





API User Guide & Documentation

Version 5.0 10 Jan 2020



Version	Change Details	Release Date
No.		
1.1	First release of document, reflecting specifications for each dataset.	04 Jun 2014
1.2	Amended attributes for all datasets, and added the update frequency for	
	each dataset in specification section.	
1.3	Inserted notes to denote fields that are new and upcoming; not yet	26 Jun 2014
	available on the data feed.	
1.4	Minor revisions (typo errors).	10 Mar 2015
1.5	Revisions to names of datasets, and removed listing for certain attributes	07 Apr 2015
	that are redundant at this point.	
2.0	Revised document for newly revamped DataMall.	13 Apr 2015
	- New Categorisation of Datasets	
	- Moved Park & Ride Location, Premium Bus Service, and Carpark Rates	
	to Static Datasets listed on MyTransport.SG.	
2.1	Corrected reference notes for Carpark Availability and ERP Rates.	14 Apr 2015
2.2	Added Bus Arrival, and Taxi Availability APIs	19 Apr 2015
2.2.1	Amended Update Freqs for Bus Arrival and Taxi Availability	03 Jun 2015
3.0	Bus Arrival API is now enhanced! Latest *beta* release includes:	12 Dec 2015
	- Additional 3 rd set of ETA information	
	- Estimated location (coordinates) of buses	
	Look out for blue-highlights!	
3.1	Public-Transport (Bus) Related APIs are enhanced (version 2)!	
	- Bus Services and Bus Routes are now consolidated across	
	Operators, e.g. SBST routes and SMRT routes in 1 single API	
	- Attributes are renamed to be more meaningful	
	- Bus Stops now include location (lat/long) coordinates	
	Bug for Bus Arrival #VisitNumber fixed.	
3.2	Changes to Traffic Related APIs :	31 Mar 2016
	- URLs changed to point to version 2 of the APIs.	
	- VCCType renamed to VehicleType (ERP Rates)	
	- EstimatedTime renamed to EstTime (Estimated Travel Times)	
	- RoadID renamed to EventID (Road Openings and Road Works)	
	- ImageURL renamed to ImageLink (Traffic Images)	
	- Band renamed to SpeedBand (Traffic Speed Bands)	
3.3	Changes to API Response Size:	08 Aug 2016
	- Taxi Availability API now returns 500 records per call.	
	- Traffic Images API now returns 70 records per call.	
	- Changes are reflected on Page 6, and on respective API URLs.	
3.4	Changes to API authentication – now requiring only AccountKey.	01 Nov 2016



3.5	Updated attribute description for location coordinates of Bus Arrival API .	23 Nov 2016
3.6	Traffic Images API now returns all records per call.	14 Dec 2016
3.7	Updated guide to making API calls, using Postman.	05 Apr 2017
4.0	Bus Arrival API is now enhanced! Latest release includes:	28 Jul 2017
	- New Attribute – Bus Type	
	- Inclusion of Short Working Trip (SWT) Supplementary Services	
	- Relegation of OriginCode and DestinationCode to vehicle level	
	- Removal of entire response structure from API during non-	
	operating hours	
	- Removal of Status Attribute	
	- Renaming of values for Load Attribute	
	- Renaming of SubsequentBus and SubsequentBus3 subset tags	
	- Renaming of BusStopID Parameter to BusStopCode	
	- Removal of SST Parameter. Timestamps are now in SST by default.	
	- Rehashed advisement on Front-End Implementation for clarity.	
4.1	Minor revisions to sample Bus Arrival API response.	08 Sep 2017
4.2	Announcement on Changes to API Response Size is reflected on Page 6.	15 Sep 2017
4.3	Deployment date has postponed for the increase of API Response Size.	06 Oct 2017
	Please refer to Page 6 for the latest announcement.	
4.4	Response Size for all APIs (except Bus Arrival API) have been increased	16 Oct 2017
	to 500 records per call.	
4.5	Carpark Availability API is now enhanced! Latest release includes:	22 Jan 2018
	- Includes HDB, LTA and URA carpark availability data	(Soft released on 31 Dec 2017)
	- New Attribute – Lot Type, Agency	,
	- Combined Attribute: Location	
	(previously Latitude and Longitude attributes)	
4.6	New Train Service Alerts API is launched! It returns detailed information	19 Mar 2018
	on train service unavailability during scheduled operating hours, such as	
	affected Line and Stations etc.	
4.7	4 New Passenger Volume APIs are launched! Aggregated passenger	17 Jul 2018
	volume information such as number of trips, tap in and out by weekdays	
	and weekends (inclusive of holidays) are returned.	
	1. By Bus Stops	
	2. By Origin-Destination Bus Stops	
	3. By Origin-Destination Train Stations	
	4. By Train Stations	
	Sample output for Train Service Alerts API has been changed to Annex C.	



	- Speeds are classified into 8 bands at 10km/h interval.	
4.9	Bicycle Parking is launched! This API returns the information of bicycle parking locations within a radius.	11 Feb 2019
5.0	Taxi Stands is launched! This API returns the detailed information of Taxi facility locations.	10 Jan 2020



TABLE OF CONTENTS

١.	MA	KING API CALLS	6
2.	API	DOCUMENTATION	9
	2.1	BUS ARRIVAL	11
	2.2	BUS SERVICES	16
	2.3	BUS ROUTES	17
	2.4	BUS STOPS	18
	2.5	PASSENGER VOLUME BY BUS STOPS	19
	2.6	PASSENGER VOLUME BY ORIGIN DESTINATION BUS STOPS	20
	2.7	PASSENGER VOLUME BY ORIGIN DESTINATION TRAIN STATIONS	21
	2.8	PASSENGER VOLUME BY TRAIN STATIONS	22
	2.9	TAXI AVAILABILITY	23
	2.10	TAXI STANDS	24
	2.11	TRAIN SERVICE ALERTS	25
	2.12	CARPARK AVAILABILITY	27
	2.13	ERP RATES	28
	2.14	ESTIMATED TRAVEL TIMES	29
	2.15	FAULTY TRAFFIC LIGHTS	30
	2.16	ROAD OPENINGS	31
	2.17	ROAD WORKS	32
	2.18	TRAFFIC IMAGES	33
	2.19	TRAFFIC INCIDENTS	34
	2.20	TRAFFIC SPEED BANDS	35



2.21	VMS / EMAS	36
2.22	Bicycle Parking	37
ANNI	EX A	38
ANNI	EX B	39
ANNI	FX C	40



1. MAKING API CALLS

API calls need to be made programmatically in regular intervals to obtain the constant stream of data for your respective development or research needs. For illustration purposes, the API call below is being made via a third-party application – Postman.

Steps to making an API call:

- 1. Download and install the Postman from https://www.getpostman.com/. Fire it up!
- 2. Make sure Http method is set to GET.
- 3. Enter the URL (refer to subsequent pages in this document) in the field request URL.
- 4. Enter your AccountKey under Headers.
- 5. **(OPTIONAL STEP)** The "accept" header allows you to specify the response format of your API call. Default is JSON. Specify "application/atom+xml" for XML.
- 6. Click on the **Send** button.



Figure 2-1



Figure 2-2 below shows the JSON response of an API call made for the Traffic Incidents dataset.

```
Body Cookies Headers (9)
                                               Tests
  Pretty
                        Preview JSON ✓ ⇒
                                                                                                                                                                                                     Save Response
                "odata.metadata": "http://datamall2.mytransport.sg/ltaodataservice/$metadata#IncidentSet",
               "value": [
                  {
    "Type": "Roadworl
                     "Hatitude": 1.349079923951095,
"Longitude": 103.96381753388967,
"Message": "(5/4)15:34 Roadworks on PIE (towards Tuas) at Upper Changi Rd East(South) Entrance."
    110 - 111
112
13 14
15 16 - 17
18 19
20 21
22 - 23
23 24
25 26 27
28 - 29
                     "Type": "Roadwork
                     Type: Roddwork,
"Latitude": 1.2692727102347006,
"Longitude": 103.82515548535012,
"Message": "(5/4)15:18 Roadworks on Kampong Bahru Road (towards Mount Faber Road) after Telok Blangah Road. Avoid right lane."
                     "Type": "Roadwork",
"Latitude": 1.4186197531264837,
"Longitude": 103.83399261000902,
"Message": "(5/4)15:18 Roadworks on Yishun Avenue 2 near Yishun Avenue 2/Yishun Ring Road Junction."
                     "Type": "Roadwork",
"Latitude": 1.3254414935672167,
"Longitude": 103.72806920032822,
"Message": "(5/4)15:16 Roadworks on AYE (towards Tuas) before Jurong Port Rd Exit."
                     "Type": "Roadwork
                     "Latitude": 1.3423331702572585,
"Longitude": 103.94832575436558,
```

Figure 2-2: API (JSON) Response as shown on Postman.

With the exception of the following Bus Arrival API listed below (see Table 1), API responses returned are limited to 500 records of the dataset per call. This number may be adjusted from time to time.

To retrieve subsequent records of the dataset, you need to append the **\$skip operator** to the API call (URL). For example, to retrieve the next 500 records (501st to the 1000th), the API call should be:

http://datamall2.mytransport.sq/ltaodataservice/BusRoutes?**\$skip=500**

To retrieve the following set of 500 records, append '**?***skip = 1000', and so on. Just remember, each URL call returns only a max of 500 records!

API	Response Size	
Bus Arrival	Not Applicable. Depends on parameter supplied.	
Train Service Alerts	Not Applicable. Depends on the scenario.	
Passenger Volume related	Returns one record per request.	
Taxi Stands	Not Applicable. Dataset is too small.	

Table 1: API Response Size



Here's an example of how you can retrieve the data programmatically. This example is coded in Python 2.7. As mentioned previously, this API call only returns the first 500 records.

```
import json
import urllib
from urlparse import urlparse
import httplib2 as http #External library
if name ==" main ":
    #Authentication parameters
   headers = { 'AccountKey' : '6HsAmPleOR/EkEYWOcjKg==',
                'accept' : 'application/json'} #this is by default
    #API parameters
    uri = 'http://datamall2.mytransport.sg/' #Resource URL
    path = '/ltaodataservice/BusRoutes?'
    #Build query string & specify type of API call
   target = urlparse(uri + path)
   print target.geturl()
   method = 'GET'
   body = ''
   #Get handle to http
   h = http.Http()
    #Obtain results
    response, content = h.request(
       target.geturl(),
       method,
       body,
       headers)
    #Parse JSON to print
    jsonObj = json.loads(content)
   print json.dumps(jsonObj, sort keys=True, indent=4)
    #Save result to file
    with open("bus routes.json", "w") as outfile:
        #Saving jsonObj["d"]
        json.dump(jsonObj, outfile, sort keys=True, indent=4,
ensure ascii=False)
```



2. API DOCUMENTATION

The following lists all real-time / dynamic datasets that are refreshed at regular intervals and served out via APIs. Specification for each API can be found in the rest of this document.

Note: any attributes not specified in this document but found on the data feed, should be ignored.

	Public-Transport Related (Total 10)	Description	
1	Bus Arrival	Returns real-time Bus Arrival information for Bus Services at a queried Bus Stop, including: Estimated Time of Arrival (ETA), Estimated Location, Load info (i.e. how crowded the bus is).	
2	Bus Services	Returns detailed service information for all buses currently in operation, including: first stop, last stop, peak / offpeak frequency of dispatch.	
3	Bus Routes	Returns detailed route information for all services currently in operation, including: all bus stops along each route, first/last bus timings for each stop.	
4	Bus Stops	Returns detailed information for all bus stops currently being serviced by buses, including: Bus Stop Code, location coordinates.	
5	Passenger Volume by Bus Stops	Returns tap in and tap out passenger volume by weekdays and weekends for individual bus stop.	
6	Passenger Volume by Origin Destination Bus Stops	Returns number of trips by weekdays and weekends from the origin to destination bus stops.	
7	Passenger Volume by Origin Destination Train Stations	Returns number of trips by weekdays and weekends from the origin to destination train stations.	
8	Passenger Volume by Train Stations	Returns tap in and tap out passenger volume by weekdays and weekends for individual train station.	
9	Taxi Availability	Returns location coordinates of all Taxis that are currently available for hire. Does not include "Hired" or "Busy" Taxis.	
10	Returns detailed information on train service unava		
	Traffic Related (Total 10)	Description	
11	Carpark Availability	Returns no. of available lots for HDB, LTA and URA carpark data. The LTA carpark data consist of major shopping malls and developments within Orchard, Marina, HarbourFront, Jurong Lake District.	
12	ERP Rates	Returns ERP rates of all vehicle types across all timings for each zone.	
13	Estimated Travel Times	Returns estimated travel times of expressways (in segments).	
14	Faulty Traffic Lights	Returns alerts of traffic lights that are currently faulty, or currently undergoing scheduled maintenance.	
15	Road Openings	Returns all planned road openings.	
16	Road Works	Returns all road works being / to be carried out.	
17	Traffic Images	Returns links to images of live traffic conditions along expressways and Woodlands & Tuas Checkpoints.	
	Traffic Related (Total 10)	Description	



18	Traffic Incidents	Returns incidents currently happening on the roads, such as Accidents, Vehicle Breakdowns, Road Blocks, Traffic Diversions etc.	
1 19 1 Traffic Sheed Rands		Returns current traffic speeds on expressways and arterial roads, expressed in speed bands.	
20	VMS / EMAS	Returns traffic advisories (via variable message services) concerning current traffic conditions that are displayed on EMAS signboards along expressways and arterial roads.	
	Active Mobility Related (Total 1)	Description	
21	Bicycle Parking	Returns the bicycle parking locations within a radius.	

2.1 BUS ARRIVAL

URL	http://datamall2.mytransport.	sg/ltaodataservice/Bu	ısArrivalv2		
Description		Returns real-time Bus Arrival information of Bus Services at a queried Bus Stop, including Est. Arrival Time, Est. Current Location, Est. Current Load.			
Update Freq	1 minute				
	Req	uest			
Parameters	Description	Mandatory	Example		
BusStopCode	Bus stop reference code	Yes	83139		
ServiceNo	Bus service number	No	15		
	Resp	oonse			
Attributes	Description		Example		
ServiceNo	Bus service number		15		
Operator	SBST (for SBS TransSMRT (for SMRT Co	Public Transport Operator Codes: SBST (for SBS Transit) SMRT (for SMRT Corporation) TTS (for Tower Transit Singapore)			
NextBus	Structural tags for all bus lev	el attributes^ of the	e next 3 oncoming buses. Note that if		
NextBus2	there is only one last bus lef	_	at night), attributes values in		
NextBus3	NextBus2 and NextBus3 will				
^ OriginCode	Reference code of the first b bus started its service	Reference code of the first bus stop where this bus started its service			
^ DestinationCode	Reference code of the last bus stop where this bus will terminate its service		77131		
^ EstimatedArrival	Date-time of this bus' estimated time of arrival, expressed in the UTC standard, GMT+8 for Singapore Standard Time (SST)		2017-04-29T07:20:24+08:00		
^ Latitude	Current estimated location c	oordinates of this	1.42117943692586		
^ Longitude	bus at point of published da	ld	103.831477233098		
^ VisitNumber		Ordinal value of the n^{th} visit of this vehicle at this bus stop; $1=1^{st}$ visit, $2=2^{nd}$ visit			
^ Load	Current bus occupancy / crowding level: SEA (for Seats Available) SDA (for Standing Available) LSD (for Limited Standing)		SEA		
^ Feature	Indicates if bus is wheel-cha WAB (empty / blank)				
^ Type	Vehicle type: SD (for Single Deck) DD (for Double Deck) BD (for Bendy)		SD		

Please note that Bus Arrival data (i.e. all attribute-value pairs above) will only appear on the API when the buses are in service (i.e. on the roads). When not in operation, OR when the API service is undergoing maintenance and temporarily unavailable, there will be no response returned on the API (not even the attribute tags). Please refer to Advisement Pt. 1 in following section for more.

SAMPLE API CALL & RESPONSE

```
API Call:
http://datamall2.mytransport.sg/ltaodataservice/BusArrivalv2?BusStopCode=83139
API Response:
    "odata.metadata":
"http://datamall2.mytransport.sg/ltaodataservice/$metadata#BusArrivalv2/@Element",
    "BusStopCode": "83139",
    "Services": [
        {
            "ServiceNo": "15",
            "Operator": "GAS",
            "NextBus": {
                "OriginCode": "77009",
                "DestinationCode": "77009",
                "EstimatedArrival": "2017-06-05T14:46:27+08:00",
                "Latitude": "1.3143508333333334",
                "Longitude": "103.906379",
                "VisitNumber": "1",
                "Load": "SDA",
                "Feature": "WAB",
                "Type": "SD"
            "NextBus2": {
                "OriginCode": "77009",
                "DestinationCode": "77009"
                "EstimatedArrival": "2017-06-05T14:57:09+08:00",
                "Latitude": "1.334717",
                "Longitude": "103.90723483333333",
                "VisitNumber": "1",
                "Load": "SDA",
                "Feature": "WAB"
                "Type": "SD"
            "NextBus3": {
                "OriginCode": "77009",
                "DestinationCode": "77009",
                "EstimatedArrival": "2017-06-05T15:00:20+08:00",
                "Latitude": "1.3370036666666667",
                "Longitude": "103.913939",
                "VisitNumber": "1",
                "Load": "SEA",
                "Feature": "WAB"
                "Type": "SD"
            }
        },
            "ServiceNo": "150",
            "Operator": "SBST",
            "NextBus": {
                "OriginCode": "82009",
                "DestinationCode": "82009",
                "EstimatedArrival": "2017-06-05T14:54:06+08:00",
                "Latitude": "1.319458",
                "Longitude": "103.9012405",
                "VisitNumber": "1",
                "Load": "SEA",
                "Feature": "WAB"
                "Type": "SD"
                "NextBus2": {
                "OriginCode": "82009",
                "DestinationCode": "82009",
```



```
"EstimatedArrival": "2017-06-05T15:04:49+08:00",
             "Latitude": "0",
             "Longitude": "0"
             "VisitNumber": "1",
             "Load": "SEA"
             "Feature": "WAB"
             "Type": "SD"
         "NextBus3": {
             "OriginCode": "82009",
             "DestinationCode": "82009",
             "EstimatedArrival": "2017-06-05T15:19:49+08:00",
             "Latitude": "0",
             "Longitude": "0"
             "VisitNumber": "1",
             "Load": "SEA",
             "Feature": "WAB"
             "Type": "SD"
        }
    },
         "ServiceNo": "155",
         "Operator": "SBST",
         "NextBus": {
             "OriginCode": "52009",
             "DestinationCode": "84009",
"EstimatedArrival": "2017-06-05T14:55:12+08:00",
             "Latitude": "1.3184713333333333",
             "Longitude": "103.89202066666667",
             "VisitNumber": "1",
             "Load": "SEA",
             "Feature": "WAB"
             "Type": "SD"
         "NextBus2": {
             "OriginCode": "52009",
             "DestinationCode": "84009",
             "EstimatedArrival": "2017-06-05T15:02:41+08:00",
             "Latitude": "1.3186606666666667",
"Longitude": "103.88303666666667",
             "VisitNumber": "1",
             "Load": "SEA",
             "Feature": "WAB"
             "Type": "SD"
         "NextBus3": {
             "OriginCode": "52009",
             "DestinationCode": "84009",
             "EstimatedArrival": "2017-06-05T15:20:22+08:00",
             "Latitude": "1.3360038333333333",
             "Longitude": "103.8779846666666",
             "VisitNumber": "1",
             "Load": "SEA",
             "Feature": "WAB"
             "Type": "SD"
    }
]
```



ADVISEMENT ON FRONT-END IMPLEMENTATION (BUS APPS)

1. [EstimatedArrival] Display of Advisement Messages when there is NO Bus Arrival Data

In the event where data is not available (be it in partial or in full) on the API, you may want to display some form of 'status texts' to advise your app users on what's going on, as far as bus service availability is concerned. To do this, you will need to take reference from two data points – (1) the presence or **absence** of Arrival data itself, and (2) the **bus service operating hours at each bus stop** which you need to obtain via the **Bus Routes API**.

With those two data points gathered, you will arrive at the following possible scenarios:

#	Operation Status	Data Availability	Advisement Message
a.	Bus is in operation	Arrival data is available	(none required)
b.	Bus is in operation	Arrival data is NOT available	"No Est. Available"
C.	Bus is NOT in operation	Arrival data is NOT available	"Not In Operation"
d.	Bus is NOT in operation	Arrival data is available	(none required)

For scenarios (b) and (c), you may display advisement messages like those suggested in the table above, or any other user-friendly and appropriate variants at your discretion.

Next, you should note that Arrival data may be available on the API even when bus services are supposedly NOT in operation (as per scheduled operating hours) – reflected as scenario (d) in the table above. This happens,

- a. before first bus(es) begin their service from Bus Interchanges / Depots in the mornings, and,
- b. when last bus(es) at night are running behind schedule; slightly past operating hours.

Therefore, the general logic to be applied, is to **always** <u>first</u> <u>display the Arrival data if it's available</u> on the API, irrespective of the scheduled operating hours. Advisement messages like "No Est. Available" and "Not In Operation" are applicable ONLY when there is no Arrival data on the API.



2. [EstimatedArrival] Rounding of Seconds

All derived bus arrival duration should be rounded down to the nearest minute.

Derived duration: 3:49 mins
Display duration: "3 min"

Derived duration: 2:07 mins
Display duration: "2 min"

Derived duration: 1:59 mins
Display duration: "1 min"

Derived duration: 0:59 mins
Display duration: "Arr"

3. [Load] Colour Scheme Adoption

You may adopt this colour scheme to serve as visual indicators for the various loading values:

- [Green] Seats Available
- [Amber] Standing Available
- [Red] Limited Standing

You are given the flexibility for the manner in which you display the colours, i.e. colour bars, coloured timings, and accompanied with legends where appropriate and/or necessary.

4. [Feature] Wheelchair Accessible Buses

You are given the flexibility to display any symbols or labels **&** to denote oncoming buses that are wheelchair accessible.

ADDITIONAL NOTE ON LOOP SERVICES THAT RUNS BOTH DIRECTIONS

Please note that some Loop Services are appended with 'G' or 'W' to denote their direction of travel. You should account for and display these services individually – 225G, 225W, 243G, 243W, 410G, 410W.



2.2 BUS SERVICES

URL	http://datamall2.mytransport.sg/ltaoda	taservice/BusServices	
Description	Returns detailed service information for all buses currently in operation, including: first stop, last stop, peak / offpeak frequency of dispatch.		
Update Freq	Ad-Hoc		
	Response		
Attributes	Description	Sample	
ServiceNo	The bus service number	107M	
Operator	Operator for this bus service	SBST	
Direction The direction in which the bus travels (1 or 2), loop services only have 1 direction		1	
Category Category of the SBS bus service: EXPRESS, FEEDER, INDUSTRIAL, TOWNLINK, TRUNK, 2 TIER FLAT FEE, FLAT FEE \$1.10 (or \$1.90, \$3.50, \$3.80)		TRUNK	
OriginCode	Bus stop code for first bus stop	64009	
DestinationCode	Bus stop code for last bus stop (similar as first stop for loop services)	64009	
AM_Peak_Freq	Freq of dispatch for AM Peak 0630H - 0830H (range in minutes)	14-17	
AM_Offpeak_Freq	Freq of dispatch for AM Off-Peak 0831H - 1659H (range in minutes)	10-16	
PM_Peak_Freq	Freq of dispatch for PM Peak 1700H - 1900H (range in minutes)	12-15	
PM_Offpeak_Freq	Freq of dispatch for PM Off-Peak after 1900H (range in minutes)	12-15	
LoopDesc	Location at which the bus service loops, empty if not a loop service.	Raffles Blvd	



2.3 BUS ROUTES

URL	http://datamall2.mytransport.sg/ltaodataservice/BusRoutes		
Description	Returns detailed route information for all services currently in operation, including: all bus stops along each route, first/last bus timings for each stop.		
Update Freq	Ad-Hoc		
	Response		
Attributes	Description	Sample	
ServiceNo	The bus service number	107M	
Operator	Operator for this bus service	SBST	
Direction	The direction in which the bus travels (1 or 2), loop services only have 1 direction	1	
StopSequence	The i-th bus stop for this route	28	
BusStopCode	The unique 5-digit identifier for this physical bus stop	01219	
Distance	Distance travelled by bus from starting location to this bus stop (in kilometres)	10.3	
WD_FirstBus	Scheduled arrival of first bus on weekdays	2025	
WD_LastBus	Scheduled arrival of last bus on weekdays	2352	
SAT_FirstBus	Scheduled arrival of first bus on Saturdays	1427	
SAT_LastBus	Scheduled arrival of last bus on Saturdays	2349	
SUN_FirstBus	Scheduled arrival of first bus on Sundays	0620	
SUN_LastBus	Scheduled arrival of last bus on Sundays	2349	

2.4 BUS STOPS

URL	http://datamall2.mytransport.sg/ltaodataservice/BusStops	
Description	Returns detailed information for all bus stops currently being serviced by buses, including: Bus Stop Code, location coordinates.	
Update Freq	Ad-Hoc	
	Response	
Attributes	Description	Sample
BusStopCode	The unique 5-digit identifier for this physical bus stop	01012
RoadName	The road on which this bus stop is located	Victoria St
Description	Landmarks next to the bus stop (if any) to aid in identifying this bus stop	Hotel Grand Pacific
Latitude	Location coordinates for this bus stop	1.29685
Longitude	- Location coordinates for this bus stop	103.853

2.5 PASSENGER VOLUME BY BUS STOPS

URL	http://datamall2.mytransport.sg/ltaodataservice/PV/Bus			
Description	Returns tap in and tap out passenger volume by weekdays and weekends for individual bus stop			
Update Freq	By 15 th of every month, t will be generated	By 15 th of every month, the passenger volume for previous month data		
	Requ	est		
Parameters	Description	Mandatory	Example	
Date	Request for files up to last three months	No	Date=201803	
	Respon	se		
Attributes	Description Example			
Link	Refer to sample of <u>Annex A</u> for refer	Link for downloading this file.		

2.6 PASSENGER VOLUME BY ORIGIN DESTINATION BUS STOPS

URL	http://datamall2.mytransport.sg/ltaodataservice/PV/ODBus			
Description	Returns number of trips by weekdays and weekends from origin to destination bus stops			
Update Freq	By 15 th of every month, the passenger volume for previous month data will be generated			
	Request			
Parameters	Description Mandatory		Example	
Date	Request for files up to last three months	No	Date=201804	
	Respons	se		
Attributes	Description		Example	
Link	 Link for downloading this file. Refer to sample output on Annex B for reference Link will expire after 5 minutes 		https://ltafarecard.s3.amazonaws .com/201804/origin_destination_ bus_201804.zip?x-amz-security- token=FQoDYXdzEOf%2F%2	

2.7 PASSENGER VOLUME BY ORIGIN DESTINATION TRAIN STATIONS

URL	http://datamall2.mytransport.sg/ltaodataservice/PV/ODTrain			
Description	Returns number of trips by weekdays and weekends from origin to destination train stations			
Update Freq	By 15 th of every month, the passenger volume for previous month data will be generated			
	Request			
Parameters	Description	Mandatory	Example	
Date	Request for files up to last three months	No	Date=201803	
	Respons	se		
Attributes	Description		Example	
Link	 Link for downloading this file. Refer to sample output on Annex B for reference Link will expire after 5 minutes 		https://ltafarecard.s3.amazona ws.com/201803/origin_destinat ion_train_201803.zip?x-amz- security- token=FQoDYXdzEOf%2F%2F% 	

2.8 PASSENGER VOLUME BY TRAIN STATIONS

URL	http://datamall2.mytransport.sg/ltaodataservice/PV/Train			
Description	-	Returns tap in and tap out passenger volume by weekdays and weekends for individual train station		
Update Freq	By 15 th of every month, the will be generated	By 15 th of every month, the passenger volume for previous month data		
	Request			
Parameters	Description	Example		
Date	Request for files up to last three months		Date=201805	
	Response			
Attributes	es Description Example			
Link	 Link for downloading this file. Refer to sample output on Annex A for reference Link will expire after 5 minutes 		https://ltafarecard.s3.amazona ws.com/201805/transport_node _train_201805.zip?x-amz- security- token=FQoDYXdzEOf%2F%2F% 2F	

2.9 TAXI AVAILABILITY

URL	http://datamall2.mytransport.sg/ltaodataservice/Taxi-Availability		
Description	Returns location coordinates of all Taxis that are currently available for hire. Does not include "Hired" or "Busy" Taxis.		
Update Freq	1 min		
	Response		
Attributes	Description Sample		
Latitude	Latitude location coordinates. 1.35667		
Longitude	Longitude location coordinates.	103.93314	



2.10 TAXI STANDS

URL	http://datamall2.mytransport.sg/ltaodataservice/TaxiStands		
Description	Returns detailed information of Taxi stands, such as location and whether is it barrier free.		
Update Freq	Monthly		
	Response		
Attributes	Description	Sample	
TaxiCode	Code representation of Taxi facility.	A01	
Latitude	Latitude map coordinates for the start point of this road incident.	1.303980684	
Longitude	Longitude map coordinates for the start point of this incident.	103.9191828	
Bfa	Indicate whether the Taxi stand is barrier free.	Yes	
Ownership	Indicate the owner of the Taxi stand.	LTA	
	LTA – Land Transport Authority	CCS Private	
	CCS – Clear Channel Singapore		
	Private – Taxi facilities that are constructed and maintained by private entities (e.g. developers/owners of shopping malls, commercial buildings).		
Туре	Stand - allows Taxis to queue in the taxi bays and wait for passengers. Stop - allow Taxis to perform immediate pick up and drop off of passengers.	Stand Stop	
Name	Name of Taxi facility.	Orchard Rd along driveway of Luc ky Plaza	



2.11 TRAIN SERVICE ALERTS

URL	http://datamall2.mytransport.sg/ltaodataservice/TrainServiceAlerts			
		Returns detailed information on train service unavailability during scheduled		
Description	operating hours	operating hours, such as affected line and stations etc.		
Update Freq	Ad-Hoc			
	Request			
Parameters	Description	Mandatory	Example	
(none)	-	-	-	
		Response		
Attributes	Description		Example	
Status	• 1 (for N	n service is unavailable: lormal Train Service)	2	
		visrupted Train Service)	A.E.	
Line	Train network line affected: CCL (for Circle Line) CEL (for Circle Line Extension – BayFront, Marina Bay) CGL (for Changi Extension – Expo, Changi Airport) DTL (for Downtown Line) EWL (for East West Line) NEL (for North East Line) NSL (for North South Line) PEL (for Punggol LRT East Loop) PWL (for Punggol LRT West Loop) SUL (For Sengkang LRT West Loop) SWL (For Sengkang LRT West Loop) BPL (for Bukit Panjang LRT)		Punggol	
Direction	Indicates direction of service unavailability on the affected line: • Both • (towards station name)		runggot	
Stations	Indicates the lis affected line.	Indicates the list of affected stations on the affected line. NE1,NE3,NE4,NE5,NE6		
FreePublicBus	Indicates the list of affected stations where free boarding onto normal public bus services are available. • (station code) • Free bus service island wide			
FreeMRTShuttle	Indicates the lis MRT shuttle se • (station	t of affected stations where free ervices^ are available.	NE1,NE3,NE4,NE5,NE6	



EW27;NS9,NS13,NS16,NS17 CC15;	
EW8 CC9,EW5,EW2;NS1 EW24,NS4 BP1*	

MRTShuttleDirection	Indicates the direction of free MRT shuttle services available: Both (towards station name)	Punggol
Message	Travel advisory notification service for train commuters, published by LTA. This notice is also broadcasted to commuters via the Find-My-Way module in MyTransport mobile app. • Content • CreatedDate	1710hrs: NEL — No train service between Harbourfront to Dhoby Ghaut stations towards Punggol station due to a signalling fault. Free bus rides are available at designated bus stops.

Note:

- This API relies on the static master list of Train Station Codes, Train Line Codes and Train Shuttle Service Direction which can be obtained on DataMail Portal.
 - The Train Station Codes and Train Line Codes files are under Public Transport section.
 - The Train Shuttle Service Direction information can be found in Train Line Codes file.
- During train unavailability, following attributes will be mandatory.
 - Status
 - Line
 - Direction
 - Stations
- Each line that is affected will be published as separate clusters within the single API response. Refer to sample output on <u>Annex C</u> for reference.
- ^Free MRT Shuttle services will ferry commuters from station to station along the affected stretch.
- *There are scenarios which MRT Shuttle services do not run along the affected stretch but along four predefined areas in both directions
 - Bouna Vista, Clementi, Jurong East and Boon Lay
 - Woodlands, Yishun, Ang Mo Kio, Bishan
 - Paya Lebar, Bedok, Tampines
 - Jurong East, Choa Chu Kang
 - "|" delimiter to denote an interchange station
 - ";" delimiter to denote end of an area



2.12 CARPARK AVAILABILITY

URL	http://datamall2.mytransport.sg/ltaodataservice/CarParkAvailabilityv2			
Description	Returns no. of available lots for HDB, LTA and URA carpark data. The LTA carpark data consist of major shopping malls and developments within Orchard, Marina, HarbourFront, Jurong Lake District. (Note: list of LTA carpark data available on this API is subset of those listed on One.Motoring and MyTransport Portals)			
Update Freq	1 minute			
	Response			
Attributes	Description	LTA Sample	URA Sample	HDB Sample
CarParkID	A unique code for this carpark	1	A0007	KB7
Area	Area of development / building:	Marina	(blank)	(blank)
Development	Major landmark or address where carpark is located	Suntec City	ANGULLIA PARK OFF STREET	BLK 69 GEYLANG BAHRU
Location	Latitude and Longitude map coordinates.	1.29375 103.85718	1.305328 103.82957	1.32158 103.87047
AvailableLots	Number of lots available at point of data retrieval.	352	0	18
LotType	Type of lots: C (for Cars) H (for Heavy Vehicles) Y (for Motorcycles)	С	Y	С
Agency	Agencies:	LTA	URA	HDB

Respective agencies are responsible for the accuracy of the carpark data. If there is any data related issue, you may contact the agency directly. There may be empty values if data is not available (e.g. Area for HDB and URA data is unavailable hence blank value is expected).



2.13 ERP RATES

URL	http://datamall2.mytransport.sg/ltaodataservice/ERPRates		
Description	Returns ERP rates of all vehicle types across all timings for each zone.		
Update Freq	Ad-Hoc		
	Response		
Attributes	Description	Sample	
VehicleType	Classification types:	Passenger Cars/Light Goods Vehicles/Taxis	
DayType	Available types: - Weekdays - Saturdays	Weekdays	
StartTime	Start time for this ERP rate	08:00	
EndTime	End time for this ERP rate	08:05	
ZonelD	Zone for this ERP rate	AY1	
ChargeAmount	Chargeable amount	0.5	
EffectiveDate	Rate is effective as of this date (in YYYY-MM-DD format)	2016-02-01	



2.14 ESTIMATED TRAVEL TIMES

URL	http://datamall2.mytransport.sg/ltaodataservice/EstTravelTimes		
Description	Returns estimated travel times of expressways (in segments).		
Update Freq	5 minutes		
	Response		
Attributes	Description	Sample	
Name	Expressway	AYE	
Direction	Direction of travel:	1	
	1 – Travelling from east to west, or south to north.2 – Travelling from west to east, or north to south.		
FarEndPoint	The final end point of this whole expressway in current direction of travel	TUAS CHECKPOINT	
StartPoint	Start point of this current segment	AYE/MCE INTERCHANGE	
EndPoint	End point of this current segment	TELOK BLANGAH RD	
EstTime	Estimated travel time in minutes	2	



2.15 FAULTY TRAFFIC LIGHTS

URL	http://datamall2.mytransport.sg/ltaodataservice/FaultyTrafficLights			
Description	Returns alerts of traffic lights that are <u>currently</u> faulty, or <u>currently</u> undergoing scheduled maintenance.			
Update Freq	2 minutes – whenever there are updates			
	Response			
Attributes	Description	Sample		
AlarmID	Technical alarm ID	GL703034136		
NodelD	A unique code to represent each unique traffic light node	703034136		
Туре	Type of the technical alarm • 4 (Blackout) • 13 (Flashing Yellow)	13		
StartDate	YYYY-MM-DD HH:MM:SS.ms	2014-04-12 01:58:00.0		
EndDate	YYYY-MM-DD HH:MM:SS.ms (empty field if this is not a scheduled maintenance)			
Message	Canning Message	(23/1)8:58 Flashing Yellow at Bedok North Interchange/Bedok North Street 1 Junc.		

2.16 ROAD OPENINGS

URL	http://datamall2.mytransport.sg/ltaodataservice/RoadOpenings	
Description	Returns all planned road openings.	
Update Freq	24 hours – whenever there are updates	
	Response	
Attributes	Description	Sample
EventID	ID for this road opening event	RMAPP-201603-0900
StartDate	Start date for works to be performed for this road opening (in YYYY-MM-DD format)	2016-03-31
EndDate	End date for works to be performed for this road opening (in YYYY-MM-DD format)	2016-09-30
SvcDept	Department or company performing this road work	SP POWERGRID LTD - CUSTOMER PROJ (EAST)
RoadName	Name of new road to be opened	AH SOO GARDEN
Other	Additional information or messages	For details, please call 62409237

2.17 ROAD WORKS

URL	http://datamall2.mytransport.sg/ltaodataservice/RoadWorks		
Description	Returns all road works being / to be carried out.		
Update Freq	24 hours – whenever there are updates		
	Response		
Attributes	Description	Sample	
EventID	ID for this road work	RMAPP-201512-0217	
StartDate	Start date for the works performed for this road work (in YYYY-MM-DD format)	2015-12-14	
EndDate	End date for works performed for this road work (in YYYY-MM-DD format)	2016-07-31	
SvcDept	Department or company performing this road work	SP POWERGRID LTD - REGIONAL NETWORK CENTRAL	
RoadName	Name of road where work is being performed.	work is ADAM DRIVE	
Other	Additional information or messages.	For details, please call 67273085	

2.18 TRAFFIC IMAGES

URL	http://datamall2.mytransport.sg/ltaodataservice/Traffic-Images		
Description	Returns links to images of live traffic conditions along expressways and Woodlands & Tuas Checkpoints.		
Update Freq	1 to 5 minutes	1 to 5 minutes	
	Response		
Attributes	Description	Sample	
CameralD	A unique ID for this camera	5795	
Latitude	Latitude map coordinates	1.326024822	
Longitude	Longitude map coordinates	103.905625	
ImageLink	Link for downloading this image.	https://s3-ap-southeast- 1.amazonaws.com/mtpdm/2016-03-29/18- 32/5795_1822_20160329182706_c3e176.jpg	



2.19 TRAFFIC INCIDENTS

URL	http://datamall2.mytransport.sg/ltaodataservice/TrafficIncidents		
Description	Returns incidents <u>currently</u> happening on the roads, such as Accidents, Vehicle Breakdowns, Road Blocks, Traffic Diversions etc.		
Update Freq	2 minutes – whenever there are up	2 minutes – whenever there are updates	
	Response		
Attributes	Description Sample		
Туре	Incident Types:	Vehicle Breakdown	
Latitude	Latitude map coordinates for the start point of this road incident	1.30398068448214	
Longitude	Longitude map coordinates for the start point of this incident	103.919182834377	
Message	Description message for this incident	(29/3)18:22 Vehicle breakdown on ECP (towards Changi Airport) after Still Rd Sth Exit. Avoid lane 3.	



2.20 TRAFFIC SPEED BANDS

URL	http://datamall2.mytransport.sg/ltaodataservice/TrafficSpeedBandsv2			
Description	Returns current traffic speeds on expressways and arterial roads, expressed in speed bands.			
Update Freq	5 minutes			
	Response			
Attributes	Description	Sample		
LinkID	Unique ID for this stretch of road	103046935		
RoadName	Road Name	SERANGOON ROAD		
RoadCategory	A – Expressways B – Major Arterial Roads C – Arterial Roads D – Minor Arterial Roads E – Small Roads F – Slip Roads G – No category info available Speed Bands Information. Total: 8 1 – indicates speed range from 0 < 9 2 – indicates speed range from 10 < 19 3 – indicates speed range from 20 < 29	2		
	4 – indicates speed range from 30 < 39 5 – indicates speed range from 40 < 49 6 – indicates speed range from 50 < 59 7 – indicates speed range from 60 < 69 8 – speed range from 70 or more			
MinimumSpeed	Minimum speed in km/h	10		
MaximumSpeed	Maximum speed in km/h	19		
Location	Latitude and Longitude map	1.3220591510051254		
	coordinates for start and end points	103.86246461405193		
	for this stretch of road.	1.3215993547809128 103.86315591911669		

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2.21 VMS / EMAS

URL	http://datamall2.mytransport.sg/ltaodataservice/VMS			
Description	Returns traffic advisories (via variable message services) concerning current traffic conditions that are displayed on EMAS signboards along expressways and arterial roads.			
Update Freq	2 minutes			
Response				
Attributes	Description	Sample		
EquipmentID	EMAS equipment ID	amvms_v9104		
Latitude	Latitude map coordinates of electronic signboard.	1.3927176306916775		
Longitude	Longitude map coordinates of electronic signboard.	103.82618266340947		
Message	Variable Message being displayed on the EMAS display.	VEH BREAKDOWN SH,AFT U.THOMSON		

LTA DataMall | API User Guide & Documentation Version 5.0 (10 Jan 2020)

2.22 Bicycle Parking

URL	http://datamall2.mytransport.sg/ltaodataservice/BicycleParkingv2			
Description	Returns bicycle parking locations within a radius. The default radius is set as 0.5km			
Update Freq	Monthly			
Request				
Parameters	Description	Mandatory	Example	
Lat	Latitude map coordinates of location	Yes	1.364897	
Long	Longitude map coordinates of location	Yes	103.766094	
Dist	Radius in kilometre	No	Default is 0.5	
	Respon	se		
Attributes	Description		Example	
Description	Brief description of bicycle parking location.		Bus Stop 43267	
Latitude	Latitude map coordinates of bicycle parking location.		1.3927176306916775	
Longitude	Longitude map coordinates of bicycle parking location.		103.82618266340947	
RackType	Type of bicycle parking facility.		Racks or Yellow Box	
RackCount	Total number of bicycle parking lots.		10	
ShelterIndicator	Indicate whether the bicycle parking lots are sheltered.		Υ	



ANNEX A

SAMPLE OUTPUT FOR 2.5 PASSENGER VOLUME BY BUS STOPS AND 2.8 PASSENGER VOLUME BY TRAIN STATIONS

The batch file follows a variant of the generic comma-separated-values (CSV) format.

SYNTAX

YEAR MONTH, DAY TYPE, TIME PER HOUR, PT TYPE, PT CODE, TOTAL TAP IN VOLUME, TOTAL TAP OUT VOLUME \n

DELIMITERS

common delimiter to separate values

\n not a delimiter, but the 'next line' character to denote the end of a record

SAMPLE FOR BUS

2018-05, WEEKDAY, 20, BUS, 50199, 853, 834 2018-05, WEEKENDS/HOLIDAY, 20, BUS, 50199, 459, 297

SAMPLE FOR TRAIN

2018-05, WEEKDAY, 15, TRAIN, EW14-NS26, 56019, 37614 2018-05, WEEKENDS/HOLIDAY, 15, TRAIN, , EW14-NS26, 13385, 10878

Note

- Explanation of the sample **Bus** record: On a typical weekday of May 2018, from 2000hrs to 2059hrs, at Bus Stop 50199, Opp Shaw Plaza, the passenger volume of tap in and tap out are 853 and 834 respectively.
- TIME PER HOUR refers to the hour of the day. E.g. 15 = 1500hrs to 1559hrs
- For some Train interchanges, the station codes will be merged and considered as one station (E.g. EW14-NS26 refers to Raffles Place station)
- To find out more information about bus stops, please refer to **Bus Stop API.**
- To find out more information about train stations, please refer to **Train Station Codes and Chinese Names.csv** in <u>DataMall Portal</u> under Public Transport section.



ANNEX B

SAMPLE OUTPUT FOR 2.6 PASSENGER VOLUME BY ORIGIN DESTINATION BUS STOPS AND 2.7 PASSENGER VOLUME BY ORIGIN DESTINATION TRAIN STATIONS

The batch file follows a variant of the generic comma-separated-values (CSV) format.

SYNTAX

YEAR MONTH, DAY TYPE, TIME PER HOUR, PT TYPE, ORIGIN PT CODE, DESTINATION PT CODE, TOTAL TRIPS \n

DELIMITERS

- , common delimiter to separate values
- \n not a delimiter, but the 'next line' character to denote the end of a record

SAMPLE FOR BUS

2018-05, WEEKDAY, 16, BUS, 28299, 28009, 63 2018-05, WEEKENDS/HOLIDAY, 16, BUS, 28299, 28009, 103

SAMPLE FOR TRAIN

2018-05, WEEKDAY, 17, TRAIN, CC28, CC1-NE6-NS24, 111 2018-05, WEEKENDS/HOLIDAY, 17, TRAIN, CC28, CC1-NE6-NS24, 39

Note

- Explanation of the sample **Train** record: On a typical weekday of May 2018, from 1700hrs to 1759hrs, the total number of trips that travelled from CC28, Telok Blangah station, to CC1-NE6-NS24, Dhoby Ghaut station, are 111.
- TIME_PER_HOUR refers to the hour of the day. E.g. 16 = 1600hrs to 1659hrs
- For some Train interchanges, the station codes will be merged and considered as one station (E.g. CC1-NE6-NS24 refers to Dhoby Ghaut station)
- To find out more information about bus stops, please refer to **Bus Stop API.**
- To find out more information about train stations, please refer to **Train Station Codes and Chinese Names.csv** in <u>DataMall Portal</u> under Public Transport section.



ANNEX C

SAMPLE SCENARIOS FOR 2.6 TRAIN SERVICE ALERTS API

Once the train is unavailable, you may expect the Train Service Alert API response to be displayed according to the steps below.

- 1. Activate contingency mode
- 2. Publish message
- 3. Edit activated contingency mode (optional)
- 4. Publish new message (optional)
- 5. Train Service Recover
- 6. Publish recover message (optional)

During normal scenario (No train Disruption)

```
"odata.metadata": "http://datamall2.mytransport.sg/ltaodataservice/$metadata#TrainServicesAlerts",
    "value": {
        "Status": 1,
        "AffectedSegments": [],
        "Message": []
    }
}
```



Sample Scenario #1 - Single Line affected

This scenario depicts

- a. NEL Boon Keng to Dhoby Ghaut, towards Harbourfront station
- b. Free public bus services and free MRT shuttle (towards Harbourfront station)

Step 1: Activate contingency mode - NEL - Boon Keng to Dhoby Ghaut, towards Harbourfront station



Step 2: Publish new message

Step 3: Edit activated contingency mode – Free Public Bus Service and free MRT Shuttle Service (towards HarbourFront)



Step 4: Publish new message

```
"odata.metadata": "http://datamall2.mytransport.sg/ltaodataservice/$metadata#TrainServicesAlerts",
"value": {
   "Status": 2,
    "AffectedSegments": [
           "Line": "NEL",
"Direction": "HarbourFront",
           "Stations": "NE9,NE8,NE7,NE6",
            "FreePublicBus": "NE9, NE8, NE7, NE6",
            "FreeMRTShuttle": "NE9,NE8,NE7,NE6",
            "MRTShuttleDirection": "HarbourFront"
   1,
    "Message": [
            "Content": "1711hrs : NEL - Additional travelling time of 40 minutes between Boon Keng and Dhoby Ghaut stations towards
                HarbourFront station due to a signal fault. Free bus rides available at designated stops towards HarbourFront station.",
            "CreatedDate": "2017-12-11 17:11:27"
            "Content": "1657hrs : NEL - Additional travelling time of 20 minutes between Boon Keng and Dhoby Ghaut stations towards
                HarbourFront station due to a signal fault.",
            "CreatedDate": "2017-12-11 16:57:25"
```



Step 5: Train service recover with Free Public Bus and MRT shuttle still available

```
"odata.metadata": "http://datamall2.mytransport.sg/ltaodataservice/$metadata#TrainServicesAlerts",
"value": {
    "Status": 1,
    "AffectedSegments": [
            "Line": "NEL",
            "Direction": "HarbourFront",
           "Stations": "",
           "FreePublicBus": "NE9, NE8, NE7, NE6",
           "FreeMRTShuttle": "NE9, NE8, NE7, NE6",
            "MRTShuttleDirection": "HarbourFront"
   ],
    "Message": [
            "Content": "1711hrs : NEL - Additional travelling time of 40 minutes between Boon Keng and Dhoby Ghaut stations towards
                HarbourFront station due to a signal fault. Free bus rides available at designated stops towards HarbourFront station.",
            "CreatedDate": "2017-12-11 17:11:27"
            "Content": "1657hrs : NEL - Additional travelling time of 20 minutes between Boon Keng and Dhoby Ghaut stations towards
                HarbourFront station due to a signal fault.",
            "CreatedDate": "2017-12-11 16:57:25"
```



Step 6: Publish new message

```
"odata.metadata": "http://datamall2.mytransport.sg/ltaodataservice/$metadata#TrainServicesAlerts",
"value": {
   "Status": 1,
    "AffectedSegments": [
           "Line": "NEL",
           "Direction": "HarbourFront",
           "Stations": "",
           "FreePublicBus": "NE9, NE8, NE7, NE6",
           "FreeMRTShuttle": "NE9,NE8,NE7,NE6",
           "MRTShuttleDirection": "HarbourFront"
    "Message": [
            "Content": "1714hrs : NEL - Train service resumes. Free bus rides available at designated stops towards HarbourFront station."
            "CreatedDate": "2017-12-11 17:14:14"
            "Content": "1711hrs : NEL - Additional travelling time of 40 minutes between Boon Keng and Dhoby Ghaut stations towards
               HarbourFront station due to a signal fault. Free bus rides available at designated stops towards HarbourFront station.",
           "CreatedDate": "2017-12-11 17:11:27"
       },
           "Content": "1657hrs : NEL - Additional travelling time of 20 minutes between Boon Keng and Dhoby Ghaut stations towards
               HarbourFront station due to a signal fault.",
           "CreatedDate": "2017-12-11 16:57:25"
```



Step 7: After bus rides are ceased (no new published message)

```
"odata.metadata": "http://datamall2.mytransport.sg/ltaodataservice/$metadata#TrainServicesAlerts",
    "value": {
        "Status": 1,
        "AffectedSegments": [],
        "Message": []
}
```



Sample Scenario #2 - Multi Lines affected

This scenario depicts 3 lines: North South Line, East West Line, and Downtown Line are down.

- a. North South Line between Bishan and Woodlands, towards Jurong East Station
- a. East West Line between Paya Lebar and Pasir Ris, both direction
- b. MRT Shuttle Services that run along four predefined areas in both directions
- c. Downtown Line between Downtown and Beauty World, both directions
- d. Free Bus Island-wide

Step 1: Activate contingency mode - North South Line down with new message published



Step 2: Edit activated contingency mode -East West Line and North South line are down with new message published

```
"odata.metadata": "http://datama112.mytransport.sg/ltaodataservice/$metadata#TrainServicesAlerts",
"value": {
    "Status": 2,
    "AffectedSegments": [
             "Line": "EWL",
             "Direction": "Both",
             "Stations": "EW8, EW7, EW6, EW5, EW4, EW3, EW2, EW1",
             "FreePublicBus": "EW8, EW7, EW6, EW5, EW4, EW3, EW2, EW1",
             "FreeMRTShuttle": "EW8, EW7, EW6, EW5, EW4, EW3, EW2, EW1",
             "MRTShuttleDirection": "Both"
             "Line": "NSL",
             "Direction": "Jurong East",
             "Stations": "NS17,NS16,NS15,NS14,NS13,NS11,NS10,NS9",
             "FreePublicBus": "".
             "FreeMRTShuttle":
                                       NS16,NS15,NS14,NS13,NS11,NS10,NS9",
             "MRTShuttleDirection": "Jurong East"
    ],
   "Message": [
          "Content": "1811hrs: EWL - Additional travelling time of 30 minutes between Paya Lebar and Pasir Ris stations due to a train
              fault at Paya Lebar station, 1811hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East
              station due to a signal fault. Free bus rides are available at designated bus stops.",
          "CreatedDate": "2017-12-11 18:12:06"
          "Content": "1756hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East station due to a signal
              fault. Free bus shuttle are available at designated bus stops.",
          "CreatedDate": "2017-12-11 17:56:50"
```



Step 3: Edit activated contingency mode - Activate MRT shuttle services to run along four predefined areas in both directions (no new message published)

```
"odata.metadata": "http://datamall2.mytransport.sg/ltaodataservice/$metadata#TrainServicesAlerts",
"value": {
    "Status": 2,
    "AffectedSegments": [
            "Line": "EWL",
            "Direction": "Both",
            "Stations": "EW8, EW7, EW6, EW5, EW4, EW3, EW2, EW1",
            "FreePublicBus": "EW8, EW7, EW6, EW5, EW4, EW3, EW2, EW1",
            "FreeMRTShuttle": "EW21 CC22, EW23, EW24 NS1, EW27; NS9, NS13, NS16, NS17 CC15; EW8 CC9, EW5, EW2; NS1 EW24, NS4 BP1",
            "MRTShuttleDirection": "Both"
        },
            "Line": "NSL",
            "Direction": "Jurong East",
            "Stations": "NS17, NS16, NS15, NS14, NS13, NS11, NS10, NS9",
            "FreePublicBus": "".
            "FreeMRTShuttle": "EW21 CC22, EW23, EW24 NS1, EW27; NS9, NS13, NS16, NS17 CC15; EW8 CC9, EW5, EW2; NS1 EW24, NS4 BP1",
            "MRTShuttleDirection": "Both"
    ],
   "Message": [
           "Content": "1811hrs: EWL - Additional travelling time of 30 minutes between Paya Lebar and Pasir Ris stations due to a train
                fault at Paya Lebar station. 1811hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East
                station due to a signal fault. Free bus rides are available at designated bus stops.",
            "CreatedDate": "2017-12-11 18:12:06"
            "Content": "1756hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East station due to a signal
                fault. Free bus shuttle are available at designated bus stops.".
           "CreatedDate": "2017-12-11 17:56:50"
```



Step 4: Edit activated contingency mode - In addition to North South, East West lines, Downtown line is also down with new message published

```
"odata.metadata": "http://datamall2.mytransport.sg/ltaodataservice/$metadata#TrainServicesAlerts",
"value": {
    "Status": 2,
    "AffectedSegments": [
            "Line": "DTL",
            "Direction": "Both",
            "Stations": "DT5,DT6,DT7,DT8,DT9,DT10,DT11,DT12,DT13,DT14,DT15,DT16,DT17",
            "FreePublicBus": "DT5,DT6,DT7,DT8,DT9,DT10,DT11,DT12,DT13,DT14,DT15,DT16,DT17",
            "FreeMRTShuttle": "EW21 CC22, EW23, EW24 NS1, EW27; NS9, NS13, NS16, NS17 CC15; EW8 CC9, EW5, EW2; NS1 EW24, NS4 BP1",
            "MRTShuttleDirection": "Both"
        },
            "Line": "EWL",
            "Direction": "Both",
            "Stations": "EW8, EW7, EW6, EW5, EW4, EW3, EW2, EW1",
            "FreePublicBus": "EW8, EW7, EW6, EW5, EW4, EW3, EW2, EW1",
            "FreeMRTShuttle": "EW21 CC22, EW23, EW24 NS1, EW27; NS9, NS13, NS16, NS17 CC15; EW8 CC9, EW5, EW2; NS1 EW24, NS4 BP1",
            "MRTShuttleDirection": "Both"
            "Line": "NSL",
            "Direction": "Jurong East",
            "Stations": "NS17,NS16,NS15,NS14,NS13,NS11,NS10,NS9",
            "FreePublicBus": ""
            "FreeMRTShuttle": "EW21 CC22, EW23, EW24 NS1, EW27; NS9, NS13, NS16, NS17 CC15; EW8 CC9, EW5, EW2; NS1 EW24, NS4 BP1",
            "MRTShuttleDirection": "Both"
        {
            "Content": "1815hrs: DTL - No train service between Downtown and Beauty World stations in both direction due to signal fault.
                1815hrs: EWL - Additional travelling time of 30 minutes between Paya Lebar and Pasir Ris stations due to a train fault at
                Paya Lebar station. 1815hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East station due to
                a signal fault. Free bus rides are available at designated bus stops.",
            "CreatedDate": "2017-12-11 18:15:12"
            "Content": "1811hrs: EWL - Additional travelling time of 30 minutes between Paya Lebar and Pasir Ris stations due to a train
                fault at Paya Lebar station. 1800hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East
                station due to a signal fault. Free bus rides are available at designated bus stops.",
            "CreatedDate": "2017-12-11 18:12:06"
        },
            "Content": "1756hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East station due to a signal
            fault. Free bus shuttle are available at designated bus stops.", "CreatedDate": "2017-12-11 17:56:50"
```



Step 5: Edit activated contingency mode -Activate Free bus service island-wide with new message published

```
"odata.metadata": "http://datamall2.mytransport.sg/ltaodataservice/$metadata#TrainServicesAlerts",
"value": {
    "Status": 2,
    "AffectedSegments": [
            "Line": "DTL",
"Direction": "Both".
"Stations": "DT5,DT6,DT7,DT8,DT9,DT10,DT11,DT12,DT13,DT14,DT15,DT16,DT17",
            "FreePublicBus": "Free bus service island-wide",
            "FreeMRTShuttle": "EW21 | CC22, EW23, EW24 | NS1, EW27, NS9, NS13, NS16, NS17 | CC15; EW8 | CC9, EW5, EW2; NS1 | EW24, NS4 | BP1",
            "MRTShuttleDirection": "Both"
            "Line": "EWL",
"Direction": "Both".
            'Stations": "EW8,EW7,EW6,EW5,EW4,EW3,EW2,EW1",
            "FreePublicBus": "Free bus service island-wide"
            "FreeMRTShuttle": "EW21|CC22.EW23.EW24|NS1.EW27:NS9.NS13.NS16.NS17|CC15:EW8|CC9.EW5.EW2:NS1|EW24.NS4|BP1".
            "MRTShuttleDirection": "Both"
        },
            "Line": "NSL",
            "Direction": "Jurong Fast"
             Stations": "NS17.NS16.NS15.NS14.NS13.NS11.NS10.NS9"
            "FreePublicBus": "Free bus service island-wide",
"FreeMRTShuttle": "EW21|CC22,EW23,EW24|NS1,EW27;NS9,NS13,NS16,NS17|CC15;EW8|CC9,EW5,EW2;NS1|EW24,NS4|BP1",
            "MRTShuttleDirection": "Both"
    1,
    "Message": Γ
            "Content": "1818hrs: DTL - No train service between Downtown and Beauty World stations in both direction due to signal fault.
                1818hrs: EWL - Additional travelling time of 30 minutes between Paya Lebar and Pasir Ris stations due to a train fault at
                Paya Lebar station. 1818hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East station due
                to a signal fault. Free bus rides are available island-wide.",
            "CreatedDate": "2017-12-11 18:18:40"
            "Content": "1815hrs: DTL - No train service between Downtown and Beauty World stations in both direction due to signal fault.
                1815hrs: EWL - Additional travelling time of 30 minutes between Paya Lebar and Pasir Ris stations due to a train fault at
                Paya Lebar station. 1815hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East station due
                to a signal fault. Free bus rides are available at designated bus stops.",
            "CreatedDate": "2017-12-11 18:15:12"
            "Content": "1811hrs: EWL - Additional travelling time of 30 minutes between Paya Lebar and Pasir Ris stations due to a train
                fault at Paya Lebar station. 1800hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East
                station due to a signal fault. Free bus rides are available at designated bus stops.",
            "CreatedDate": "2017-12-11 18:12:06"
        3,
            "Content": "1756hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East station due to a signal
                fault. Free bus shuttle are available at designated bus stops.",
            "CreatedDate": "2017-12-11 17:56:50"
```



Step 6: Train service recover - North South and East West line recover with new message published

```
"odata.metadata": "http://datamall2.mytransport.sg/ltaodataservice/$metadata#TrainServicesAlerts",
"value": {
    "Status": 2.
    "AffectedSegments": [
             "Line": "DTL",
             "Direction": "Both",
             "Stations": "DT5,DT6,DT7,DT8,DT9,DT10,DT11,DT12,DT13,DT14,DT15,DT16,DT17",
             "FreePublicBus": "Free bus service island-wide",
             "FreeMRTShuttle": "EW21 | CC22, EW23, EW24 | NS1, EW27; NS9, NS13, NS16, NS17 | CC15; EW8 | CC9, EW5, EW2; NS1 | EW24, NS4 | BP1",
             "MRTShuttleDirection": "Both"
    ],
   "Message": [
           "Content": "1822hrs: DTL - No train service between Downtown and Beauty World stations in both direction due to signal fault.
              1822hrs: EWL - Train service resumes. 1822hrs: NSL - Train service resumes. Free bus rides are still available island
               -wide.",
           "CreatedDate": "2017-12-11 18:22:07"
           "Content": "1818hrs: DTL - No train service between Downtown and Beauty World stations in both direction due to signal fault.
              1818hrs: EWL - Additional travelling time of 30 minutes between Paya Lebar and Pasir Ris stations due to a train fault at
              Paya Lebar station, 1818hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East station due
              to a signal fault. Free bus rides are available island-wide.",
           "CreatedDate": "2017-12-11 18:18:40"
       },
           "Content": "1815hrs: DTL - No train service between Downtown and Beauty World stations in both direction due to signal fault.
              1815hrs: EWL - Additional travelling time of 30 minutes between Paya Lebar and Pasir Ris stations due to a train fault at
               Paya Lebar station. 1815hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East station due
               to a signal fault. Free bus rides are available at designated bus stops.",
           "CreatedDate": "2017-12-11 18:15:12"
       },
           "Content": "1811hrs: EWL - Additional travelling time of 30 minutes between Pava Lebar and Pasir Ris stations due to a train
               fault at Pava Lebar station, 1800hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East
               station due to a signal fault. Free bus rides are available at designated bus stops.",
           "CreatedDate": "2017-12-11 18:12:06"
       },
           "Content": "1756hrs: NSL - No train service between Bishan and Woodlands stations towards Jurong East station due to a signal
               fault. Free bus shuttle are available at designated bus stops.",
           "CreatedDate": "2017-12-11 17:56:50"
```



Step 7: Train service recover - Downtown line recovers, free public bus service and MRT shuttle are still available with new message published



Step 8: Train service recover - Free public bus service and MRT shuttle have ceased

Step 9: Train service recover - After message has expired

```
"odata.metadata": "http://datamall2.mytransport.sg/ltaodataservice/$metadata#TrainServicesAlerts",
    "value": {
        "Status": 1,
        "AffectedSegments": [],
        "Message": []
}
```



2.2 Train Delay

This scenario depicts there is a delay at Seng Kang West LRT (West Loop).

Step 1: New message published (Contingency mode is not activated)

Step 2: Train Service Resumes

```
"odata.metadata": "http://datamall2.mytransport.sg/ltaodataservice/$metadata#TrainServicesAlerts",
    "value": {
        "Status": 1,
        "AffectedSegments": [],
        "Message": []
}
```