



1:10 000 Scale Raster

User guide and technical specification

1:10 000 Scale Raster

User guide

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Preface

This user guide (hereafter referred to as the guide) is designed to provide an overview of 1:10 000 Scale Raster (hereafter referred to as the product) and it gives guidelines and advice on how a customer might derive the maximum benefit from the product. It assumes a general knowledge of geographic information. If you find an error or omission in this guide, or otherwise wish to make a comment or suggestion as to how we can improve the guide, please contact us at the address shown below under contact details or complete the product and service performance report form at [annexe C](#) and return it to us.

Contact details

Our Customer Service Centre will be pleased to deal with your enquiries:

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General enquiries (calls charged at local rate): +44 (0)8456 05 05 05

Dedicated Welsh Language HelpLine: 08456 05 05 04

Textphone (deaf and hard of hearing users only please): +44 (0)23 8005 6146

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www.ordnancesurvey.co.uk

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Back-up provision of the product

You are advised to copy the supplied data to a back-up medium.

Using this guide

The documentation is supplied in portable document format (PDF) only. Free Adobe® Acrobat Reader® software, which displays the guide, incorporates search and zoom facilities and allows you to navigate within. Hyperlinks are used to navigate between associated parts of the guide and to relevant Internet resources by clicking on the blue hyperlinks and the table of contents.

If you are unfamiliar with any words or terms used and require clarification please refer to the [glossary](#) at the end of the document.

Chapter 1 Introduction

1:10 000 Scale Raster is the most detailed product in Ordnance Survey's raster portfolio, providing contextual map data generated from large-scale source information. 1:10 000 Scale Raster is available as both colour and black and white in a number of file formats. Examples of the colour and black and white versions are shown in figures 1 and 2 below.

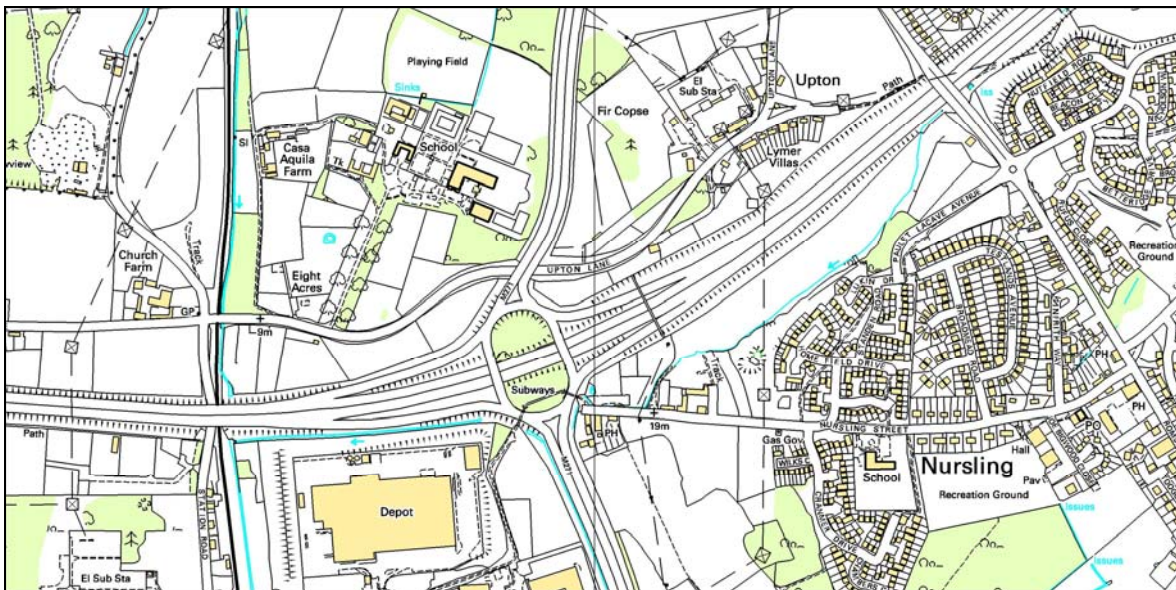


Figure 1: example of 1:10 000 Scale Colour Raster

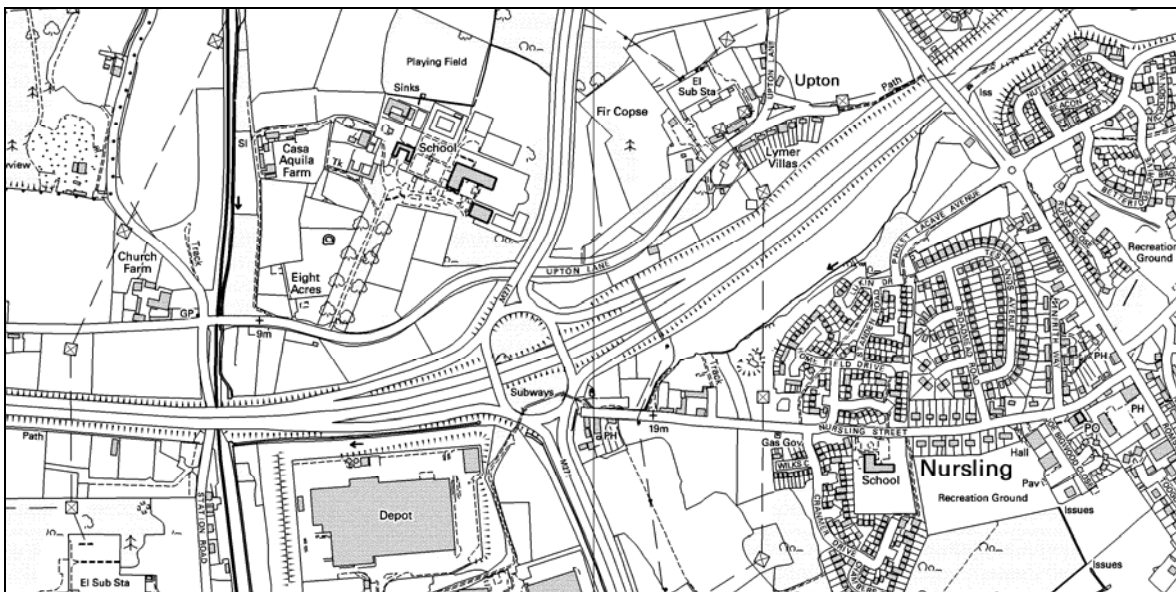


Figure 2: example of 1:10 000 Scale Black and White Raster

The product provides an image where the detail has been converted to a grid of pixels, which can then be displayed on computer screens. The product covers all of Great Britain and is supplied as tiles aligned to the National Grid. Data is converted into a raster format at a resolution of 400 dots per inch (dpi) and a pixel is equivalent to 0.635 of a metre on the ground. This resolution has been chosen as it maintains the necessary clarity for text shown on the map. The colour version assigns a colour to each pixel, the black and white version assigns the colour black or white to each pixel.

The product can be overlaid with other Ordnance Survey products or a customer's own geographic/business data, besides providing a detailed geographic context in its own right.

1:10 000 Scale Raster is produced to provide customers with a detailed product that could be made available in a number of different formats to provide either a map of an area when used on its own or as a means of providing geographic context to help a customer visualise their own data.

1:10 000 Scale Raster is supplied as graphic image files that can easily be read by many image software packages. To view tiles in geographic relation to each other and to create the best context for its use with other Ordnance Survey or third party data, it is recommended that it is used in a geographical information system (GIS).

As can be seen from figure 1 above, the pattern of development within the landscape can clearly be seen and this makes 1:10 000 Scale Raster particularly useful for analysing data within urban areas.

1:10 000 Scale Raster is typically used to create and plot high-quality maps for producing site plans, web services showing locations, creating maps for use in reports and presentations and providing geographic context for a customer's own data (subject to the terms of that customer's licence).

Chapter 2 Content

1:10 000 Scale Raster shows the following features:

- buildings, structures and leisure areas;
- roads, paths and tracks;
- vegetation and surface features;
- water features and associated detail;
- railways and associated detail;
- height and control information;
- archaeological and antiquity information;
- administrative boundary information;
- text; and
- miscellaneous information – remote areas, telephone lines, foot bridges, house names and all buildings.

The following administrative boundaries are shown:

Local government

County (England)

District (England)

Greater London Assembly constituency

Unitary authorities

Civil parish (England)

Community (Wales)

Parliamentary

European electoral region

Parliamentary electoral region (Scotland)

Parliamentary constituency (England)

Parliamentary constituency (Westminster)

Parliamentary constituency (Scotland)

Assembly constituency (Wales)

Assembly electoral region (Wales)

Scottish and Welsh place/area names

Where a name has an alternative form in a different language and it is not possible to establish which of the two names is more useful and acceptable, both names will be shown. Where there is insufficient space to show both names, only one will be shown:

- in Scotland – the anglicised version; and
- in Wales – the Welsh version.

1:10 000 Scale Raster does not include contours, contour values, air heights or open sea stipple.

A list of other minor detail that is not included on 1:10 000 Scale Raster can be found in [annexe B](#) in the technical specification.

Chapter 3 Scale

1:10 000 Scale Raster is derived from large-scale information surveyed at:

- 1:1250 scale – covering major towns and cities;
- 1:2500 scale – smaller towns, villages and developed rural areas; and
- 1:10 000 scale – mountain, moorland and river estuary areas.

Generalisation is used to emphasise, simplify, select and sometimes omit features to produce a cartographic representation of the landscape at a scale of 1:10 000.

The recommended printed copy or plot output is at 1:10 000 scale, but viewing the data on a computer screen is normally between 1:5000 and 1:8000 scale.

Coordinates

1:10 000 Scale Raster is available in National Grid coordinates, which are expressed in metres relative to an origin set to a point west of the Isles of Scilly. These coordinates can easily be spatially related to other surveys, drawings, datasets or Ordnance Survey products. Customers can visit the [National Grid](#) pages of Ordnance Survey's website for more information.

Coverage

1:10 000 Scale Raster is supplied in standard 5 km by 5 km tiles aligned to the National Grid. This is the equivalent in area to 2 500 hectares.

Chapter 4 Formats

1:10 000 Scale Raster comes in a number of file formats. These are:

- Tagged Image File Format (TIFF uncompressed and compressed)
- Bitmap (BMP)
- PCX (PC Paintbrush File Format)

TIFF

TIFF is a file based format for storing and interchanging raster images, with the most recent version – 6.0 – published in 1992.

There are two types of architecture for a TIFF. Many mainframe computers use what is known as a big-endian (Motorola®) architecture. Most modern computers, including personal computers (PCs), use the little-endian (Intel®) system. 1:10 000 Scale Raster TIFFs are supplied with Motorola architecture. Converting between these two systems is possible but, as a general rule, modern software should be expected to handle both of these outputs without operator intervention.

The 1:10 000 Scale Raster conforms to the TIFF 6.0 standard. Customers are recommended to contact their system suppliers to ensure that it can read the Motorola/big-endian TIFF architecture.

TIFF compressions explained

Group 3: The universal protocol for sending fax documents across telephone lines. The Group 3 protocol specifies CCITT T.4 data.

Group 4: A protocol for sending fax documents over ISDNs (integrated services digital networks). The Group 400 protocol supports images of up to 400 dpi resolution.

TIFF PackBit is a lossless compression scheme that is supported by virtually all applications that can import TIFF graphics.

BMP

BMP files are a historic file format for Windows® operating system. Images for black and white are 1 bit per pixel. This file format is only available for the black and white version of the product.

BMP structure

A BMP file consists of either three or four parts. The first part is a header, which includes the position of the image and the number of colours to be displayed. This is followed by an information section, which contains the image width (part 2), height (part 3), and the type of compression (part 4).

PCX

The PCX format is a relatively simple format that provides a minimum of compression using Run Length Encoding (RLE). RLE means that the file can be read from start to finish in one pass. This is only available for the black and white raster product option.

PCX structure

The PCX file itself contains two parts: the first part is called the header, which contains information about the image; the second part is the image data, which contains actual image data and colour information.

Chapter 5 Data compression

The data volumes for each file format are influenced by the level of data compression.

Image compression

When an image is compressed, duplicated data that has no value is removed or saved in a shorter form, reducing a file's size. For example, if large areas of water are the same tone, only the value for one pixel needs to be saved, together with the locations of the other pixels with the same colour. When the image is edited or displayed, the compression process is reversed. When raster is compressed, not only are the data volumes reduced but the user can download, display, edit and transfer images more quickly.

There are two forms of compression: *lossless* and *lossy*.

Lossless compression

As its name suggests, lossless compression does not lose information within an image. A lossless compression retains the original quality of an image when it is uncompressed. This process doesn't provide much compression, so file sizes remain large. Lossless compression is used mainly where detail is important, such as when planning to make large prints.

Lossy compression

This process degrades images to some degree, meaning that the decompressed image isn't quite the same as the original. The more an image is compressed, the more degraded it becomes. In many situations, such as posting images on the Internet or printing small- to medium-sized prints, the image degradation isn't so obvious. If a lossy compressed image, like the one shown in figure 3 below, is over enlarged the degradation will become apparent, and therefore 1:10 000 Scale Raster is not supplied using this compression.

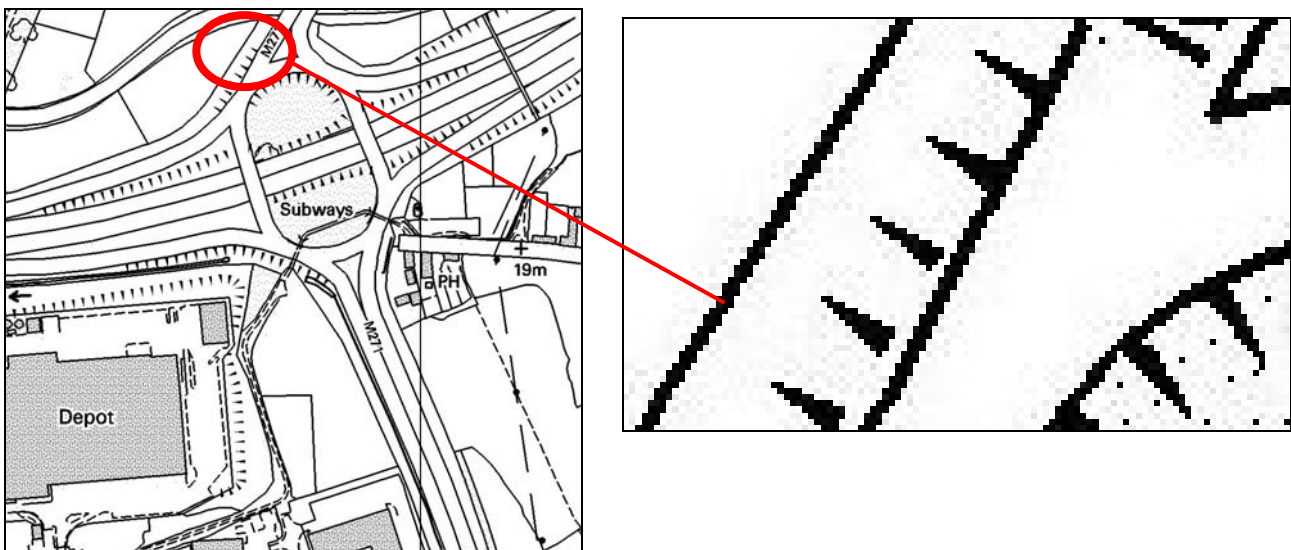


Figure 3: enlarged lossy compressed image

TIFF

TIFF is one of the most commonly used *lossless* image formats. TIFF is primarily designed for raster data interchange, and is supported by numerous image-processing applications. This permits much more efficient access to very large files that have been compressed.

Chapter 6 Georeferencing

To be able to view each tile in the correct geographic relation to the National Grid and to each other, the tiles must be georeferenced. GIS typically provide georeferencing as part of their functionality, but for each set of tiles it is necessary to provide the information on how the tiles should be ordered.

Ordnance Survey provides this information in a set of georeferencing files, also known as world files. A complete set for 1:10 000 Scale Raster is available to download free of charge from the [1:10 000 Scale Raster product page](#) on the Ordnance Survey website.

There are several different types of world file. Prior to downloading one of the sets, customers are advised to check with their system suppliers to find out which type their system supports.

The conventions behind the files' creation can be found in [chapter 4](#) of the technical specification. By using the conventions outlined there, this means that other datasets using the same conventions can be imported into the same GIS to add value to the raster map. So, for example, overlaying a routing or logistics network over the map or displaying a customer's demographic information.

The georeferencing files should be saved in the same directory as the files of the map tiles themselves.

Chapter 7 Revision

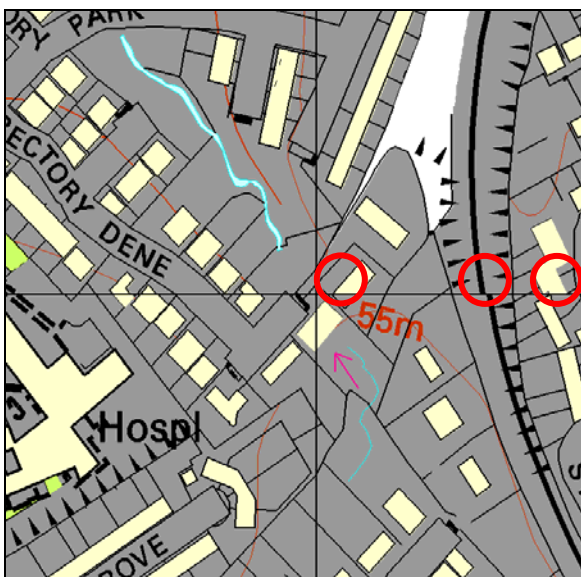
The product is updated via a revision programme. The revision programme for 1:10 000 Scale Raster is determined by assessing the following factors:

- known surveyed change indicated by the surveyor;
- change indicated by photogrammetric survey (which includes rural survey sweep); and
- consideration is given to how long since an area was last revised.

Priority is given to prestige sites categorised as significant items of change, such as major road construction projects.

All tiles in the revision programme are fully revised, which means that all surveyed change is included in the revision, not just significant items of survey change.

Where a line feature ends by intersecting the tile edge, it is matched with its corresponding feature on the adjacent tile so that both features end on the same unique coordinate, and both features have the same feature code. The representation of detail across the tile edge will be of a cartographically acceptable standard when plotted or displayed at scale. This is shown in figure 4 below.



Before 1:10 000 scale edgematch



After 1:10 000 scale edgematch has taken place

Figure 4: edgematching

A list of all of the tiles that comprise national cover is updated every month on the product page. This [downloadable table](#) provides the date of last revision for every tile in the product.

Chapter 8 Data measures

Ordnance Survey measures the data in its products in one or more of the ways set out in table 1 below.

Table 1 Definitions of data measures

Data measure	Definition	Sub-measure	Definition
Completeness	Presence and absence of features against the specified data content*	Omission	Features representing objects that conform to the specified data content but are not present in the data
		Commission	Features representing objects that do not conform to the specified data content but are present in the data
Logical consistency	Degree of adherence to logical rules of data structure, attribution and relationships	Conceptual consistency	How closely the data follows the conceptual rules (or model)
		Domain consistency	How closely the data values in the dataset match the range of values in the dataset specification
		Format consistency	The physical structure (syntax): how closely the data stored and delivered fits the database schema and agreed supply formats
		Topological consistency	The explicit topological references between features (connectivity) – according to specification
Positional accuracy	Accuracy of the position of features	Absolute accuracy	How closely the coordinates of a point in the dataset agree with the coordinates of the same point on the ground (in the British National Grid reference system)
		Relative accuracy	Positional consistency of a data point or feature in relation to other local data points or features within the same or another reference dataset
		Geometric fidelity	The 'trueness' of features to the shapes and alignments of the objects they represent*
Temporal accuracy	Accuracy of temporal attributes and temporal relationships of features	Temporal consistency	How well ordered events are recorded in the dataset (life cycles)
		Temporal validity (currency)	Validity of data with respect to time: the amount of real-world change that has been incorporated in the dataset that is scheduled for capture under current specifications
Thematic accuracy (attribute accuracy)	Classification of features and their attributes	Classification correctness	How accurately the attributes within the dataset record the information about objects*

*When testing the data according to the dataset specification against the 'real world' or reference dataset.

Annexe A Case studies

Creating the right environment for data management

The Welsh Environmental Data Interface (WENDI)

Agriculture, forestry and woodland account for 90% of Wales' land use. Generating a wealth of insightful statistical information. The National Assembly for Wales uses this data to inform policy, assist decision making and help deliver a wide range of services to rural communities Read more at:

<http://www.ordnancesurvey.co.uk/oswebsite/business/casestudies/pdf/welsh-environment-data-interface.pdf>

Annexe B Metadata

Metadata

ISO 19115 compliant UK GEMINI discovery level metadata is provided for the data and can be found on the Glgateway® (www.gigateway.org.uk)

The following is a detailed description of the metadata elements that are provided on the Glgateway:

Title: The title of the product.

Abstract: The abstract gives a brief description of the product.

Currency: The currency takes the form of date of last update for the feature.

Lineage: The lineage metadata takes the form of product specification name and date of product specification.

Spatial extent: The spatial extent is supplied in the form of geographic identifiers (for example, England, Scotland and Wales) and in the form of geographic coordinates.

Spatial reference system: The spatial reference system for all products takes the form of a British National Grid system, namely OSGB36®.

Data format: Data format takes the form of the name of the format or formats the product is supplied in.

Frequency of updates: Frequency of update takes the form of a stated period of time.

Distributor contact details: Distributor contact details include with postal address, phone number, fax number, email address and website.

Data originator: Given as the company having primary responsibility for the intellectual content of the data source; in all cases this will be Ordnance Survey.

Other metadata available includes keywords, start date of data capture, access constraints, use constraints, level of spatial data, supply media and presentation details.

Annexe C Product and service performance report form

Ordnance Survey welcomes feedback from its customers about 1:10 000 Scale Raster.

If you would like to share your thoughts with us, please print a copy of this form and when completed post or fax it to the address below.

Your name:

Organisation:

Address:

.....

.....

Postcode:

Phone:

Fax:

Email:

Quotation or order reference:

Please record your comments or feedback in the space below. We will acknowledge receipt of your form within three (3) working days and provide you with a full reply or a status report within 21 working days.

If you are posting this form, please send it to:

1:10 000 Scale Raster Product Manager, Ordnance Survey, Adanac Drive, SOUTHAMPTON, SO16 0AS.

If you wish to return it by fax, please dial +44 (0)8450 990494.

Any personal information that you supply with this report form will be used by Ordnance Survey only in the improvement of its products and services. It will not be made available to third parties.

1:10 000 Scale Raster

Technical specification

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Introduction

Purpose of this specification and disclaimer

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Chapter 1 Specification

The following chapters include information about 1:10 000 scale colour/black and white raster data, file compression, symbology, georeferencing and formats.

Specification	1:10 000 Scale Raster
Data source	1:10 000 scale production database
Number of tiles in Great Britain	10 586 (edgematched) <ul style="list-style-type: none">• England 5 702• Scotland 4 014• Wales 1 008
Tile size	5 km by 5 km
Availability	National coverage
Resolution	400 dots per inch
Data structure	Raster
Data specification	All map features except contours, contour values, air heights, open sea stipple and other minor detail (see annexe B)
Colour	
Transfer format	TIFF 8-bit compressed (LZW*) and uncompressed
Storage volumes per tile	Uncompressed: approx. 60 Mb Compressed: 8 Mb–15 Mb
Black and White	
Transfer format	TIFF uncompressed, BMP, PCX, TIFF Group 3 compression, TIFF Group 4 compression and TIFF PackBits <i>NOTE: MapInfo® version 8 supports TIFF Group 4 compression.</i>
Storage volumes per tile	Uncompressed: 8 Mb Compressed: 0.3 Mb–6 Mb
Update frequency	Continuous update (see chapter 7 in the user guide)

Greyscale: A high-quality alternative to black and white data is to use a GIS to convert colour data to greyscale format.

NOTE: greyscale file sizes are significantly larger than black and white data, for example, greyscale 60 Mb uncompressed, black and white 8 Mb uncompressed.

* If LZW compressed formats are used then registration may be required. Guidance on the Unisys® license is available on the Unisys website at www.unisys.com/about__unisys/lzw/.

1:10 000 Scale Raster is supplied in both colour and black and white, uncompressed and compressed formats.

Colour raster formats:

- TIFF 8-bit uncompressed
- TIFF 8-bit LZW compressed

Black and white raster formats, including:

- TIFF uncompressed
- BMP
- PCX
- TIFF group 3 compression
- TIFF group 4 compression
- Tiff PackBits

NOTE: MapInfo version 8 supports TIFF Group 4 compression.

Chapter 2 Legend

1:10 000 Scale Raster Legend

Boundary information

County (England only)	— . — .
District, unitary authority, metropolitan district, London borough	— — — —
Civil parish or community	• • • • •
Boro constituency, county constituency, burgh constituency, parliamentary constituency, parliamentary electoral region, assembly constituency, assembly electoral region, European electoral region or Greater London authority assembly constituency	— — — — —
Boundary post or stone	o o
Boundary tree	Oak •

Vegetation

Area of wooded vegetation	
Non-coniferous trees	
Non-coniferous trees (scattered)	
Coniferous trees	
Coniferous trees (scattered)	
Positioned tree	
Orchard	
Coppice or osiers	
Rough grassland	
Heath	
Scrub	
Marsh, salt marsh or reeds	

Buildings

General building	
Important building	
Glasshouse	

Height information in metres

Spot heights (fixed by ground survey)	+ 101 m
Bench mark (where shown)	← BM 123.45 m
Triangulation station	△

Point and line features

Pylon, flare stack or lighting tower	
General detail	— — — — —
Underground detail	— — — — —
Overhead detail	— — — — —
Narrow gauge railway	+++++
Multi-track railway	=====
Single track railway	=====
Point feature (for example GP/MS/MP)	•
Non-Roman antiquity	Castle
Site of (antiquity)	
Telephone line (where shown)	—•—•—•—
Electricity transmission line (with poles)	—•—•—•—

Water features

Water feature	
Direction of flow arrows	
Mean high water (springs)	MH(S)
Mean low water (springs)	MLW(S)

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Landforms

Gravel pit	
Rock	
Rock (scattered)	
Shingle	
Mud	
Boulders	
Boulders (scattered)	
Refuse tip or slag heap	
Sand	
Sand pit	
Slopes	
Top of cliff	

Common abbreviations

Boundary information	
UA Bdy.....	Unitary authority
Dist Bdy.....	District
Met Dist Bdy.....	Metropolitan district
C.....	Community
CP Bdy.....	Civil parish
Boro Const Bdy.....	Borough constituency
Co Const Bdy.....	County constituency
Burgh Const Bdy.....	Burgh constituency
EER Bdy.....	European electoral region
LB Bdy.....	London borough
Asly Const Bdy.....	Assembly constituency
Asly ER.....	Assembly electoral region
P Const Bdy.....	Scottish parliamentary constituency
PER Bdy.....	Scottish parliamentary electoral region
GL Asly Const.....	Greater London authority assembly constituency

Other information	
CG.....	Cattle grid
Chy.....	Chimney
Coll.....	College
Ct.....	Court
El Sub Sta.....	Electricity sub station
FB.....	Footbridge
Fl Sk.....	Flare stack
Fn.....	Fountain
FS.....	Flagstaff
GP.....	Guide post
LC.....	Level crossing
Liby.....	Library
Meml.....	Memorial
MHW(s).....	Mean high water (springs)
MLW(s).....	Mean low water (springs)
Mon.....	Monument
MP, MS.....	Mile post or stone
NTL.....	Normal tidal limit
P, Ps.....	Post(s) or pole(s)
PH.....	Public house
PO.....	Post Office
Pol Sta.....	Police station
PW.....	Place of worship
Sch.....	School
Spr.....	Spring
Sta.....	Station
Tk.....	Tank or track
W.....	Well



Chapter 3 Georeferencing

A definition for registering raster images within a geographic framework is the process of assigning map coordinates to the raster image data and resampling the pixels of the image to conform to the map projection grid. This allows tiles of map data to be located in their correct geographic position relative to the map projection and also to themselves.

Great Britain is surveyed and mapped using the Transverse Mercator (or Gauss-Kruger) projection, so all raster tiles will be mapped to this projection as it applies to Ordnance Survey National Grid if using World or TAB files supplied by Ordnance Survey.

Within the MIF record header the following information will be found under COORDSYS:

CoordSys Earth Projection 8, 79, "m", -2, 49, 0.9996012717, 400000, -100000 Bounds (4.17232513428e-011, 7.7486038208e-011) (700000, 1300000)

This information relates to the Transverse Mercator projection, its position relative to the rest of the world and also an individual tile's position relative to the projection. The record header is constructed as (not all fields have to be used):

CoordSys Earth Projection 8	the 8 relates to a MapInfo identifier, in this case the Transverse Mercator projection.
79	a MapInfo identifier, in this case this relates to Ordnance Survey of Great Britain 1936, Airy ellipsoid.
"m"	relates to the unit of measurement, in this case metres.
-2	this is the origin of the projection in respect of longitude.
49	this is the origin of the projection in respect of latitude.
0.9996012717	indicates the distortion of the tile at the central meridian. A value of 1.0 would indicate no distortion at all. However, distortion within this projection is minimal even at the far western or eastern limits.
400000, -100000	these figures indicate the false origin of the British National Grid. They represent the south-west corner of the Transverse Mercator projection, which overlays Great Britain, so all coordinates for any tile, no matter what scale, will always be positive.
Bounds: (4.17232513428e-011, 7.7486038208e-011)	these values represent the minimum bounding X and Y coordinates for the tile.
(700000, 1300000)	these values represent the maximum bounding X and Y coordinates for the tile.

Chapter 4 Image file directory (TIFF)

The image file directory for TIFF format will contain a selection of the following entries:

Tag 254 (NewSubfileType)

An indication of the kind of data contained in this sub-file, for example, Value = 0

Tag 256 (ImageWidth)

The number of columns in the image, the number of pixels per row, for example, Value = 7874

Tag 257 (ImageLength)

The number of rows of pixels in the image, for example, Value = 7874

Tag 258 (BitsPerSample)

Number of bits per component, for example, value = 8

Tag 259 (Compression)

Compression scheme used on the image data, for example, value = 5 (LZW)

Tag 262 (Photo.Interpretation)

The colour space of the image data, for example, value = 3 (RGB Palette).

Tag 270 (ImageDescription)

A string that describes the subject of the image, for example, value = 1:10 000 HP40NE

Tag 273 (StripOffsets)

For each strip, the byte offset of that strip, for example, 1st 4 values = 64827 64970 65113 65268

Tag 278 (RowsPerStrip)

The number of rows in each strip, for example, value = 1

Tag 279 (StripByteCounts)

For each strip, the number of bytes in that strip after compression, for example, 1st 4 values = 143 143 155 155

Tag 282 (XResolution)

The number of pixels per Resolution Unit in the Image Width, for example, value = 400/1

Tag 283 (YResolution)

The number of pixels per Resolution Unit in the Image Length, for example, value = 400/1

Tag 296 (ResolutionUnit)

Units used for Resolution, for example, value = 2 (Inch)

Tag 306 (DateTime)

Date and time of image creation, for example, value = 2006:06:30 12:38:41

Tag 320 (ColourMap)

Look-up table, for example, value = 1st 4 values = 65535 0 0 0

Tag 33432 (Copyright)

Copyright notice, for example, value = ORDNANCE SURVEY CROWN COPYRIGHT 2004

NOTE: the values given above are relevant to 1:10 000 scale data.

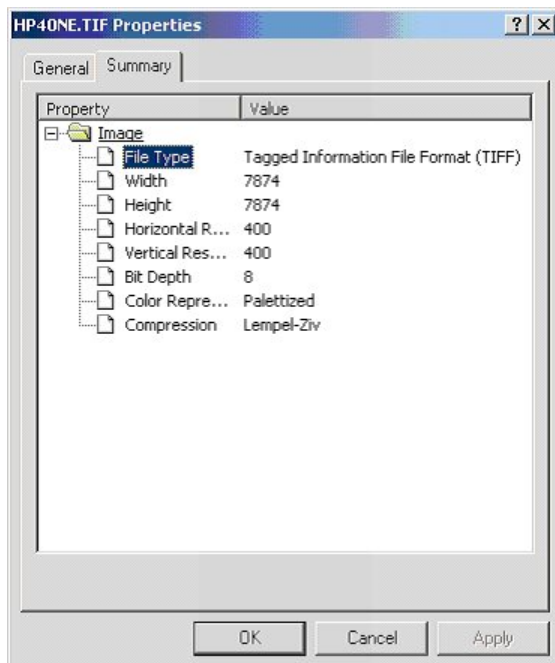
TIFF

Colour image directory (TIFF)

	Tag number	TIFF 8-bit uncompressed	TIFF 8-bit LZW compressed
File Byte Order :		MM (Big-endian)	MM (Big-endian)
Magic Number :		42	42
Number of fields in IFD :		16	16
NewSubfileType	254	0	0
Image Width	256	7874	7874
ImageLength	257	7874	7874
BitsPerSample	258	8	8
Compression	259	1 (Uncompressed)	5 (LZW)
Photo.Interpretation	262	3 (RGB Palette)	3 (RGB Palette)
ImageDescription	270	1:10000 TILE HP40NE	1:10000 TILE HP40NE
XResolution	282	400/1	400/1
YResolution	283	400/1	400/1
ResolutionUnit	296	2 (Inch)	2 (Inch)
DateTime	306	2006:09:20 11:20:04	2006:09:20 11:20:04
ColorMap	320	1st 4 values = 65535 0 0 0	1st 4 values = 65535 0 0 0
Copyright	33432	ORDNANCE SURVEY CROWN COPYRIGHT 2004	ORDNANCE SURVEY CROWN COPYRIGHT 2004

The tag values listed in the above table are relevant to 1:10 000 scale Motorola® TIFF raster data.

It should be noted that customers can access tag information from a raster file image by right clicking on a TIFF data image and looking at properties, and then left clicking on summary.



Black and white image directory (TIFF)

	Tag number	TIFF PackBits	TIFF uncompressed	Group 4 compression	Group 3 compression
File Byte order:		MM (Big-endian)	MM (Big-endian)	MM (Big-endian)	MM (Big-endian)
Magic number:		42	42	42	42
Number of fields in IFD		15	15	16	17
NewSubfileType	254	0	0	0	0
Image Width	256	7874	7874	7874	7874
ImageLength	257	7874	7874	7874	7874
BitsPerSample	258	1	1	1	1
Compression	259	32773 (PackBits)	1 (Uncompressed)	4 (Group 4 Fax)	3 (Group 3 Fax)
Photo.Interpretation	262	1 (BlackIsZero)	1 (BlackIsZero)	0 (WhitelsZero)	0 (WhitelsZero)
FillOrder	266	N/A	N/A	2	2
ImageDescription	270	1:10000 TILE HP40NE	1:10000 TILE HP40NE	1:10000 TILE HP40NE	1:10000 TILE HP40NE
XResolution	282	400/1	400/1	400/1	400/1
YResolution	283	400/1	400/1	400/1	400/1
ResolutionUnit	296	2 (Inch)	2 (Inch)	2 (Inch)	2 (Inch)
T4Options	292	N/A	N/A	N/A	4
DateTime	306	2006:09:20 11:50:05	2006:09:20 11:50:05	2006:09:20 11:50:05	2006:09:20 11:50:05
Copyright	33432	Ordnance Survey crown copyright 2004	Ordnance Survey crown copyright 2004	Ordnance Survey crown copyright 2004	Ordnance Survey crown copyright 2004

The tag values listed in the above table are relevant to 1:10 000 scale Motorola TIFF raster data.

Other formats for black and white raster data

PCX: Monochrome image directory

File type	PCX	
Palette		24-Bit
Manufacturer	10	ZSoft.pcx
Version	5	Version 3.0+ of PCPaintbrush.Includes 24-bit .PCX files
Encoding	1	Bits per Pixel per Plane
Window Xmin	0	
Window Ymin	0	
Window Xmax	7873	
Window Ymax	7873	
Window HDpi	400	Horizontal Resolution
Window VDpi	400	Vertical Resolution
Reserved	0	
No of Planes	1	
PaletteInfo	1	
HScreenSize	0	Horizontal screen size in pixels (PB IV/IV+ only)
VScreenSize	0	Vertical screen size in pixels (PB IV/IV+ only)

The values listed in the above table are relevant to 1:10 000 scale Motorola PCX raster data.

BMP: Black and white image directory

FileType	BM (Windows or OS/2 single-image BMP)
Reserved1	0
Reserved2	0
Pixel offset	62
Header Size	40 (Windows 3.x / Windows NT BMP)
Pixel width	7874
Pixel height	7874
Planes	1
Bits per pixel	1
Compression	0 (Uncompressed)
Size of Bitmap	7779512
X Pixels per metre	15748
Y Pixels per metre	15748
Colours in palette	2
Significant Colours	0

The values listed in the above table are relevant to 1:10 000 scale Motorola BMP raster data.

Annexe A Glossary

The purpose of this chapter is to provide a glossary of terms used in the definition of products, services, licensing and other terms and conditions for 1:10 000 Scale Raster.

American Standard Code for Information Interchange (ASCII)

A standard binary coding system used to represent characters within a computer.

binary digit (bit)

The smallest possible unit of data, resulting from a choice between 0 and 1.

boundary

A boundary forms the division between two similar real-world objects, for example, property boundary or administrative boundary, and is defined by one or more lines.

byte

A unit of computer storage of binary data, usually comprising 8 bits, equivalent to a character.

character

A distinctive mark; an inscribed letter; one of a set of writing symbols.

character code

The binary representation of a single element of a character set; for example, EBCDIC, ASCII.

coordinate pair

A coordinate pair is an easting and a northing (see [rectangular coordinates](#)).

coordinate transformation

A computational process of converting an image or map from one coordinate system to another.

compact disc

Read only memory (CD-ROM). A data storage medium. A 12-cm disc similar to the audio CD. It is an alloy disc pitted with tiny holes and then coated in plastic. A laser head reads the pattern of the holes and translates them into binary data.

copyright

The sole legal right to print or publish a work. Crown Copyright subsists in all Ordnance Survey publications for a 50-year period, from the end of the year in which they were first published, by virtue of the *Copyright Designs and Patents Act 1988*.

customer

An organisation or individual that makes use of Ordnance Survey's data supply facilities. This includes both direct sales customers of Ordnance Survey as well as customers of Licensed Partners. It does not include anyone, or any organisation, that has access to Ordnance Survey material without charge.

data

A representation of facts, concepts or instructions in a formalised manner suitable for communication, interpretation or processing.

database

An organised, integrated collection of geographic data, which may or may not be spatial data. It is stored so that specific applications can access the data by different logical paths. A database is accessed and managed by a database management system (software for managing database information).

data format

A specification that defines the order in which data is stored or a description of the way data is held in a file or record.

data quality

Attributes of a dataset that define its suitability for a particular purpose, such as completeness, positional accuracy, currency and so on.

data structure

The defined logical arrangement of data as used by a system for data management; a representation of a data model in computer form.

data transfer medium

This is the means by which computer files are transferred from one computer to another. Transfer media may be subdivided into communications media and physical media.

dataset

Data as supplied in a particular format to customers, whether internal or external to Ordnance Survey.

density

A measure of the number of units of data held on a stated length of storage surface. For example, some magnetic tapes may be recorded at a density of 1 600 bits per inch (bpi). Often referred to as packing density.

delivery mechanism

The method of supply of data to a customer (such as offline and online).

descriptive name

A name describing a real-world object or feature (for example, School) as shown on the 1:10 000 Scale Raster map.

definitive name

The name as shown on the 1:10 000 Scale Raster map.

digital

Data that is expressed as numbers (digits) in computer-readable form.

digital update

The supply of digital data to a customer at a predetermined interval of time if, when the time interval has elapsed, the map has reached an agreed level of change.

direct sale

A direct transaction between Ordnance Survey and a customer.

distinctive name

A text feature that form(s) a name that distinguishes it from other text features of the same type, for example, Millbrook School.

dots per inch (dpi)

The resolution, or fineness, of a raster image.

eastings

See [rectangular coordinates](#).

ECW

The Enhanced Compressed Wavelet (ECW) raster image compression software has been designed to compress, display, serve on the Internet and distribute raster. The key characteristic of wavelet-based compressions is that it is able to preserve a very good quality of the image with high compression ratios.

This compression format uses mathematical wavelet transformations to store image data rather than storing a grid of values for image pixels such as TIFF or other common formats. This allows a great reduction in the amount of disk space it takes to store large images, whilst retaining nearly all the original image's quality, colour and detail.

ECW is a lossy format, meaning that some information is lost when the image is converted from its original format to the ECW format. However, wavelet compression is very good at retaining the character of images, so the amount of loss is very small.

JPEG

An image named after the Joint Photographic Experts Group, it uses a lossy compression format. It is designed for compressing a full colour or greyscale images of natural, real-world scenes and works well on photographs. It is the de facto standard for photographs on the web.

encoding

The process of converting information to a computer-readable form, for example, digitising maps.

Extended binary Coded decimal Interchange code (EBCDIC)

An 8-bit-character encoding scheme. For example, 100111100. These can also be letters or specific characters, for example, + =.

feature

A geographic entity such as a building or stream, either taken from a map or surveyed directly from the real world. Can be a point/symbol, text or line.

format

The specified arrangement of data, for example, the layout of a printed document, the arrangement of the parts of a computer instruction, the arrangement of data in a record.

geographic coordinates

Coordinates, usually expressed as latitudes and longitudes, which define position on the Earth's surface.

georef

A definition for registering raster images within a geographic framework, is the process of assigning map coordinates to the raster image data and resampling the pixels of the image to conform to the map projection grid.

gigabyte (Gb)

1 073 741 824 bytes, a measure of data storage capacity (see [megabyte](#)).

kilobyte (Kb)

1 024 bytes, a measure of data storage capacity.

Licensed Partner

Any organisation that has entered into a formal licence agreement with Ordnance Survey to market map information or to incorporate map data with their application or service.

linear feature

Map feature in the form of a line (for example, river, boundary) that may or may not represent a real-world (existent) feature.

local origin

The local origin of rectangular coordinates is the south-west corner of the 1 km by 1 km National Grid square they identify.

map scale

The ratio between the extent of a feature on the map and its extent on the ground, normally expressed as a representative fraction, for example, 1:1250, 1:50 000 and so on.

megabyte (Mb)

1 048 576 bytes, a measure of data storage capacity (see [gigabyte](#)).

National Grid

The metric grid on the Transverse Mercator projection used by Ordnance Survey on all post-Second World War mapping to provide an unambiguous spatial reference in Great Britain for any place or entity, whatever the map scale.

MrSid

MrSid (Multi-resolution Seamless Image Database) is a wavelet-based image compressor, viewer and file format for large raster images that enables instantaneous viewing and manipulation of images locally and over networks while maintaining maximum image quality.

northings

See [rectangular coordinates](#).

Oracle®

The relational database management system used for the 1:50 000 Scale Gazetteer.

order

A request from a customer for the supply of map data. The scope of an order may be constrained by an agreement for a period licence service.

origin

The zero point in a system of [rectangular coordinates](#).

pixel

In the 1:10 000 scale product a **pixel** is a single point represented by a square.

points

A pair of coordinates.

raster data

Attribute data expressed as an array of pixels, with spatial position implicit in the ordering of the pixels.

real-world object

The real-world feature represented by a feature, for example, a building, a fence, a wood.

rectangular coordinates

Also known as x-y coordinates and as eastings and northings. These are two-dimensional coordinates that measure the position of any point relative to an arbitrary origin on a plane surface (for example, a map projection, a digitising table or a VDU screen).

stipple

Used to produce light or dark shading (for example, building /water fill); this is dependent on spacing of the dots – the denser the dots, the darker the effect.

string

A set of items that can be arranged into a sequence according to a rule.

supply format

The file format in which the data is supplied to the customer.

tag

Tags are unique numbers that are used for identifying specific information in TIFF files, for example, image width, image length, bits per sample, photo interpretation and resolution.

terminator

Character, or character string, or field, or record used to signal the end of a record, or section, or volume or database.

tile

A unit of map used to divide large areas into regular and more manageable sizes.

TIFF

TIFF is a tagged image file format-based file format for storing and interchanging raster images with the most recent version – 6.0 published in 1992.

transfer format

The format used to transfer data between computer systems. In general usage, this can refer not only to the organisation of data but also to the associated information, such as attribute codes, which are required in order to successfully complete the transfer.

transfer medium

The physical medium on which digital data is transferred from one computer system to another. For example, compact disc.

UNIX®

An operating system that supports multitasking and is used by many work stations and mini computers.

update

The process of adding to and revising existing digital map data to take account of change.

volume

A physical unit of the transfer medium, that is a single disk, or a single DVD.

Annexe B Other minor detail that is not included on 1:10 000 Scale Raster product

- Airfield identification mark, runway approach lights, signal square
- Anchorage points for radio and television masts
- Bollards, capstans, dolphins, mooring posts/rings
- Bus shelter
- Cranes (not travelling), hoists
- Drinking fountain, pump, hydrant, water point
- Electricity pillar
- Hopper
- Inspection pit
- Icehouse
- Letter box
- Lighting tower
- Pavement pecks
- Permanent way pecks along railways
- Railway detail (switch, slip, buffer, retarder, signal light, loading gauge, mail pick-up, signal post, water point)
- Ramp
- Saluting battery, gun
- Sand drag
- Water taps/troughs

Electricity transmission lines carried on single poles are shown in 1:10 000 scale basic areas (mountain and moorland) only. Those extending into other geographic areas are terminated at suitable points of detail or at a pole in a surveyed position either just inside or outside of the basic area.

The underground portions of the railways in London are not shown and stations whose entrances appear at surface level are described as Sta.