Open Source Software for Transit Agencies

Common OS Applications
TimeTable Publisher Application
Trip Planning Applications

National Rural ITS Conference
September 4, 2008
Bibiana McHugh, IT Manager GIS & LBS

TRIOMET
Common OS Applications in Use at TriMet

Linux Operating System
MySQL & PostGIS Databases
Mozilla Firefox Web Browser
Apache and Tomcat for Web Servers, Services, etc.
Footprints Service Desk Management System
Openbravo Point of Sale Application (ticket purchases)
Plone Content Management System
Eclipse Development Platform
Subversion (SVN) Version Control System (code, web pages…)
Open Office?
GeoServer & OpenLayers for Internet Mapping
Business Procedures & Evaluation

Include OS Solutions in IT Feasibility Studies and Requirement Analysis in addition to Commercial Off-The-Shelf (COTS) products

Evaluation Criteria

- OS Code/Language – ex. can it be supported and maintained internally, does it adhere to IT standards
- Developer Base
- Working Implementations
- Terms and conditions of the OS license agreement
- Governance or Foundation
- Options for support and maintenance contracts
- No initial fee for the software, however, should calculate and compare long-term operating costs and resources against COTS
TimeTable Publisher

History & Current Status
HRT Implementation
Benefits and Potential
Technical Support
# Printed Timetable

**ROUTE 7 • OUTBOUND (GREEN ZONE)**  
FROM DOWNTOWN TRANSIT CENTER TO DUNDUMB CENTER

<table>
<thead>
<tr>
<th>Weekday</th>
<th>Downtown Transit Center</th>
<th>Spenard &amp; Northern Lts.</th>
<th>Wisconsin &amp; Spenard</th>
<th>Airport South Terminal</th>
<th>Jewel Lake &amp; 88th</th>
<th>Northwood &amp; 88th</th>
<th>Dimond Transit Center</th>
<th>Airport South Terminal</th>
<th>Jewel Lake &amp; 88th</th>
<th>Northwood &amp; 88th</th>
<th>Wisconsin &amp; Spenard</th>
<th>Spenard &amp; Northern Lts.</th>
<th>Downtown Transit Center</th>
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<td>8:32</td>
<td>8:42</td>
<td>8:54</td>
<td>8:42</td>
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</tbody>
</table>
Web Timetable
The TimeTablePublisher is a single system that allows a transit agency to examine, modify, and transform raw scheduling data into easy-to-read timetables for customer information purposes. The application simplifies and accelerates the production of printed on-street schedules and web schedules, which is often a very time-consuming and manual process for most agencies. This results in more accurate, current, and consistent schedule information for the customer.

The TimeTablePublisher is designed to use data directly in the Google Transit Feed Spec (GTFS) format, so it can be very easy for an agency to implement. In addition, it can connect to, and read from, other sources of data including a database, a comma separated text file, and XML. An easy-to-use interface, as well as a tool that compares the changes between two service dates, makes it easy to format and edit the data.

As an open sources application, TimeTablePublisher is available for free so that other transit agencies can use it and even contribute enhancements to it. There's always room for improvement, and with your help, TimeTablePublisher will improve.

SUGGESTIONS:
1. Use the war file (look right). Just drop it into your TOMCAT/webapps directory. It will unpack itself, and you should see a TOMCAT/webapps/ttpub directory (assuming tomcat is running).

2. Use the test GTFS data (again, look right). This data-set very is small, and thus provides a good sanity check that TimeTablePublisher (TTPUB) is properly configured on your machine.

3. It's been reported that 512 megs is just not enough memory to run TTPUB with real schedule data. GTFS data is really big, and TTPUB is really bad at memory management. The minimum memory on your system should be 1.5 GB – you're recommended to be dedicating 1G (eg: JAVA_OPTS="-Xmx1024m") of memory to TTPUB.
### TTPUB Process

#### 1. Raw Schedule Data

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
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</table>
TTPUB Process

1. Raw Schedule Data

2. Input into TTP System
Google Transit Feed Specification

Google Transit Feed Specification

Revised August 7, 2008

The transit trip planning feature in Google Maps enables users to create efficient travel itineraries using public transportation schedules. This document explains how you can provide public transportation schedules to Google so that those schedules can be incorporated into Google Maps and other Google applications that show geographic data. This document explains the types of files that comprise a transit feed and defines the fields used in all of those files.

Table of Contents

- Submitting a Transit Feed to Google
- Term Definitions
- Requirements
  - File Requirements
  - Testing Your Feeds
  - Updating Your Feeds
  - Requirements for Posting Your Feeds to Google Maps
- Field Definitions
  - agency.txt
  - stops.txt
  - routes.txt
TTPUB Process

1. Raw Schedule Data
2. Input into TTP System
3. Configure & Prepare Data
TTPUB Process

1. Raw Schedule Data
2. Input into TTP System
3. Configure & Prepare Data
4. Output into Various Formats for Public Use (digital and paper)
# Vintage Trolley

**Eastbound to Lloyd Center · Sunday**

<table>
<thead>
<tr>
<th>11th Avenue MAX Turnaround&lt;br&gt;Stop ID 10119</th>
<th>Pioneer Square South MAX Station&lt;br&gt;Stop ID 6334</th>
<th>Old Town/Chinatown MAX Station&lt;br&gt;Stop ID 8339</th>
<th>Rose Quarter TC MAX Station&lt;br&gt;Stop ID 8340</th>
<th>Lloyd Center/Dbltree &amp; Vintage Trolley&lt;br&gt;Stop ID 9419</th>
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<tbody>
<tr>
<td><strong>Details</strong></td>
<td><strong>Details</strong></td>
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</tbody>
</table>

Please note: Schedules may change without notice by up to three minutes to relieve overcrowding or adjust to traffic conditions. Service can also be affected by construction, accidents and weather conditions. You can check for any current detours or service disruptions at trimet.org/alerts or call 503-238-RIDE (7433) for real-time arrival information from TransitTracker™. All buses, MAX trains and streetcars are accessible to people with disabilities.

This schedule is effective 01-14-2007.
TTPUB History

2004 TRB Transit IDEA Project #39
  • ConSysTech’s Dynamic Timetable Generator (DTG)

2005 Transit Forum Workshop
  • DTG was suggested for a potential open source project
    http://tech.groups.yahoo.com/group/TransitForumNet/
Transit Forum Yahoo Group

Home

Activity within 7 days: (No Activity)

Description (Edit)

Welcome to the Transit Forum Network designed for software and data collaboration among Transit Agencies.

Over a dozen transit agencies initially met for a two-day Transit Forum Workshop in October 2006 to explore opportunities for software and data sharing. This website is a direct result from that meeting.

This year's Transit Forum event was held in conjunction with GOSCON 2006, the annual Government Open Source Conference.

GOSCON 2006 TRANSIT FORUM PRESENTATIONS

Most Recent Messages (View All)

Job Posting - NYC 12-24 month onsite consulting assignment - Sr Sys KOHL Group Job Description: KR070708_Change Management Job Title: Systems Engineer Integrator Duration: 12 to 24 months Location: NYC, must work onsite at

Posted - Tue Aug 5, 2008 6:40 am

Joseph P. Gleason

TriMet

TransitForumNet - Transit Forum Network

Search for other groups... Search
TTPUB History

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• DTG was suggested for a potential open source project
  http://tech.groups.yahoo.com/group/TransitForumNet/

2006 TriMet Replaced Legacy System with TTPUB

2007 TTPUB Released with OS License
Open Source

Application is publicly available
• Based on Mozilla Public License 1.1.

Why:
• To broaden user and developer base
• Share costs and lessons learned
• Extended software support
• Consistent user interfaces
TTPUB Status

Internal Uses at TriMet

- Generates all printed timetable materials
- Generates Web HTML & PDF Timetables
TTPUB Status

Internal Uses at TriMet

- Generates all printed timetable materials
- Generates Web HTML & PDF Timetables

T3 Webinar  http://www.pcb.its.dot.gov/
ITS Professional Capacity Building Program

T3 Archives: All Webinars

Sort sessions by the following topic areas: Transit, Highway, Commercial Vehicles, Cross-cutting, All Webinars

Some T3 presentations contain references to specific vendors and products. These references do not constitute an endorsement of these vendors or products by U.S. DOT.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic/Webinar Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/14/2008</td>
<td>How to Implement the TimeTable Publisher: An Open Source Application for Transit Agencies</td>
</tr>
<tr>
<td>4/16/2008</td>
<td>Assessing the Potential for BRT in Your Region: Lessons Learned from a Los Angeles/New York ITS Peer-to-Peer Exchange</td>
</tr>
</tbody>
</table>
TTPUB Status

Internal Uses at TriMet
  • Generates all printed timetable materials
  • Generates Web HTML & PDF Timetables

T3 Webinar

Test Implementations:
  • KING Co. Metro
  • NYSDOT
  • Lane County Transit
  • Hampton Roads Transit
Process Flow

HASTUS REPORTS
1. Schedule

Information from Scheduling
Mapping info
1. Transfer locations
2. Holiday info
3. Connecting routes
4. Wheelchair and bike rack available
5. Fare information
6. Contact information

Information sent to Marketing for design

Timetables created manually Using Quark Express software

Timetables sent to Scheduling & Planning For proofreading
Design Process in Marketing

- Timetable is currently created manually
- Quark Express software is used
- Very time-consuming and labor-intensive process
- Can be prone to error
- Marketing is considering outsourcing this process
Raw Data to Prepare Timetable

The green boxes represent PM time.
Cost of Preparing Timetables

**Labor hours - 29 to 39 hours per route**
- To prepare headway (schedule) – 8 hours per route
- To prepare maps – 12 to 20 hours per map
- To prepare timetable from headway report – 6 to 8 hours per route
- Proofreading – 3 hours per route

**Publishing Cost**
- To develop maps - $16K in 2007
- To print and publish timetables for different routes - $45K in 2007
The cost also depends on other factors, such as:

- Number of routes - 54
- How often board changes happen – (2 major changes Fall & Spring)
- Routes can change up to 6 times a year
- Reprinting due to mistakes
STEP 1 – Copy Google Feed to Designated location

STEP 2 – Open Time Table Publisher Tool

STEP 3 - Configure Route using Time Table Publisher

STEP 4 - View / Proof / Publish Timetables in different format
Benefits of TimeTablePublisher Tool

- Open source application (FREE)
- Helps Marketing team to prepare public schedules and timetables in various formats
- Easy to use
- Information is dynamically generated
- Minimal effort to implement
- Acceptance of Google Transit Feed data makes the generation of raw data very simple and standardized
- Timetable output can be produced in a variety of formats
## Why Use the TTPUB?

<table>
<thead>
<tr>
<th>Consistent</th>
<th>Single system for print and Web output.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>Quicker turn-around &amp; can generate directly from database.</td>
</tr>
<tr>
<td>Control</td>
<td>TimeTablePublisher gives Marketing team full control over public schedule information.</td>
</tr>
<tr>
<td>Costs</td>
<td>Cost reduction from automation &amp; repeatable processes (from 30 to 2 hours per route).</td>
</tr>
<tr>
<td>GTFS</td>
<td>Standardized data format lowers the barrier to using the TimeTablePublisher.</td>
</tr>
</tbody>
</table>

**Bottom Line**  Better Information and Reduced Costs.
Lessons Learned

• Working together with other agencies has been great.
• Timetable issues are similar between agencies.
• No showstoppers yet encountered.
• Java and Java Web Application Servers Experience – required only to add to the code
Enhancement Opportunities

Template-Driven Publishing system has vast potential for expansion:

• View schedule for a route between 5:00pm & 7:00pm
• View schedule on an iPhone or other mobile device
• Create text version that meets ADA requirements

Additional Agency Requirements

• The code can be built upon and shared with others
TTPUB Technical Support

• Uses GTFS so implementation is simple
• Intuitive friendly user-interface
• Webinar & documentation for reference
  http://www.pcb.its.dot.gov/
• Development community is growing
  http://groups.google.com/group/ttpub-user
Open Source Software Support
(Oregon Based Companies)

Cort Buchholz, President
503.914.6272
cort@singlemindconsulting.com
www.singlemindconsulting.com

Wayne Skipper, President
(541) 968-5994
http://concentricsky.com
OS Trip Planning Applications

A-TRAIN Trip Planner
http://trip.atltransit.com/

TriMet’s Interactive System Map
GeoServer, OpenLayers, PostGIS
http://maps.trimet.org/
Plan a Trip

1: 7:10 PM - 7:50 PM (0 transfers, 40.0 minutes)
2: 7:10 PM - 7:58 PM (1 transfer, 40.0 minutes)
3: 7:10 PM - 7:54 PM (1 transfer, 44.0 minutes)

Start at airport

Trip Details

Valid: 7:10 PM on 6/17/08
Transit times: 40.0 minutes
Total walk: 0.22 miles
Fares: Adult all Zone ($2.85), Youth/Student ($1.43) or Honored Citizen ($0.85)

Light Rail MAX Red Line to City Center & Beaverton
2:18 PM Depart Portland Intl Airport Mall Station
Stop ID: 10079
Duration: 40.8 minutes
7:58 PM Arrive Gateway/SW 50th Ave Mall Station
Stop ID: 8384

Walk north to POWELL’S BOOKS - CITY OF BOOKS
About 9.0 minutes - 0.22 miles

End at POWELL’S BOOKS - CITY OF BOOKS
Welcome to the byCycle.org bicycle trip planner.

Locations Routes

Location show on map

SW Montgomery St & SW Harbor Dr
Portland, OR 97201
Set as start or end of route
Technical Support

Community Support – Great!

Commercial Support

• Wanted 1-year support contract for first year
• Looked for companies that supported all 3 technologies at osgeo.org
• Looked at which of these companies contributed core source code (we needed added features)
• Requested annual service contracts to review
• TOPP’s contract met our requirements most economically and efficiently
GeoServer Support Page

Core Contributors

The organizations listed here are recognized as being closest to the core development of GeoServer, and as such are usually the best to go to for support. They are close enough to the codebase to know what is possible, and to ensure that any improvement to be made to GeoServer gets done in the right way. This can minimize your risk greatly.

- **OpenGeo**, the geospatial division of The Open Planning Project (TOPP) (US), a non-profit based in New York, leads the GeoServer effort, and currently can do improvements to the codebase that align with its mission. TOPP started GeoServer in 2001, and OpenGeo continues to lead the day to day functioning of the community. Current efforts include adding standards based geowiki capabilities, making GeoServer more modular and flexible to program against, and supporting the wide variety of community efforts. For more information contact inquiry <at> opengeo.org. OpenGeo encourages a diverse ecosystem of consultants and companies around GeoServer, and can recommend one for the area of the world and client needs. If you are selecting a company to support GeoServer TOPP is happy to recommend an appropriate team, often composed of more than one single organization. For more information see the [OpenGeo services](#) page.

- **Refractions** (Canada) has performed many core improvements to GeoServer, and can provide a wide variety of consulting and support around it. The bulk of their work was to add a validation engine and web gui to GeoServer, for 1.2. Their latest work is [uDig](#), and all the programmers who work on it can quickly get up to speed with GeoServer, as the two projects share a lot of code. Refractions is well equipped to provide complete solutions, not only GeoServer but the whole open source stack around. See their [support page](#) for more information.

- **Axiom** (Spain) is one of the larger GeoServer contributors, and is the leading GeoServer provider for Europe. Their initial work was integrating the WMS with GeoServer’s WFS for version 1.1, and provided the first SVG output. They are also the ArcSDE experts of the GeoServer/GeoTools codebase. Currently they are working on support for [Complex Features](#) within GeoServer, mapping native database tables to well known schemas.

- **GeoSolutions** (Italy) is a young company with a strong commitment to providing innovative, robust, cost-effective geospatial solutions employing cutting edge technologies. Our associates are members of both the GeoTools PMC as well as of the GeoServer PSC. Our main area of interests in the projects is in rasters management as well as advanced rendering. We are leading the development of GeoServer-raster (both WMS and WCS) as well as for GeoTools raster plugins. We have also extensive experience with 3AI and ImageIO. Please contact Simone Giannecchini at (simone[dot]giannecchini[at]geo-solutions[dot]it) for additional information.

Experienced Providers

The commercial providers in this category have not done major contributions directly to the GeoServer project, but they are trusted as reliable
OS Geo Service Providers Search

Choose among the categories for a refined search, or default for all possible providers. Help and details are also available.

<table>
<thead>
<tr>
<th>Local Providers</th>
<th>Language</th>
<th>Technology Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>English</td>
<td>GDAL</td>
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<tr>
<td>England</td>
<td>Hindi</td>
<td>GeoTools</td>
</tr>
<tr>
<td>India</td>
<td>Letin</td>
<td>GRASS</td>
</tr>
<tr>
<td>Italy</td>
<td>Thai</td>
<td>MapBuilder</td>
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<tr>
<td>Netherlands</td>
<td>Marathi</td>
<td>Mapguide OS</td>
</tr>
<tr>
<td>Thailand</td>
<td>French</td>
<td>MapServer</td>
</tr>
<tr>
<td>USA</td>
<td>German</td>
<td>OSSIM</td>
</tr>
<tr>
<td>Israel</td>
<td>Italian</td>
<td>GeoServer</td>
</tr>
<tr>
<td>Germany</td>
<td>Spanish</td>
<td>PGIS</td>
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<tr>
<td>Spain</td>
<td>Portuguese</td>
<td>PROJ</td>
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<tr>
<td>Brazil</td>
<td>Japanese</td>
<td>OpenLayers</td>
</tr>
<tr>
<td>France</td>
<td>Chinese</td>
<td>FDO</td>
</tr>
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<td>Switzerland</td>
<td>Arabic</td>
<td>GeoNetwork</td>
</tr>
<tr>
<td>China</td>
<td>Hungarian</td>
<td>Mapbender</td>
</tr>
<tr>
<td>Japan</td>
<td>Finnish</td>
<td>Quantum GIS</td>
</tr>
<tr>
<td>Australia</td>
<td>Polish</td>
<td>Localization</td>
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<td>New Zealand</td>
<td>Danish</td>
<td>Ka-map</td>
</tr>
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<td>Hungary</td>
<td></td>
<td>Chameleon</td>
</tr>
<tr>
<td>Finland</td>
<td></td>
<td>gvSIG</td>
</tr>
<tr>
<td>Belgium</td>
<td></td>
<td>degree</td>
</tr>
</tbody>
</table>

Search
Open Data

developer.trimet.org
TriMet Developer Resources

TriMet has made resources available to software developers, to promote the use of transit and information related to transit.

At this time these resources include a schedule published in the Google Transit Feed Specification (GTFS) format as well as web services from TriMet’s TransitTracker system.

As more resources are made available they will be announced here.

Getting started:

We have built a brief list of definitions to transit terms. You may want to read them before working with our data.

To start using our GTFS data you can read about it here and get it here.

To start using our Web Services feed you must first register for an AppID here.

The Web Services currently available are documented here.

The TimeTable Publisher project is hosted as a google code project.

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Direct access to most current Schedule Data in common open format

“GTFS is a lightweight, open format that provides a common, easy way to exchange transit data. You don't have to be Google™ to use it.”

Tim Moore, Bart
Developers are scraping schedule data off websites anyway.

GTFS offers a more stable solution with Terms of Use.
Who is using **Schedule Data** in the GTFS format?
TransitTrips
Sits on Google Transit
Makes it easy to save links to common trips
“…believes in allowing public information to be shared openly by municipalities across the country in hopes of maximizing travel efficiency and better serving the greater public.”
Tranzit

Schedules and Map Info for Mobile Devices using GTFS data

Developer’s motivation is to encourage more sustainable modes of transport.
Stop & Service Finder

Built on the GTFS – other agencies coming
Finds all stops, buses & trains in an area

### Public Transportation Stop and Service Finder

Find all stops and routes for buses and trains in your area

### Added the Gold Line to the map

- **7TH & CAPITOL LIGHT RAIL**
  - **Stop ID:** 7013
  - **Routes:** Gold Line Blue Line

### Map Options

- Map
- Satellite
- Hybrid

### Find an address or point of interest

- **Address:** 11th St & L St, Sacramento, CA
- **Get**

### Add Rte to the Map

- **Route:** Gold Line
  - **Color:** burgundy

### Add Stops to the Map

- **37 stops found**

### Routes on the Map

- **Gold Line**
  - 10TH ST & K ST
  - 10TH ST & N ST
  - 12TH & J LIGHT RAIL
  - 7TH & CAPITOL LIGHT RAIL
  - 7TH ST & K ST
  - 8TH & CAPITOL LIGHT RAIL
  - 8TH & K LIGHT RAIL
  - 8TH & J LIGHT RAIL

### Stops on the Map

- **10TH ST & K ST**
- **10TH ST & N ST**
- **12TH & J LIGHT RAIL**
- **7TH & CAPITOL LIGHT RAIL**
- **7TH ST & K ST**
- **8TH & CAPITOL LIGHT RAIL**
- **8TH & K LIGHT RAIL**
- **8TH & J LIGHT RAIL**

Application © MTS 2008. Data provided by Sacramento Regional Transit District (RT).
Transit Maps
Draws route lines using GTFS
Garmin StreetPilot

“…TriMet responded, and pointed me to the GTFS developer site… by far the easiest experience I’ve had getting information from a public agency.”

Brett Warden, TriMet Rider & Software Developer
GPS Wayfinding Devices

Sendero, TriMet & Google working to integrate GTFS with POI Database
TriMet Developer Resources

The TimeTablePublisher is a single system that allows a transit agency to examine, modify, and transform raw scheduling data into easy-to-read timetables for customer information purposes. The application simplifies and accelerates the production of printed on-street schedules and web schedules, which is often a very time-consuming and manual process for most agencies. This results in more accurate, current, and consistent schedule information for the customer.

The TimeTablePublisher is designed to use data directly in the Google Transit Feed Spec (GTFS) format, so it can be very easy for an agency to implement. In addition, it can connect to, and read from, other sources of data including a database, a comma separated text file, and XML. An easy-to-use interface, as well as a tool that compares the changes between two service dates, makes it easy to format and edit the data.

As an open sources application, TimeTablePublisher is available for free so that other transit agencies can use it and even contribute enhancements to it. There’s always room for improvement; and with your help, TimeTablePublisher will improve.

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T3 Webinar
How to Implement the TimeTable Publisher: An Open Source Application for Transit Agencies
May 14, 2008
Who is using our Web Services for Customer Information?
TriMet Developer Resources

Web Services API

All web services TriMet has made available use the Representational State Transfer (REST) RPC-style calls over HTTP GET requests with parameters URL encoded into the request.

Each web service begins with a base URL followed by parameters and arguments. Parameters and arguments can be separated by a forward slash (/). Parameters can also be passed using the HTTP GET parameter style; following the base URL with a "?", argument names followed by an equals "=" followed by the argument value and the next parameters separated by a &.

The final parameter will always be "appID" and should be a valid registered AppID. AppIDs registration can be done here.

For example called the arrivals service with a base url of "http://developer.trimet.org/ws/V1/arrivals" would be called:

Using slashes:
"http://developer.trimet.org/ws/V1/arrivals/locIDs/6849,6850/appID/0000000000000000000000000000000000"

Using HTTP GET parameters:
"http://developer.trimet.org/ws/V1/arrivals?locIDs=6849,6850&appID=0000000000000000000000000000000000"

<table>
<thead>
<tr>
<th>Arrivals:</th>
<th>Reports next arrivals at a stop identified by location ID.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detours:</td>
<td>Retrieves a list of detours currently in effect by date.</td>
</tr>
<tr>
<td>RouteConfig:</td>
<td>Retrieves a list of routes being reported by TriMet and directions for those routes and stops in each of them.</td>
</tr>
</tbody>
</table>

Direct access to Real-Time Data via web services

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Terms of Use

Privacy Policy

Registration

Terms of Use

Transit Terms

Why Register?

WS Documentation
Customer Information at Airport
Port of Portland’s Use of Data
"At first I was just going to scrape the Trimet site to get the information. But then I came to find out that Trimet actually has a really nice API to all their tracking information!"

Matt King, TriMet Rider & Software Developer
Portland Transport

Transit Surfer & Transit Board
Next arrival times for cell phones, handhelds, full-size screens, text messaging

August 16, 2007

Portland Transport’s Transit Tools

This post is intended to serve as the landing page for permanent user documentation for our transit tools, and will be linked from our sidebar navigation to make it easy to find.

Currently Portland Transport offers several different tools designed to make it easier for transit system users to access TriMet and NextBus data for real time arrival on buses, MAX trains and the Portland Streetcar. We are happy to say that we are an authorized developer under TriMet’s web service and proudly display the following:

Route and arrival data provided by permission of TriMet

Our current tools are:

Transit Surfer™ - provides real time arrival information via an XHTML interface designed for use on cell phones and other hand-held devices.

Transit Board™ - provides real time arrival information in an HTML/AJAX format intended for use on full-size computer screens.

An SMS (text message) interface

Posted by Chris Smith at 12:54 AM
TrainCheck

Free SMS Services for Cell Phones
Access to transit next arrival times

TrainCheck sends the next 3 train times to your SMS or email enabled cell phone.

Simple
With TrainCheck, retrieving times is done using text messaging or email built into your cell phone.

Fast
Traincheck "reads" your message, and sends you a response within moments.

Free
TrainCheck is free to use (we don't charge you). Standard messaging rates from your cellular provider still apply.
TransitCast

Presents arrival times and locations of buses that are approaching a selected stop

Introduction

Not directly related to Google Transit, it might still be fair to include an article about the TransitCast Android application in the GoogleTransitDataFeed wiki. It builds on TriMet’s Web Service which provides live transit feeds about service vehicles approaching a transit stop.

Android

Before going into detail about TransitCast, a quick summary of the Android mobile phone platform. Android was released in November 2007, providing an Software Development Kit (SDK) for the development of mobile applications on the Android platform. No production handsets exist, the idea is to have a viable set of applications ready for the projected 2009 launch of Android mobile phones and services.

TransitCast on Android

TransitCast is an application built on the Android platform. It uses TriMet’s Web Service API to display transit vehicles in approach to a user selected stop. See a flash demonstration and more detailed information about TransitCast here.

A prototype at this point

TransitCast is fully functional. One aspect however is inefficient: Without the availability of a server-side location-based search for stops, all stop data needs to be downloaded to the client (handset). This makes a public release of TransitCast not feasible as the burden on TriMet’s Web Service could grow considerably as the application is being passed around. More detailed information about this aspect here.
Opera Award Winner

TriMet Widget

free program for use on your
desktop, mobile phone or TV

The TriMet Transit Tracker Tool makes public transit in Portland, Oregon, United States easier by showing you when your next arrival is.

I decided to make a public transit widget for all your Portland, Oregonians wanting to know when it’s time to leave home/work to catch the bus or train. This is my first widget and I hope to improve on it in the future. This is a widgetized version of TriMet’s Transit Tracker. I’d appreciate any coding help to improve this.
Future plans for

developer.trimet.org
Web Service for TriMet Trip Planner
Access to Planned Trip Itineraries

Offers alternative to screen scraping for applications like Dadnab
Mobile Trip Planning
Using my cell phone, I can get public transit directions to the nearest pizza place from my current location.

Trip Planner Web Service Example
TriMet builds the API and the applications are unlimited
Who else is making their data publicly accessible and why?
By making the GTFS data publicly accessible, you can avoid addressing multiple and varied data requests on an individual basis.

**Public Feeds Page**

This is a list of publicly-accessible transit data feeds

For details on the feed format, see the [Google Transit Feed Specification](https://developers.google.com/transit/) document.

<table>
<thead>
<tr>
<th>Agency</th>
<th>Area</th>
<th>Feed Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>TriMet</td>
<td>Portland, OR</td>
<td><a href="http://developer.trimet.org/schedule/GTFS/">http://developer.trimet.org/schedule/GTFS/</a></td>
<td>Use is subject to the terms of their <a href="https://developers.google.com/transit/">developer license</a></td>
</tr>
<tr>
<td><strong>BART</strong></td>
<td>San Francisco Bay Area, CA</td>
<td><a href="http://www.bart.gov/daw/schedules/">http://www.bart.gov/daw/schedules/</a></td>
<td>Use is subject to the terms of their <a href="https://developers.google.com/transit/">developer license</a> Additional information at <a href="http://www.bart.gov/open">http://www.bart.gov/open</a></td>
</tr>
<tr>
<td>Caltrain</td>
<td>San Francisco Bay Area, CA</td>
<td><a href="http://www.caltrain.com/google_transit_feed/">http://www.caltrain.com/google_transit_feed/</a></td>
<td>Use is subject to the terms of their <a href="https://developers.google.com/transit/">Developer License Agreement</a></td>
</tr>
<tr>
<td><strong>DART</strong></td>
<td>Dallas, TX</td>
<td><a href="http://www.dart.org/feedsdata/">http://www.dart.org/feedsdata/</a></td>
<td>Please read <a href="https://developers.google.com/transit/">legal notice</a></td>
</tr>
<tr>
<td>OCTA</td>
<td>Orange County, CA</td>
<td><a href="http://www.octa.net/google/">http://www.octa.net/google/</a></td>
<td>Use subject to <a href="https://developers.google.com/transit/">disclaimer</a></td>
</tr>
<tr>
<td>Capital Metro</td>
<td>Austin, TX</td>
<td><a href="http://www.capmetro.org/gisdata/google_transit.zip">http://www.capmetro.org/gisdata/google_transit.zip</a></td>
<td>Disclaimer and additional file/formats available on <a href="https://developers.google.com/transit/">their GIS Data page</a></td>
</tr>
<tr>
<td>Demo Transit Agency</td>
<td>Death Valley, CA</td>
<td><a href="http://code.google.com/transit/spec/sample-feed.zip">http://code.google.com/transit/spec/sample-feed.zip</a></td>
<td>This is a sample feed for demonstrating the format.</td>
</tr>
</tbody>
</table>
“We want to foster innovative new applications, reach a broader audience and encourage more people to choose BART. …we just can't justify spending time on some of the things our customers have asked for.”
Thank You

For more information, please visit:

developer.trimet.org
maps.trimet.org