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Revision Notes for OpenGIS® Implementation Specification: Geographic information - Geography Markup Language Version 3.2.1

Warning

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i. Preface

This document provides revision notes for version 3.2.1 of the OpenGIS® Implementation Specification **Geographic information – Geography Markup Language (GML)**.

Suggested additions, changes, and comments on this draft report are welcome and encouraged. Such suggestions may be submitted by email message or by making suggested changes in an edited copy of this document.

ii. Document terms and definitions

This document uses the specification terms defined in Subclause 5.3 of [OGC 05-008]. In particular, the word “shall” (not “must”) is the verb form used to indicate a requirement to be strictly followed to conform to this specification.

iii. Document contributor contact points

All questions regarding this document should be directed to the editor or the contributors:

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iv. Revision history

Date	Release	Editor	Primary clauses modified	Description
16 May 2007	1.0	Clemens Portele	All	Creation of document

v. Future work

Improvements in this document may be desirable. There will be a short member review period to solicit input and comments from the broader geospatial community.

Foreword

This document is informative, and does not change the meaning, or interpretation of other normative standards.

This document provides notes describing the set of revisions to the existing OGC standard Geography Markup Language (GML) version 3.2.1 and does not modify that standard. The current OpenGIS IS that this document provides revision notes for is 07-036, which is identical to ISO/PRF 19136. This specification supersedes 03-105r1, which is identical to ISO/CD 19136.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The Open Geospatial Consortium Inc. shall not be held responsible for identifying any or all such patent rights.

Recipients of this document are requested to submit, with their comments, notification of any relevant patent claims or other intellectual property rights of which they may be aware that might be infringed by any implementation of the standard set forth in this document, and to provide supporting documentation.

Introduction

This document defines a revision notes for **OpenGIS® Implementation Specification: Geographic information - Geography Markup Language**. This document was approved by the OGC membership on July 27 2007. It also was published as ISO 19136:2007 in late 2007. As a result of the ISO standardization process, there were a number of edits and enhancements made to this specification. This document provides the details of those edits, deficiency corrections, and enhancements. It also documents those items that have been deprecated. Finally, this document provides implementations details related to issues of backwards compatibility.

The comments received on version 3.1.1 and subsequent intermediate versions and their comment resolution by the ISO Editing Committee is documented in the in the ISO/TC 211 documents N1635, N1782, N1783, N1834, N1995, and N2173. This document is a summary of the content of these documents.

Revision Notes for OpenGIS® Implementation Specification: Geographic information - Geography Markup Language

1 Scope

The Geography Markup Language (GML) is an XML encoding in compliance with ISO 19118 for the transport and storage of geographic information modeled according to the conceptual modeling framework used in the ISO 19100 series of International Standards and including both the spatial and non-spatial properties of geographic features.

This International Standard defines the XML Schema syntax, mechanisms, and conventions that:

- Provide an open, vendor-neutral framework for the description of geospatial application schemas for the transport and storage of geographic information in XML;
- Allow profiles that support proper subsets of GML framework descriptive capabilities;
- Support the description of geospatial application schemas for specialised domains and information communities;
- Enable the creation and maintenance of linked geographic application schemas and datasets;
- Support the storage and transport of application schemas and data sets;
- Increase the ability of organizations to share geographic application schemas and the information they describe.

Implementers may decide to store geographic application schemas and information in GML, or they may decide to convert from some other storage format on demand and use GML only for schema and data transport.

NOTE If an ISO 19109 conformant application schema described in UML is used as the basis for the storage and transportation of geographic information, this International Standard provides normative rules for the mapping of such an application schema to a GML application schema in XML Schema and as such to an XML encoding for data with a logical structure according to the ISO 19109 conformant application schema.

2 Normative references

The following is a list of normative document references that have been added for the new version of this specification:

- ISO/IEC 11404:1996, Information technology — Programming languages, their environments and system software interfaces — Language-independent datatypes

- W3C XPath, W3C XML Path Language (XPath) Version 1.0. W3C Recommendation (16 November, 1999)

The following is a list of normative document references that have been updated to newer version for the new version of this specification:

- ISO 8601:2004, Data elements and interchange formats — Information interchange — Representation of dates and times

- ISO/TS 19103:2005, Geographic Information — Conceptual schema language

- ISO 19109:2005, Geographic Information — Rules for application schemas

- ISO 19111:—, Geographic Information — Spatial referencing by coordinates

- ISO 19118:2005, Geographic Information — Encoding

- ISO 19123:2005, Geographic Information — Schema for coverage geometry and functions

- ISO/TS 19139:2007, Geographic Information — Metadata — XML schema implementation

- ISO/IEC 19757-3:2006, Document Schema Definition Languages (DSDL) — Part 3: Rule-based validation — Schematron

- W3C XPointer Framework (XPointer Framework), W3C Recommendation (25 March 2003)

- W3C XPointer element() Scheme (XPointer element()), W3C Recommendation (25 March 2003)

- W3C XPointer xmlns() Scheme (XPointer xmlns()), W3C Recommendation (25 March 2003)

- W3C XPointer xpointer() Scheme (XPointer xpointer()), W3C Working Draft (19 December 2002)

- W3C XML, Extensible Markup Language (XML) 1.0 (Third Edition), W3C Recommendation (4 February 2004)

The following is a list of normative document references that have been removed for the new version of this specification:

- ISO 19105:2000, Geographic information – Conformance and testing

- ISO 19117:—, Geographic Information – Portrayal
- OpenGIS® Abstract Specification Topic 0, Overview, OGC document 99-100r1
- OpenGIS® Abstract Specification Topic 1, Feature Geometry, OGC document 01-101
- OpenGIS® Abstract Specification Topic 2, Spatial referencing by coordinates, OGC document 03-071r1
- OpenGIS® Abstract Specification Topic 5, The OpenGIS Feature, OGC document 99-105r2
- OpenGIS® Abstract Specification Topic 8, Relations between Features, OGC document 99-108r2
- OpenGIS® Abstract Specification Topic 10, Feature Collections, OGC document 99-110
- IETF RFC 2732, Format for Literal IPv6 Addresses in URLs. (December 1999)
- W3C SMIL, Synchronized Multimedia Integration Language (SMIL 2.0). W3C Recommendation (07 August 2001)
- W3C SVG, Scalable Vector Graphics (SVG) 1.0 Specification. W3C Recommendation (04 September 2001)

3 Terms and definitions

The terms and definitions of the new version of the specification have been completely revised and aligned with existing terminology, in particular with the terminology defined in the ISO 19100 series of International Standards.

4 Relationship between GML and the ISO 19100 series

4.1 General remark

Strengthening the relationship between GML and the other standards in ISO 19100 series was considered to be the most important issue in this revision. As a result of this process, GML 3.2.1 has been adopted by ISO/TC 211 as ISO 19136 (i.e., ISO 19136 is not "just" a profile of GML).

Specific clauses from the ISO 19100 series are in general now referenced instead of duplicating such text in the GML specification.

4.2 Clarifications and enhanced documentation

The scope statement has been considered sufficient as it is, with some minor clarifications. However, additional descriptive text was needed to describe the relationship between the ISO 19100 series and ISO 19136 / GML. The additional descriptions have been mostly added in clause 6 and Annex D. Annex D has been made normative.

Annex D now also includes a mapping between the ISO 19100 packages and types and the GML schema documents / object elements to clarify the correspondence between the types on the conceptual level and GML as their XML implementation.

To enhance clarity, all UML diagrams have been moved from the main body of the text to Annex D.

The introduction and other descriptive parts have been rewritten.

4.3 Encoding rules

The encoding rules in Annexes E and F have been significantly revised.

4.4 Conformance classes

The conformance clause including the Annexes A and B have been completely revised to create sufficiently detailed conformance classes and a description following the conventions of ISO 19105. The general structure was based on the conformance classes of the relevant ISO 19100 standards, especially ISO 19107, ISO 19108, ISO 19109, ISO 19112, and ISO 19123.

Furthermore, conformance classes have been defined to allow a better classification of the capabilities of GML enabled software or GML application schemas. These conformance classes are intended to allow data providers and users of software products to determine GML related capabilities required to process GML documents conforming to a GML application schema. Vendors of software products can brand their products according to the capabilities they provide.

4.5 Deprecated schema components

All schema components that were deprecated with GML 3.0 were removed from this version of GML, but all other deprecated schema components were retained.

All definitions of deprecated global XML Schema elements, types and attributes have been moved to an annex to separate more clearly between deprecated and non-deprecated schema components.

Note that since the target is backwards compatibility of the instances and not the application schemas, outdated types (and abstract elements) have been removed and not deprecated whenever possible.

4.6 Schema components without an abstract specification

GML implements mostly concepts specified in abstract specifications prepared by ISO/TC 211 and/or OGC. However, GML also implements a number of concepts for which this is not the case (e.g. gml:Dictionary, gml:LineString, gml:Observation, gml:AbstractFeature). Since these concepts are often required for applications dealing with geographic information they have been kept as a part of GML and were documented in Annex D.3 to clarify the reason for these additions and their role in GML.

However, there is consensus that the development of a conceptual model in the ISO 19100 series or the OGC Abstract Specifications should be encouraged and used – where and once available – as the basis for a future revision. It was agreed that whenever such a conceptual model is developed, the GML schema should be taken into account; in turn, GML should be revised after the conceptual model is available to provide an encoding of that model.

4.7 Portrayal

The default styling schema components have been made informative.

A capability that allows to defines styles for GML data is considered to be important for the portrayal of GML data. The default styling schema components provide a means for this. However, there are known issues, most notably that harmonization with the existing and more widely implemented OpenGIS Implementation Specification Styled-Layer Descriptor (SLD) / Symbology Encoding (SE) is required. Also, the planned revision of ISO 19117 should be considered in this step.

It should be noted that it is not considered important whether these style description schema components "live" in the GML namespace or not. Rather, it is important that a standardized style description capability based on an agreed conceptual schema exists.

When a generally accepted styling schema exists (whether it is an updated SE schema, an updated default styling schema or a different specification), the informative annex in its current form should be removed.

4.8 Temporal reference systems

The revision of ISO 19111 removed support for temporal reference systems - recommending that these be defined in a technical amendment to ISO 19108. The ISO 19111 revision defines spatio-temporal CRSs which are a compounding of a spatial CRS (single or compound) with one or more temporal CRSs, referencing ISO 19108 for the definition of a temporal CRS. The impact of this on ISO 19136 will not be clear until the ISO 19108 technical amendment is available. In the meantime, the conceptual schema for temporal reference systems has been added to D.3.

4.9 Dynamic features

It was discussed whether dynamic features should be withdrawn or deprecated pending completion of ISO 19141. It was agreed that such a change should be done with care as these schema components are used in application schemas. Noting that gml:DynamicFeature provides a general concept for features with properties that vary over time and ISO 19141 provides a schema for moving rigid bodies, it was not clear how to harmonise these concepts in this revision cycle. However, gml:MovingObjectStatus does address a similar requirement, but in a different way (gml:DynamicFeature documents the location and other properties of the object at certain time stamps while ISO/DIS 19141 describes location and direction as a function of time) and therefore was deprecated as a normative schema component and used informatively as an example for the use of dynamic features.

4.10 Formal changes

The document was aligned with the ISO Directives on drafting international standards.

5 Clarifications and bug fixes

5.1 Schema vs. schema documents

The difference between the “GML schema” and the “schema documents” has been clarified. The packaging of the GML schema into schema documents is not normative.

5.2 Importing the GML schema and GML profiles

Due to the rules of XML Schema a GML application schema shall from now on import the full/complete GML Schema via the schemaLocation attribute of the <import> elements.

A GML application schema document conforming to one or more GML Profiles may be provided in an appInfo annotation element <gml:gmlProfileSchema> for every profile in the root schema document <schema> element where the value is a schema location of the profile schema.

Note that an application schema may conform to multiple profiles.

Example:

```
<schema ...>
 <annotation>
  <appInfo>
   <gml:gmlProfileSchema>http://schemas
.opengis.net/gml/3.2.1/profiles/gmlSimpleFeatureProfile/1.1.0/gml
sf.xsd</gml:gmlProfileSchema>
   <gml:gmlProfileSchema>http://schemas
.opengis.net/gml/3.2.1/profiles/gmlPointProfile/1.1.1/gmlPointPro
file.xsd</gml:gmlProfileSchema>
```



```
  </appInfo>
 </annotation>
 ...
</schema>
```

5.3 XML namespace

The XML namespace of the GML schema ("http://www.opengis.net/gml") has been changed to "http://www.opengis.net/gml/3.2".

5.4 Use of Xlink

More detailed rules for the use of Xlink have been added.

In addition, it was clarified that other referencing mechanisms are allowed, but do not play any normative role in GML.

5.5 XML Schema issues

Changes in the schema components have been made (without impact on content model) to avoid errors reported by JAXB and commonly used XML parsers.

"Derivation by restriction" in property types has been removed in all cases to avoid issues with XML parsers. Typically, the base property type is now used instead and a Schematron rule has been added to express the constraint. The content model of the property element is not affected by the change.

5.6 Representation of feature associations

A note mentioning the known alternative approaches has been added. This topic may need more work in the future.

Known approaches are:

- According to the encoding rules in Annex E appinfo elements are used to identify association roles belonging to the same association.
- An association object may be created.
- An association may be represented using extended xlinks.

In case of an association with properties, one of the two latter approaches has to be used.

Note that gml:Association has been renamed to gml:AssociationRole.

5.7 Observations

It was clarified that the observation types specified in GML are primarily intended for "simple" observations. Schemas for scientific, technical and engineering observations and measurements will typically require the development of a GML Application Schema for such observations. See, for example, the draft Observations and Measurements specification.

5.8 Pre-defined, descriptive property names

Without defined semantics, the descriptive property names for geometry and temporal property names were not helpful. The properties that are not used in the GML schema itself have been deprecated.

5.9 Use of underscore in element names vs. "Abstract" in type names

The "_" (underscore) in element names to indicate abstractness has been replaced by "Abstract" as used in type names.

5.10 Envelopes with a time period

gml:EnvelopeWithTimePeriodType has been changed to match gml:EnvelopeType. The two “timePosition”s have been replaced by “beginPosition” and “endPosition”.

5.11 gml:id mandatory

GML objects have identity and therefore the local document identifier gml:id has been made mandatory.

5.12 Metadata properties

gml:_MetaData and gml:metaDataProperty have been deprecated and have been replaced by an abstract property type with an empty sequence plus the gml:OwnershipAttributeGroup. This property type needs to be extended in an application schema as illustrated by examples that have been added to the document.

This resolution has been selected, because

- schema parsers can identify metadata contents in instances,
- metadata contents can be enforced and must be modeled by an application schema,
- this allows for a slim encoding.

5.13 Name properties

All “*Name” elements in the coordinate reference system schema components have been replaced by gml:name and as a result use gml:CodeType as their type. The type gml:SimpleNameType has been deleted.

gml:axisName has been renamed to gml:axisLabel following the use in gml:SRSReferenceGroup; gml:fileName has been renamed to gml:fileReference. gml:SequenceRulesNames has been renamed to gml:SequenceRuleEnumeration.

5.14 StringOrRefType

gml:StringOrRefType has been deprecated. The properties using the type have been split into two separate properties to match the object-property-style: one property for a string and another property for a reference to a text. For example, the type of “description” is xsd:string, and an additional property “descriptionReference” with type gml:ReferenceType has been added.

5.15 Geometry types

Several inconsistencies in the geometry schema were corrected:

- gml:Envelope is not a geometry and the schema and document have been updated accordingly.

- gml:CircleByCenterPointType should have been derived from ArcByCenterPointType by restriction (removing the startAngle and endAngle properties) rather than by vacuous extension. This has been corrected.

- gml:Shell has been added implementing GM_Shell.

5.16 Topology types

The properties gml:isolated and gml:container have been taken off of gml:AbstractTopoPrimitiveType and were moved to the appropriate topology types to allow for stronger typing and stricter validation. gml:isolated is not allowed as a property of gml:Node nor is it allowed on gml:Edge. gml:isolated is an allowed property of gml:Face, but the value of gml:isolated can only be a gml:Node. Similar comments apply for the gml:container property.

In the case of planar topology, a gml:Node must have a clockwise sequence of gml:directedEdge properties, to ensure a lossless topology. This has been clarified in the text (no schema changes required).

Without the introduction of a universal face, describing some planar topologies in a lossless manner cannot be done. An example is a planar topology that appears similar to eyeglasses. This also follows the work expressed by Kuijpers (Kuijpers, B., et al. A Lossless Representation of Topological Spatial Data, Advances in Spatial Data SSD 95, LNCS 951, p.1-13, 1995). See the complete description of this problem in OGC 05-102. An attribute named "universal" of type boolean with use="optional" default="false" has been added to the content model of gml:Face. This same property has been added to the content model of gml:TopoSolid for consistency, too.

5.17 Time ordinal era

In TM_OrdinalEra (specified in ISO 19108), the “begin” and “end” attributes are optional. It is valid that an ordinal time may not carry these properties, because the minimum requirement for the ordinal time is that one can recognize the order of eras. The GML Schema was updated accordingly.

5.18 Coordinate reference system types

The encoding was updated to be consistent with ISO 19111:2007 and the GML patterns. Changes in particular include:

- mapping of IdentifiedObject class properties "name", "identifier" and "alias" to the standard properties of gml:Definition. "name" has been mapped to the new gml:identifier property in gml:AbstractGMLType that is a name with a mandatory codeSpace, "identifier" and "alias" have been mapped to gml:name.

- SecondDefiningParameter has been changed to follow the object-property-model.

- The *xxx*Ref property elements have been deprecated to harmonize with the standard usage in GML; the type of all "uses*Xxx*" property elements has been canged to "*Xxx*PropertyType".

- It was identified that the "remarks" property is recognised as a requirement that is more general than required merely for CRS schema, so a property element representing this has been added to gml:DefinitionType.

- Instead of providing alternative implementations of EX_Extent and DQ_PositionalAccuracy in GML in addition to ISO/TS 19139, the object elements from that technical specification have been used.

- All CodeList-valued properties are mapped to a new type gml:CodeWithAuthorityType has a mandatory codeSpace attribute.

On backwards compatibility: The existing schemas in GML 3.1 had a number of general GML and XML Schema issues. Since the schema components were informative in 3.0 and 3.1 is a recommendation paper backwards compatibility was considered as a desirable but not a critical issue for these schema components. Noting the significant changes for this version of GML and the underlying abstract specification maintaining backwards compatibility may not be possible in all cases, but it was tried to maintain compatibility as far as possible.

An explanation of the separation between LinearCS as implemented by GML and LRS as specified by ISO 19133 has been added to the document.

5.19 Grid points

It has been clarified for gridded coverages that when a grid point is used to represent a sample space (e.g. image pixel) that the grid point represents the center of the sample space as it is informatively suggested in ISO 19123 8.2.2 (Cell structures).

5.20 Range description of a coverage

The existing mechanism for indicating the description of the range of a coverage did not allow for a pointer to an external source. This prohibited the common situation where the coverage conforms to a data product specification with a standard range description. Furthermore, the inline encoding, using the gml:AbstractValue, is limited in scope, cumbersome in implementation, and bears little resemblance to other standards. In future this should be harmonized with RecordSchema and RecordType from ISO 19103. As a result, the specification of gml:rangeParameters has been changed to an association role, i.e. gml:rangeParameters provides a slot for the description of the range parameters. This may be a local description using a suitable record schema (see ISO 19103), or may carry a link to an external range description that matches some standard. Specific range parameters for inline use may now be defined through the creation of a GML Application Schema that may be based on the value objects schema.

5.21 Other changes

gml:SuccessionType was an isolated concept. Considering ongoing activities of ISO/TC 211 in the spatiotemporal domain the whole clause specifying the type has been removed.

gml:DefinitionCollection, gml:definitionMember and gml:indirectEntry did not provide additional value and have been deprecated.

Support for DMS (degrees, minutes, seconds) representations in coordinates had been deprecated with GML 3.1. Leaving support for gml:dmsAngle in GML has been an oversight. As a consequence, gml:dmsAngle has been deprecated.

The sequence of “horizontalAngle” and” verticalAngle” has been deprecated in the directions schema components. A gml:vector can represent these values and the labels are part of the coordinate reference system definition associated with the vector.

The sequenceRule attribute has been changed to support grids with a higher dimension than two.

The gml:fileStructure property in gml:File is mandatory and so far had only a single value ("Record Interleaved"). This is too restrictive as it does not apply to all binary file formates (e.g. JPEG 2000). The data type was changed to a code list to support other values, too.

gml:track has been deprecated, use gml:history instead.

The interpolationType attribute was missing from some curve segment types and has been added in these cases.

Some elements of complex types not deriving from gml:AbstractGMLType were not in the gml:AbstractObject substitution group while others were. This has been made consistent.

The substitutionGroup="gml:AbstractObject" has been added in several elements where this was missing.

The “remoteSchema” attribute has been deprecated as the xlink:role attribute can be used for the same purpose (where needed).

"Velocity" has been changed to "Speed" to reflect the change in the final version of ISO/TS 19103.

A significant number of editorial corrections and changes have been applied to the document. To enhance the strucure of the document some of the clauses were restructured.

6 Enhancements

6.1 Support for Void (ISO/IEC 11404)

Omitting a property element (using minOccurs=”0” in the XML Schema declaration) does not correspond to Void as defined in ISO/IEC 11404:1996. xsi:nil is to be used in the case of Void/nil. An explanation to this effect was added. xsi:nil / xsd:nillable should not to be used in conjunction with property elements with minOccurs=”0”.

The concept previously implemented using gml:Null is required in certain cases as metadata information about the reason for the missing value, and is not intended as an implementation of Void as defined in ISO/IEC 11404:1996. The element gml:Null was misnamed. gml:Null was deprecated.

In cases where the value of a property may be missing, the element shall be marked as xsd:nillable=”true” in the schema and an optional local attribute nilReason shall be added to the nillable property type (of type gml:NilReasonType). In cases where a value in a XML Schema list may be missing, a gml:NilReasonType shall be included in the union type of the item type of list.

6.2 Symbols for units of measurements

In addition to using names of commonly accepted units (e.g. ISO 31) references to application domain specific unit definitions are required. To support commonly used unit symbols like "s" for seconds, unit references now are a union of

- a reference to a application defined units dictionary (as in GML 3.1.1),

- a string that follows the UCUM rules for naming units using the case sensitive symbol labels.

6.3 By-value and by-reference encoding, ownership of a property value

By-value or by-reference in a GML property and “ownership” (deep-copy, deep-delete) are different concepts. This was clarified.

gml:OwnershipAttributeGroup has been added to express the concept of ownership. An attribute "owns" is used to indicate ownership semantics (“no ownership” is the default).

6.4 Element substitutability vs type derivation

In GML 3.1, requirements were often focused on content model definitions (e.g. “feature-type types must be ultimately derived from gml:AbstractFeatureType”) which are an artefact of the W3C XML Schema language and are thus normally invisible. The requirements did not focus on components that can appear in instance documents, i.e. elements representing features whose name is the feature type and which are substitutable for gml:AbstractFeature. This has been changed.

Note that this does not weaken the requirement since XML Schema rules require the type derivation in order that the substitution group is valid.

6.5 Collection types

All existing collection types in GML including the feature collection types have been deprecated.

gml:AbstractMemberType and gml:AbstractFeatureMemberType have been added. Their content consists only of an empty xsd:sequence and the attribute group gml:OwnershipAttributeGroup (“no ownership” is the default).

Every gml:AbstractFeature having a property whose content model extends gml:AbstractFeatureMemberType is a feature collection. Similar rules apply for other collections.

An attribute group gml:aggregationTypeGroup with a local XML attribute aggregationType has been added, whose content model is an enumeration type (gml:AggregationType) that may be used in collection types defined in application schemas to express the semantics of the aggregation. Values are (based on ISO 11404 8.4):

- record

- set

- bag

- sequence
- array
- table

Note that if an array is implemented in an application schema, then the array type in the application schema needs to model the additional information to cope with indexing.

Note that if a table is implemented in an application schema, then the table type in the application schema needs to model the additional information to add the required information about the fields and their structure.

7 Deferred enhancements

A change into a multipart standards was proposed, but has been rejected for this version due to the significant delay because of the procedural issues involved (proposals of new work items in ISO, etc.). In the preparation of the next version, a change into a multipart standard should be reconsidered.

8 Open issues

The Cooperative Agreement between ISO/TC 211 and OGC specifies in clause 4: “OGC grants to ISO the rights to use the text of the relevant documents under this agreement as base documents for the development of the ISO deliverables resulting from this agreement. ISO agrees that the resulting ISO International Standard or other deliverable shall contain a suitable copyright statement similar to the one in the base document indicating that the standard was derived from this OGC document.”

As a result, a suitable copyright statement similar to the copyright statement in GML version 3.0 should apply. The OGC TCC and the ISO/TC 211 Chairman have been asked to clarify the copyright statements in the OGC and ISO versions of GML and ensure that the documents are updated accordingly before publication.

