

Syndication Developer Guidelines

Transport for London Data Service

Version 2.0 (2012-05-21)

www.tfl.gov.uk/developers

Important: When using a TfL feed (or data service) you agree to follow the appropriate Terms and Conditions and the implementation rules within this User Guide.

Overview

TfL Online's Syndicated Feeds are supplied in various formats and provided at a URL to be requested via HTTP. Our policy for releasing data is intended to balance our desire to provide highly-available, timely, high-quality and useful-format data with the costs we incur in doing so. The following list of statements (prioritised highest first) demonstrates how we make decisions about data releases:

- Make as many data sets as possible available to the public as soon as possible
- Ensure the data is good quality
- Ensure the data will stay fresh
- Provide guidelines, data dictionaries and other useful documentation
- Provide the data in widely-used, open formats
- Provide the data in preferred formats

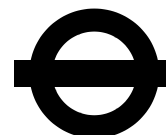
In summary:

Our aspiration is to publish TfL data in a format which maximises its accessibility and usefulness to developer partners, wherever legally, commercially and technically possible. This means we will always try to provide fresh, high-quality data in the most accessible format possible. However, we will not delay the public dissemination of data or substantially increase our provision costs by always publishing data in the formats preferred by our developer partners.

Preferred formats

TfL provide the formats listed below whenever possible because we think they are the most flexible, the easiest to use (in the context of the data content) and easy to understand. It's important to note that these are aspirational guidelines and do not necessarily represent the actual state of our feeds.

Format	Data Content	Rationale
KML	Geo-located	Geo-location data is mostly used for mapping products and KML is widely adopted by these platforms. KML can be easily parsed for other purposes.
TfL Online standard XML	Static or slowly changing	Setting an in-house standard for schema and data elements such as



		DateTime makes writing code to consume several different TfL feeds easier.
REST-like API responding with XML and JSON.	Fast-changing, time-based.	The benefits are well documented and it's particularly suited to making requests for data sub-sets and data that's rapidly updated. JSON responses are easy to use. The definitions of REST and RESTful are contentious, so these APIs should be considered REST-like.
Comma-delimited CSV	Simple, tabular	CSV can be easily produced from spreadsheet data sources. It's often lighter than the equivalent XML structure. It can be read by most spreadsheet software, is easy to parse and can be imported by most databases

Table 1: List of preferred formats

If it's not feasible to supply a preferred format, whether due to time or budget constraints, data will be syndicated in its existing format.

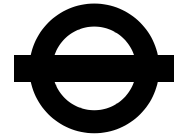
TfL Online standard XML: Technical Description

This section describes our standard in-house XML format. It's often used if data doesn't contain geo-location, is too complex for CSV and a cost/benefit analysis can't support the expense of creating an API. The data should be supplied with an XSD schema that can be used for validation.

Each standard feed consists of a header section and at least one data_container section. The common pattern is:

```
<root>
  <header>
    <identifier ></identifier >
    ...
  </header>
  <data_container>
    <data_item>
      <element></element>
      ...
    </data_item>
    ...
  </data_container>
  ...
</root>
```

The *data_item* elements should be iterated to extract the data in each *data_container*. Both data_containers and data_items will use feed-specific names. The following is an example from the "TubeToday_v2" feed, which has two

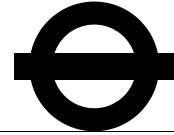


data_containers (“Lines” and “Stations”) containing data_items (“Line” and “Station” respectively):

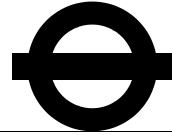
```
<SyndicatedFeed>
  <Header>
    <Identifier>Tfl | Service update - now -
tube</Identifier>
    ...
  </Header>
  <Lines>
    <Line>
      <Name>Bakerloo</Name>
    ...
    </Line>
    ...
  </Lines>
  <Stations>
    <Station>
      <Name>Bank</Name>
    ...
    </Station>
    ...
  </Stations>
</SyndicatedFeed>
```

The header section is common to all TfL Online Standard XML feeds and should (but in practice won't always) contain the following elements:

Name	Description	Notes
Identifier	String	Name of feed.
DisplayTitle	String	Optionally displayed in your application as a title and/or link label.
Version	String	Version number of feed
PublishDateTime	String representing RSS 2.0-style datetime in the following format: Fri, 11 Nov 2011 17:24:03	Human-readable timestamp of the feed publication. It must be displayed with the feed content.
PublishDateTime..canonical	String representing UTC in the following format:	Timestamp of the feed publication. Used to calculate refresh rates



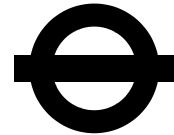
	<p>YYYY-MM-DDTHH:MM:SSZ</p> <p>(Year-Month-Day<T>Hour:Minutes:Seconds<Z>)</p>	and error conditions.
Author	String representing an email address	Email address of author – please use this for any support queries.
Owner	String	Denotes Transport for London as the feed owner.
RefreshRate	String representing an integer value in minutes	Period of feed publishing. This is how often TfL publishes a fresh copy of the feed.
Max_Latency	String representing an integer value in minutes	Maximum time permitted between capturing the feed and displaying the feed.
TimeToError	String representing an integer value in minutes	If Now is greater than PublishDateTime plus TimeToError then the feed is invalid and ErrorMessage (see below) should be displayed.
Schedule	String	Publishing schedule of the feed. Indicates when it should be polled.
OverrideMessage	String	Emergency message to be displayed instead of the feed content.
ServiceMessage	String	Service information about feed provision to be optionally displayed along



		with the feed content.
ErrorMessage	String	To be displayed in the case of an error condition.
FeedInfo	String	Developer information regarding the current state of the feed. Not to be displayed.
Attribution	Container	Copyright information, or similar, which must be displayed with the feed. Child elements are Link, Text, TermsAndConditions and, TermsAndConditionsUrl.
Attribution..Link	String representing a URL.	TfL attribution link, usually back to the TfL website.
Attribution..Text	CData	TfL attribution text.
Attribution..TermsAndConditions	CData	TfL Terms and Conditions statement
Attribution..TermsAndConditionsUrl	String	URL linking back to TfL's online Terms and Conditions
Language	String	Two character language code.

Feed implementation

Example



The following is an example from the “Tube Today” feed:

```
<SyndicatedFeed
xsi:noNamespaceSchemaLocation="http://www.tfl.gov.uk/tfl/syndication/
feeds/xsd/SyndicatedFeedTrack.xsd" version="200102231620"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <Header>
    <Identifier>Tfl | Service update - now - tube</Identifier>
    <DisplayTitle>Tfl | Service update - now -
tube</DisplayTitle>
    <Version>200102231620</Version>
    <PublishDateTime canonical="2011-12-15T11:44:13Z">Thu, 15
Dec 2011 11:44:00</PublishDateTime>
    <Author>webteam@tfl.gov.uk</Author>
    <Owner>Transport for London</Owner>
    <RefreshRate>1</RefreshRate>
    <Max_Latency>2</Max_Latency>
    <TimeToError>2</TimeToError>
    <OverrideMessage />
    <ErrorMessage />
    <FeedInfo>Planned deprecation in July 2013</FeedInfo>
    <Attribution>
      <Url>http://www.tfl.gov.uk</Url>
      <Text><![CDATA[copyright TfL]]></Text>
      <TermsAndConditions><![CDATA[This feed is not for
operational use and is subject to TfL terms and
conditions]]></TermsAndConditions>
      <TermsAndConditionsUrl>http://www.tfl.gov.uk/termsandcond
itions/11402.aspx</TermsAndConditionsUrl>
    </Attribution>
    <Language>en</Language>
  </Header>
  <Lines>
    <Line>
      <Name>Bakerloo</Name>
      <Colour>FFF</Colour>
      <BgColour>AE6118</BgColour>
      <Url>http://www.tfl.gov.uk/tfl/livetravelnews/realtime/tu
be/default.html</Url>
      <Status>
        <Text><![CDATA[Good service]]></Text>
        <Colour>000</Colour>
        <BgColour>FFF</BgColour>
      </Status>
    </Line>
    <Line>
      <Name>Central</Name>
      <Colour>FFF</Colour>
      <BgColour>E41F1F</BgColour>
      <Url>http://www.tfl.gov.uk/tfl/livetravelnews/realtime/tu
be/default.html</Url>
      <Status>
        <Text><![CDATA[Good service]]></Text>
        <Colour>000</Colour>
        <BgColour>FFF</BgColour>
      </Status>
    </Line>
    ...
  </Lines>
```

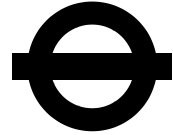


```
<Stations>
  <Station>
    <Name>Bank</Name>
    <Colour>000</Colour>
    <BgColour>FFF</BgColour>
    <Url>http://www.tfl.gov.uk/tfl/livetravelnews/realtime/tu
be/default.html</Url>
    <Status>
      <Text><![CDATA[Station maintenance]]></Text>
      <Colour>000</Colour>
      <BgColour>FFF</BgColour>
      <Message>
        <Text><![CDATA[Until late February 2012 there is a
reduced escalator service between Bank station and the DLR. For
the easiest escalator route to/from street level and the DLR
use Monument station. To change from the Waterloo & City line
to the DLR exit the Waterloo & City line via the moving walkway
and follow signs to the DLR via the Northern line ticket
hall.]]></Text>
        <Colour>000</Colour>
        <BgColour>FFF</BgColour>
      </Message>
    </Status>
  </Station>
  <Station>
    <Name>Bank</Name>
    <Colour>000</Colour>
    <BgColour>FFF</BgColour>
    <Url>http://www.tfl.gov.uk/tfl/livetravelnews/realtime/tu
be/default.html</Url>
    <Status>
      <Text><![CDATA[Station maintenance]]></Text>
      <Colour>000</Colour>
      <BgColour>FFF</BgColour>
      <Message>
        <Text><![CDATA[No step free access on the DLR
platforms due to a faulty lift.]]></Text>
        <Colour>000</Colour>
        <BgColour>FFF</BgColour>
      </Message>
    </Status>
  </Station>
  ...
</Stations>
</SyndicatedFeed>
```

Implementation rules

Presentation

In order to provide a unified and easy to understand presentation of TfL data across multiple channels, official TfL branding must be used to display certain information. All TfL Online Standard XML feeds contain the following:



- If colour is used to represent Tube lines, the appropriate colour value included in the feed must be used. In feeds that contain Tube line-related data we will provide a <BgColour> tag that represents the line and a <Colour> tag to be used for text that overlays <BgColour>.
- If service status messages are used, the appropriate colour value included in the feed must be used. In feeds that contain service status messages data we will provide a <BgColour> tag that represents the significance of the message and a <Colour> tag to be used for text that overlays <BgColour>.
- It is recommended that you use the text in the <DisplayTitle> tag if you show a title for the feed or refer to the feed in your content with either plain text or hyperlinks.
- The contents of the "canonical" attribute of the <PublishDateTime> tag must be displayed on-screen with the feed content.
- Attribution information must be displayed with the feed and can be found in the <Attribution> tag. The <Text> tags content must be shown. Optionally, attribution information can be linked back to TfL using the URL in the <Url> tag.

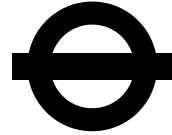
For other data formats and information on branding TfL data in general, please see our branding guidelines at www.tfl.gov.uk/businessandpartners/syndication/17102.aspx. For specific branding rules for each data set, please see the respective guidelines at www.tfl.gov.uk/businessandpartners/syndication/16493.aspx.

Distribution

Developers consuming TfL data and providing public services built on it are expected to provide the hosting capacity necessary to serve those public consumers. You should take our data and proxy it, you shouldn't allow all your clients to hit our service directly. This is intended to reduce TfL's cost liability for hosting and content delivery.

Timeliness

In order to provide the public with the most accurate information possible, feeds must be obtained and displayed in a timely fashion. In each TfL Online Standard XML feed, we provide the information necessary to do this appropriately according to the feed content, as follows (all dates and times are UTC).



- Feeds must be grabbed and displayed with the same frequency as that in the `<RefreshRate>` tag.
- Feeds should be grabbed and displayed in synchronicity with the `<Schedule>` tag. For example, if the publishing schedule is "Every quarter", please grab the feed a short time after that.
- Feeds must be displayed by you within a certain period after being grabbed, represented by the `<Max_Latency>` tag. The pseudocode business rule is as follows:

```
If FeedDisplayDateTime > (FeedCapture DateTime + Max_Latency)
Then hide feed And display "This information is not currently
available".
```

- A feed must not be displayed when it is grabbed and the period allowed in the `<TimeToError>` tag has been exceeded. The pseudocode business rule is as follows:

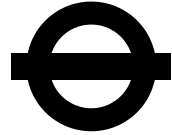
```
If Now > (PublishDateTime + TimeToError) Then hide feed.
```

```
If ErrorMessage exists Then display ErrorMessage Else display
"This information is not currently available".
```

- A feed must not be displayed when it contains an override message. The pseudocode business rule is as follows:

```
If OverrideMessage Exists Then hide feed And display
OverrideMessage.
```

For other data formats, please see the respective guidelines for each data set at www.tfl.gov.uk/businessandpartners/syndication/16493.aspx.



Support

If you require technical support when implementing a TfL feed, please refer to our common questions which are available on our website.

If an answer to your support issue is not provided, contact us through our support form also available on the website.

There are currently no SLAs for TfL's syndicated data and support. It's provided on a best endeavours basis and that applies to data quality, schema consistency and availability.

Terms and Conditions

When using a TfL feed or data service you agree to follow the appropriate Terms and Conditions. These are currently available at www.tfl.gov.uk/termsandconditions/11402.aspx.

Don't forget to check respective guidelines for each data set at www.tfl.gov.uk/businessandpartners/syndication/16493.aspx.