Overview of ISO 19115-1
(what’s new!)

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*Esri*
19115-1 Available
Why revise ISO 19115

- ISO 19115 Corrigendum
- User suggestions
- Lessons learned
- New methods
- New requirements
- Changes in related standards
- Issues with service metadata
Backward compatibility – the way forward

• Backward compatible*
• No new mandatory unless it is a replacement element
• If a metadata element’s definition/concept changed it was replaced (old names not used)
• Metadata element’s type allowed to change without replacement
• Model refactoring – OK
  • Very minor (responsible party?)
  • Maintain element order wherever possible
• Annex provided showing changes and mapping between old and new elements
• New XML namespace in new ISO 19115-3
• An XSLT will be provided in ISO 19115-3
• Old implementations will remain compliant to ISO 19115:2003/ISO 19139:2007
• Old ISO 19139:2007 schemas will remain in place indefinitely
• New implementations would be compliant with ISO 19115-1:2014/ISO 19115-3:2015?

*by translation
Changes from 19115 to 19115-1

- Data quality moved to ISO 19157:2013
- Services metadata added from ISO 19119:2005
- Feature catalog included (physically or by link)
- Responsible party restructured to enable reuse for different roles
- Concept of “recommended core” translated to “Discovery metadata for geospatial resources”
- Identifiers managed consistently
- Tidy up types
- Related attributes grouped using specified classes eg
  - Hierarchy level and hierarchy name/ Metadata scope and metadata description
- Many new elements added/improved - examples:
  - metadata identifier improved, MD_MetadataScope and MD_KeywordClass classes added, online linkage in Citation, Reference system type code attribute added, . . . , (±100 changes at element level)
ISO 19115-1 Packages

- Content Information
- Distribution Information
- Constraint Information
- Portrayal catalogue Information
- Maintenance Information
- Metadata extension Information
- Metadata Information
- Metadata application Information
- Citation and responsible party Information
- Service metadata Information
- Identification Information
- Extent Information
- Lineage Information
- Application schema Information

ISO 19157:2013 Data Quality
Can use full feature catalogues

Better management of language and CharacterSets
Service metadata
Reference system type added
CI_ResponsibleParty now CI_Responsibility
ISO 19115-1 Introduction

To aid in ensuring backward compatibility and ease the transformation of metadata instances to this revised version of ISO 19115:

— No new mandatory elements were created;
— If the definition of a metadata element required changing it was deleted and replaced by a new metadata element; metadata element names were not reused for other concepts;
— Definitions of some metadata elements were broadened;
— Metadata elements were reused when their datatype changed but name and definition remained the same;
— Remaining attributes were kept in the same order as in the replaced standard;
— A list of deleted elements, new elements, and a mapping between old elements and their replacement is provided in Annex G;
— Restructuring of the UML was kept to a minimum.

Summary of major changes:
— The concept of “Core metadata” was removed;
— Metadata for services was added, derived from ISO 19119:2005 and ISO 19119:2005/Amd 1:2008;
— Data quality was moved to ISO 19157;
— Annex F was added to describe metadata for the discovery of service and non-service resources;
— Many codelist were extended;
— The use of “Short name” and “Domain code” was dropped for metadata elements and codes respectively.

A full description of changes is provided in Annex G.
ISO 19115-1 Annex G Revisions

• G.1 Summary of revisions
  • Revisions by package

• G.2 Revision details
  • Tables G.1 through G.16

<table>
<thead>
<tr>
<th>ISO 19115:2003 data dictionary number</th>
<th>Deleted element</th>
<th>New</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>MD_Metadata/fileIdentifier</td>
<td>MD_Metadata/metadataIdentifier: MD_Identifier</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The MD_Identifier now includes the codespace attribute for defining the namespace associated with the identifier. This is an improvement over the previous CharacterString type.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>MD_Metadata/language</td>
<td>MD_Metadata/defaultLocale: PT_Locale</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Make use of the newly added Language and character set localization package for defining local language and character set.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>MD_Metadata/parentIdentifier</td>
<td>MD_Metadata/parentMetadata: CI_Citation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CI_Citation is used in place of character string to help further standardise this element.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>MD_Metadata/hierarchyLevel</td>
<td>MD_Metadata/metadataScope/MD_MetadataScope/resourceScope</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>These two elements were moved to the new MD_MetadataScope class to avoid ambiguity in cases where multiple scope codes and names are associated with a single record. The word hierarchy was dropped from the names because scopes can be used in non-hierarchical structures.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>MD_Metadata/hierarchyLevel Name</td>
<td>MD_Metadata/metadataScope/MD_MetadataScope/name</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Makes the new class even more flexible when working with non-hierarchical structures.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>MD_Metadata/hierarchyLevel Name</td>
<td>MD_Metadata/metadataScope/MD_MetadataScope/name</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Makes the new class even more flexible when working with non-hierarchical structures.</td>
<td></td>
</tr>
</tbody>
</table>
Definitional / encoding specification relationship

Today

- ISO 19115:2003 Metadata
- ISO 19113:2002 Quality principles
- ISO 19114:2003 Quality eval procedure
- ISO 19110:2005 Feature Catalogue
- ISO 19115-2:2009 Metadata-Imagery
- ISO 19119:2005 Services
- ISO 19139:2007 Metadata XML encoding
- ISO 19139-2:2012 Metadata imagery encoding

Encoding

- OGC services

Future

- ISO 19115-1:2014 Metadata fundamentals Including Services metadata
- ISO 19157:2013 Data quality XML encoding
- ISO 19157-2 Data quality XML encoding
- ISO 1915-2 Rev Metadata imagery Systematic review started 1/31/14 - 6/16/14
- ISO 19110:2015 Feature catalogue
- ISO 19110:2015 Feature catalogue Annex C

Not in work yet
Detailed Changes

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Changes from 2003/2006 to 2014

• Two changes in the **Scope** of the Standards
  • OUT - data quality (lineage retained)
  • IN - services

• One **major** change on how it works
  • Responsible party – starts with role

• **Raft** of minor changes
  • Sort out cardinalities
  • Identifiers managed consistently
  • Tidy up types
  • Related attributes grouped using specified classes eg
    • Language and CharacterSet;
    • Hierarchy level and hierarchy name;
    • Maintenance scope and maintenance description

• Anything that was optional still is
Concept changes

• Concept of “recommended core” translated into “Discovery metadata for geospatial resources”

• Responsible party restructured to enable reuse for different roles

• Many new elements added/improved:

  Examples - metadata identifier improved; MD_MetadataScope and MD_KeywordClass classes added; online linkage in Citation; Reference system type code attribute added; . . ., (±100 changes at element level)

• Feature catalog information enabled (physically or by link)

• Direct feature and attribute level links to ISO 19110 lost
ISO 19115-1 Packages

ISO 19157

Data Quality Information

ISO 19115-1 Packages

Language-character set localization Information

Service metadata Information

Citation and responsible party Information

Identification Information

Extent Information

Lineage Information

Metadata application Information

Metadata Information

Content Information

Distribution Information

Constraint Information

Portrayal catalogue Information

Maintenance Information

Metadata extension Information

Application schema Information
Legend for slides
• Most changes have been flagged
• ISO 19115:2003/2006 (left UML) compared with ISO19115-1:2014 (right UML)
• Changes are grouped as: added; moved; cardinality change; name change, type change; and dropped (or combinations)
• Coloured patches have been placed on the UML diagrams to assist with the identification of the changes

* Refer to “notes” for details
DS_Resource / DS_Aggregate

Figure 1 — Metadata application
**Data Quality – moved out to ISO 19157**

**DQ_DataQuality**
- Still available
- Very powerful, but quite complicated
- Used in other standards
- In Australia, generally not well populated

**LI_Lineage**
- Retained within 19115-1
- In Australia, generally used well
- New link from MD_Metadata
- Incorporates scope
Figure 10 — Maintenance information classes
Figure 11 — Spatial representation information classes
MD_ReferenceSystem / MD_Identifier

Figure 12 — Reference system information classes
Figure 15 — Distribution information classes
Figure 16 — Metadata extension information classes
**EX_Extent**

Figure 19 — Extent information classes
Responsible Party - rethink

- Then define the party/parties
  
  Each party can be:
  
  - Organisation
    - with or without logo(s)
  
  - Individual
    - with or without individual(s)
  
  - Position

  ```
  Responsible Party
  + name: CharacterString [0..1]
  + contactInfo: CI_Contact [0..*]
  ```

  ```
  CI_Individual
  + positionName: CharacterString [0..1]
  constraints
  {count (name + positionName) > 0}
  ```

  ```
  CI_Organisation
  + logo: MD_BrowseGraphic [0..*]
  constraints
  {count (name + logo) > 0}
  ```

  ```
  CI_Contact
  + phone: CI_Telephone [0..*]
  + address: CI_Address [0..*]
  + onlineResource: CI_OnlineResource [0..*]
  + hoursOfWeek: CharacterString [0..*]
  + contactInstructions: CharacterString [0..1]
  + contactType: CharacterString [0..1]
  ```
New Responsibility

• Roles
  • can have extent - Spatial (3D) and/or Temporal
  • Enlarged range of codes
• Organisations / individuals / positions are assigned to roles
• An Organisation / individual / position can have more than one contact
• Within and organisation, multiple individuals/positions can have the same responsibility
• Different types of contacts can be defined
  • (eg office, mobile, field, laboratory, emergency)
• Telephones are defined by codes
  • (??extensible??) not limited to voice, fax, SMS
Figure 20 — Citation and responsible party information classes
Figure 21 — Citation and responsible party information codlists
MD_Scope / MD_BrowseGraphic

Figure 22 — Commonly used classes
Figure 14 — Portrayal catalogue information classes

Figure 17 — Application schema information class
Services – moved in from ISO 19119

SV_Service...
- Was always tightly linked to ISO 19115
  - SV_ServiceIdentification paralles MD_DataIdentification
  - Now better sharing of attributes
  - Minor changes to service model to incorporate newer thinking