

# GTFS Studio User Guide

## Background

GTFS Studio is designed to help manage, view, query and extract GTFS and GTFS-R data with a simple to use interface. GTFS data can be a difficult data source to understand and work with, especially for users new to GTFS. This system was built to make GTFS data easier to read and understand for all data consumers.

For more information about GTFS – General Transit Feed Specification you can read up via <https://gtfs.org/>.

## GTFS

The GTFS data in GTFS Studio is from the TfNSW Open Data API endpoints. Checks for new or updated data bundles are made every 30 minutes to ensure the most recent data is available via GTFS Studio.

## Data Structure

The CSV files inside the GTFS zip bundle are extracted and loaded into a relational database. The extracted GTFS tables are:

Table Name	Description	Related To
Agency	Details about the agency or brand supplying the GTFS feed.	Feed Info
Calendar	Identifying a set of dates that a service is available.	Feed Info
Calendar Dates	Used in conjunction with Calendar to activate or disable a service by date.	Calendar, Feed Info
Feed Info	Details about the GTFS data bundle.	All tables relate back to a specific feed.
Route	Specific routes for an agency.	Agency, Feed Info
Shape Path	The path of a particular trip based on the path between geospatial coordinates.	Trip, Feed Info

Table Name	Description	Related To
Stop Time	Details about each stop on a trip including arrival and departure times.	Trip, Note, Feed Info
Stop	Details about particular stops including geospatial coordinates.	Feed Info
Trip	Details about unique trips in a route.	Route, Calendar, Shape Path, Note, Feed Info

View only tables (not included in exported bundles)

Table Name	Description	Related To
Level	Describe the different levels of a station.	Feed Info
Pathway	A graph representation to describe a subway or a train, with nodes (the locations) and edges (the pathways).	Stop(from_stop), Stop(to_stop), Feed Info
Vehicle Category(Extension)	Describes the vehicles themselves.	Feed Info
Vehicle Coupling(Extension)	Describes the arrangement of vehicles in composed vehicles like trains.	Vehicle Category(parent), Vehicle Category(child), Feed Info
Vehicle Boarding(Extension)	Describes where the vehicle stops on a platform.	Vehicle Category, Stop(boarding area), Feed Info
Note	Provides descriptive information about trips and stops.	Feed Info

## Page Navigation

Any of the tables in GTFS Studio can be viewed as a paginated list by clicking on the table name on the navigation bar, e.g. Feed Information, Agency, and Trip.

The pagination buttons are found at the bottom of the list. Number of items per page can be adjusted to match the user's preference.

1	1206	190		Randwick to Circular Quay	lightrail/cbdandsoutheast
1	18666	RTTA_REV			sydneytrains
0	36000	RTTA_REV			sydneytrains
Rows per page:			10	1-20 of 721864	1 2 ... 36094 NEXT >
			20		
			25		
			30		
			50		
			100		

## Querying the Data

In the table view, there is a search box that allows the user to search keywords across particular fields as seen in the image below.

Filter by FeedInfo

<input type="checkbox"/>	Trip Id	Route Id	Service Id	Trip Headsign	Direction Id	Block Id	Shape Id	Trip No
<input type="checkbox"/>	1353390	2440_165X	37	City Wynyard	1		101159	
<input type="checkbox"/>	1400337	2440_B1	1	City Wynyard	1		106207	
<input type="checkbox"/>	1296268	2440_B1	1	Mona Vale	0		94342	
<input type="checkbox"/>	1296188	2440_B1	37	Mona Vale	0		94342	
<input type="checkbox"/>	1422093	2440_168X	47	City Wynyard	1		107578	
<input type="checkbox"/>	1294537	2440_190X	37	Avalon	0		97384	

The specific query fields for each table are given below:

Table Name	Query Fields
Agency	Agency name, Agency ID
Calendar	Service ID
Calendar Dates	Date
Feed Info	Feed publisher name
Route	Route long name, Route short name, Route ID
Shape Path	Shape ID
Stop Times	Trip ID, Stop ID, Stop name, Trip headsign
Stops	Stop Name, Stop ID

Table Name	Query Fields
Trip	Trip ID, Trip short name, Trip long name, Trip headsign, Route ID, Shape ID

All tables can be filtered by transport type, e.g. "metro", as seen in the image below. The transport type can be found in Feed Information page, under Transport Type column, or other pages, under FeedInfo Name column.

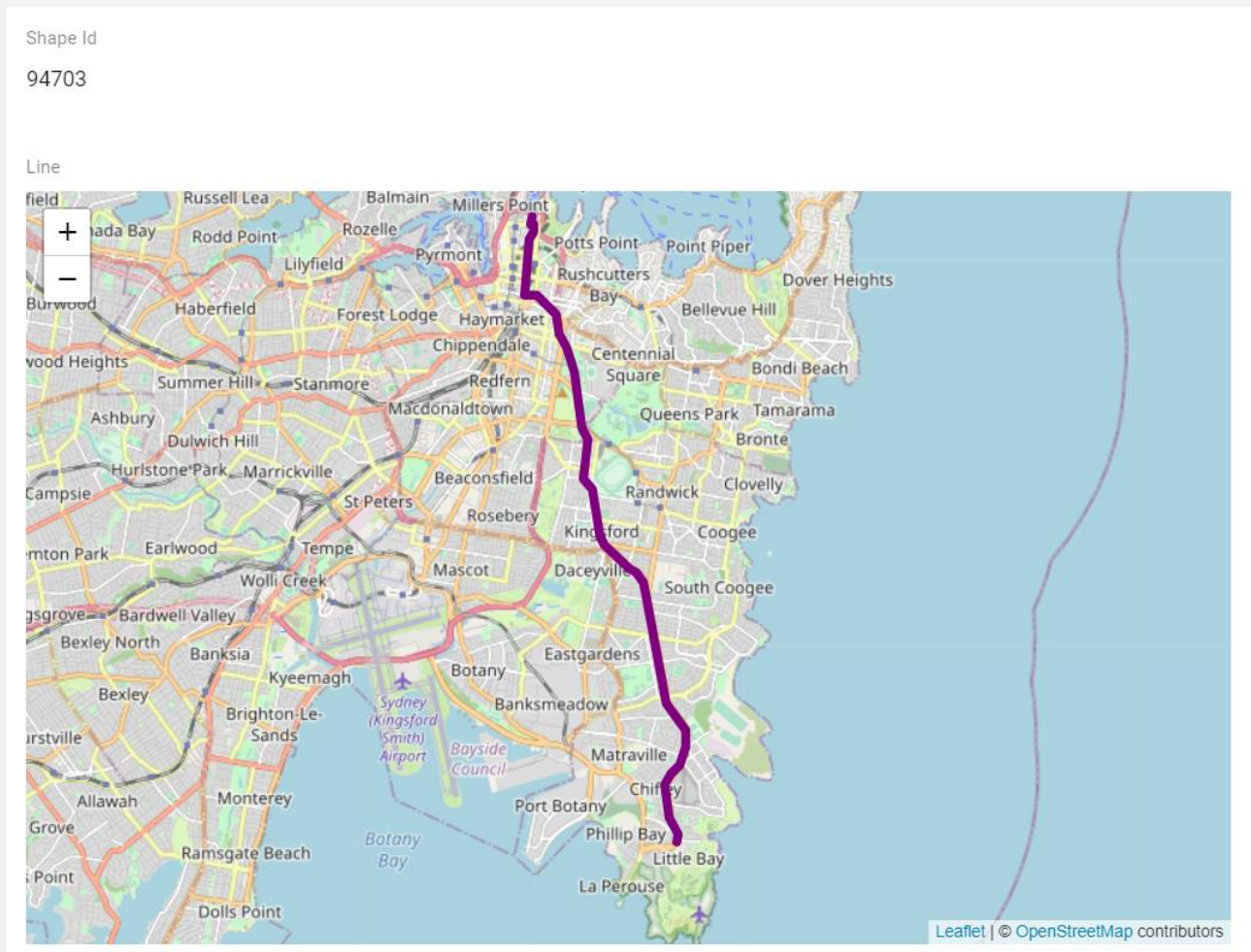
Search

Filter by FeedInfo

<input type="checkbox"/>	Trip Id	Route Id	Service Id	Trip Headsign	Direction Id	Block I
<input type="checkbox"/>	102-02.110621.16.0445	SMNW_M	102-02.110621.16	Chatswood	1	
<input type="checkbox"/>	121-04.280621.15.1640	SMNW_M	121-04.280621.15	Chatswood	1	
<input type="checkbox"/>	117-10.110621.16.1251	SMNW_M	117-10.110621.16	Chatswood	1	
<input type="checkbox"/>	116-12.090721.16.1401	SMNW_M	116-12.090721.16	Chatswood	1	
<input type="checkbox"/>	103-04.110721.64.0615	SMNW_M	103-04.110721.64	Chatswood	1	
<input type="checkbox"/>	101-12.280821.32.1115	SMNW_M	101-12.280821.32	Chatswood	1	

## Map Projections

Trip, Stop and Shape Path view provides coordinates projections on an interactive map.



## Exporting Data Subsets

GTFS Studio allows users to query the data and select a smaller subset for export as a GTFS bundle. Each user has the ability to generate one custom data subset. The user needs to delete the generated custom data subset if the user wishes to generate another data subset.

A data subset bundle contains all CSV files from the original data bundle but each data file is filtered by the user's selection. The bundling process determines all trips that relate to the selection and then extracts information from all the other tables that are related to those selected trips providing the user with a generated custom data subset.

Exporting data subsets can take place on any of the table lists. The steps to create custom data subset are as follows:

1. Choose a data table and either provide a search query or select a specific page to refine the search query.
2. Use the checkboxes to select the records to include in the bundle.
3. From the selected items toolbar click "EXPORT" to generate a bundle.

Search Filter by FeedInfo

5 items selected Show Selected Only EXPORT

<input type="checkbox"/>	Route Id	Agency Id	Route Short Name	Route Long Name	Route Description	Route Type	Route Color	Route Text Color	Route Url	FeedInfo Name
<input checked="" type="checkbox"/>	2448_2472	2448	2472	Gateshead HS to Maitland Station	School Buses	712	00B5EF	FFFFFF		buses/OSMBSC002
<input checked="" type="checkbox"/>	2447_S921	2447	S921	Vincent St at Jeffries St to Rover Depot, Vincent St via Abernethy	School Buses	712	00B5EF	FFFFFF		buses/OSMBSC001
<input type="checkbox"/>	2442_927	2442	927	One Tree Point to Padstow	Sydney Buses Network	700	00B5EF	FFFFFF		buses/SMBSC010
<input type="checkbox"/>	2453_S688	2453	S688	Tuggerah Lakes SC, Berkeley Vale to Brooke Av PS	School Buses	712	00B5EF	FFFFFF		buses/OSMBSC007
<input type="checkbox"/>	2436_3655	2436	3655	St Madeleine's PS to Rouse Hill Town Centre	School Buses	712	00B5EF	FFFFFF		buses/SMBSC004
<input checked="" type="checkbox"/>	2437_S105	2437	S105	Wiley Park to Malek Fahd Islamic School	School Buses	712	00B5EF	FFFFFF		buses/SMBSC005
<input checked="" type="checkbox"/>	2459_720s	2459	720s	St George Girls High to Campsie Station	School Buses	712	00B5EF	FFFFFF		buses/SBSC006
<input checked="" type="checkbox"/>	2444_SS30	2444	S530	Chester Hill Station to Mt St Joseph HS	School Buses	712	00B5EF	FFFFFF		buses/SMBSC013
<input type="checkbox"/>	2450_6291	2450	6291	St Pauls HS to Cameron Park	School Buses	712	00B5EF	FFFFFF		buses/OSMBSC004

- The request for a data subset will be added to the queue and the screen below may appear while the task is waiting to start.

DELETE

**Task Status**

Status	Requested On	Created On
Waiting to start.	7/15/2021	

**Download**

Downloadlink

**Progress**

Name	Complete	Message

- Once the bundle has been generated, details of data collected and link for download will be displayed.

**Task Status**

Status	Requested On	Created On
Complete	11/21/2021	11/21/2021

**Download**

Downloadlink

[https://opendata.transport.nsw.gov.au/gtfs-studio/media/export/2d349a59-cef3-46f7-b1fa-3302fc8dd74d/gtfs/gtfs\\_subset.zip](https://opendata.transport.nsw.gov.au/gtfs-studio/media/export/2d349a59-cef3-46f7-b1fa-3302fc8dd74d/gtfs/gtfs_subset.zip)

**Progress**

Name	Complete	Message
agency	✓	Complete: Wrote 2 lines
shape	✓	Complete: Wrote 126804 lines
calendar	✓	Complete: Wrote 10 lines
stop	✓	Complete: Wrote 82 lines
calendardate	✓	Complete: Wrote 92 lines
route	✓	Complete: Wrote 2 lines
trip	✓	Complete: Wrote 327 lines
stoptime	✓	Complete: Wrote 9561 lines

- The user can leave the page and come back later by selecting "Your Custom Dataset" at the bottom of navigation bar. Once the data bundle is ready, the user can click on the link to download the generated data subset.

6. If the user wants to build a different data bundle, the user will need to return to this page and click the “DELETE” button to remove the current bundle.

## GTFS Realtime

GTFS Realtime (GTFS-R) data is collected from the TfNSW Open Data API endpoints. This is a periodic process that constantly updates realtime data every minute. The most recent realtime data will be available as well as a period of historic data, up to 30 days.

### Data Structure

Data from the realtime stream is collated and converted into a number of data tables. These tables are:

Table Name	Description
Vehicle Positions	Realtime updates of vehicle positions
Trip Updates	Realtime updates of the trip delay compared with scheduled time.

### Filtering Realtime Data

The Vehicle Positions and Trip Updates realtime data tables can be filtered for particular agencies, trips, routes, services and shape ids as well as a specific time period. The user can add many filters and the export function will search for any trip ids that match the filters.

1. Pick the data, e.g. trip updates, vehicle positions or both

**Data Type**  
Select the type of gtfs-r messages you would like to export to csv.

Data type

Trip Updates  Vehicle Positions  Updates + Positions

2. Select time range to filter GTFS-R feeds

**Date Range**  
The time period you are interested in.

Range type

Time Span  Custom

- 5 minutes
- 15 minutes
- 1 hour
- 6 hours
- 12 hours
- 24 hours
- 2 days
- 7 days
- 30 days

3. Use search fields to filter trips

**Filter**

Filter for data related to specific agencies, trips, routes, services and shapes.

Start typing in a filter box to search for the value you require.

Data will be compiled into the generated csv if it matches any of the filters you provide.

Agencies

5980 - Allen's Coaches ✕

Trips

1-A.1383.126.2.B.8.66272422 - Empty Train ✕

Routes

2433\_4012 - Penrith Station to McCarthy HS ✕

Services

Shapes

4. Click Export CSV to generate the bundle. Exporting to CSV works the same way as exporting GTFS data. The task will be added to a queue and once it is completed, the user will be able to click the link to download the generated data subset.

**Task Status**

Status	Requested On	Created On
Complete	11/23/2021	11/23/2021

**Download**

Downloadlink

[https://opendata.transport.nsw.gov.au/gtfs-studio/media/export/2d349a59-cef3-46f7-b1fa-3302fc8dd74d/gtfsr/gtfsr\\_subset.zip](https://opendata.transport.nsw.gov.au/gtfs-studio/media/export/2d349a59-cef3-46f7-b1fa-3302fc8dd74d/gtfsr/gtfsr_subset.zip)

**Progress**

Name	Complete	Message
Trip Update	✓	Complete: Wrote 0 lines
Vehicle Position	✓	Complete: Wrote 0 lines

5. If the user want to build a different data bundle, the user will need to return to this page and click the “DELETE” button to remove the current bundle.