Operational Guide

UK Location Discovery Metadata Service

Edition 2-2
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uk location

Document Control

Change Summary

Version	Date	Author/Editor	Change Summary
1-0	28/03/2011	Tim Manning	First version of document.
2-0	25/07/2011	Tim Manning	2nd version of document. Incorporates major revisions to the UK Location application profile of UK GEMINI2. Also minor improvements to rest of document after additional stakeholder feedback.
2-1	15/08/2012	Peter Parslow	Amended in line with (proposed) GEMINI 2.1 Amendment 1; align with revised data.gov.uk.
2-2	27/02/2013	Peter Parslow	Various metadata changes; data.gov.uk "withdraw" procedure

References

Ref.	Author/Title/Version/Date of Publication
[1]	UK Location, "Getting Started" Guides.
[2]	AGI, "Metadata Guidelines for Geospatial Data Resources – Part 1, Introduction", September 2010
[3]	EC, "Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)" 14.03.2007
[4]	EC, "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", December 2008
[5]	EC, "INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119", (Version 1.2) 16.06.2010
[6]	EC "Commission Regulation (EC) No 976/2009 of 19 October 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards the Network Services"
[7]	AGI, "UK GEMINI, Specification for discovery metadata for geospatial data resources, v2.2", December 2012
[8]	AGI, "Metadata Guidelines for Geospatial Data Resources - Part 2, Creating metadata using UK GEMINI2 (v2.1)", August 2010
[9]	UK Location, "UK GEMINI Encoding Guidance, Version 1.4", February 2013
[10]	UK Location, "UK GEMINI Schematron Schema", Version 1.3, January 2013
[11]	UK Location, "UK GEMINI Schematron Schema Guidance", Version 1.3, January 2013
[12]	UK Location, "Discovery Metadata Service Collection Interface Specification", Versions 0.5 and 0.7 (draft) July 2011
[13]	Technical Guidance for the implementation of INSPIRE View Services, Version 3.0, 2011-03-21, IOC Task Force for Network Services
[15]	User Guide: Administrators and Editors, version 1.5, data.gov.uk
[16]	UK Location, "Coordinate Reference Systems for UK Location", v1.1, December 2012

All the UK Location resources listed above can be found on data.gov.uk/location

INSPIRE resources can be found at: http://inspire.jrc.ec.europa.eu/

Glossary

The following definitions apply in relation to this document:

Term	Definition
CSW	Catalogue Service Web. Http protocol request/respond binding for OGC Catalogue Service. http://www.opengeospatial.org/standards/specifications/catalog
Data Provider	The organisation that creates the data and supplies the data for web publication, along with its metadata. For INSPIRE data, the Public Authority with the statutory obligation under the INSPIRE regulations.
Data Publisher	The organisation that publishes the data on the web and supplies data services to data users
Data Series	Collection of datasets sharing the same product specification.
Discovery Metadata	Information about a data or service resource, used to discover and access its suitability for sharing or re-use.
DMS	Discovery Metadata Service. One of a number of business services associated with the UK Location Information Infrastructure.
GEMET	General Multilingual Environmental Thesaurus. Developed by the European Topic Centre for the European Environment Agency. Currently published and managed by the European Environmental Information and Observation Network. GEMET can be browsed and searched on-line, accessed through web services or downloaded as HTML or SKOS files http://www.eionet.europa.eu/gemet
INSPIRE	Infrastructure for Spatial Information in Europe
OGC	Open Geospatial Consortium. An industry consortium of companies, government agencies and universities developing publicly available interface standards to geo-enable the Web, wireless, location-based services, and mainstream IT. http://www.opengeospatial.org/
UK Location (UKL)	The UK Location Information Infrastructure. Infrastructure for the publication of Location Information as part of the implementation of the UK Location Strategy. Incorporates the UK member state implementation of INSPIRE.
UK Location Coordination Unit	Legal entity for the day-to-day coordination and management of the UK Location Information Infrastructure and the UK member state element of INSPIRE.
URL	Uniform Resource Locator. Specifies where an identified resource is available on the Web and the mechanism for retrieving it.

Term	Definition
UUID (or GUID)	Universally (or Global) Unique IDentifier (UUID) is a unique 128-bit integer that is represented as a 36 (or 32 ignoring the dashes) character string of hexadecimal numbers. UUIDs are system generated and ideally a UUID will never be generated twice by any computer in existence.
WAF	A Web Accessible Folder (WAF) is an HTTP accessible directory of files, typically metadata files in XML format in which all files and their time-stamps are visible to a web browser or client. Crawlers are able to parse the file listings and date-time stamps and provide a search interface on these documents.
WMS	Web Mapping Service.
WFS	Web Feature Service
XML	eXtensible Markup Language
XML Document	A collection of data represented in XML.

Contents

Introduction

The UK Location Discovery Metadata Service (DMS) lies at the heart of UK Location and the delivery of the UK Location Strategy and INSPIRE - 'to know what data we have'.

The DMS underpins the coordinated and regulated publishing of public sector location information to the INSPIRE and UK Location specified standards. It provides the discovery component for a set of on-line services that will allow data users to evaluate and use public sector location information, that is to view, download and invoke as part of an end business application.

This guide sets out detailed guidance on the creation, publishing and maintenance of UK Location discovery metadata.

It covers both location information being published under INSPIRE and all other location information published through UK Location. The DMS is being implemented by extending the functionality of the UK public data publishing platform data.gov.uk.

The guide is a living document and will be continuously revised in the light of operational experience and feedback.

Please note that whilst the Devolved Administrations of Scotland, Wales and Northern Ireland are part of UK Location, they may have different publishing mechanisms to those described here. Therefore in the first instance, please use the appropriate contact information listed under "Where to obtain more information" below.

Target Audience

The primary audience for the Guide are business managers and information officers, located within data provider organisations, and their technical partners.

It is chiefly written for those data providers who have obligations under the INSPIRE Themes, but is also relevant to those who wish to publish location information into UK Location on a voluntary basis.

The guide will also be of interest to anyone who requires a general understanding of the UK Location Discovery Metadata Service and how it is intended to operate.

Assumed Knowledge

This guide assumes that the reader is familiar with the creation and management of metadata and has read the UK Location "Getting Started' series of guides [1].

Readers requiring an introduction to discovery metadata for geospatial data resources are referred to the UK GEMINI guide "Metadata Guidelines for Geospatial Data Resources, Introduction – Part 1" [2].

Do you know your "Data Provider" from your "Data Publisher"

Throughout this guide we refer to "Data Providers" and "Data Publishers". Within UK Location, the definition and distinction being made between these two roles is very important. So what is the difference?:
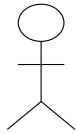
The Data Provider
The organisation that <u>creates</u> the data and supplies the data for web publication, along with its metadata
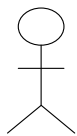
The Data Publisher
The organisation that <u>publishes</u> the data on the web and supplies data services to data users

If you as a Data Provider publish directly, then you will perform both the roles of Data Provider and Data Publisher.

DMS Resources

The latest versions of all the UK Location resources referred to in this guide can be found via the UK Location Resource Centre:

http://data.gov.uk/location

Where to Obtain More Information

The latest information, and additional resources, can be obtained by visiting the UK Location web site.

If you would like to contact the UK Location Coordination Unit, please use the contact form at: http://location.defra.gov.uk/resources/contact-us/

If you are looking to publish location information specific to Scotland, Wales or Northern Ireland, please contact:

Scotland

Alex Ramage, Spatial Information Policy, Scottish Government

Email: Alex.Ramage@transportscotland.gsi.gov.uk

Wales

Bill Oates, Head of Geography and Technology, Knowledge & Analytical Services, Welsh Assembly Government

E-mail: Bill.Oates@wales.gsi.gov.uk

Northern Ireland

Email: ProgrammeOffice@dfpni.gov.uk or visit the NI GI Strategy website at www.gistrategyni.gov.uk

Publishing Discovery Metadata

Data Providers publish their data and on-line services into UK Location by creating and publishing discovery metadata. These resources are registered with UK Location and made discoverable through its central metadata catalogue, which forms part of the public data access portal, data.gov.uk.

Requirements on Data Providers and Publishers

Deciding to publish data into UK Location is a major commitment. INSPIRE and UK Location is not a simple cataloguing service of what data exists – it is a network of on-line services for that data and an operational framework for future harmonisation and interoperability, such that it can be more easily combined within a data user application, or used directly through a range of on-line data services.

If you choose to publish, the following operational commitments apply:

- you will support data users in their evaluation and re-use of your data, e.g. by using UK Location and INSPIRE community networking services, such as those provided on the UK Location discovery portal, data.gov.uk

- You will endeavour to adopt a process of continuous improvement for the resources you publish, based on the feedback you receive, as this will be beneficial to both data provider and user

- You will maintain your discovery metadata:

    - assuring its quality against appropriate standards

    - reviewing it and updating it regularly and ensuring it is updated when new versions of data, data series or on-line services are published (see Maintaining Discovery Metadata)

    - maintaining metadata record FileIdentifers (UUID) throughout the life of the metadata record (new UUIDs should only be created when new resources are published, to prevent duplicate metadata records)

- you will release your data, data series and on-line services with clear licensing and charging policies

- you will provide e-commerce services where charges apply for INSPIRE data

- you will have clear procedures to make complaints received under data access legislation, where appropriate

- you will agree to your data being viewable using data.gov.uk and other evaluation clients, including the EU GeoPortal. If you require an exemption from this requirement you should contact the UK Location Coordination Unit

<u>The following service requirements apply</u>:

- For all data:
    - compliance with the INSPIRE Metadata Regulation [4] and the UK Location operational requirements as set out in this guide
    - if publishing INSPIRE Network (on-line) Services, compliance with the INSPIRE Network Services Regulation [5]
    - the publishing of INSPIRE View Services for a given dataset or data series

- For data that comes under an INSPIRE Theme and contains features listed in the INSPIRE Data Specifications:
    - legal compliance with the INSPIRE Directive [3]

Accountability

Accountability for publishing data and associated resources rests with you the Data Provider. If you are a Data Provider and are publishing through a third party, they are responsible for providing a service to you as the Data Provider, but they are not accountable for the data and services published. Accountability at all times remains with you as Data Provider, e.g. in relation to INSPIRE compliance and conformance to INSPIRE and UK Location technical guidance.

Publishing Discovery Metadata for Data

The process for publishing metadata records for data is shown as a process model in Figure 1.

This is highly generalised and you will need to view it in the context of your own internal data management processes and integrate it into this existing fabric.

Figure 1: Data Metadata Publishing Process

The creation and publishing of discovery metadata for a dataset or series is triggered by the business decision (event) to publish the data.

The Data Provider creates the discovery metadata for the dataset or series, to the metadata requirements specified in this guide. The Data Provider should then apply internal quality controls on this metadata, before releasing it for publication.

Ideally, the metadata should be created by the part of the organisation responsible for the data itself and based on metadata created at the time the data was created, or updated.

The next stage of the process passes to the Data Publisher. This role may be within the same organisation as the Data Provider, or a third party acting on behalf of the Data Provider. Even if within the same organisation, it is quite likely to be a different part of the organisation, e.g. the data & knowledge management department, or within the IT department.

The Data Publisher needs to update the metadata, creating the links to any on-line resources associated with the data, e.g. data specifications, licences and services. If these do not already exist, then they may need to be created before the data can be published.

Once updated, the metadata needs to be passed through the Data Publisher's own internal quality controls. At this point the metadata can be released for publication and registered with UK Location.

The final stage of the process passes to UK Location. At the point of registration, the discovery metadata is collected automatically from the Data Publisher, and subjected to a number of quality controls. Once complete, the Data Publisher is notified of the results. If no errors are recorded, the resource is added to the UK Location Catalogue and becomes discoverable through the UK Location discovery service. If errors are found, then the Data Publisher will need to correct these and re-submit the resource.

Publishing Discovery Metadata for On-line Services

The process for publishing metadata records for on-line services is shown as a process model in Figure 2.

This is highly generalised and you will need to view it in the context of your own internal data publishing processes and integrate it into this existing fabric.
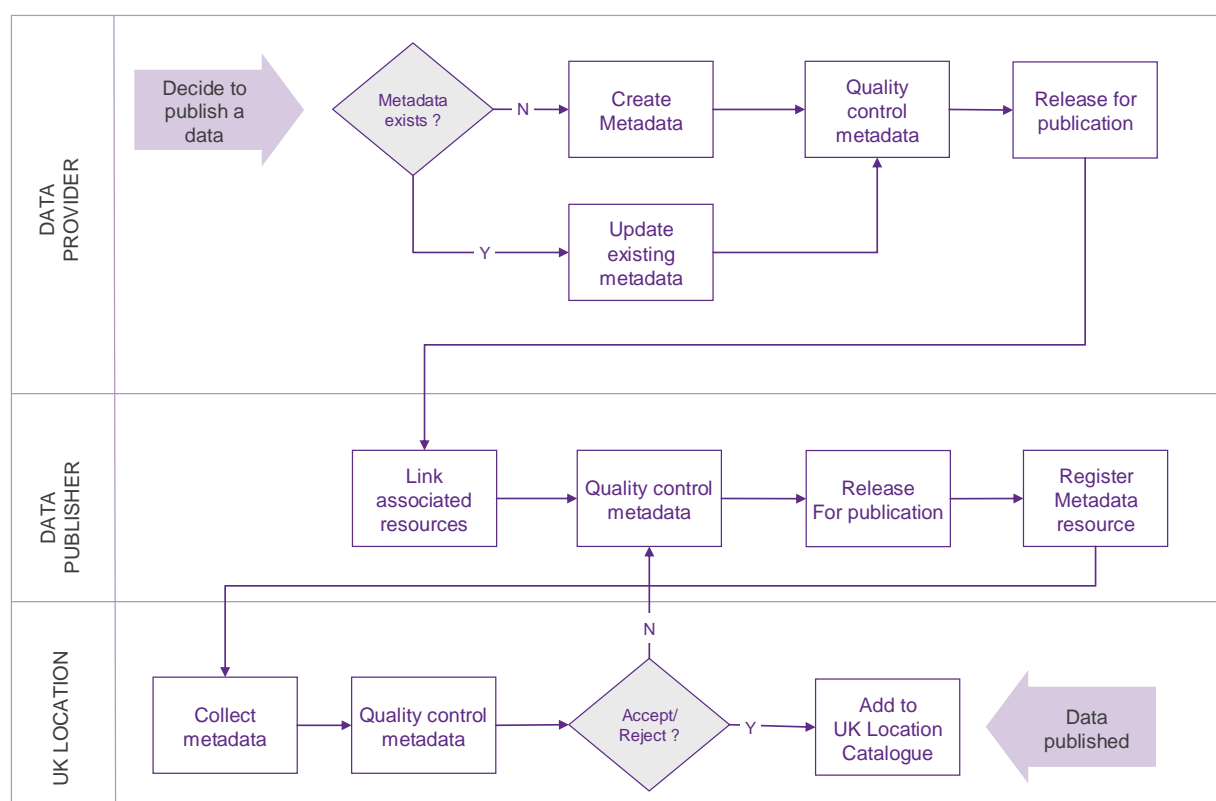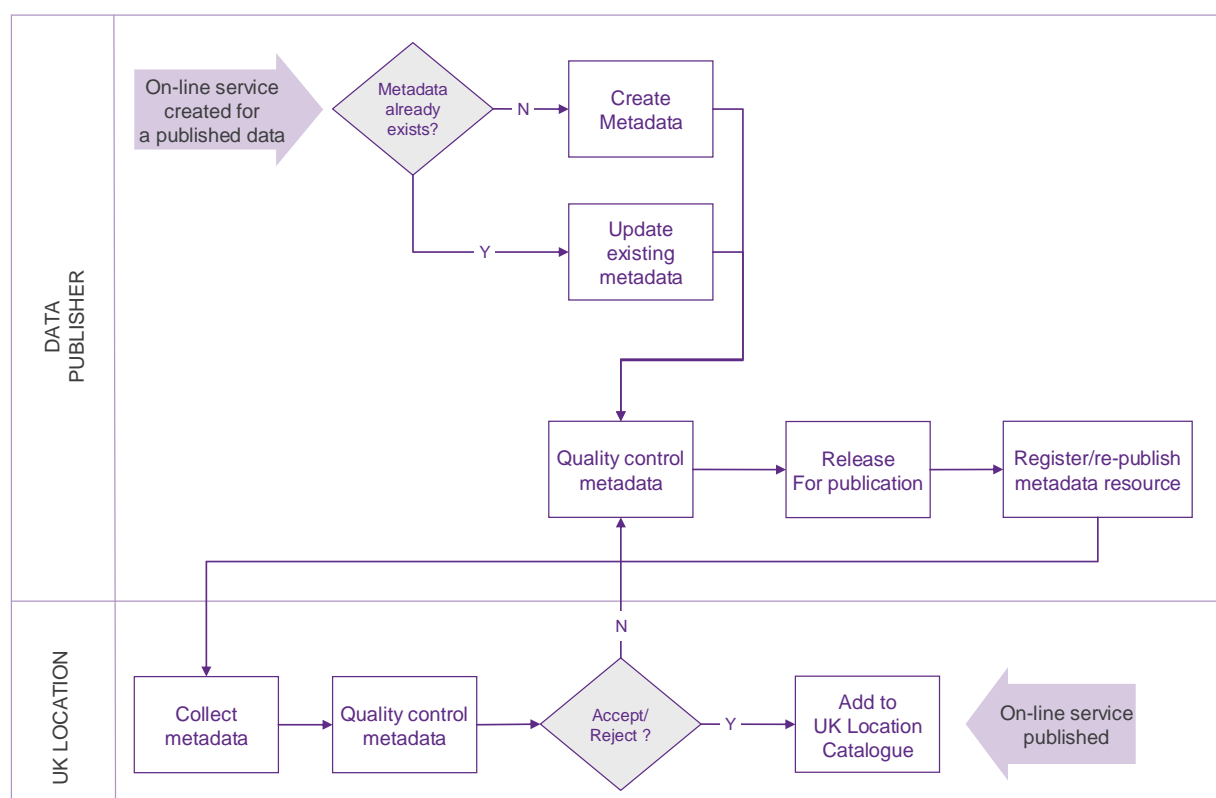

Figure 2: Service Metadata Publishing Process

The process is triggered by the creation of an on-line service for a published dataset or series. This may be a new service, or the use of an existing service, which has been extended to support the additional data resource. If the former, a service metadata record will need to be created. If the latter, than the existing service metadata record will need to be revised to couple it to the new dataset or series.

Having created or revised the service metadata, then as with data metadata records, it needs to be subject to internal quality controls and release management.

Collection of the service metadata record is as for data, unless it is an existing service, in which case it will be an update of the existing registration.

Maintaining Discovery Metadata

UK Location requires that Data Providers and their Data Publishers maintain their published metadata records in line with the INSPIRE Metadata Implementing Rule. This requires that the metadata elements and the record itself are kept up to date. For example, if you decide to change your published dataset, or move the location of a resource e.g. view service, then you are responsible for ensuring that these changes are updated in your metadata.

Data Sharing and Charging and Licensing

Data sharing, including charging and licensing, 3rd party intellectual property, and e-commerce issues are covered under separate UK Location data sharing operational guidance. This is in the process of being published. Please visit the UK Location Resource Centre for more details.

Discovery Metadata Requirements

UK Location discovery metadata will be used by potential data users to discover and evaluate published location information for use in a range of applications. To enable the data user to do this, they require comprehensive information about the data and services. The better the discovery metadata, the more likely the data will be shared and re-used in an appropriate way.

UK Location discovery metadata uses an application profile of the UK industry metadata standard **UK GEMINI2, version 2.2 [7].**

Considerable care needs to be taken over the creation of discovery metadata. It is strongly recommended that you use a metadata editor tool, that fully supports the encoding requirements defined in [9] and uses the UK Location XSD and Schematron schemas [9, 10], to ensure that your metadata is fully compliant with UKL and INSPIRE requirements.

UK Location Application Profile

Against UK GEMINI2, the following UKL application profile applies. This profile is implemented through UK Location encoding guidance [9] and a Schematron ruled-based validation Schema [10].

For a detailed explanation of each element, please refer to the UK GEMINI2 standard [7] and associated guidance [8].

Discovery Metadata for Data

No.	Class/Element Name	Ob.	Oc.	Profile Rules and Guidance
1	Title	M	1	
2	Alternative Title	O	N	
3	Dataset Language	C	N	This element is mandatory if the dataset contains textual information. A three letter code must be used from: http://www.loc.gov/standards/iso639-2/php/code_list.php
4	Abstract	M	1	
5	Topic Category	M	N	

No.	Class/Element Name	Ob.	Oc.	Profile Rules and Guidance
6	Keyword	M	N	Discovery metadata records which describe a dataset or data series that relate to one or more of the INSPIRE themes must include the appropriate keyword(s) from the GEMET INSPIRE themes, e.g. "Addresses", <u>as the first keyword.</u> See http://www.eionet.europa.eu/gemet/inspire_themes The controlled vocabulary shall be cited as "GEMET INSPIRE themes, version 1.0", publication date e.g. "2008-06-01" Placing the dataset or data series under an INSPIRE theme in this way means that it is subject to the INSPIRE regulation [3]. For other Keywords, if drawn from a Controlled Vocabulary, this must be stated. Please note that any additional controlled vocabularies used besides GEMET will subsequently be indexed within the UK Location Registry, as part of publication.
7	Temporal Extent	C	N	You may enter either a: • start and end date • only a start or end date, or • "now", "before" or "after" You can have more than one Temporal Extent. The lowest level of granularity allowable is "year".
8	Dataset Reference Date	M	N	You can define more than one Dataset Reference Date, but there must only be one of type "Creation".
10	Lineage	M	1	
44	Bounding Box	M	N	
15	Extent	O	N	
16	Vertical extent information	O	N	
17	Spatial Reference System	O	N	If referencing CRS definitions from a register, you must provide the full URI, e.g. for British National Grid enter: http://www.opengis.net/def/crs/EPSG/0/27700. If a CRS is not identified in a register, you will need to reference the CRS in an external catalogue. See [9] for further guidance on this.
18	Spatial Resolution	C	N	Mandatory if an equivalent scale or a resolution distance can be specified.

No.	Class/Element Name	Ob.	Oc.	Profile Rules and Guidance
19	Resource Locator	C	N	Mandatory if a URL is available to obtain more information on the dataset or series, and/or access related services. In relation to on-line INSPIRE network services, special guidance applies (see "Data and Service Linking"). Although not mandatory, the following ISO 19115 sub-elements should be included: • function • name (this appears on the data.gov.uk site) • description (data.gov.uk uses this if no 'name' provided)
21	Data Format	C	N	Mandatory if a Resource Locator is given
23	Responsible Organisation Role	M	N	Enter "Owner" for UK Location Data Provider role. Enter "Publisher" For UK Location Data Publisher role. These appear in the data.gov.uk search results. If the data was created by someone other than the Data Provider, this should also be recorded, using the role value "Originator".
24	Frequency of Update	O	1	This should be entered, but is not mandatory. You are strongly encouraged to enter a 'Frequency of Update', as this information will be used by the UKL Coordination Unit as part of their monitoring and assurance activities. Datasets and services without a frequency of update defined may be queried.
25	Limitations on Public Access	M	N	If no limitations apply, enter "No limitations".
26	Use Constraints	M	N	Conditions applying to access and use. If no conditions apply, enter "no conditions apply". Provide information on any constraints to using the dataset or series, e.g. licensing, fees, usage restrictions, or refer to a URL where this information is available, e.g. a licence document. If entering a URL, enter this as a sub-element, not as part of free text. See separate section on providing Data Provider licence information.
27	Additional Information	O	1	This is optional. It should not be used to link to on-line resources. All resource links (other than information on fees) must be defined using "Resource Locator". For links related to fees, use the element "Use Constraints".

No.	Class/Element Name	Ob.	Oc.	Profile Rules and Guidance
30	Metadata Date	M	1	
33	Metadata Language	M	1	For INSPIRE, this has to be an official language of the European Community[1], of which English (eng) is the only one in common use in the UK.
				For non-INSPIRE UK Location records, it can be any ISO 639-2 three letter code, such as the languages listed in GEMINI: English (eng), Welsh (cym), Gaelic (Irish) (gle), Gaelic (Scottish) (gla), Cornish (cor), Ulster Scots (sco).
35	Metadata point of contact	M	N	
36	Unique Resource Identifier	M	N	The codespace sub-element must be a character string that uniquely identifies the namespace for the identifier code. This should be the internet domain of the data owner/provider, e.g.:
				data.bgs.ac.uk/id/dataHolding/13480363
39	Resource Type	M	1	The value must be:
				• **dataset** for spatial datasets;
				• **series** for spatial data series
40	Originating Controlled Vocabulary	C	1	This is a sub-element of "Keyword" (element 6). The multiplicity is 1 in the context of a Keyword. However, more than one Keyword can be included in a metadata instance.
41	Conformity	C	N	This consists of three sub-elements "Degree" (Pass or Fail), "Specification" (Element 42 in UK GEMINI2) and "Explanation".
				INSPIRE also includes "not evaluated". This is not supported by the XML encoding. To express "not evaluated", omit the conformity statement.
				A resource may conform to more than one specification. This may be an INSPIRE specification, or your own.

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[1] The official languages of the European Community are listed at
http://ec.europa.eu/languages/languages-of-europe/eu-languages_en.htm

No.	Class/Element Name	Ob.	Oc.	Profile Rules and Guidance
42	Specification	C	1	This is a sub-element of the "Conformity" statement.
				State the data specification to which the degree of conformity applied (see element 41) and optionally an "Explanation". This will be either an INSPIRE data specification, or your own.
				The multiplicity is 1 in the context of a conformity statement. However, more than one conformity statement can be included in a metadata instance.
				If your dataset conforms to an INSPIRE data specification (or you wish to declare that it does not conform to such a specification) then it is recommended to refer to the relevant INSPIRE data specification Implementing Rule e.g.:
				"COMMISSION REGULATION (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services
				2010-12-08
				Explanation:
				See http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:323:0011:0102:EN:PDF
				And perhaps also to refer to the specific data specification guidelines document:
				e.g. INSPIRE Data Specifications on Addresses - Guidelines v 3.0.1 03.05.2010
				found at http://inspire.jrc.ec.europa.eu/documents/Data_Specifications/INSPIRE_DataSpecification_AD_v3.0.1.pdf"

Discovery Metadata for Services

No.	Class/Element Name	Oc.	Ob.	Profile Rules and Guidance
1	Title	M	1	
2	Alternative Title	O	N	
4	Abstract	M	1	
6	Keyword	M	N	If the resource is an INSPIRE spatial data service, at least one keyword from part D.4 of the INSPIRE Metadata regulation must be provided [4]. The citation should be the title of the regulation.
7	Temporal Extent	C	N	You may enter either a: • start and end date • only a start or end date, or • "now", "before" or "after" You can have more than one Temporal Extent. The lowest level of granularity allowable is "year".
8	Dataset Reference Date	C	1	
44	Bounding Box	C	N	Mandatory for services with an explicit geographic extent.
15	Extent	O	N	
16	Vertical extent information	O	1	
17	Spatial Reference System	O	1	If referencing CRS definitions from a register, you must provide the full URI, e.g. for ETRS89 enter: http://www.opengis.net/def/crs/EPSG/0/4258 If a CRS is not identified in a register, you will need to reference the CRS in an external catalogue. See [9] for further guidance on this.
18	Spatial Resolution	C	1	If there is a restriction on the spatial resolution for the service, this shall be expressed in the Abstract You may enter more than one Spatial Resolution.

No.	Class/Element Name	Oc.	Ob.	Profile Rules and Guidance
19	Resource Locator	C	N	Specify the URLs to access the service, related on-line resources, or obtain additional information. This is mandatory if a link to the service is available e.g. http://myserver/INSPIREWM/MapServer/ WMSServer?service=WMS&request=GetCapabilities& In relation to on-line INSPIRE network services, special guidance applies (see "Data and Service Linking"). Although not mandatory, the following ISO 19115 sub-elements should be included: • function • name (this appears on the data.gov.uk site) • description (data.gov.uk uses this if no 'name' provided)
21	Data Format	C	N	Mandatory if a Resource Locator is given
23	Responsible Organisation Role	M	N	Enter "Owner" for UK Location Data Provider role. Enter "Publisher" For UK Location Data Publisher role. These appear in the data.gov.uk search results. If the data was created by someone other than the Data Provider, this should also be recorded, using the role value "Originator".
24	Frequency of Update	O	1	This should be entered, but is not mandatory. You are strongly encouraged to enter a 'Frequency of Update', as this information will be used by the UKL Coordination Unit as part of their monitoring and assurance activities. Datasets and services without a frequency of update defined may be queried.
25	Limitations on Public Access	M	N	If no limitations apply, enter "No limitations".
26	Use Constraints	M	N	Conditions applying to access and use. If no conditions apply, enter "no conditions apply". Provide information on any constraints to using the resource e.g. licensing, fees, usage restrictions, or refer to a URL where this information is available, e.g. a licence document. If entering a URL, enter this as a sub-element, not as part of free text. See separate section on providing Data Provider licence information.
27	Additional Information	O	1	This is optional. It should not be used to link to on-line resources. All resource links (other than information on fees) must be defined using "Resource Locator". For links related to fees, use the element "Use Constraints".
30	Metadata Date	M	1	

No.	Class/Element Name	Oc.	Ob.	Profile Rules and Guidance
33	Metadata Language	M	1	For INSPIRE, this has to be an official language of the European Community[2], of which English (eng) is the only one in common use in the UK. For non-INSPIRE UK Location records, it can be any ISO 639-2 three letter code, such as the languages listed in GEMINI: English (eng), Welsh (cym), Gaelic (Irish) (gle), Gaelic (Scottish) (gla), Cornish (cor), Ulster Scots (sco).
35	Metadata point of contact	M	N	
37	Spatial Data Service Type	M	1	This must be entered using one of following values: • discovery • view • download • transformation • invoke • other
38	Coupled Resource	C	N	This links the service metadata to the metadata record relating to the data it operates on. Enter the corresponding URL for the published data metadata record. This may be: • an OGC CS-W GetRecordById request • an address of a metadata instance in a WAF Coupled Resource is mandatory for View and Download services. It is optional for other service types
39	Resource Type	M	1	The value must be "service" for spatial data services.
40	Originating Controlled Vocabulary	C	1	This is a sub-element of "Keyword" (element 6). The multiplicity is 1 in the context of a Keyword. However, more than one Keyword can be included in a metadata instance.
41	Conformity	C	N	This consists of three sub-elements "Degree" (Pass or Fail), "Specification" (Element 42 in UK GEMINI2) and "Explanation". INSPIRE also includes "not evaluated". This is not supported by the XML encoding. To express "not evaluated", omit the conformity statement. A resource may conform to more than one specification. This may be an INSPIRE specification, or your own.

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[2] The official languages of the European Community are listed at http://ec.europa.eu/languages/languages-of-europe/eu-languages_en.htm

No.	Class/Element Name	Oc.	Ob.	Profile Rules and Guidance
42	Specification	C	1	This is a sub-element of 41. State the specification to which the degree of conformity applied (see element 41) and optionally an "Explanation". This will be either an INSPIRE data service specification, or your own. The multiplicity is 1 in the context of a conformity statement. However, more than one conformity statement can be included in a metadata instance. For INSPIRE it is recommended to use: COMMISSION REGULATION (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services 2010-12-08 Explanation: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:323:0011:0102:EN:PDF For the view service portrayal, i.e. the data and for the INSPIRE technical but not data content conformance of the service you can use: Technical Guidance for the implementation of INSPIRE View Services Version 3.0 2011-03-21 See the referenced specification at: http://inspire.jrc.ec.europa.eu/documents/Network_Services/TechnicalGuidance_ViewServices_v3.0.pdf

Key:

Ob = Obligation

Oc = Occurrence

M = Mandatory

C = Conditional

O = Optional

1 = Only one entry permitted

N = Multiple entries permitted

Metadata record File Identifier

To support the operation of UK Location and INSPIRE, discovery metadata records must include a File Identifier for the resource. This is not a metadata element within UK GEMINI2 and has been added as part of the UK Location application profile and XML encoding [9].

File Identifier should not be confused with the UK GEMINI2 metadata item "Unique Resource Identifier", which identifies the data resource being described.

File Identifier must be populated with a unique identifier. This may be a UUID generated by a metadata creation tool.

Once created and published to UK Location, the File Identifier must not be changed. A change to the File Identifier would represent the creation of a new resource.

If the UK Catalogue receives two records with the same File Identifier, the one with the more recent metadata date will be retained.

ISO "hierarchy level" and quality scope statements

These are not GEMINI elements. They are required in the ISO 19115 encoding of GEMINI 2.1 metadata records, to assist in managing related metadata records. To summarise,

- for metadata describing a dataset:
    - set hierarchy level to "dataset", and
    - set quality scope of any conformity statement to "dataset"
- for metadata describing a series:
    - set hierarchy level to "series", and
    - set hierarchy level name to an appropriate text string
    - set quality scope of any conformity statement to "series"
- for metadata describing a service:
    - set hierarchy level to "service", and
    - set hierarchy level name to an appropriate text string, for example "INSPIRE View Service"
    - set quality scope of any conformity statement to "service"
    - set quality scope level description to "other", with an appropriate text string, for example "INSPIRE View Service"

Data and Service Linking

UK Location and INSPIRE is a network of distributed on-line services that provide access to published location information. To provide this access, the discovery metadata about the data needs to tell the data user what services are available and how to access them, in a machine-readable way. This is achieved using the discovery metadata element "Resource Locator".

<u>For the network to operate, it is critical that these links are correct:</u>

Data Metadata	The Resource Locator must define the Uniform Resource Locator (URL) for the on-line services that provide access to it.
	As well as the URL, it is also necessary to provide distribution format information in all cases.
	If the format and version are known, then they should be given.
	If no on-line services are available for access, then you should enter the URL for further information about access.
Service Metadata	Depending on the nature of the on-line service, machine-readable or human readable, one of two URLs should be provided - one giving the URL of an OGC web service 'GetCapabilities request', e.g.service=WMS&request=GetCapabilities&, or the location of further information about a service.

Data Provider Licence information

The following Data Provider licensing information must be provided:

- include a Licence Title within the free text field 'Use Constraints', and where possible a Licence URL as an 'anchor' reference.

- if more than one type of licence is included in the dataset then the URL should point to a Data Providers page, explaining this and linking to these licenses.

Upon collection, UK Location will record the Use Constraints text and URL in the 'licence' field displayed on data.gov.uk. The UK Government encourages public bodies to release data explicitly under an open licence, which on data.gov.uk currently includes the "Open Government Licence" and the "OS OpenData Licence". For data.gov.uk to correctly categorise your data as open, ensure these licence titles are stated in the Use Constraints text field exactly as quoted here, for example "Open Government Licence".

Metadata Encoding

UK Location discovery metadata records must be published as an Extensible Markup Language (XML) document. This must follow the UK Location UK GEMINI Encoding Guidance [9].

Metadata Validation

Published discovery metadata XML document resources will be validated in a three stage process, using:

- the ISO XML schemas

- the UK Location variant of the ISO Schematron rules

- a UK Location GEMINI Schematron schema [10]

Data Publishers are required to validate their metadata records using these before resource registration. UK Location has published guidance on using its Schematron rules [11].

Community Extensions to UK GEMINI2

Within a given organisation or thematic community, there may be the need to record additional items of metadata to meet local requirements. Existing examples include Marine Environmental Data and Information Network (MEDIN) and Academic Geospatial Metadata Application Profile (AGMAP).

UK Location will accept additional metadata elements within a metadata record XML document. These elements must be taken from ISO 19115 and be encoded in conformance with ISO 19139.

Extension to Code Lists

UK GEMINI2 includes a number of code lists taken from ISO 19115. Within a given organisation or thematic community, you may wish to extend these code lists. These extensions need to be incorporated into the INSPIRE and/or UK Location specified code lists before they can be used. If you wish to extend a code list for an INSPIRE metadata element, please contact the UK Location Coordination Unit.

Local Guidance

The type of data being published will have a strong bearing on the content of the metadata created. It is strongly recommended that data providers create local guidance, based on UK GEMINI2 and this operational guide.

Publishing Discovery Metadata records

Publishing discovery metadata for UK Location for data and services is a three stage process:

1. **Publish discovery metadata records** to a harvest location, from which the resources can be machine-accessed from the Internet

2. **Register your harvest location** with data.gov.uk.

3. **Collection**. Sometimes known as 'harvesting', this is where data.gov.uk collects the metadata records from the registered location, makes them available within data.gov.uk, and for further collection on to Europe.

Publishing Discovery Metadata records

This involves transferring your completed discovery metadata records to an on-line location, which can be machine accessed through the Internet. The records must be accessible using one of two mechanisms:

*   OGC Catalogue Service for the Web (CSW), *or*

*   Web Accessible Folder (WAF)

These mechanisms will be used by the Discovery Metadata Service, to collect registered discovery metadata records. For more information about this interface, please refer to the DMS Collection Interface Specification [12].

Discovery Metadata Harvest location

This can take a number of forms. It may be local to your business unit, or organisation, or a community resource, shared across a number of organisations.

The most important aspect of the harvest location is that it holds the published **MASTER** of the resources being published, i.e. it is your control point for their publication to UK Location and that it is the endpoint for services and their Coupled Resources.

If publishing elsewhere, e.g. to thematic or regional catalogues and information portals, you should consider using this same control point – applying the 'publish only once principle'.

Record Organisation

How you organise your records will be subject to your own local needs and practices. Possible catalogue/file directory structures include:

*   by business unit

*   by theme

*   by data and services and/or

*   by Data Provider (if shared)

You can reflect this structure when you register harvest locations with UK Location, i.e. you can register all of the resources under a particular business unit or theme, and apply a filter against the rest of the contents.

The only mandatory structure to apply is if the location contains resources associated with more than one Data Provider. These need to be registered separately, so your harvest location must be structured such that these can be identified as a group.

Please note that initially the above will only be supported if using WAF as your publishing mechanism. If using CSW, then the specified URL must contain only files for publication to UK Location, published under a single registration, relating to a single Data Provider.

Subject to demand, CSW filtering will be introduced as part of a later release.

If you have an immediate requirement for UK Location to support CSW Filtering, by category or element, please contact the UK Location Coordination Unit, using the contact form at: http://location.defra.gov.uk/resources/contact-us/.

Registering the harvest location

UK Location discovery metadata records are registered using the UK Government data publishing and discovery portal data.gov.uk.

Data.gov.uk is a single point of registration, discovery and access for a range of data, not purely location information. It provides two channels for registering discovery metadata.

Data and services published through UK Location must be registered using the dedicated data.gov.uk channel – **Collection** (discovery metadata).

The end-to-end process for publishing UK Location discovery metadata records for data and services, using data.gov.uk, is shown in Figure 3.
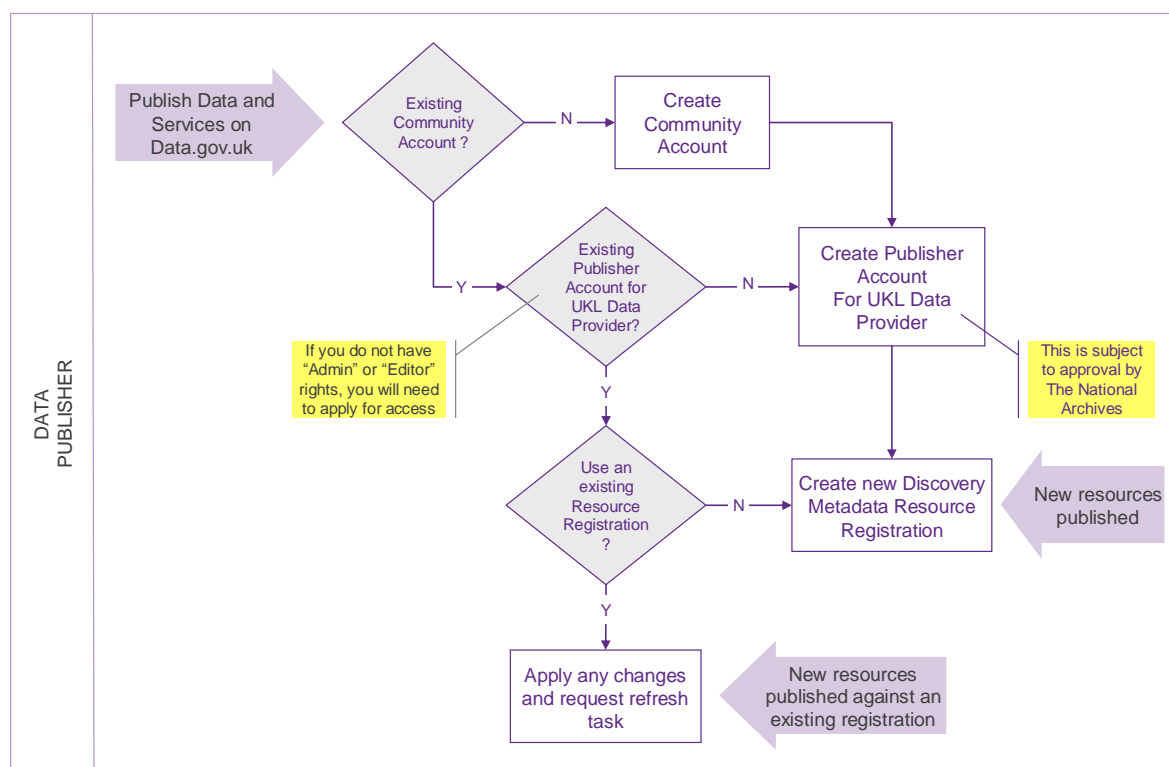
Figure 3: Register Discovery Metadata records

Data.gov.uk Publisher Accounts

Data and services are published against a registered organisation, e.g. government department or agency. This is the organisation legally accountable for the data being published - **the UK Location "Data Provider".**

Please note that within data.gov.uk, the Data Provider is referred to as the "Publisher" for metadata and data resources, irrespective of whether they are publishing directly, or indirectly through a third party.

The registration of data.gov.uk "Publishers" is through a process of 'request and approval'. The process is explained within the "Data" tab of data.gov.uk

If publishing directly, you will need to determine if a data.gov.uk Publisher account already exists for your organisation (this is clear within the online application process).

You can then either apply for *editor access* (which lets you register and administer published data resources) or *administrator access,* which gives you the same powers as *editor access* but also lets you edit publisher's details (including name, description, and contact information), and authorize access for other users to be editor or administrator for the organisation.

Special Guidance for Third Party Publishers

If you are a third party Data Publisher, i.e. publishing on behalf of a Data Provider, you will need to adopt a different approach for data and services. For data, discovery metadata records must be published under the Data Provider's name. For Services, these must be published under your Data Publisher's name.

You will need to ensure that you have formal approval to publish from your Data Provider. This will be checked by The National Archives before approval is given.

Signing up for data.gov.uk accounts

Before you can publish data and services on data.gov.uk, you will need to sign up and associate yourself with one or more Publishers.

For further information, see the data.gov.uk User Guide [15]

Creating a Publisher

If there is not an existing data.gov.uk Publisher for the UK Location Data Provider, you will need to contact the Cabinet Office data.gov.uk team to request the addition of your publisher: http://data.gov.uk/publisher/apply/cabinet-office

Publisher Administrators and Editors

Publishers are associated with two tiers of user:

- **Administrators**, with profile edit and publishing rights, e.g. the ability to change the published details for the organization and add editors

- **Editors**, with publishing rights only

Typically, a Publisher will only have one Administrator, although additional Administrators may be added, e.g. to provide cover, or temporarily to facilitate a hand-over.

But, a Publisher may have a number of Editors, i.e. users with responsibility for publishing different datasets associated with different parts of the organisation.

Please note that Administrators and Editors can see and edit ALL resources associated with a Publisher, not just their own.

The addition of Administrators and Editors can only be done by the account Administrators; you can request this via the data.gov.uk site, or by contacting the account administrator directly.

Registering Metadata Harvesting Resources

Having created an account on data.gov.uk and gained editor rights to the relevant Publisher, you are now in a position to register metadata harvesting resources, for that Publisher.

To register a metadata harvesting resource, select [Dataset Harvesting] from the Publisher tools sub-menu, which appears on the "Data" tab.

Select [Add a harvesting resource]. Using the displayed form, enter:

- Collection Interface Type – indicating whether the source is a CSW, a single document, or WAF

- Source – the root URL of the CSW or WAF, e.g. http://www.someserver.com/csw/csw.cgi or http://www.example.org/metadata.

- Description – an optional free text field for recording any relevant details about the registration. Use this to help you manage your Registrations and is n ot displayed publically on data.gov.uk

- Select the relevant Publisher (Data Provider) from the drop down list.

- Leave the State set to active

- Click "Save"

The registration will establish a collection task, which will collect the discovery metadata records located from the specified URL.

It should be noted that in time, this same mechanism will be used to publish other resources, associated with a given Publisher, e.g. machine-readable Licences. It is also the intention to extend the functionality to support:

- CSW Filtering

- Scheduled Collection (automatic refresh of discovery metadata records at an interval specified by the Data Publisher

- Response handling – automatic forwarding of error messages to an address specified by the Data Publisher, e.g. to a central error log

Collection

The collection task created as described above is only run when requested, that is, when you click the 'Refresh' button for that harvest source, which is on the list of harvesting sources visible to the administrators of the publisher.

Validation

Once collected, the individual data and service discovery metadata records will be subject to the following validation checks:

- XSD validation of XML document

- Schematron Schema validation of XML document

- Data Provider validation against registered "Publisher" details on data.gov.uk

- URL validation (http response)

If the validation is successful, the metadata record will be visible within data.gov.uk, and will also be passed on to the Catalogue Publishing Service (data.gov.uk's OGC CSW interface), from which it will be collected by the European INSPIRE GeoPortal[3].

In the event of an error being found, an error message will be returned to the Discovery Metadata status panel. Those that pass validation, will be added to the data.gov.uk metadata catalogue and the XML documents stored for subsequent use. Resources will take approximately 30 minutes to appear on data.gov.uk once successfully collected.

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[3] http://inspire-geoportal.ec.europa.eu

Error Handling

If, having harvested from a metadata resource, the collection task fails, errors will be returned to the Discovery Metadata status panel. Potential errors include:

- HTTP time outs, that may suggest the CSW is 'down' or the Web Accessible Folder cannot be accessed

- CSW error responses

- Validation errors

-

INSPIRE carries out its own validation. At present, it does not reject any records. A searchable collection of validation reports is available at http://inspire-geoportal.ec.europa.eu/proxybrowser/ProxyBrowser/; this includes validation reports on metadata records, services, and layers within services.

Maintaining Registered Discovery Metadata records

To maintain previous discovery metadata registrations, first select [Data] then [Dataset Harvesting] from the Publisher tools sub-menu.

From this list of harvesting sources, you can

- edit the URL, source type, description or status of a harvesting source

- View the status, including errors during the last harvest

- Refresh, i.e. request that the source be harvested again soon

A "refresh" harvest will collect new and updated metadata records from the source. An updated record is one with the same file identifier, but a more recent metadata date.

We may add a refresh scheduling option to the service in the future. If you have an immediate requirement for this please contact the UK Location Coordination Unit, using the contact form at: http://location.defra.gov.uk/resources/contact-us/.

Withdrawing Discovery Metadata records

Once a discovery metadata record has been registered, the record should not be removed from the source location. If, in exceptional cases, you need to withdraw a metadata record:

- Remove the record from your harvesting source

- Login to www.data.gov.uk/data using a username (account) that has administrator permissions for that metadata record;

- Click on the metadata page for the metadata record you wish to "Withdraw";

- Check you are withdrawing the FAULTY version (for example OLDER/out-of-date data) of the two duplicate datasets (you could check the "Date updated" and the "Harvest Date" to find most recent version) ;

- Note that the Unique identifier for your metadata record is the file identifier, for example: 661856f3-e718-4c37-93ff-f0860bb28e52

- On the right-hand side under heading "Withdrawal" click on "Withdraw this dataset" (all UK Location metadata records are known as 'datasets' on data.gov.uk);

- Click on the "Cancel" button if you are not sure, or click on the "OK" button if this is the metadata record you need to "Withdraw"

- You should see a message highlighted in red to confirm this metadata record has been withdrawn, and you will not now be able to find this metadata record in a www.data.gov.uk/data text keyword search.

Remember to ensure that you fix any links between metadata records. That is, if you withdraw a **service record**, check that no dataset records still point to it, e.g. by Resource locator. If you withdraw a **dataset record**, check that no series or service records still point to it, e.g. by Coupled resource,

This will then be promulgated to the Catalogue Publishing Service (data.gov.uk CSW interface) within a few hours, and from there should result in the record being removed from the European INSPIRE GeoPortal.

If you would like advice, please email both the metadata record's URL weblink and the unique Harvest GUID for the metadata record that you would like to withdraw, and email to the UK Location Helpdesk: UKLocation.Helpdesk@defra.gsi.gov.uk

Reinstating a withdrawn record

This should be an even rarer exception. If your harvest source contains a metadata record with the same file identifier as has been used before, but with a more recent metadata date, then when that record is harvested, it will be re-instated at data.gov.uk, and from there will appear in the Catalogue Publishing Service and the INSPIRE GeoPortal.

Metadata Publishing and Technology Choices

There are a number of technical solution options that will help you create UK Location discovery metadata records and publish them to UK Location. These can cover some or all of the following elements of a metadata record creation and publishing environment:

- Discovery metadata record creation

- Change control and release management

- Publishing (exposing discovery metadata records to a harvestable Internet endpoint)

These options are outlined below. Using the information provided here, it is recommended that you then discuss your specific requirements with your IT department and/or system supplier.

UK Location Metadata Editor

UK Location includes its own Metadata Editor that can be used by Data Providers and Publishers to create compliant discovery metadata records.

The Editor is a web browser application, based on the open source product Geonetwork. It is available both as an on-line service and as a downloadable configuration package for use as part of a local server-based installation of Geonetwork.

For more information, to register for the on-line service or to download the configuration package, please visit the UK Location Resource Centre.

Geonetwork Publishing Solution

The use of Geonetwork as the basis for the UK Location Metadata Editor provides the option for Data Providers and Publishers to extend a local instance of the editor to provide cataloguing, change and release management and publishing (using CSW) services. This is all out-of-the-box Geonetwork functionality. In addition, there are other open source products that enable you to integrate Geonetwork with your existing GIS and build a full data publishing environment, supporting the delivery of on-line services, e.g. View (WMS) and Download (WFS) services.

For more information on Geonetwork and links to other open source Geoweb products, please visit: http://geonetwork-opensource.org/

Third Party Solutions

Most of the providers of Geospatial Information Systems provide metadata creation and publishing tools as part of their solution packages.

UK Location have created a number of resources to help solution providers integrate the support for UK Location discovery metadata creation and publishing into these existing packages:

- UK GEMINI Encoding Guidance [9]

- UK GEMINI Schematron Schema and Guidance [10][11]

- UK Location Collection Interface Specification [12]

All these resources are available through the UK Location Resource Centre. We would recommend that you speak to your system supplier to determine the support they can provide and to discuss how this can be best integrated into your existing systems.