



SFMTA Commuter Shuttle APIs

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

Version: 2.1

Date: December 8, 2015

Version	Date	Editor	Notes
2.0	December 8, 2015	dcorliss	Created
2.1	December 16, 2015	jmerman	Updated per API requirements and results
2.2	January 4, 2016	jmerman	Changed StopEvents request to a POST Update StopEvents request example
2.3	January 6, 2016	jmerman	<ul style="list-style-type: none">Removed StopEvent and Telemetry APIsAdded batch processing APIs, StopEvents and Telemetries
2.4	January 8, 2016	jmerman	Add .Net C# Sample Authentication Code
2.5	April 5, 2016	dcorliss	Added to the description of the Telemetry API and updated the required fields.

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
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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
    } ]
  }
}
```



Stop Events API

Introduction

The Stop API allows shuttle companies to post one or more Stop data to the SFMTA. 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*.

Authorization

The API uses Basic Authentication. To use the API, you must have a valid username and password in the HTTP header which the SFMTA will provide to you once you are granted a permit to participate in the program.

Request

Method	URL	HTTP Version
POST	https://services.sfmta.com/shuttle/api/StopEvents/	1.1

Request Header

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

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 (25 characters)
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	Y	Number
StopTimeStart	Start time of the stop event in local time	Y	DateTime

StopTimeEnd	End time of the stop event in local time	Y	DateTime
StopLocationLatitude	The geo latitude of the stop id location in WGS84 latitude	Y	Number (7 digits of precision) Example: 37.7763652
StopLocationLongitude	The geo longitude of the stop id location in WGS84 longitude	Y	Number (7 digits of precision) Example: -122.435387

Request Example

```
{
  "TechProviderId" : 130,
  "ShuttleCompanyId" : "99",
  "StopEvents" : {
    "StopEvent" : [ {
      "VehiclePlacardNum" : "99-1234",
      "LicensePlateNum" : "XYZ1234",
      "StopId" : 5001,
      "StopTimeStart" : "2016-01-05T11:10:52.290",
      "StopTimeEnd" : "2016-01-05T11:10:52.291",
      "StopLocationLatitude" : 37.7739721,
      "StopLocationLongitude" : -122.4312975
    }, {
      "VehiclePlacardNum" : "99-4321",
      "LicensePlateNum" : "ABC4321",
      "StopId" : 7669,
      "StopTimeStart" : "2016-01-05T11:10:52.290",
      "StopTimeEnd" : "2016-01-05T11:10:52.291",
      "StopLocationLatitude" : 37.7739736,
      "StopLocationLongitude" : -122.4312456
    } ]
  }
}
```

Response

Fields

Field	Description	Type
Success	Indicates if the request was process successfully.	String
Message	Request message	String
PayloadId	Id of payload which may be used to reference the specific request	Number
Code	Error Code	String

Summary	Description of error	
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Examples

Success Response

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

Error Response

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



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 vehicles for the duration of a vehicle's operating time within the boundaries San Francisco. The frequency of these GPS points must be every 15 seconds or less. The LocationLatitude and LocationLongitude are required for all transactions sent, and only when a vehicle is at a stop, (or closer than 5 meters or less) the VehicleStatus should be 2 (At a Stop) and the StopLocationLatitude and StopLocationLongitude should also be provided. 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*.

Authorization

The API uses Basic Authentication. To use the API, you must have a valid username and password in the HTTP header which the SFMTA will provide to you once you are granted a permit to participate in the program.

Request

Method	URL	HTTP Version
POST	https://services.sfmta.com/shuttle/api/Telemetries/	1.1

Request Header

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

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 (25 characters)
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		Number

StopLocationLatitude	The geo latitude of the stop id location in WGS84 latitude		Number (7 digits of precision) Example: 37.7763652
StopLocationLongitude	The geo longitude of the stop id location in WGS84 longitude		Number (7 digits of precision) Example: -122.435387
VehicleStatus	The vehicle status	Y	Number (Options: 1 - On Route 2 - At a Stop 3 - Unknown)
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

Request Example

```
{
  "TechProviderId" : 130,
  "ShuttleCompanyId" : "99",
  "Telemetries" : {
    "Telemetry" : [ {
      "VehiclePlacardNum" : "99-1234",
      "LicensePlateNum" : "XYZ1234",
      "StopId" : 5001,
      "StopLocationLatitude" : 26,
      "StopLocationLongitude" : 27,
      "VehicleStatus" : 1,
      "LocationLatitude" : 37.7739721,
      "LocationLongitude" : -122.4312456,
      "TimeStampLocal" : "2016-01-06T09:53:05.296"
    }, {
      "VehiclePlacardNum" : "99-4321",
      "LicensePlateNum" : "ABC4321",
      "StopId" : 7669,
      "StopLocationLatitude" : 26,
      "StopLocationLongitude" : 27,
      "VehicleStatus" : 1,

```



```

    "LocationLatitude" : 37.7739721,
    "LocationLongitude" : -122.4312456,
    "TimeStampLocal" : "2016-01-06T09:53:05.296"
  } ]
}

```

Response

Fields

Field	Description	Required	Type
Success	Indicates if the request was process 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"
  }
}

```



Appendix A: Authentication Sample

.Net C# Sample Code

```
WebRequest request = WebRequest.Create(url);
request.Method = "POST";
request.ContentType = "application/json";
String encoded = Convert.ToBase64String(
    Encoding.GetEncoding("ISO-8859-1").GetBytes("<username>" + ":" + "<password>"));
request.Headers[HttpRequestHeader.Authorization] = "Basic " + encoded;
```

Or

```
WebRequest request = WebRequest.Create(url);
request.Method = "POST";
request.ContentType = "application/json";
request.Credentials = new NetworkCredential(<username>, <password>);
```

