Conformance

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Although NASA will add to or modify these requirements, ISO directs that, in order to be ISO 19115-2 compliant, metadata, user-defined metadata extensions and profiles need conform to the requirements delineated in ISO 19115:2003.

What is 19115 conformance?

The notion of ISO 19115 conformance, as defined in the ISO 19115:2003 docuemntation involves the metadata meeting a series of tests:

- Completeness test: to determine conformance by the inclusion of all metadata packages, metadata classes, and metadata elements that are specified with an obligation of "mandatory" or mandatory under the conditions specified.
- Maximum occurrence test: to ensure each metadata element occurs no more than the number of times specified in this International Standard.
- Data type test: to determine if each metadata element within a subject metadata set uses the specified data type.
- Domain test: to determine if each provided metadata element within a subject metadata set falls within the specified domain.
- Schema test: to determine if a subject metadata set follows the schema specified in this International Standard.
- Exclusiveness test: to verify that each user-defined metadata package, metadata class, and metadata element is unique and not already defined in this International Standard.
- Definition test: to verify that user-defined metadata classes and metadata elements have been defined as specified in this International Standard.
- Standard metadata test: to verify that user-defined metadata within a subject metadata set fulfils the same requirements as ISO 19115 standard metadata.
- Metadata profiles: to verify that a profile follows the rules specified in this International Standard.

How does 19139 address conformance?

Beyond Scehma Validation

Validation By-value or by-reference or gco:nilReason is not enough for robust ISO validation. *Validation of XML instance documents against the schemas described in ISO 19139 is not all that is required for conformance.* A property element following the default XCPT pattern is designed to have content (by-value) or attributes (by-reference or NULL with reason). However, because of the design of the XCPT, the property element may have no content or attributes, or it may have both content and attributes and still be XML-schema-valid. It is not possible to constrain the co-occurrence of content or attributes. Some mechanism in addition to an XML schema validation (e.g. Schematron, XSL transformations) shall be used to restrict a property to be exclusively by-value, or by-reference, or expressing a NULL reason.

Metadata Author Requirements on Schema Co-constraints/Anchors

XML 1.0 does not support the enforcement of certain types of constraints. For example, co-constraints such as *the requirement that an 'extent' in the form of an 'EX_GeographicBoundingBox' be used in the 'MD_DataIdentification' object when the 'hierarchyLevel' of 'MD_Metadata' is equal to "dataset"* cannot be enforced with an XML schema. As a result, it is imperative that implementers heed the anchor notes shown in the Figures in Annex A of ISO 19115:2003 and ISO 19115:2003/Cor.1:2006.

Affected class	Conformance rule
MD_Metadata	language: documented if not defined by the encoding standard
MD_Metadata	characterSet: documented if ISO/IEC 10646 not used and not defined by the encoding standard
MD_DataIdentification	characterSet: documented if ISO/IEC 10646 is not used
MD_DataIdentification	MD_Metadata.hierarchyLevel = "dataset" implies count (extent.geographicElement.EX_GeographicBoundingBox) + count (extent.geographicElement.EX_GeographicDescription) >=1
MD_DataIdentification	MD_Metadata.hierarchyLevel notEqual "dataset" implies topicCategory is not mandatory
MD_AggregateInformation	Either "aggregateDataSetName" or "aggregateDataSetIdentifier" must be documented
MD_LegalConstraints	otherConstraints: documented if accessConstraints or useConstraints = "otherRestrictions"
DQ_DataQuality	"report" or "lineage" role is mandatory if scope.DQ_Scope.level = 'dataset'
DQ_Scope	"levelDescription" is mandatory if "level" notEqual 'dataset' or 'series'
LI_Lineage	If (count(source) + count(processStep) =0) and (DQ_DataQuality.scope.level = 'dataset' or 'series') then statement is mandatory
LI_Lineage	"source" role is mandatory if LI_Lineage.statement and "processStep" role are not documented
LI_Lineage	"processStep" role is mandatory if LI_Lineage.statement and "source" role are not documented
LI_Source	"description" is mandatory if "sourceExtent" is not documented
LI_Source	"sourceExtent" is mandatory if "description" is not documented
MD_Georectified	"checkPointDescription" is mandatory if "checkPointAvailability" = 1
MD_Band	"units" is mandatory if "maxValue" or "minValue" are provided
MD_Medium	"densityUnits" is mandatory if "density" is provided
MD_Distribution / MD_Format	count (distributionFormat + distributorFormat) > 0"
MD_ExtendedElementInformation	if "dataType" notEqual 'codelist', 'enumeration' or 'codelistElement' then "obligation", "maximumOccurence" and "domainValue" are mandatory
MD_ExtendedElementInformation	if "obligation" = 'conditional' then "condition" is mandatory
MD_ExtendedElementInformation	if "dataType" = 'codelistElement' then "domainCode" is mandatory
MD_ExtendedElementInformation	if "dataType" notEqual 'codelistElement' then "shortName" is mandatory
EX_Extent	count (description + geographicElement + temporalElement + verticalElement) > 0")
CI_ResponsibleParty	count of (individualName + organisationName + positionName) > 0")
Distance	The UoM element of the Distance Type must be instantiated using the UomLength_PropertyType
Length	The UoM element of the Length Type must be instantiated using the UomLength_PropertyType
Scale	The UoM element of the Scale Type must be instantiated using the UomScale_PropertyType
Angle	The UoM element of the Angle Type must be instantiated using the UomAngle_PropertyType

Conformance rules not enforceable with XML schema