

Operational Guide

UK Location Discovery Metadata
Service

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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	2 nd 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.

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, v2.1", August 2010
[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 1.2", July 2011
[10]	UK Location, "UK GEMINI Schematron Schema", Version 1.2, July 2011
[11]	UK Location, "UK GEMINI Schematron Schema Guidance", Version 1.2, July 2011
[12]	UK Location, "Discovery Metadata Service Collection Interface Specification", Version 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

All the UK Location resources listed above can be found at:

<http://location.defra.gov.uk/resources/discovery-metadata-service>

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	<u>General Multilingual Environmental Thesaurus</u> . 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.

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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.

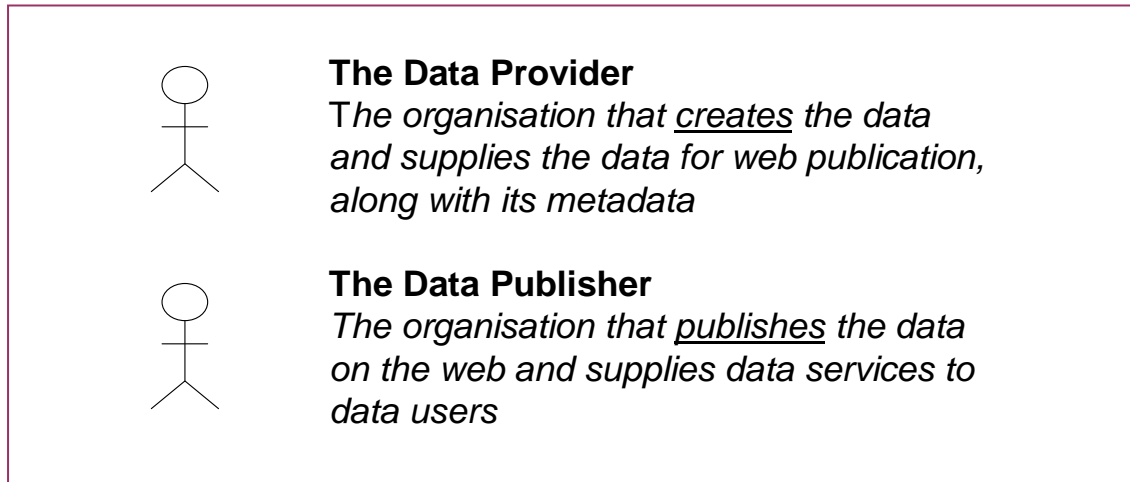
Assumed Knowledge

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?:



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://location.defra.gov.uk/resources/discovery-metadata-service>

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

Cameron Easton, Spatial Information Policy, Scottish Government

Email: Cameron.Easton@scotland.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 Resource File Identifiers (UUID) throughout the life of the metadata resource (new UUIDs should only be created when new resources are published, to prevent duplicate metadata resources)
- 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

The following service requirements apply:

- 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 resources 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.

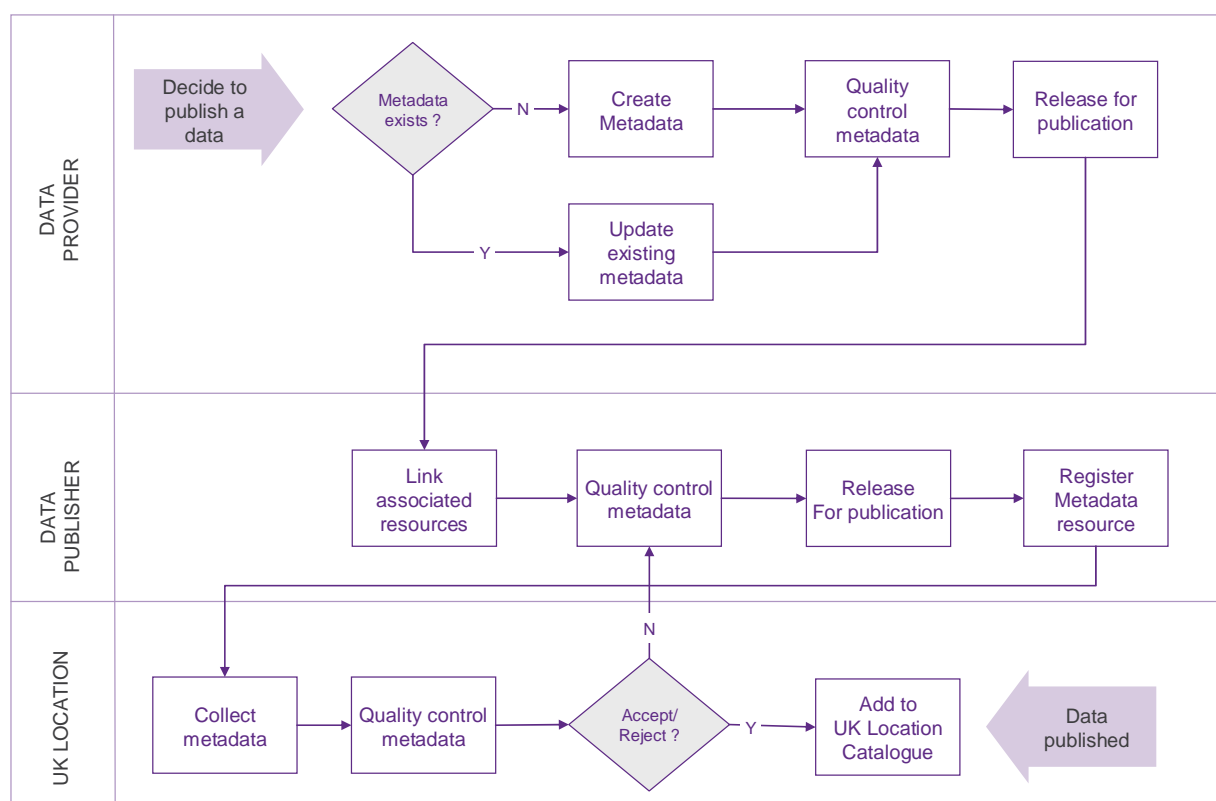


Figure 1: Data Metadata Publishing Process

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 resources 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.

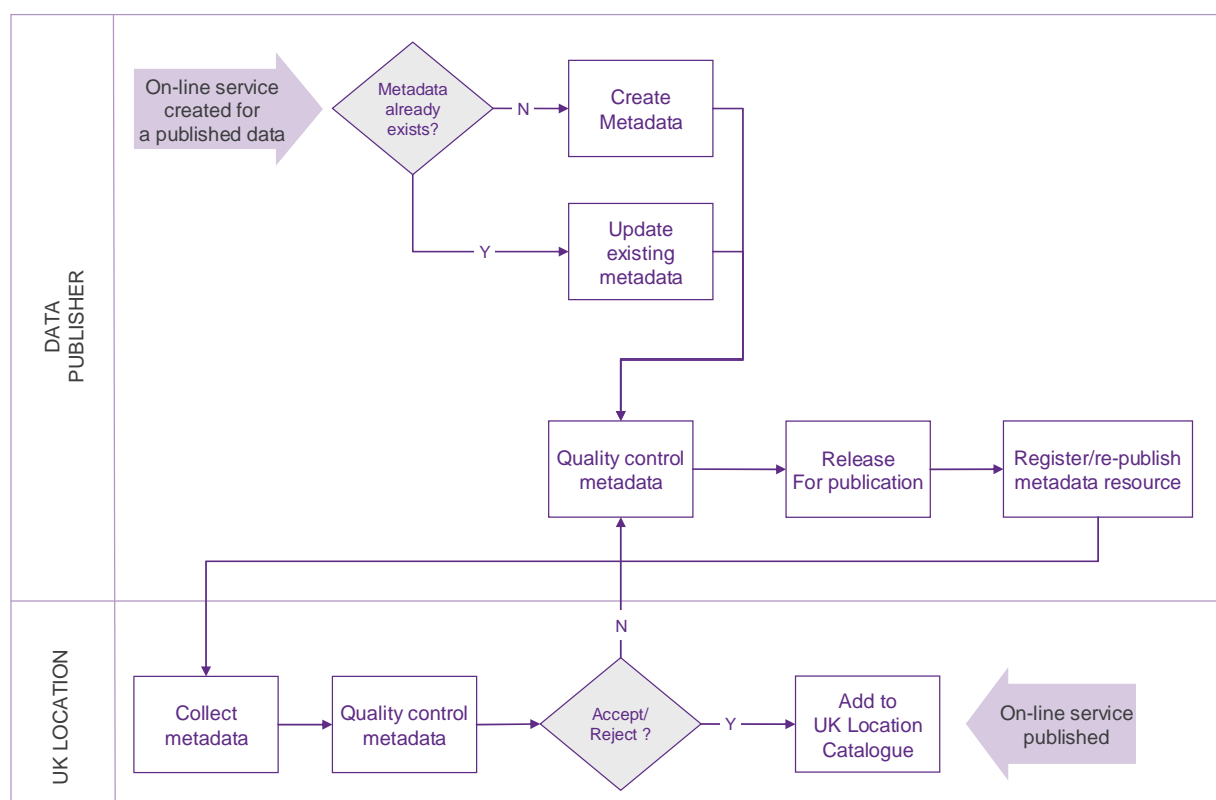


Figure 2: Service Metadata Publishing Process

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 resource will need to be created. If the latter, then the existing service metadata resource 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 resources, it needs to be subject to internal quality controls and release management.

Registration of the service metadata resource 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 (3PIP), 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 2.1 [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].

Please note that it has been recognised that GEMINI 2.1 is more strict in terms of its constraints than the INSPIRE metadata profile, particularly in respect of restricting the multiplicity on some metadata items. Therefore, while GEMINI 2.1 metadata instances could always claim INSPIRE conformance, it was not always certain that INSPIRE metadata instances would conform to UK GEMINI2. This is problematic for some implementers who wish to implement systems based on GEMINI 2.1 but also to exchange metadata with INSPIRE based systems. These constraints have been relaxed in the UK Location application profile of UK GEMINI2, such that UK Location will not reject valid INSPIRE metadata instances. These multiplicity relaxations will be recommended as improvements for UK GEMINI2 in the next version.

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	<p>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 <u>as the first keyword</u>.</p> <p>http://www.eionet.europa.eu/gemet/inspire_themes</p> <p>e.g. "Addresses", Controlled vocabulary "GEMET Thesaurus version 1.0" vocabulary publication date "2009-06-30"</p> <p>Placing the dataset or data series under an INSPIRE theme in this way means that it is subject to the INSPIRE regulation [3].</p> <p>For other Keywords, if drawn from a Controlled Vocabulary, this must be stated.</p> <p>Please note that any additional controlled vocabularies used besides GEMET will subsequently be indexed within the UK Location Registry, as part of publication.</p>
7	Temporal Extent	C	N	<p>You may enter either a:</p> <ul style="list-style-type: none"> • start and end date • only a start or end date, or • "now", "before" or "after" <p>You can have more than one Temporal Extent.</p> <p>The lowest level of granularity allowable is "year".</p>
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	
11 to 14	Bounding Box	M	N	
15	Extent	O	N	
16	Vertical extent information	O	N	
17	Spatial Reference System	O	N	<p>If referencing CRS definitions from a register, you must provide the full URN, e.g. for British National Grid enter: urn:ogc:def:crs:EPSG::27700 (which references the EPSG Geodetic Parameter Registry).</p> <p>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.</p>
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	<p>Mandatory if a URL is available to obtain more information on the dataset or series, and/or access related services.</p> <p>In relation to on-line INSPIRE network services, special guidance applies (see "Data and Service Linking").</p> <p>Although not mandatory, the following ISO 19115 sub-elements should be included:</p> <ul style="list-style-type: none"> • function • name • description
21	Data Format	O	N	
23	Responsible Organisation Role	M	N	<p>Enter "Owner" for UK Location Data Provider role.</p> <p>Enter "Publisher" For UK Location Data Publisher role</p> <p>If the data was created by someone other than the Data Provider, this should also be recorded, using the role value "Originator".</p> <p>If only "Publisher" is entered, then the assumption will be that they are the creator, provider and publisher of the resource.</p>
24	Frequency of Update	O	1	<p>This should be entered, but is not mandatory.</p> <p><u>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.</u></p>
25	Limitations on Public Access	M	N	<p>If no limitations apply, enter "No limitations".</p>
26	Use Constraints	M	N	<p>Conditions applying to access and use. If no conditions apply, enter "no conditions apply".</p> <p>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.</p> <p>See separate section on providing Data Provider licence information.</p>
27	Additional Information	O	1	<p>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".</p>
30	Metadata Date	M	1	
33	Metadata Language	M	1	<p>This must be English (eng), one of the 23 official EU languages.</p>
35	Metadata point of contact	M	N	

No.	Class/Element Name	Ob.	Oc.	Profile Rules and Guidance
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: <ul style="list-style-type: none"> • 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.
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: <ul style="list-style-type: none"> • 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	
11 to 14	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 URN, e.g. for ETRS89 enter: urn:ogc:def:crs:EPSG::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	<p>Specify the URLs to access related on-line resources or obtain additional information.</p> <p>This is mandatory if a link to the service is available e.g. http://myserver/INSPIREWM/MapServer/WMServer?service=WMS&request=GetCapabilities&mp;</p> <p>In relation to on-line INSPIRE network services, special guidance applies (see "Data and Service Linking").</p> <p>Although not mandatory, the following ISO 19115 sub-elements should be included:</p> <ul style="list-style-type: none"> • function • name • description
21	Data Format	O	N	
23	Responsible Organisation Role	M	N	<p>Enter "Owner" for UK Location Data Provider role.</p> <p>Enter "Publisher" For UK Location Data Publisher role</p> <p>If the data was created by someone other than the Data Provider, this should also be recorded, using the role value "Originator".</p> <p>If only "Publisher" is entered, then the assumption will be that they are the creator, provider and publisher of the resource.</p>
24	Frequency of Update	O	1	<p>This should be entered, but is not mandatory.</p> <p><u>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.</u></p>
25	Limitations on Public Access	M	N	<p>If no limitations apply, enter "No limitations".</p>
26	Use Constraints	M	N	<p>Conditions applying to access and use. If no conditions apply, enter "no conditions apply".</p> <p>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.</p> <p>If entering a URL, enter this as a sub-element, not as part of free text.</p> <p>See separate section on providing Data Provider licence information.</p>
27	Additional Information	O	1	<p>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".</p>
30	Metadata Date	M	1	

No.	Class/Element Name	Oc.	Ob.	Profile Rules and Guidance
33	Metadata Language	M	1	This must be English (eng), one of the 23 official EU languages.
35	Metadata point of contact	M	N	
37	Spatial Data Service Type	M	1	This must be entered using one of following values: <ul style="list-style-type: none"> • discovery • view • download • transformation • invoke • other
38	Coupled Resource	C	N	This links the service metadata to the metadata resource relating to the data it operates on. Enter the corresponding URL for the published data metadata resource. This may be: <ul style="list-style-type: none"> • 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.

No.	Class/Element Name	Oc.	Ob.	Profile Rules and Guidance
42	Specification	C	1	<p>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.</p> <p>The multiplicity is 1 in the context of a conformity statement. However, more than one conformity statement can be included in a metadata instance.</p> <p>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</p> <p>Explanation: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:323:0011:0102:EN:PDF</p> <p>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</p> <p>See the referenced specification at: http://inspire.jrc.ec.europa.eu/documents/Network_Services/TechnicalGuidance_ViewServices_v3.0.pdf</p>

Key:

Ob = Obligation

Oc = Occurrence

M = Mandatory

C = Conditional

O = Optional

1 = Only one entry permitted

N = Multiple entries permitted

Metadata Resource File Identifier

To support the operation of UK Location and INSPIRE, discovery metadata resources 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.

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".

For the network to operate, it is critical that these links are correct:

Data Metadata	<p>The Resource Locator must define the Uniform Resource Locator (URL) for the on-line services that provide access to it.</p> <p>As well as the URL, it is also necessary to provide distribution format information in all cases.</p> <p>If the format and version are known, then they should be given.</p> <p>If no on-line services are available for access, then you should enter the URL for further information about access.</p>
Service Metadata	<p>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. <code>service=WMS&request=GetCapabilities</code>, or the location of further information about a service.</p>

Data Provider Licence information

The following Data Provider licensing information must be provided:

- include a Licence Title and Licence URL within the free text field 'Use Constraints'
- 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 look up the first URL in the 'Use Constraints' field against the data.gov.uk Licence Register. If it can't find it, it will add it to the register and assume this is commercial (the only non-OGL, open licence we currently know about is the OS OpenData Licence). Data.gov.uk will display the Licence Title and URL under the 'Licence' field on data.gov.uk.

Metadata Encoding

UK Location discovery metadata resources 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 using a UK Location rule-based Schematron schema [10]. Data Publishers are required to validate their metadata resources using this Schema before resource registration. UK Location has published guidance on its use [11].

Community Extensions to UK GEMINI 2

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 resource 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 Resources

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

1. **Publish discovery metadata resources** to a repository, from which the resources can be machine-accessed from the Internet
2. **Register the published discovery metadata resources** with data.gov.uk, such that they can be collected and incorporated into the data.gov.uk discovery metadata catalogue and subsequently used as part of data.gov.uk and UK Location discovery services.

Publishing Discovery Metadata Resources

This involves transferring your completed discovery metadata resources to an on-line repository, which can be machine accessed through the Internet. The repository 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 resources. For more information about this interface, please refer to the DMS Collection Interface Specification [12].

Discovery Metadata Publishing Repository

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

The most important aspect of the repository 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’.

Repository Organisation

How you organise your repository 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 discovery metadata resources 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 of the repository.

The only mandatory structure to apply is if the repository contains resources associated with more than one Data Provider. These need to be registered separately, so your repository 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 Discovery Metadata Resources

UK Location discovery metadata resources 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 resources for data and services, using data.gov.uk, is shown in Figure 3.

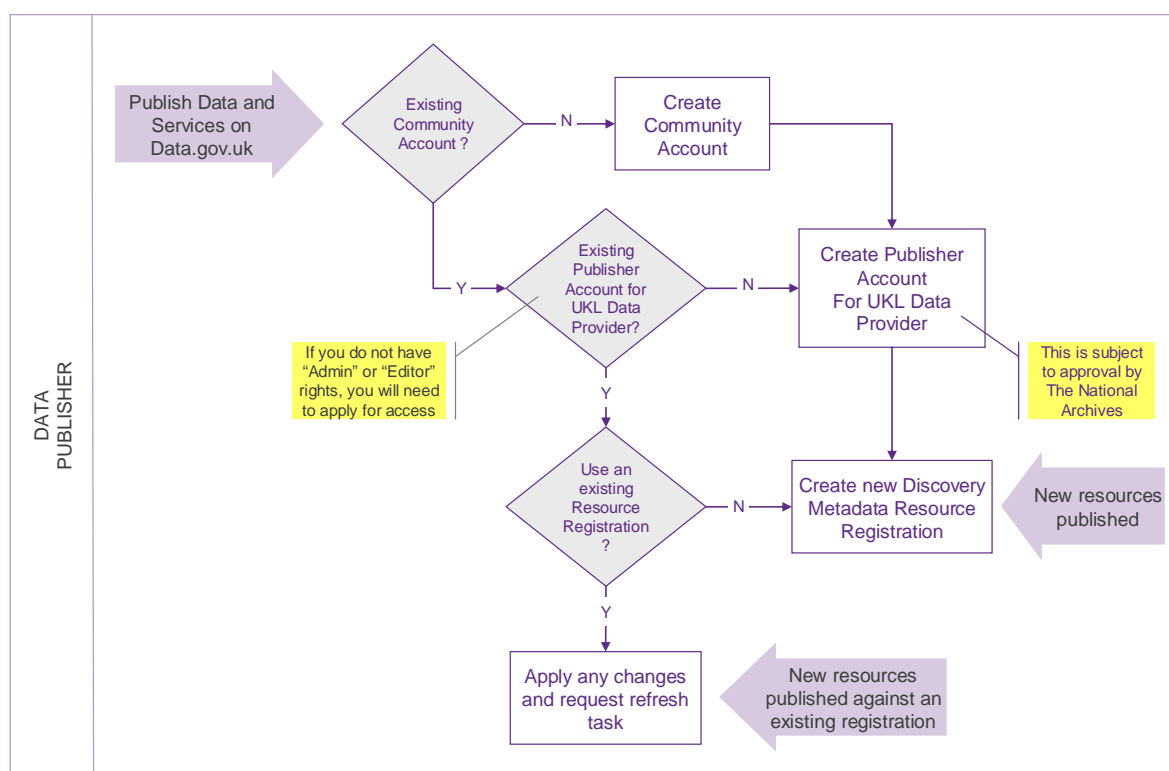


Figure 3: Register Discovery Metadata Resources

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 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 National Archives (TNA) is the approval authority.

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 **admin access** which, gives you the same powers as *editor access* but also lets you edit publisher details, publisher contact information, logo and so on.

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 resources 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 TNA before approval is given.

Creating a Community Account

Before you can publish data and services on data.gov.uk, you will need to create a community (user) account and associate yourself with one or more Publishers.

To create a Community Account on data.gov.uk select “Sign-up” on the home page. This will open a form to enter account details, including Username and Password.

A standard Community Account will enable you to submit contributions to the site’s discussion forum, wiki, blog and contact other community members.

To also publish data and associated services, select “I am a data publisher” on the initial sign-up form. This can also be added to your profile later, after the account has been created.

Selecting this option will enable a range of additional functionality, including the ability to:

- create data.gov.uk Publisher accounts
- request “Administrator” and “Editor” rights for existing Publisher accounts
- edit the profiles of the Publisher accounts for which you have administrator rights (see below)
- register data and services
- view and maintain existing data and service registrations

Please note that the account will also provide access to the data.gov.uk 'on-line' publishing channel, used for the publishing of other (non-UK Location) information types, i.e. the one account can optionally be used to administer the publishing of both location information and other information types for a given organisation. Both publishing channels are clearly marked to avoid confusion for publishers. UK Location users must use the 'Discovery Metadata' (collection) option.

Creating a User Profile

Having created the account, you should now create your user profile. If you selected "I am a data publisher" at account creation, you will then have the ability to apply for publisher privileges for your organisation in a separate operation. Users can update their 'profile' at any time to include contact information, a picture and information about themselves if they wish.

You can edit your account at any time. Please note that "Publisher" can only be subsequently de-selected if you have no Publishers associated with your account.

Deleting a User Account

Community Accounts can only be suspended, not deleted, from data.gov.uk. This is to maintain the history up until the point of suspension. Accounts can be re-activated, through a request to the data.gov.uk service desk. Please use the [Contact form](#) to request account suspension or reactivation.

Creating a Publisher Account

If there is not an existing data.gov.uk Publisher account for the UK Location Data Provider, you will need to first create this before you can publish any resources.

To do this, sign-in to your Community Account and select the [Publishers] tab. This will list all existing Publishers. Initially you will not be associated to a publisher. Select "Apply for access". This will open the form "Create Publisher Access Application".

To register a Publisher organisation, you must then enter:

- the Publisher's name - this must match the Data Provider's details in the discovery metadata resources
- the parent organisation of the publisher (if applicable)
- the type of Access being requested – select [Admin] or [Editor]
- any details relevant to the request, that will help the approver to reach a quick decision

Creating a Publisher Profile

If approved, you will then be given access to the Publisher account. As Administrator, you are able to create a Publisher profile, which can include additional information about the Data Provider such as their web address, logo and objectives. This profile is then accessible to data users and impacts how data.gov.uk search results are displayed.

To create the profile, select the [Publishers] tab on your Community Account. This will display a list of data.gov.uk Publishers for which you are the Administrator.

Select the relevant data.gov.uk Publisher. This will open the Publisher account view. From here you can:

- view a list of all the datasets and services published under this Publisher account
- view all current registrations
- edit the Publisher account Profile
- control access to the account
- view the publisher hierarchy

Select [Edit publisher]. This opens the Publisher edit form. Here you can edit the Data Provider's:

- title
- parent, if applicable
- acronym, e.g. Defra, CLG
- logo
- web site title and URL
- Email for Feedback
- Email for display
- details

Publisher Account Administrators and Editors

Publisher accounts have 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 account 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 account 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 resource registrations associated with a Publisher, not just their own.

The addition of Administrators and Editors can be done by the account Administrators, or requested by the user themselves.

Adding Administrators or Editors

If you are an Administrator of a Publisher account, to add additional Administrators or Editors, or remove them from the account, select the relevant Publisher account and select [Access control]. Using this form, add or delete additional users to the account. If adding, select their access rights – [Editor] or [Admin].

Request Administrator or Editor Access

To request Administrator or Editor access for an existing Publisher account, sign-on to your Community Account and select the [Publishers] tab.

Under this tab you will see all the Publisher accounts for which you currently have Administrator or Editor rights. Select [Apply for access here]. This opens the form [Create Publisher Access Application]. The publisher application process has two parts. Part 1 is to complete the request details, by entering the:

- Publisher's name (this form auto-completes to find existing publishers in the system and avoid duplicates)
- Type of access required – Editor or Administrator
- Any details relevant to the request

The second part is the decision to allow or reject admin or editor access and is for completion by the existing Administrator of the Publisher, or the National Archives if no administrator exists. The decision will be Emailed to you. If approved, the Publisher will be added to your account.

Note that this form is also used to create a new Publisher accounts on data.gov.uk.

Registering Discovery Metadata Resources

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

To register discovery metadata resources select [Discovery Metadata] on the Community Account data publisher sub-menu.

Select the relevant Publisher (Data Provider) from the displayed list.

Select [Register Discovery Metadata]. Using the displayed form, enter:

- Collection Interface Type – indicating whether the source is a CSW or WAF
- Source – the root URL of the CSW or WAF, e.g. <http://www.someserver.com/csw/csw.cgi> or [.../geonetwork/srv/en/csw](http://www.geonetwork.org/srv/en/csw).
- Description – an optional free text field for recording any relevant details about the registration. Use this to help you manage your Registrations and is not displayed publically on data.gov.uk

The registration will establish a collection task, which will collect the discovery metadata resources 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 resources 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

Validation

Once collected, the individual data and service discovery metadata resources 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)

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.

Error Handling

If, having registered discovery metadata resources, 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

Maintaining Registered Discovery Metadata Resources

To maintain previous discovery metadata registrations, first select [Discovery Metadata] from the Community Account menu and then the relevant publisher.

To edit and update the data as it appears on data.gov.uk, please update your source discovery metadata records and then select 'refresh' within data.gov.uk; the refresh function is available via the Discovery Metadata panel outlined above.

This refresh function can also be used to publish new data and services against an existing registration.

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/>.

Removing Discovery Metadata Resources

Once a discovery metadata resource has been registered, the resource should never be removed from the source location. If, in exception cases, you need to remove a dataset please e-mail UKLocation.help@Defra.gsi.gov.uk & team@data.gov.uk with a link to the dataset you need removed from the system and a note as to why.

Metadata Publishing and Technology Choices

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

- Discovery metadata resource creation
- Cataloguing (repository management)
- Change control and release management
- Publishing (exposing discovery metadata resources 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 resources.

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.