# A Guide to Citing Geospatial Resources from the EDINA Digimap Service

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## 0.1 Introduction

This document attempts to describe, through a series of examples, a means of citing geospatial information that is obtained from the EDINA Digimap service.

The Digimap service is an online mapping service that allows the user to create a map online and print it, or to download geospatial data for further processing and use in a Geographic Information System (GIS) system, the output of which may be further data or map images.

The Digimap service currently provides access to a number of data collections including Ordnance Survey (GB) data, Marine data from SeaZone, British Geological Survey (BGS) data and Historical maps from Landmark Information Group.

With the increasing availability of these collections to the academic community and the increasing awareness of citing research data, guidance on the proper citation of these data is necessary.

The main focus of the citation should be to ensure that the user of the citation can access the same data that was originally used where possible, or will have an understanding from the citation of what data was used and how to access it.

NOTE: the use of a citation in this document is a guide only and is in addition to any requirement to acknowledge sources and copyright of any data used or any local guidance provided.

## 0.2 Products Available

The following summarises the various datasets that can be provided through the various Digimap Collections and the facilities within them:

**Ordnance Survey Collection**
1) A map created onscreen using Ordnance Survey data and downloaded as a PDF or EPS file. There are two facilities for making a map available:
    a. Map made in Digimap Classic and therefore only one OS map product used. Size is A4 and output is either a PDF file or an EPS file.
    b. Map made using Digimap Carto, possibly combining a number of OS map products. Size can be up to A0. Format is PDF or EPS.

2) Data downloaded as tiles and subsequently used in a Geographic Information System (GIS). Data can be downloaded from Digimap as single or multiple tiles in various formats for further use in GIS systems for analysis or to produce maps.

3) OS MasterMap data downloaded from the OS MasterMap Download facility. The OS MasterMap download facility allows uses to specify a user defined area and to download specific themes of data from both the Topography and ITN layers.

4) Boundary datasets can be downloaded showing various boundaries, ranging from the coastline of the UK to postcode boundaries of a town or city.

5) Gazetteer datasets can be downloaded that contain lists of place names with locations.

6) Some datasets are available as a 'web service'; images can be generated and incorporated into additional services at the client end using the WMS protocol.

**Historic Digimap**
7) The Historic Digimap service allows the user to download specific map sheets in raster form for printing or inclusion as images in other documents.

**Geology Digimap**
8) The Geology Digimap service allows the user to create geology maps and download geology datasets.

**Marine Digimap**
9) The Marine Digimap service allows the user to create hydrographic maps as images and to download raster and vector datasets.

**ShareGeo**
10) Datasets can be downloaded from the ShareGeo data sharing repository in a variety of geospatial data formats.

Each of these types of data will be analysed and guides to citing them using specific examples will be given.

## 0.3  General Citation Rules

There are many different guides for how to cite information in publications such as the APA (American Psychological Association) Style[1], MLA (Modern Language Association) Handbook[2], the Chicago Manual of Style[3] and the Harvard System of Referencing and Citation[4]. There is also an International

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[1] American Psychological Association (APA) Style Guide:
http://www.apastyle.org/elecref.html
[2] Modern Language Association (MLA) Style Guide:
http://www.mla.org/style
[3] Chicago Manual of Style:
http://www.press.uchicago.edu/Misc/Chicago/cmosfaq/tools.html

and British standard (BS ISO 690-2:1997) that deals with Bibliographic References and Part 2 deals with electronic documents.

However, although these resources can be used as a general guide, none of them specifically addresses the issues of citing geospatial datasets or maps downloaded from an online resource such as Digimap.
There are some principles that can be followed however. The aim of the citation is to provide acknowledgement to the producers and suppliers of the data and to provide enough information to the user to obtain a copy of the data if possible. Citing the data also makes more visible the sources and availability of data.

As a general rule the following information, if available, should be presented (summarized from: University of Wisconsin-Madison, 1994[5])

1) Who is the author – or who is the producing organisation
2) What is it called? – the name of the resource or dataset
3) What is it? [computer file] [database] [map] etc.
4) Which version is it? – what is the update date of the dataset
5) Who is responsible for the creation of the physical file
6) Who is responsible for distributing the work?
7) When was the work produced?
8) Series information if relevant (or name of database)
9) Internet location (URL)
10) Format – EPS, PDF, TIFF etc.

ISO 690-2:1997 lists the following required elements if they are applicable to the item being cited and if the information is available:

1) Primary responsibility
2) Title
3) Type of medium
4) Edition
5) Place of publication
6) Publisher
7) Date of publication
8) Data of update/revision
9) Date of citation
10) Availability and access
11) Standard number

The aim of the examples given is to provide a basic guide as to how specific resources from EDINA Digimap can be cited.

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[4] A Guide to Harvard Referencing:
http://www.leedsmet.ac.uk/lskills/open/sfl/content/harvard/index.html
[5] http://dpls.dacc.wisc.edu/bibcite.html

In the examples given below, the principle has been to try and separate out the various elements of the reference so that the reference is flexible and can accommodate other information if necessary.

Where possible the elements of the citation are described separately and uniquely. This is to help identification of the elements and hopefully aid any automated mechanism for generating or reading the references that may be provided in the future. For example the creator of the original data (for example Ordnance Survey, GB) is separated from the provider of the data (EDINA Digimap Service).

Where appropriate, special characteristics of the data have been included in square brackets after the dataset name (as per the ISO standard). For example, the type of file format or the nature of the data may be described as [PDF map] or [geospatial data] to differentiate between resources which are essentially electronic maps in a particular file format and data sources.

**Summary of Parameters used:**

| Parameter | Example | Comment |
|---|---|---|
| Author | Smith, John | For a map, this is the person(s) that decided the content, layout etc. |
| Title | "Glasgow Regional Transportation" | A descriptive name for the map, in quotes. |
| [map format] | [PDF map] | Electronic format of the map e.g. PDF, EPS, PNG etc. in square brackets. |
| Tile name, URI or geographic location | Tile: gbnorth URI: Coverage: | A tile name, URI or other unique identifier for a particular dataset or group of datasets. |
| Scale | Scale 1:200,000 | The scale of the map produced or scale of the data downloaded. Add the word 'Scale' to make it obvious what this refers to. |
| Product name | OS Strategi | The source data product from which the map has been generated or the name of the downloaded product. This parameter can be repeated if the citation refers to multiple products. |
| [data format] | [NTF geospatial data] [WMS web map service] | The format of the original geospatial data in square brackets. |

| | | |
|---|---|---|
| Currency of data | Updated Jan 2008 | Date of last update to the source geospatial data. Usually add 'Updated' to clearly identify parameter. Can be repeated if multiple products specified in citation. |
| Version of data | V1.10 | The version of a dataset if applicable. |
| Producer | Ordnance Survey, GB | The name of the data producer or originating agency/organisation that created the data. |
| Using | Using: EDINA Digimap Service | The name of the service used to create the map or download the data. Add 'Using:' to make it obvious what is being referred to. Can also add the specific service or facility of relevant. |
| URL of service | <http://edina.ac.uk/digimap> | The URL of the publicly accessible point to the service from which the map or data was obtained. Enclose in <> to clearly identify the URL. |
| Date created, downloaded or accessed | June 2009 | The date the map or data was created or downloaded from the service. |

**Common Questions:**

Q. Where do I get the Currency of Data from?

A. The currency of data in Digimap Ordnance Survey collection can be found at: http://www.edina.ac.uk/digimap/description/products/revisionpolicy.shtml

Currency of Marine data can be obtained from the Marine Digimap Help pages under Data Information → Download User Guide page. The date of publication of the latest User Guide will indicate the currency of the data.

Currency of Geology data can be found in the Geology Digimap Help pages under Data Information → Revision and update

# 1   Digimap - Ordnance Survey maps and data

The Digimap service provides access to a wide variety of contemporary products from Ordnance Survey (GB) and several facilities that provide the ability to create cartographic maps and download geospatial data.

## 1.1  Digimap Classic

Digimap Classic is a simple mapping application that enables the user to create user defined maps at A4 size from single Ordnance Survey products.

**Example:**

Using Digimap Classic a user (e.g. John Smith) produces a Regional Map of Glasgow. He uses the Strategi® dataset and creates an A4 image centred approximately on the centre of Glasgow. The user enters a user defined title for the map e.g. 'Glasgow Regional Transportation'.

The following information is provided by the system (beneath the screen map), including:

a. the extents of the map (243062, 646344 - 273542, 67682)
b. the OS product used (OS Strategi)
c. the tile of Strategi from which the data was extracted (gbnorth)

Before the map is generated in the Map Chest the user selects which format they would like the data to be generated in, either PDF (Portable Document Format) or EPS (Encapsulated Postscript), before the user downloads the map.

The generated map contains additional information including:

a. the scale of the map
b. the date it was produced
c. who it was produced by
d. who it was produced for

The date the data was last updated is also available from within the Digimap service at:
http://www.edina.ac.uk/digimap/description/products/revisionpolicy.shtml.

In the example for the Strategi dataset, the date of update of the data within Digimap is January 2008.

**Basic Form of Citation:**
Author, "Title" [map format], Scale, Product name [data format], Currency of data. Producer. Using: EDINA Digimap Ordnance Survey Service, <http://edina.ac.uk/digimap>, Date created

**Example Citation:**
Smith, John, "Glasgow Regional Transportation" [PDF map], Scale 1:200,000, OS Strategi [geospatial data], Updated Jan 2008, Ordnance Survey, GB. Using: EDINA Digimap Ordnance Survey Service, <http://edina.ac.uk/digimap>, Created: June 2009

## 1.2 Digimap Carto

Digimap Carto is a more complex application that allows the user to create maps using various products (including multiple products) at user defined scale and page sizes.

**Example:**
For example, a user creates a map of Edinburgh Castle at 1:3,000 scale in Carto that includes OS Raster 10K with Land-Form Profile data. A plot in EPS format is created and included in a dissertation.

**Basic Form of Citation:**
Author, "Title" [map format], Scale, (Product name [data format], Currency of data)*, Producer. Using: EDINA Digimap Ordnance Survey Service, <http://edina.ac.uk/digimap>, Date created

\* - repeat parameters for as many products as are used in the map

**Example Citation:**
Smith, John, "Edinburgh Castle" [EPS map], Scale 1:3,000, (OS 1:10,000 Raster [geospatial data], updated June 2008; Land-Form PROFILE [geospatial data], updated August 2003), Ordnance Survey, GB. Using: EDINA Digimap Ordnance Survey Service, <http://edina.ac.uk/digimap>,Created: June 2009

# 2 Ordnance Survey Tiled Data Download

Ordnance Survey digital data can be downloaded from the EDINA Digimap service for further use in GIS or other systems. There are many different individual Ordnance Survey products available from Digimap ranging from large scale to small scale and raster to vector. A full list of all products available can be found at:
http://www.edina.ac.uk/digimap/description/products/

All of these products are based on unique tile names. If it seems relevant, the individual tile names should be included in the citation, otherwise these could be omitted. If a large number of tiles have been used either another document should be referenced or a geographical area should be specified.

**Example:**
A user downloads tile NS93 of OS Meridian 2 data in NTF format for further use in ArcGIS.

**Basic Form of Citation:**
Product name [data format], Scale, Tile(s), Currency of data, Producer. Using: EDINA Digimap Service, <http://edina.ac.uk/digimap>, Date downloaded

**Example Citation:**
OS Meridian 2 [NTF geospatial data], Scale: 1:50,000, Tile: NS93, Updated January 2008, Ordnance Survey, GB. Using: EDINA Digimap Ordnance Survey Service, <http://edina.ac.uk/digimap>, Downloaded: June 2009

The above can be repeated for all tiled products downloaded for use in a GIS.

# 3 OS MasterMap Data Download

The OS MasterMap data download facility is part of the Ordnance Survey collection and provides the user with an ability to specify a user defined area of interest and to download specific themes of data from both the Topography and ITN Layers of OS MasterMap for that area.

Because OS MasterMap is not a tile based dataset and users are able to specify their own download extents, it is difficult to specify exactly in a citation the area which has been used. The citation of OS MasterMap could get even more complicated because each feature in the dataset has a unique ID and a revision number associated with it. It is also possible for users to only access 'Change-Only' datasets that only have the changed objects since a previous view of the data and more work is required in this area.

The coverage element could be a link to another file or manifest that contains a list of TOIDs and version numbers if it is important to specify exactly what objects have been used. However, in the simplest case of simply wishing to cite a user defined area of OS MasterMap data the following could be used.

Scale is not relevant because OS MasterMap data is 'scale free'.

**Basic Form of Citation:**
Product name [data format], Coverage, Currency of data, Producer. Using: EDINA Digimap Ordnance Survey Service, <http://edina.ac.uk/digimap>, Date downloaded

**Example Citation:**
OS MasterMap Topography Layer [GML geospatial data], Coverage: Ayr, Updated Jan 2009, Ordnance Survey, GB. Using: EDINA Digimap Ordnance Survey Service, <http://edina.ac.uk/digimap>, Downloaded: June 2009

# 4 Boundary Data Download

This facility allows the user to download postcode data, boundary data and other datasets derived from Ordnance Survey data.

## 4.1 OS Code-Point & Code-Point with Polygons

Data can be downloaded in a variety of formats for use in GIS or other software and can be specified by postal area. The date of update is given in the general data products update page as well as in the 'contents.txt' file that gets supplied with the downloaded data.

For example, a user downloads the Code-Point Polygons in Shapefile format for the postal area of Aberdeen at District level. Note there is no scale associated with OS Code-Point data.

**Basic Form of Citation:**
Product name [data format], Coverage, Currency of data, Producer. Using: EDINA
Digimap Ordnance Survey Service, <http://edina.ac.uk/digimap>, Date downloaded

**Example Citation:**
OS Code-Point with Polygons [Shapefile geospatial data], Coverage: Aberdeen
District, Updated May 2008, Ordnance Survey, GB. Using: EDINA Digimap
Ordnance Survey Service, <http://edina.ac.uk/digimap>, Downloaded: June 2009.

## *4.2  OS Boundary -Line*

Polygon data can be downloaded for a variety of boundaries in the UK and
are supplied by the Ordnance Survey.

For example, a user downloads the OS Boundary-Line dataset in Shapefile
format of the Westminster Constituencies.

**Basic Form of Citation:**
Product name [data format], Coverage, Currency of data, Producer. Using: EDINA
Digimap Ordnance Survey Service, <http://edina.ac.uk/digimap>, Date downloaded

**Example Citation:**
OS Boundary-Line Westminster Constituencies [Shapefile geospatial data], Coverage:
Great Britain, Updated March 2008, Ordnance Survey, GB. Using: EDINA Digimap
Ordnance Survey Service, <http://edina.ac.uk/digimap>, Downloaded: June 2009.

# 5  Web Services

A trial service has been set up that allows users to access image data through
the use of OGC web services protocols. These web map services provide
access to various datasets through the use of desktop or web based clients.

Citation of these resources is made more difficult because it can be difficult to
replicate the original request. However, it should be possible to at least cite
the dataset being used.

**Basic Form of Citation:**
Product name [web map service], Coverage, Currency of data, Producer. Using:
EDINA Digimap Ordnance Survey Service, <http://edina.ac.uk/digimap>, Date
accessed

**Example Citation:**
OS 1:10,000 Scale Raster [WMS web map service], Coverage: Edinburgh, Updated
July 2008, Ordnance Survey, GB. Using: EDINA Digimap Ordnance Survey Service,
<http://edina.ac.uk/digimap>, Accessed: June 2009

# 6 Historic Digimap

Historic Digimap provides access to historic Ordnance Survey maps that have been scanned by Landmark Information Group. The images of these maps can be downloaded and printed or used in a GIS or graphics package.

## 6.1 Historic Digimap Maps

A map printed directly from Historic Digimap has certain information added to the image, including the Mapped Extent, Map Series, Map Edition, County and Published date. Author could be added if there was some additional information or cartographic input. This information can be used in a citation as follows:

**Basic Form of Citation:**
"Title", [map format], Scale, Product name [data format], Scale, or Currency of data, Producer. Using: EDINA Historic Digimap Service, <http://edina.ac.uk/digimap>, Date created

**Example Citation:**
"Old Map of Ayrshire", [BMP map], Scale 1:10,560, Ordnance Survey County Series 1st Edition 1849-1899 [geospatial data], Published 1858, Landmark Information Group, UK. Using: EDINA Historic Digimap Service, <http://edina.ac.uk/digimap>, Created: June 2009

## 6.2 Historic Digimap Data Download

Images downloaded from Historic Digimap are provided in TIFF image format along with associated georeferencing information. The data download page provides information on the county name and published date of the original map. A separate file is also provided that contains details of the contents of the data including Map Series and Map Edition. This information can be used in a citation as follows:

**Basic Form of Citation:**
Product name [data format], Scale, Tile(s), Currency of data, Producer. Using: EDINA Historic Digimap Service, <http://edina.ac.uk/digimap>, Date downloaded

**Example Citation:**
Ordnance Survey County Series 1st Edition [TIFF geospatial data], Scale 1:10,560, Ayrshire County, Published 1858, Landmark Information Group, UK. Using: EDINA Historic Digimap Service, <http://edina.ac.uk/digimap>, Downloaded: June 2009

# 7 Marine Digimap

Marine Digimap data generally follows the same rules as for Ordnance Survey tiled data in that there is an online mapping facility and also a tile based data download facility.

Currency of Marine data can be obtained from the Marine Digimap Help pages under Data Information → Download User Guide page. The date of publication of the latest User Guide will indicate the currency of the data.

## *7.1 Marine Digimap Maps*

**Basic Form of Citation:**
Author, "Map Title" [map format], Scale, Product name [data format], Currency of data, Producer. Using: EDINA Marine Digimap Service, <http://edina.ac.uk/digimap>, Date created

**Example Citation:**
Smith, John, "Firth of Forth Marine Map" [PNG map], Scale 1:200,000, SeaZone Charted Raster [TIFF geospatial data], Updated March 2008, SeaZone Solutions Ltd., UK. Using: EDINA Marine Digimap Service, <http://edina.ac.uk/digimap>, Created: June 2009

## *7.2 Marine Digimap Data Download*

Scale for Hydrospatial data can be found in the SZSCALE attribute of features. The scale for Charted raster datasets can be found in the marginalia of the chart image.

Currency of Marine data can be obtained from the Marine Digimap Help pages under Data Information → Download User Guide page. The date of publication of the latest User Guide will indicate the currency of the data.

**Basic Form of Citation:**
Product name [data format], Scale, Tiles or Chart Number(s), Currency of data, Producer. Using: EDINA Marine Digimap Service, <http://edina.ac.uk/digimap>, Date downloaded

**Example Citation:**
Hydrospatial Bathymetry [Shapefile geospatial data],Scale 1:45,000, Tile: NW25400080, Updated April 2008, SeaZone Solutions Ltd., UK. Using: EDINA Marine Digimap Service, <http://edina.ac.uk/digimap>, Downloaded: June 2009

# 8   Geology Digimap

Geology Digimap data generally follows the same rules as for Ordnance Survey tiled data in that there is an online mapping facility and also a tile based data download facility.

Details on update and revision dates from BGS products can be found in the Geology Digimap Help pages under Data Information. The revision and date information can also be found in the downloaded data attributes 'version' and 'date released'.

## *8.1 Geology Digimap Maps*

**Basic Form of Citation:**

Author, "Map Title" [map format], Scale, Product name [data format], Currency of data, Version, Producer. Using: EDINA Geology Digimap Service, <http://edina.ac.uk/digimap>, Date created

**Example Citation:**
Smith, John, "Firth of Forth Geology" [PDF map], Scale 1:625,000, BGS 1:625,000 [geospatial data], updated Jan 2007, Version 1.10, British Geological Survey (BGS), UK. Using: EDINA Geology Digimap Service, <http://edina.ac.uk/digimap>, Created: June 2009

## 8.2  Geology Digimap Data Download

**Basic Form of Citation:**
Product name [data format], Scale, Tiles(s), Currency of data, Version, Producer. Using: EDINA Geology Digimap Service, <http://edina.ac.uk/digimap>, Date downloaded

**Example Citation:**
BGS 1:50,000 [Shapefile geospatial data], Scale 1:50,000, Tile: SC032E Edinburgh, Updated Sept 2009, Version 4.16, British Geological Survey, UK. Using: EDINA Geology Digimap Service, <http://edina.ac.uk/digimap>, Downloaded: June 2009

## 8.3  Geology Digimap Rock Lexicon Download

**Basic Form of Citation:**
Product name [data format], Producer. Using: EDINA Geology Digimap Service, <http://edina.ac.uk/digimap>, Date downloaded

**Example Citation:**
BGS Rock Lexicon [Excel computer file], Updated Sept 2009, Version 4.16, British Geological Survey, UK. Using: EDINA Geology Digimap Service, <http://edina.ac.uk/digimap>, Downloaded: June 2009

# 9  ShareGeo

ShareGeo is a facility within Digimap where users can contribute their own data to share with other Digimap users. They can also download geospatial datasets from ShareGeo. There is a wide range of data available on ShareGeo ranging from very small datasets to very large national or worldwide datasets in various formats. However, every dataset in ShareGeo has a unique identifier associated with it that can be used in a citation to uniquely identify a dataset.

**Basic Form of Citation:**
Author, "Title" [data format], Identifier, Currency of data. Using: EDINA Digimap ShareGeo facility, http://edina.ac.uk/digimap, Date downloaded

**Example Citation:**

Crone, James, "GB Rivers and Inland Waters" [Shapefile geospatial data], URI: http://hdl.handle.net/10389/169, Contributed 19/6/2009. Using: EDINA Digimap ShareGeo facility, <http://edina.ac.uk/projects/sharegeo/index.shtml>, Downloaded: June 2009

## 10 Additional Resources

(all web addresses accessed on 1st July 2009)

Census Registration Service: Metadata and Citation Guidelines,
https://www.census.ac.uk/guides/citing.aspx

University of Waterloo: Citing Geospatial Data Resources,
http://library.uwaterloo.ca/locations/umd/digital/citation.html

Dodd, Sue, Bibliographic References for Computer Files in the Social Sciences: A Discussion Paper:
http://www.people.virginia.edu/~pm9k/info/compRef.html

American Psychological Association (APA) Style Guide:
http://www.apastyle.org/elecref.html

Modern Language Association (MLA) Style Guide:
http://www.mla.org/style

Chicago Manual of Style:
http://www.press.uchicago.edu/Misc/Chicago/cmosfaq/tools.html

A Guide to Harvard Referencing:
http://www.leedsmet.ac.uk/lskills/open/sfl/content/harvard/index.html

McMaster University Libraries. Lloyd Reeds Map Collection. 2004. Guide to Citing Maps and Atlases.
http://library.mcmaster.ca/maps/mapcite.htm

University of Wisconsin-Madison, 1994: How to Cite Computer Files, Data and Program Library Service,
http://dpls.dacc.wisc.edu/bibcite.html

Statistics Canada. 2006. How to Cite Statistics Canada Products. Statistics Canada Catalogue no. 12-591-XWE. Ottawa. Version updated March 31. Ottawa.
http://www.statcan.ca/english/freepub/12-591-XIE/12-591-XIE2006001.htm