ORDNANCE SURVEY

Open Map - Local

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Ordnance Survey

Preface

This product guide (hereafter referred to as the guide) is designed to provide an overview of OS Open Map – Local (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 A and return it to us.

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Using this guide

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

Contents

Introduction

OS Open Map – Local Overview

OS Open Map – Local (OML) is one of the most detailed generalised open mapping products available and is designed to provide contextual mapping for your applications or web pages. It offers users a clear contextual view of the world whilst also enabling the undertaking of analytical activities.

The OML data is available as pre-styled static images which can provide a rasterised background layer. It is also available as vectorised features which can be individually selected and styled.

The vector format of the product consists of multiple layers of feature information which can be individually interrogated, displayed and styled to suit your needs. Styles are made available for this product in the following choices as GML, GeoPackage or ESRI Shapefile.

The raster layer provides pre-defined static contextual mapping designed to allow customers to overlay their own data clearly. More information on styling can be found in the 'Getting Started With OS Open Map - Local' guide.

OML can be used to illustrate and contextualise geospatial data, for example, OML is used as backdrop mapping to provide a clear visual representation of a heat-map for estimated house prices in an area in Nottinghamshire.

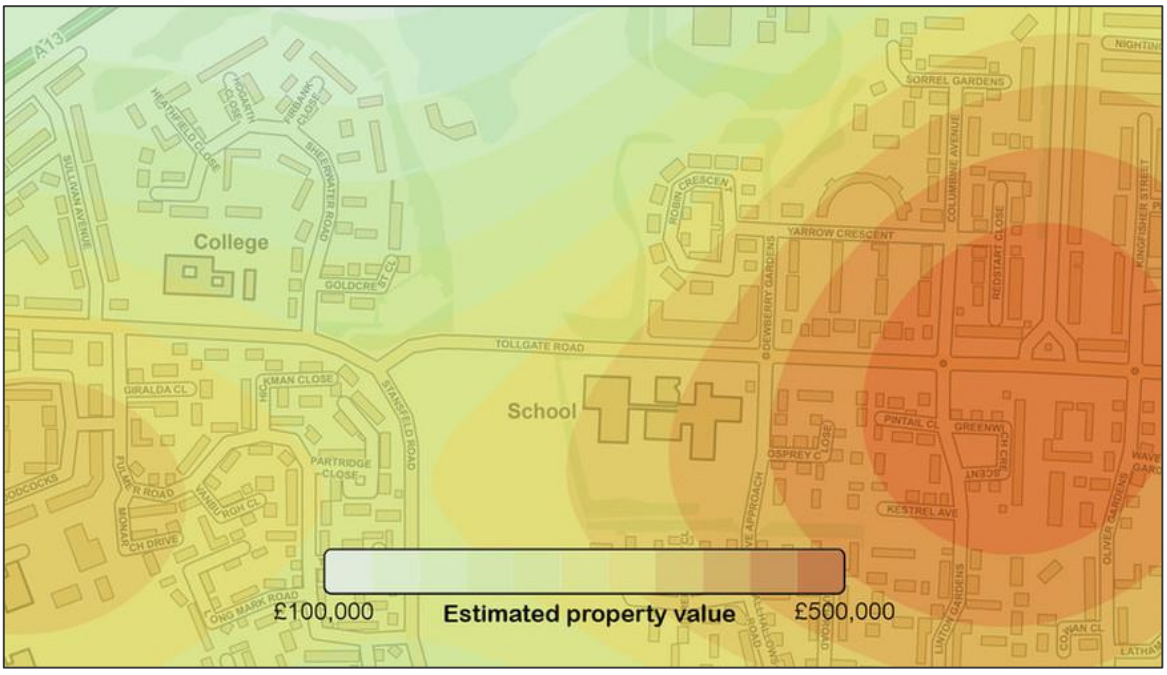


FIG 1: House price information heat-map using OML as a contextual background.

OML contains functional sites, greenspace, important buildings and DfT numbers in order to facilitate alignment with other OS products. When using OML, the nominal viewing scale is 1:10,000, with a recommended viewing scale range of 1:3,000 to 1:20,000.

The data is available to download as a zip file. This can be ordered from OS OpenData as either a single zip file for the whole of GB, or as individual 100km national grid tiles where smaller areas are required.

Formats

OML is available in four formats, split between Raster GeoTiff and Vector data layers. The principal benefit of raster data is that you are able to use it out of the box without needing to manipulate or style it. It is also lighter for your application to use, taking much less memory to render.

The principal benefit of vector data is its versatility, with the ability to turn on and off and independently style data themes according to your needs. This has the added benefit of allowing you to reduce the number of displayed features, reducing clutter and highlighting only those features in which you are interested.

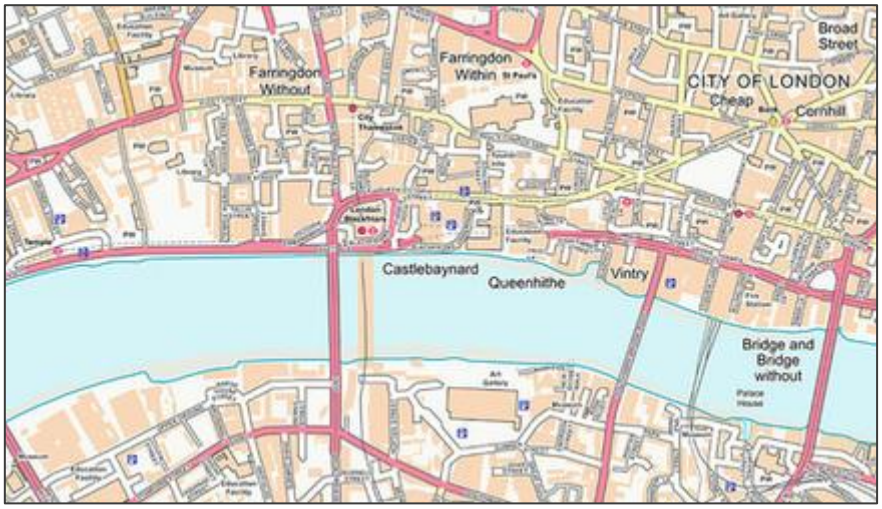


FIG 2: ESRI® Shapefile format with OS styling applied.

The available formats for OML are:

Vector

- ESRI Shapefile
- Geography Markup Language (GML)
- OCG GeoPackage

Raster

- GeoTIFF (Tagged Image File Format)

ESRI Shapefile

- Data is represented by points, lines, polygons containing attributes.
- No persistent feature identifiers.

- No feature change history.
- No explicit topology.
- Tiles are complete in themselves and all polygons that cross tile borders are closed along the tile edges.

GML tiles

- Conforms to Open Geospatial Consortium (OGC®) standards.
- Data supplied in GML v3.2.1 Simple Features format.
- GML schema supplied with the tiles.
- Data is represented by points, lines, polygons containing attributes.
- No persistent feature identifiers.
- No feature change history.
- No explicit topology.
- Tiles are complete in themselves and all polygons that cross tile borders are closed along the tile edges.

OGC GeoPackage

- The single file is easy to transfer and offers the end-user a rich experience.
- Attribute names are not limited in length making it user friendly.
- No file size limit so lots of data can be easily accommodated.
- Supports raster, vector and database formats making it a highly versatile solution.
- It is an OGC Standard.
- In most cases, it is a plug-in-and-play.

Raster tiles

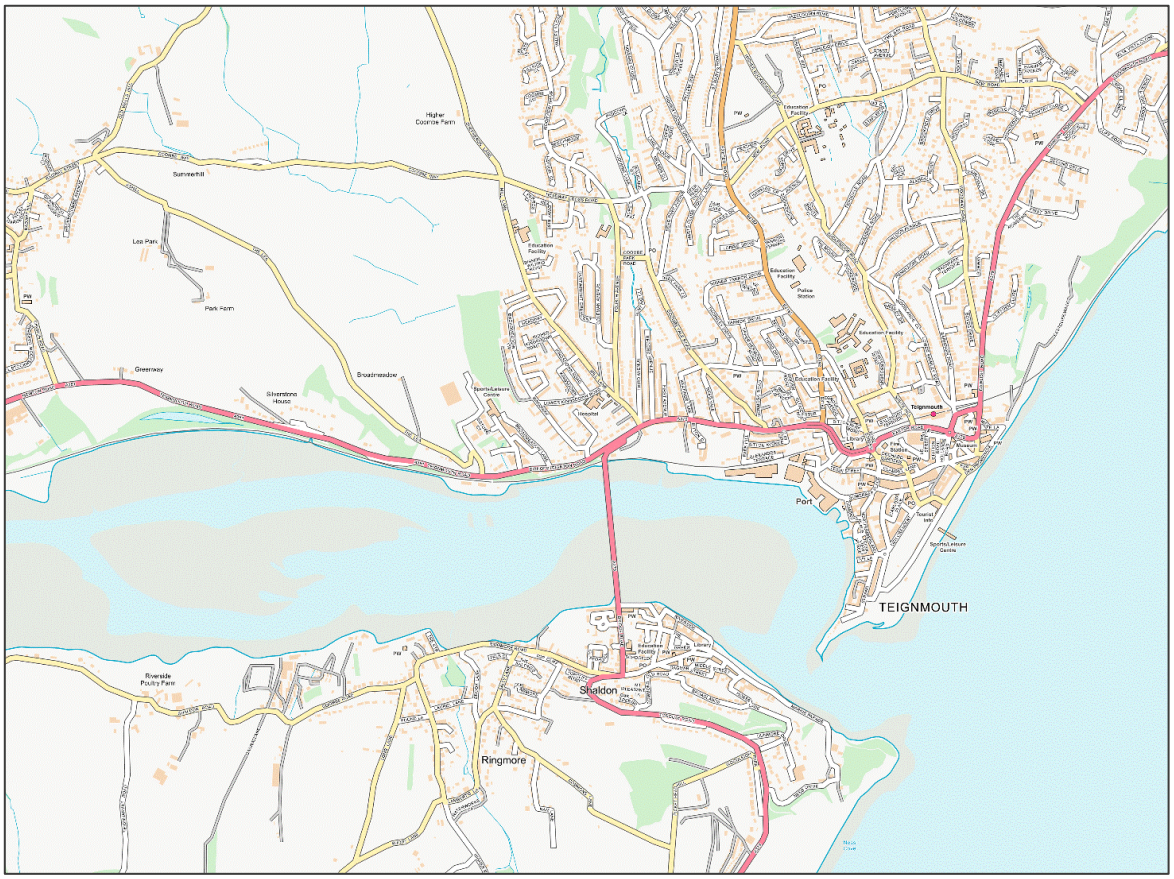


FIG 3: Raster GeoTiff format pre-styled.

- Can be viewed using typical desktop software.
- Can be viewed by most image-reading software packages.
- Supplied in two predefined graphical styles: Backdrop and Full Colour.
- TIFF files are GeoTiff, enabling the raster tiles to be georeferenced without the use of additional world files.

Applications

The purpose of OML is to support a wide range of customer uses that interact with geographic information.

Backdrop mapping on your website

OML has been designed for on-screen use, with generalised detail and an appropriate level of content that gives an uncluttered appearance.

The layered structure of the vector data enables you to display the map to show only the features you want to show – for example, roads, place names and buildings while the raster version provides you with a pre-rendered and styled out of the box backdrop solution.

In both cases you have the option to fade the map backdrop to ensure that your own or third-party overlaid data is clearly portrayed. This can be useful in cases where you need to draw attention to a specific point or feature.

Display your business location

The local view of OML is ideal for creating a map of a street or neighbourhood to share the location of your business complete with street and locality names to provide context.

OML features are generalised representations but still hold an instantly recognisable geometry to their associated real-world object. These objects include things like buildings, roads, railways, and rivers. It also includes notable sites, such as schools, hospitals and transport hubs with important buildings specifically identified within those sites. These are accompanied by non-topographic features such as cartographic text and symbols.

Capture and Content

Coordinate referencing system

The Vector product formats allow for the use of a variety of coordinate reference systems. At present, only the British National Grid (BNG) is used in OS Open Map – Local (OML). The BNG spatial reference system uses the OSGB36 geodetic datum and a single Transverse Mercator projection for the whole of Great Britain. Positions on this projection are described using easting and northing coordinates in units of metres.

Currency

OML is derived from the latest versions of our large-scale data and is refreshed every 6 months.

Data Completeness

During production, many checks are undertaken to ensure that data supplied to customers is both accurate and complete. During digital manipulation and data creation, all sources of that data are checked for conformance to specification.

These quality checks take the form of:

- Visual checks by operators;
- Data testing against the product specification; and
- Testing is carried out on a selection of tiles from a full national set.

Generalisation

Geometry within OML has been generalised from Ordnance Survey large-scale data. Map generalisation is the process of reducing the scale and complexity of map detail while maintaining the important elements and characteristics of the geometry.

Map generalisation comprises of the following processes:

- Selection/omission: Some features that appear at larger scales are not selected at the smaller scales.
- Simplification: Simplification can take a number of forms in OML. It can be line simplification, for example, in a vector product a stream can have many curves. These are represented by a number of data points which are filtered and maintain the feature shape.
- Exaggeration: Features that are small but are too important to a particular landscape to be omitted are enlarged. For example, some isolated rural buildings are often enlarged to a minimum size rather than being omitted.

- Aggregation: Aggregation is the combining of a number of small features to make a larger one, such as buildings.
- Symbolisation: Features that are shown in detail in OS VectorMap Local may be collapsed to points within OML, which can then be symbolised if required. For example, railway stations and airports are depicted as point symbols.
- Displacement: The movement of the representation of a feature away from its ground position in order to maintain its prominence.

Feature types

The following is a description of the features that are available in the product. A full list of feature classes and their associated attributes is given later in this document.

Not all features available in the product are included in the raster format. For a full list of features and their styling in the raster format please refer to the legend, which is available online via the OS Open Map – Local product page.

The GML naming of attributes is used in the main text of this guide; the naming of the attributes in ESRI Shapefiles will be different due to the 10-character limitation on attribute names of the ESRI Shapefile format. GeoPackage is designed to parallel the structure of the shapefiles to make it easier to draw comparisons across the datasets, but, when placed in a GIS, it will be preceded by the GeoPackage file name *opmplc_gb*.

Buildings

Buildings are automatically generalised; some small isolated buildings in rural areas are retained.

Shapefile:	Building.shp
GML FeatureType:	Building
GeoPackage FeatureType:	(opmplc_gb) Building

Glasshouses

Only large Glasshouses are represented in the product.

Shapefile:	Glasshouse.shp
GML FeatureType:	Glasshouse
GeoPackage FeatureType:	(opmplc_gb) Glasshouse

Functional sites

A polygon feature that represents the area or extent of certain types of function or activity with appropriate attribution. Each site has a theme, classification and is named (where appropriate). These are only available in the vector product.

The following site themes are represented:

- Air transport
- Education
- Medical care
- Road transport
- Water transport

ESRI Shapefile:	FunctionalSite.shp
GML FeatureType:	FuncationalSite
GeoPackage FeatureType:	(opmplc_gb) FunctionalSite

Important Buildings

Buildings that fall within the extent of a functional site are identified as Important Buildings. These buildings share attribution with their associated functional site. Each important building has the theme, classification and the name (where appropriate), of the site that it falls within. Not all 'Important Buildings' are represented within a functional site. Those without a functional site are deemed as important for navigational aid.

The following building themes are represented:

- Attraction and Leisure
- Air Transport
- Cultural Facility
- Education facility
- Emergency Services
- Medical Facility
- Religious Building
- Retail
- Road Transport
- Sports and Leisure Facility
- Water Transport

ESRI Shapefile:	ImportantBuildings.shp
GML FeatureType:	ImportantBuilding
GeoPackage FeatureType:	(opmplc_gb) ImportantBuilding

Roads

A road is defined as a metalled way for vehicles. A vehicle is defined as one with wheels on both sides of its body. Metalling is defined as any artificial (man-made) surface including areas of asphalt, concrete and gravel. Roads that form part of the public network and driveways to private properties.

Road alignments will have one of the following 13 classifications, each of which can be separately identified by the 'classification' attribute – see chapter 9:

- A Road
- B Road
- Local Road
- Local Access Road
- Restricted Local Access Road
- Minor Road
- Primary Road
- Motorway
- A Road , Collapsed Dual Carriageway
- B Road , Collapsed Dual Carriageway
- Minor , Collapsed Dual Carriageway
- Primary , Collapsed Dual Carriageway
- Motorway , Collapsed Dual Carriageway
- Shared use Carriageway
- Guided Busway Carriageway

ESRI Shapefile:	Road.shp
GML FeatureType:	Road
GeoPackage FeatureType:	(opmplc_gb) Road

Roundabouts

Roundabouts: Roundabouts smaller than 450m^2 are represented as point features and the roads are extended to meet at the centre point. Mini roundabouts are not included.

ESRI Shapefile:	Roundabout.shp
GML FeatureType:	Roundabout
GeoPackage FeatureType:	(opmplc_gb) Roundabout

See the feature type guide for full list of roundabout 'classification' attribute values.

Road Tunnels

Road tunnels: These are represented as approximate centrelines of the road that runs through the tunnel.

ESRI Shapefile:	RoadTunnel.shp
GML FeatureType:	RoadTunnel
GeoPackage FeatureType:	(opmplc_gb) RoadTunnel

There are a few differences between vector and raster formats. Road casings appear as a line style in the raster product only. A selection of road names and numbers are shown in the raster product, where space permits.

Motorway junctions

Point feature representing the approximate location of numbered junction on a motorway.

ESRI Shapefile:	MotorwayJunction.shp
GML FeatureType:	MotorwayJunction
GeoPackage FeatureType:	(opmplc_gb) MotorwayJunction

Car Charging Point

Point feature representing the approximate location of Car Charging points. See technical guide for full list of CarChargingPoint 'classification' attribute values.

ESRI Shapefile:	CarChargingPoint.shp
GML FeatureType:	CarChargingPoint
GeoPackage FeatureType:	(opmplc_gb) CarChargingPoint

Note: Car Charging Point Information is sourced from the National Charge Registry, published by Office for Low Emissions Vehicles and Licensed under the OGL Open Government License.

Website: https://data.gov.uk/dataset/national-charge-point-registry

Surface water

An inland waterway body sufficiently wide enough to capture as an area feature. Small lakes and small islands in waterbodies are not included.

ESRI Shapefiles:	SurfaceWater_Line.shp, SurfaceWater_Area.shp
GML FeatureTypes:	SurfaceWater_Line, SurfaceWater_Area
GeoPackage FeatureType:	(opmplc_gb) SurfaceWater_Line , (opmplc_gb) SurfaceWater_Area

Tidal boundary/high and low water marks

In England and Wales these tide lines will be the levels of mean tides, i.e. of a tide between a spring and neap tide. In Scotland the tide lines are those of mean spring tides. In places where there is no foreshore (e.g. vertical cliffs), the Tidal Boundary is classified as 'High Water Mark'.

For the most part these lines are continuous but may be broken where they are obscured by other features such as road bridges.

ESRI Shapefile:	TidalBoundary.shp
GML FeatureType:	TidalBoundary
GeoPackage FeatureType:	(opmplc_gb) TidalBoundary

Tidal water

Polygons defining the extents of tidal water, up to the High Water Mark defined by TidalBoundaries and the Normal Tide Limit of rivers. Tidal water is not included under bridges.

For the most part these polygons are continuous but may be broken where they are obscured by other features such as road bridges.

ESRI Shapefile:	TidalWater.shp
GML FeatureType:	TidalWater
GeoPackage FeatureType:	(opmplc_gb) TidalWater

Foreshore

The part of the shore or beach which lies between the Low Water Mark and High Water Mark defined by the TidalBoundaries. The same condition may exist in non-contiguous off-shore areas.

For the most part these polygons are continuous but may be broken where they are obscured by other features such as road bridges.

It should be noted that as the tidal water feature extends to mean high water/mean high water springs (Scotland), or the NTL of rivers, the foreshore polygon will overlap the tidal water polygon. This is to assist with styling smaller scale output where the inter-tidal information may not be required.

ESRI Shapefile:	Foreshore.shp
GML FeatureType:	Foreshore
GeoPackage FeatureType:	(opmplc_gb) Foreshore

Railway tracks

All railways are represented as lines and are broken where they pass under bridges, buildings or other obstructing detail. Railway sidings and the tracks of travelling structures are not included.

The attribute 'classification' defines the type of railway:

- 'Multi Track'
- 'Single Track'
- 'Narrow Gauge'

ESRI Shapefile:	RailwayTrack.shp
GML FeatureType:	RailwayTrack
GeoPackage FeatureType:	(opmplc_gb) RailwayTrack

Railway tunnels

Railway tunnels are represented as approximate centerlines of the railway that runs through the tunnel.

ESRI Shapefile:	RailwayTunnel.shp
GML FeatureType:	RailwayTunnel
GeoPackage FeatureType:	(opmplc_gb) RailwayTunnel

Railway stations

Railway stations are represented as point feature representing the buildings and platforms by a railway line where a train may stop to pick-up or drop-of goods or passengers.

The attribute 'classification' defines the type of station:

- 'Light Rapid Transit Station'
- 'Railway Station'
- 'London Underground Station'
- 'Railway Station And London Underground Station'
- 'Light Rapid Transit Station And Railway Station'
- 'Light Rapid Transit Station And London Underground Station'

The name of the station is held in the attribute 'distinctiveName'. The position of the railway station will be close to a railway alignment but will not necessarily be directly coincident with it.

ESRI Shapefile:	RailwayStation.shp
GML FeatureType:	RailwayStation
GeoPackage FeatureType:	(opmplc_gb) RailwayStation

Woodland

Areas of trees; coniferous and non-coniferous and mixed are represented as polygons. Small areas of woodland are omitted and small clearings in woodland are filled.

ESRI Shapefile:	Woodland.shp
GML FeatureType:	Woodland
GeoPackage FeatureType:	(opmplc_gb) Woodland

Electricity transmission line

Cables used to supply electricity that are suspended between pylons. Electricity transmission line alignments are represented as lines.

ESRI Shapefile:	ElectricityTransmissionLine.shp
GML FeatureType:	ElectricityTransmissionLine
GeoPackage FeatureType:	(opmplc_gb) ElectricityTransmissionLine

Named places

A representative point feature giving the general location of a settlement name or geographic place name, for the purposes of text placement. To assist cartographic styling, each point a suggested text size, an orientation (where appropriate) and one of the following classifications:

Populated Place

- Landform
- Woodland or Forest
- Hydrography
- Landcover

ESRI Shapefile: NamedPlace.shp

GML FeatureType: NamedPlace

GeoPackage FeatureType: (opmplc_gb) NamedPlace

NOTE: ESRI Shapefile format does not offer comprehensive support for the Welsh character set. To work around this issue, the following characters are represented in two possible ways in the ESRI Shapefile:

True Character	Alternative ESRI Shape File Representations	
	DISTNAME	HTMLNAME
W	W	<f>Ŵ</f>
w	w	<f>ŵ</f>
Y	Y	<f>Ŷ</f>
y	y	<f>ŷ</f>

Raster content

The Raster product shows the following features:

- Buildings
- Important buildings
- Roads
- Car charging points
- Railways
- Railway stations
- Glass houses
- Electricity transmission lines
- Foreshore
- Surface water
- Tidal water/boundary
- Woodland

The raster product does not include functional sites. See legend for additional information.

Product Supply

Supply Format

OS Open Map – Local is available as:

- Vector: ESRI Shapefile with each tile dataset zipped using gzip.
- Vector. Tiled OGC GeoPackage.
- Raster: TIFF and compressed using LZW (Lemple-Ziv-Welch) compression.
- Data. GMLv3.2 Simple Features and schema zipped as a single file using gzip.

GeoPackage

Geopackage (*.gpkg) is an open, standards based, data format as is defined by the Open Geospatial Consortium (OGC). It is designed to be a lightweight format that can contain large amounts of varied and complex data in a single, easy to distribute and ready to use file.

GeoPackage offer users the following benefits:

- The single file is easy to transfer and offers the end-user a rich experience.
- Attribute names are not limited in length making it user friendly.
- No file size limit so lots of data can be easily accommodated.
- Supports raster, vector and database formats making it a highly versatile solution.
- It is an OGC Standard.
- In most cases, it is a plug-in-and-play

GeoPackage was released in 2014 and so is a relatively new format. As a result, some older software packages may have trouble loading it or may need a plugin in order to do so. If this is the case, your version of GIS may need updating. For example, QGIS software, as of version 2.18 (October 2016), is able to interact with GeoPackage files without needing additional plugins or settings. Earlier versions will either require a plugin, or will not be able to interact with this format.

Supply Media

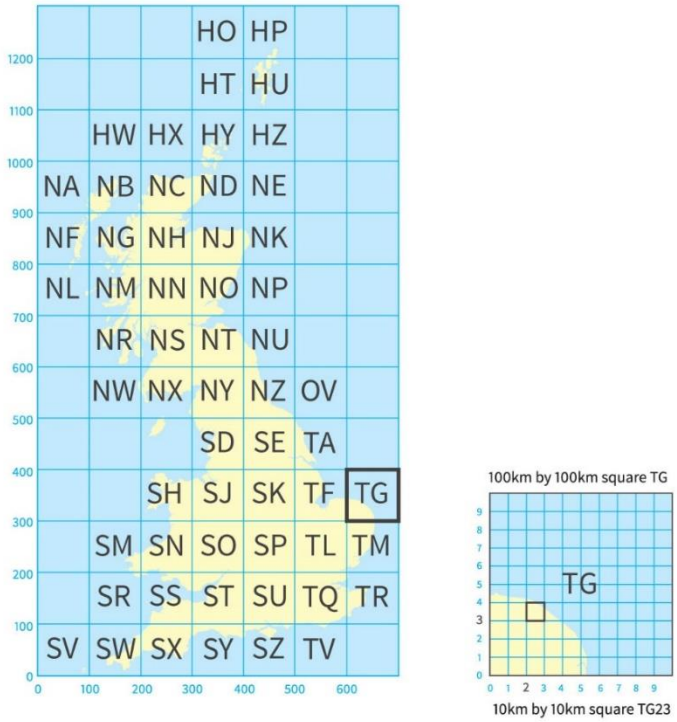
OS Open Map-Local can be ordered from the Ordnance Survey OS Opendata website. This allows you to order your choice and format.

Data is available to download from:

https://os.uk/business-and-government/products/os-open-map-local.html

The National Grid

Ordnance Survey divides Great Britain into squares 100km by 100km. Each of these squares has a unique two-letter reference, for example, TG in the diagram below.



OS Open Map-Local tiles are identified by quoting the National Grid reference of the south-west corner of the 100km2 area they cover, for example TG.

To describe an OS Open Map-Local raster tile, which covers 5km by 5km, first add a two-digit reference to the 100km by 100km square reference, with the easting first followed by the northing, for example, TG23. This represents a 10km x 10km area which can be suffixed with a NE, NW, SE or SW to describe the 5km x 5km tile. For additional information on how to use the National Grid, visit the Ordnance Survey website at:

os.uk/support/the-national-grid.html

Coverage and File Size

Coverage is England, Wales and Scotland.

Shapefile

- 55 tiles, each covering 100 km x 100 km comprise the national set.
- Each tile comprises a set of up to 20 shapefiles.
- Each shapefile holds a single feature type.
- Features that cross the tile edge are not split and hence duplicated within adjacent tiles.
- Tile size range from < 17 Kb to approx. 181 Mb zipped.

- GB 1.85 Gb zipped.
- The data is not encrypted.

Colour Raster TIFF

- 10,588 tiles, each covering 5 km x 5 km comprise the national set.
- TIFF and compressed using LZW (Lemple-Ziv-Welch) compression
- Tiles range from 6 Kb to approx. 921 Mb zipped.
- GB 12.1 Gb zipped.
- The data is not encrypted.

GML Data

- 55 tiles, each covering 100 km x 100 km comprise the national set.
- Each tile comprises of up to 71 feature codes.
- Features that cross the tile edge are not split and hence duplicated within adjacent tiles.
- Tile sizes range from <6 Kb to approx 183 Mb.
- GB 1.9 Gb zipped.
- The data is not encrypted.

GeoPackage:

- Only available as a national set (GB).
- File contains all the feature types.
- The data is not encrypted.

Edgematching

In the Vector product features that cross tile edges are included in both tiles, represented as hairy tiles. This avoids the creation of invalid geometries by arbitrary cutting features along the tile boarder and facilitates the creation of a seamless dataset. All features have unique identifiers which can be used to remove the duplicated features across tile edges when stitching the tiles together. This supports the greater use of the data in large scale analytical applications.

NOTE: these identifiers will not be persisted or maintained between product releases.

Technical Detail

OS OpenMap – Local is available in 2 vector formats, a rasterised format and a data format. The data structure of each format is nuanced for its unique application.

Identifiers

Each feature will be given a unique identifier. The GML product will have the property *gml:id* which will hold the features unique identifier. The ESRI Shapefile and GeoPackage will have the property *id* which will hold each features' unique identifier. The identifier will not be persistent between product versions and therefore there will be no change history information for a feature.

Lexical Conventions

- Class names are conceptually meaningful names (singular noun) in UpperCamelCase
- Class names end in "Value" or "Classification" where the class is assigned the stereotype <<CodeList>>
- Property names (attributes and associations) are in LowerCamelCase

Geography Mark-up Language (GML)

This chapter describes the GML format for OS OpenMap – Local. It is recommended that you read this in conjunction with the Open Geospatial Consortium (OGC) document, Geography MarkUp Language v 3.2.1.

The XML specifications that GML is based on are available from the World Wide Web Consortium (W3C*) website: http://www.w3.org/

Information about Unicode and UTF-8, the character encoding we have chosen, is available on the Unicode Consortium website: http://www.unicode.org/.

Schema overview

XML schemas are used to define and validate the format and content of the GML. The GML v3.2.1 specification provides a set of schemas that define the GML feature constructs and geometric types. These are designed to be used as a basis for building application-specific schemas, which define the data content.

The Ordnance Survey application schemas, which are referenced by the data, are available in the product release.

These schemas make use of XSDs (XML schema definitions) and DTDs (document type definitions) produced by the W3C, which are available from the W3C website: http://www.w3c.org/XML/1998/namespace.html

Schema descriptions

The W3C-provided XSDs and DTDs are:

- xml:xsd – to allow the use of the *xml:lang* attribute for language qualification.
- XMLSchema.dtd – required by *xml:xsd*.
- Datatypes.dtd – required by XMLSchema.dtd.

The OGC-provided schemas are:

- feature.xsd – the feature and property constructs.
- geometry.xsd – the geometric constructs such as polygon and point.
- xlinks.xsd – a schema based on the W3C XLINK recommendation provided by the OGC to make use of the XLINK constructs.

The Ordnance Survey-provided schemas are:

- OSOpenMapLocal.xsd – the feature type, complex type and simple type declarations.

Format descriptions

The 'OS Open Map – Local' schema document defines the following XML namespaces:

Namespace: http://namespaces.os.uk/open/oml/1.0

Namespace prefix: oml

Feature collection: OSOpenMapLocal

Feature id prefix: id

Schema location: http://www.ordnancesurvey.co.uk/xml/open/oml/1.0/OSOpenMapLocal.xsd

Dictionaries:

http://www.os.uk/xml/codelists/map/BuildingClassificationOML.xml

http://www.os.uk/xml/codelists/map/BuildingThemeOML.xml

http://www.os.uk/xml/codelists/map/CarChargingTypeOML.xml

http://www.os.uk/xml/codelists/map/ChargeMethodOML.xml

http://www.os.uk/xml/codelists/map/RatedVoltageOML.xml

http://www.os.uk/xml/codelists/map/DrawLevelValueOML.xml

http://www.os.uk/xml/codelists/map/OverrideValueOML.xml

http://www.os.uk/xml/codelists/map/RailwayStationClassificationOML.xml

http://www.os.uk/xml/codelists/map/RailwayTrackClassificationOML.xml

http://www.os.uk/xml/codelists/map/RoadClassificationOML.xml

http://www.os.uk/xml/codelists/map/RoundaboutClassificationOML.xml

http://www.os.uk/xml/codelists/map/TidalBoundaryClassificationOML.xml

http://www.os.uk/xml/codelists/map/FontHeightClassificationOML.xml

http://www.os.uk/xml/codelists/map/NamedPlaceClassificationOML.xml

http://www.os.uk/xml/codelists/map/SiteClassificationOML.xml

http://www.os.uk/xml/codelists/sites/SiteTheme.xml

Metadata:

http://www.os.uk/xml/products/OML.xml

Simple Features profile – level 0

GML is designed to support a wide variety of capabilities, ranging from simple contextual mapping, such as

OS Open Map – Local, to products which include complex geometric property types or even spatial and temporal topology. The Simple Feature profile of GML 3.2 defines a restricted subset of GML, allowing scope for greater interoperability.

This product confirms to Simple Feature profile – Level 0.

Geometry

A geometric property is one that describes a specific geometry. All geometric properties are encoded according to the Simple Feature profile, as referenced above.

The XML attribute *srsName* shall be set to *urn:ogc:def:crs:EPSG::27700* which uses eastings and northings specified in meters.

NOTE: EPSG (European Petroleum Survey Group) provides numeric identifiers form many common projections and associated projection or coordinate meta data (such as measurement units or central meridian) for each identifier.

All exterior polygon boundaries have an anticlockwise orientation and all interior polygon boundaries have a clockwise orientation.

TIFF (Raster)

The following chapters include information about OS Open Map - Local raster, file compression, symbology, georeferencing and formats.

Specification	OS Open Map - Local
Data Source	Derived data
Number of tiles in Great Britain	10,588 (edgematched)
Tile size	5 km x 5 km Because digital maps frequently cover very large areas they are split down into squares known as tiles, each of which covers part of an overall area.
Availability	National. The product is supplied as either a single GB zip file or as 55 individual zip files.
Resolution	254 dots per inch
Data structure	Raster
Data Specification	Selection of map features combined
Colour Palette	256 fixed colours
Transfer format	GeoTIFF 8-bit LZW* compressed
Storage Volume per tile	Compressed: 6Kb to approx. 921Mb
Greyscale	A high-quality alternative to colour raster data is to use a GIS to convert data to a greyscale format.

**If LZW compressed formats are used then registration may be required.*

OS Open Map - Local is supplied in the following raster formats: TIFF 8-bit LZW compressed.

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 know as a big-endian (Motorola®) architecture. Most modern computers utilise the Intel® endian system, as a consequence the OML raster TIFFs are supplied with Intel architecture. Converting between these two systems is possible but should be unnecessary as modern operating system are designed to handle both.

The OS OpenMap – Local Raster conforms to the TIFF 6.0 standard.

Data compression

The data volumes for each file format are influenced by the number and size of features compressed. This is predominantly influenced by the location of the data tile (urban, rural or remote).

Image compression

When an image is compressed, duplicated data that has no value is removed or saved in a shorter form, reducing the 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 the degraded it becomes. In many situations, such as posting images on the intranet or printing small to medium sized prints, the image degradation isn't so obvious.

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.

Georeferencing

A definition for registering raster images within a geographic framework is the process of assigning map coordinates to the raster image data and re-sampling 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.

Data Structure and attributes

The data structure applies to both the ESRI Shapefile and OGC GeoPackage.

UML Diagram and Table Conventions

The data structure is described below by means of UML class diagrams and accompanying tables containing text. The UML diagrams conform to the approach specified in ISO 19103 Conceptual schema.

Colour conventions have been used in the diagrams and tables to distinguish the properties that have been added in this specification.

In the UML diagram classes in the Ordnance Survey product specification are orange. All code lists are coloured blue. The tables which follow in this Technical Specification use orange for a feature type and blue for a code list.

Stereotypes

The following stereotypes are used on UML elements:

Stereotype	UML Element	Description
FeatureType	Class	A spatial object type. [ISO 19136]
CodeLIst	Class	A controlled set of values for a free text data type that may be extended.

Features

This section describes the three features available in the OS Open Map – Local product giving the following information about each attribute association:

Name and Definition
The name of the attribute and what it is describing.

Attribute Type
The nature of the attribute, for example, a numeric value or a logical indicator.

Multiplicity
Describes how many times this element is expected to be populated in the data. An attribute may be optional, mandatory and may have multiple occurrences. For example:

‘1’ there must be a value

‘2’ there must be two values

‘n’ there may be one or more values

‘0’ population is optional

These values may be used in combination.

Association

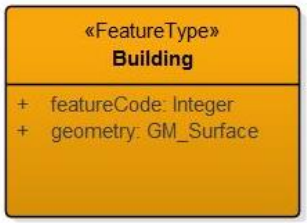
An association identifies the relationship between features. These relationships are by reference only and the value will be the identifier of the referenced feature.

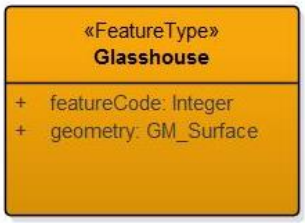
Feature types

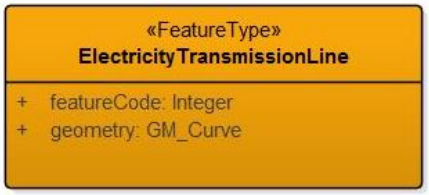
The product contains twenty feature types:

- Building
- CarChargingPoint
- Glasshouse
- ElectricityTransmissionLines
- RailwayStation
- RailwayTrack
- RailwayTunnel
- Road
- RoadTunnel
- Roundabout
- MotorwayJunction
- Foreshore
- FunctionalSite
- ImportantBuilding
- NamedPlace
- SurfaceWater_Area
- SurfaceWater_Line
- TidalBoundary
- TidalWater
- Woodland

Buildings and Structures







Building

«FeatureType» Building		
Definition: A built entity that includes a roof. This is a generalised building and could be made up of an amalgamation of other buildings and structures.		
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: Polygon representing the generalised building.		
Type: GM_Surface	**Length**:	**Multiplicity**: [1]

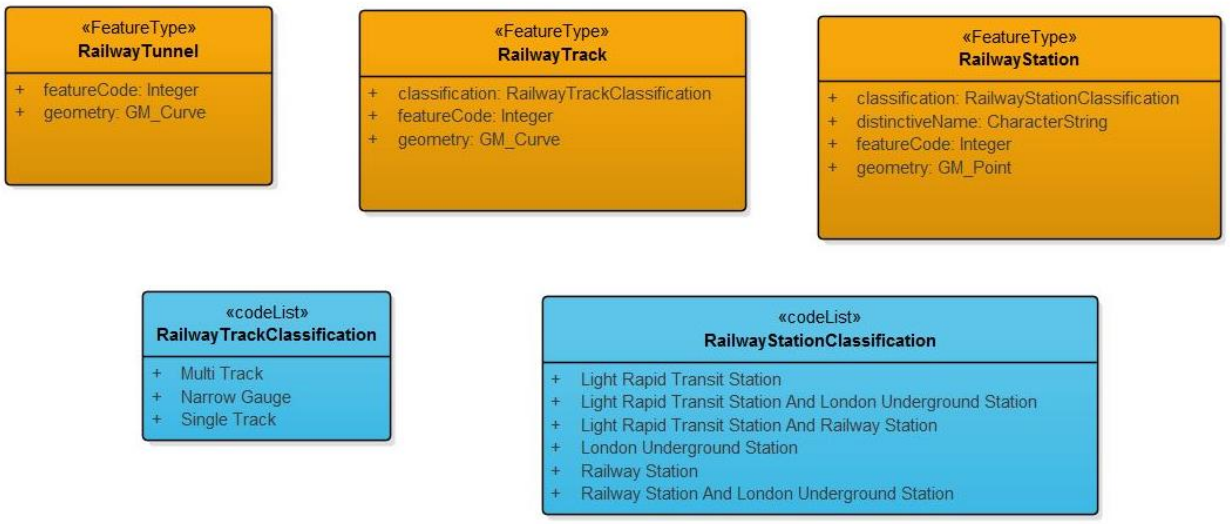
ElectricityTransmissionLine

«FeatureType» ElectricityTransmissionLine		
Definition: Cables used to supply electricity that are suspended between pylons.		
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: Line representing the alignment of the electricity transmission line.		
Type: GM_Curve	**Length**:	**Multiplicity**: [1]

Glasshouse

«FeatureType» Glasshouse		
Definition: A building constructed largely of glass for the purposes of commercial horticulture. This is a generalised glasshouse and could be made up of an amalgamation of individual glasshouses. Only glasshouses larger than 5000m^2 are included.		
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length:**	**Multiplicity:** [1]
Attribute: geometry		
Definition: Polygon representing the generalised glasshouse.		
Type: GM_Surface	**Length**:	**Multiplicity**: [1]

Communications – Rail



RailwayStation

«FeatureType» RailwayStation		
Definition: Point feature representing the buildings and platforms by a railway line where a train may stop to pick-up or drop-off goods or passengers.		
Attribute: classification		
Definition: The classification of the RailwayStation. The valid values are defined in the RailwayStationClassification code list.		
Type: RailwayStationClassification	**Length**: 65	**Multiplicity**: [1]
Attribute: distinctiveName		
Definition: The name of the station, consistent with the names used by National Rail Enquiries. The suffix 'Station' is not added to the name.		
Type: CharacterString	**Length**: 150	**Multiplicity**: [1]
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: Point representing the position of the railway station.		
Type: GM_Point	**Length**:	**Multiplicity**: [1]

RailwayStationClassification

Code List: RailwayStationClassification	
Code	Description
Light Rapid Transit Station	A station on a railway designed for the transport of passengers within areas that are primarily urban. Characterised by high density of stations, large passenger volumes and relatively short journeys. They have many names in local use such as Tram, Underground, Metro, Tramlink and so on.
Railway Station	A station on the main national passenger rail network. Such lines may also carry freight. Also includes stations on railways that have been maintained or restored by an individual, group or society. They may be open for tourist and/or local use and are often called Heritage Lines.
London Underground Station	A subtytpe of Light Rapid Transit Station within the London area managed by Transport for London. Stations part of the London Underground network are uniquely identified for historic reasons.
Railway Station And London Underground Station	A station that functions both as a Railway Station and a London Underground Station. Also includes rare cases where additionally the station functions as a Light Rapid Transport Station.
Light Rapid Transit Station And Railway Station	A station that functions both as a Light Rapid Transit Station and a Railway Station.
Light Rapid Transit Station And London Underground Station	A station that functions both as a Light Rapid Transit Station and a London Underground Station.

RailwayTrack

«FeatureType» RailwayTrack		
Definition: All railways are represented as lines and are broken where they pass under bridges, buildings or other obstructing detail. Railway sidings and the tracks of travelling structures are not included.		
Attribute: classification		
Definition: The classification of the RailwayTrack. The valid values are defined in the RailwayTrackClassification code list.		
Type: RailwayTrackClassification	**Length**: 45	**Multiplicity**: [1]
Attribute: geometry		
Definition: Line representing the alignment of the railway track.		
Type: GM_Curve	**Length**:	**Multiplicity**: [1]
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]

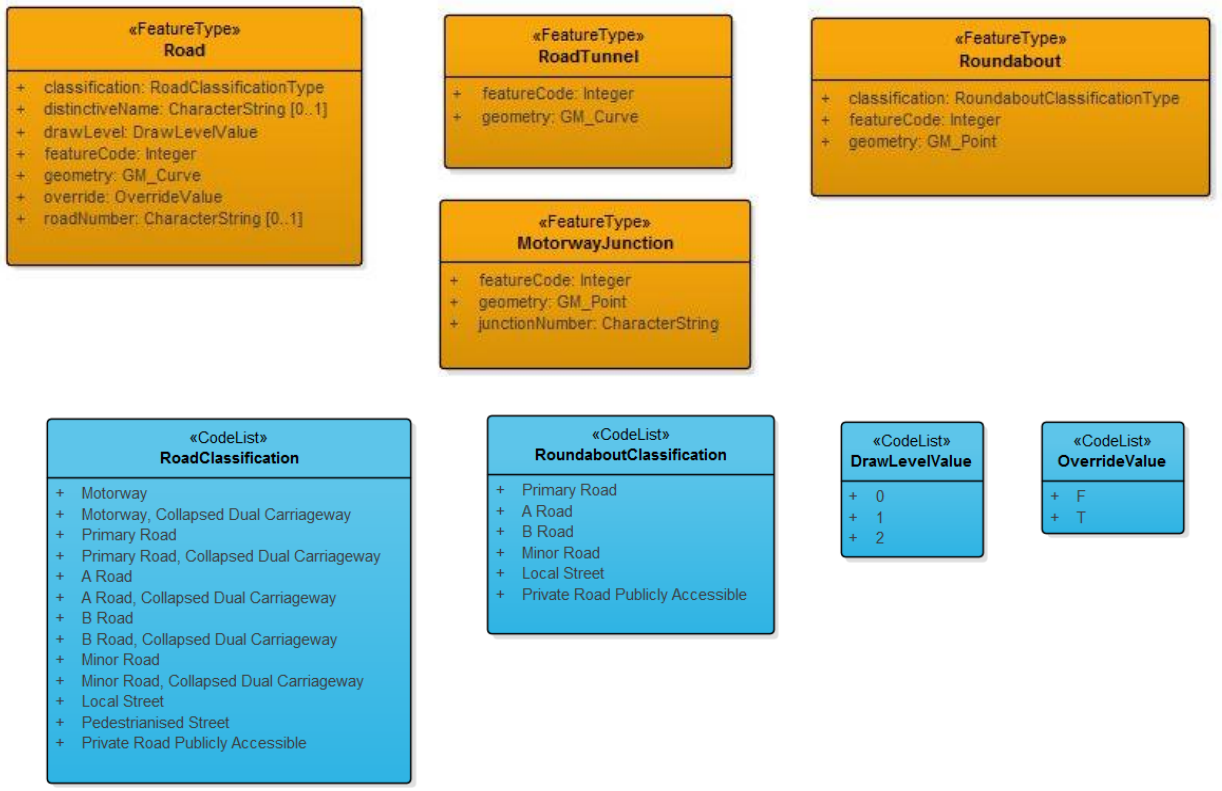
RailwayTrackClassification

Code List: RailwayTrackClassification	
Code	Description
Multi Track	A representation of two or three parallel or near parallel pairs of rails up to a specified distance apart.
Single Track	A representation of a pair of rails that are not parallel or near parallel to another pair of rails within a specified distance.
Narrow Gauge	A representation of a pair of rails that are more than 0.508m and less than 1.435m apart. Also includes monorails.

RailwayTunnel

«FeatureType» RailwayTunnel		
Definition: Railway tunnels are represented as approximate centrelines of the railway that runs through the tunnel.		
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: Line representing the alignment of the railway tunnel.		
Type: GM_Curve	**Length:**	**Multiplicity**: [1]

Communication – Road



Road

«FeatureType» Road		
Definition: A road is defined as a metalled way for vehicles. A vehicle is defined as one with wheels on both sides of its body. Metalling is defined as any artificial (man-made) surface including areas of asphalt, concrete and gravel. Roads that form part of the public network and driveways to private properties that are over 100m in length are captured. Dual carriageways are represented by centrelines when the two carriageways are closer than 32.5m, roundabouts are represented by points when smaller than 450m^2, dead ends are removed when shorter than 36m and roads are simplified with a 4m tolerance.		
Attribute: classification		
Definition: The classification of the Road. The valid values are defined in the RoadClassification code list.		
Type: RoadClassificationType	**Length**: 45	**Multiplicity**: [1]
Attribute: distinctiveName		
Definition: The name of the road. When a road is dual named, the Welsh or Gaelic name is presented first, followed by a space, a forward slash, a space and then the English name.		
Type: CharacterString	**Length**: 100	**Multiplicity**: [0..1]
Attribute: drawLevel		
Definition: The drawLevel value of the Road, used for cartographic styling. The valid values are defined in the DrawLevelValue code list.		
Type: DrawLevelValue	**Length**: 1	**Multiplicity**: [1]

Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	Length:	Multiplicity: [1]
Attribute: geometry		
Definition: Line representing the alignment of the road.		
Type: GM_Curve	Length:	Multiplicity: [1]
Attribute: override		
Definition: The override value of the Road used for cartographic styling. The valid values are defined in the OverrideValue code list.		
Type: OverrideValue	Length: 1	Multiplicity: [1]
Attribute: roadNumber		
Definition: For Roads with RoadClassification of Motorway, Primary Road, A Road and B Road, this is the number of the road defined by the Department for Transport.		
Type: CharacterString	Length: 10	Multiplicity: [0..1]

RoadClassificationType

Code List: RoadClassificationType	
Value	Description
A Road	A public road, classified as an A road by the Department for Transport, connecting areas of regional importance, always numbered, sometimes named, often with addresses. For dual carriageways, the carriageways in both travel directions are represented separately when they are more than 32.5m apart.
A Road, Collapsed Dual Carriageway	A public road, classified as an A road by the Department for Transport, connecting areas of regional importance, always numbered, sometimes named, often with addresses. For dual carriageways, the carriageways in both travel directions are represented by a single line when they are closer than 32.5m apart.
B Road	A public road, classified as a B road by the Department for Transport, connecting places of local significance, always numbered, sometimes named, often with addresses. For dual carriageways, the carriageways in both travel directions are represented separately when they are more than 32.5m apart.
B Road, Collapsed Dual Carriageway	A public road, classified as a B road by the Department for Transport, connecting places of local significance, always numbered, sometimes named, often with addresses. For dual carriageways, the carriageways in both travel directions are represented by a single line when they are closer than 32.5m apart.
Guided Busway Carriageway	A specially constructed or modified route for passenger road vehicles that have been built or adapted to be steered by external means. Typically, along guided busways, a raised kerb acts upon small wheels protruding from the sides of the modified vehicle.

	This classification is only for the specific cases where buses run along specifically designed tracks or channels that remove the need for steering.
Local Access Road	A privately-maintained road or a road within a property boundary where access by the public is considered usual for at least some part of the day. For example, a road within a Hospital, Sports Center or School. These roads are sometimes named and sometimes have addresses.
Local Road	A public road that provides access to land and/or houses, usually named with addresses. Generally, not intended for through traffic. For dual carriageways, the carriageways in both travel directions are represented separately when they are more than 32.5m apart and a single line when they are closer than 32.5m apart.
Minor Road	A public road without a Department for Transport classification of motorway, A or B that connects the roads defined below to B and higher classification roads. In urban areas usually named, often with addresses. In rural areas sometimes named and sometimes with addresses. For dual carriageways, the carriageways in both travel directions are represented separately when they are more than 32.5m apart.
Minor Road, Collapsed Dual Carriageway	A public road without a Department for Transport classification of motorway, A or B that connects the roads defined below to B and higher classification roads. In urban areas usually named, often with addresses. In rural areas sometimes named and sometimes with addresses. For dual carriageways, the carriageways in both travel directions are represented by a single line when they are closer than 32.5m apart.
Motorway	A multi-carriageway public road connecting important cities, always numbered with no addresses. For dual carriageways, the carriageways in both travel directions are represented separately when they are more than 32.5m apart.
Motorway, Collapsed Dual Carriageway	A multi-carriageway public road connecting important cities, always numbered with no addresses. For dual carriageways, the carriageways in both travel directions are represented by a single line when they are closer than 32.5m apart.
Primary Road	A public road, classified as an A road or B road, that has been additionally classified as a primary route by the Department for Transport, to supplement the motorway network connecting important cities. For dual carriageways, the carriageways in both travel directions are represented separately when they are more than 32.5m apart.
Primary Road, Collapsed Dual Carriageway	A public road, classified as an A road or B road, that has been additionally classified as a primary route by the Department for Transport, to supplement the motorway network connecting important cities. For dual carriageways, the carriageways in both travel directions are represented by a single line when they are closer than 32.5m apart.
Restricted Local Access Road	A road that provides access to land and/or properties that is not maintained at the public expense by a highway authority, and where accessible restricted. They are not intended for through traffic and would normally only be used at the start or end of a journey.
Shared Use Carriageway	Roads that have been altered for use principally by pedestrians but may provide some access for certain types of vehicle.

RoadTunnel

«FeatureType» RoadTunnel		
Definition: Road tunnels are represented as approximate centrelines of the road that runs through the tunnel.		
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length:**	**Multiplicity:** [1]
Attribute: geometry		
Definition: Line representing the alignment of the road tunnel.		
Type: GM_Curve	**Length**:	**Multiplicity**: [1]

Roundabout

«FeatureType» Roundabout		
Definition: Roundabouts smaller than 450m^2 are represented as point features, and the roads are extended to meet at the centre point. Mini roundabouts are not included.		
Attribute: classification		
Definition: The classification of the Roundabout. The valid values are defined in the RoundaboutClassification code list.		
Type: RoundaboutClassification	**Length**: 45	**Multiplicity**: [1]
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: Point representing the position of the roundabout.		
Type: GM_Point	**Length**:	**Multiplicity**: [1]

RoundaboutClassificationType

Code List: RoundaboutClassificationType	
Value	Description
A Road	A roundabout smaller than 450m^2, where the highest classification through road is an A Road, as defined by RoadClassification.
B Road	A roundabout smaller than 450m^2, where the highest classification through road is a B Road, as defined by RoadClassification.
Local Access Road	A roundabout smaller than 450m^2, where the highest classification through road is a Local Access Road, as defined by RoadClassification.
Local Road	A roundabout smaller than 450m^2, where the highest classification through road is a Local Road, as defined by RoadClassification.
Minor Road	A roundabout smaller than 450m^2, where the highest classification through road is a Minor Road, as defined by RoadClassification.
Primary Road	A roundabout smaller than 450m^2, where the highest classification through road is a Primary Road, as defined by RoadClassification.
Restricted Local Access Road	A roundabout smaller than 450m^2, where the highest classification through road is a Restricted Local Access Road, as defined by RoadClassification.

MotorwayJunction

«FeatureType» MotorwayJunction		
Definition: Point feature representing the approximate location of numbered junction on a Motorway.		
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: Point feature representing the approximate location of numbered junction on a Motorway.		
Type: GM_Point	**Length**:	**Multiplicity**: [1]
Attribute: junctionNumber		
Definition: The motorway junction number assigned by the Department for Transport.		
Type: CharacterString	**Length:** 10	**Multiplicity:** [1]

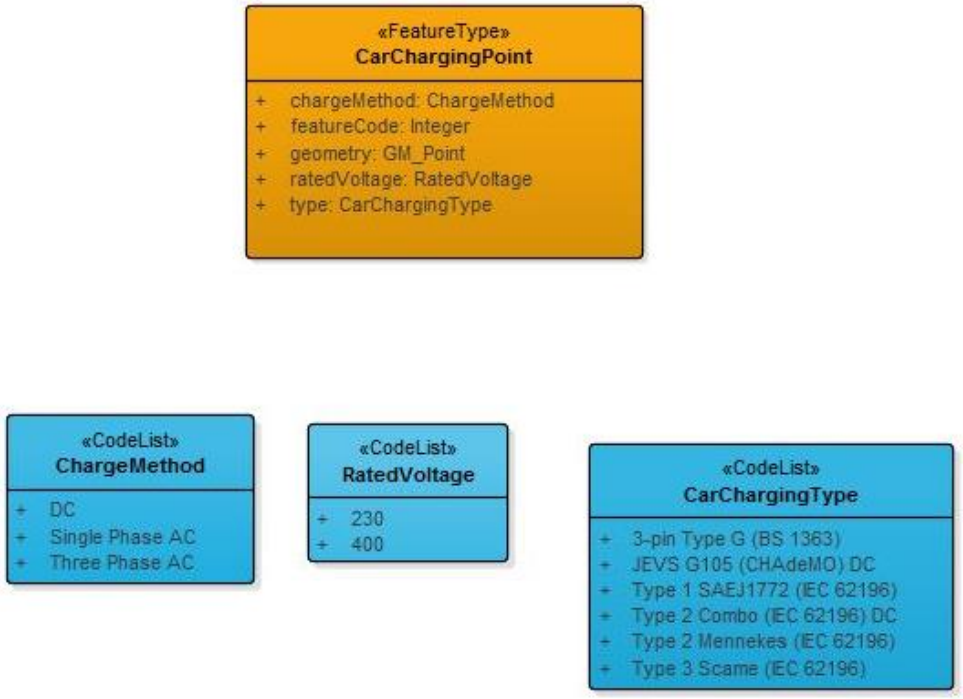
DrawLevelValue

Code List: DrawLevelValue	
Value	Description
0	The default draw level. Roads with draw level 0 are to be displayed first, with draw levels 1 and 2 overlaid on top.
1	Used for road bridges and overpasses. Roads with draw level 1 are to be overlaid on top of draw level 0 roads.
2	Used in very rare cases when there are several coincident levels of road bridge or overpass. Roads with draw level 2 are to be overlaid on top of draw levels 0 and 1.

OverrideValue

Code List: OverrideValue	
Value	Description
F	The default value; has no impact on the styling of roads.
T	Used when a higher classification road (eg. a slip road) terminates at a T-junction with a lower classification road. This scenario can result in the colour of the higher classification road bleeding into the lower classification road. This attribute is used to override the standard road hierarchy, allowing the higher classification road to be pushed down the drawing order.

Car Charging Point



CarChargingPoint

«FeatureType» CarChargingPoint		
Definition: An electric vehicle charging station, also called EV charging station, electric recharging point, charging point, charge point and EVSE (Electric Vehicle Supply Equipment), is an element in an infrastructure that supplies electric energy for the recharging of electric vehicles, such as plug-in electric vehicles, including electric cars, neighbourhood electric vehicles and plug-in hybrids.		
Attribute: chargeMethod		
Definition: Determines the type of current used in charging.		
Type: ChargeMethod	**Length**: 15	**Multiplicity**: [1]
Attribute: featureCode		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: The location of the car charging facility is represented as a point feature.		
Type: GM_Point	**Length**:	**Multiplicity**: [1]
Attribute: ratedVoltage		
Definition: The voltage available at the car charging point. Higher voltage levels charge batteries more rapidly.		
Type: RatedVoltage	**Length**: 3	**Multiplicity**: [1]
Attribute: type		
Definition: The type of connector. This is determined by whether an EV is charged using AC or DC, the charging speed (kW power) and the safety protocol employed. Having different countries of origin, the make and model will also determine what connector are used.		
Type: CarChargingType	**Length**: 27	**Multiplicity**: [1]

CarChargingType

Code List: CarChargingType The type of connector. This is determined by whether an EV is charged using AC or DC, the charging speed (kW power) and the safety protocol employed. Having different countries of origin, the make and model will also determine which connector are used.	
Value	Description
3-pin Type G (BS 1363)	EV cable with an infrastructure end plug that is commonly used in the UK household (i.e. a three pin BS1363 plug).
JEVS G105 (CHAdeMO) DC	A CHAdeMO quick-charger delivers 50 kW of high voltage direct current via a special safety approved connector with specification that can go up to 100kW.
Type 1 SAEJ1772 (IEC 62196)	The SAE J1772-2009 connector, is commonly found on EV charging equipment in North America.
Type 2 Combo (IEC 62196) DC	The Combined Charging System is a quick charging method, delivering high-voltage direct current via a special electrical connector derived from the SAE J1772 (IEC Type 1) or IEC Type 2 connector. The plug is a combination of an AC connector with a DC option.
Type 2 Mennekes (IEC 62196)	The IEC 62196 Type 2 connector is used for charging electric cars within Europe. Electric power is provided as single-phase or three-phase alternating current (AC), or direct current (DC).
Type 3 Scame (IEC 62196)	Type 3 sockets and socket-outlets have shutters. These shutters are mandatory in the UK to prevent children (and adults) from contacting live parts.

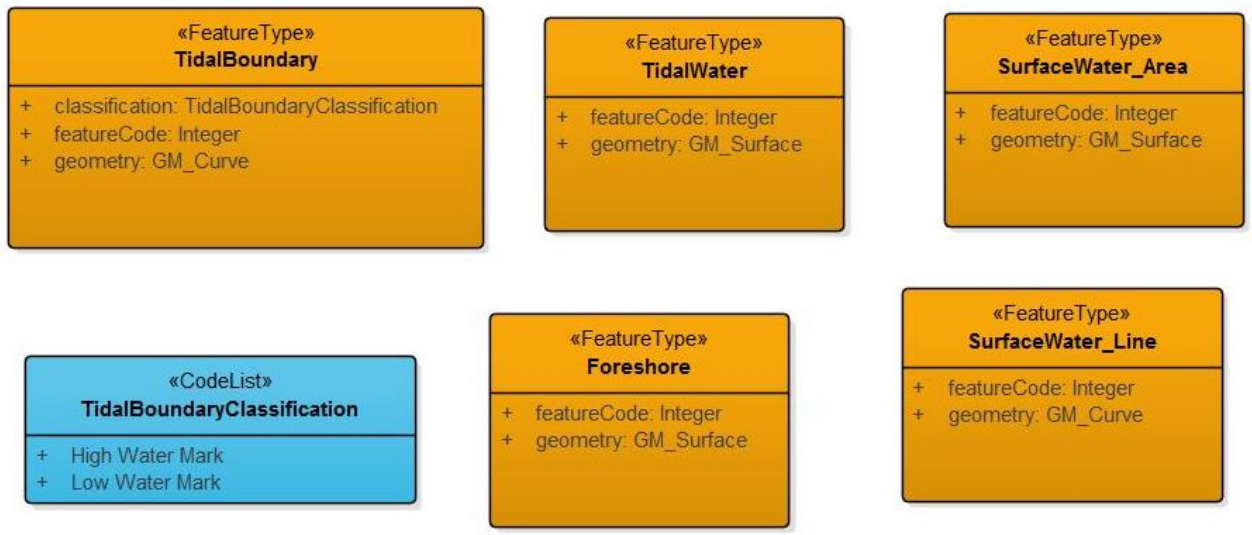
ChargeMethod

Code List: ChargeMethod Determines the type of current used in charging.	
Value	Description
DC	The electrical current direction is constant and does not change.
Single Phase AC	The distribution of alternating current uses a system in which all of the voltages of the supply vary in unison.
Three Phase AC	Three Phase electrical power systems have at least three conductors carrying alternating current voltages that are offset in time by one-third of the period.

RatedVoltage

Code List: RatedVoltage The voltage available at the car charging point. Higher voltage levels charge batteries more rapidly.	
Value	Description
230	The voltage available is 230V.
400	The voltage available is 400V.

Hydrology



Foreshore

«FeatureType» Foreshore		
Definition: The part of the shore or beach which lies between the Low Water Mark and High Water Mark defined by the TidalBoundaries. The same condition may exist in non-contiguous off-shore areas.		
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length:**	**Multiplicity:** [1]
Attribute: geometry		
Definition: Polygon representing the area of foreshore.		
Type: GM_Surface	**Length**:	**Multiplicity**: [1]

SurfaceWater_Area

«FeatureType» SurfaceWater_Area		
Definition: An inland waterway body sufficiently wide enough to capture as an area feature. Small lakes and small islands in waterbodies are not included.		
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: Polygon representing the area of surface water.		
Type: GM_Surface	**Length**:	**Multiplicity**: [1]

SurfaceWater_Line

«FeatureType» SurfaceWater_Line		
Definition: An inland waterway body not sufficiently wide enough to capture as an area feature.		
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: Line representing the alignment of the surface water.		
Type: GM_Curve	**Length**:	**Multiplicity**: [1]

TidalWater

«FeatureType» TidalWater		
Definition: Polygons defining the extents of tidal water, up to the High Water Mark defined by the TidalBoundaries and the Normal Tidal Limit of rivers. Tidal water is not included under bridges.		
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: Polygon representing the area of tidal water.		
Type: GM_Surface	**Length**:	**Multiplicity**: [1]

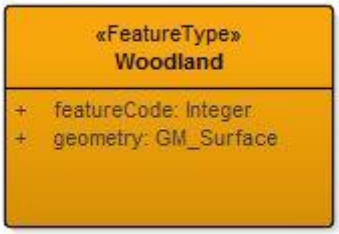
TidalBoundary

«FeatureType» TidalBoundary		
Definition: In England and Wales these tide lines will be the levels of mean tides, ie of a tide between a spring and neap tide. In Scotland the tide lines are those of mean spring tides. In places where there is no Foreshore (eg. vertical cliffs), the TidalBoundary is classified as 'High Water Mark'.		
Attribute: classification		
Definition: The classification of the TidalBoundary. The valid values are defined in the TidalBoundaryClassification code list.		
Type: TidalBoundaryClassification	**Length**: 45	**Multiplicity**: [1]
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: Line representing the alignment of the tidal boundary.		
Type: GM_Curve	**Length**:	**Multiplicity**: [1]

TidalBoundaryClassification

Code List: TidalBoundaryClassification	
Value	**Description**
High Water Mark	In England and Wales this is the mean level of all the high tides, in Scotland this is the mean level of the spring high tides. In places where there is no Foreshore (eg. vertical cliffs), the TidalBoundary is classified as High Water Mark.
Low Water Mark	In England and Wales this is the mean level of all the low tides, in Scotland this is the mean level of the spring low tides. When there is Foreshore, this defines the lower limit of Foreshore.

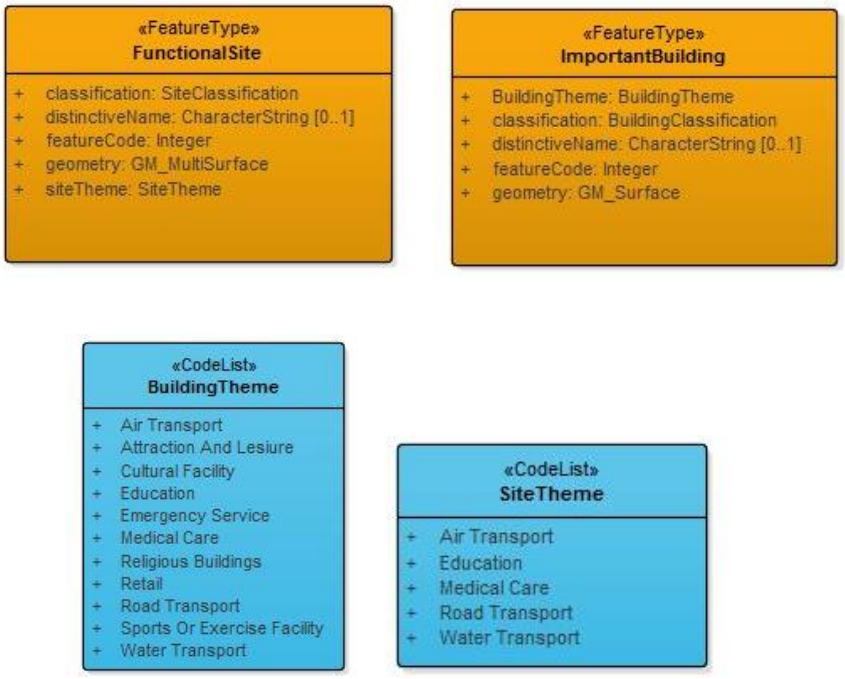
Land Cover



Woodland

«FeatureType» Woodland		
Definition: Areas of trees; coniferous, non-coniferous and mixed are represented as polygons. Small areas of woodland are omitted and small clearings in woodland are filled.		
Attribute: geometry		
Definition: Polygon representing the area of woodland.		
Type: GM_Surface	**Length**:	**Multiplicity**: [1]
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]

Land Use



Please note for SiteClassification and BuildingClassification lists please see the tables on pages 47-48.

FunctionalSite

«FeatureType» FunctionalSite		
Definition: A polygon feature that represents the area or extent of certain types of function or activity with appropriate attribution.		
Attribute: classification		
Definition: A description of the actual function of a site (that is, airfield, junior school, hospital and so on.) The valid values are defined in the SiteClassification code list. For sites with multiple functions, the values will be provided together and separated by a ‘,’.		
Type: SiteClassification	**Length**: 90	**Multiplicity**: [1]
Attribute: distinctiveName		
Definition: The name of the site (for example, ‘Brighton College’). Note this may be null if the captured value is a house number.		
Type: CharacterString	**Length**: 120	**Multiplicity**: [0..1]
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: Polygon representing the extent of the functional site.		
Type: GM_MultiSurface	**Length**:	**Multiplicity**: [1]

Attribute: siteTheme		
Definition: A description of the theme that a particular site falls under (that is, air transport, education, medical care and so on.). The valid values are defined in the SiteThemeType code list.		
Type: SiteTheme	**Length**: 21	**Multiplicity**: [1]

ImportantBuilding

«FeatureType» ImportantBuilding		
Definition: A generalised building that belongs to a FunctionalSite.		
Attribute: BuildingTheme		
Definition: A description of the theme that a particular site falls under (that is, air transport, education, medical care and so on.). The valid values are defined in the SiteThemeType code list.		
Type: BuildingTheme	**Length**: 27	**Multiplicity**: [1]
Attribute: classification		
Definition: A description of the actual function of a site (that is, airfield, junior school, hospital and so on.) The valid values are defined in the SiteClassification code list. For sites with multiple functions, the values will be provided together and separated by a ‘,’.		
Type: BuildingClassification	**Length**: 90	**Multiplicity**: [1]
Attribute: distinctiveName		
Definition: The name of the site (for example, ‘Brighton College’). Note this may be null if the captured value is a house number.		
Type: CharacterString	**Length**: 120	**Multiplicity**: [0..1]
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: geometry		
Definition: Polygon representing the generalised important building.		
Type: GM_Surface	**Length**:	**Multiplicity**: [1]

BuildingTheme

Code List: BuildingTheme	
Value	**Description**
Air Transport	This theme includes all sites associated with movement of passengers and goods by air, or where aircraft take off and land.
Attraction And Lesiure	A feature that provides non-sporting leisure activities for the public. Includes tourist attractions.
Cultural Facility	A feature that is deemed to be of particular interest to society.
Education	This theme includes a very broad group of sites with a common high level primary function of providing education (either state funded or by fees).

Emergency Service	Emergency services are organizations which ensure public safety and health by addressing different emergencies.
Medical Care	This theme includes sites which focus on the provision of secondary medical care services.
Religious Buildings	A place where members of a religious group congregate for worship.
Retail	A feature that sells to the general public finished goods.
Road Transport	This theme includes three types of sites: Bus Stations, Coach Stations and Road user services.
Sports Or Exercise Facility	A feature where many different sports can be played.
Water Transport	This theme includes sites involved in the transfer of passengers and or goods onto vessels for transport across water.

SiteTheme

Code List: SiteTheme	
Value	**Description**
Air Transport	This theme includes all sites associated with movement of passengers and goods by air, or where aircraft take off and land.
Education	This theme includes a very broad group of sites with a common high level primary function of providing education (either state funded or by fees).
Medical Care	This theme includes sites which focus on the provision of secondary medical care services.
Road Transport	This theme includes three types of sites: Bus Stations, Coach Stations and Road user services.
Water Transport	This theme includes sites involved in the transfer of passengers and or goods onto vessels for transport across water.

BuildingClassification

Code List: BuildingClassification	
Value	**Description**
Airport	A site where aircraft land and take off and which provide facilities for handling passengers, air freight and servicing aircraft.
Art Gallery	A building where works of art are displayed for public viewing.
Bus Station	A place where buses begin, break or end their journey and at which passengers may embark or disembark.
Bus Station,Coach Station	A site serving as both a Bus Station and a Coach Station.
Coach Station	A place where coaches begin, break or end a journey and at which passengers may embark or disembark. A coach station may consist of buildings or may simply be an area specifically set aside with shelters and signage etc.

Fire Station	A facility which may house fire fighters, and contains the equipment and vehicles.
Further Education	An educational site for academic and vocational qualifications below degree level undertaken after age 16.
Further Education,Higher or University Education	A site providing both Further Education and Higher or University Education.
Further Education,Non Sate Primary Education,Non State Secondary Education	A site providing Further Education, Non State Primary Education, and Non State Secondary Education.
Further Education,Non State Primary Education,Secondary Education	A site providing Further Education, Non State Primary Education, and Secondary Education.
Further Education,Non State Secondary Education	A site providing Further Education and Non State Secondary Education.
Further Education,Primary Education	A site providing Further Education and Primary Education.
Further Education,Primary Education,Secondary Education	A site providing Further Education, Primary Education, and Secondary Education.
Further Education,Primary Education,Secondary Education,Special Needs Education	A site providing Further Education, Primary Education, Secondary Education, and Special Needs Education.
Further Education,Secondary Education	A site providing Further Education and Secondary Education.
Further Education,Special Needs Education	A site providing Further Education and Special Needs Education.
Helicopter Station	A facility from where bodies such as the police or ambulance service operate helicopter operations.
Heliport	An airport specifically designed for use by helicopters.
Higher or University Education	A site where students study at National Qualifications Framework level 4 and above.
Hospice	A medical facility to care for patients with terminal conditions.
Hospital	A medical facility that provides second level care.
Hospital, Medical Care Accommodation	A Hospital and Medical Care Accommodation.
Library	A site where books and other material are available for loan or reference.
Medical Care Accommodation	A site that provides both long term medical accommodation and medical care. Please see also Hospice Site for care for the terminally ill.
Museum	A place or building where artifacts of historical or other interests are preserved, studied or displayed to the public.
Non State Primary Education	An educational establishment for children from the ages of seven to eleven that is not funded by the state.
Non State Primary Education,Non State Secondary Education	A site providing Non State Primary Education and Non State Secondary Education.

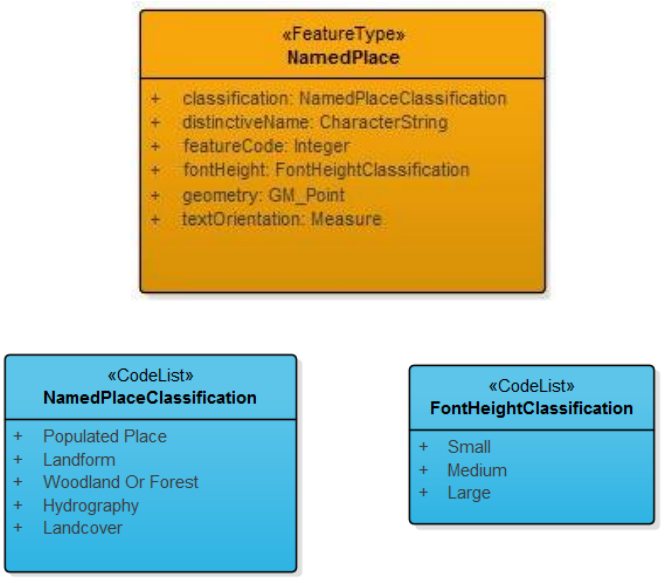
Non State Primary Education,Non State Secondary Education,Special Needs Education	A site providing Non State Primary Education, Non State Secondary Education, and Special Needs Education.
Non State Primary Education,Secondary Education	A site providing Non State Primary Education and Secondary Education.
Non State Secondary Education	An educational establishment for children of eleven years and over, that is not funded by the state.
Non State Secondary Education,Primary Education	A site providing Non State Secondary Education and Primary Education.
Non State Secondary Education,Special Needs Education	A site providing Non State Secondary Education and Special Needs Education.
Passenger Ferry Terminal	A site facilitating the embarkation and disembarkation of pedestrian ferry passengers.
Passenger Ferry Terminal,Vehicular Ferry Terminal	A combined Passenger Ferry Terminal and Vehicular Ferry Terminal.
Place Of Worship	An establishment where people can worship according to their particular faith.
Police Station	The local office of a police force in a particular area.
Port Consisting of Docks and Nautical Berthing	A complex with extensive infrastructure where a ships cargo is loaded and unloaded or vessels berthed.
Post Office	A building which provides access to Royal Mail postal services, either as a dedicated site or as part of another retail outlet.
Primary Education	An educational establishment for children from the ages of seven to eleven that is funded principally by the state.
Primary Education,Secondary Education	A site providing Primary Education and Secondary Education.
Primary Education,Secondary Education,Special Needs Education	A site providing Primary Education, Secondary Education, and Special Needs Education.
Primary Education,Special Needs Education	A site providing Primary Education and Special Needs Education.
Road User Services	An area for supply of fuel, refreshments and so on near a road.
Secondary Education	An educational establishment for children over 11 years old.
Secondary Education,Special Needs Education	A site providing Secondary Education and Special Needs Education.
Special Needs Education	A specialist school for the teaching of those with disabilities.
Sport And Leisure Centre	A staffed recreational establishment that is publicly available (but which may require membership) and mainly, but not exclusively sports based (both indoors and/or outdoors). This site may include swimming pools and gymnasiums, facilities for exercise classes, bars and health spars.
Tourist Information	A place that supplies the public with a range of tourist information about a general area.
Vehicular Ferry Terminal	A site facilitating the embarkation and disembarkation of ferry passengers and their vehicles.

SiteClassification

Code List: SiteClassification	
Value	**Description**
Airfield	An area of ground where aircraft take off and land. It may have some permanent buildings but it is smaller than an airport and may be for private use only.
Airport	A site where aircraft land and take off and which provide facilities for handling passengers, air freight and servicing aircraft.
Bus Station	A place where buses begin, break or end their journey and at which passengers may embark or disembark.
Bus Station,Coach Station	A site serving as both a Bus Station and a Coach Station.
Coach Station	A place where coaches begin, break or end a journey and at which passengers may embark or disembark. A coach station may consist of buildings or may simply be an area specifically set aside with shelters and signage etc.
Further Education	An educational site for academic and vocational qualifications below degree level undertaken after age 16.
Further Education,Higher or University Education	A site providing both Further Education and Higher or University Education.
Further Education,Non State Primary Education,Non State Secondary Education	A site providing Further Education, Non State Primary Education, and Non State Secondary Education.
Further Education,Non State Primary Education,Secondary Education	A site providing Further Education, Non State Primary Education, and Secondary Education.
Further Education,Non State Secondary Education	A site providing Further Education and Non State Secondary Education.
Further Education,Primary Education	A site providing Further Education and Primary Education.
Further Education,Primary Education,Secondary Education	A site providing Further Education, Primary Education, and Secondary Education.
Further Education,Primary Education,Secondary Education,Special Needs Education	A site providing Further Education, Primary Education, Secondary Education, and Special Needs Education.
Further Education,Secondary Education	A site providing Further Education and Secondary Education.
Further Education,Special Needs Education	A site providing Further Education and Special Needs Education.
Helicopter Station	A facility from where bodies such as the police or ambulance service operate helicopter operations.
Heliport	An airport specifically designed for use by helicopters.
Higher or University Education	A site where students study at National Qualifications Framework level 4 and above.
Hospice	A medical facility to care for patients with terminal conditions.
Hospital	A medical facility that provides second level care.

Hospital,Medical Care Accommodation	A Hospital and Medical Care Accommodation.
Medical Care Accommodation	A site that provides both long term medical accommodation and medical care. Please see also Hospice Site for care for the terminally ill.
Non State Primary Education	An educational establishment for children from the ages of seven to eleven that is not funded by the state.
Non State Primary Education,Non State Secondary Education	A site providing Non State Primary Education and Non State Secondary Education.
Non State Primary Education,Non State Secondary Education,Special Needs Education	A site providing Non State Primary Education, Non State Secondary Education, and Special Needs Education.
Non State Primary Education,Secondary Education	A site providing Non State Primary Education and Secondary Education.
Non State Secondary Education	An educational establishment for children of eleven years and over, that is not funded by the state.
Non State Secondary Education,Primary Education	A site providing Non State Secondary Education and Primary Education.
Non State Secondary Education,Special Needs Education	A site providing Non State Secondary Education and Special Needs Education.
Passenger Ferry Terminal	A site facilitating the embarkation and disembarkation of pedestrian ferry passengers.
Passenger Ferry Terminal,Vehicular Ferry Terminal	A combined Passenger Ferry Terminal and Vehicular Ferry Terminal.
Port Consisting of Docks and Nautical Berthing	A complex with extensive infrastructure where a ships cargo is loaded and unloaded or vessels berthed.
Primary Education	An educational establishment for children from the ages of seven to eleven that is funded principally by the state.
Primary Education,Secondary Education	A site providing Primary Education and Secondary Education.
Primary Education,Secondary Education,Special Needs Education	A site providing Primary Education, Secondary Education, and Special Needs Education.
Primary Education,Special Needs Education	A site providing Primary Education and Special Needs Education.
Road User Services	An area for supply of fuel, refreshments and so on near a road.
Secondary Education	An educational establishment for children over 11 years old.
Secondary Education,Special Needs Education	A site providing Secondary Education and Special Needs Education.
Special Needs Education	A specialist school for the teaching of those with disabilities.
Vehicular Ferry Terminal	A site facilitating the embarkation and disembarkation of ferry passengers and their vehicles.

Named Places



NamedPlace

«FeatureType» NamedPlace		
Definition: A representative point feature giving the general location of a settlement name or geographic place name, for the purposes of text placement.		
Attribute: classification		
Definition: The classification of the NamedPlace. The valid values are defined in the NamedPlaceClassification code list.		
Type: NamedPlaceClassification	**Length**: 40	**Multiplicity**: [1]
Attribute: distinctiveName		
Definition: The settlement name or geographic place name. When a place is dual named, the Welsh or Gaelic name is presented first, followed by a space, a forward slash, a space and then the English name.		
Type: CharacterString	**Length**: 100	**Multiplicity**: [1]
Attribute: featureCode		
Definition: A unique feature code to facilitate styling.		
Type: Integer	**Length**:	**Multiplicity**: [1]
Attribute: fontHeight		
Definition: A suggested text size to use for placing the distinctiveName as cartographic text. For most names the text size is proportional to the size of the area to which the name applies. For valleys the text size is based on the valley length and for hills/mountains, the text size is based on the height of the summit. The valid values are defined in the FontHeightClassification code list.		
Type: FontHeightClassification	**Length**: 11	**Multiplicity**: [1]
Attribute: geometry		
Definition: Point representing the cartographic position of the named place.		
Type: GM_Point	**Length**:	**Multiplicity**: [1]

Attribute: textOrientation		
Definition: Suggested text orientation (in degrees) to use for cartographic text placement of valley names, names of stretches of water and estuaries.		
Type: Measure	**Length**:	**Multiplicity**: [1]

FontHeightClassification

Code List: FontHeightClassification	
Value	**Description**
Large	Large text size.
Medium	Medium text size.
Small	Small text size.

NamedPlaceClassification

Code List: NamedPlaceClassification	
Value	**Description**
Hydrography	Name of an area of surface or tidal water, such as a lake, reservoir, bay, estuary, sea channel or sea area.
Landcover	Name of an area of open landcover, such as a moor, heath, down or fen.
Landform	Name of a landform, such as a hill, mountain, island, coastal rocks etc.
Populated Place	Name of a city, town, village, hamlet or other populated place.
Woodland Or Forest	Name of an area of woodland or forest.

Attributes

Attribute	Description	Example	Data Type	Valid values
CLASSIFICA (GML: classification)	Used to identify different types of feature within a particular class	RoadClassification	String	*See Code lists*
FONTHEIGHT (GML: fontHeight)	Indicative of the height of the text in comparison to other features	Small	String	Small, Medium or Large
DISTNAME (GML: distinctiveName)	Name of FunctionalSite, ImportantBuilding, NamedPlace,Road RailwayStation	Romsey Road; Liverpool John Lennon Airport; Croydon	String	
ROADNUMBER (GML: roadNumber)	DFT road number	A32	String	
JUNCTNUM (GML: junctionNumber)	Motorway junction number	6a	String	
ORIENTATIO (GML: textOrientation)	Orientation of the text feature in degrees	24	Integer	-90 to 90
HTMLNAME (GML: *not present*)	This attribute contains all names, including all accents. Those accented letters that do not have an ASCII value have HTML control characters	Coed Ty'n-llŵyn will be recorded as Coed Ty'n-ll<f>ŵ</f>yn Pont Rhŷd-Dwrial will be recorded as and Pont Rh<f>ŷ</f>d-Dwrial	String	
FEATCODE (GML:featureCode)	Feature code which provides an alternative to using classification for styling	15014	Integer	*See table on page 55*
ID (GML: gml_id)	Unique identifier, which can be used for de-duplicating across tile boundaries. Identifiers will be regenerated for each product release	2CA116D4-CB9F-474B-A627-2606ECC522AE	String	

Feature Codes

Feature Code represented in the OS Open Map – Local product

Feature type	Classification	BuildingTheme	SiteTheme	FeatureCode
Building				15014
Glasshouse				15016
ImportantBuilding		Air Transport		15018
ImportantBuilding		Education		15019
ImportantBuilding		Medical Care		15020
ImportantBuilding		Road Transport		15021
ImportantBuilding		Water Transport		15022
ImportantBuilding		Emergency Service		15023
ImportantBuilding		Cultural Facility		15024
ImportantBuilding		Religious Buildings		15025
ImportantBuilding		Retail		15026
ImportantBuilding		Sports Or Exercise Facility		15027
ImportantBuilding		Attraction And Leisure		15028
ElectricityTransmission Line				15102
RailwayTrack	Multi Track			15300
RailwayTrack	Single Track			15301
RailwayTrack	Narrow Gauge			15302
RailwayTunnel				15303
RailwayStation	Light Rapid Transit Station			15420
RailwayStation	Railway Station			15422

RailwayStation	London Underground Station			15423
RailwayStation	Railway Station and London Underground Station			15424
RailwayStation	Light Rapid Transport Station and Railway Station			15425
RailwayStation	Light Rapid Transit Station and London Underground Station			15426
SurfaceWater_Line				15600
TidalBoundary	High Water Mark			15604
TidalBoundary	Low Water Mark			15605
TidalWater				15608
Feature type	**Classification**	**BuildingTheme**	**SiteTheme**	**FeatureCode**
SurfaceWater_Area				15609
Foreshore				15612
CarChargingPoint	3-Pin Type G (BS 1363)			15620
CarChargingPoint	JEVS G105 (CHAdeMO) DC			15621
CarChargingPoint	Type 1 SAEJ1772 (IEC 62196)			15622
CarChargingPoint	Type 2 Combo (IEC 62196) DC			15623
CarChargingPoint	Type 2 Mennekes (IEC 62196)			15624
CarChargingPoint	Type 3 Scame (IEC 62196)			15625
Roundabout	Primary Road			15703
Roundabout	A Road			15704
Roundabout	B Road			15705
Roundabout	Minor Road			15706

Roundabout	Local Road (Local Street)			15707
Roundabout	Local Access Road			15708
Roundabout	Restricted Local Access Road			15709
Road	Motorway			15710
Road	Motorway, Collapsed Dual Carriageway			15719
Road	Primary Road			15723
Road	A Road			15729
Road	Primary Road, Collapsed Dual Carriageway			15735
Road	A Road, Collapsed Dual Carriageway			15739
Road	B Road			15743
Road	B Road, Collapsed Dual Carriageway			15749
Road	Minor Road			15750
Road	Minor Road, Collapsed Dual Carriageway			15759
Road	Local Road (Local Street)			15760
Road	Local Access Road			15761
Road	Restricted Local Access Road			15762
Road	Shared Use Carriageway (Pedestrianised Street)			15790
Road	Guided Busway Carriageway			15797
Feature type	**Classification**	**BuildingTheme**	**SiteTheme**	**FeatureCode**
Road Tunnel				15792

MotorwayJunction				15796
NamedPlace	Populated Place			15801
NamedPlace	Landform			15802
NamedPlace	Woodland Or Forest			15803
NamedPlace	Hydrography			15804
NamedPlace	Landcover			15805
FunctionalSite			Air Transport	15809
FunctionalSite			Education	15810
FunctionalSite			Medical Care	15811
FunctionalSite			Road Transport	15812
FunctionalSite			Water Transport	15813
Woodland				15999

Features within each tile are provided in a FeatureCollection.

Further Information

Further Information about **OS Open Map – Local** can be found on the Ordnance Survey Website:

http://www.os.uk/ business-and-government/products/os-open-map-local.html

Specification:

http://www.os.uk/docs/user-guides/os-open-map-local-user-guide.pdf

Getting Started Guide:

http://www.os.uk/ docs/user-guides/os-open-map-local-getting-started-guide.pdf

Ordnance Survey

http://os.uk