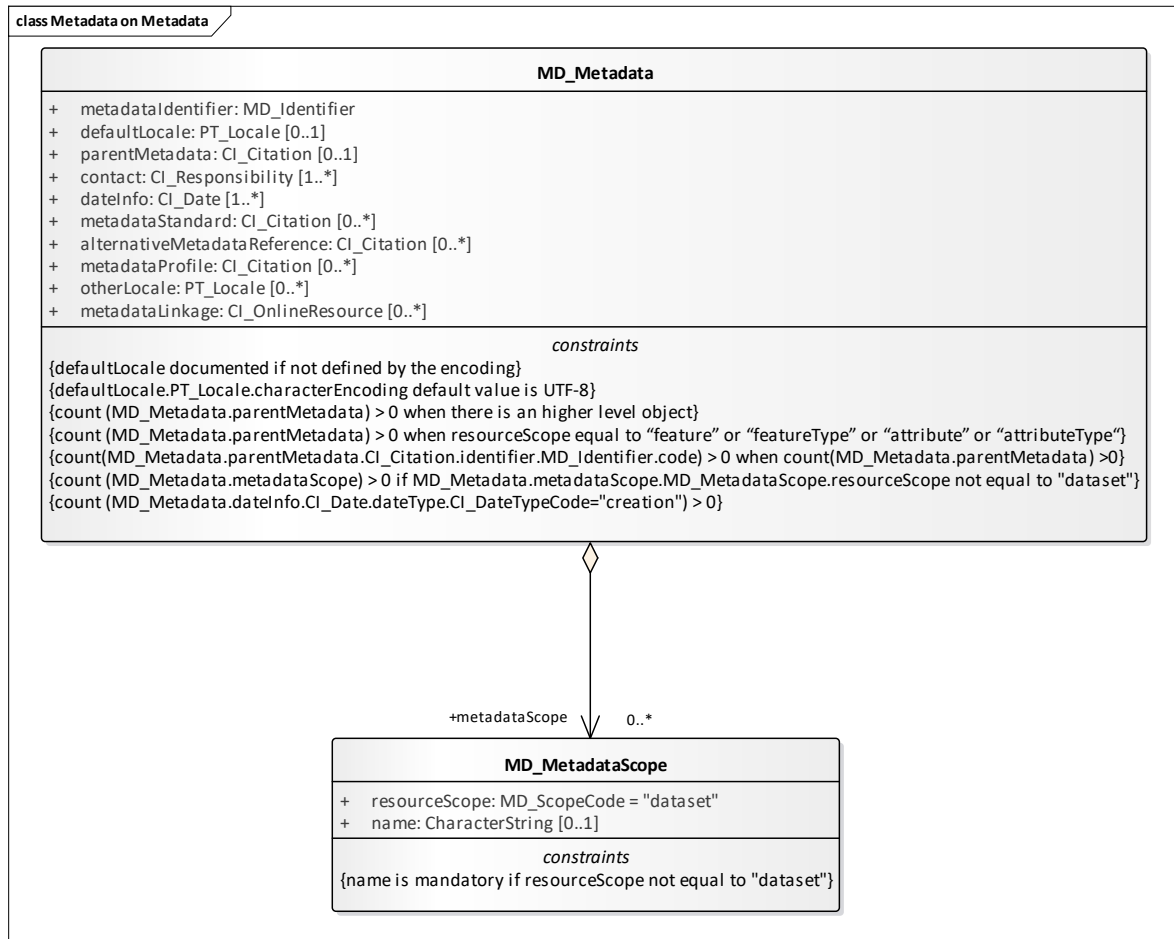


Figure 2: Metadata on Metadata

## A.2.2 Identification information

The UML for identification information defines the metadata classes required to identify a resource. It also defines separate specialisation sub-classes for identifying data and services. Refer to B.2.3 for the data dictionary for this diagram.

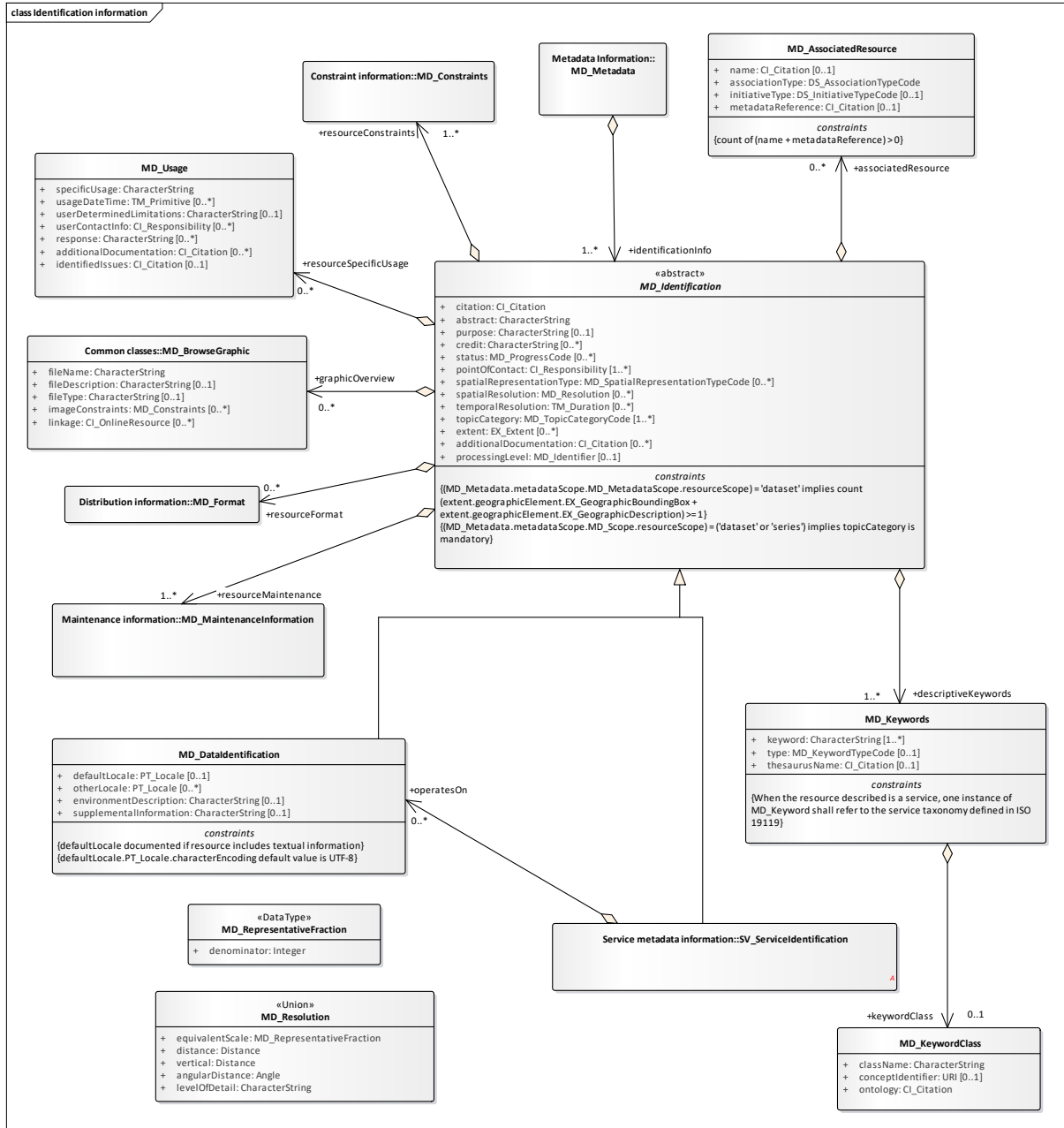


Figure 3: Identification information

## A.2.3 Constraint information

The UML class diagram for constraint information defines the metadata required for managing rights to information including restrictions on access and use. Refer to B.2.5 for the data dictionary for this diagram.

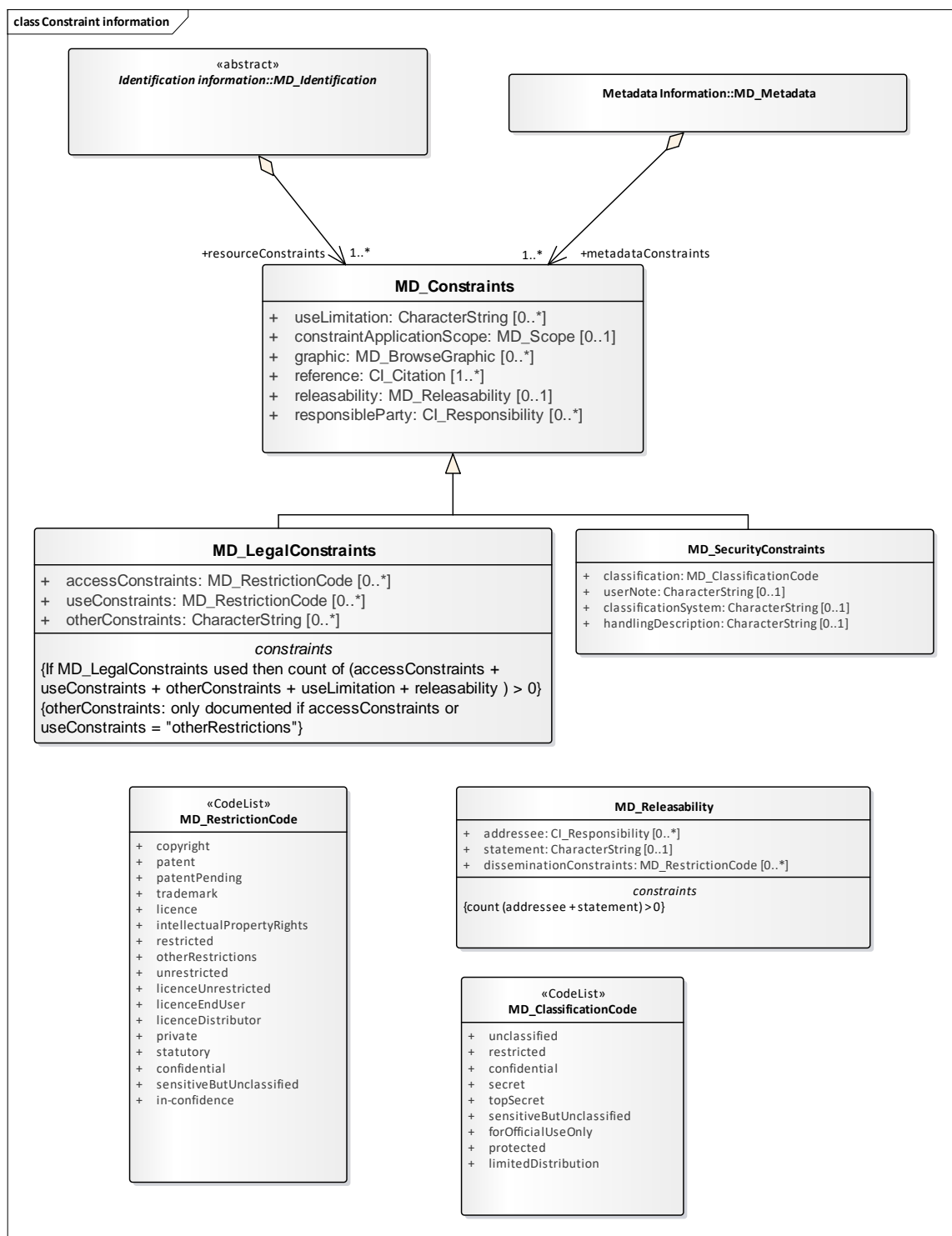


Figure 4: Constraint information

## A.2.4 Lineage information

This UML class diagram for lineage supports the provision of metadata concerning the sources and production processes used in producing a resource. Refer to B.2.6 for the data dictionary for this diagram.

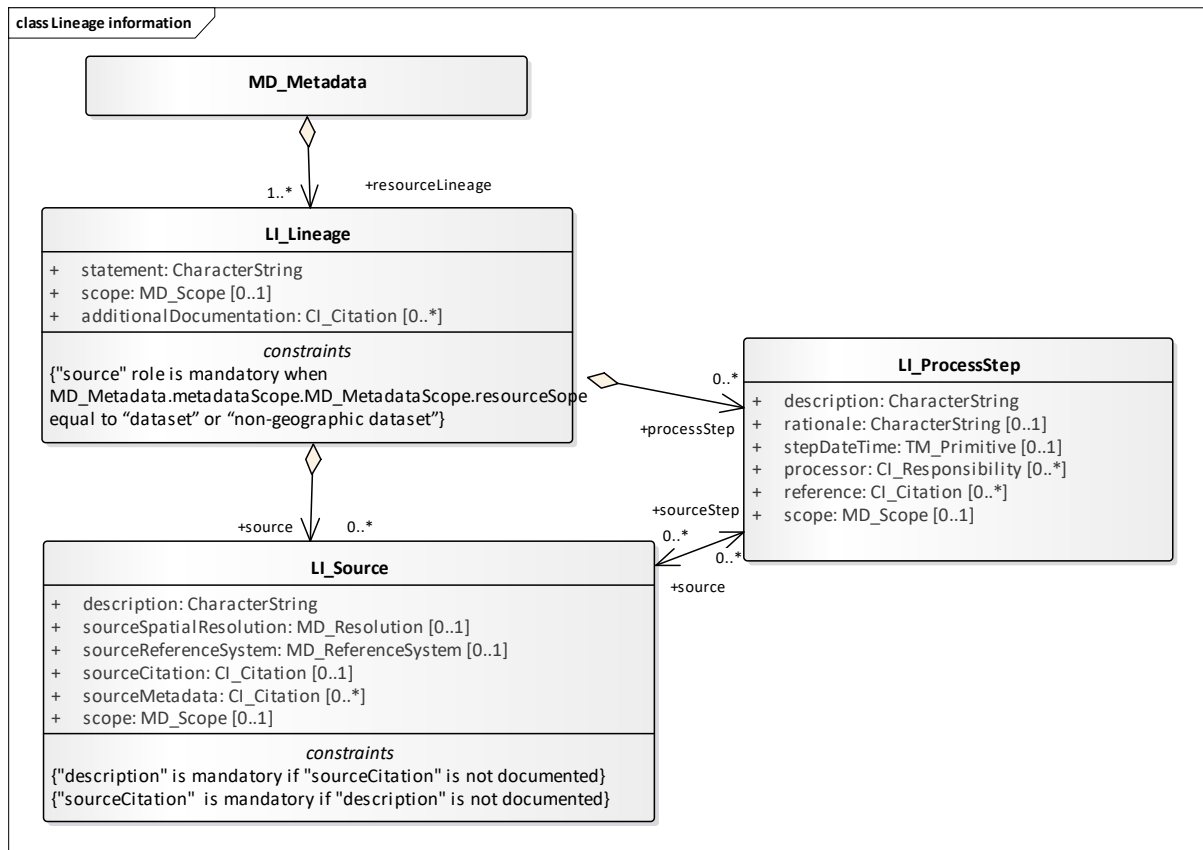


Figure 5: Lineage information

## A.2.5 Maintenance information

This UML class diagram supports the provision of metadata related to the scope and frequency of maintenance for a resource. Refer to B.2.7 for the data dictionary for this diagram.

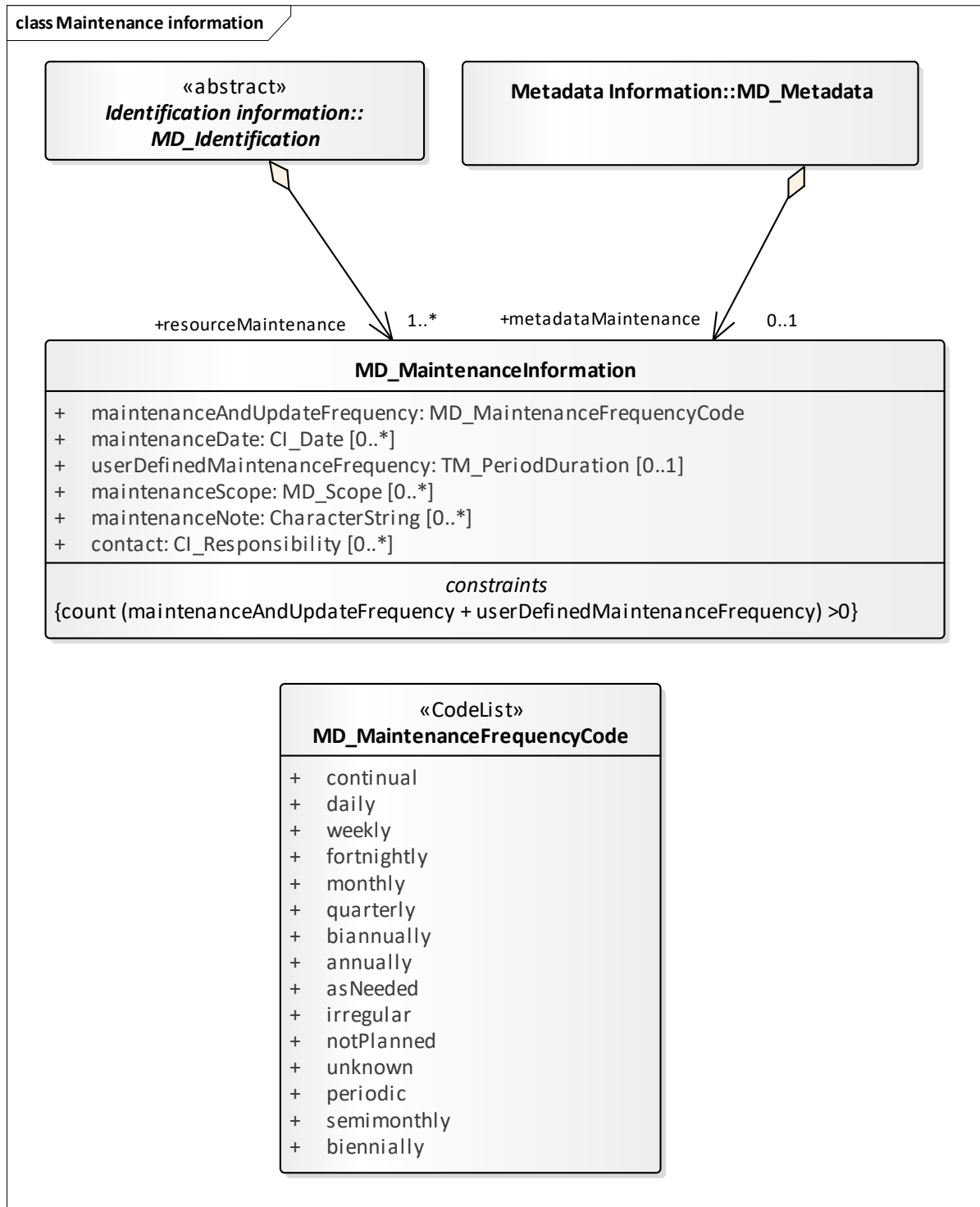


Figure 6: Maintenance information

## A.2.6 Citation information

The UML for citation information which defines the metadata classes required to cite a resource. Refer to B.2.9 for the data dictionary for this diagram

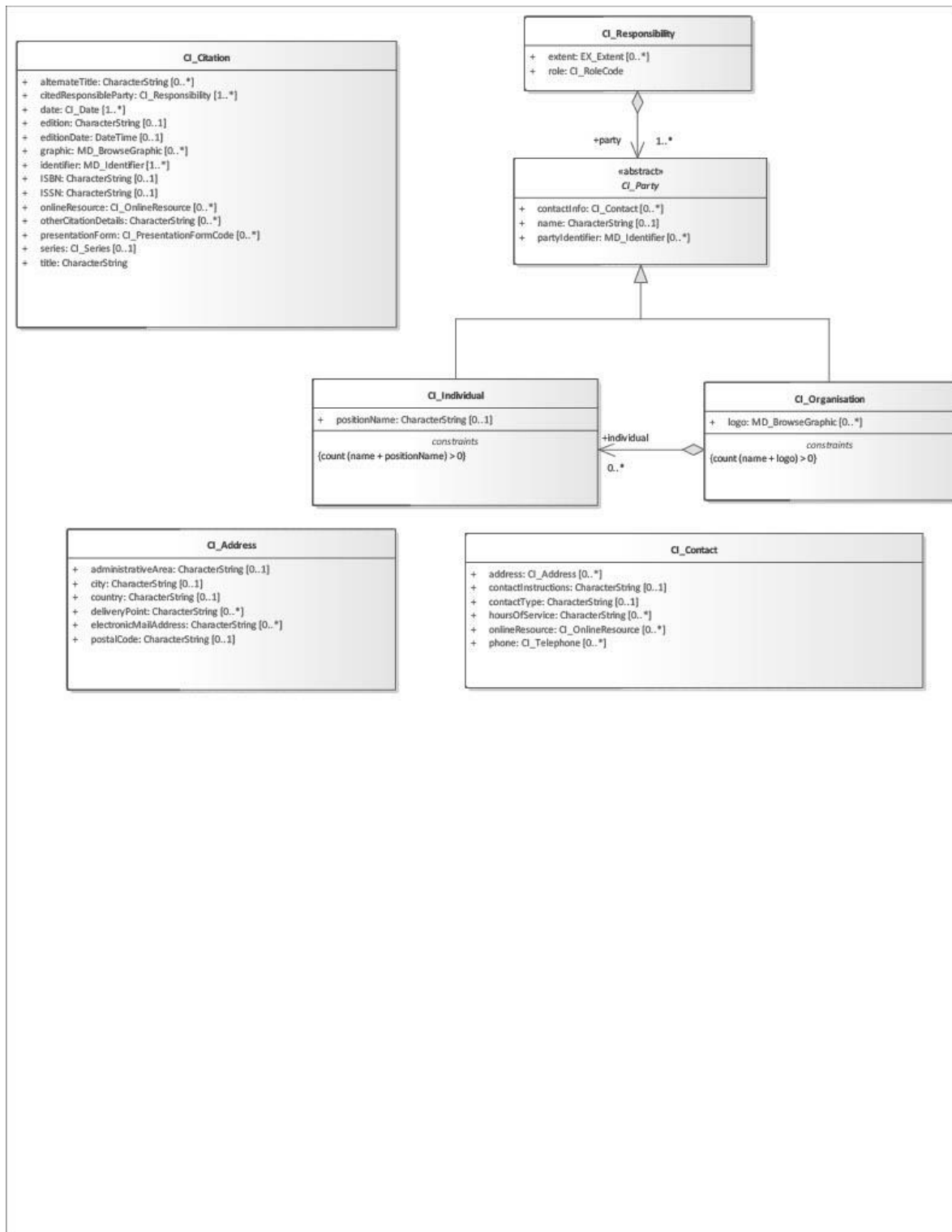
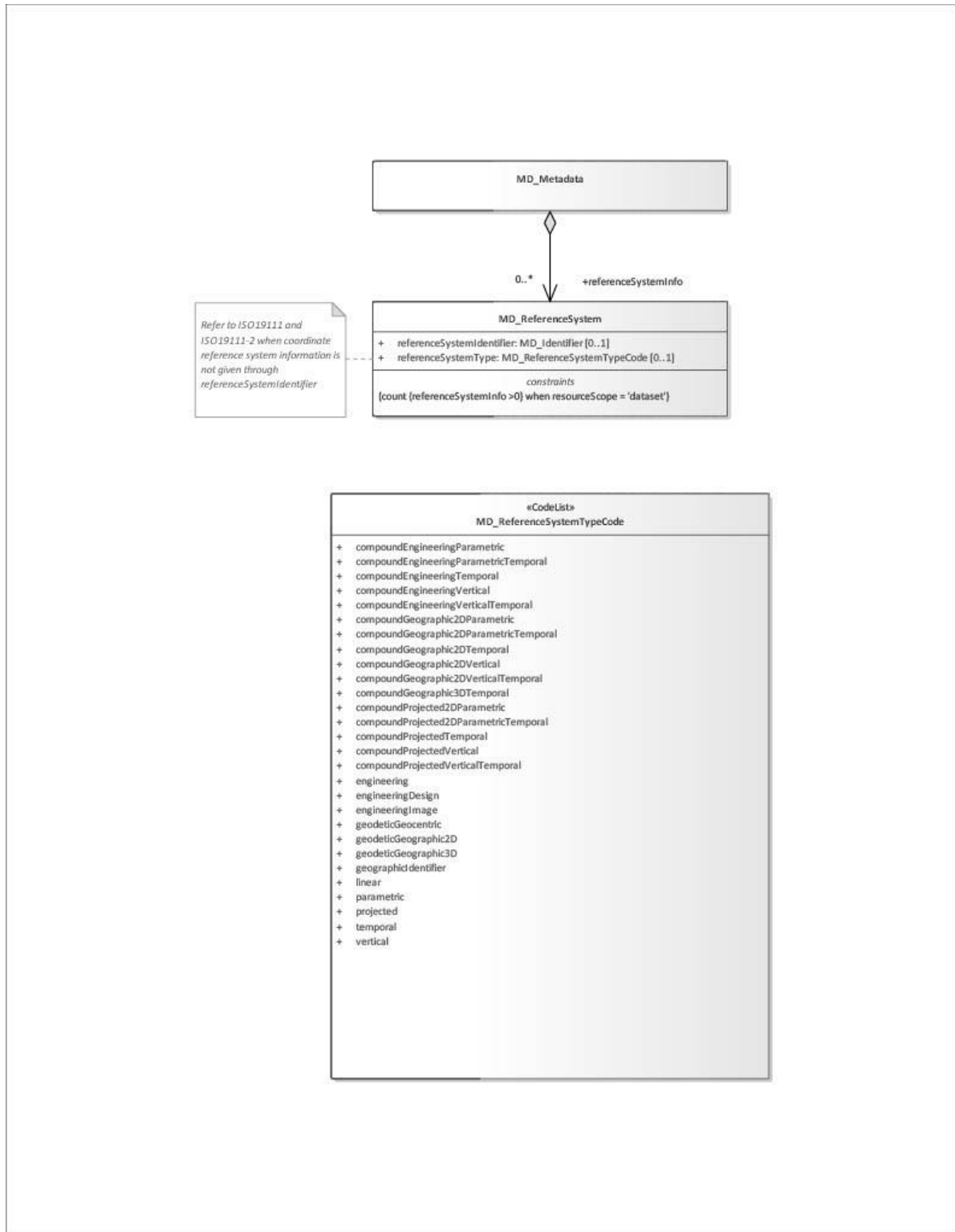


Figure 7: Citation information

## A.2.7 Reference system information

The UML for reference system information which defines the reference system related to a resource. Refer to B.2.8 for the data dictionary for this diagram



*Figure 8: Reference system information*

### **A.2.8 Service information**

The UML for service information defines the metadata classes required to identify a service. Refer to B.2.10 for the data dictionary for this diagram.



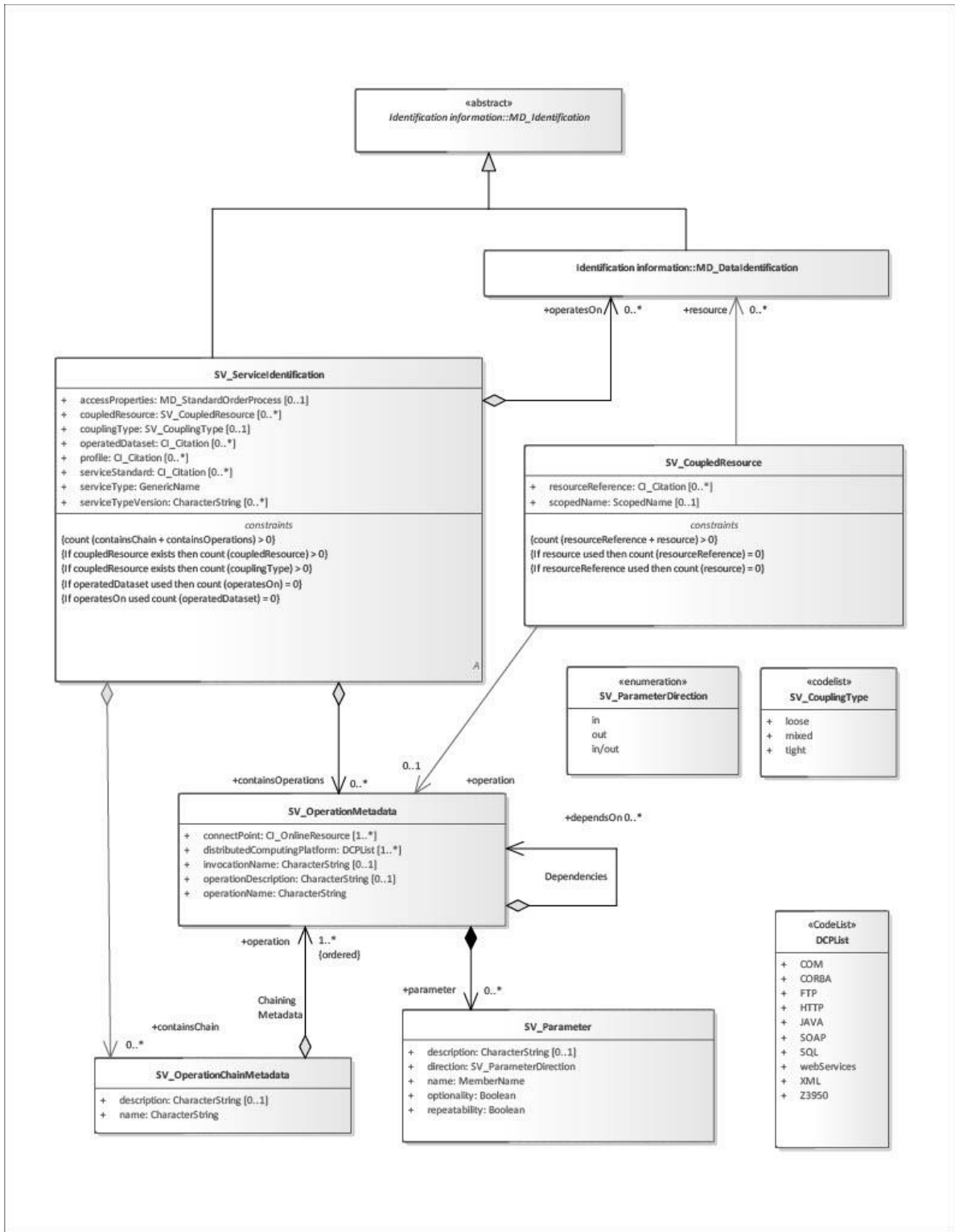


Figure 9: Service information

# Annex B : GA Profile Data Dictionary

## Data dictionary

Annex B contains the element and entity definitions for the metadata schemas. This dictionary, in conjunction with the diagrams presented in Annex A, serve to fully define the total abstract model for metadata.

### B.1 Data Dictionary Overview

This data dictionary describes the characteristics of the metadata defined by the UML model in Annex A.

The dictionary is categorised into sections by UML model package diagram: Metadata Entity Set, Metadata Scope, Identification, Keyword, Constraints, Lineage, Maintenance, Reference System, Citation and Cited Responsible Party, and Service Metadata. The clause titles of several of the tables have been expanded to reflect class specification within the respective diagram. Each model diagram from Annex A has a section within the data dictionary. In keeping with Annex A, this section only represents those entities whose content models have been changed by the EM profile. Entities not represented in this section remain unchanged from their definitions provided in ISO 19115-1:2014/AMD 1:2018.

Each UML model class equates to a data dictionary entity. Each UML model class attribute equates to a data dictionary element. The shaded rows define entities. The reference to the ISO 19115-1:2014/AMD 1:2018 entities and elements are shown as a number within brackets, e.g. (334). The symbol † is used to identify the attributes whose constraints have been modified by this profile.

## B.2 Metadata package data dictionaries

### B.2.1 Metadata entity set information

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
15	MD_Metadata	root entity which defines metadata about a resource or resources	M	1	Class	Lines 16-38
16	metadataIdentifier†	unique identifier for this metadata record	M	1	Class	MD_Identifier
17	defaultLocale	language and character set used for documenting metadata	C / not defined by encoding and UTF-8 not used?	1	Class	PT_Locale
19	contact	party responsible for the metadata information	M	N	Class	CI_Responsibility
20	dateInfo	date(s) associated with the metadata NOTE: creation date must be provided, others can also be provided.	M	N	Class	CI_Date
21	metadataStandard	citation for the standard to which the metadata conforms NOTE: Metadata standard citations should include an identifier	O	N	Class	CI_Citation
22	metadataProfile	citation for the profile(s) of the metadata standard to which the metadata conforms NOTE: Metadata profile citations should include an identifier	O	N	Class	CI_Citation
25	metadataLinkage	online location where metadata is available	O	N	Class	CI_OnlineResource
27	<i>Role name:</i> referenceSystemInfo†	description of the spatial and temporal reference systems used in the resource	C / resourceScope equal to "dataset"	N	Association	MD_ReferenceSystem

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
29	<i>Role name:</i> identificationInfo	basic information about the resource(s) to which the metadata applies	M	N	Association	MD_Identification
34	<i>Role name:</i> metadataConstraints†	restrictions on the access and use of metadata	M	N	Association	MD_Constraints
37	<i>Role name:</i> resourceLineage†	Information about the provenance, source(s), and/or the production process(es) applied to the resource	M	N	Association	LI_Lineage
38	<i>Role name:</i> metadataScope	The scope/type of resource for which metadata is provided	C / Metadata is about a resource other than a dataset?	N	Association	MD_MetadataScope

## B.2.2 Metadata scope information

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
39	MD_MetadataScope	information about the scope of the resource	Use obligation from referencing object	Use maximum occurrence from referencing object	Class	Lines 40-41
40	resourceScope	Code for the scope	M	1	Class	MD_ScopeCode
41	name	Descriptions of the scope	O	1	CharacterString	Free text

## B.2.3 Identification information

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
42	MD_Identification	basic information required to uniquely identify a resource or resources	Use obligation from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Metadata) <<Abstract>>	Lines 43-62 NOTE Caution regarding the use of multiple instances of this class. See Annex.E.in Standard
43	citation	citation data for the resource(s)	M	1	Class	CI_Citation
44	abstract	brief narrative summary of the content of the resource(s)	M	1	CharacterString	Free text
45	purpose	summary of the intentions with which the resource(s) was developed	O	1	CharacterString	Free text
48	pointOfContact†	identification of, and means of communication with, person(s) and organisation(s) associated with the resource(s)	M	N	Class	CI_Responsibility
52	topicCategory†	main theme(s) of the resource	M	1	Class	MD_TopicCategoryCode;
53	extent	spatial and temporal extent of the resource	C / resourceScope is equal to "dataset" or "series"	N	Class	EX_Extent
56	<i>Role name:</i> resourceMaintenance†	information about the frequency of resource updates, and the scope of those updates	M	1	Association	MD_MaintenanceInformation
57	<i>Role name:</i> graphicOverview	graphic that illustrates the resource(s) (should include a legend for the graphic)	O	N	Association	MD_BrowseGraphic
59	<i>Role name:</i> descriptiveKeywords†	category keywords, their type, and reference source	M	N	Association	MD_Keywords
61	<i>Role name:</i> resourceConstraints†	information about constraints which apply to the resource(s)	M	N	Association	MD_Constraints

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
63	MD_DataIdentification	information required to identify a resource	Use obligation from referencing object	Use maximum occurrence from referencing object	Specified Class (MD_Identification )	Lines 43-62 and 64-67
64	defaultLocale	language and character set used for documenting metadata	C / language used in resource	Class	Class	PT_Locale
67	supplementalInformation	any other descriptive information about the resource	O	1	CharacterString	Free text

## B.2.4 Keyword information

68	MD_Keywords	information required to identify a resource	Use obligation from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Identification )	Lines 69-72
69	keyword	language and character set used for documenting metadata	M	N	Class	PT_Locale
70	type	any other descriptive information about the resource	O	1	CharacterString	Free text
71	thesaurusName	name of the formally registered thesaurus or a similar authoritative source of keywords	O	1	Class	CI_Citation

## B.2.5 Constraint information

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
98	MD_Constraints	restrictions on the access and use of a resource or metadata	Use obligation from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Metadata and MD_Identification)	Lines 99-104
99	useLimitation	limitation affecting the fitness for use of the resource or metadata. Example: "Not to be used for navigation".	O	N	CharacterString	Free text
102	reference†	citation for the limitation or constraint EXAMPLE: copyright statement, licence agreement, etc.	M	N	Class	CI_Citation
103	releasability	information concerning the parties to whom the resource can or cannot be released	O	1	Class	MD_Releasability
104	responsibleParty	party responsible for the resource constraints	O	N	Class	CI_Responsibility
105	MD_LegalConstraints	restrictions and legal prerequisites for accessing and using the resource or metadata	Use obligation from referencing object	Use maximum occurrence from referencing object	Specialised Class (MD_Constraints)	Lines 99-104 and 106-108
106	accessConstraints†	access constraints applied to assure the protection of privacy or intellectual property, and any special restrictions or limitations on obtaining the resource or metadata	C / resourceConstraint	N	Class	MD_RestrictionCode
107	useConstraints†	constraints applied to assure the protection of privacy or intellectual property, and any special restrictions or limitations or warnings on using the resource or metadata	C / resourceConstraint	N	Class	MD_RestrictionCode

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
108	otherConstraints	other restrictions and legal prerequisites for accessing and using the resource or metadata	C / accessConstraints or useConstraints or useLimitation or releasability not exist and accessConstraints or useConstraints = "otherRestrictions"?	N	CharacterString	Free text
109	MD_SecurityConstraints	handling restrictions imposed on the resource or metadata for national security or similar security concerns	Use obligation from referencing object	Use maximum occurrence from referencing object	Specialised Class (MD_Constraints)	Lines 99-104 and 110-113
110	classification	name of the handling restrictions on the resource or metadata	M	1	Class	MD_ClassificationCode
111	userNote	explanation of the application of the legal constraints or other restrictions and legal prerequisites for obtaining and using the resource or metadata	O	1	CharacterString	Free text
112	classificationSystem	name of the classification system	O	1	CharacterString	Free text
113	handlingDescription	additional information about the restrictions on handling the resource or metadata	O	1	CharacterString	Free text
114	MD_Releasability	information about resource release constraints	Use obligation from referencing object	Use maximum occurrence from referencing object	Class	Lines 115-117
115	addressee	party to which the release statement applies	C / statement not exist?	N	Class	CI_Responsibility
116	statement	release statement	C / addressee not exist?	1	CharacterString	Free text



	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
117	disseminationConstraints	component in determining releasability	O	N	Class	MD_RestrictionCode

## B.2.6 Lineage information

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
118	LI_Lineage	information about the events or source data used in constructing the data specified by the scope or lack of knowledge about lineage	Use obligation from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Metadata)	Lines 119-123
119	statement†	general explanation of the data producer's knowledge about the lineage of a dataset	M	1	CharacterString	Free text
120	scope	type of resource and/or extent to which the lineage information applies	O	1	Class	MD_Scope
121	additionalDocumentation	resource EXAMPLE: a publication that describes the whole process to generate this resource (e.g. a dataset).	O	N	Class	CI_Citation
122	<i>Role name:</i> processStep	information about events in the life of a dataset specified by the scope	C / LI_Lineage.statement and source role not documented?	N	Association	LI_ProcessStep
123	<i>Role name:</i> source†	information about the source data used in creating the data specified by the scope	O	N	Association	LI_Source

## B.2.7 Maintenance information

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
140	MD_MaintenanceInformation	information about the scope and frequency of updating	Use obligation from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Metadata and MD_Identification)	Lines 141-146
141	maintenanceAndUpdateFrequency	frequency with which changes and additions are made to the resource after the initial resource is completed	M	1	Class	MD_MaintenanceFrequencyCode
142	maintenanceDate	date information associated with maintenance of resource	O	N	Class	CI_Date
143	userDefinedMaintenanceFrequency	maintenance period other than those defined	O	1	Class	TM_PeriodDuration
144	maintenanceScope	type of resource and/or extent to which the maintenance information applies	O	N	Class	MD_Scope
145	maintenanceNote	information regarding specific requirements for maintaining the resource	O	N	CharacterString	Free text
146	contact	identification of, and means of communicating with, person(s) and organisation(s) with responsibility for maintaining the resource	O	N	Class	CI_Responsibility

## B.2.8 Reference system information

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
179	MD_ReferenceSystem	information about the reference system	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Metadata)	Lines 180-181
180	referenceSystemIdentifier†	identifier and codespace for reference system NOTE Refer to SC_CRS in ISO 19111 and ISO 19111-2 when coordinate reference system information is not given through reference system identifier. EXAMPLE EPSG::4326	C / resourceScope equal to "dataset"	1	Class	MD_Identifier
181	referenceSystemType	type of reference system used EXAMPLE compoundGeographic2DParametric	O	1	Class	MD_ReferenceSystemType Code

## B.2.9 Citation and responsible party information

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
361	CI_Citation	standardized resource reference	Use obligation/condition from referencing object	Use maximum occurrence from referencing object	Class	Lines 362-375

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
362	title	name by which the cited resource is known	M	1	CharacterString	Free text
363	alternateTitle	short name or other language name by which the cited information is known EXAMPLE "DCW" as an alternative title for "Digital Chart of the World".	O	N	CharacterString	Free text
364	date†	reference date for the cited resource	M	N	Class	CI_Date
365	edition	version of the cited resource	O	1	CharacterString	Free text
366	editionDate	date of the edition	O	1	Class	DateTime
367	identifiert†	value uniquely identifying an object within a namespace	M	N	Class	MD_Identifier
368	citedResponsibleParty†	roles, name, contact, and position information for an individual or organisation that is responsible for the resource	M	N	Class	CI_Responsibility
369	presentationForm	mode in which the resource is represented	O	N	Class	CI_PresentationFormCode
370	series	information about the series, or aggregate resource, of which the resource is a part	O	1	Class	CI_Series
371	otherCitationDetails	other information required to complete the citation that is not recorded elsewhere	O	N	CharacterString	Free text
372	ISBN	international Standard Book Number	O	1	CharacterString	No specified domain
373	ISSN	international Standard Serial Number	O	1	CharacterString	No specified domain
374	onlineResource	online reference to the cited resource	O	N	Class	CI_OnlineResource

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
375	graphic	citation graphic or logo for the cited resource	O	N	Class	MD_BrowseGraphic

## B.2.10 Service metadata information

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
300	SV_ServiceIdentification	identification of capabilities which a service provider makes available to a service user through a set of interfaces that define a behaviour NOTE See ISO 19119 for further information.	Use obligation from referencing object	Use maximum occurrence from referencing object	Specified Class (MD_Identification)	Lines 43-62 and 301-311
301	serviceType	a service type name EXAMPLE 'discovery', 'view', 'download', 'transformation', or 'invoke'	M	1	Class	GenericName
302	serviceTypeVersion	the version of the service, supports searching based on the version of serviceType EXAMPLE We might only be interested in OGC Catalogue V1.1 services. If version is maintained as a separate attribute, users can easily search for all services of a type regardless of the version.	O	N	CharacterString	No specified domain

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
303	accessProperties	information about the availability of the service, including, - fees - planned available date and time - ordering instructions - turnaround	O	1	Class	MD_StandardOrderProcess
304	couplingType	type of coupling between service and associated data (if exists)	C / coupled resource exists?	1	Class	SV_CouplingType
305	coupledResource	further description of the data coupling in the case of tightly coupled services	C / coupled resource exists?	N	Class	SV_CoupledResource
306	operatedDataset	provides a reference to the resource on which the service operates NOTE For one resource either operatedDataset or operatesOn may be used (not both for the same resource).	O	N	Class	CI_Citation
307	profile	profile to which the service adheres	O	N	Class	CI_Citation
308	serviceStandard	standard to which the service adheres	O	N	Class	CI_Citation
309	<i>Role name:</i> containsOperations	provides information about the operations that comprise the service	O	N	Association	SV_OperationMetadata
310	<i>Role name:</i> operatesOn	provides information on the resources that the service operates on NOTE Either operatedDataset or operatesOn may be used (not both for the same resource).	O	N	Association	MD_DataIdentification
311	<i>Role name:</i> containsChain	provide information about the chain applied by the service	O	N	Association	SV_OperationMetadata

	Name / Role name	Definition	Obligation / Condition	Maximum occurrence	Data type	Domain
312	SV_OperationMetadata	describes the signature of one and only one method provided by the service	Use obligation from referencing object	Use maximum occurrence from referencing object	Aggregated Class (MD_Service Identification)	Lines 313-319
313	operationName	a unique identifier for this interface	M	1	CharacterString	No specified domain
314	distributedComputingPlatform	distributed computing platforms on which the operation has been implemented	M	N	Class	DCPlist
315	operationDescription	free text description of the intent of the operation and the results of the operation	O	1	CharacterString	Free text
316	invocationName	the name used to invoke this interface within the context of the DCP. The name is identical for all DCPs.	O	1	CharacterString	Free text
317	connectPoint	handle for accessing the service interface	M	N	Class	CI_OnlineResource
318	<i>Role name:</i> parameters	the parameters that are required for this interface in sequence	O	N	Association	SV_Parameter
319	<i>Role name:</i> dependsOn	list of operations that must be completed immediately before current operation is invoked, structured as a list for capturing alternate predecessor paths and sets for capturing parallel predecessor paths	O	N	Association	SV_OperationMetadata

Acknowledgement:

This Emergency Management Metadata Profile was developed in 2019-21 with the assistance of the members of the Emergency Management Spatial Information Australia (EMSINA) Group.

With the primary goal of working toward a tool that a non-informed user can easily produce a compliant metadata statement within 10 to 15 minutes the NMWG and the EMSINA Group deliberately kept the required attributes to a minimum. It is expected that as users become more familiar with this Profile this list will expand in subsequent versions.