Publishing + evaluating + querying GTFS with the Transitland platform

Drew Dara-Abrams + Ian Rees
Mapzen
Outline

1. **Introducing** the Transitland Platform
2. **Publishing** feeds to Transitland
3. **Evaluating** progress on GTFS Best Practices using Transitland
4. **Evaluating** feed transition practices using Transitland
5. **Querying** Transitland for GTFS contents
6. **Participating** in Transitland yourself!
Introducing the Transitland Platform
A community-edited data service aggregating transit networks across metropolitan and rural areas around the world.
Transitland covers 2,196 operators in 41 countries.
Publishing Feeds to Transitland
FEED REGISTRY

The Feed Registry lists all the transit operators and feeds included in Transitland. See what each feed’s license will allow you to do with it and click through to get more details about feeds associated with each operator.

<table>
<thead>
<tr>
<th>Operator Name</th>
<th>Metro</th>
<th>State or Province</th>
<th>Country</th>
<th>License</th>
</tr>
</thead>
<tbody>
<tr>
<td>128 Business Council</td>
<td>Waltham</td>
<td>Massachusetts</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>360 Discovery</td>
<td>Auckland</td>
<td>Auckland</td>
<td>New Zealand</td>
<td></td>
</tr>
<tr>
<td>9 Town Transit</td>
<td>Centerbrook</td>
<td>Connecticut</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Aachener Verkehrsverbund (AVV)</td>
<td>Aachen</td>
<td>Nordrhein-Westfalen</td>
<td>Germany</td>
<td></td>
</tr>
<tr>
<td>Aachener Verkehrsverbund - West (AVV)</td>
<td></td>
<td>Nordrhein-Westfalen</td>
<td>Germany</td>
<td></td>
</tr>
<tr>
<td>Aare Seeland mobil (ASM)</td>
<td>Biel/Bienne</td>
<td>Bern</td>
<td>Switzerland</td>
<td></td>
</tr>
<tr>
<td>Aare Seeland Mobil (ASM)</td>
<td>Langenthal</td>
<td>Bern</td>
<td>Switzerland</td>
<td></td>
</tr>
</tbody>
</table>
## Publishing Feeds to Transitland

### Requirements

- Stable URL (same directory, same filename)
- Publicly accessible (no password)
- Machine downloadable (no “clicking”)
- Open license

### Benefits

- “Source of truth” continues to live with each public transit agency/operator
- Transitland overlays Onestop IDs (globally unique, stable IDs provided by Transitland)
Evaluating progress on GTFS Best Practices using Transitland
Google feedvalidator.py validation report

View results

GTFS validation results for feed:
/wwww/transitland/releases/20170418191657/public/uploads/tmp/1493369826-10642-0628-8439/eb0cbe5ab41c9cfde0ebae42471ab5b3f712b008.zip
FeedValidator extension used: None

Agencies: Chicago Transit Authority
Routes: 134
Stops: 11473
Trips: 47057
Shapes: 872
Effective: April 14, 2017 to June 30, 2017

During the upcoming service dates Fri Apr 28 to Mon Jun 26:
Average trips per date: 18148
Most trips on a date: 20528, on 24 service dates (Fri Apr 28, Tue May 02, Thu May 04, ...)
Least trips on a date: 11773, on 1 service date (Mon May 29)

Found these problems:
1166 warnings
454 Invalid Values
<table>
<thead>
<tr>
<th>Column heading</th>
<th># of total rows</th>
<th># of unique row values</th>
<th>Minimum row value</th>
<th>Maximum row value</th>
</tr>
</thead>
<tbody>
<tr>
<td>route_id</td>
<td>134</td>
<td>134</td>
<td>1</td>
<td>Y</td>
</tr>
<tr>
<td>route_short_name</td>
<td>126</td>
<td>126</td>
<td>1</td>
<td>X08</td>
</tr>
<tr>
<td>route_long_name</td>
<td>134</td>
<td>134</td>
<td>111th/King Drive</td>
<td>Yellow Line</td>
</tr>
<tr>
<td>route_type</td>
<td>134</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>route_color</td>
<td>8</td>
<td>8</td>
<td>009B3A</td>
<td>F9E300</td>
</tr>
<tr>
<td>route_text_color</td>
<td>8</td>
<td>2</td>
<td>000000</td>
<td>FFFFFFFF</td>
</tr>
</tbody>
</table>
Evaluating Feed Transition Practices using Transitland
Querying Transitland for GTFS contents
### Stable & unstable GTFS identifiers

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Location</th>
<th>Code</th>
<th>Code</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>s-9q9p1bbfc-lakemerritt</td>
<td>LAKE</td>
<td>湖前梅里特</td>
<td>Lake Merritt</td>
<td>LAKE</td>
</tr>
<tr>
<td>s-f25e4y9fyy-delaconcorde-decluny</td>
<td>LAKE</td>
<td>奥特1641325</td>
<td>马斯1741325</td>
<td>朱恩1741325</td>
</tr>
<tr>
<td>s-dnwgc9v0de-pricesfork-oldgladewbnd</td>
<td>5f4c31d2-593f-415a-a5aa-fd1b44e6def2</td>
<td>普莱斯福克</td>
<td>Old Gladewbindung</td>
<td>普莱斯福克</td>
</tr>
<tr>
<td></td>
<td>4bf1325e-3408-47c8-9468-371533d9d5e3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1d21ec2-0923-42b2-a448-54960742f63a</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Stable & unstable GTFS identifiers

- o-c28-translink
  - CMBC
  - CMBC

- o-9q9-caltrain
  - CT
  - caltrain-ca-us

- o-9y7v-metropolitan-tulsatransitauthority
  - Tulsa
  - 201702
## Caltrain

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OneStop ID</td>
<td>o-9q9-caltrain</td>
</tr>
<tr>
<td>Metro region</td>
<td>San Francisco Bay Area</td>
</tr>
<tr>
<td>State/Province</td>
<td>California (US-CA)</td>
</tr>
<tr>
<td>Country</td>
<td>United States (US)</td>
</tr>
<tr>
<td>Website</td>
<td><a href="http://www.caltrain.com/">http://www.caltrain.com/</a></td>
</tr>
<tr>
<td>Timezone</td>
<td>America/Los Angeles</td>
</tr>
<tr>
<td>Tags</td>
<td>us_ntd_id: 9134</td>
</tr>
</tbody>
</table>

**Data available in Transitland Dataset**
- operator service area
- stops
- routes
- schedule

**Operator service area**
- View as an interactive map in Mapzen Mobility Explorer
- JSON from Transitland Dataset API
- GeoJSON from Transitland Dataset API
- View as a map using geojson.io

**Routes**
- View as an interactive map in Mapzen Mobility Explorer
- JSON from Transitland Dataset API
- GeoJSON from Transitland Dataset API
- View as a map using geojson.io

**Stops**
- View as an interactive map in Mapzen Mobility Explorer
- JSON from Transitland Dataset API
- GeoJSON from Transitland Dataset API
- View as a map using geojson.io
{ "features": [{ "geometry": { "type": "Point", "coordinates": [-122.394935, 37.776348] } }, "properties": { "onestop_id": "s-9g8yyugptw-sanfranciscocaltrain<70012", "created_at": "2016-07-14T00:21:09.262Z", "updated_at": "2017-09-24T02:30:13.582Z", "tags": { "zone_id": "1", "osm_way_id": "255330047", "wheelchair_boarding": "1" }, "created_or_updated_in_changeset": 7097, "name": "San Francisco Caltrain", "timezone": "America/Los_Angeles", "osm_way_id": 255330047, "served_by_vehicle_types": [ "rail" ], "parent_stop_onestop_id": "s-9g8yyugptw-sanfranciscocaltrain", "wheelchair_boarding": true, "geometry_reversegeo": null, "geometry_centroid": { "type": "Point", "coordinates": [-122.394935, 37.776348] } }, "operators_serving_stop": [{ "operator_name": "Caltrain" }]}]
Participating in Transitland Yourself!

Please go to [https://transit.land](https://transit.land) to

- Add your agency’s GTFS feed
- View feed validation reports, statistics, and service-level histograms
- Query transit data across your entire metro region

We welcome your questions and ideas:

- hello@transit.land
- [hello@mapzen.com](mailto:hello@mapzen.com)
- @transitland
- @mapzen