2023-2024 COMMUTER SHUTTLE PROGRAM
APIs Specifications
Updated: June 14, 2023

The following document outlines the APIs to be used by Commuter Shuttle Program permittees to receive stop locations and send stop and telemetry data to the SFMTA as required by the Commuter Shuttle Permit Terms and Conditions.

No changes to the API specs have been made for the 2023-2024 permit year. Key changes that were made to the API requirements for 2017 -2018, which must still be adhered to, include the following:

1. The frequency of GPS points submitted to the Telemetry API must be every 5 seconds or less.
2. **PLEASE BE AWARE:** Optional fields become *required* fields this year, to the Telemetry API including the following:
    a. Route Identifier – A unique identifier for each route. The identifier should start with the provider id assigned to the company you are submitting data on behalf of, be followed by the same route name as entered in the Commuter Shuttle portal and conclude with the time period the route is in operation. For example, 00_Mission_AM.
    b. Route Type – Inter or intracity route
    c. Run ID – Unique number for each run
    d. Run Occupancy – Current number of passengers onboard the vehicle
3. The Stop Events API has been eliminated. Stop event data will now be captured in the Telemetry API.
4. The Stop ID field is now required for all stops made. Stops made at locations within the Commuter Shuttle Program network should use the corresponding stop ID for that location as appears in the Stop List API. Stops made at locations without a defined stop ID (e.g. at temporary stop locations or locations outside of the stop network) should use Stop ID 9999.
5. Acceptable methodologies for providing stop event data are listed below:
    a. Deployment and release of the parking brake
    b. Automated passenger counter
    c. Door opening and door closing
    d. Rider badge tagging on
    e. Geofence (provided permittee can demonstrate accuracy of geofencing method)

6. Batched submissions will no longer be accepted. All data should be submitted unbatched within ten minutes of occurrence.

7. If requested, operators must be able to provide the SFMTA with at least 30 days of historical telemetry data from the date of the request. Historical telemetry data must contain all of the same fields and data points as real time submissions.

Version: 4.0
Date: April 13, 2018

Version	Date	Editor	Notes
4.0	April 13, 2017	fnapolitan	Updated 2017 requirements for the operator reapplication process in 2018
4.1	March 27th, 2023	dcorliss	Added the Oauth 2.0 authorization section, made the optional telemetry fields required as per announcement last year

Stop List API Introduction

The Stop List is a simple repository of the current stops allowed as a part of the Commuter Shuttle Program. These are intended to be a reference for shuttle providers to supply the correct stop ids when posting stop events to the SFMTA. The list is comprehensive and lists all stops used by any providers.

Authorization

The allowed stops API does not require authorization for a GET.

Request

Method	URL	HTTP Version
GET	http(s)://services.sfmta.com/shuttle/api/AllowedStops	1.1

Request Header

Attribute	Value	Description
Accept	application/json	
Content-Type	application/json	

Parameters

Field	Description	Required	Type

Request Example

Response
Fields

Field	Description	Required	Type
StopId	The stop id, normally a Muni stop identifier as used by the SFMTA	Y	Number
StopDescription	The description of the stop	N	String
StopLocationLatitude	The geo latitude of the stop id location in WGS84 latitude	Y	Number (7 digits of precision) Example: 37.776365
StopLocationLongitude	The geo longitude of the stop id location in WGS84 longitude	Y	Number (7 digits of precision) Example: -127.453544

Response Example

```
{
 "Success" : "True",
 "Stops" : {
  "Stop" : [ {
    "StopId" : 3536,
    "StopDescription" : "30th St&Church St SW corner, flag stop",
    "StopLocationLatitude" : 37.74204,
    "StopLocationLongitude" : -122.42676
  }, {
    "StopId" : 3543,
    "StopDescription" : "30th St&Sanchez St NE corner, near-side stop",
    "StopLocationLatitude" : 37.74202,
    "StopLocationLongitude" : -122.4286
  } ]   }
}
```

Telemetry API

Introduction

The purpose of the Telemetry API is to allow shuttle vendors to send the SFMTA a continuous set of GPS location data (latitude and longitude) for the duration of a vehicle's operating time within the boundaries San Francisco. Events should be sent in near real-time, so each payload can only contain one event. The frequency of these GPS points must be every 5 seconds or less. The LocationLatitude and LocationLongitude are required fields for all transactions sent.

Shuttle vendors must provide stop information each time a vehicle stops for the purposes of boarding or alighting. This data should be recorded in the VehicleStatus field. When a vehicle is at a stop actively loading or unloading, VehicleStatus should be 2 (At a Stop). At all other times Vehicle Status should be 1 (On Route).

Listed below are acceptable methodologies for providing stop data:
1. Deployment and release of the parking brake
2. Automated passenger counter
3. Door opening and door closing
4. Rider badge tagging on
5. Geofencing
    a. Note: if this methodology is selected an explanation of what parameters will be used to avoid false detections and accurately capture all stop events must be provided

Records of stop events made at a zone within the Commuter Shuttle Program's network should include that zone's designated stop ID value in the Stop ID field. In cases where the stop is made at a location without a Stop ID (either a temporary stop or a stop not located in the Commuter Shuttle Program network) the Stop ID 9999 should be selected.
In addition to the required fields, any valid JSON may be sent, as long as the values are of data type *String*, *Number*, or *Boolean*. Dates are also supported if formatted correctly and sent as a *String*.

Exceptions
The frequency of GPS points may be every 15 seconds or fewer for the following permittees:
1. Permittees providing only intracity service (service only within San Francisco); or
2. Permittees with 15 or fewer stop events per day.
All other permittees must transmit GPS data every 5 seconds or fewer on all their routes.

Authorization
The API uses OAuth2 Authentication, see OAuth2 Authentication section below for details.

Request URL

Method	Environment	URL	HTTP Version
POST	Production	https://services.sfmta.com/shuttle/api/Telemetry/	1.1
POST	Test	https://stageservices.sfmta.com/shuttle/api/Telemetry/	1.1

Request Header

Attribute	Value	Description
Accept	application/json	
Content-Type	application/json	
Authorization	Bearer <token>	see authentication instructions below

Parameters

Field	Description	Required	Type
TechProviderId	Identification number of technology provider as assigned by SFMTA	Y	Number
ShuttleCompanyId	Identification number of shuttle provider as assigned by SFMTA.	Y	Number
VehiclePlacardNum	The placard number issued to each vehicle. Must be unique for each vehicle.	Y	String (7 characters) Example: 99-1234
LicensePlateNum	License plate number issued to each vehicle.	Y	String (7 characters)
StopId	The stop id used by SFMTA. See AllowedStops API for list of allowed stop ids. For temporary stops or stops made outside of the shuttle network use ID 9999	Y (when VehicleStatus is 2)	Number
VehicleStatus	The vehicle status	Y	Number Options: 1 – On Route 2 – At a Stop
LocationLatitude	The geo latitude of the vehicle.	Y	Number (7 digits of precision) Example:

			37.7763652
LocationLongitude	The geo longitude of the vehicle.	Y	Number (7 digits of precision) Example: 122.435387
TimeStampLocal	Date and time vehicle reported this location	Y	DateTime Format: yyyy-MM-ddTHH:mm:ss.SSS NOTE: Time should be in Pacific Standard Time, however, DO NOT specify timezone offset
RouteIdentifier	Unique identifier for the route. The identifier should start with the provider id, next the same name as provided in the application, followed by the time period. *For example, 00_Mission_AM*	Y	String (50 characters)
RouteType	Inter or intracity route	Y	Number Options: 1 – Intercity 2 – Intracity
RunID	Unique number for each run	Y	Number
RunOccupany	Current number of passengers onboard the vehicle during the trip.	Y	Number

Request Example

```
{
  "TechProviderId" : "123",
  "ShuttleCompanyId" : 99,
  "VehiclePlacardNum" : "99-1234",
  "LicensePlateNum" : "XYZ1234",
  "StopId" : 5001,
  "VehicleStatus" : 1,
  "LocationLatitude" : 37.7739721,
```

```
"LocationLongitude" : -122.4312456,
"TimeStampLocal" : "2016-01-06T09:53:05.296",
"RouteIdentifier" : "00_Mission_AM",
"RouteType": 1,
"RunID" : 123,
"RunOccupancy" 1
}
```

Response
Fields

Field	Description	Required	Type
Success	Indicates if the request was processed successfully.	Y	String
Message	Description of failure	N	String

Example
Success Response

```
{
 "Success" : "True",
  "Message": "Payload received",
  "PayloadId": 1
}
```

Error Response

```
{
  "RestFaultElement": {
    "code": "invalidVariables",
    "summary": "Unknown Shuttle Company Id"   }
}
```

OAuth 2.0 Authentication Instructions

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.

OAuth 2.0 Client Credentials and Scope

SFMTA will provide you with the following OAuth 2.0 client credentials:

- Client Id
- Client Secret
- Scope

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 the token expires, a new token can be generated.

URL – Generate Token

Production

> POST https://services.sfmta.com/oauth/token

Test

> POST https://stageservices.sfmta.com/oauth/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
```

Example Response

```
{
    "token_type": "Bearer",
    "expires_in": 3599,
    "ext_expires_in": 3599,
    "access_token":
"eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzI1NiIsImtpZCI6ImpTMVhvMU9XRGpfNTJ2YndHTmd2UU8yVnpNYyJ9.
eyJhdWQiOiI5NTA2ZDY4OC1hMzMwLTQzZTEtYmEwZC0xMDZhYmFhNDYzNDgiLCJpc3MiOiJodHRwczovL2xvZ2
luLm1pY3Jvc29mdG9ubGluZS5jb20vZjA3OWMzMTUtZmFjYy00ZDkwLThhMWEtMDBlYTIzMjU4YTY4L3YyLjAi
LCJpYXQiOjE2NTM0MzYwMDQsIm5iZiI6MTY1MzQzNjAwNCwiZXhwIjoxNjUzNDM5OTA0LCJhaW8iOiJFMlpnWU
RCY0ZmZmcvWTc0aEl3a0s5VWY1cXpsQUE9PSIsImF6cCI6ImFiM2EyZGU2LWY2ZTgtNDZmNy04YjQ3LTc4NTNl
M2IwZTc1NyIsImF6cGFjciI6IjEiLCJvaWQiOiJiYzhlYWYwZi03NzA5LTRhOGQtOWZlMS0zNTM3ZTczZjQ3Y2
YiLCJyaCI6IjAuQVE0QUZjTjU4TXo2a0UyS0dnRHFJWUlqV0JwVXdvLUZEEdWcwUWFycWtZMGdPQUFBBLiIs
InJvbGVzIjpbIlRheGkuUHJvdmlkZXIiXSwic3ViIjoiYmM4ZWFmMGYtNzcwOS00YThkLTlmZTEtMzUzN2U3M2
Y0N2NmIiwidGlkIjoiZjA3OWMzMTUtZmFjYy00ZDkwLThhMWEtMDBlYTIzMjU4YTY4IiwidXRpIjoiQXpFZk8x
MnRERRVdicFA2ZDRRcEJBUSIsInZlciI6IjIuMCJ9.YTbks4pRPROfrUzOK6Cfk37DVmjYgg5o4_OeGTAPU9frp
p6zOZszmQIivkRDBJo5K3HcCr0zy-
Kn0I28HcqtYAaiyuIS3DNcv2uHUNugJSyAYG4oy00JHlp70tgVLXQJh6FrGodSMKI-
b_jmpkauG0zyEJT7O3ohJVihWwAZeWoVExC0bFC1yM02b8SF20LOibb1ieDkyNwexsj-
Vrak_SX8EsrhgHRJFvrZgxWj4pECKQbejWfL0uRiDa_Jh6ZA1PG0iKEba-
pK_pgzk2aGcQwxpnUAF4hQOm5vOlef_cF3GM_kAyrmCWNxVBIyqhWlgjfWw2DTfOfPgQKer6ixDw"
}
```

Sending Request with Token

Extract access token from the response and include it in the Authorization field of the header for requests sent to the Telemetry API (see details in the section above).