ORDNANCE SURVEY GB

OS OPEN RIVERS – OVERVIEW

Version history

Version	Date	Description
1.0	03/2016	Initial release.
2.0	10/2016	Minor updates.
2.1	07/2019	Minor updates.
2.2	04/2021	Introduction of vector tiles.

Purpose of this document

This is the Overview for the OS Open Rivers product. This Overview provides greater insight into this product and its potential applications. For information on the contents and structure of OS Open Rivers, please refer to the Technical Specification.

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Contents

1. Introduction

1.1 Overview

OS Open Rivers provides a two-dimensional topologically connected link and node network of Great Britain's watercourses. A link represents the approximate central alignment of a watercourse. Attribution indicates the flow direction and name of each watercourse.

OS Open Rivers is a generalised product which has been automatically derived from Ordnance Survey large-scale data. The nominal usage scale is 1:25 000, with a recommended viewing scale range of 1:15 000 to 1:30 000.

1.2 Key features

The key features of the OS Open Rivers product are as follows:

- Comprehensive coverage of Great Britain's river network
- A topologically connected link and node network
- Flow direction information
- Classified links which allow you to identify the differences between tidal and inland rivers
- The ability to relate the OS Open Rivers product to the OS MasterMap Networks Water Layer using the watercourse name

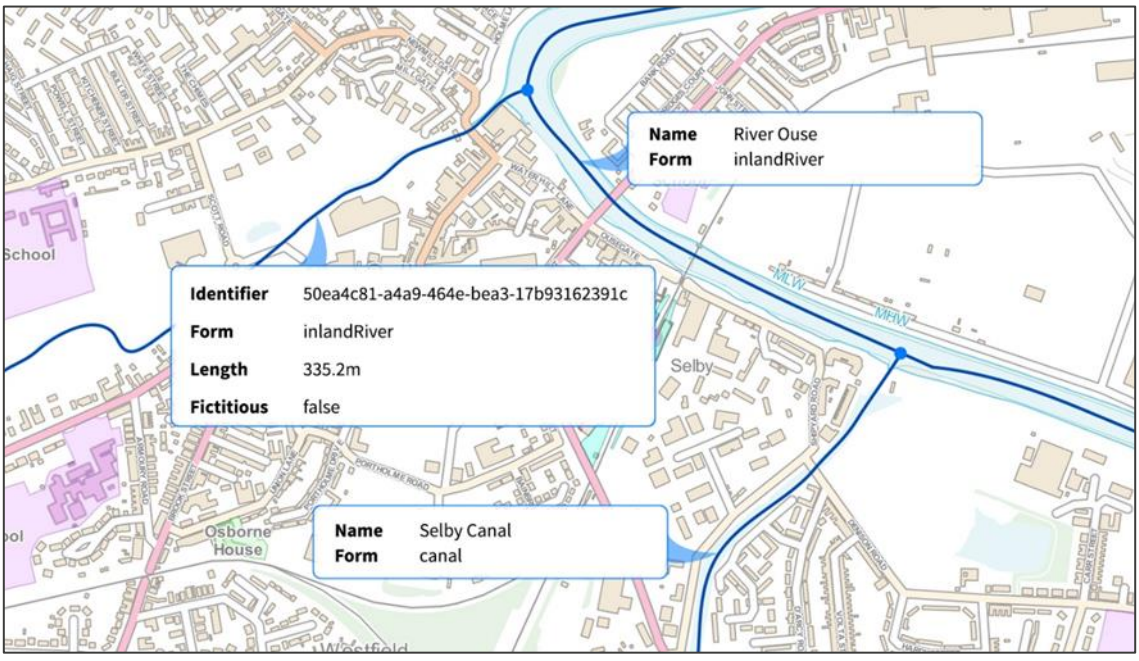

Figure 1: Illustrative image of OS Open Rivers and some of its associated attribution.

1.3 Applications

OS Open Rivers supports a wide range of customer applications that use geographic information. The product can be used alone or in combination with other Ordnance Survey products, such as Terrain 50 or VectorMap District. The OS Open Rivers product may be used for applications such as, but not limited to, the following examples:

- Relating information to the river network for both personal and business use
- Simple analytical queries, for example, the overall lengths of larger rivers in Great Britain
- Simple planning around main watercourses, detailing connectivity and flow from source to mouth
- Regional-level environmental impact assessments, for example, an indication of what towns have rivers passing through them
- Backdrop mapping

It is important to note that detailed analysis is not supported in OS Open Rivers as it requires the additional detail and complexity available in the OS MasterMap Water Network product.

2. OS Open Rivers

2.1 Simplification

The detail within OS Open Rivers has been automatically generalised from Ordnance Survey large-scale data. Map simplification is the process of reducing the scale and complexity of data whilst maintaining the important elements and characteristics.

OS Open Rivers simplification comprises the following processes:

- **Selection/omission of rivers** – Features that appear at higher resolutions are removed at lower resolutions, for example, small river channels.
- **Simplification of geometry** – The density of points along a line is reduced using an algorithm that creates a simplified curve. This curve includes sufficient points to retain the shape and connectivity of the original line at the intended usage resolution.

2.2 Feature types

OS Open Rivers features are classified into two feature types. Each feature type has associated attribution, and further detail on this can be found in the OS Open Rivers Technical Specification.

The following bullet points give a description of each feature type:

- **WatercourseLink** – A WatercourseLink feature represents the alignment of a watercourse.
- **HydroNode** – A HydroNode feature explicitly represents the start, end and junctions of watercourses and places where the real-world-related attribution recorded changes, for example, the point where a watercourse becomes tidal. The HydroNode is coincident with the ends of related links.

2.3 Coordinate reference system

The GeoPackage and shapefile product formats enable the use of the British National Grid (BNG) coordinate reference system. 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. The BNG is a horizontal spatial reference system only; it does not include a vertical (height) reference system.

In the Geography Markup Language (GML) data, this is represented by reference to its entry in the EPSG registry, as http://www.opengis.net/def/crs/EPSG/0/27700.

The vector tiles format is in the Web Mercator (EPSG:3857) projection. This is a global coordinate reference system.

2.4 Currency

OS Open Rivers has been derived from Ordnance Survey large-scale data. The product will be refreshed from Ordnance Survey large-scale data every six months.

2.5 Completeness

Quality control procedures are undertaken at all stages of production to ensure that data is accurate, complete and conforms to the specification. These quality control checks include automated data testing against the product specification and visual checks by operators.

3. Product supply

3.1 Supply format

OS Open Rivers is available in the following formats:

- Data – GML v3.2.1 zipped as a single file using gzip
- Vector – ESRI shapefile dataset zipped using gzip
- Vector – GeoPackage file zipped using gzip
- Vector – Vector tiles (MBTiles) file zipped using gzip

3.2 Supply mechanism

OS Open Rivers is supplied as an online download, which is available with no registration required. Data can be downloaded in various formats from the Ordnance Survey Data Hub: OS Open Rivers | Vector Map Data for GIS | Free OS Data downloads.

3.3 Coverage and file sizes

3.3.1 GML

- A zipped file comprising a national set
- The zipped file contains one GML file, which in turn contains two feature types
- The file size is approximately 40 MB zipped
- The data is not encrypted

3.3.2 Esri shapefile

- One zipped file comprising a national set
- The zipped file contains two shapefiles
- Each shapefile holds a single feature
- The file size is approximately 40 MB zipped
- The data is not encrypted

3.3.3 GeoPackage

- A zipped file comprising a single national GeoPackage file
- The single GeoPackage file contains two individual layers for each feature type, all with national coverage
- The file size is approximately 60 MB zipped
- The data is not encrypted

3.3.4 Vector tiles

- A zipped file comprising a single national MBTiles file
- The single MBTiles file contains a full set of national vector tiles, with options available to split these out into individual tiles as PBF files
- The file size is approximately 130 MB zipped
- The data is not encrypted

Ordnance Survey Limited
Explorer House, Adanac Drive, Nursling, Southampton SO16 0AS
+44 (0)3456 050505 (General enquiries) +44 (0)2380 056146 (Textphone)
customerservices@os.uk www.os.uk