

ORDNANCE SURVEY GB

# OS Open Linked Identifiers Overview

## 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 Overview for the OS Open Linked Identifiers product. This Overview provides greater insight into this product and its potential applications. For information on the contents and structure of OS Open Linked Identifiers, please refer to the Getting Started Guide and Technical Specification.

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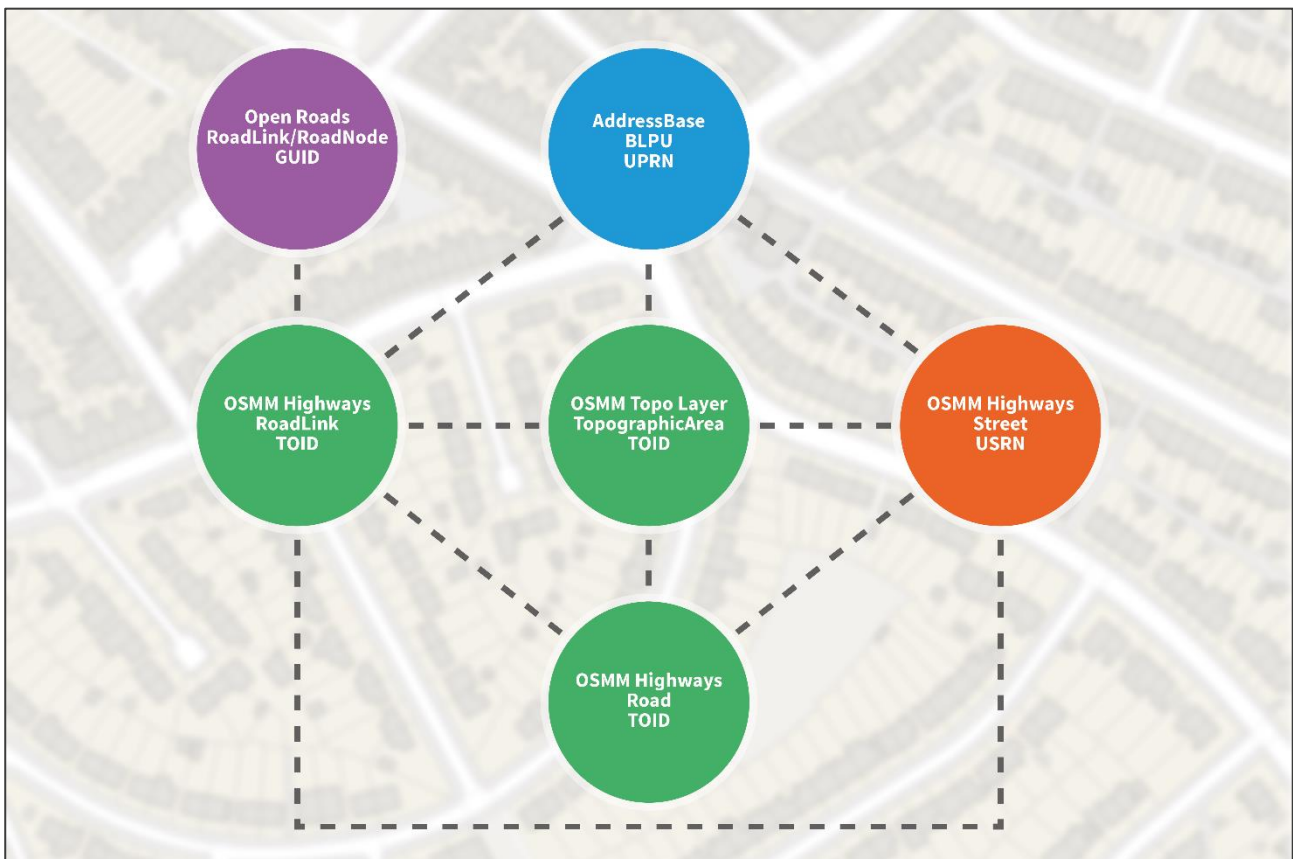
# 1. Introduction

## 1.1 Overview

OS Open Linked Identifiers is a dataset containing the authoritative relationships between Unique Property Reference Numbers (UPRNs), Unique Street Reference Numbers (USRNs) and TOpographic Identifiers (TOIDs).

These relationships have been extracted from the AddressBase Premium and OS MasterMap Highways Networks products. The Product aims to provide all the valuable relationships between addresses, roads and OS MasterMap features.

The following diagram and table show all the feature types that we have included such as address records, building outlines, road surface area, road names, road sections and street records, and the relationships between them that we provide links for.



Feature Type	Identifier Type	Source Product	Description
TopographicArea	TOID	OS MasterMap Topographic Layer	Polygon limited to either a building outline or road surface area.
RoadLink	TOID	OS MasterMap Highways	Section of road from junction to junction.
Road	TOID	OS MasterMap Highways	Collection of RoadLink with a given name.
BLPU (Building Land Parcel Unit)	UPRN (Unique Property Reference Number)	AddressBase Premium	An address location with postal address.
Street	USRN (Unique Street Reference Number)	OS MasterMap Highways	An identifier allocated to a street by a local authority.
ORRoadLink/ ORRoadNode	GUID	Open Roads	Road sections and junctions from our open data product. These features are referred to in OS Open Roads as RoadLink and RoadNode. In this product they are referred to as ORRoadLink and ORRoadNode respectively to distinguish them from the OS MasterMap Highways Networks RoadLink and RoadNode features.

The product consists of 11 relationships as shown in the diagram above. Each relationship is available to download individually from the OS Data Hub. These relationships support a number of data processing workflows and specific use cases for each are listed in section 1.3 Uses of OS Open Linked Identifiers.

The product is supplied in the form of join tables in the CSV file format and is intended to be loaded into database products. Please see the OS Open Linked Identifiers - Getting Started Guide for details on how to import the join tables into a database.

Once the relationship table has been imported into a database it can be used to join two dataset tables each using different identifiers. For example, if you had data that listed properties which used the Unique Property Reference Number (UPRN) as its primary key, and you also had data related to the streets which used the Unique Street Reference Number (USRN), then you could join these data tables allowing you to lookup information about the street that a property is on. This is just an example for one of the eleven tables. Each table has specific use cases depending on the feature tables that are being linked.

These relationships have been extracted from our premium data products and provided in OS Open Linked Identifiers under open license to enable more public data to be linked together.

This is purely a data product which provides the identifiers being joined with version information to enable reliable data linking. There is no geometry provided in this product. Each relationship file provides full coverage for Great Britain. The product is intended for use with a database only as the lack of spatial information (spatial indexes) and large files make it unsuitable for use in GIS packages.

### Unique Property Reference Number (UPRN)

A UPRN is a unique numeric identifier for every addressable location in Great Britain. The identifier is critical for property related information and can be found throughout OS's AddressBase products. An addressable location may be any kind of building, residential or commercial, or it may be an object that might not have a 'normal' address – such as a bus shelter or an electricity substation. UPRNs provide these addressable locations with a consistent, persistent identifier never being reused.

### Unique Street Reference Number (USRN)

A USRN is a unique and persistent identifier for every street, road, track, path, cycletrack or way in Great Britain. It can be found in the OS MasterMap Highways Network products and is also a key component in OS's AddressBase suite of products.

### Topographic Identifier (TOID)

A TOID is a unique identifier issued by Ordnance Survey, consisting of the letters 'osgb' and followed by up either thirteen or sixteen digits, associated with every feature in many of Ordnance Survey's large-scale products. For this to be functional across all OS MasterMap products, this must never be altered or changed.

The TOID is based upon the Digital National Framework concept and the principles that underpin it.

## 1.2 Key features

The Correlation Method ID is a unique identifier for a specific relationship between the featureTypes. The generalised naming convention for each Correlation Method ID is:

{Feature Type 1}\_{Identifier Scheme 1}\_{Feature Type 2}\_{Identifier Scheme 2}\_{Correlation Method Number}

This means you can easily identify the feature tables and related identifier schemes which are being linked together by each relationship. The correlation method number is also unique to each relationship.

For example, the Correlation Method ID "RoadLink\_TOID\_TopographicArea\_TOID\_2" references:

- Identifier 1:
  - Feature Type: RoadLink
  - Identifier scheme: TOID
- Identifier 2:
  - Feature Type: TopographicArea
  - Identifier scheme: TOID
- Correlation Method Number: 2

With each identifier we have provided associated version information to enable reliable linking to your data. This version information is extracted from the most recent release of the premium product the feature type has been extracted from.

A Confidence Value is assigned to each identifier pairing to indicate the reliability of the version information provided in this product in relation to the version of the features used to form the correlation in the original product. The Confidence Value is given for each relationship, which is defined as:

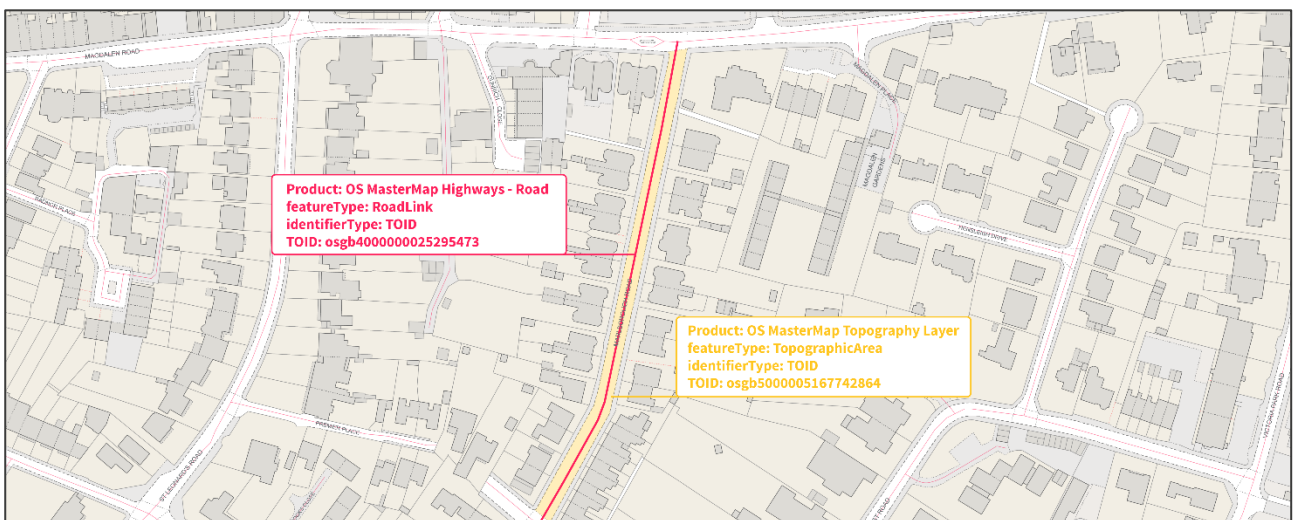
Confidence Value	Definition
Version information is correct	The version information provided is the same as the version of the feature used to create the correlation.
Version information has potentially changed	The version information could be different from the version of the feature that was used to create the correlation.
Version information has changed	The version information provided is different from the version of the feature used to create the correlation.

Knowing that the feature might have been updated since a relationship was formed helps identify where a relationship may no longer be valid.

### 1.3 Uses of OS Open Linked Identifiers

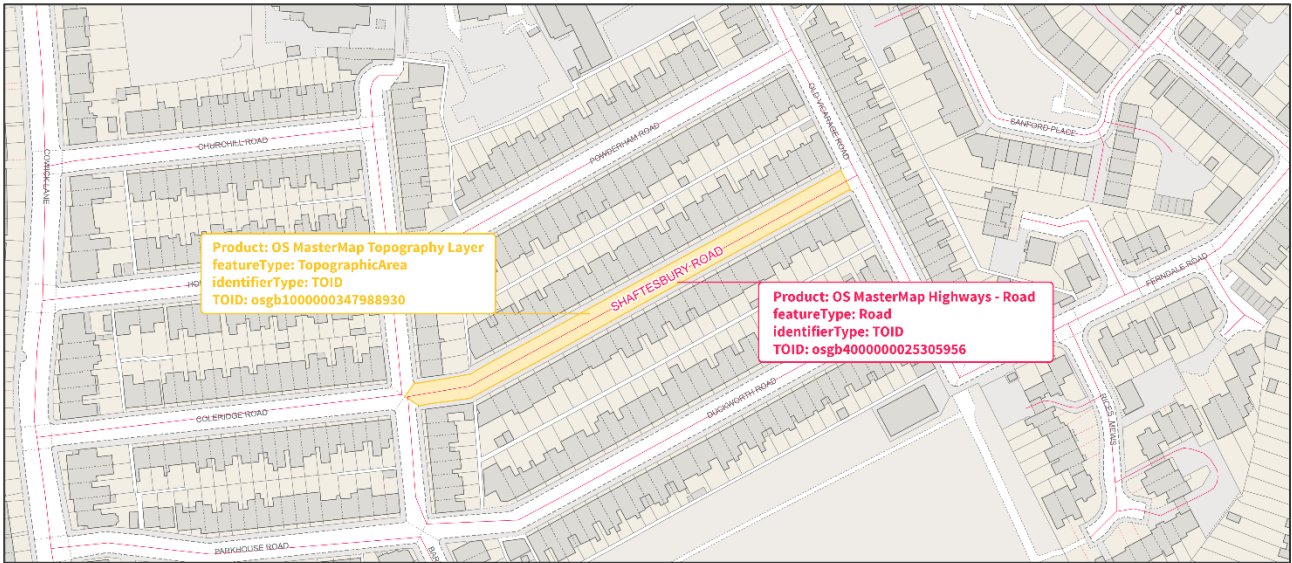
Each of the relationships provided have their own unique use cases depending on the features that are being related to each other. The following section provides suggested use cases for each relationship.

#### 1.3.1 RoadLink\_TOID\_TopographicArea\_TOID\_2



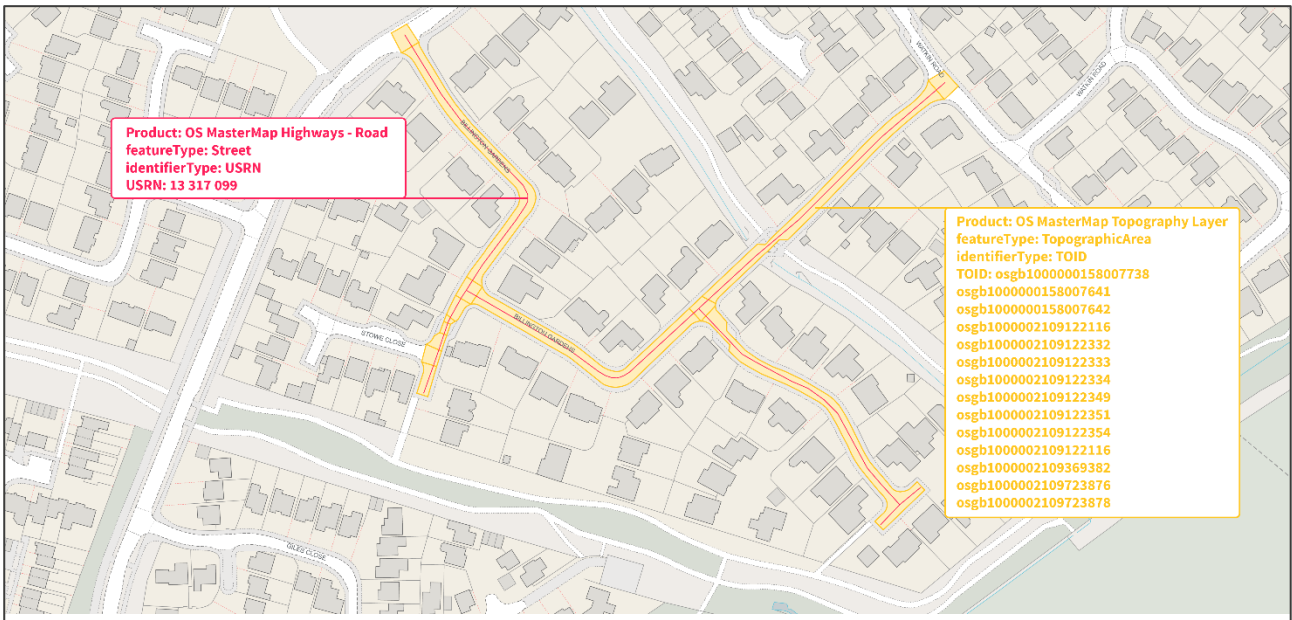
Relating the RoadLink feature to a TopographicArea enables the visualisation of data collected and linked to RoadLinks (pollution counts, accidents, traffic speed) and visualises it by colour coding the relevant road surface area. Additionally, it can be useful for analysis enabling the road surface area to be calculated for a given road section.

### 1.3.2 Road\_TOID\_TopographicArea\_TOID\_3



Having links between Road with TopographicArea allows for the full extent of the road to be joined to all the TopographicArea features that represent it. This can be useful to calculate the full surface area for that named road and for displaying data linked to the road name by colour coding the road surface area.

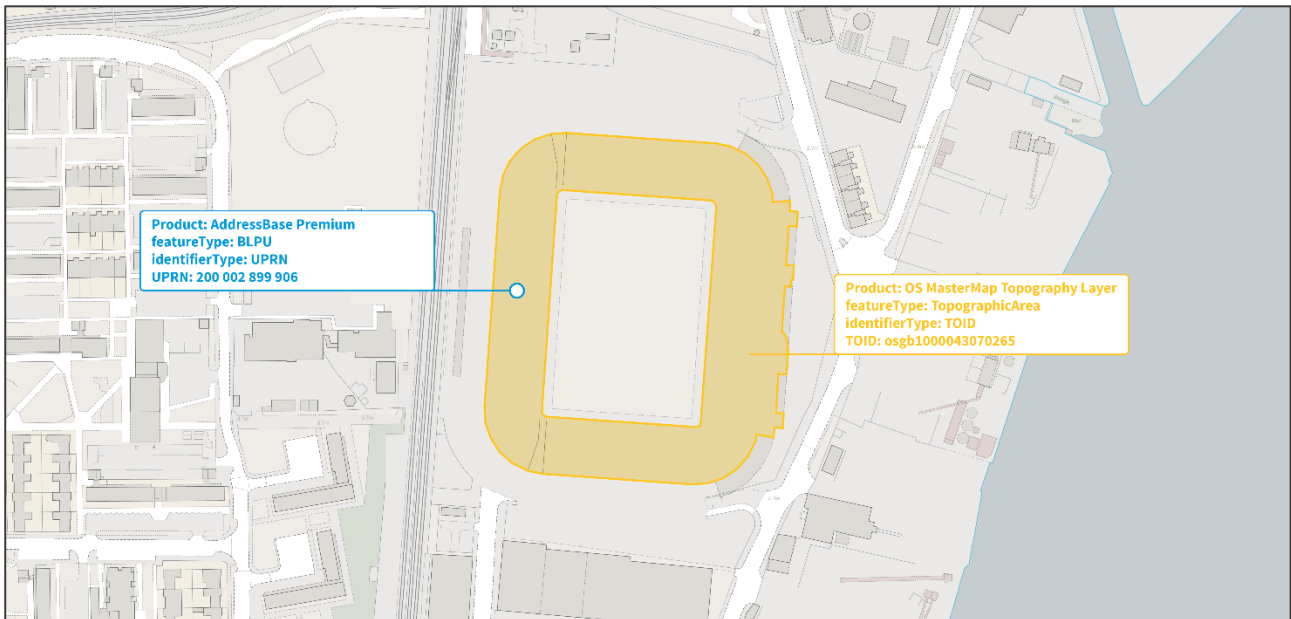
### 1.3.3 Street\_USRN\_TopographicArea\_TOID\_4



Being able to relate a Street USRN to a TopographicArea TOID is useful for calculating the total road surface area for a given USRN. It can also be useful to display data related to the USRN such as maintenance history and schedule.

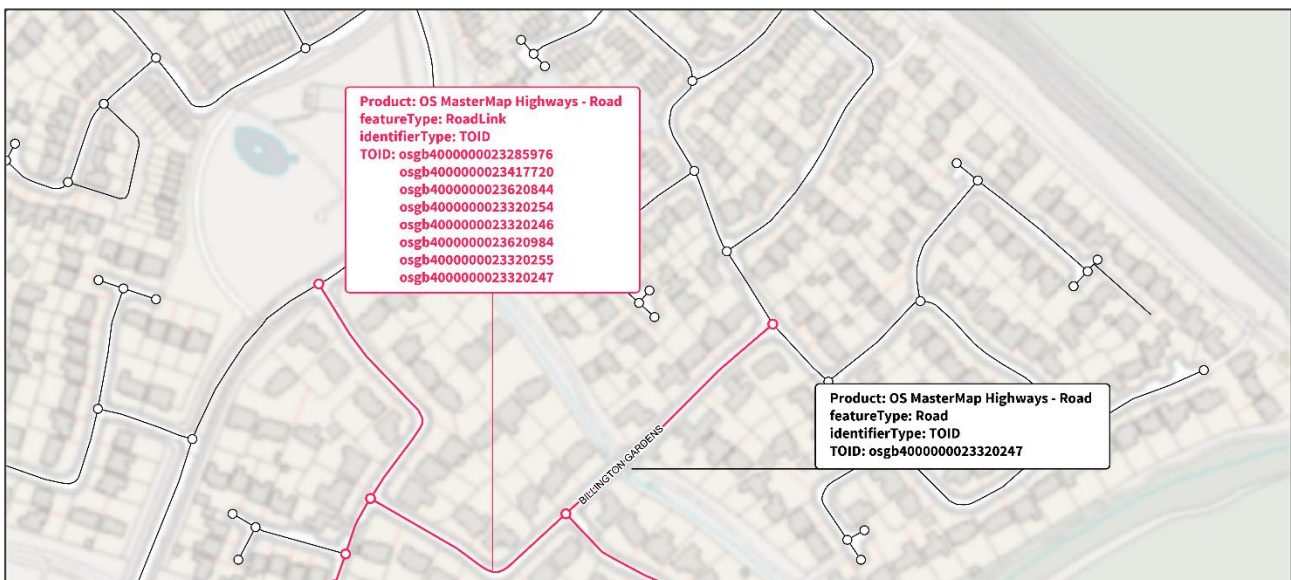


### 1.3.4 BLPU\_UPRN\_TopographicArea\_TOID\_5



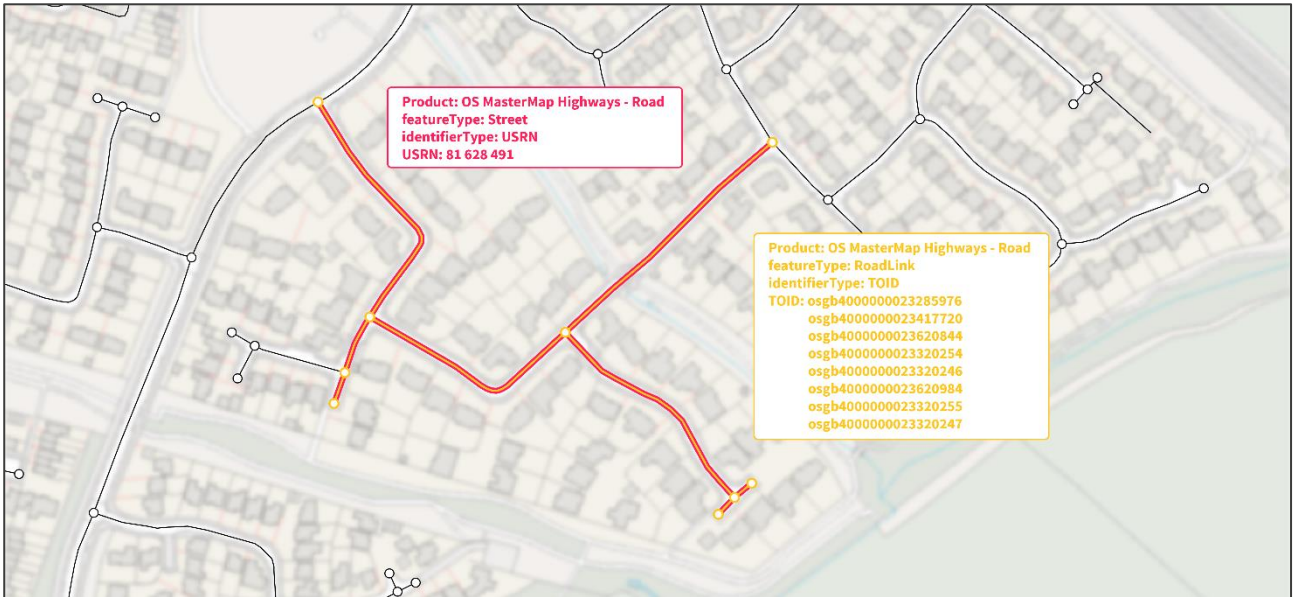
Having a link from the BLPU UPRN to a TopographicArea TOID is useful for calculating the area of the building footprint related to an address. It can also be useful to colour code building TopographicAreas for displaying related data for that address, such as council tax band.

### 1.3.5 RoadLink\_TOID\_Road\_TOID\_7



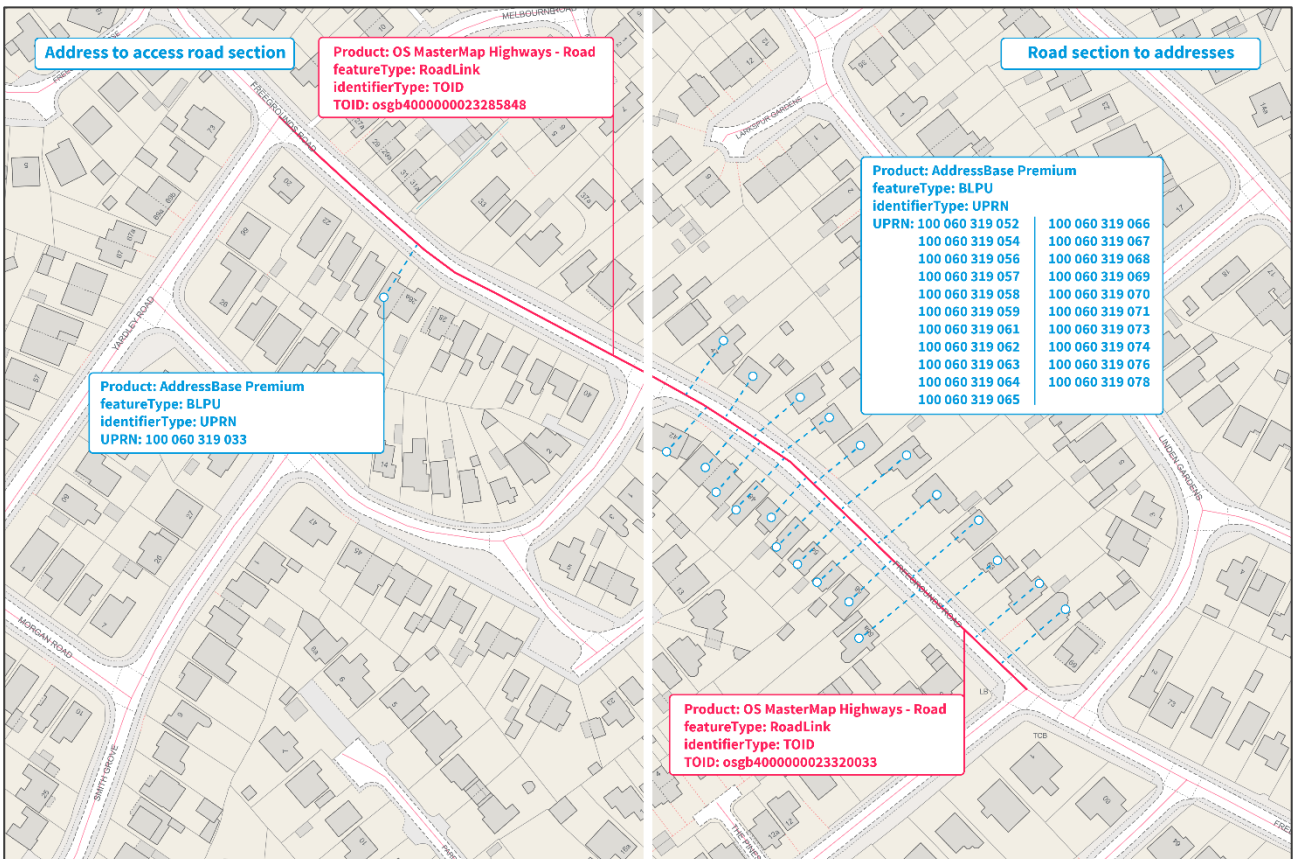
Being able to relate each section of road to its road name is very useful for validation and can also be useful for aggregating data collected at the RoadLink level for sharing at the Road name level.

### 1.3.6 RoadLink\_TOID\_Street\_USRN\_8



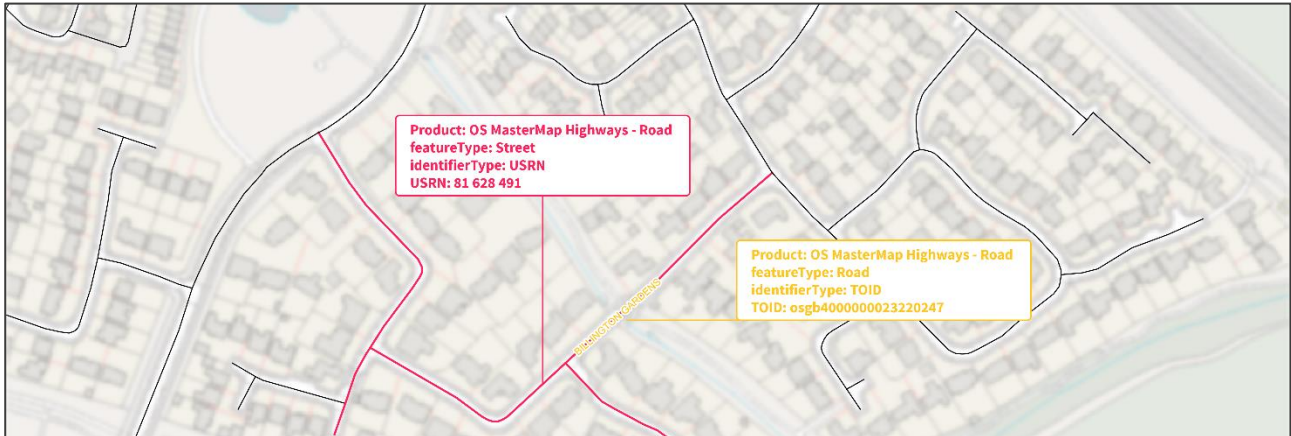
The RoadLink TOID to Street USRN is useful for aggregating data collected at a RoadLink level to a USRN for reporting. It is also useful for validating that the USRN is the one you are expecting.

### 1.3.7 BLPU\_UPRN\_RoadLink\_TOID\_9



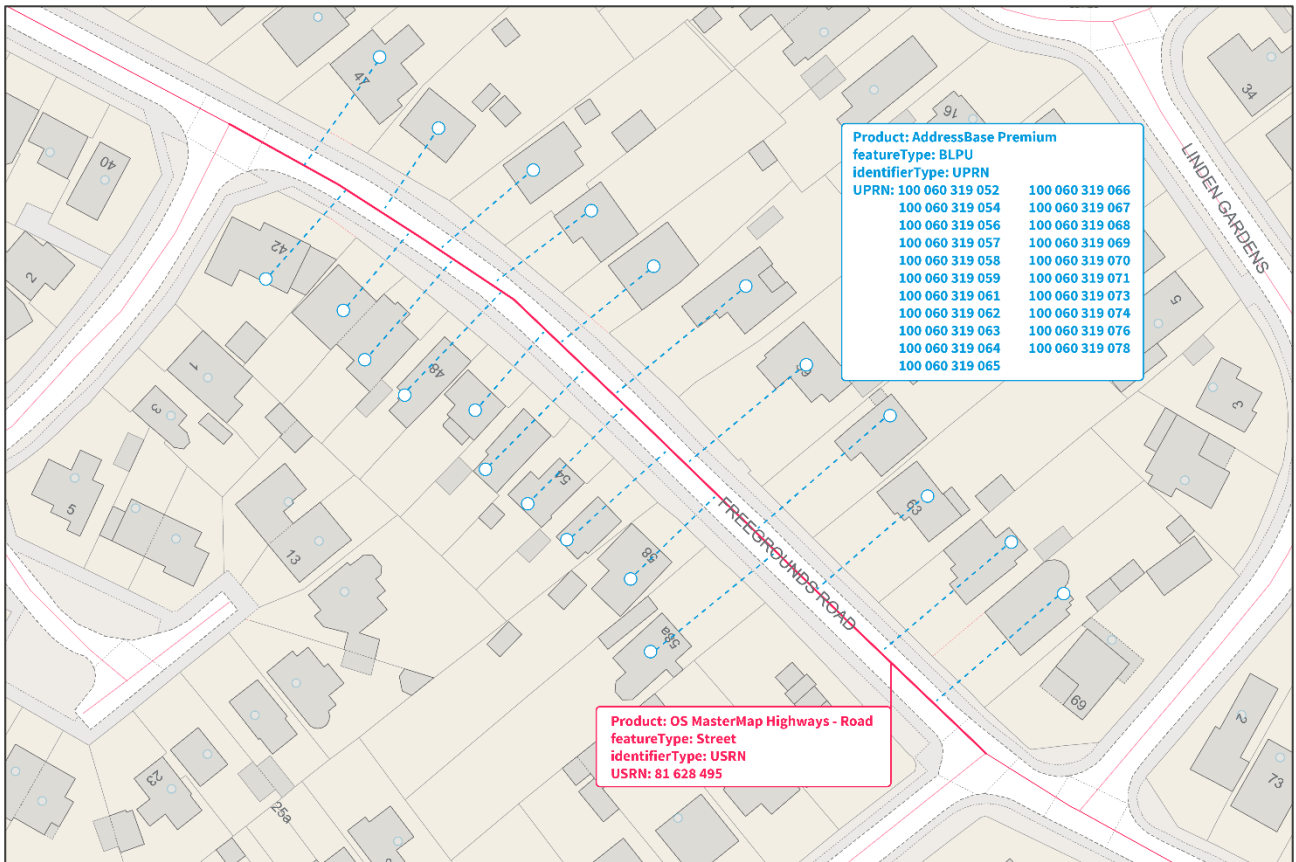
Knowing which RoadLink accesses a property UPRN is useful during conveyancing to determine if the road is private or not, and if it is carrying any maintenance liabilities. It is also useful to be able to relate a RoadLink to all the property UPRNs accessed by it in case you need to notify them about upcoming roadworks.

### 1.3.8 Road\_TOID\_Street\_USRN\_10



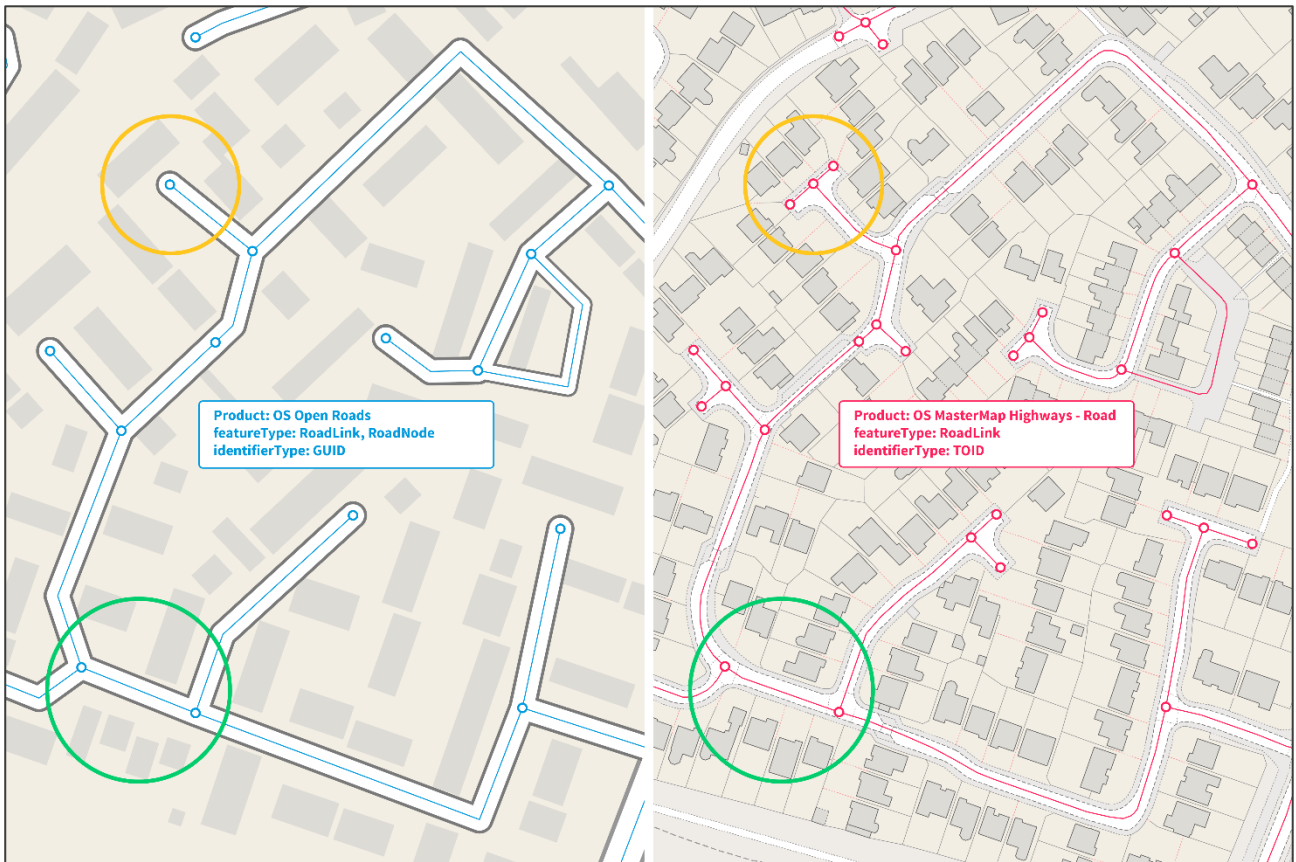
The primary use case for relating a Road TOID to Street USRN is to validate that the USRN you have is related to the road name you're expecting. It's also useful for identifying where a single named road is maintained by two different administration areas.

### 1.3.9 BLPU\_UPRN\_Street\_USRN\_11



Roadworks are often scheduled using the USRN. Being able to relate a USRN to easily identify the UPRN addresses that are accessed by the road, is useful to aid notifying residents of possible upcoming disruption.

### 1.3.10 ORRoadLink\_GUID\_RoadLink\_TOID\_12 & ORRoadNode\_GUID\_RoadLink\_TOID\_13



These two tables have a very specific use case which is to enable data that is published against an OS MasterMap Highways RoadLink TOID (such as pollution counts, traffic accidents or average vehicle speed )to be visualised with the OS Open Roads product. This enables public data to be visualised for free.

## 2. Product details

### 2.1 Feature types

Feature Type	Identifier Type	Source Product	Description
TopographicArea	TOID	OS MasterMap Topographic Layer	Polygon limited to either a building outline or road surface area.
RoadLink	TOID	OS MasterMap Highways	Section of road from junction to junction.
Road	TOID	OS MasterMap Highways	Collection of RoadLink with a given name.
BLPU (Building Land Parcel Unit)	UPRN (Unique Property Reference Number)	AddressBase Premium	An address location with postal address.
Street	USRN (Unique Street Reference Number)	OS MasterMap Highways	An identifier allocated to a street by a local authority.
ORRoadLink/ ORRoadNode	GUID	Open Roads	Road sections and junctions from our open data product. These features are referred to in OS Open Roads as RoadLink and RoadNode. In this product they are referred to as ORRoadLink and ORRoadNode respectively to distinguish them from the OS MasterMap Highways Networks RoadLink and RoadNode features.

Please refer to the source product documentation for details of each feature that is being related.

### 2.2 Identifier Schemes

Each feature uses a specific identifier scheme for its identifier. These are as follows:

- Unique Property Reference Number (UPRN)**  
 A UPRN is a unique numeric identifier for every address in Great Britain. The identifier is critical and can be found throughout OS's AddressBase products. It provides a complete and consistent

identifier throughout a property's life cycle. This means the UPRN is assigned to an address at the earliest opportunity and is never reused, even after the property has been demolished.

- **Unique Street Reference Number (USRN)**

A USRN is a unique and persistent identifier for every street, road, track, path, cycletrack or way in Great Britain and can be found in OS's Highways Network products and is also a key component in OS's AddressBase suite of products.

- **Topographic Identifier (TOID)**

A TOID is a unique identifier, consisting of the letters 'osgb' and followed by either thirteen or sixteen digits, associated with every feature in many of Ordnance Survey's large-scale products. No amendments can be made to this code as it may no longer be functional with other OS MasterMap products.

The TOID is based on the Digital National Framework concept and the principles that underpinned it.

These identifiers contain no attribution or information, for example coordinate position. If you need this to visualise your data, we offer a family of Open Identifier products for you to download and freely use under Open Government Licence.

## 2.3 Relationship Source

The following table lists each of the relationships provided and the premium product the relationship has been extracted from.

Correlation Method ID	Source Product for relationship
RoadLink_TOID_TopographicArea_TOID_2	OS MasterMap Highways Networks - Roads
Road_TOID_TopographicArea_TOID_3	OS MasterMap Highways Networks - Roads
Street_USRN_TopographicArea_TOID_4	OS MasterMap Highways Networks - Roads
BLPU_UPRN_TopographicArea_TOID_5	AddressBase Premium
RoadLink_TOID_Road_TOID_7	OS MasterMap Highways Networks - Roads
RoadLink_TOID_Street_USRN_8	OS MasterMap Highways Networks - Roads
BLPU_UPRN_RoadLink_TOID_9	AddressBase Premium
Road_TOID_Street_USRN_10	OS MasterMap Highways Networks - Roads
BLPU_UPRN_Street_USRN_11	AddressBase Premium
ORRoadLink_GUID_RoadLink_TOID_12	OS MasterMap Highways Networks - Roads
ORRoadNode_GUID_RoadLink_TOID_13	OS MasterMap Highways Networks - Roads

Please refer to the OS Open Linked Identifiers Technical Specification for details on how these relationships were extracted and how the original relationships were formed.

## 2.4 General Structure

The Open Linked Identifier data product is supplied in Comma-Separated Value (CSV) format, which comes with Product Version Information files formatted as JavaScript Object Notation (JSON).

Upon downloading the data, you will receive zip files of the eleven Linked Identifier relationships. The generalised naming convention for each Relationship ID is:

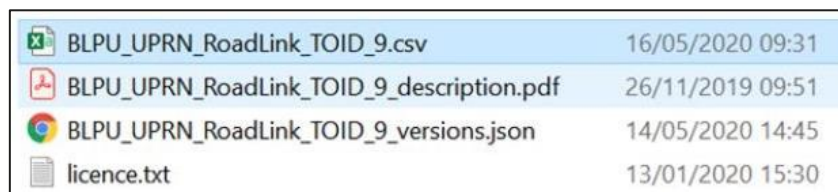
*{Data Identifier 1}\_{Feature Identifier 1}\_{Data Identifier 2}\_{Feature Identifier 2}\_{CorrelationType Number}*

For example: *BLPU\_UPRN\_RoadLink\_TOID\_9*

Relationship IDs	Relationship
RoadLink_TOID_TopographicArea_TOID_2	RoadLink <-> TopographicArea
Road_TOID_TopographicArea_TOID_3	Road <-> TopographicArea
Street_USRN_TopographicArea_TOID_4	Street <-> TopographicArea
BLPU_UPRN_TopographicArea_TOID_5	BLPU <-> TopographicArea
RoadLink_TOID_Road_TOID_7	RoadLink <-> Road
RoadLink_TOID_Street_USRN_8	RoadLink <-> Street
BLPU_UPRN_RoadLink_TOID_9	BLPU <-> RoadLink
Road_TOID_Street_USRN_10	Road <-> Street
BLPU_UPRN_Street_USRN_11	BLPU <-> Street
ORRoadLink_GUID_RoadLink_TOID_12	Open Roads RoadLink <-> OSMM Highways RoadLink
ORRoadNode_GUID_RoadLink_TOID_13	Open Roads RoadNode <-> OSMM Highways RoadLink

### 2.4.1 Comma-Separated Values

Upon downloading the CSV data, you will have 11 zip packages for each relationship. Each zip package contains 4 files, for example *BLPU\_UPRN\_RoadLink\_TOID\_9.zip* extracts:





File	Description
BLPU_UPRN_RoadLink_TOID_9.csv	Linked Identifier data (CSV)
BLPU_UPRN_RoadLink_TOID_9_versions.json	Product version information
Licence.txt	OGL Licence
UPRN_RoadLink_TOID_9_202001_description.pdf	Product description

## 2.4.2 Linked Identifier data (CSV) attributes

This section provides the following information about each attribute of the CSV product:

### Name and Description

The name of the attribute and what it is describing.

### Type

The nature of the attribute, for example a numeric value or a code list value.

### Multiplicity

Describes how many times this element is expected to be populated in the data. An attribute may be optional or mandatory; these are denoted by:

- '1' – Mandatory - There must be a value.
- '0..1' – Optional – If populated a maximum of one attribute will be returned.

These values may be used in combination.

<b>RELATIONSHIP_ID</b>		
Description: Unique identifier for the relationship. Made up of a concatenated string in the format: <i>{Data Identifier 1}_{Feature Identifier 1}_{Data Identifier 2}_{Feature Identifier 2}_{CorrelationType Number}</i>		
Type: text		Multiplicity: [1]
<b>IDENTIFIER_1</b>		
Description: The primary identifier of Source Dataset 1.		
Type: text		Multiplicity: [1]
<b>VERSION_NUMBER_1</b>		
Description: Version number of the primary identifier of Source Dataset 1. Where available, NULL otherwise.		
Type: integer		Multiplicity: [0..1]
<b>VERSION_DATE_1</b>		

Description: Version date of the primary identifier of Source Dataset 1. Where available, NULL otherwise.		
Type: date time		Multiplicity: [0..1]
<b>IDENTIFIER_2</b>		
Description: The primary identifier of Source Dataset 2.		
Type: text		Multiplicity: [1]
<b>VERSION_NUMBER_2</b>		
Description: Version number of the primary identifier of Source Dataset 2. Where available, NULL otherwise.		
Type: integer		Multiplicity: [0..1]
<b>VERSION_DATE_2</b>		
Description: Version date of the primary identifier of Source Dataset 2. Where available, NULL otherwise.		
Type: date time		Multiplicity: [0..1]
<b>CONFIDENCE</b>		
Description: Confidence value based on a comparison of feature dates between the two source features. Can be one of:		
<ul style="list-style-type: none"> <li>• Version information is correct.</li> <li>• Version information has potentially changed.</li> <li>• Version information has changed.</li> </ul>		
Type: text		Multiplicity: [1]
Notes: May be a constant value of the possible ones for certain relationships.		

### 2.4.3 Product Version Information file (JSON)

The OS Open Linked Identifier data package also contains Product Version Information files. These are contained inside each relationship zip package as JavaScript Object Notation (JSON) format.

JSON is an open-standard file and data interchange format that uses human-readable text to store and transmit data objects consisting of attribute-value pairs and array data types.

The general structure of the metadata JSON is detailed in the table below:

<b>filename</b>		
Description: The name of the Linked_ID CSV file.		
Type: text		Multiplicity: [1]

<b>productPublicationDate</b>		
Description: The product publication date.		
Type: date	Format: YYYY/MM	Multiplicity: [1]
<b>productPublicationName</b>		
Description: The Linked_ID Epoch Number that the JSON file refers to. (In the format "Epoch {number}")		
Type: text		Multiplicity: [1]
<b>Identifier1Source</b>		
Type: Object		Multiplicity: [1]
<b>Identifier1Source.productName</b>		
Description: The product name of the source product for identifier 1.		
Type: text		Multiplicity: [1]
<b>Identifier1Source.productPublicationDate</b>		
Description: The publication date of the source product for identifier 1.		
Type: date	Format: YYYY/MM	Multiplicity: [1]
<b>Identifier1Source.productPublicationName</b>		
Description: The epoch number of the source product for identifier 1. If provided, in the format "Epoch {number}"		
Type: text		Multiplicity: [0..1]
Notes: Not supplied if null value.		
<b>Identifier1Source.featureType</b>		
Description: The feature type of the source for identifier 1.		
Can be one of:		
<ul style="list-style-type: none"> <li>• BLPU</li> <li>• Road</li> <li>• RoadLink</li> <li>• Street</li> <li>• TopographicArea</li> </ul>		
Type: text		Multiplicity: [1]
<b>Identifier1Source.identifierType</b>		
Description: The identifier type of the source for identifier 1.		
Can be one of:		
<ul style="list-style-type: none"> <li>• GUID</li> <li>• TOID</li> <li>• UPRN</li> </ul>		

<ul style="list-style-type: none"> <li>• USRN</li> </ul>		
Type: text		Multiplicity: [1]
<b>Identifier2Source</b>		
Type: Object		Multiplicity: [1]
<b>Identifier2Source.productName</b>		
Description: The product name of the source product for identifier 2.		
Type: text	Type: text	Type: text
<b>Identifier2Source.productPublicationDate</b>		
Description: The publication date of the source product for identifier 2.		
Type: date	Format: YYYY/MM	Multiplicity: [1]
<b>Identifier2Source.productPublicationName</b>		
Description: The epoch number of the source product for identifier 2. If provided, in the format “Epoch {number}”.		
Type: text		Multiplicity: [0..1]
Notes: Not supplied if null value.		
<b>Identifier2Source.featureType</b>		
Description: The feature type of the source for identifier 1.		
Can be one of:		
<ul style="list-style-type: none"> <li>• BLPU</li> <li>• Road</li> <li>• RoadLink</li> <li>• Street</li> <li>• TopographicArea</li> </ul>		
Type: text		Multiplicity: [1]
<b>Identifier2Source.identifierType</b>		
Description: The identifier type of the source for identifier 1. Can be one of:		
<ul style="list-style-type: none"> <li>• GUID</li> <li>• TOID</li> <li>• UPRN</li> <li>• USRN</li> </ul>		
Type: text		Multiplicity: [1]

## 2.5 Supply and Update

OS Open Linked Identifiers will be updated through a full supply on a six-weekly basis in line with AddressBase Premium. Each OS Open Linked Identifiers release will follow shortly after the corresponding AddressBase Premium release.

## 2.6 Coverage and File Sizes

The product is released with full Great Britain coverage. As the product has been separated into individual zip files per relationship, each zip file size is dependent on the relationship it holds. The sizes range from a few hundred megabytes to 5-8 giga bytes. Please see the product listing on the OS Data Hub for accurate individual file sizes.

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