ORDNANCE SURVEY GB

OS Open TOID - Technical Specification

OFFICIAL
Version 1.1
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Ordnance Survey

Version History

Version	Date	Description
1.0	01/07/2020	Initial release
1.1	21/09/2020	Slight revision

Purpose of this Document

This is the Technical Specification (from now on referred to as the 'Specification') for the OS Open TOID product. This Specification provides information on the contents and structure of this product. For greater insight into the product and its potential applications, please refer to the OS Open ID Family Overview.

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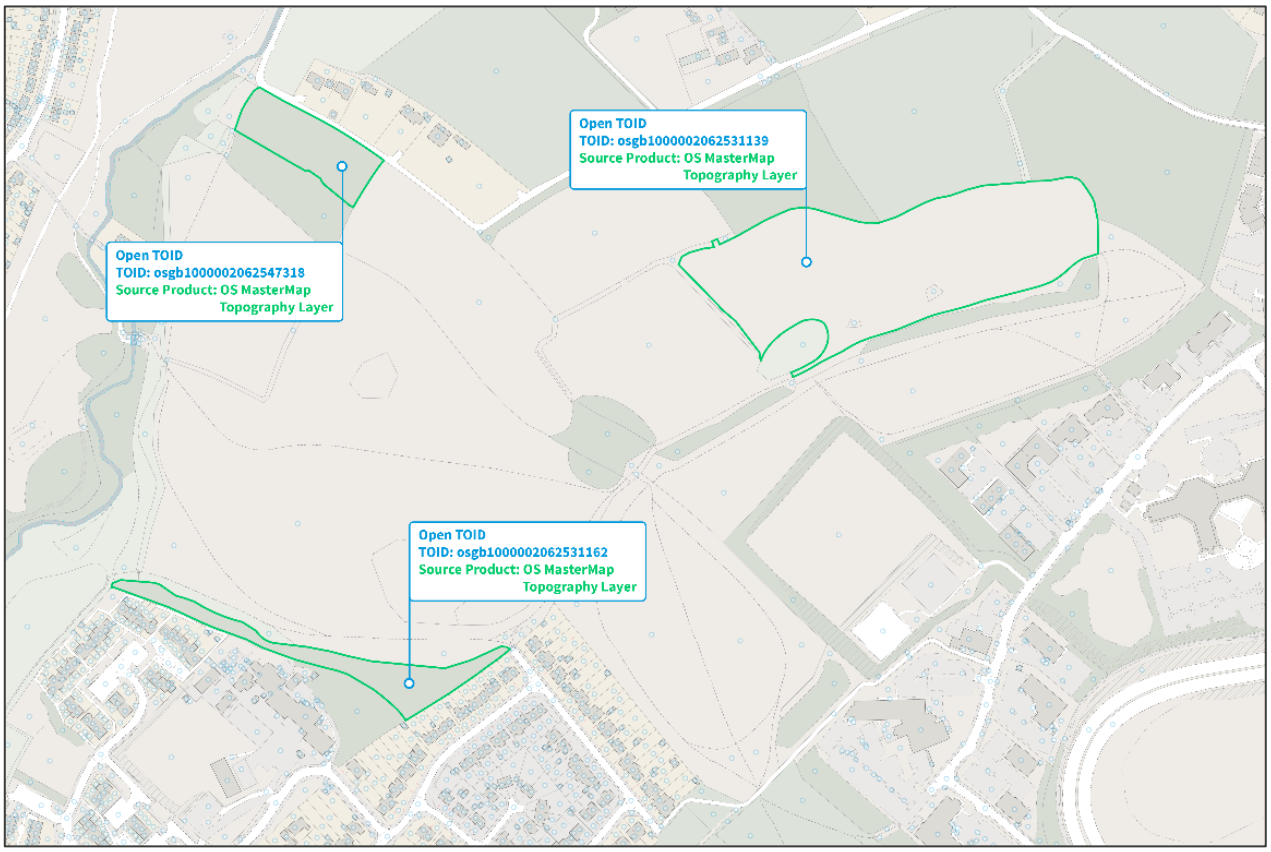
1. Introduction



OS Open TOID is a comprehensive list of the unique identifiers used in our OS MasterMap data alongside the generalised location of the physical feature. The unique identifier used is the TOID (TOpographic IDentifier) and is commonly found throughout our data allowing for an easy transition between datasets. It consists of the letters 'osgb' followed by either 13 or 16 digits between 0 and 9. In order for the TOID to be effective it is essential that the OS appointed TOID reference is not altered in any way.

The TOID is allocated sequentially when a feature is created by Ordnance Survey and is never reassigned to a different feature. One of the key principles of unique referencing is that the TOID will stay the same throughout the life of a feature. This gives the feature continuity within its life cycle and makes managing change of the product easier.

The product is designed to enable consumers of OpenData that is linked to the TOID to visualise that data in a spatial context. It bridges the gap between the disparate datasets of the OS MasterMap product family and enable the wider adoption of the TOID as a means of a spatial identifier creating greater linking and sharing data with a spatial context.

This data is usable in a GIS application and can also be integrated into a spatial database.

2. Product Details

2.1 Feature Content

The TOIDs included are drawn from the following feature tables from the following OS MasterMap products:

- OS MasterMap Topography Layer
  - TopographicArea
  - TopographicLine
  - TopographicPoint
- OS MasterMap Sites Layer
  - Site Extent
- OS MasterMap Highways Networks – Roads
  - RoadNode
  - RoadLink
  - PathLink

All features from each feature type above have been included in the OS Open TOID.

For each of the feature types included the following method of generalisation is used for the location:

- Point Features: the original location round to the nearest meter.
- Lines Features: the midpoint of the line rounded to the nearest meter.
- Polygons Features: use a point of inaccessibility algorithm to find a point that is guaranteed to be with in the polygon which is farthest from all edges. This location is then rounded to the nearest meter.
- Multi Polygon Features (Site Extent): use the same method as for polygon features on the largest of the polygons.

2.2 Coordinate Reference System (CRS)

The OS Open TOID and its associated geometry data layer uses the British National Grid (BNG) spatial reference system. BNG uses the OSGB36 (EPSG 27700) 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.

Introductory material on the BNG and Ordnance Datum Newlyn (ODN) along with the full definition of the BNG (OSGB36 National Grid) is available on the Ordnance Survey OS Net GPS site:
https://www.ordnancesurvey.co.uk/gps/transformation/

A Guide to Coordinate Systems in Great Britain is available at:
https://www.ordnancesurvey.co.uk/business-government/tools-support/os-net/coordinates

A general introductory guide to BNG is provided at:
https://getoutside.ordnancesurvey.co.uk/guides/beginners-guide-to-grid-references/

2.3 Data Structure

The OS Open TOID data carries five attributes which are all mandatory for each release. These can be used to identify and link affiliated information for a real-world object as well as plotting its real-world position. The TOID represents a range of feature types which related to an even wider range of real-world object types, examples range from buildings (including those without an address), roads, junctions, bridges, trees, fields and more.

TOID		
Definition: A unique Topographic Identifier assigned to geospatial data by Ordnance Survey for their MasterMap products.		
Type: Varcher	**Size:** 20	**Multiplicity:** [1]
VERSION_NUMBER		
Definition: The date representing the version of the feature.		
Type: Integer	**Size:** N/A	**Multiplicity:** [0…1)
VERSION_DATE		
Definition: The date representing the date the feature was last updated.		
Type: Date Time	**Size:** N/A	**Multiplicity:** [1]
SOURCE_PRODUCT		
Definition: Attribute which indicates which product a feature can be found in.		
Type: Varchar	**Size:** 29	**Multiplicity:** [1]
LOCATION_X		
Definition: A value in metres defining the x location in accordance to the British National Grid.		
Type: Float	**Size:** (precision, scale) – (10, 3)	**Multiplicity:** [1]
LOCATION_Y		
Definition: A value in metres defining the y location in accordance to the British National Grid.		
Type: Float	**Size:** (precision, scale) – (10, 3)	**Multiplicity**: [1]

2.3.1 GeoPackage Structure

The GeoPackage data follows the same structure as demonstrated above except for the inclusion of this additional attribute:

id		
Definition: A non-persistent integer which has been autogenerated as a function of OGC Geopackage.		
Type: Integer	**Size:** N/A	**Multiplicity**: [1]

It is also split between 3 different layers to allow for easier data interrogation. They are:

- os_mastermap_highways_network
- os_mastermap_sites_layer
- os_mastermap_topography_layer

3. Product Supply

3.1 Supply format

The OS Open TOIDs and Associated Geometry data will be provided in 100km tiles and distributed in two product formats using British National Grid (EPSG 27700) projection:

- Comma-Separated Value (CSV)
- GeoPackage (GPKG)

These formats allow the data to be easily integrated and ingested with either a database or a GIS application, respectively. Each tile will contain unique features that will not be shared across multiple tiles, as such there is not a 1:1 feature relationship between the OS Open TOID tiles and those in OSMM Topography Layer.

3.1.1 GeoPackage

GeoPackage is an open data format as is defined by the Open Geospatial Consortium (OGC). It is designed to be a lightweight format that contains both spatial (vector) and metadata tables in a single, ready-to-use file. Please note that older versions of GIS software may need updating before being able to display and interact with GeoPackage files.

3.1.2 Comma-Separated Value

CSVs are a simple file format used to store data, often in the form of a table or spreadsheet. These tables can be freely loaded into databases and programs allowing for the easy loading and updating of data holdings.

3.2 Supply update

OS Open TOID will be updated on a 6-weekly basis, in line with the OS MasterMap Topography Layer COU (Change Only Update) releases and will maintain consistency with OS MasterMap products.

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