



RouteSavvy API PLUS Documentation

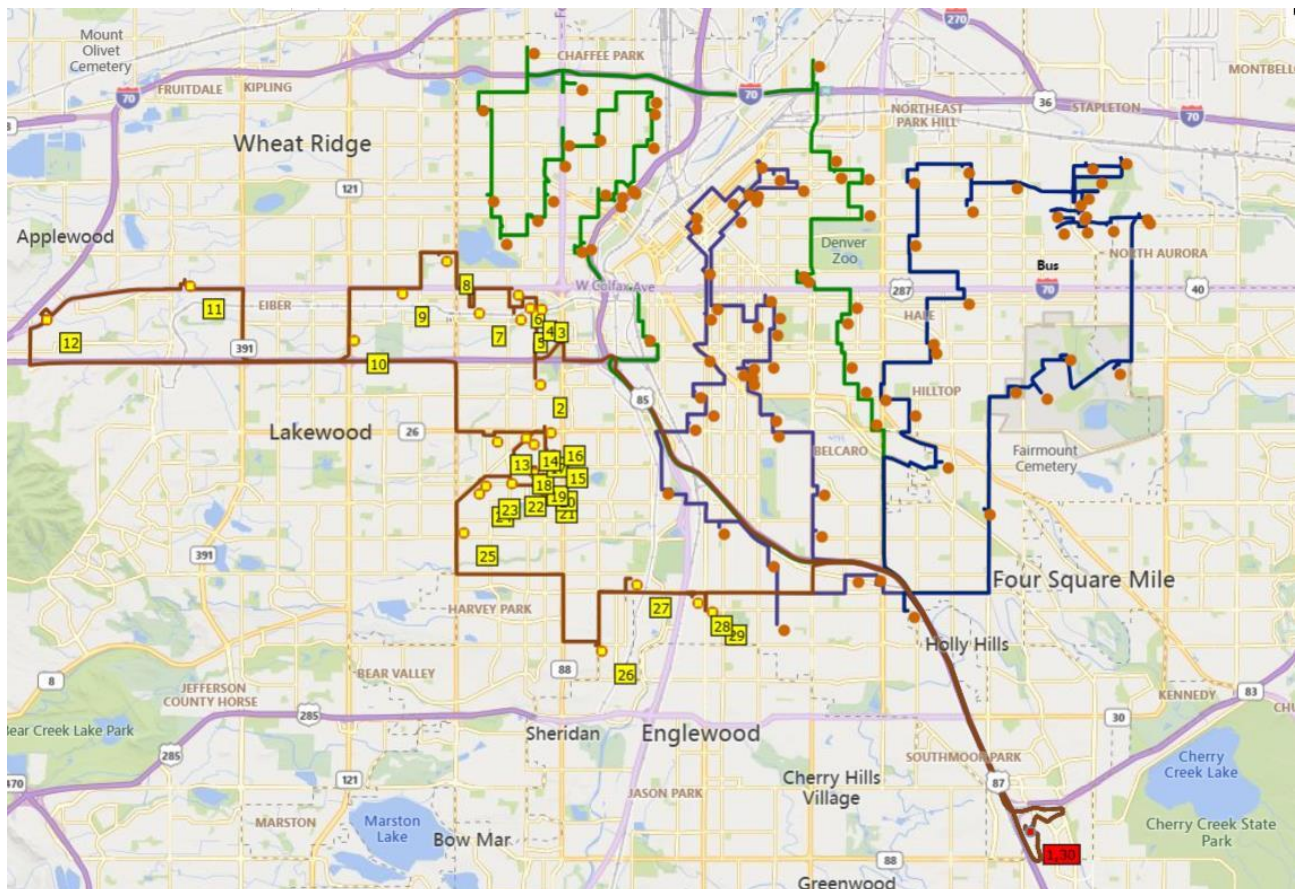
Introduction:

RouteSavvy API PLUS is an easy-to-use REST service for route planning and optimizing driving stops across multiple vehicles and multiple route stop locations. In addition to calculating optimized routes based on stop locations and vehicle start and end locations, RouteSavvy API PLUS supports time window scheduling. The optimized results return multiple routes each with stops ordered in the most efficient driving route according to driver availability. Results include turn-by-turn directions for each route leg as well as latitude and longitude polylines so the routes can be used in map visualizations. Multiple vehicles that are available for driving their own unique route may be defined. A single vehicle may be defined as input, however creating more than one route within the same optimization request is the primary purpose of this API.

RouteSavvy API PLUS supports GET and POST request options. Requests use JSON formatted strings and results are returned in JSON format for optimal use in web applications. The API supports a maximum of 1,000 locations (route stops) optimized across a maximum of 50 vehicles (resultant routes). Trial/dev/test access is limited to a maximum of 100 locations and 5 vehicles, with limitations on daily and aggregate optimization requests.

Production access is offered through varying license tiers based on maximum numbers of locations/vehicles, associated costs are usage-based and transactionally dependent on the numbers of both locations and vehicles per optimization request. Please contact info@routesavvy.com for more information on licensing and pricing.

Here's an example of optimized multi vehicle routes from RouteSavvy API PLUS used in a map visualization.



API Endpoint:

GET Url: <https://api.routesavvy.com/plus/RSAPI.svc/GETOptimize?query={jsonquery}>

POST Url: <https://api.routesavvy.com/plus/RSAPI.svc/POSTOptimize>

Note:

GET requests (RSAPI.svc/GetOptimize) requests are limited to the URL encoded parameter maximum length. Although this varies by browser, 2,048 characters is the typical suggested limit for encoding stops in the URL string. Because of the URL length maximum, you will be limited to a smaller number of customer stops that can be optimized using this approach. POST requests (RSAPI.svc/PostOptimize) requests do not have URL length limitations and can accommodate larger numbers of customer stops.

API Request Input Parameters:

There are two primary components of the API request, *Locations* array and *OptimizeParameters*. The *Locations* array are the input details about the customer stop locations and the *OptimizeParameters* are the input details about the vehicles that will visit the customer stop locations.

Locations:

- **Name:**
This is the custom name you can specify for the customer stop locations. If no Name is defined for a stop location, results will identify "Name" as *null* and the location can only be identified by its Latitude/Longitude.

- **Latitude/Longitude:**
Latitude/longitude for the specified customer stop locations and the start and end locations for the definition of vehicle/driver parameters. 6-decimal latitude/longitude accuracy is recommended to get the best optimization results. Lower accuracy latitude/longitude data may be used but may cause an error in API processing as well as inaccurate or unusable route results. If you do not have latitude/longitude data and only have street addresses, any address geocoding service can be used to convert street address data to latitude/longitude.

OnTerra Systems can provide access to commercial geocoding services if needed. Please contact info@routesavvy.com for licensing and pricing information related to available geocoding services.

- **VisitDurationInMinutes:**
The API also incorporates expected stop duration or the amount of time expected to complete each stop, defined in the *VisitDurationInMinutes* parameter. Visit duration specifies how long a visit, such as delivery, pick-up or repair may take at the customer stop location. If no stop duration is defined, then default of 0 minutes will be assumed. *VisitDurationInMinutes* is optional but is recommended if scheduling is critical to optimization needs. Please note, a stop may be assigned to a specific time window as long as the resultant beginning time of the stop falls within that time window. It is possible that the resultant ending time of the stop will occur after the close of the time window. The optimization only considers that the stop begins within the assigned time frame, and the stop duration may run after the close of the time window. For vehicle start and end locations, *VisitDurationInMinutes* is not recommended since it typically doesn't apply to such locations.
- **Time_Window:**
Time_Window specifies the time-of-day that each route stop may be completed from the earliest to the latest time. Time windows represent time constraints at a stop such as the earliest and latest a

customer stop location is open for deliveries or is staffed. Multiple time windows may be defined for any stop. Stop time windows are defined in HH:MM format and limited to a 24-hour period (00:00 to 23:59). If no stop time parameters are passed, then the stop time window will be defined as 24 hours (00:00 to 23:59). For vehicle start and end locations, *Time_Window* is not recommended since it typically doesn't apply to such locations.

OptimizeParameters:

- **AppID:**

AppID is your credentials (alphanumeric token) for accessing the API. If you are a current user of our legacy RouteSavvy API, your existing AppID can be used for trial/dev/test access to RouteSavvy API PLUS. If you do not have credentials, you can register for a free trial and receive credentials any time at the following link: <https://www.routesavvy.com/routesavvy-api-free-trial/>

- **OptimizeType:**

OptimizeType specifies whether “time” or “distance” should be used to calculate the travel optimization. RouteSavvy API PLUS performs optimization based on the actual road network between locations, including both travel distance and travel time (based on varying travel speeds of various road types), or what we refer to as “RealRoad” optimization. The “time” option will produce the optimization result with the shortest drive time, while “distance” will produce the result based purely on the shortest driving distance.

The routing used is based on standard vehicle driving directions. If more advanced routing parameters are required, such as the ability to avoid highways, avoid tolls, avoid certain commercial vehicle or truck routing restrictions, such as hazmat or vehicle dimension (height, width, weight) restrictions, OnTerra Systems also offers this through our RouteSavvy API PLUS PREMIUM. Please contact info@routesavvy.com for more details including information on licensing and pricing for advanced routing capabilities.

- **MinimizeVehicles:**

The *MinimizeVehicle* parameter allows for the explicit creation of only the minimal number of routes required to complete the stops passed for optimization. This disregards the number of vehicles specified in the API request. For example, if 5 vehicles are input, and all of the stops can be reached using 3 vehicles and their assigned availability, then the result will include routes for 3 vehicles. *MinimizeVehicle* is a boolean option (true or false). If the *MinimizeVehicle* parameter is not used (i.e.: =false), then the stops passed for optimization will be distributed across all defined vehicles. This may result in routes not utilizing the full driver availability time of some or all vehicles/drivers. If more vehicles are included in the input than are required to complete all of the route stops (locations), then using *MinimizeVehicle* (i.e.: =true) will return a result that accomplishes the routing with the minimal number of vehicles.

- **Vehicles:**

Vehicles are defined by the following components: *vehicle_id*, *StartLocation*, *EndLocation*, *DriverAvailabilityFrom* and *DriverAvailabilityTo*

All vehicle *StartLocation* and *EndLocation* must be defined in the *Locations* array. All vehicles may be defined with the same start and end locations (for example all vehicles start and end at the same depot or warehouse), or each vehicle may be defined with its own unique start and end locations. Note, if a location in the *Locations* array is used as a vehicle's *StartLocation* or *EndLocation* then that particular location is designated for that specific purpose and is not factored into the route optimization as a stop for any other vehicles in the request (unless other vehicles also use the location as a start/end).

The time-of-day availability of each vehicle/driver should be defined using the *DriverAvailabilityFrom* and *DriverAvailabilityTo* parameters. Availability time is defined in HH:MM format and limited to a 24-hour period (00:00 to 23:59). If *DriverAvailabilityFrom* and *DriverAvailabilityTo* are not passed, then the vehicle/driver availability will be defined as 168 hours by default (i.e. 7 days or one week, which can be used for long-haul routing scenarios).

API Request Input Parameter Details:

Parameter Name	Data Type	Required?	Description	Example
Locations array: <i>Name</i>	string	No	Custom name value for the customer stop location.	"Customer01"
Locations array: <i>Latitude</i>	float	Yes	Latitude value for the stop location and the vehicle start and end locations.	"39.595140"
Locations array: <i>Longitude</i>	float	Yes	Longitude value for the stop location and the vehicle start and end locations.	"-104.849620"
Locations array: <i>VisitDurationInMinutes</i>	integer	No	Expected visit duration for the stop location, in minutes.	"10"
Locations array: <i>Time_Window: earliest</i>	string	No	The earliest time a stop can be visited.	"09:00"
Locations array: <i>Time_Window: latest</i>	string	No	The latest time a stop can be visited.	"12:00"
OptimizeParameters: <i>AppID</i>	String	Yes	Your Onterra AppID value to authenticate the API request.	"90c13....21a609"
OptimizeParameters: <i>OptimizeType</i>	string	No	Specify whether the route optimization should be based on time or distance. Valid input values are "Time" or "Distance". If not specified, "Time" is the default.	"Time"
OptimizeParameters: <i>MinimizeVehicle</i>	boolean	Yes	Boolean "true" or "false".	"true"
OptimizeParameters: Vehicles - <i>vehicle_id</i>	string	Yes	Custom name value for the vehicle.	"Vehicle01"
OptimizeParameters: Vehicles - <i>StartLocation</i>	string	Yes	The start location of the vehicle.	"Depot"
OptimizeParameters: Vehicles - <i>EndLocation</i>	string	Yes	The end location of the vehicle.	"Depot"
OptimizeParameters: Vehicles - <i>DriverAvailabilityFrom</i>	string	No	The start time that the vehicle/driver is available from. If not defined, default is a 168-hour window.	"09:00"
OptimizeParameters: Vehicles - <i>DriverAvailabilityTo</i>	string	No	The end time that the vehicle/driver is available until. If not defined, default is a 168-hour window.	"17:00"

API Response Output Fields:

The JSON response from the API request includes the route stop details for the optimized route that was generated for each vehicle. Below is a table that has output field details, descriptions and examples returned in the API response.

API Response Output Field Details:

Field Name	Data Type	Description	Example
<i>Message</i>	string	Status of the API response, such as "Success" if successful or an error detailed why the request failed.	"Success"
<i>Route_Details</i>		Includes the following: <ul style="list-style-type: none"> • Routes 	
<i>Routes</i>		Includes the following: <ul style="list-style-type: none"> • Vehicle_id • OptimizedStops • Route 	
<i>Vehicle_id</i>	string	Name of vehicle the route is for.	"Vehicle01"
<i>OptimizedStops</i>		Includes the following info for the Vehicle_id: <ul style="list-style-type: none"> • Arrival • Departure • Distance • Duration • IsDuplicate • Name • RouteLocation • StopTimeMinutes • time_windows • waiting_time 	
OptimizedStops: <i>Arrival</i>	string	Date and time of arrival	"17:05:49 5/15/2023"
OptimizedStops: <i>Departure</i>	string	Date and time of departure	"17:10:49 5/15/2023"
OptimizedStops: <i>Distance</i>	string	Drive distance in miles and kilometers	"3.30 miles (5.31 km)"
OptimizedStops: <i>Duration</i>	string	Drive time in minutes and seconds	"5 minutes, 49 seconds"
OptimizedStops: <i>IsDuplicate</i>	boolean	Indicates if a specific stop location has been used more than once in a route.	false
OptimizedStops: <i>Name</i>	string	Name value for the stop location.	"Customer008"
OptimizedStops: <i>RouteLocation</i>	float	Latitude and longitude of the stop.	"Latitude": 39.59503 "Longitude": - 104.80432
OptimizedStops: <i>StopTimeMinutes</i>	integer	Duration of the stop in minutes.	5
OptimizedStops: <i>time_windows</i>	string	Earliest time (HH:MM) and latest time (HH:MM) for the stop.	"earliest": 09:00, "latest": 12:00
OptimizedStops:	integer	Waiting time between stops, in seconds.	2915

<i>waiting_time</i>			
<i>Route</i>		Includes the following: <ul style="list-style-type: none"> • DrivingDistance • DriveDistanceUnit • DriveTime • DriveTimeUnit • RouteLegs • RoutePath 	
Route: <i>DriveDistance</i>	float	Total driving distance of the route, in kilometers.	53.088826
Route: <i>DriveDistanceUnit</i>	string	Unit of measurement of the driving distance.	"Kilometer"
Route: <i>DriveTime</i>	integer	Total driving time of the route, in seconds.	3133
Route: <i>DriveTimeUnit</i>	string	Unit of measurement of the driving time.	"Second"
Route: <i>RouteLegs</i>		Includes the following: <ul style="list-style-type: none"> • Directions • DriveDistance • DriveTime • LegBegin • LegEnd 	
Route: <i>RoutePath</i>	Array of floats	An array of latitudes and longitudes that make up the polyline of route path. This can be used to display the route path on a map.	[39.595137, -104.84962], [39.595134, -104.850088], [39.59559, -104.85009]
RouteLegs: <i>Directions</i>	Array of strings	Step by step driving instructions for the route leg.	"Make a U-turn onto South Holly Street", "Turn left onto East County Line Road", "Turn right onto South Quebec Street"
RouteLegs: <i>DriveDistance</i>	float	Driving distance of the route leg, in kilometers.	2.72656
RouteLegs: <i>DriveTime</i>	integer	Driving duration of the route leg, in seconds.	302
RouteLegs: <i>LegBegin</i>	Array of a string and a float	Name value of stop location that the leg begins at and the RouteLocation (latitude/longitude) of that stop location.	"Name": "Customer101", "RouteLocation": { "Latitude": 39.567508, "Longitude": -104.923069}
RouteLegs: <i>LegEnd</i>	Array of a string and a float	Name value of stop location that the leg ends at and the RouteLocation (latitude/longitude) of that stop location.	"Name": "Customer102", "RouteLocation":

			{ "Latitude": 39.558012, "Longitude": - 104.90667}
<i>UnassignedStops</i>	Array of strings	List of the stops that couldn't be assigned due to time constraints and vehicle availability, if applicable. It will include detailed info such as name, code, ID and reason.	"Name": "Customer001", "code": "2", "id": "location-1", "reason": "cannot be visited within time window"

Unassigned Stops:

In the event that the availability of defined vehicles/drivers is insufficient to complete all stops passed for optimization, then unassigned stops will be identified and included in the result.

Technical Support:

For all support inquiries, please email support@routesavvy.com and be sure to mention that you are using the RouteSavvy API PLUS and include as many details as possible regarding your inquiry. We're happy to assist you with any questions or issues you may have.

Example POST API request:

The following POSTOptimize example includes 30 route stops with varying stop durations and time windows, 3 vehicles each starting and ending at the same location with the same time availability, attempts to minimize vehicles, but the stops cannot be completed within the driver availability so some stops are unassigned.

<https://api.routesavvy.com/plus/RSAPI.svc/POSTOptimize=>

```
{
  "Locations": [
    {
      "Name": "Depot",
      "Latitude": 39.712797,
      "Longitude": -104.987282
    },
    {
      "Name": "Customer001",
      "Latitude": 39.761975,
      "Longitude": -104.907292,
      "VisitDurationInMinutes": 90,
      "Time_Window": [
        {
          "earliest": "09:00:00",
          "latest": "12:00:00"
        }
      ]
    }
  ]
}
```

```
    },
    {
      "earliest": "15:00:00",
      "latest": "18:00:00"
    }
  ]
},
{
  "Name": "Customer002",
  "Latitude": 39.765176,
  "Longitude": -104.919965,
  "VisitDurationInMinutes": 90,
  "Time_Window": [
    {
      "earliest": "09:00:00",
      "latest": "12:00:00"
    },
    {
      "earliest": "15:00:00",
      "latest": "18:00:00"
    }
  ]
},
{
  "Name": "Customer003",
  "Latitude": 39.781996,
  "Longitude": -105.021899,
  "VisitDurationInMinutes": 90,
  "Time_Window": [
    {
      "earliest": "09:00:00",
```

```
        "latest": "12:00:00"
      },
      {
        "earliest": "15:00:00",
        "latest": "18:00:00"
      }
    ]
  },
  {
    "Name": "Customer004",
    "Latitude": 39.750206,
    "Longitude": -104.933919,
    "VisitDurationInMinutes": 90,
    "Time_Window": [
      {
        "earliest": "09:00:00",
        "latest": "12:00:00"
      },
      {
        "earliest": "15:00:00",
        "latest": "18:00:00"
      }
    ]
  },
  {
    "Name": "Customer005",
    "Latitude": 39.762898,
    "Longitude": -104.934401,
    "VisitDurationInMinutes": 90,
    "Time_Window": [
      {
        "earliest": "09:00:00",
        "latest": "12:00:00"
      },
      {
        "earliest": "15:00:00",
        "latest": "18:00:00"
      }
    ]
  },
  {
    "Name": "Customer006",
    "Latitude": 39.763766,
    "Longitude": -104.946255,
    "VisitDurationInMinutes": 90,
    "Time_Window": [
      {
        "earliest": "09:00:00",
        "latest": "12:00:00"
      }
    ]
  }
]
```

```
},
{
  "Name": "Customer007",
  "Latitude": 39.764119,
  "Longitude": -104.953665,
  "VisitDurationInMinutes": 60,
  "Time_Window": [
    {
      "earliest": "09:00:00",
      "latest": "12:00:00"
    }
  ]
},
{
  "Name": "Customer008",
  "Latitude": 39.770528,
  "Longitude": -105.025323,
  "VisitDurationInMinutes": 90,
  "Time_Window": [
    {
      "earliest": "09:00:00",
      "latest": "12:00:00"
    }
  ]
},
{
  "Name": "Customer009",
  "Latitude": 39.758191,
  "Longitude": -105.011556,
  "VisitDurationInMinutes": 60,
  "Time_Window": [
    {
      "earliest": "09:00:00",
      "latest": "12:00:00"
    }
  ]
},
{
  "Name": "Customer010",
  "Latitude": 39.758643,
  "Longitude": -104.981753,
  "VisitDurationInMinutes": 90,
  "Time_Window": [
    {
      "earliest": "09:00:00",
      "latest": "12:00:00"
    }
  ]
},
{
  "Name": "Customer011",
```

```
"Latitude": 39.763568,  
"Longitude": -104.969632,  
"VisitDurationInMinutes": 30,  
"Time_Window": [  
  {  
    "earliest": "09:00:00",  
    "latest": "12:00:00"  
  }  
]  
},  
{  
  "Name": "Customer012",  
  "Latitude": 39.7665,  
  "Longitude": -105.02622,  
  "VisitDurationInMinutes": 60,  
  "Time_Window": [  
    {  
      "earliest": "09:00:00",  
      "latest": "12:00:00"  
    }  
  ]  
},  
{  
  "Name": "Customer013",  
  "Latitude": 39.759404,  
  "Longitude": -105.045166,  
  "VisitDurationInMinutes": 30,  
  "Time_Window": [  
    {  
      "earliest": "15:00:00",  
      "latest": "18:00:00"  
    }  
  ]  
},  
{  
  "Name": "Customer014",  
  "Latitude": 39.760577,  
  "Longitude": -105.015824,  
  "VisitDurationInMinutes": 60,  
  "Time_Window": [  
    {  
      "earliest": "15:00:00",  
      "latest": "18:00:00"  
    }  
  ]  
},  
{  
  "Name": "Customer015",  
  "Latitude": 39.744377,  
  "Longitude": -104.988027,  
  "VisitDurationInMinutes": 30,
```

```
    "Time_Window": [
      {
        "earliest": "15:00:00",
        "latest": "18:00:00"
      }
    ]
  },
  {
    "Name": "Customer016",
    "Latitude": 39.753799,
    "Longitude": -104.991493,
    "VisitDurationInMinutes": 60,
    "Time_Window": [
      {
        "earliest": "15:00:00",
        "latest": "18:00:00"
      }
    ]
  },
  {
    "Name": "Customer017",
    "Latitude": 39.7491,
    "Longitude": -105.022071,
    "VisitDurationInMinutes": 30,
    "Time_Window": [
      {
        "earliest": "15:00:00",
        "latest": "18:00:00"
      }
    ]
  },
  {
    "Name": "Customer018",
    "Latitude": 39.71005,
    "Longitude": -105.034422,
    "VisitDurationInMinutes": 60,
    "Time_Window": [
      {
        "earliest": "15:00:00",
        "latest": "18:00:00"
      }
    ]
  },
  {
    "Name": "Customer019",
    "Latitude": 39.699923,
    "Longitude": -105.048865,
    "VisitDurationInMinutes": 30,
    "Time_Window": [
      {
        "earliest": "15:00:00",
```

```
        "latest": "18:00:00"
      }
    ]
  },
  {
    "Name": "Customer020",
    "Latitude": 39.707665,
    "Longitude": -105.029438,
    "VisitDurationInMinutes": 60,
    "Time_Window": [
      {
        "earliest": "15:00:00",
        "latest": "18:00:00"
      }
    ]
  },
  {
    "Name": "Customer021",
    "Latitude": 39.718952,
    "Longitude": -104.94133,
    "VisitDurationInMinutes": 30,
    "Time_Window": [
      {
        "earliest": "12:00:00",
        "latest": "15:00:00"
      }
    ]
  },
  {
    "Name": "Customer022",
    "Latitude": 39.723464,
    "Longitude": -104.976386,
    "VisitDurationInMinutes": 60,
    "Time_Window": [
      {
        "earliest": "12:00:00",
        "latest": "15:00:00"
      }
    ]
  },
  {
    "Name": "Customer023",
    "Latitude": 39.737329,
    "Longitude": -104.986149,
    "VisitDurationInMinutes": 30,
    "Time_Window": [
      {
        "earliest": "12:00:00",
        "latest": "15:00:00"
      }
    ]
  }
]
```

```
},
{
  "Name": "Customer024",
  "Latitude": 39.732052,
  "Longitude": -104.970328,
  "VisitDurationInMinutes": 60,
  "Time_Window": [
    {
      "earliest": "12:00:00",
      "latest": "15:00:00"
    }
  ]
},
{
  "Name": "Customer025",
  "Latitude": 39.73898,
  "Longitude": -104.971841,
  "VisitDurationInMinutes": 30,
  "Time_Window": [
    {
      "earliest": "12:00:00",
      "latest": "15:00:00"
    }
  ]
},
{
  "Name": "Customer026",
  "Latitude": 39.735433,
  "Longitude": -104.969525,
  "VisitDurationInMinutes": 60,
  "Time_Window": [
    {
      "earliest": "12:00:00",
      "latest": "15:00:00"
    }
  ]
},
{
  "Name": "Customer027",
  "Latitude": 39.737571,
  "Longitude": -104.94948,
  "VisitDurationInMinutes": 30,
  "Time_Window": [
    {
      "earliest": "12:00:00",
      "latest": "15:00:00"
    }
  ]
},
{
  "Name": "Customer028",
```



```

    "Latitude": 39.742925,
    "Longitude": -104.962232,
    "VisitDurationInMinutes": 60,
    "Time_Window": [
      {
        "earliest": "12:00:00",
        "latest": "15:00:00"
      }
    ]
  },
  {
    "Name": "Customer029",
    "Latitude": 39.69995,
    "Longitude": -104.99917,
    "VisitDurationInMinutes": 30,
    "Time_Window": [
      {
        "earliest": "12:00:00",
        "latest": "15:00:00"
      }
    ]
  },
  {
    "Name": "Customer030",
    "Latitude": 39.699675,
    "Longitude": -104.958124,
    "VisitDurationInMinutes": 60,
    "Time_Window": [
      {
        "earliest": "12:00:00",
        "latest": "15:00:00"
      }
    ]
  }
],
"OptimizeParameters": {
  "AppId": "<InsertYourTokenHere>",
  "OptimizeType": "time",
  "MinimizeVehicle": true,
  "Vehicles": [
    {
      "vehicle_id": "Vehicle01",
      "StartLocation": "Depot",
      "EndLocation": "Depot",
      "DriverAvailabilityFrom": "08:00:00",
      "DriverAvailabilityTo": "19:00:00"
    },
    {
      "vehicle_id": "Vehicle02",
      "StartLocation": "Depot",
      "EndLocation": "Depot",

```

```

        "DriverAvailabilityFrom": "08:00:00",
        "DriverAvailabilityTo": "19:00:00"
    },
    {
        "vehicle_id": "Vehicle03",
        "StartLocation": "Depot",
        "EndLocation": "Depot",
        "DriverAvailabilityFrom": "08:00:00",
        "DriverAvailabilityTo": "19:00:00"
    }
]
}
}
}

```

Example API Response:

The following shows the API PLUS result from the above example POST request.

```

{
  "Message": "Success",
  "Route_Details": [
    {
      "Routes": [
        {
          "Vehicle_id": "Vehicle01",
          "OptimizedStops": [
            {
              "Arrival": null,
              "Departure": "8:00:00 8/5/2023",
              "Distance": null,
              "Duration": null,
              "IsDuplicate": false,
              "Name": "Depot",
              "RouteLocation": {
                "Latitude": 39.712797,
                "Longitude": -104.987282
              },
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              "Distance": "6.29 miles (10.12 km)",
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"StopTimeMinutes": 90,
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    "Departure": "12:35:08 8/5/2023",
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    "Departure": "14:23:55 8/5/2023",
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    "time_windows": [
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  "Departure": "16:34:36 8/5/2023",
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      "latest": "18:00"
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    "Departure": "18:25:49 8/5/2023",
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        "Continue onto East Cedar Avenue",
        "Turn left onto South Broadway",
        "Turn right onto West Alameda Avenue",
        "Turn right onto South Santa Fe Drive",
        "Keep left onto West Cedar Avenue",
        "Turn slight right toward I 25 North",
        "Keep right and drive toward Speer Boulevard North",
        "Turn right onto Federal Boulevard",

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    "Make a U-turn onto Federal Boulevard"
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  "DriveDistance": 10.123737999999998,
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    "Name": "Depot",
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    "RouteLocation": {
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      "Longitude": -105.025323
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  }
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    "Turn right onto West 36th Avenue"
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    "RouteLocation": {
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      "Longitude": -105.02622
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    "Turn right onto Federal Boulevard",
    "Turn left onto Speer Boulevard",
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    "Turn right onto West 29th Avenue"
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    "LegEnd": {
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      "RouteLocation": {
        "Latitude": 39.758191,
        "Longitude": -105.011556
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    }
  },
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    "Directions": [
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      "Turn right onto Wewatta Street",
      "Turn right onto Wewatta Street",
      "Turn slight right onto Chopper Circle",
      "Turn left onto Speer Boulevard",
      "Keep right onto West Speer Boulevard",
      "Turn right onto Broadway",
      "Turn left onto East 6th Avenue",
      "Turn right onto Emerson Street"
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      "RouteLocation": {
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        "Longitude": -104.976386
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    }
  },
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    "Directions": [
      "Continue onto Emerson Street",
      "Turn left onto East 4th Avenue",
      "Turn right onto Corona Street",
      "Keep left onto East Speer Boulevard",
      "Keep left",

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    "Turn slight right onto East 1st Avenue",
    "Turn left onto East 1st Avenue",
    "Turn right onto Harrison Street"
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    "Name": "Customer021",
    "RouteLocation": {
      "Latitude": 39.718952,
      "Longitude": -104.94133
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},
{
  "Directions": [
    "Continue onto Harrison Street",
    "Turn right onto East 3rd Avenue",
    "Turn left onto Colorado Boulevard",
    "Turn left onto East 13th Avenue",
    "Turn right onto Steele Street"
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      "Latitude": 39.718952,
      "Longitude": -104.94133
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    "RouteLocation": {
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{
  "Directions": [
    "Continue onto Steele Street",
    "Turn right onto East 14th Avenue",
    "Turn left onto Colorado Boulevard",

```

```

        "Turn right onto East 23rd Avenue",
        "Turn right onto Cherry Street"
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        "Name": "Customer027",
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    "LegEnd": {
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        "RouteLocation": {
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    "Directions": [
        "Make a U-turn onto Cherry Street",
        "Turn left onto East 23rd Avenue",
        "Turn right onto Washington Street",
        "Turn left onto 25th Street",
        "Turn left onto Tremont Place",
        "Turn right onto Park Avenue West",
        "Turn left onto Larimer Street"
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        "Name": "Customer004",
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        "RouteLocation": {
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    "Directions": [
        "Continue onto Larimer Street",
        "Turn left onto 20th Street",

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        "Turn right onto Arapahoe Street",
        "Turn left onto 19th Street",
        "Turn right onto Tremont Place"
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    "DriveDistance": 1.37798,
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            "Longitude": -104.991493
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        "Name": "Customer015",
        "RouteLocation": {
            "Latitude": 39.744377,
            "Longitude": -104.988027
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{
    "Directions": [
        "Continue onto Tremont Place",
        "Turn left onto 17th Street",
        "Keep right onto Broadway",
        "Turn left onto East Cedar Avenue"
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    "LegBegin": {
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        "RouteLocation": {
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        "Name": "Depot",
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      "Longitude": -104.986149
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        "Turn left onto 27th Street",
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      "Turn right onto Downing Street",
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      "RouteLocation": {
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    "Turn right onto Tennyson Street",
    "Turn left onto West Hayward Place"
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    "LegEnd": {
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      "Turn right onto Martin Luther King Jr Boulevard",
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      "Turn right onto East 17th Avenue",
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    "Continue onto South Josephine Street",
    "Turn right onto East Tennessee Avenue",
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    "Keep right and take I 25 North toward Downtown",
    "Keep right and take US 85, CO 26 toward Santa Fe Drive, Alameda Avenue",
    "Keep left and take US 85 South toward Santa Fe Drive",
    "Turn left onto South Santa Fe Drive",
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        "Keep right and take CO 26 toward Alameda Avenue",
        "Turn left onto South Lincoln Street",
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