

GTFS Studio User Guide

Factsheet

Tuesday, 20 May 2025 V2.0

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.

Table Name	Description	Related To
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
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
Note	Provides descriptive information about trips and stops.	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 are on a platform.	Vehicle Category, Stop(boarding area), Feed Info

View only tables (not included in exported bundles):

Table Name	Description	Related To
Level	Describes 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

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, using which the user can navigate through pages.

Bennys Buses Pty	Ltd				http://	/transp	ortnsw	.info		Australia/S
	« <	1	2	3	4	>	35			

Querying the Data

In the table view, there are search boxes that allow the user to search keywords across particular fields as seen in the image below.

Agency Name	Agency url	Agency Timezone
Agency Name		
Transit Systems NSW	http://transportnsw.info	Australia/Sydney
Keolis Downer Northern Beaches	http://transportnsw.info	Australia/Sydney
Transdev John Holland Buses	http://transportnsw.info	Australia/Sydney

The specific query fields for each table are given below:

Table Name	Query Fields
Agency	Agency Name, Agency ID
Calendar	Calendar ID
Calendar Dates	Date
Feed Info	Feed Publisher URL
Route	Route Long Name, Route ID
Shape Path	Shape ID
Stop Times	Stop Headsign, Stop ID, Trip ID
Stops	Stop Name, Stop ID
Trip	Trip ID, Route, Service, Trip Headsign, Shape

All tables can be filtered by date. When a particular date is selected only data from GTFS bundles valid on the day is displayed.

Date:	May 21, 2025	
	Trip ID	Rout
	Trip ID	Rou
	0035-001-101-002:1000	SMNV
	0035-001-101-003:1000	SMN

Map Projections

The Trip, Stop and Shape Path views provide coordinate 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 of each data type. 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 a 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.

Selected Ex	Selected Exports								
Trip 0035-0	Trip 0035-001-101-002:1000 🕲 0035-001-101-003:1000 🕲 0035-001-101-004:1000 🕲								
EXPORT	GTFS CLEAR SELECTIONS								
Date:	May 21, 2025								
	Trip ID	Route	Service	Trip Headsign	Direction Id	Shape			
	Trip ID	Route	Service	Trip Headsign		Shape			
	0035-001-101-002:1000	SMNW_M1	3369949	Sydenham	1	3722			
	0035-001-101-003:1000	SMNW_M1	3369949	Tallawong	0	5250			
	0035-001-101-004:1000	SMNW_M1	3369949	Sydenham	1	5330			
	0035-001-101-005:1000	SMNW_M1	3369949	Tallawong	0	5342			

4. In the "My Dataset" page, 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.

GTFS			
Status Requested	Pending May 21, 2025 12:13		
DELETE	May 21, 2023 12:13		

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

tatus	Succeeded	Files written
equested	October 1, 2024 12:14	gtfs_agency.csv Lines written: 2
reated	October 1, 2024 12:15	
ownload	Ŧ	gtfs_calendar.csv Lines written: 12
rocess time	41.042 s	

The user can leave the page and come back later by selecting "My Dataset" at the top of the 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 TfNSW Open Data API endpoints. This is a periodic process that constantly updates real-time data every 20 seconds. The most recent realtime data as well as historic data up to 9 months will be available.

Data Structure

Table Name	Description	
Vehicle Position	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 shapes as well as for 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 types, e.g. trip updates, vehicle positions or both



2. Select a time range to filter GTFS-R feeds. You can use either a relative time or a custom time range.

Relative Time		Time Range
Last	Select time	^
Filters	5 minutes	Î
Agencies	15 minutes	
Select Agencies	1 hour	
	6 hours	
Trips	12 hours	
Select Trips	24 hours	
	2 days	
Routes	7 days	•

Relative Time

Time Range

Select end time

Start Time			Se	elect st	art tim		End Time		
МАҮ	2025	~			<	>			
Su	Мо	Tu	We	Th	Fr	Sa	Hr	Min	Sec
27	28	29	30	1	2	3	00	00	00
4	5	б	7	8	9	10	01	01	01
11	12	13	14	15	16	17	02	02	02
18	19	20	21	22	23	24	03	03	03
25	26	27	28	29	30	31	04	04	04
NOW	I								ок

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3. Use search fields to filter trips.



4. Click 'Export' to generate the bundle. Exporting to CSV works the same way as exporting GTFS data. The t ask will be added to a queue and once it is completed, the user will be able to click the link to download t he generated data subset.

JIFSR		
itatus	Succeeded	Files written
Requested	March 7, 2025 13:53	sydneytrains/gtfsr_tripupdate_2025-03-07T13-38-33_2025-03-07T13-53-33_Australia-Sydney.csv Lines written: 50086
reated	March 7, 2025 13:54	
ownload	Ŧ	sydneytrains/gtfsr_vehicleposition_2025-03-07T13-38-33_2025-03-07T13-53-33_Australia-Sydney.csv Lines written: 0
Process time	29.835 s	

5. If the user wants to build a different data bundle, the user will need to return to this page and click the "D ELETE" button to remove the current bundle.