

SFMTA Taxi API Specifications

August 5, 2022

The following document outlines the API specifications to be used by Dispatch Companies and Payment System Providers to send Taxi Electronic Trip Data and Telemetry Data to the SFMTA in order to comply with the San Francisco Transportation Code data requirements specified in Sections 1114 (f)(2)(B) & (C).

API Revision History - June 2022

Version	Date	Editor	Notes
2.0	March 4, 2016	dcorliss	Created
2.1	March 16 th , 2016	dcorliss	Added Driver Status in Telemetry
2.2	April 4, 2016	dcorliss	Added new data elements into trips
2.3	April 14, 2016	dcorliss	Fixed the JSON sample formats for trips and telemetry
2.4	April 18, 2016	dcorliss	Timestamp local made to required field in telemetry API
2.5	December 18, 2018	kkrupp	1) Changed “optional” fields to “required”, going forward 2) Taxi company “name” to be used for normal data transmission, replacement month files, and for sending test data (via normal transmission method)
3.0	March 2020	SFMTA TAS Data Team, Sean Cunningham, Luke Armbruster	Upgrade to POST AND GET; align (where appropriate) with LA MDS standard; new fields
3.1	July 2021	mwang	Add new required data fields
3.2	June 2022	SFMTA TAMS Data Team, IT Data Services	Incorporate feedback from dispatch companies; field standardization; incorporate transportation code changes; OAuth2 implementation; add device_id

Authorization

SFMTA Taxi Services shall be secured using OAuth 2.0 Authentication. New documentation will be provided for details on how to register with SFMTA and request access to the Taxi API Services. To obtain individual token, please email: MiddlewareServices@sfmta.com. Consult the OAuth2 Specification Document for complete details on tokens and authentication.

Request Header

Attribute	Value	Description
Authorization	Bearer <token>	See SFMTA OAuth2 documentation for generating and refreshing token.

Taxi Trips API 3.2

Introduction

The Taxi Trip API allows you to post one or more trips to the SFMTA.

For each taxicab activity “trip”, the associated TELEMETRY records are to be sent, also.

Applicable code (source: REGULATION OF MOTOR VEHICLES FOR HIRE [ARTICLE 1100])

(b) **Electronic Taxi Access System.** Each Dispatch Service Permit Holder shall integrate its dispatch system with and implement the Electronic Taxi Access System, and shall electronically transfer all of its Electronic Trip Data to the Electronic Taxi Access System in **real-time** as required by this Section [1105](#) (b).

In addition to the required fields, any valid JSON may be sent, as long as the values are of data type *String* or *Number*.

Request

New content is labeled as “new field”. Changed fields from the API 2.5 version are noted as “formerly:”.

Method	URL	Environment
POST	https://stageservices.sfmta.com/taxi/api/3/TaxiTrips/	Test
POST	https://services.sfmta.com/taxi/api/3/TaxiTrips/	Production

Request Header

Attribute	Value	Description
Accept	application/json	
Content-Type	application/json	
Authorization	Bearer <token>	See Authorization Section above

Payload: { "trips": [] }, an array of objects with the following structure

Field	Description	Required	Type
provider_id (new field)	UUID ("Universal User ID" that is associated with the provider).	Y	String
taxi_company_id (new field)	UUID ("Universal User ID" that is associated with the taxi company).	Y	String
vehicle_id (changed field)	VIN (Vehicle Identification Number) of the taxicab.	Y	String
vehicle_placard_number (new field)	The number painted on the taxicab. AKA: Medallion ID	Y	String A four-digit number such as 1824, 0091, 5003
license_plate (new field)	License plate number of the taxicab.	Y	String
trip_id (formerly: TripNumber)	The id from the taxi company or payment provider to be used for troubleshooting purposes. Could be number that is on transaction receipt for from provider's data base. Not to be generated by any on-board taxicab equipment or software.	Y	String
device_id (new field)	Identifier indicating the unique device on the vehicle (e.g. hard or soft meter) that transmitted the data.	Y	String
hail_type (formerly: TripType)	How the trip was ordered: street hail, dispatched, names of approved mobile apps.	Y	String Values allowed: (Traditional) - "street", - "dispatch", - "curbstand"; (Mobile App) - "yo_taxi_app", - "flywheel_app", - "arro_app", - "curb_app"; (3rd Party Originator) - "flywheel_uber", - "yo_taxi_uber", - "arro_uber", - "curb_uber"

operator_id (formerly: Driver_ID)	The driver's license number. Must be in valid CA DMV format. Out of state "driver's licenses" will not be accepted.	Y	String
start_time_milliseconds (formerly: Start_Time_Local)	The date and time when the meter was engaged, in integer milliseconds since Unix epoch.	Y	Number
end_time_milliseconds (formerly: End_Time_Local)	The date and time when the meter was disengaged, in integer milliseconds since Unix epoch.	Y	Number
pickup_location_address	The address of the pickup location, including street address, city, state, zip.	Y	String
pickup_location_latitude	The geo latitude of the pickup location.	Y	Number 5 digits of precision Example: 37.77636
pickup_location_longitude	The geo longitude of the pickup location.	Y	Number 5 digits of precision Example: -123.77636
dropoff_location_address	The address of the pickup location, including street address, city, state, zip.	Y	String (text)
dropoff_location_latitude	The geo latitude of the drop-off location.	Y	Number 5 digits of precision Example: 37.77636
dropoff_location_longitude	The geo longitude of the drop-off location.	Y	Number 5 digits of precision Example: -123.77636
passenger_count	The number of passengers.	Y	Number
is_wheelchair_transport	A flag indicating whether a wheelchair was transported.	Y	String Values allowed: - "T" (True) - "F" (False)
total_fare (new field)	Total fare for the trip, including all tolls, tips, fees, extras, flag drop, and meter amount	Y	Number

meter_fare (new field)	Cost to the customer for the trip, as reported by the meter (excluding tips, fees, tolls, extra amounts). For upfront priced trips, insert what meter rate would be.	Y	Number
upfront_pricing (new field)	Agreed upon rate that should not change based on the meter, (excluding tips, fees, tolls, extra amounts).	N	Number. Leave NULL if not applicable.
promo_rate (new field)	Promotional rate.	N	Number. Ex. Yellow has \$35 SFO flat rate promotion. Leave it NULL if not applicable.
fare_type (new possible values)	Indicator of which rate was charged. Options are Meter Fare (time, distance, flag drop), Upfront Pricing, Promo Rate.	Y	String Values allowed: - meter_fare - upfront_pricing - promo_rate
tolls	Sum of any and all tolls charged for the trip, such as bridge tolls.	N	Number. Leave NULL if not applicable.
rate_code_id (new field)	Indicator of what multiplier was applied to calculate the fare. (1) Meter Fare: based on meter; (2) Flat Rate per person in Shared Rides; (3) Out-of-Town Trips: metered rate *150% for trip that goes 15 miles or more outside of boundaries; (4) Deduction for Time While Disabled: no charge for time while vehicle is disabled; (5) Establishment of Upfront Fare Pilot Program; (6) Promo Rate is any rate less than the other rates.	Y	String Values allowed: - meter_fare - shared - out_of_town - disabled - upfront_pricing - promo_rate
sfo_exit_fee (new field)	Fee paid by customer to exit SFO.	N	Number Leave it NULL if not applicable.
flag_drop_amount (new field)	Amount from the meter that results from “flag drop”	Y	Number

other_fees (formerly: Fees)	Amount of any fees charged to the customer. Includes baggage fees, cleaning fee. Excludes <code>sfo_exit_fee</code> .	N	Number Leave NULL if not applicable.
tip	Amount of tip paid by the customer.	Y	Number Enter 0 if no tip (do not leave NULL)
extra_amount (new field)	Extra amounts charged to the customer. SFMTA does not collect this field at this time. For future use.	N	Number Leave NULL if not applicable.
payment_type (changed field)	How the trip was paid. Credit Card is using the in-taxi payment equipment. Third Party-Originated trips use Mobile.	Y	String Values allowed: - cash - credit_card - mobile - voucher - paratransit - no_payment - test (<i>use to send test data through</i>)
trip_duration_milliseconds (formerly: MeterTripTime)	Trip time as reported in integer milliseconds.	Y	Number
trip_distance_meters (formerly: TripDistance)	The trip distance reported in meters, rounded to the nearest whole meter.	Y	Number
fare_time_milliseconds (new field)	The fare time reported in integer milliseconds. This time accumulates when vehicle travels over 12MPH.	Y	Number
wait_time_milliseconds (new field)	The wait time reported in integer milliseconds. This time accumulates when vehicle travels under 12MPH.	Y	Number
publication_time (new field)	Publication time (in integer milliseconds since Unix epoch) is the time that provider posts to SFMTA	Y	Number

Request Example

```
{
  "trips" : [ {
    "provider_id" : " e714f168-ce56-4b41-81b7-0b6a4bd26128",
    "taxi_company_id" : " 07a25fe6-d0be-11e8-a8d5-f2801f1b9fd1",
    "vehicle_id" : "19XFB4F39EE200589",
    "vehicle_placard_number" : "1811",
    "license_plate" : "KP20091",
    "trip_id": " c848a5c0-2904-4f96-954a-77cfddcfed4b",
    "device_id": "15505",
    "hail_type": "street",
    "operator_id" : "B5471749",
    "start_time_milliseconds" : 1622609585000,
    "end_time_milliseconds" : 1622609945000,
    "pickup_location_address" : "123 Main Street, San Francisco, CA, 94102",
    "pickup_location_latitude" : 37.56565,
    "pickup_location_longitude" : -123.56565,
    "dropoff_location_address" : "1 S Van Ness Ave, San Francisco, CA, 94102",
    "dropoff_location_latitude" : 37.56565,
    "dropoff_location_longitude" : -123.56565,
    "passenger_count" : 2,
    "is_wheelchair_transported" : "F",
    "total_fare": 23.50,
    "meter_fare": 15.00,
    "upfront_pricing": ,
    "promo_rate": ,
    "fare_type": "meter_fare",
    "tolls" : 2.00,
    "rate_code_id": "meter_fare",
    "sfo_exit_fee": ,
    "flag_drop_amount": 3.50,
    "other_fees": ,
    "tip": 3.00,
    "extra_amount": ,
    "payment_type": "credit_card",
    "trip_duration_milliseconds": 12500,
    "trip_distance_meters": 5000,
    "fare_time_milliseconds": 12500,
    "wait_time_milliseconds": 0,
    "publication_time": 1622609945000
  } ]
}
```

Response

Request message is either accepted which is indicated by a HTTP Code 202.

If the request is not accepted, a non-200 response code will be returned.

Timing

Complete Trip records must be sent in real-time, after a trip has been completed, pursuant to Transportation Code section 1114(f)(2)(B) and (C).

Taxi Telemetry API 3.2

Introduction

The Telemetry API allows you to send one or more vehicle location data to the SFMTA's data warehouse. In addition to the required fields, any valid JSON may be sent, as long as the values are of data type *String* or *Number*.

Request

Method	URL	Environment
POST	https://stageservices.sfmta.com/taxi/api/3/Telemetries/	Test
POST	https://services.sfmta.com/taxi/api/3/Telemetries/	Production

Request Header

Attribute	Value	Description
Accept	application/json	
Content-Type	application/json	
Authorization	Bearer <token>	See Authorization section above

Payload: { "telemetry": [] }, an array of objects with the following structure

Field	Description	Required	Type
provider_id (new field)	UUID ("Universal User ID" that is associated with the provider).	Y	String
taxi_company_id (new field)	UUID ("Universal User ID" that is associated with the taxi company).	Y	String
vehicle_id (changed field)	VIN (Vehicle Identification Number) of the taxicab.	Y	String
vehicle_placard_number (new field)	The number painted on the taxicab. AKA: Medallion ID	Y	String A four-digit number such as 1824, 0091, 5003.
operator_id (formerly: DriverLicense)	The driver's license number. Must be in valid CA DMV format. Out of state driver's licenses will not be accepted.	Y	String

trip_id (new field)	The id from the taxi company or payment provider to be used for troubleshooting purposes. Could be number that is on transaction receipt for from provider's data base. Not to be generated by any on-board taxicab equipment or software. Only for telemetry events where the vehicle status is hired.	N	String Leave NULL if not applicable.
device_id (new field)	Identifier indicating the unique device on the vehicle (hard or soft meter) that transmitted the data.	Y	String
driver_status	Indicates if this taxicab telemetry event represents the start of a driver shift, continuation of current shift, or end of shift.	Y	Number Values allowed: - 1 (Starting Shift) - 2 (On Shift) - 3 (Ending Shift)
latitude	The geographic latitude of the current location of the taxicab trip.	Y	Number 5 digits of precision Example: 37.77636
longitude	The geographic longitude of the current location of the taxicab trip.	Y	Number 5 digits of precision Example: -122.4353
vehicle_status	The taxicab status	Y	Number Values allowed: - 1 (Off Duty) - 2 (Available) - 3 (Hired)
event_time_milliseconds (formerly: TimeStampLocal)	Date and time vehicle reported this location, in integer milliseconds since Unix epoch.	Y	Number
publication_time (new field)	Publication time (in integer milliseconds since Unix epoch) is the time that provider posts to SFMTA	Y	Number

Request Example

```
{
  "telemetry" : [{
    "provider_id" : " e714f168-ce56-4b41-81b7-0b6a4bd26128",
    "taxi_company_id" : " 07a25fe6-d0be-11e8-a8d5-f2801f1b9fd1",
    "vehicle_id" : "19XFB4F39EE200589",
    "vehicle_placard_number" : "1811",
    "operator_id" : "B5471749",
    "trip_id": "848a5c0-2904-4f96-954a-77cfddcfed4b",
    "device_id": "15505",
    "driver_status" : 2,
    "latitude" : 37.5656564,
    "longitude" : -123.5655667,
    "vehicle_status" : 3,
    "event_time_milliseconds" : 1622609945000,
    "publication_time": 1622609945000
  }]
}
```

Response

Request message is either accepted which is indicated by a HTTP Code 202.

If the request is not accepted, a non-200 response code will be returned.

Timing

Telemetry information must be sent on a real-time basis, with the current transmission rate of every six seconds, pursuant to Transportation Code section 1114(f)(2)(B) and (C).



OAuth 2.0 Authentication Instructions

August 4, 2022

SFMTA APIs uses the OAuth 2.0 protocol to authorize your app for a user and generate an access token.

Configured with OAuth 2.0 client credentials, your client application requests an access token from the SFMTA Authorization Server, extracts a token from the response, and sends the token to the SFMTA API that you want to access.

Obtain OAuth 2.0 Client Credentials and Scope

OAuth 2.0 client credentials can be requested from SFMTA IT support by sending an email request to MiddlewareServices@sfmta.com with subject "Request Access to SFMTA Data APIs".

Please include your company name and which SFMTA APIs you need access to.

Our team will follow up and provide you the following information:

- Company Name
- Contact Information
- Client Id
- Client Secret
- Desired Scope (which services or project request is related to)

Get an Access Token

Your service must make a service-to-service HTTP request to SFMTA Authorization Services to generate an access token. The token is valid for 60 minutes. Before token expires, a new token can be generated.

URL – Generate Token

Production

```
POST https://services.sfmta.com/oauth2/token
```

Test

```
POST https://stageservices.sfmta.com/oauth2/token
```

HTTP Request Headers

Header	Value
Content-Type	application/x-www-form-urlencoded

HTTP Request Body (URL Encoded)

Key	Value
grant_type	client_credentials
client_id	Client Id Provided By SFMTA
client_secret	Client Secret Provided by SFMTA
scope	Scope Provided by SFMTA

Example Request

```

POST /oauth2/token HTTP/1.1
Host: stageservices.sfmta.com
Content-Type: application/x-www-form-urlencoded
Content-Length: 185

grant_type=client_credentials&client_id=ab3a2de6-f6e8-46f7-8b47-7853e3b0e757&client_secret=sGX8z~jZtd_ubOYw43Zj7KvVlSe6bYu-QdVe-XXX&scope=9506d688-a330-43e1-ba0d-106abaa99123%2F.default
    
```


List of Taxi URLs:

Telemetries:

Test

Version 2.6

<https://stageservices.sfmta.com/taxi/api/Telemetries>
<https://stageservices.sfmta.com/taxi/api/2/Telemetries>

Version 3.2

<https://stageservices.sfmta.com/taxi/api/3/Telemetries>

Production

Version 2.6

<https://services.sfmta.com/taxi/api/Telemetries>
<https://services.sfmta.com/taxi/api/2/Telemetries>

Version 3.2

<https://services.sfmta.com/taxi/api/3/Telemetries>

TaxiTrips:

Test

Version 2.6

<https://stageservices.sfmta.com/taxi/api/TaxiTrips>
<https://stageservices.sfmta.com/taxi/api/2/TaxiTrips>

Version 3.2

<https://stageservices.sfmta.com/taxi/api/3/TaxiTrips>

Production

Version 2.6

<https://services.sfmta.com/taxi/api/TaxiTrips>
<https://services.sfmta.com/taxi/api/2/TaxiTrips>

Version 3.2

<https://services.sfmta.com/taxi/api/3/TaxiTrips>