

Step-free station topology data specification

Specification version 1.0

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Important:

When using a TfL feed (or data service) you agree to follow the [terms and conditions for TfL's free Transport Data Service](#), and the implementation rules within this user guide.



Introduction

This document describes the datasets that contain data about step-free station topology data.

The datasets provide information about where step-free access is possible on the TfL network and connected modes, based on a catalogue of the relevant infrastructure within and immediately around each station. This includes London Underground, London Overground, DLR, TfL Rail (Elizabeth line), Thameslink and Tram, as well as Emirates Air Line and riverboat service piers.

It can be used in combination with [TfL's Step-Free Disruptions API](#) to understand how the step-free status of stations is currently affected by lift outages. This in turn can be used to understand whether particular step-free journeys across TfL's network are possible at the present moment.

These datasets replace the lrاد-v2.xml dataset that previously carried out this function. The lrاد-v2.xml dataset will no longer be maintained.

Thameslink stations

Partial data about accessibility at Thameslink stations has been included in these datasets.

Please note that if a manual boarding ramp is required at a platform, then step and gap information has not been included.

In the case of toilets, they may be present at stations despite information about them not being included. A [dedicated National Rail feed for toilet data](#) can be accessed through a registered account.

Similarly, lifts, Blue Badge parking and taxi ranks may be present despite information about them not being included.

Providing step-free station topology as open data

In 2020, TfL started a project to consolidate its accessibility data sources and integrate them with real time disruption information. The files used for this purpose are also used to create open datasets. The data is exposed in two different file formats to promote the most utility from the data. The unique IDs are common between the two datasets, allowing for lookup between the two. The two file formats are GTFS and a custom csv format.



GTFS format

GTFS is the [General Transit Feed Specification](#). It provides a common standard for describing public transport networks, schedules and station topology. The aim of using this common standard is to reduce the need for custom integrations in order to understand station topology from an accessibility perspective. The current offering does not fully implement the specification, but exposes the data held by Pathfinder in the most practical manner possible. The files implemented are detailed below:

Feed Info

Contains metadata for the publishers of the feed. No `feed_end_date` is specified because the feed contains only station topology, no routes, trips or stop times.

Stops

We use the stops file to represent the following Pathfinder concepts:

Station

This is a logical grouping of points within a station and platforms. These are identified by `location_type=1`, but do not have a `stop_lat` or `stop_lon` as we consider these to be logical (potentially very large stations) rather than physical points.

Outside station point

An arbitrary virtual point that represents a point outside a station, from which all street to platform step-free routes must begin. Every station has exactly one to allow us to create routes from somewhere “outside” the station towards platforms when we don’t know which points along the way are “inside” or “outside”. These are identified by `location_type=3`, `stop_id` will be suffixed with `-Outside` and their `parent_station` will be the station’s `stop_id`. These points will not have a `stop_lat` or `stop_lon` as they are virtual.

Platform

These are virtual points that represent a point in the station where a customer can board a service. These are identified by `location_type=0` and their `parent_station` will be the station’s `stop_id`. These points also will not have a `stop_lat` or `stop_lon` as they are virtual and are too long to be defined by a single coordinate.

Station point

These are known points “inside” and sometimes “outside” a station. These originate from a source system that does not have customer facing names so `stop_name` at present is not very



meaningful but will hopefully evolve over time. These points make up step-free routes from “outside” the station to the Platform points. These are identified by `location_type=3` and their `parent_station` will be the station’s `stop_id`. These points will have a `stop_lat`, `stop_lon` and `level_id` as they are physical points.

The `stop_id` for each of the above concepts will be the `UniqueId` property in the corresponding file in the custom CSV section

Levels

These are used to describe the different levels in stations. Ground level is `level_index=0` and all other floors are relative to that at a given station.

Pathways

We use the pathways files to represent the following relationships between points in Pathfinder. This is NOT an exhaustive list of all pathways through a station, only those that can be taken step-free have been considered. This means stairs and escalators are not included and that some points and platforms are not connected to anything. If there is a sequence of pathways from an outside station point to a platform, then we consider that platform to have “Full” step-free status.

Same-level paths

A path between two points that is level (both points will always have the same level). Identified by `pathway_mode=1` and `pathway_id` will be suffixed with `-same_level`.

Ramp routes

A path between two points that uses a ramp (both points are not necessarily on different levels). The `max_slope` is not known but is considered to be traversable by a wheelchair. Identified by `pathway_mode=1` and `pathway_id` will be suffixed with `-ramp`.

Lifts

A path between two points on different levels that is served by a lift. These can be identified by `pathway_mode=5` and have a suffix of the lift id in `pathway_id`.

It is possible for a lift to serve two points at a given level of the lift. These will each be represented by their own pathway in the file and can be recognised by a shared lift id suffix in `pathway_id`

It is possible for a lift to serve 3 levels. In these cases each combination (top to bottom, top to middle and middle to bottom) is represented by its own pathway in the file and can be recognised by a shared lift id suffix in `pathway_id`. We are not aware of any lifts that serve more than 3 levels and do not support this within Pathfinder currently.



It is possible for multiple lifts to run in parallel between the same points. These cases are represented by their own pathways in the file that can be distinguished by the lift id suffix in `pathway_id`.



Custom CSV format

The GTFS format does not enable the level of detail of accessibility data found in LRAD, so we have exposed this in a custom CSV format. The UniqueId fields in these files correspond with the stop_id fields in the GTFS files documented above, allowing for interchangeable use of both formats. The files provided are detailed below:

Stations

This file defines the list of stations returned from the API.

Column	Description	Mandatory?	Example
Uniqueid	The station's naptan code or hub code; must be unique	Yes	"HUBLBG"
Name	The station's name; doesn't have to be unique (e.g. there are two 'Edgware Road' stations)	Yes	"King's Cross St Pancras"
FareZones	One or more fare zone that station belongs to, separated by " "	Yes	"3 4"
HubNaptanCode	The hub naptan code this station belongs to, e.g. the Emirates cable car in North Greenwich belongs to the 'HUBNGW' hub	No	"HUBNGW"
Wifi	Does the station have Wifi	Yes	"True", "False"
OutsideStationUniqueid	The unique ID of the point representing the outside of the station	Yes	"HUBLBG-Outside"
BlueBadgeCarParking	Is blue badge car parking available outside the station?	No	"True", "", "False" or leave empty if unknown
BlueBadgeCarParkSpaces	Number of blue badge car park spaces	No	"6" or leave empty if unknown
TaxiRanksOutsideStation	Is a taxi rank available outside the station?	No	"True", "False" or leave empty if unknown
MainBusInterchange	Interchange to a main bus station	No	"Full", "Partial", "None" or leave empty if unknown
PierInterchange	Interchange to a river pier	No	"Full", "Partial", "None" "Full", "Partial", "None" or leave empty if unknown
NationalRailInterchange	Interchange to national rail	No	"Full", "Partial", "None" or leave empty if unknown
AirportInterchange	Interchange to an airport	No	"Full", "Partial", "None" or leave empty if unknown



Column	Description	Mandatory?	Example
EmiratesAirLineInterchange	Interchange to the Emirates Air Line	No	"Full", "Partial", "None" or leave empty if unknown

Station points

All the areas inside and outside each stop are specified as station points in this file.

Column	Description	Example
Uniqueld	Each Pathfinder point has a unique ID	"910GABWD-1001001-FELIX-6"
StationUniqueld	The station's naptan code or hub code; must be unique	"HUBLBG"
AreaName	The Area name given to that point	"BookH"
Areald	The ID of the this point	"12"
Level	The level of that Point	"-1"
Lat	Point latitude	"51.44419"
Lon	Point longitude	"-0.02631"
FriendlyName	A customer-facing name for this Point	"Bakerloo Line Booking Hall"

Platforms

This file contains the points representing the actual platforms and information regarding that platform.

Column	Description	Example
Uniqueld	The platform unique ID	"910GHOMRTON-Plat01-WB-london-overground"
StationUniqueld	The unique ID of the station this platform belongs to	"HUBPAD"
PlatformNumber	The platform number; could be blank (eg tram platforms)	"4"
CardinalDirection	Platform direction; could be blank (eg some Overground platforms)	"Northbound"
PlatformNaptanCode	Platform naptan code, where available	"9400ZZALRDK1"
FriendlyName	Customer-facing name for platform	"Southbound Platform 2"
IsCustomerFacing	Is the platform customer facing?	True/False
AccessibleEntranceName	(Optional) name of specific entrance to use for step-free access	"Kingswood Terrace"
HasStepFreeRouteInformation	Do we have data about Step-Free routes to this platform? This value is currently set to 'False' for Thameslink until that information is collected.	True/False

Platform services



Each platform serves one or more platforms. This file adds information regarding each of the services serving that platform, including step and gap information which may differ for different services (due to different train stock).

Column	Description	Example
PlatformUniqueld	The platform's unique ID (as defined in Platforms.csv)	"910GANERLEY-Plat02-SB-london-overground"
StopAreaNaptanCode	The platform's parent stop area naptan code; if a platform is served by two modes (eg Kew Gardens) each row will have the relevant parent naptan code	"910GLIVST"
Line	A line serving this platform, one line per row in the file.	"district"
DirectionTowards	(Optional) Destination(s) of this service	"Dalston Junction and Highbury & Islington"
MinGap / MaxGap / AverageGap	(Optional) Gaps in mm for boarding that line	"300"
MinStep / MaxStep / AverageStep	(Optional) Step in mm for boarding that line	"240"
DesignatedLevelAccessPoint	Is there a designated level access point	True/False
LocationOfLevelAccess	(Optional) Location of level access	"2 centre doors on car 2"
LevelAccessByManualRamp	Is level access done using a manual ramp?	True/False
AdditionalAccessibilityInformation	Any additional information to customers	"For level access leaving the train at Green Park or Wembley Park, please travel in the correct carriage."

Same-level paths

This file contains the same-level routes connecting two points inside/outside a station. Note that each route will appear twice for each direction (A→B and B→A), unless this is a strictly one-way corridor.

Column	Description	Example
From	The unique ID of the route's start	"910GABWD-1001001-HARRO-2"
To	The unique ID of the route's end	"910GABWD-1001001-RLY-4"

Ramp routes

This file contains the ramp routes connecting between points inside/outside a station. Note that each route will appear twice, once for each direction (A → B and B → A).

Column	Description	Example
From	The unique ID of the route's start	"910GACTNCTL-Outside"



Column	Description	Example
To	The unique ID of the route's end	"910GACTNCTL-Plat01-WB-london-overground"

Modes and lines

The list of available modes and lines. Note that these values must align with the values other systems expect.

Column	Description	Example
Mode	the name of the mode	"tube"
Name	the name of the line	"district"

Lifts

This file lists all lifts in a station. Note: each row in the lifts.csv file represents one lift rather than a lift route; therefore - in lifts.csv a lift from A to B is mentioned only once (the order doesn't matter, you can have the lift going 'From: A, To: B' or 'From: B, To: A'. If multiple lifts run in parallel (eg lifts 5 and 6 in Elephant & Castle), it will have one row for each lift.

Column	Description	Example
StationUniqueld	The station this lift belongs to	"HUBLBG"
LiftUniqueld	A unique ID for the lift across the network	"HUBLBG-Lift-3"
LiftId	The lift ID; must be unique in a station. Can use any value but best to use the value in the LUCC spreadsheet	"3"
LiftName	The customer-facing lift name	"B"
FromAreas	List of one or more unique IDs of points this lift goes from, separated by " "	
FriendlyName	A customer-facing name of the lift	"Lift B"
IntermediateAreas	Used only when a lift stops on 3 floors, this would be the area(s) of the middle floor	"940GZZDLPOP-1002064-DLRE-2"
ToAreas	The area(s) the lift goes to	"940GZZDLSOQ-1002074-DLR-N-3"
LimitedCapacityLift	Is this a limited capacity lift?	"True"/"False" or empty if information is unknown
LiftNotes	Additional information for customers	"Lift available on request. Press button to alert staff."

Toilets

This file has information about toilets in stations.



Column	Description	Example
StationUniqueld	The station this toilet belongs to	"HUBLBG"
Id	Toilet ID	"1"
IsAccessible	Is the toilet accessible?	True/False
HasBabyChanging	Does it have baby changing facilities?	True/False
IsInsideGateLine	Is the toilet past the gatelines?	True/False
Location	Description of location	"Located in Booking Hall"
IsFeeCharged	Is it fee charged?	True/False
Type	Toilet type	Male/Female/Unisex
IsManagedByTfL	Is it managed by TfL?	True/False

Step-free interchange info

This file contains additional optional information about the walking distance between two platforms, normally when routes are very long. This information is available for a small number of stations (eg London Bridge where the out-of-station step-free interchange routes are pretty long).

Column	Description	Example
FromPlatformUniqueld	The platform going from	"910GANERLEY-Plat01-NB-london-overground"
ToPlatformUniqueld	The platform going to	"910GANERLEY-Plat02-SB-london-overground"
DistanceInMetres	Walking distance in metres	"400"

Further information about public TfL data can be found on our [dedicated open data webpage](#).

