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**GeoPlatform Profile of ISO 19115-1 (ANNOTATED)**

**DRAFT Revision 1**

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# Introduction

## Purpose

The profile is primarily concerned with properly supporting the semantic web. URIs are either provided where absent or placed in obvious locations where they were previously buried in the metadata. Layer and map identification classes are added at the same level as dataset and service identification in an effort to better link the corresponding metadata. Classes and elements are added so as to correspond to SKOS and make use of established, controlled vocabularies.

## Overview

Modifications by package:

1. Metadata information:
   1. Added codes ***map***, ***mapDocument***¸ and ***layer*** to *MD*\_ScopeCodeList so as to accommodate reference to these types.
2. Identification information:
   1. Added URI ***identifier*** element to *MD\_Identification* class to ensure the URI of the resource is in a clear, accessible location
   2. Added new specified class of *MD\_Identification*, MD\_LayerIdentification, with elements ***layerName, dataset,*** and ***style***.
   3. Added new specified class of *MD\_Identification*, MD\_MapIdentification, with elements ***dataset*** and ***layer***.
   4. Added ***concept*** element of MD\_Keywords of type MD\_Concept (see below) so as to better correspond with SKOS.
   5. Added MD\_Concept class with elements ***conceptIdentifier***, ***preferredLabel***, ***alternateLabel***, and ***description***.
   6. Raised maximimum occurance on MD\_Keywords: ***keywordClass*** from one to allow for multiple instances of MD\_KeywordClass for a single ***concept***.
   7. Added codes to MD\_KeywordTypeCode code list: ***audience***, ***subject***, ***community***, ***function***, and ***domain***.
3. Content information:
   1. Added URI ***ontologyURI*** element to MD\_FeatureTypeInfo class to improve the performace of semantic searches on feature types.
4. Service metadata information:
   1. Changed association of SV\_ServiceIdentification: ***operatesOn*** from MD\_DataIdentification to *MD\_Identification* to allow associations to all specified classes of *MD\_Identification.*
   2. Added element ***serviceDocumentation*** to SV\_ServiceIdentification so that complete online resource citation information may be provided for an online service.
5. Citation information:
   1. Added URI ***uri*** element to CI\_Citation class which will ensure linkage is provided for cited resources.
   2. Added URI ***identifier*** element to CI\_Party class.
   3. Raised from optional the ***address*** element of CI\_Contact and the ***electronicMailAddress*** element of CI\_Address so as to ensure the inclusion of an email address with citations.
   4. Added ***mimeType***, ***format***, and ***representationTechnique*** elements to CI\_OnlineResource to make citations of online resources more complete.
   5. Provided recommendations on the use of the following elements of CI\_OnlineResource:
      1. Recommend the deprecation of ***protocolRequest*** in CI\_OnlineResource as it is not useful.
      2. Recommend ***applicationProfile*** be used to differentiate between sets of metadata elements.
      3. Recommend title be used for the element ***name***.
   6. Added ***apiDocument*** to the CI\_OnLineFunctionCode code list.

## Summary

The profile makes the addition of the following URI elements: ***identifier*** elements to the MD\_Identification class and the CI\_Party class; an ***ontologyURI*** element to MD\_FeatureTypeInfo; and a ***uri*** element to the CI\_Citation class. The element ***serviceDocumentation*** of type CI\_OnlineResource has been added to the class SV\_ServiceIdentification.

To allow better description of online resources, the elements ***format***, ***representationTechnique***, and ***mimeType*** have been added to the CI\_OnlineResource data type. The element ***format*** shall be of type MD\_Format. The element ***representationTechnique*** specifies how the distribution that is contained in the online resource is expressed, and ***mimeType*** is to be used to descript the media type for the online resource. Also within the CI\_OnlineResource data type, it is recommended: ***applicationProfile*** be used to differentiate between sets of metadata elements; and, ***protocolRequest*** is not pracitical and thus should not be used. Finally, the code ***apiDocument*** has been added to the CI\_OnlineFunctionCode code list.

MD\_LayerIdentification and MD\_MapIdentification are introduced to capture layer and map metadata. To allow reference to these different types, SV\_ServiceIdentification ***operatesOn*** domain is modified to any specified class of *MD\_Idenfication*. Additionally, MD\_ScopeCode (the code list used to describe the attribute ***resourceScope***) has been supplanted with ***map***, ***mapDocument***, and ***layer***.

The profile introduces a new element of the MD\_Keywords class, ***concept***, which is defined by a new class, MD\_Concept with the following elements and attributes: ***conceptIdentifier***, ***preferredLabel***, ***alternateLabel***, and ***description***. When ***concept*** is used, ***keyword*** should be used to refer to the preferredLabel of a SKOS Concept, MD\_Keywords: ***type*** should refer to the concept type, and MD\_KeywordClass: ***ontology*** should be used for concept scheme. Since it is possible that a ***concept*** can have multiple classifications (produced by inference or referring to equivalent class in other ontologies), the profile raises the maximum occurance of MD\_Keywords: ***keywordClass*** from one to allow multiple instances of MD\_KeywordClass for a single ***concept***.

To enable better semantic search, the attribute ***type*** should use the appropriate code in the KeywordTypeCodes code list and thus, five new KeywordTypeCodes have been added: ***audience***, ***subject***, ***community***, ***function***, and ***domain***. To accommodate additional types that are not defined in the KeywordTypeCodes list, the element ***ontology*** should be used to refer to a class or concept that is defined either in an ontology or concept scheme.

The profile raises from optional the ***address*** element of CI\_Contact and the ***electronicMailAddress*** element of CI\_Address so as to ensure the presence of an email address which can be used with automated contact.

# Changes

# Additions

# Classes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name / Role Name** | **Definition** | **Obligation / Condition** | **Maximum Occurrence** | **Data Type / Domain** |
| MD\_LayerIdentification | information required to identify a resource | Use obligation from referencing object | Use maximum occurrence from referencig object | Specified Class (MD\_Identification) |
| dataset | the dataset associated with the layer | M | 1 | Class / CI\_OnlineResource |
| layerName | request identifier of the layer used by the map service | O | 1 | CharacterString / Free text |
| style | the method by which a dataset is represented in the layer | O | N | Class / CI\_OnlineResource |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name / Role Name** | **Definition** | **Obligation / Condition** | **Maximum Occurrence** | **Data Type / Domain** |
| MD\_MapIdentification | information required to identify a resource | Use obligation from referencing object | Use maximum occurrence from referencig object | Specified Class (MD\_Identification) |
| layer | the layer(s) of which a map is comprised | O | N | Class / CI\_OnlineResource |
| dataset | the dataset(s) to which the map refers | O | N | Class / CI\_OnlineResource |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name / Role name** | **Definition** | **Obligation / Condition** | **Maximum occurrence** | **Data type / Domain** |
| MD\_Concept | idea or notion or unit of thought | Use obligation from referencing object |  | Class |
| conceptIdentifier | the URI of the concept (effort should be done to make it resolvable) | M | 1 | URI |
| preferredLabel | the preferred label of the concept | M | 1 | CharacterString / Free Text |
| alternateLabel | other labels of the concept; may be used for parallel language versions of the label | O | N | CharacterString / Free Text |
| description | the definition of the concept; may be repeated for parallel language versions of the definition | O | N | CharacterString / Free Text |

# Elements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Class** | **Name / Role Name** | **Obligation / Minimum** | **Data Type/Domain** | **Implementation Details** |
| MD\_Identification | identifier | [1] | URI | 3.3.2 |
| MD\_Keywords | concept | [0..\*] | MD\_Concept | 3.3.2.2 |
| MD\_FeatureTypeInfo | ontologyURI | [0..1] | URI | 3.9.1.9 |
| SV\_ServiceIdentification | serviceDocumentation | [1] | CI\_OnlineResource | 3.14.1 |
| CI\_Citation | uri | [1] | URI | 4.2.1 |
| CI\_Party | identifier | [1] | URI | 4.2.3 |
| CI\_OnlineResource | mimeType | [0..1] | CharacterString | 4.2.4.3 |
| CI\_OnlineResource | format | [0..1] | MD\_Format | 4.2.4.3 |
| CI\_OnlineResource | representationTechnique | [0..1] | URI | 4.2.4.3 |

# Code List Code Additions

| **Concept name (English)** | **Code** | **Definition** | **Implementation Details** |
| --- | --- | --- | --- |
| MD\_ScopeCode |  | class of information to which the referencing entity applies |  |
| map | map | information applies to a digitally-available map | 3.2.3.2 |
| mapDocument | mapDocument | information applies to a map document whose georeferencing is not directly exploitable by GIS software | 3.2.3.2 |
| layer | layer | information applies to a layer | 3.2.3.2 |

| **Concept name (English)** | **Code** | **Definition** | **Implementation Details** |
| --- | --- | --- | --- |
| MD\_KeywordTypeCode |  | methods used to group similar keywords |  |
| audience | audience | keyword identifies the intended audience for the resource | 3.3.3.3 |
| subject | subject | keyword identifies a person or thing that plays a central role in the resource | 3.3.3.3 |
| community | community | keyword identifies a community of interest related to the resource | 3.3.3.3 |
| function | function | keyword identifies the function for which the resource is intended (e.g. navigation, information, targeting, etc.) | 3.3.3.3 |
| domain | domain | keyword identifies a generalization of the topic concept used when defining a topic that is outside of the current MD\_TopicCategoryCode scheme | 3.3.3.3 |

| **Concept name (English)** | **Code** | **Definition** | **Implementation Details** |
| --- | --- | --- | --- |
| CI\_OnLineFunctionCode |  | function performed by the resource |  |
| apiDocument | apiDocument | standard API description language such as WSDL, Swagger, HAL, RAML | 4.2.4.9 |

# Deprecation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Class** | **Name / Role Name** | **Obligation / Minimum** | **Reason** | **Implementation Details** |
| CI\_OnlineResource | protocolRequest | [0..1] | not useful; excessive | 4.2.4.3 |

# Specifications

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Class** | **Name / Role Name** | **Obligation / Minimum** | **Guidance** | **Implementation Details** |
| CI\_OnlineResource | applicationProfile | [0..1] | use to differentiate between sets of metadata elements | 4.2.4.3 |
| CI\_OnlineResource | name | [0..1] | use the title of the resource | 4.2.4.3 |

# Other changes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Class** | **Name / Role Name** | **Obligation / Minimum** | **Guidance** | **Implementation Details** |
| SV\_ServiceIdentification | operatesOn | [0..\*] | associate with any specified class of MD\_Identification | 3.14.1 |
| MD\_Keywords | keywordClass | [0..\*] | raised max occurs to allow multiple instances | 3.3.2.2 |
| CI\_Contact | address | [1..\*] | raised from optional | 4.2.3.3 |
| CI\_Address | electronicMailAddress | [1..\*] | raised from optional | 4.2.3.4 |

# UML Diagrams

# Metadata scope

# Identification information

# Content information

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# Service metadata information

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# Citation information

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# Citation information data types and code lists

