ISO 19115

- ISO 19115
- Metadata information (MD_Metadata)
  - Identification information (MD_Identification)
  - Constraint information (MD_Constraints)
  - Data Quality (DQ_DataQuality)
  - Lineage information (LI_Lineage)
  - Maintenance information (MD_MaintenanceInformation)
  - Spatial representation information (MD_SpatialRepresentation)
  - Reference system information (MD_ReferenceSystem)
  - Content information (MD_ContentInformation)
  - Portrayal catalogue information (MD_PortrayalCatalogueReference)
  - Distribution information (MD_Distribution)
  - Metadata extension information (MD_MetadataExtensionInformation)
  - Application schema information (MD_ApplicationSchemaInformation)
  - Service metadata information
  - Extent information (EX_Extent)
  - Citation and responsible party information (CI_Citation and CI_ResponsibleParty) classes

ISO 19115

Technical Committee 211 of the International Standards Organization (ISO) has defined a series of standards for geographic metadata and services. Many of these standards are closely related to and compatible with OGC Standards. These standards are currently being adopted across the NASA Earth Science community and by many partners in the U.S. and around the world.

ISO 19115 is the primary metadata standard in the ISO TC211 Collection. The objective of ISO 19115 is to provide a structure for describing digital geographic data. It defines metadata elements, provides a schema (ISO 19139) and establishes a common set of metadata terminology, definitions, and extension procedures. It provides information about the identification, the extent, the quality, the spatial and temporal schema, spatial reference, and distribution of digital geographic data.

ISO 19115 defines:

- mandatory and conditional metadata sections, metadata entities, and metadata elements;
- the minimum set of metadata required to serve the full range of metadata applications (data discovery, determining data fitness for use, data access, data transfer, and use of digital data);
- optional metadata elements – to allow for a more extensive standard description of geographic data, if required;
- a method for extending metadata to fit specialized needs.

Metadata information (MD_Metadata)

The MD_Metadata package defines the schema for describing the complete metadata about a resource (DS_Resource) and metadata about the metadata itself.

? Unknown Attachment

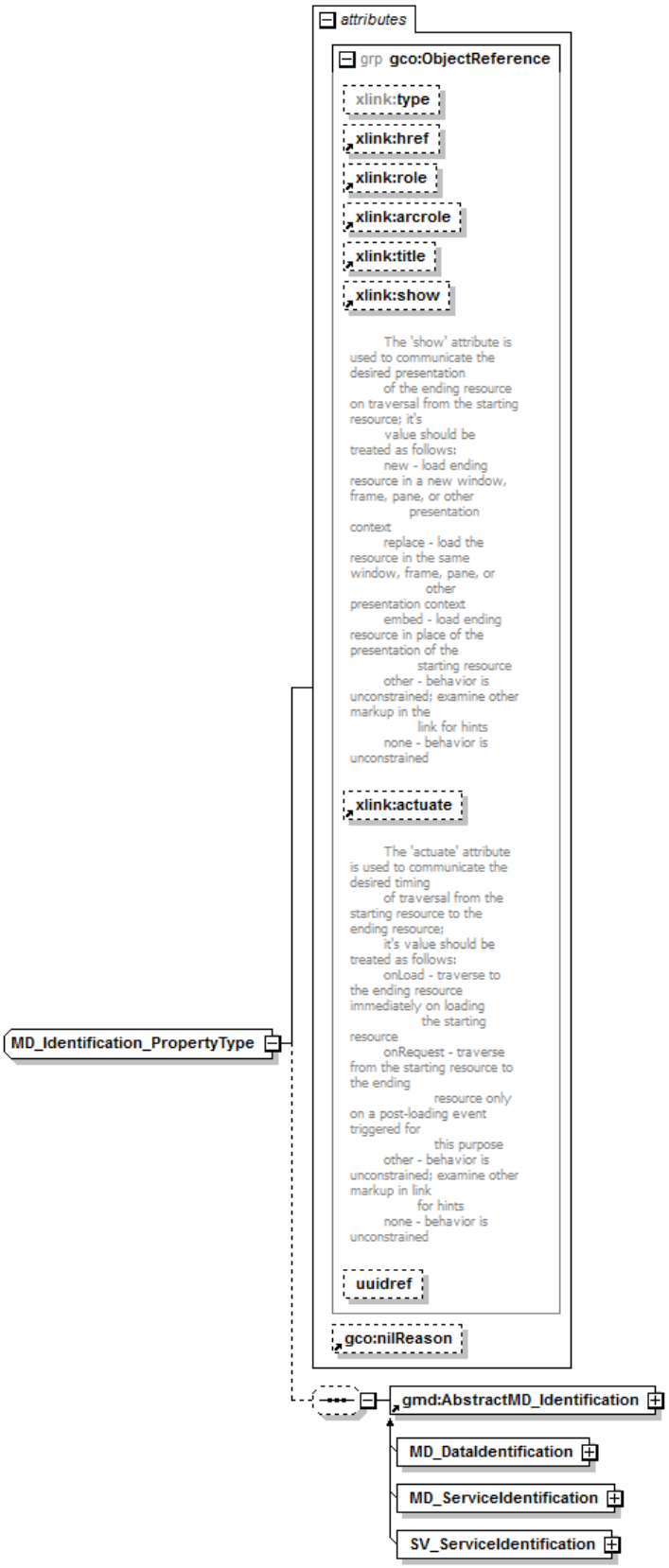
Unknown macro: 'center'

Identification information (MD_Identification)

Identification information supports the provision of information to uniquely identify a resource. MD_Identification can be specified as MD_DataIdentification or SV_ServiceIdentification and is an aggregate of eight classes of metadata which aid in resource identification.

Click here to expand...

diagram	



namespace	http://www.isotc211.org/2005/gmd
children	**gmd:AbstractMD_Identification**
used by	element **MD_Metadata_Type/identificationInfo**

Name	Type	Use	Default	Fixed	Annotation

attributes	xlink:type	**xs:string**		simple
	xlink:href	**xs:anyURI**	optional	
	xlink:role	**xs:anyURI**	optional	
	xlink:arcrole	**xs:anyURI**	optional	
	xlink:title	**xs:string**	optional	
	xlink:show	**derived by: xs:string**	optional	
	xlink:actuate	**derived by: xs:string**	optional	
	uuidref	**xs:string**		
	gco:nilReason	**gml:NilReasonType**		

source

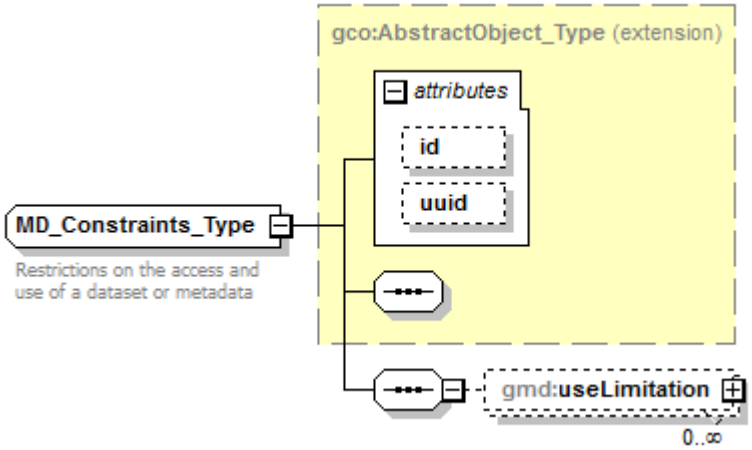
```
<xs:complexType name="MD_Identification_PropertyType">
  <xs:sequence minOccurs="0">
    <xs:element ref="gmd:AbstractMD_Identification"/>
  </xs:sequence>
  <xs:attributeGroup ref="gco:ObjectReference"/>
  <xs:attribute ref="gco:nilReason"/>
</xs:complexType>
```

Constraint information (MD_Constraints)

This package supports the provision of metadata concerning the legal and security constraints placed on resources. It consists of MD_Constraints which can be specified as MD_LegalConstraints and/or MD_SecurityConstraints.

Click here to expand...

diagram



namespace	http://www.isotc211.org/2005/gmd
type	extension of **gco:AbstractObject_Type**
properties	base gco:AbstractObject_Type
children	**gmd:useLimitation**
used by	element **MD_Constraints** complexTypes **MD_LegalConstraints_Type** **MD_SecurityConstraints_Type**

attributes

Name	Type	Use	Default	Fixed	Annotation
id	**xs:ID**				
uuid	**xs:string**				

annotation

documentation

Restrictions on the access and use of a dataset or metadata

source

```
<xs:complexType name="MD_Constraints_Type">
  <xs:annotation>
```

```
    <xs:documentation>Restrictions on the access and use of a dataset or metadata</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="gco:AbstractObject_Type">
      <xs:sequence>
        <xs:element name="useLimitation" type="gco:CharacterString_PropertyType" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Data Quality (DQ_DataQuality)

For more detailed information, see the page on ISO 19157.

Click here to expand...

Lineage information (LI_Lineage)

This package supports the provision of metadata concerning the sources and production processes used in producing a resource. The DQ_DataQuality class is defined in ISO 19157. LI_Lineage is defined in 19157 while LE_Lineage is defined in 19115-2.

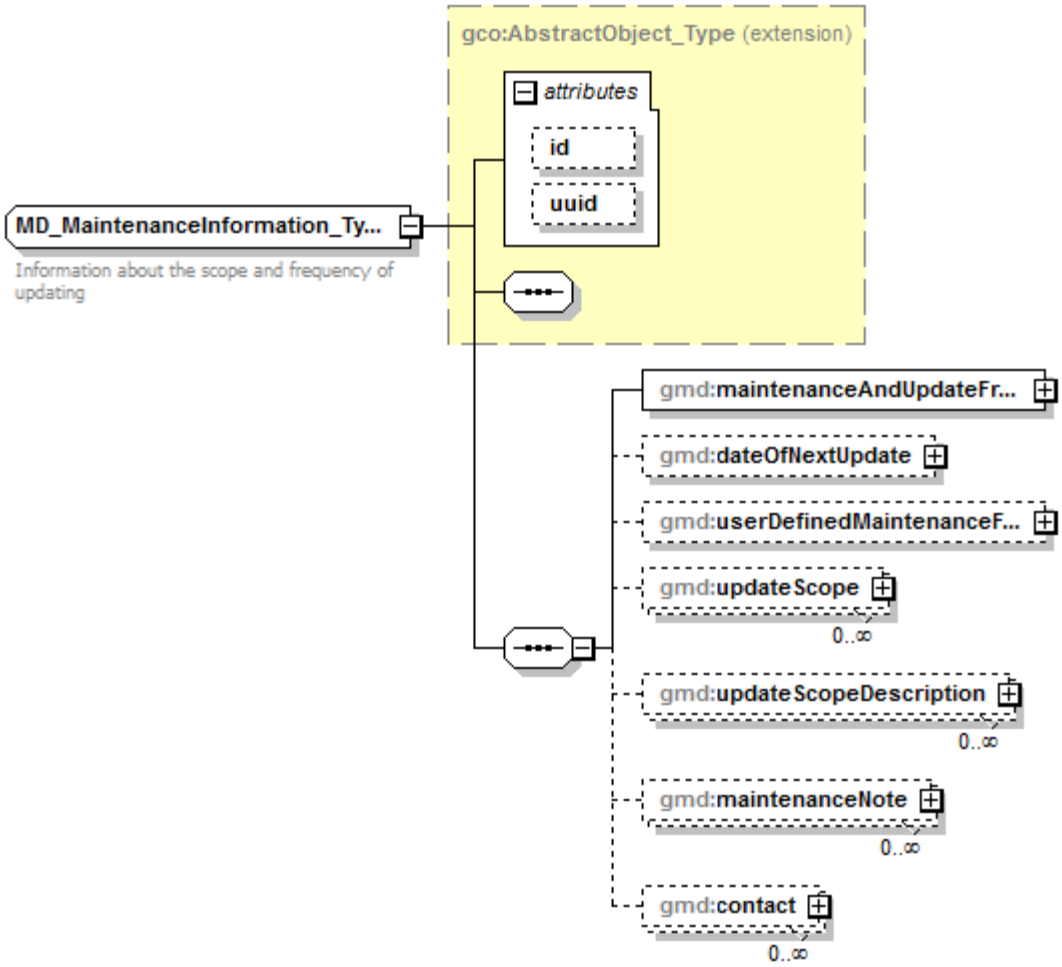
Click here to expand...

Maintenance information (MD_MaintenanceInformation)

This package supports the provision of metadata related to the scope and frequency of maintenance for a resource.

Click here to expand...

diagram



namespace	http://www.isotc211.org/2005/gmd
type	extension of **gco:AbstractObject_Type**
properties	base gco:AbstractObject_Type
children	**gmd:maintenanceAndUpdateFrequency** **gmd:dateOfNextUpdate** **gmd:userDefinedMaintenanceFrequency** **gmd:updateScope** **gmd:updateScopeDescription** **gmd:maintenanceNote** **gmd:contact**
used by	element **MD_MaintenanceInformation**
attributes	Name Type Use Default Fixed Annotation id **xs:ID** uuid **xs:string**
annotation	documentation Information about the scope and frequency of updating

source

```
<xs:complexType name="MD_MaintenanceInformation_Type">
  <xs:annotation>
    <xs:documentation>Information about the scope and frequency of updating</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="gco:AbstractObject_Type">
      <xs:sequence>
        <xs:element name="maintenanceAndUpdateFrequency" type="gmd:MD_MaintenanceFrequencyCode_
PropertyType"/>
        <xs:element name="dateOfNextUpdate" type="gco:Date_PropertyType" minOccurs="0"/>
        <xs:element name="userDefinedMaintenanceFrequency" type="gts:TM_PeriodDuration_PropertyType
" minOccurs="0"/>
        <xs:element name="updateScope" type="gmd:MD_ScopeCode_PropertyType" minOccurs="0" maxOc
```

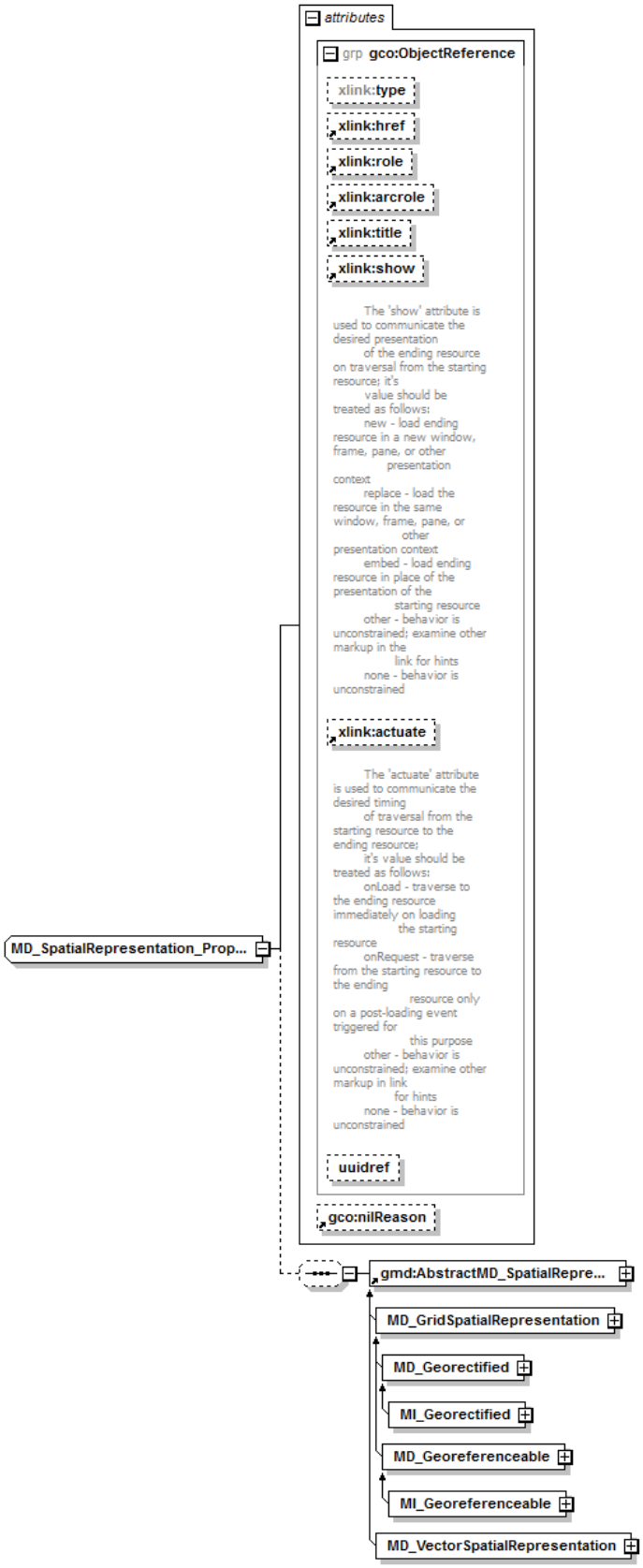
```
curs="unbounded"/>
      <xs:element name="updateScopeDescription" type="gmd:MD_ScopeDescription_PropertyType" minO
ccurs="0" maxOccurs="unbounded"/>
      <xs:element name="maintenanceNote" type="gco:CharacterString_PropertyType" minOccurs="0" max
Occurs="unbounded"/>
      <xs:element name="contact" type="gmd:CI_ResponsibleParty_PropertyType" minOccurs="0" maxOcc
urs="unbounded"/>
    </xs:sequence>
   </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Spatial representation information (MD_SpatialRepresentation)

This package supports the provision of metadata identifying the spatial primitives used by a resource; the mechanisms used to model real world phenomena in a digital information system. It consists of the MD_SpatialRepresentation which can be specified as either MD_VectorSpatialRepresentation or MD_GridSpatialRepresentation which can be further specified as MD_Georectified or MD_Georeferencable.

Click here to expand...

diagram



namespace	http://www.isotc211.org/2005/gmd
children	**gmd:AbstractMD_SpatialRepresentation**
used by	elements **MD_Metadata_Type/spatialRepresentationInfo** **QE_CoverageResult_Type/resultSpatialRepresentation**

attributes	Name	Type	Use	Default	Fixed	Annotation
	xlink:type	**xs:string**			simple	
	xlink:href	**xs:anyURI**	optional			
	xlink:role	**xs:anyURI**	optional			
	xlink:arcrole	**xs:anyURI**	optional			
	xlink:title	**xs:string**	optional			
	xlink:show	**derived by: xs:string**	optional			
	xlink:actuate	**derived by: xs:string**	optional			
	uuidref	**xs:string**				
	gco:nilReason	**gml:NilReasonType**				

source

```
<xs:complexType name="MD_SpatialRepresentation_PropertyType">
  <xs:sequence minOccurs="0">
    <xs:element ref="gmd:AbstractMD_SpatialRepresentation"/>
  </xs:sequence>
  <xs:attributeGroup ref="gco:ObjectReference"/>
  <xs:attribute ref="gco:nilReason"/>
</xs:complexType>
```

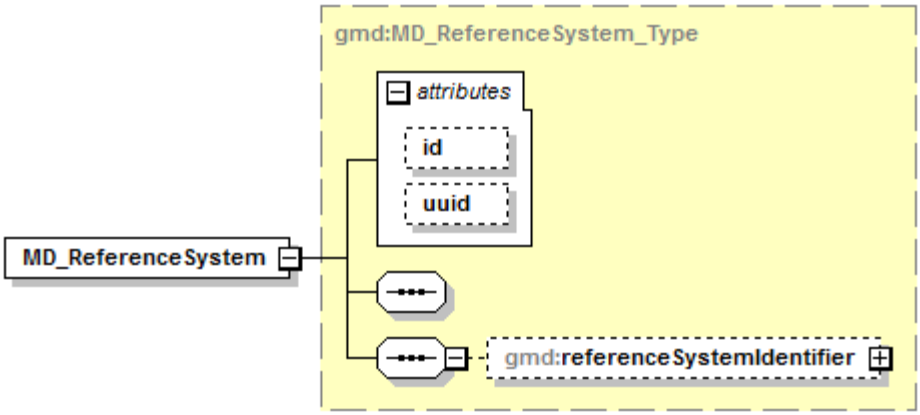
Reference system information (MD_ReferenceSystem)

This package supports the metadata identifying the spatial and temporal reference system(s) used by a resource.

Click here to expand...

element **MD_ReferenceSystem**

diagram



namespace	http://www.isotc211.org/2005/gmd
type	**gmd:MD_ReferenceSystem_Type**
properties	content complex
children	**gmd:referenceSystemIdentifier**
used by	complexType **MD_ReferenceSystem_PropertyType**

attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**xs:ID**				
	uuid	**xs:string**				

source

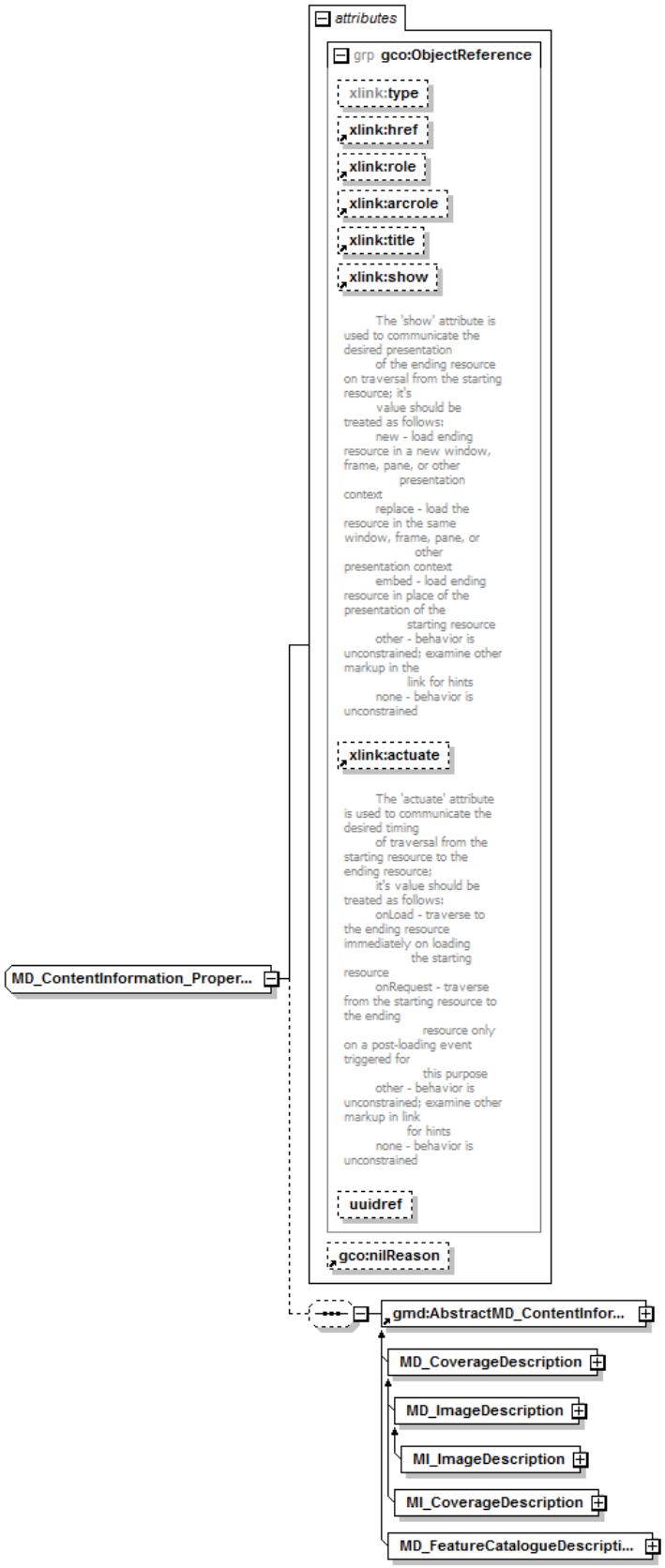
```
<xs:element name="MD_ReferenceSystem" type="gmd:MD_ReferenceSystem_Type"/>
```

Content information (MD_ContentInformation)

This package supports the provision of metadata identifying the content of a resource by: citing the feature catalog used to define the content (MD_FeatureCatalogueDescription); incorporating the feature catalogue (MD_FeatureCatalogue – defined in ISO 19110); or describing the content of a coverage resource (MD_CoverageDescription) which also may be specified as MD_ImageDescription.

Click here to expand...

diagram



namespace	http://www.isotc211.org/2005/gmd
children	**gmd:AbstractMD_ContentInformation**
used by	element **MD_Metadata_Type/contentInfo**

attributes	Name	Type	Use	Default	Fixed	Annotation
	xlink:type	**xs:string**			simple	
	xlink:href	**xs:anyURI**	optional			
	xlink:role	**xs:anyURI**	optional			
	xlink:arcrole	**xs:anyURI**	optional			
	xlink:title	**xs:string**	optional			
	xlink:show	**derived by: xs:string**	optional			
	xlink:actuate	**derived by: xs:string**	optional			
	uuidref	**xs:string**				
	gco:nilReason	**gml:NilReasonType**				

source

```
<xs:complexType name="MD_ContentInformation_PropertyType">
  <xs:sequence minOccurs="0">
    <xs:element ref="gmd:AbstractMD_ContentInformation"/>
  </xs:sequence>
  <xs:attributeGroup ref="gco:ObjectReference"/>
  <xs:attribute ref="gco:nilReason"/>
</xs:complexType>
```

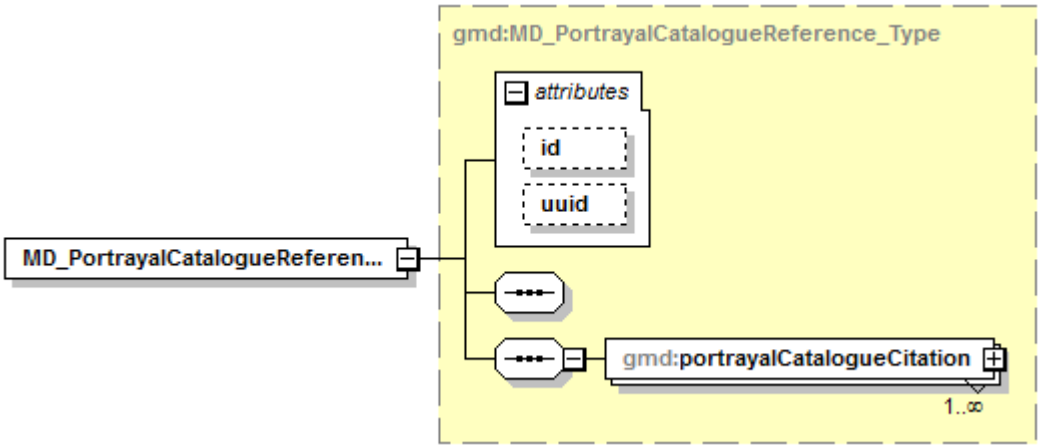
Portrayal catalogue information (MD_PortrayalCatalogueReference)

The portrayal catalogue describes how the resource can be rendered for human visualisation.

Click here to expand...

element **MD_PortrayalCatalogueReference**

diagram



namespace	http://www.isotc211.org/2005/gmd
type	**gmd:MD_PortrayalCatalogueReference_Type**
properties	content complex
children	**gmd:portrayalCatalogueCitation**
used by	complexType **MD_PortrayalCatalogueReference_PropertyType**

attributes	Name	Type	Use	Default	Fixed	Annotation
	id	**xs:ID**				
	uuid	**xs:string**				

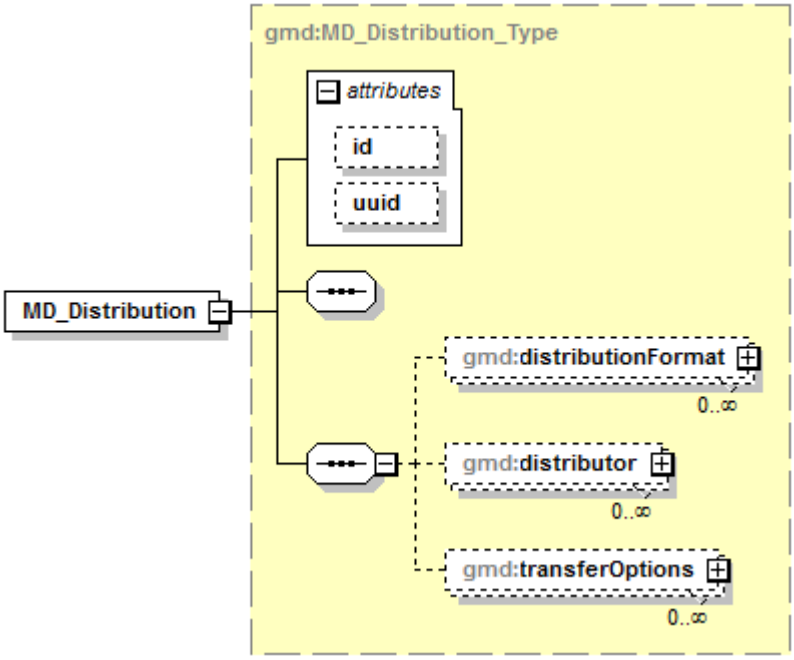
source

```
<xs:element name="MD_PortrayalCatalogueReference" type="gmd:MD_PortrayalCatalogueReference_Type
"/>
```

Distribution information (MD_Distribution)

This package supports the provision of metadata about the distributor of, and options for obtaining, a resource.

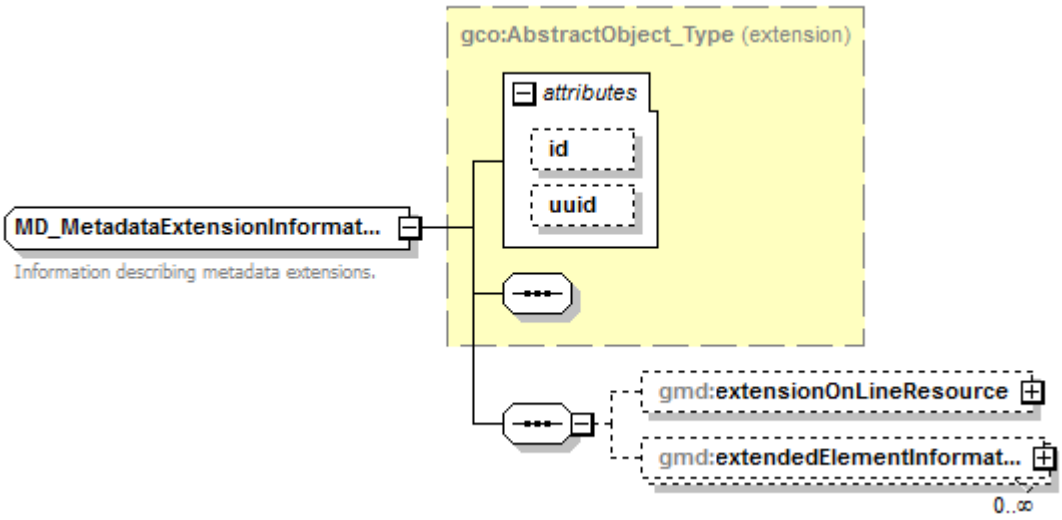
Click here to expand...

diagram	
namespace	http://www.isotc211.org/2005/gmd
type	**gmd:MD_Distribution_Type**
properties	content complex
children	**gmd:distributionFormat** **gmd:distributor** **gmd:transferOptions**
used by	complexType **MD_Distribution_PropertyType**
attributes	Name / Type / Use / Default / Fixed / Annotation id / **xs:ID** uuid / **xs:string**
source	<xs:element name="MD_Distribution" type="gmd:MD_Distribution_Type"/>

Metadata extension information (MD_MetadataExtensionInformation)

This package supports the provision of information about user specified metadata extensions.

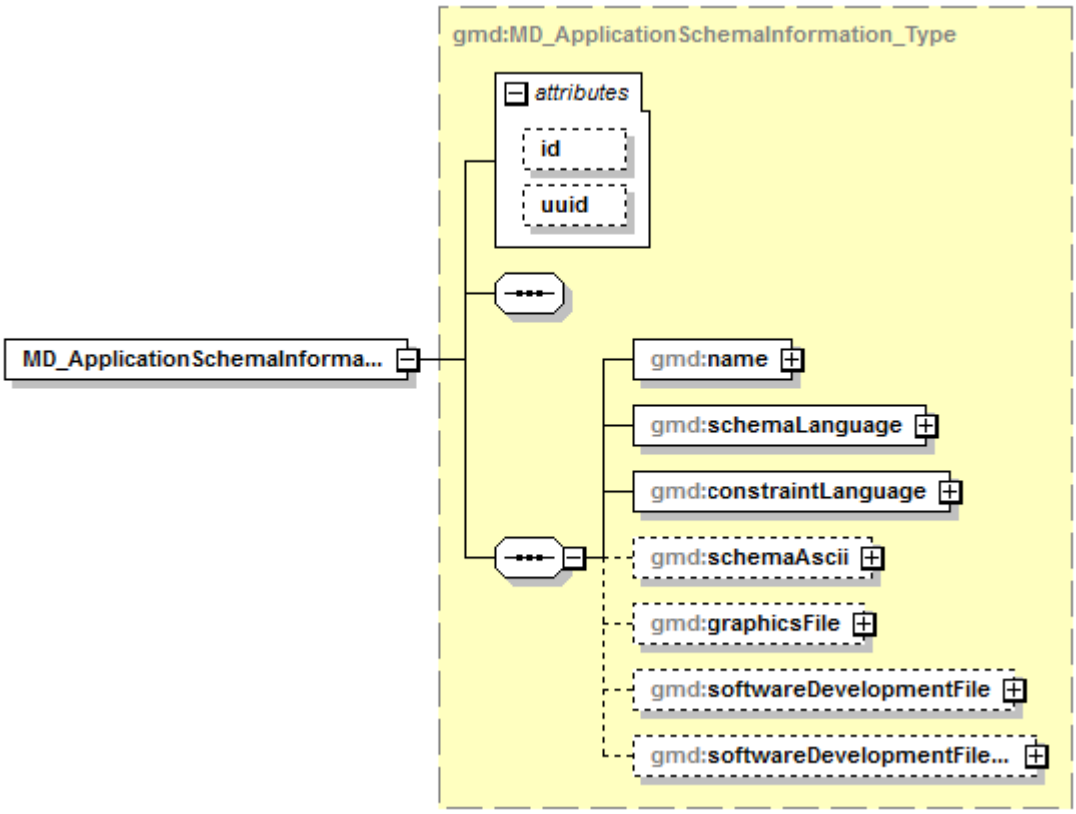
Click here to expand...

diagram	
namespace	http://www.isotc211.org/2005/gmd
type	extension of **gco:AbstractObject_Type**
properties	base gco:AbstractObject_Type
children	**gmd:extensionOnLineResource** **gmd:extendedElementInformation**
used by	element **MD_MetadataExtensionInformation**
attributes	Name Type Use Default Fixed Annotation id **xs:ID** uuid **xs:string**
annotation	documentation Information describing metadata extensions.
source	<xs:complexType name="MD_MetadataExtensionInformation_Type"> <xs:annotation> <xs:documentation>Information describing metadata extensions.</xs:documentation> </xs:annotation> <xs:complexContent> <xs:extension base="gco:AbstractObject_Type"> <xs:sequence> <xs:element name="extensionOnLineResource" type="gmd:CI_OnlineResource_PropertyType" minOccurs="0"/> <xs:element name="extendedElementInformation" type="gmd:MD_ExtendedElementInformation_PropertyType" minOccurs="0" maxOccurs="unbounded"/> </xs:sequence> </xs:extension> </xs:complexContent> </xs:complexType>

Application schema information (MD_ApplicationSchemaInformation)

This package supports the provision of metadata describing the application schema used to define and expose the structure of a resource.

Click here to expand...

diagram	
namespace	http://www.isotc211.org/2005/gmd
type	**gmd:MD_ApplicationSchemaInformation_Type**
properties	content complex
children	**gmd:name gmd:schemaLanguage gmd:constraintLanguage gmd:schemaAscii gmd:graphicsFile gmd:softwareDevelopmentFile gmd:softwareDevelopmentFileFormat**
used by	complexType **MD_ApplicationSchemaInformation_PropertyType**
attributes	Name Type Use Default Fixed Annotation id **xs:ID** uuid **xs:string**
source	<xs:element name="MD_ApplicationSchemaInformation" type="gmd:MD_ApplicationSchemaInformation_Type"/>

Service metadata information

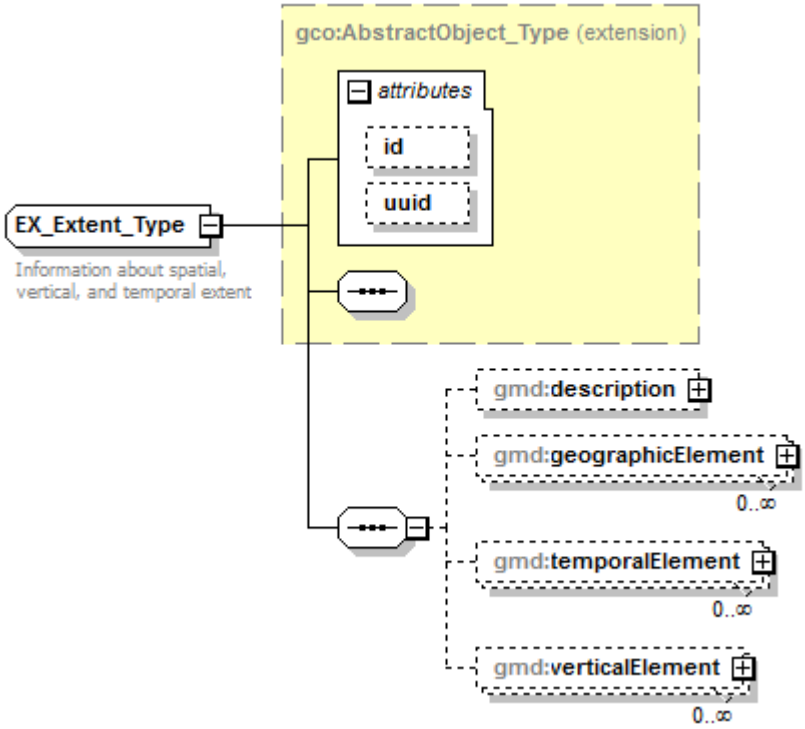
The a combination of documentation packages used to describe metadata or data services. The structure of service metadata includes three major classes: a section of basic service metadata (SV_ServiceIdentification class) that provides a general description of the service and two sections that describe the operations (SV_OperationMetadata) and data (MD_DataIdentification) available from a particular service.

Extent information (EX_Extent)

The datatype in this package is an aggregate of the metadata elements that describe the spatial and temporal extent of resources, objects, events, or phenomena. The EX_Extent class contains information about the geographic (EX_GeographicExtent), temporal (EX_TemporalExtent) and the vertical (EX_VerticalExtent) extent of something.

Click here to expand...

complexType **EX_Extent_Type**

diagram	
namespace	http://www.isotc211.org/2005/gmd
type	extension of **gco:AbstractObject_Type**
properties	base gco:AbstractObject_Type
children	**gmd:description** **gmd:geographicElement** **gmd:temporalElement** **gmd:verticalElement**
used by	element **EX_Extent**
attributes	Name Type Use Default Fixed Annotation id **xs:ID** uuid **xs:string**
annotation	documentation Information about spatial, vertical, and temporal extent

source

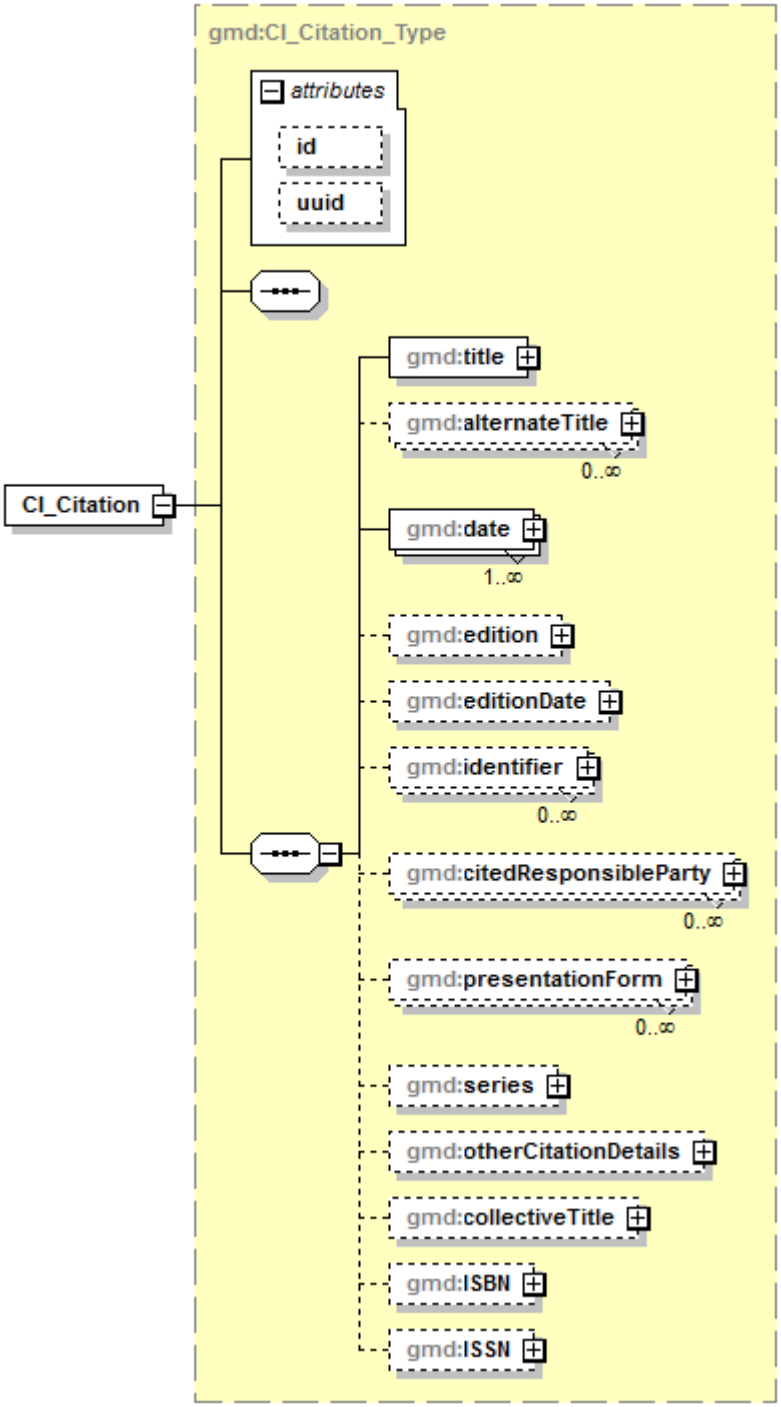
```
<xs:complexType name="EX_Extent_Type">
  <xs:annotation>
    <xs:documentation>Information about spatial, vertical, and temporal extent</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="gco:AbstractObject_Type">
      <xs:sequence>
        <xs:element name="description" type="gco:CharacterString_PropertyType" minOccurs="0"/>
        <xs:element name="geographicElement" type="gmd:EX_GeographicExtent_PropertyType" minOccurs=
"0" maxOccurs="unbounded"/>
        <xs:element name="temporalElement" type="gmd:EX_TemporalExtent_PropertyType" minOccurs="0"
maxOccurs="unbounded"/>
        <xs:element name="verticalElement" type="gmd:EX_VerticalExtent_PropertyType" minOccurs="0" ma
xOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
```

Citation and responsible party information (CI_Citation and CI_ResponsibleParty) classes

This package provides a standardized 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 by aggregating CI_ResponsiblePartyInfo.

Click here to expand...

element **CI_Citation**

diagram	
namespace	http://www.isotc211.org/2005/gmd
type	**gmd:CI_Citation_Type**
properties	content complex
children	**gmd:title gmd:alternateTitle gmd:date gmd:edition gmd:editionDate gmd:identifier gmd:citedResponsibleParty gmd:presentationForm gmd:series gmd:otherCitationDetails gmd:collectiveTitle gmd:ISBN gmd:ISSN**
used by	element **formulaCitation** complexType **CI_Citation_PropertyType**
attributes	Name Type Use Default Fixed Annotation id **xs:ID** uuid **xs:string**

source	<xs:element name="CI_Citation" type="gmd:CI_Citation_Type"/>