UK GEMINI

Specification for discovery metadata for geospatial data resources

v2.2

December 2012

Update history

Version	Date	Author	Status
2.1	August 2010	R S Walker	Published version
2.2	December 2012	R S Walker	Amended following proposals from UK Location Programme Metadata Working Group

Table of Contents

Foreword

UK GEMINI was originally produced in 2004 by collaboration between the Association for Geographic Information (AGI), the (then) e-Government Unit (eGU) and the UK Data Archive. It was designed for use in the UK geospatial metadata service *gigateway* to replace the NGDF (National Geospatial Data Framework) metadata standard with metadata that is compatible with ISO 19115.

In 2006, a Working Group was set up under the auspices of The Association for Geographic Information (AGI) to revise the Standard. It contained representatives from the following organisations:

- AGI
- British Geological Survey
- Cabinet Office
- EDINA
- Environment Agency
- gigateway
- Natural England
- Ordnance Survey
- UK Hydrographic Office

The principles of the revision were as follows:

1. to meet the requirements for metadata of the EU INSPIRE Directive – where an element is mandatory in the INSPIRE Implementing Rules, it is included in UK GEMINI with the same domain and occurrence, but the element name and description may be different in order to maintain compatibility with the previous version of GEMINI and to provide greater clarity;
2. to be conformant with the International Standard ISO 19115 Geographic information – Metadata, within the limits of the requirements of INSPIRE;
3. to be consistent with the GEMINI 1.0 where possible;
4. to be compatible with the e-Government Metadata Standard where possible;
5. to correct errors in GEMINI 1.0 and take into account experience of its use.

The main changes made were as follows:

- removal of some elements that are now considered to be unnecessary;
- extension to cover geospatial services;
- addition of elements to conform to ISO 19115 mandatory core set and the INSPIRE Metadata Implementing Rules;
- minor updates and corrections;

- other changes in detail essentially to provide clarification of the requirements.

Further changes were made in version 2.1 in 2010, in the light of experience of use of UK GEMINI2, and changes to the INSPIRE Technical Guidelines. The main changes were as follows:

- Dataset reference date changed to multiple occurrences and made into a class;
- Data format, Unique resource identifier, Conformity and Keyword changed into a class;
- Limitations on Public Access changed to free format;
- Addition of an optional element Equivalent scale.

UK GEMINI2.2 includes further changes requested by the UK Location Programme Metadata Working Group.

Further details of these changes are given in Annex A.

A set of guidelines for metadata for geospatial datasets was produced in 2006[1]. The Guidelines are in three parts:

- Part 1 Introduction to Metadata
- Part 2 Creating metadata using UK GEMINI
- Part 3 Metadata quality

These Guidelines are intended for general use in the UK geographic information environment, and particularly in support of the national geospatial metadata service, *gigateway*. They were developed within the context of a national geospatial metadata service, and the UK GEMINI metadata standard. These Guidelines are being updated to incorporate the changes made in the revised version of UK GEMINI2.

This Standard is maintained by the AGI Standards Committee. Any feedback on it should be sent to gemini@agi.org.uk

[1] These Guidelines can be found at http://www.agi.org.uk/uk-gemini/

Introduction

Geospatial data is data containing a locational element relative to the Earth. Many datasets that at first sight do not appear to be geospatial nevertheless do have a geospatial component, in that they apply to a limited geographic area, for example statistics for a local authority area. Geospatial data contains spatial references which may take the form of coordinates, for example in latitude and longitude, or references to geographic names, for example street data.

Metadata is data about data. It provides additional information about a data resource, to enable the data resource to be better understood and used to good effect. There are a range of uses for metadata:

- **discovery**: the user aims to find out what available data resources are potentially able to satisfy a specified set of requirements.
- **evaluation**: the user needs to go deeper in the metadata (e.g. looking at the quality information) in order to ascertain whether a candidate data resource is fit for the intended purpose.
- **use**: the user has selected a candidate data resource, but needs to access it and to configure a system or software to process it.

There are many metadata standards in existence. These have been produced at different times by different bodies for different purposes. The main ones that are relevant to geospatial datasets are:

- **e-GMS,** the UK e-government metadata standard, which forms part of the e-government Interoperability Framework (eGIF) and is mandated for use in the UK public sector.
- **ISO 19115,** the International Standard which describes all aspects of geospatial metadata and provides a comprehensive set of metadata elements that are widely used as the basis for geospatial metadata services.

The EU INSPIRE Directive[2] mandates the collection of metadata for use in Europe. Implementing Rules define the requirements for metadata for discovery purposes. These are based on ISO 19115, and outlined in Annex B.

The aim of UK GEMINI is to provide a core set of metadata elements for use in a UK geospatial metadata service, that are compatible with the INSPIRE requirements for metadata. It does not preclude organisations recording additional metadata elements for their own internal business purposes.

In this document the term ‘data resource’ is used, in preference to ‘dataset’. This is to allow UK GEMINI to be applied to resources in addition to datasets, such as services supplying data.

[2] See http://www.ec-gis.org/inspire/

1. Scope

This Standard specifies a set of metadata elements for describing geographic information resources. These resources may be datasets, dataset series, services delivering geographic data, or any other information resource with a geospatial content. This includes datasets that relate to a limited geographic area.[3] The data resources may be graphical or textual (tabular or free text), hardcopy or digital.

The metadata elements are intended for use in a metadata service for discovering what data resources exist. The elements include the mandatory core set defined in ISO 19115 Geographic information – Metadata, and comply with the INSPIRE Implementing Rules for Metadata[4]. Where possible, they also conform to the UK e-government metadata standard (e-GMS). In any implementation or community, it is likely that additional metadata elements will be included for other purposes, such as data management, and a method for specifying such elements is defined.

This Standard does not define a transfer mechanism or cataloguing service for metadata.

This Standard is applicable to data creators, data owners, data publishers and suppliers of metadata services. Although it is primarily designed for data resources held within the UK on a national basis, by following the principles and structures of ISO 19115, it is also applicable within an organisation, user community or nation.

2. Normative References

The following referenced documents are indispensable to the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 639-2 Codes for the representation of the names of languages – Alpha-3 code

ISO 8601 Data elements and interchange formats – Information interchange – Representation of dates and times

ISO 19115:2003 Geographic information – Metadata

ISO 19115:2003 Cor.1:2006 Geographic information – Metadata Technical corrigendum 1

ISO 19119:2005 Geographic information – Services

[3] For a discussion of datasets within scope, see Metadata Guidelines for Geospatial Data Resources Part 1, section 4.

[4] Implementing Directive 207/2/EC of the European Parliament and of the Council as regards Metadata

3. Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

data resource
dataset, collection of datasets or service supplying data

dataset
identifiable collection of data
[ISO 19101]

dataset series
collection of datasets sharing the same product specification
Example: a 1:1250 scale map series
[ISO 19115]

domain
set of allowable values

enumerated list
set of values, each of which is identified by a code

geographic identifier
label or code that identifies a location
[adapted from ISO 19112]

metadata
data about data
[ISO 19115]

metadata element
individual item of metadata relating to a data resource

metadataset
set of metadata relating to a single data resource

profile
set of one or more base standards or subsets of base standards for a particular application

service
application that provides information and /or functionality to other applications
[adapted from Draft Implementing Rules for INSPIRE Transformation Services]

4. Requirements

4.1 Datasets and dataset series

UK GEMINI specifies a set of metadata elements for use when describing geographic information resources.

The metadata elements are listed in Table 1, which shows the metadata element names, their GEMINI element number (consistent with GEMINI 1.0), the obligation (whether their inclusion is mandatory, optional or conditional, and the number of possible occurrences of the element (whether there may be many (N), or only one (1)).

Some metadata elements concern the metadata rather than the data resource itself. These are termed ‘metadata on metadata’. These elements are likely to have common values for a set of metadata records provided by an organisation, and may be provided collectively, rather than being repeated with each individual metadata record.

For metadata to conform to this Standard, it is necessary that all mandatory elements are provided, and that all conditional elements are provided when the stated condition is met. Optional elements should be provided where they are applicable. A checklist for conformity is given in Annex C.

Table 1. UK GEMINI metadata elements for datasets and dataset series

Element number	Element name	Obligation†	Number of occurrences‡
1	Title	M	1
2	Alternative title	O	N
3	Dataset language	C	N
4	Abstract	M	1
5	Topic category	M	N
6	Keyword	M	N
7	Temporal extent	M	N
8	Dataset reference date	M	N
10	Lineage	M	1
15	Extent	O	N
16	Vertical extent information	O	1
17	Spatial reference system	O	N
18	Spatial resolution	C	N
19	Resource locator	C	N
21	Data format	O	N
23	Responsible organisation	M	N
24	Frequency of update	O	1
25	Limitations on public access	M	N
26	Use constraints	M	N
27	Additional information source	O	1
30	Metadata date*	M	1
33	Metadata language*	C	1
35	Metadata point of contact*	M	N
36	Unique resource identifier	M	N
39	Resource type	M	1
41	Conformity	C	N
43	Equivalent scale	O	N
44	Bounding box	M	N

Note. Element numbers 9, 11, 12, 13, 14, 20, 22, 28, 29, 31, 32, 40 and 42 have been omitted because they were used to identify elements that have now been deleted from the Standard, and have not been reallocated to avoid confusion.

† 'M' indicates that the element is mandatory, 'C' that it is conditional, and 'O' that it is optional

‡ '1' implies that only one value may be provided, and 'N' implies that multiple values may be provided

* indicates metadata on metadata

4.2 Services

The INSPIRE Implementing Rules apply not only to datasets and datasets series, but also to (data) services. These are external applications (e.g. web services) that deliver data to a user or process, rather than complete datasets. For such services, some additional metadata elements are required. These additional elements are described in Section 7. Note that services are not described in ISO 19115, but in ISO 19119 (with an associated amendment). This results in a slight inconsistency of approach regarding the way that metadata is recorded for services. Some of the other metadata elements may not apply to particular types of service. The UK GEMINI metadata elements for services are identified in Table 2.

Table 2. UK GEMINI metadata elements for services

Element number	Element name	Obligation†	Number of occurrences‡
1	Title	M	1
2	Alternative title	O	N
3	Dataset language	C	N
4	Abstract	M	1
5	Topic category	O	N
6	Keyword	M	N
7	Temporal extent	C	N
8	Dataset reference date	M	N
10	Lineage	O	1
15	Extent	O	N
16	Vertical extent information	O	1
17	Spatial reference system	O	N
18	Spatial resolution	C	N
19	Resource locator	C	N
21	Data format	O	N
23	Responsible organisation	M	N
24	Frequency of update	O	1
25	Limitations on public access	M	N
26	Use constraints	M	N
27	Additional information source	O	1
30	Metadata date*	M	1
33	Metadata language*	C	1
35	Metadata point of contact*	M	N
36	Unique resource identifier	O	N
37	Spatial data service type	C	1
38	Coupled resource	C	N
39	Resource type	M	1
41	Conformity	C	N
43	Equivalent scale	O	N
44	Bounding box	M	N

Note.
† 'M' indicates that the element is mandatory, 'C' that it is conditional, and 'O' that it is optional
‡ '1' implies that only one value may be provided, and 'N' implies that multiple values may be provided
* indicates metadata on metadata

4.3 Element details

Details of the metadata elements are given in Clauses 5, 6 and 7. Each element is the subject of a separate table. The tables contain the following:

- Metadata element number – the identifier of the UK GEMINI element;
- Metadata element name – the name of the UK GEMINI element;
- Definition – the formal definition of the element;

- Equivalent INSPIRE element – the name of the element in the INSPIRE Metadata Implementing Rules that corresponds to the UK GEMINI element;
- Comparison with INSPIRE element – how the UK GEMINI element relates to the INSPIRE element;
- Equivalent ISO 19115 element number and name – the reference number and name of the equivalent metadata element;
- Comparison with ISO 19115 element – how the UK GEMINI element relates to the ISO 19115 element;
- Equivalent e-GMS element – the name of the equivalent metadata element in the e-Government Metadata Standard;
- Comparison with e-GMS element – how the UK GEMINI element relates to the e-GMS element;
- Obligation – whether the element is mandatory, optional or conditional (where the element must be supplied when stated conditions apply);
- Occurrence – whether the element is single-valued or can have multiple values;
- Data type – the form of the entry, whether it is a character string (CharacterString), real number (real), integer, code or other class[5];
- Domain – the allowable set of values;
- Change from GEMINI v1.0 – how the element has changed from v1.0 of the Standard;
- General rules for implementation – any high-level explanation[6];
- Comment – other comments about the element.

[5] Where the data type is another class, it is implemented as an additional set of elements. Examples are Distributor and Vertical extent.
[6] For detailed guidance on how to create the metadata, see Metadata Guidelines for Geospatial Data Resources, Part 2.

5. Metadata elements

5.1 Title

Metadata element number	1
Metadata element name	Title
Definition	name given to the data resource
Equivalent INSPIRE element	Resource title
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	MD_DataIdentification.citation > CI_Citation.title
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	Title
Comparison with e-GMS element	equivalent
Obligation	mandatory
Occurrence	single
Data type	CharacterString
Domain	free text
Change from GEMINI v1.0	none
General rules for implementation	The name should be readily recognisable.
Comment	-

5.2 Alternative title

Metadata element number	2
Metadata element name	Alternative title
Definition	short name, other name, acronym or alternative language title for the data resource
Equivalent INSPIRE element	none
Comparison with INSPIRE element	INSPIRE has no Alternative title, only a single title
Equivalent ISO 19115 element	MD_DataIdentification.citation > CI_Citation.alternateTitle
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	Title, alternative
Comparison with e-GMS element	equivalent
Obligation	optional
Occurrence	multiple
Data type	CharacterString
Domain	free text
Change from GEMINI v1.0	none
General rules for implementation	should be provided when the data resource has more than one title
Comment	-

5.3 Dataset language

Metadata element number	3
Metadata element name	Dataset language
Definition	language used in the data resource
Equivalent INSPIRE element	Resource language
Comparison with INSPIRE element	element is optional in INSPIRE
Equivalent ISO 19115 element	MD_DataIdentification.language
Comparison with ISO 19115 element	equivalent, but ISO 19115 only allows a single value
Equivalent e-GMS element	Language
Comparison with e-GMS element	equivalent
Obligation	conditional – data resource contains textual information
Occurrence	multiple
Data type	CharacterString
Domain	free text
Change from GEMINI v1.0	obligation changed from mandatory
General rules for implementation	It is recommended to select a value from a controlled vocabulary, for example that provided by ISO 639-2 which uses three-letter primary tags with optional subtags. The values for the UK languages are: English eng Welsh cym Gaelic (Irish) gle Gaelic (Scottish) gla Cornish cor Ulster Scots sco In many cases, a default value of ‘eng’ can be applied.
Comment	ISO 639-2 also allows ‘wel’ for Welsh, but two values for the same language causes confusion.

5.4 Abstract

Metadata element number	4
Metadata element name	Abstract
Definition	brief narrative summary of the data resource
Equivalent INSPIRE element	Abstract
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	MD_DataIdentification.abstract
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	Description
Comparison with e-GMS element	equivalent
Obligation	mandatory
Occurrence	single
Data type	CharacterString
Domain	free text
Change from GEMINI v1.0	none
General rules for implementation	The abstract should provide a clear statement of the content of the dataset, and not general background information.
Comment	-

5.5 Topic category

Metadata element number	5
Metadata element name	Topic category
Definition	main theme(s) of the data resource
Equivalent INSPIRE element	Resource topic category
Comparison with INSPIRE element	Equivalent
Equivalent ISO 19115 element	MD_DataIdentification.topicCategory
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	Subject
Comparison with e-GMS element	similar, but e-GMS allows a wider range of values.
Obligation	Mandatory for datasets and dataset series. Not applicable to services.
Occurrence	multiple
Data type	Class
Domain	enumeration MD_TopicCategoryCode taken from ISO 19115 (see below)
Change from GEMINI v1.0	none
General rules for implementation	select one or more categories that most closely represent the topic of the data resource
Comment	For greater detail within a topic, use the element ‘Keyword’.

MD_TopicCategory

Name	Domain code	Definition
farming	001	rearing of animals and/or cultivation of plants Examples: agriculture, plantations, herding, pests and diseases affecting crops and livestock
biota	002	flora and/or fauna in natural environment Examples: wildlife, vegetation, biological sciences, ecology, sea-life, habitat
boundaries	003	legal land descriptions Examples: political and administrative boundaries
climatologyMeteorologyAtmosphere	004	processes and phenomena of the atmosphere Examples: weather, climate, atmospheric conditions
economy	005	economic activities, conditions and employment Examples: production, labour, revenue, commerce, industry
elevation	006	height above or below sea level Examples: altitude, bathymetry, digital elevation models, slope
environment	007	environmental resources, protection and conservation Examples: environmental pollution, waste storage and treatment, environmental impact assessment, monitoring environmental risk, nature reserves, landscape
geoscientificInformation	008	information pertaining to earth sciences Examples: geophysical features and processes, geology, minerals, soils
health	009	health, health services, human ecology, and safety Examples: disease and illness, factors affecting health, health services
imageryBaseMapsEarthCover	010	base maps Examples: land cover, topographic maps, imagery, unclassified images
intelligenceMilitary	011	military bases, structures, activities Examples: barracks, training grounds, military transportation
inlandWaters	012	inland water features, drainage systems and their characteristics Examples: rivers, salt lakes, dams, floods, water quality, hydrographic charts
location	013	positional information and services Examples: addresses, geodetic networks, control points, postal zones and services, place names
oceans	014	features and characteristics of salt water bodies (excluding inland waters) Examples: tides, tidal waves, coastal information, reefs
planningCadastre	015	information used for appropriate actions for future use of the land Examples: land use maps, zoning maps, cadastral surveys, land ownership
society	016	characteristics of society and cultures Examples: settlements, anthropology, archaeology, education, demographic data, recreational areas and activities, social impact assessments, crime and justice, census information
structure	017	man-made construction Examples: buildings, museums, churches, factories, housing, monuments, shops
transportation	018	means and aids for conveying persons and/or goods Examples: roads, airports/airstrips, shipping routes, tunnels, nautical charts, vehicle or vessel location, aeronautical charts, railways
utilitiesCommunication	019	energy, water and waste systems and communications infrastructure and services Examples: sources of energy, water purification and distribution, sewage collection and disposal, electricity and gas distribution, data communication, telecommunication, radio

5.6 Keyword

Metadata element number	6
Metadata element name	Keyword
Definition	topic of the content of the data resource
Equivalent INSPIRE element	Keyword
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	MD_Identifcation.descriptiveKeywords > MD_Keywords
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	Subject
Comparison with e-GMS element	equivalent
Obligation	mandatory
Occurrence	multiple
Data type	Class
Domain	This class comprises the elements: • keyword value • originating controlled vocabulary For details see below.
Change from GEMINI v1.0	change of name from 'Subject' and expansion to include keyword value and originating controlled vocabulary
General rules for implementation	Keyword values should if possible be taken from a list of standard subject categories, identified in the element 'Originating controlled vocabulary'. Possible vocabularies are the Integrated Public Sector Vocabulary (IPSV)[7] from the esd-toolkit, which should be used by public sector bodies, or the General Environmental Multi-Lingual Thesaurus (GEMET[8]), which should be used for INSPIRE conformance.
Comment	This element is similar to Topic Category, but allows a broader range of values.

[7] see http://www.esd.org.uk/standards/ipsv/
[8] see http://www.eionet.europa.eu/gemet/

Metadata element name	Definition	Obligation	Occurrence	Data type	Domain	Other comments
keyword value	topic of the content of the data resource	mandatory	multiple	CharacterString	free text	-
originating controlled vocabulary	name of the formally registered thesaurus or a similar authoritative source of keywords	conditional – required if keywords originate from a controlled vocabulary	single	Class CI_Citation (from ISO19115)	The following properties are expected: • title of type character string (free text) • reference date defined as o a date type (creation, revision or publication) o an effective date	A default value will generally be assigned for this.

5.7 Temporal extent

Metadata element number	7
Metadata element name	Temporal extent
Definition	date for the content of the data resource
Equivalent INSPIRE element	Temporal extent
Comparison with INSPIRE element	Similar, but in INSPIRE it is optional if another temporal reference is provided.
Equivalent ISO 19115 element	EX_Extent > EX_TemporalExtent.extent
Comparison with ISO 19115 element	identical
Equivalent e-GMS element	Coverage, temporal
Comparison with e-GMS element	equivalent
Obligation	mandatory for datasets and dataset series conditional for services – where a temporal extent is relevant to the service
Occurrence	multiple
Data type	Date
Domain	date, or two dates defining the duration of the period, as defined by BS ISO 8601.
Change from GEMINI v1.0	name changed from Date
General rules for implementation	Dates may be to any degree of precision, from century (YY) to full date and time. The extended date format (YYYY-MM-DD) should be used, where YYYY is the year, MM the month and DD the day. If required, time (HH:MM:SS, where HH is the hour, MM the minute and SS the second) may be added, with 'T' separating the two parts. Periods are recorded as {fromdate/todate} (e.g. 2006-04-01/2007-03-31). Either fromdate or todate (but not both) may be left blank to indicate uncertainty.
Comment	Temporal extent is the date of the validity of the data and is different from 'Dataset reference date' which is an identifying date for the data resource. For example, an atlas might represent data collected up to the end of one year, but have a reference date of the following year.

5.8 Dataset reference date

Metadata element number	8
Metadata element name	Dataset reference date
Definition	reference date for the data resource
Equivalent INSPIRE element	Date of publication
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	MD_Identification.citation > CI_Citation.date
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	Date
Comparison with e-GMS element	equivalent
Obligation	mandatory
Occurrence	multiple
Data type	Class
Domain	This class comprises two elements: • date as defined by BS ISO 8601 • date type (publication/revision/creation)
Change from GEMINI v1.0	Addition of date type
General rules for implementation	Dates may be to any degree of precision, from century (YY) to full date and time. The extended date format (YYYY-MM-DD) defined in BS ISO 8601 should be used, where YYYY is the year, MM the month and DD the day. It may be extended to include time (-HH:MM:SS, where HH is the hour, MM the minute and SS the second), with 'T' separating the two parts.
Comment	Dataset reference date is an identifying date for the data resource. It is a notional date of "publication" of the data resource. It is different from Temporal extent which is the actual date of the currency of the data. For example, an atlas might have the reference date '2007', but the data will have been collected over a period prior to this.

Metadata element name	Definition	Obligation	Occurrence	Data type	Domain	Other comments
date	date used to reference data resource	mandatory	single	Date	date as defined in ISO8601	for example 2010-08-04T19:57:29
date type	event used to describe reference date	mandatory	single	CodeList	Values are: • creation • publication • revision	-

5.9 Lineage

Metadata element number	10
Metadata element name	Lineage
Definition	information about the events or source data used in the construction of the data resource
Equivalent INSPIRE element	Lineage
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	DQ_DataQuality.lineage > LI_Lineage.statement
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	none
Comparison with e-GMS element	-
Obligation	mandatory for datasets and dataset series, not applicable to services
Occurrence	single
Data type	CharacterString
Domain	free text
Change from GEMINI v1.0	made mandatory for datasets and dataset series to conform to INSPIRE
General rules for implementation	Some information should be provided. Include statements on the following: • source material • processes used to create the data, including resolution of measurement • method of updating • any quality control processes
Comment	This element is similar to Abstract, and some information may be included in either element. Further details included in an external file may be referenced under ‘Additional information source’.

5.10 Extent

Metadata element number	15
Metadata element name	Extent
Definition	extent of data resource
Equivalent INSPIRE element	none
Comparison with INSPIRE element	-
Equivalent ISO 19115 element	MD_DataIdentification.extent > EX_Extent > EX_GeographicExtent > EX_ GeographicDescription.geographicIdentifier
Comparison with ISO 19115 element	identical
Equivalent e-GMS element	Coverage, spatial
Comparison with e-GMS element	Spatial refinement of Coverage, which includes all aspects of spatial location
Obligation	optional
Occurrence	multiple
Data type	Class
Domain	The class comprises two elements: • (optional) authority code • code identifying the extent
Change from GEMINI v1.0	made optional
General rules for implementation	An area approximating to the extent of coverage of the data resource should be chosen. Where the extent does not coincide with any defined area or areas, then either the nearest equivalent including the area of coverage, or a set of multiple areas that make up the coverage should be provided.
Comment	-

5.11 Vertical extent information

Metadata element number	16
Metadata element name	Vertical extent information
Definition	vertical domain of the data resource
Equivalent INSPIRE element	none
Comparison with INSPIRE element	-
Equivalent ISO 19115 element	MD_DataIdentification.extent > EX_Extent > EX_VerticalExtent
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	none
Comparison with e-GMS element	-
Obligation	optional
Occurrence	single
Data type	Class
Domain	EX_VerticalExtent This class comprises the elements: • minimum value • maximum value • coordinate reference system For details see below
Change from GEMINI v1.0	• made optional; • occurrence changed from multiple to single; • description of class EX_VerticalExtent changed to match change to ISO 19115[9].
General rules for implementation	This element should be used only where vertical extent is significant, e.g. in geology, mining, meteorology etc.
Comment	-

[9] See ISO 19115:2003Cor.1:2006 Geographic information – Metadata Technical corrigendum 1

EX_VerticalExtent

Metadata element name	Definition	Obligation	Occurrence	Data type	Domain	Other comments
minimum value	lowest vertical extent contained in the data resource	mandatory	single	Real	real number	-
maximum value	highest vertical extent contained in the data resource	mandatory	single	Real	real number	-
coordinate reference system	vertical coordinate reference system to which the maximum and minimum values are measured	mandatory	single	Class	The class comprises two elements: • (optional) authority code • code identifying the coordinate reference system	For example, code provided by the OGP Surveying and Positioning Committee[10]

[10] see www.epsg-registry.org

5.12 Spatial reference system

Metadata element number	17
Metadata element name	Spatial reference system
Definition	Identifier of the system of spatial referencing, whether by coordinates or geographic identifiers, used in the data resource
Equivalent INSPIRE element	none
Comparison with INSPIRE element	-
Equivalent ISO 19115 element	MD_ReferenceSystem.referenceSystemIdentifier > RS_Identifier.code
Comparison with ISO 19115 element	Equivalent
Equivalent e-GMS element	none
Comparison with e-GMS element	-
Obligation	optional
Occurrence	multiple
Data type	Class
Domain	The class comprises two elements: • (optional) authority code • code identifying the spatial reference system
Change from GEMINI v1.0	changed from enumerated list
General rules for implementation	Identify the spatial reference system used to spatially reference the data in the data resource.
Comment	-

5.13 Spatial resolution

Metadata element number	18
Metadata element name	Spatial resolution
Definition	measure of the granularity of the data (in metres)
Equivalent INSPIRE element	Spatial resolution
Comparison with INSPIRE element	INSPIRE allows the option of either Distance or Equivalent scale.
Equivalent ISO 19115 element	MD_DataIdentification.spatialResolution > MD_Resolution.distance
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	none
Comparison with e-GMS element	-
Obligation	conditional - for datasets and dataset series where a resolution distance can be specified and for services where there is a restriction on the spatial resolution of the service
Occurrence	multiple
Data type	Real
Domain	real > 0
Change from GEMINI v1.0	made conditional
General rules for implementation	1. For data capture in the field, it is the precision at which the data is captured. This may be the accuracy for topographic surveys, or the average sampling distance in an environmental survey. 2. For data taken from maps, it is the positional accuracy of the map. 3 For image data, it is the resolution of the image. In many cases, only approximate values can be given.
Comment	May not be applicable to services.

5.14 Resource locator

Metadata element number	19
Metadata element name	Resource locator
Definition	location (address) for on-line access using a Uniform Resource Locator (URL) address or similar addressing scheme
Equivalent INSPIRE element	Resource locator
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	MD_Distribution > MD_DigitalTransferOptions.online > CI_OnlineResource.linkage
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	Identifier
Comparison with e-GMS element	e-GMS Identifier is more usually used for Title.
Obligation	conditional - when on-line access is available
Occurrence	multiple
Data type	CharacterString
Domain	valid URL
Change from GEMINI v1.0	modification of Online resource
General rules for implementation	Specify a valid URL to a dataset, series or service. If no direct link is available, a link to a point of contact where more information is available may be given.
Comment	-

5.15 Data format

Metadata element number	21
Metadata element name	Data format
Definition	format in which the digital data can be provided
Equivalent INSPIRE element	none
Comparison with INSPIRE element	-
Equivalent ISO 19115 element	MD_Distribution.distributionFormat > MD_Format
Comparison with ISO 19115 element	ISO 19115 has this element single valued
Equivalent e-GMS element	Format
Comparison with e-GMS element	e-GMS Format includes medium, and size
Obligation	optional
Occurrence	multiple
Data type	Class MD_Format from ISO 19115
Domain	The following properties are expected: • name of format • version of format (date, number etc)
Change from GEMINI v1.0	made optional
General rules for implementation	1. Entries should be recognised formats for data transfer, either standard or proprietary. 2. Recommended best practice is to select a value from a controlled vocabulary, for example PRONOM[11]. 3. If the data is not transferable (e.g. is view only), then this should be stated.
Comment	-

[11] See http://www.nationalarchives.gov.uk/pronom

5.16 Responsible organisation

Metadata element number	23
Metadata element name	Responsible organisation
Definition	details of the organisation(s) responsible for the establishment, management, maintenance and distribution of the data resource
Equivalent INSPIRE element	Responsible party
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	MD_Identification.pointOfContact
Equivalent ISO 19115 element name	equivalent
Comparison with ISO 19115 element	similar high-level class
Equivalent e-GMS element	Creator, Contributor, Publisher, User
Comparison with e-GMS element	Different responsible party roles are equivalent to different e-GMS elements.
Obligation	mandatory
Occurrence	multiple
Data type	Class
Domain	This class comprises eight elements relating to the responsible organisation: 1. contact position 2. organisation name 3. full postal address 4. telephone number 5. facsimile number 6. email address 7. web address 8. responsible party role These are defined below.
Change from GEMINI v1.0	This has been generalised from Distributor (and Originator) to cover a range of possible roles, by the addition of 'responsible party role' and minor errors in the class details have been corrected.
General rules for implementation	For datasets and datasets series, at least a Distributor should be given. The organisation name, email address and responsible party role are mandatory. Other entries should only be given

	that are relevant and known. Where there are several distributors, a separate entry should be given for each.
Comment	-

Metadata element name	Definition	Obligation	Occurrence	Data type	Domain	Rules for how to fill in the entry
contact position	role or position of the responsible person	optional	single	CharacterString	free text	A general job title or generic role should be identified for someone in a position of responsibility for the data resource. Do not identify an individual by name, as this is subject to change without warning and the information is impossible to keep up-to-date.
organisation name	name of organisation	mandatory	single	CharacterString	free text	The name of the organisation should be given in full, without abbreviations
postal address	postal address of the organisation	optional	single	CharacterString	free text	The full formal postal address (as defined for example by Royal Mail) should be given, including the postcode.
telephone number	telephone number by which individuals can talk to the organisation or individual	optional	single	CharacterString	free text	The full telephone number should be given.
facsimile number	telephone number by which individuals can communicate with the organisation or individual by facsimile	optional	single	CharacterString	free text	The full telephone number should be given.
email address	internet email address which individuals can use to contact the organisation or individual	mandatory	single	CharacterString	free text	A valid email address should be given.
web address	World Wide Web address of organisation	optional	single	CharacterString	free text	A valid World Wide Web address should be given.
responsible party role	role of the responsible organisation	mandatory	multiple	CodeList	see table below	For datasets and dataset series, at least a distributor should be given.

Responsible party role

Code	Name	Definition
1	Resource provider	party that supplies the resource
2	Custodian	party that accepts accountability and responsibility for the data and ensures appropriate care and maintenance of the resource
3	Owner	party that owns the resource
4	User	party who uses the resource
5	Distributor	party who distributes the resource
6	Originator	party who created the resource
7	Point of Contact	party who can be contacted for acquiring knowledge about or acquisition of the resource
8	Principle Investigator	key party responsible for gathering information about or acquisition of the resource
9	Processor	party who has processed the data in a manner such that the resource has been modified
10	Publisher	party who published the resource
11	Author	party who authored the resource

5.17 Frequency of update

<table>
<tr><td>Metadata element number</td><td>24</td></tr>
<tr><td>Metadata element name</td><td>Frequency of update</td></tr>
<tr><td>Definition</td><td>frequency with which modifications and deletions are made to the data resource</td></tr>
<tr><td>Equivalent INSPIRE element</td><td>none</td></tr>
<tr><td>Comparison with INSPIRE element</td><td>-</td></tr>
<tr><td>Equivalent ISO 19115 element</td><td>MD_MaintenanceInformation.
maintenanceAndUpdateFrequency</td></tr>
<tr><td>Comparison with ISO 19115 element</td><td>equivalent</td></tr>
<tr><td>Equivalent e-GMS element</td><td>Date, updating frequency</td></tr>
<tr><td>Comparison with e-GMS element</td><td>Updating frequency refinement of Date</td></tr>
<tr><td>Obligation</td><td>optional</td></tr>
<tr><td>Occurrence</td><td>single</td></tr>
<tr><td>Data type</td><td>CodeList</td></tr>
<tr><td>Domain</td><td>
<table>
<tr><th>Name</th><th>Domain code</th></tr>
<tr><td>continual</td><td>001</td></tr>
<tr><td>daily</td><td>002</td></tr>
<tr><td>weekly</td><td>003</td></tr>
<tr><td>fortnightly</td><td>004</td></tr>
<tr><td>monthly</td><td>005</td></tr>
<tr><td>quarterly</td><td>006</td></tr>
<tr><td>biannually</td><td>007</td></tr>
<tr><td>annually</td><td>008</td></tr>
<tr><td>as needed</td><td>009</td></tr>
<tr><td>irregular</td><td>010</td></tr>
<tr><td>not planned</td><td>011</td></tr>
<tr><td>unknown</td><td>012</td></tr>
</table>
</td></tr>
<tr><td>Change from GEMINI v1.0</td><td>none</td></tr>
<tr><td>General rules for implementation</td><td>The most closely corresponding value should be selected from the list.</td></tr>
<tr><td>Comment</td><td>-</td></tr>
</table>

5.18 Limitations on public access

Metadata element number	25
Metadata element name	Limitations on public access
Definition	restrictions imposed on the data resource for security and other reasons
Equivalent INSPIRE element	Limitations on public access
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	MD_Identification > MD_Constraints > MD_LegalConstraints.otherConstraints
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	Rights
Comparison with e-GMS element	equivalent
Obligation	mandatory
Occurrence	multiple
Data type	CharacterString
Domain	free text
Change from GEMINI v1.0	Change of name from ‘access constraint’, and modification of definition. Made mandatory, to conform to INSPIRE. Change to equivalent ISO 19115 element from accessConstraint making domain free text.
General rules for implementation	Provide information on any limitations.
Comment	-

5.19 Use constraints

Metadata element number	26
Metadata element name	Use constraints
Definition	restrictions and legal restraints on using the data resource
Equivalent INSPIRE element	Conditions applying to access and use
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	MD_Identification > MD_Constraints.useLimiitation
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	Rights
Comparison with e-GMS element	equivalent
Obligation	mandatory
Occurrence	multiple
Data type	CharacterString
Domain	free text
Change from GEMINI v1.0	change to free text field from enumerated list, and making mandatory to conform with INSPIRE.
General rules for implementation	Any known constraints should be identified. If no conditions apply, then “no conditions apply” should be recorded.
Comment	-

5.20 Additional information source

Metadata element number	27
Metadata element name	Additional information source
Definition	other descriptive information about the data resource
Equivalent INSPIRE element	none
Comparison with INSPIRE element	-
Equivalent ISO 19115 element	MD_Identification > MD_DataIdentification.supplementalInformation
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	none
Comparison with e-GMS element	-
Obligation	optional
Occurrence	single
Data type	CharacterString
Domain	free text
Change from GEMINI v1.0	none
General rules for implementation	Any references (e.g. a URL) to external information that are considered useful may be recorded.
Comment	-

5.21 Unique resource identifier

Metadata element number	36
Metadata element name	Unique resource identifier
Definition	value uniquely identifying the data resource
Equivalent INSPIRE element	Unique resource identifier
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	MD_Identification.citation > CI_Citation.identifier
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	Identifier
Comparison with e-GMS element	e-GMS Identifier allows multiple values and can also contain other types of identifier
Obligation	mandatory for datasets and dataset series
Occurrence	multiple
Data type	Class
Domain	This class comprises the following elements: • code • codespace These elements are described in the table below.
Change from GEMINI v1.0	new item, required for INSPIRE
General rules for implementation	The code is generally assigned by some authority, with a codespace uniquely identifying the context of the identifier code.
Comment	-

Metadata element name	Definition	Obligation	Occurrence	Data type	Domain	Other comments
code	Identifier code or name, often from a controlled list or pattern defined by a code space.	mandatory	single	CharacterString	free text	-
codeSpace	Identifier of a code space within which one or more codes are defined.	optional	single	CharacterString	free text	This code space is often defined by some authority organization, where one organization may define multiple code spaces. The range and format of each Code Space identifier is defined by that code space authority.

5.22 Resource type

Metadata element number	39
Metadata element name	Resource type
Definition	scope to which metadata applies
Equivalent INSPIRE element	Resource type
Comparison with INSPIRE element	identical
Equivalent ISO 19115 element	MD_Metadata.hierarchyLevel
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	Aggregation
Comparison with e-GMS element	similar, but has different data type
Obligation	mandatory
Occurrence	single
Data type	CodeList
Domain	MD_ScopeCode from ISO 19115. Codes to be used for INSPIRE are: dataset series service
Change from GEMINI v1.0	new element, required for INSPIRE
General rules for implementation	Identify whether the data resource is a dataset, a series (collection of datasets with a common specification) or a service.
Comment	-

5.23 Conformity

Metadata element number	41
Metadata element name	Conformity
Definition	degree of conformity with the product specification or user requirement against which the data is being evaluated
Equivalent INSPIRE element	Conformity – degree
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	DQ_DataQuality > DQ_Element.result > DQ_ConformanceResult
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	none
Comparison with e-GMS element	-
Obligation	conditional – required if claiming conformance to INSPIRE
Occurrence	multiple
Data type	Class
Domain	This class comprises the following elements: • Specification • Degree • Explanation For details see below.
Change from GEMINI v1.0	new element
General rules for implementation	Assess the conformity of the data resource against its product specification or the INSPIRE thematic data specification.
Comment	Where the INSPIRE thematic data specifications have not yet been finalised, the data resource's own specification should be used.

Metadata element name	Definition	Obligation	Occurrence	Data type	Domain	Other comments
specification	citation of the product specification or user requirement against which data resource is evaluated	Mandatory	single	Class CI_Citation (from ISO19115)	The following properties are expected: • title of type character string (free text) • reference date defined as o a date type (creation, revision or publication) o an effective date	For example, "D2.8.I.5 INSPIRE Data Specification on *Addresses* – Guidelines, publication, 2010-04-26"
degree	degree of conformity with the specification	Mandatory	single	Boolean	• **true** if conformant • **false** if not conformant	For example "true"
explanation	meaning of conformance for this result	Mandatory	single	CharacterString	free text	For example, "Only mandatory items included."

5.24 Equivalent scale

Metadata element number	43
Metadata element name	Equivalent scale
Definition	level of detail expressed as the scale denominator of a comparable hardcopy map or chart
Equivalent INSPIRE element	spatial resolution
Comparison with INSPIRE element	spatial resolution may also be expressed as distance
Equivalent ISO 19115 element	MD_DataIdentification.spatialResolution > MD_Resolution.equivalentScale > MD_RepresentativeFraction.denominator
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	none
Comparison with e-GMS element	-
Obligation	optional
Occurrence	multiple
Data type	Integer
Domain	positive integer
Change from GEMINI v1.0	new element
General rules for implementation	Where the data is captured from a map, the scale of that map should be recorded.
Comment	Expression of spatial resolution by distance is preferred. Spatial resolution should only be expressed by equivalent scale where a distance cannot be determined.

5.25 Bounding box

Metadata element number	44
Metadata element name	Bounding box
Definition	Rectangle enclosing the extent of the data resource described in latitude and longitude
Equivalent INSPIRE element	Geographic bounding box
Comparison with INSPIRE element	Identical
Equivalent ISO 19115 element	MD_DataIdentification.extent > EX_Extent > EX_GeographicExtent > EX_GeographicBoundingBox
Comparison with ISO 19115 element	minor difference in name
Equivalent e-GMS element	Coverage, spatial
Comparison with e-GMS element	Spatial refinement of Coverage, which includes all aspects of spatial location
Obligation	mandatory for datasets and dataset series, conditional for services on there being a defined extent for the service
Occurrence	multiple
Data type	Class
Domain	EX_GeographicBoundingBox This has the elements • West bounding longitude • East bounding longitude • South bounding latitude • North bounding latitude For details, see below
Change from GEMINI v1.0	slight change of name, made multiple
General rules for implementation	Only approximate values are required, sufficient to identify the extent on a global basis.
Comment	In general, only single values should be used.

EX_GeographicBoundingBox

Metadata element name	Definition	Obligation	Occurrence	Data type	Domain	Other comments
West bounding longitude	western-most limit of the data resource extent, expressed in longitude in decimal degrees (positive east)	mandatory	single	Decimal, expressed in degrees to two decimal places	-180.00 <= west bounding longitude <= 180.00	Only approximate values are required, sufficient to identify the extent on a global basis. The West bounding coordinate usually has a value less than the value of the East bounding coordinate, except when the extent straddles the 180 degree meridian.
East bounding longitude	eastern-most limit of the data resource extent, expressed in longitude in decimal degrees (positive east)	mandatory	single	Decimal, expressed in degrees to two decimal places	-180.00 <= East bounding longitude <= 180.00	Only approximate values are required, sufficient to identify the extent on a global basis. The East bounding longitude usually has a value greater than the value of the West bounding longitude, except when the extent straddles the 180 degree meridian.
South bounding latitude	southern-most limit of the data resource extent, expressed in latitude in decimal degrees (positive north)	mandatory	single	Decimal, expressed in degrees to two decimal places	-90.00 <= South bounding latitude <= North bounding latitude	Only approximate values are required, sufficient to identify the extent on a global basis.
North bounding latitude	northern-most limit of the data resource extent, expressed in latitude in decimal degrees (positive north)	mandatory	single	Decimal, expressed in degrees to two decimal places	South bounding latitude <= North bounding latitude <= 90.00	Only approximate values are required, sufficient to identify the extent on a global basis.

6. Metadata on metadata

6.1 Metadata language

Metadata element number	33
Metadata element name	Metadata language
Definition	language used for documenting the metadata
Equivalent INSPIRE element	Metadata language
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	MD_Metadata.language
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	none
Comparison with e-GMS element	-
Obligation	conditional – required for INSPIRE
Occurrence	single
Data type	CharacterString
Domain	free text
Change from GEMINI v1.0	new element
General rules for implementation	It is recommended to select a value from a controlled vocabulary, for example that provided by ISO 639-2 which uses three-letter primary tags with optional subtags. The values for the UK are: English eng Welsh cym Gaelic (Irish) gle Gaelic (Scottish) gla Cornish cor Ulster Scots sco
Comment	In general, a default value of ‘eng’ can be applied.

6.2 Metadata date

Metadata element number	30
Metadata element name	Metadata date
Definition	date on which the metadata was last updated, or was confirmed as being up-to-date, or if not updated, then the date it was created
Equivalent INSPIRE element	Metadata date
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	MD_Metadata.dateStamp
Comparison with ISO 19115 element	equivalent
Equivalent e-GMS element	none
Comparison with e-GMS element	-
Obligation	mandatory
Occurrence	single
Data type	Date
Domain	Single date as specified by ISO 8601 in the extended date format (YYYY-MM-DD), where YYYY is the year, MM is the month and DD is the day.
Change from GEMINI v1.0	Change of name from Date of last update of metadata
General rules for implementation	-
Comment	If the metadata has not been updated, then this should be the date when it was created.

6.3 Metadata point of contact

Metadata element number	35
Metadata element name	Metadata point of contact
Definition	party responsible for the creation and maintenance of the metadata
Equivalent INSPIRE element	Metadata point of contact
Comparison with INSPIRE element	equivalent
Equivalent ISO 19115 element	MD_Metadata.contact > CI_ResponsibleParty
Comparison with ISO 19115 element	ISO 19115 has a general class
Equivalent e-GMS element	none
Comparison with e-GMS element	-
Obligation	mandatory
Occurrence	multiple
Data type	CharacterString
Domain	free text
Change from GEMINI v1.0	new element
General rules for implementation	Should include organisation name and contact email address, as described under Responsible party (5.20)
Comment	-

7. Services

7.1 Spatial data service type

Metadata element number	37
Metadata element name	Spatial data service type
Definition	generic name of the service type
Equivalent INSPIRE element	Spatial data service type
Comparison with INSPIRE element	equivalent
Equivalent ISO 19119 element number and name	1 serviceType
Comparison with ISO 19119 element	equivalent
Equivalent e-GMS element	none
Comparison with e-GMS element	-
Obligation	conditional – required if the resource is a service
Occurrence	single
Data type	GenericName.
Domain	Possible values are as follows (in brackets are the language neutral names to be used): Discovery Service (discovery) View Service (view) Download Service (download) Transformation Service (transformation) Invoke Spatial Data Service (invoke) Other Service (other)
Change from GEMINI v1.0	new element
General rules for implementation	Select generic type from list
Comment	Not applicable to datasets or dataset series.

7.2 Coupled resource

Metadata element number	38
Metadata element name	Coupled resource
Definition	identifier of datasets that the service operates on
Equivalent INSPIRE element	Coupled resource
Comparison with INSPIRE element	equivalent
Equivalent ISO 19119 element number and name	9 operatesOn
Comparison with ISO 19119 element	equivalent
Equivalent e-GMS element	none
Comparison with e-GMS element	-
Obligation	conditional – required where relevant if the resource is a service
Occurrence	multiple
Data type	CharacterString
Domain	unique resource identifier (URI) or locator of the data resource
Change from GEMINI v1.0	new element, required for INSPIRE
General rules for implementation	identify the data resource on which the service operates
Comment	Not applicable to datasets or dataset series

8. Extended metadata

8.1 Additional metadata elements

In many organisations, there is a need to record additional items of metadata to meet specific local requirements. This may be to incorporate particular characteristics of the data resources, or for particular applications. Additional metadata elements may be included in a metadata implementation. These elements should be taken from ISO 19115[12], which includes a comprehensive collection of metadata elements for geographic information, and also allows for further extensions.

8.2 Extension of code lists

Several metadata elements specified in UK GEMINI use enumerated code lists. These are pre-defined sets of values identified by codes. They are useful to standardise the entries to aid searches of metadata for specified values. The code lists included in UK GEMINI are taken from ISO 19115. In some cases, the explanations of the values have been modified to make them more appropriate to the UK context.

Some of these code lists will require extension. Additional codes may be created as follows:

1. identify the new value, which should be distinct from existing values;
2. choose a name that encapsulates the essential concept;
3. provide a definition that is understandable and concise;
4. chose a new code that has not been used before for this element;
5. document the new codes, and disseminate them to users.

Such code extensions may be either specific to a metadata implementation in an organisation or sector, or for general usage. In the latter case, proposed new codes should be submitted[13] for inclusion in the next version of UK GEMINI. It is expected that future editions of UK GEMINI will incorporate such modified code lists. **Note that any new code values cannot be used in a national metadata service until incorporated in the Standard, nor will they be valid for the purposes of INSPIRE.**

[12] ISO 19115: 2003 Geographic information – Metadata
[13] Proposed new codes should be sent to gemini@agi.org.uk

Annex A. Major changes from v1.0

A.1 UK GEMINI2.0

The following elements have been deleted:

- Presentation type
- Supply media
- Spatial representation type
- Browse graphic
- Metadata standard name
- Metadata standard version

None of these were mandatory, and they are all part of the larger ISO 19115 set.

The following element names have been changed:

- Subject to Keyword
- Online resource to Resource locator
- Date to Temporal extent
- West bounding coordinate to West bounding longitude
- East bounding coordinate to East bounding longitude
- North bounding coordinate to North bounding latitude
- South bounding coordinate to South bounding latitude
- Access constraints to Limitations on public access
- Date of update of data to Metadata date
- Distributor and Originator (merged) to Responsible organisation

The following elements have been added to meet the requirements of INSPIRE:

- Unique resource identifier
- Resource type
- Conformity
- Equivalent scale
- Metadata language
- Metadata point of contact
- Spatial data service type (for services)
- Coupled resource (for services)

Other minor changes are identified in the element tables.

A.2 UK GEMINI2.1

UK GEMINI 2.1 contains the following amendments:

Resource language, Metadata language

The code for the Ulster Scots language is changed to “sco”.

Dataset reference date

Occurrence changed to multiple

Data type changed to a class comprising the elements:

- date
- date type (publication/revision/creation)

Extent

Deletion of “by country or subdivision of country” from definition, with data type changed to character string and domain to an identifier.

Data format

Data type changed to a class comprising the elements:

- Name of format
- Version of the format (date, number etc)

Limitations on public access

Equivalent ISO 19115 element changed from accessConstraint to otherConstraints, making domain free text.

Unique resource identifier

Data type changed to class, comprising the elements:

- code
- codespace

Resource type

Domain values changed dataset, series, service to match INSPIRE.

Conformity, Specification

Combined into a new class Conformity, comprising the elements:

- Specification
- Degree
- Explanation

Keyword, Originating controlled vocabulary

Combined into new class Keyword, comprising the elements

- keyword value
- originating controlled vocabulary.

An optional element, Equivalent scale has been added.

A.3 UK GEMINI2.2

In UK GEMINI 2.2, the following changes are made:

- The elements Frequency of update and Spatial reference system become optional;
- For the elements Temporal extent, Spatial reference system, Spatial resolution, Unique resource identifier, Equivalent scale, multiple occurrences are allowed;
- The elements West bounding longitude, East bounding longitude, North bounding latitude, South bounding latitude are merged to form Bounding box for which multiple occurrences are allowed.

Annex B. INSPIRE metadata requirements

The INSPIRE Implementing Rules for Metadata[14] requires that a set of metadata elements shall be provided. These are grouped in the following categories:

1. Identification
2. Classification of spatial and data services
3. Keyword
4. Geographic location
5. Temporal reference
6. Quality and validity
7. Conformity
8. Constraint related to access and use
9. Organisations responsible for the establishment, management, maintenance and distribution of the resource
10. Metadata on metadata

These are realized as a set of elements shown in Table B.1. These may be implemented in various ways including ISO 19115 and Dublin Core[15]. UK GEMINI is an ISO 19115 implementation.

[14] Implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata
[15] ISO 15836:2003 The Dublin Core metadata element set

Metadata category	INSPIRE Reference	Metadata element	Multiplicity†	Condition (where applicable)
Identification	1.1	Resource title	1	
	1.2	Resource abstract	1	
	1.3	Resource type	1	
	1.4	Resource locator	0..*	Mandatory if a URL is available to obtain more information on the resource, and/or access related services, or if linkage to the service is available
	1.5	Unique resource identifier	1..*	Not required for services
	1.6	Coupled resource	0..*	Only for services, where it is mandatory if linkage to data sets on which the service operates are available
	1.7	Resource language	0..*	Mandatory if the resource includes textual information. Not required for services
Classification of spatial and data services	2.1	Topic category	1..*	Not required for services
	2.2	Spatial data service type	1	Only for services
Keyword	3	Keyword value	1..*	
	3	Originating controlled vocabulary	0..*	Where a vocabulary is used as the source of the keywords
Geographic location	4.1	Geographic bounding box	1..*	Mandatory for datasets and dataset series, and for services with an explicit geographic extent
Temporal reference	5	Temporal extent	1..*	At least one of these must be given.
		Date of publication		
		Date of last revision		
		Date of creation		
Quality and validity	6.1	Lineage	1	Not required for services
	6.2	Spatial resolution	0..*	Mandatory for datasets and dataset series if an equivalent scale or a resolution distance can be specified, and for services where there is a restriction on the spatial resolution for the service.

Conformity	7	Specification	1..*	
		Degree	1..*	
Constraint related to access and use	8.1	Conditions applying to access and use	1..*	
	8.2	Limitations on public access	1..*	
Organisations responsible for the establishment, management, maintenance and distribution of the resource	9	Responsible party	1..*	
		Responsible party role	1..*	
Metadata on metadata	10.1	Metadata point of contact	1..*	
	10.2	Metadata date	1	
	10.3	Metadata language	1	
Notes † 1 indicates mandatory, single valued, 1 ..* indicates mandatory, multi-valued, 0..* indicates optional multi-valued				

Annex C. Checklist for conformity

Metadata for a data resource shall be conformant with UK GEMINI if:

1. It contains entries for all the mandatory metadata elements as defined in this Standard;
2. It contains entries for all those conditional elements where the condition for inclusion holds;
3. Each element included in the metadata contains a valid value from the prescribed domain;
4. The number of occurrences of each element does not exceed the maximum number specified;
5. Each entry is in the prescribed format;
6. The metadata represents the state of the data resource on the specified date.

References

European Union. Directive of the European Parliament and of the Council establishing an infrastructure for Spatial information in the European community (INSPIRE). See http://inspire.jrc.ec.europa.eu/proposal/EN.pdf

Commission Regulation (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata (Text with EEA relevance). See http://inspire.jrc.ec.europa.eu/reports.cfm

INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119 v1.2 2010-06-16.See http://inspire.jrc.ec.europa.eu/

Integrated Public Sector Vocabulary (IPSV) from the esd-toolkit, at http:www.esd.org.uk/standards/ipsv/

Metadata Guidelines for Geospatial Data Resources in the UK Part 1 – Introduction. AGI

Metadata Guidelines for Geospatial Data Resources in the UK Part 2 – Creating metadata using UK GEMINI. AGI

Metadata Guidelines for Geospatial Data Resources in the UK Part 3 – Metadata quality. AGI