

## TERCET Distance Matrix Calculations

### Background:

Road distances are needed for reporting on statistical purposes for various modes of transport (road, rail, air, ship).

The goal is to calculate the road distances between NUTS at statistical level three (NUTS3), using respective TomTom Multinet datasets.

The following table lists the number of NUTS3 regions per year and the number of expected routes.

	NUTS 2010	NUTS 2013	NUTS 2016
NUTS3 Regions	1453	1480	1522
Total Expected Routes	2.111.209	2.190.400	2.316.484

### Methodology:

#### Calculation of the Routes Start/End Points.

The method chosen for calculating the start/end point was for each NUTS3 region to identify the highest population pixel from the GISCO.GEOSTAT\_1K\_POP\_2011 raster located in GISCO database. This procedure ensured that the points are positioned over the TomTom network, or really close to it. Areas not covered by the Population grid (e.g. overseas region) were not included in the calculation.

	NUTS 2010	NUTS 2013	NUTS 2016	NUTS 2021
NUTS3 Regions	1453	1480	1522	1514
Points Calculated	1369	1395	1437	1427
Excluded NUTS3	84	85	85	87

#### Calculate All Routes Points Layer

All start and endpoints were combined and stored together with a unique route ID.

#### Create the Routes and the Split by Countries Routes

The method used for calculating the routes was a quickest route using time as impedance. Each route was calculated separately and split based on the GISCO Country and NUTS datasets of the respective years. For efficiency reasons the calculation is based on a per country basis. For the following NUTS3 regions no routes could be calculated: PT200, PT300, IS001, IS002

#### Create the dissemination TERCET tables

All tables are merged together and reformatted according to the TERCET tables format. Once all the routes and the split by countries routes have been created for the specific country, all datasets are merged together and prepared for dissemination via the TERCET portal.

Note:

In case the NUTS regions “other” is provided in a distance matrix the calculation of distance matrices for the year 2010 implies that the route goes over water surfaces (ferry) or goes over Non-Eurostat statistical regions(Ukraine, Belarus, Bosnia, Kosovo). For the years 2013 onwards the meaning of “other” implies ferries and bridges outside the country boundaries, however Non-Eurostat statistical Regions (Ukraine, Belarus, Bosnia, Kosovo) are included in the calculation.