Bing Maps Multi-Itinerary Optimization API

The Bing Maps Multi-Itinerary Optimization API is a REST service that automates the process of building itineraries for multiple agents (e.g. delivery drivers, sales representatives, repair technicians, etc.) while also optimising the routes among all agents to reduce operational costs and efficiently deliver services to your customers. Whether you're a small or large organisation with a fleet of drivers, mobile salesforce, or a team of personnel in the field, the Bing Maps Multi-Itinerary Optimization API can help your organisation maximise workforce efficiency and performance by effectively planning and optimising resources.

Automated Itineraries for Optimised Routing

Manually despatching one agent to stop at multiple locations or co-ordinating multiple agents to stop at multiple locations can be time-consuming and difficult when taking into account additional variables, such as traffic conditions, time windows, number of agents and agent shift schedules, multi-day routes, priority of stops, and more. Developed using the Bing Maps Distance Matrix API with predictive traffic and cutting-edge optimisation algorithms to minimise the total travel distance or time, the Multi-Itinerary Optimization API is an enterprise grade schedule optimisation service for a wide range of industries and use cases, such as:

- Retail, Wholesale and Distribution
- Transportation/Shuttles
- Mail, Package and Food Deliveries
- Waste Collection
- Medical and Homecare
- Field Sales and Agents
- Home Maintenance and Inspection Services
- And more!

Bing Maps Multi-Itinerary Optimization API helps organisations optimise routing:

Improved Performance and ROI:
Optimise routing that helps efficiently plan your routes more effectively, saving time, money, and improving customer satisfaction.

Business Opportunities:
- Automated planning
- Accurate on-time scheduling
- Maximise opportunities and resources

Fleet and Asset Management:
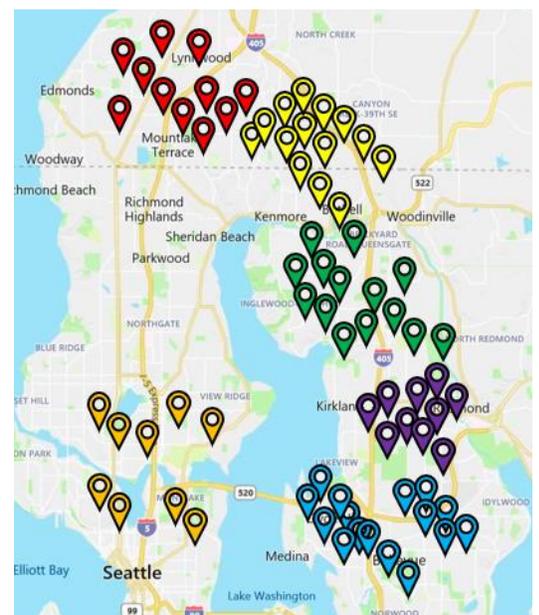- Effectively plan resources to improve CRM and ROI

Inefficient planning can cost a company valuable time and resources. For example, a restaurant inspection business can schedule its five restaurant workorders based on a manual process of looking at each location on a map to determine the sequence of stops. This manual process can be time-consuming, especially when considering additional factors such as the restaurants hours of operations, time expected to complete the inspection at each location, travel-time with traffic between stops, and more. With the Bing Maps Multi-Itinerary Optimization API, automated route planning can be ready within minutes, with a detailed response in JSON or XML, for each start and end-time along the route.

Another common scenario involves the complex task of routing multiple agents to multiple locations, such as a delivery service. In this type of use case, there are many variables, such as multiple delivery stops, time windows when the customer is available, different priorities for each of the stops, multiple delivery agents with different shifts, traffic conditions, travel time between stops, how long the delivery is expected to take, and more. For example, a courier service needs to deliver packages to 75 locations within the specified delivery windows. Using the Multi-Itinerary Optimization API, the input parameters assist in setting accurate and reliable schedules between multiple delivery drivers, including drivers starting from different distribution centres. Figure 1 is a visual of these 75 delivery locations colour coded on a map, to show how the API grouped each agents' deliveries within minutes, versus manually determining which agent should deliver to which location. This is especially useful if you need to insert additional deliveries into the schedule and ensure all deliveries are completed on that same day.

Figure 1

Microsoft

Features and Capabilities

- Automates the route between multiple agents and shifts, multiple waypoints (locations), and varying time windows.
- Basic key supports up to 3 agents and 20 waypoints per call. Enterprise key supports up to 10 agents and 100 waypoints per call.
- Input Parameters:
  - Agent (Name, shifts)
  - Agent Shift (StartTime, EndTime, StartLocation (optional), EndLocation (optional)
  - ItineraryItem (Name, OpeningTime(optional), ClosingTime (optional), DwellTime (optional), Priority (optional), Location
  - Type (Simple Request, TrafficRequest)
  - CostValue (TravelTime, Distance)

- GET and POST requests are supported
- Locations can be passed in as coordinates or addresses
- Supports Synchronous and Asynchronous calls (Asynchronous is ideal or large computationally intensive requests)
- The response format is JSON or XML
- Coverage is supported in all countries where Bing Maps supports routing services, except China, Japan and South Korea.

Get Started

The Multi-Itinerary Optimization API uses billable transactions. If you have a Bing Maps key, review the Multi-Optimization API documentation to learn more and start developing your solution. If you don't have a Bing Maps key, create a Bing Maps account and create a key to authenticate your application. Then follow the documentation to start developing your solution. For Licensing questions, contact a Bing Maps Sales Specialist.

Bing Maps Fleet and Logistics API Solutions

The Multi-Itinerary Optimization API is a part of the Bing Maps Routing Services portfolio. Check out our robust set of geospatial API services and solutions for enhanced fleet management, routing, vehicle tracking, and more:

Truck Routing API – Determine travel routes that take into consideration a truck or commercial vehicle's attributes. https://www.microsoft.com/en-us/maps/truck-routing

Distance Matrix API – Calculate travel times and distance in many-to-many scenarios, with an optional histogram to predict traffic. https://www.microsoft.com/en-us/maps/distance-matrix

Isochrone API – Provides time-specific isochrones, given the area that can be reached in the time and space criteria. https://www.microsoft.com/en-us/maps/isochrone

Snap to Road API – Snaps the path to the most logical route using the vehicle's GPS trace, as well as returns road attributes such as speed limit and elevation. https://www.microsoft.com/en-us/maps/snap-to-road

Learn More

Explore the following resources to learn more about the Bing Maps Multi-Optimization API:

Multi-Itinerary Optimization API website https://www.microsoft.com/en-us/maps/multi-itinerary-optimization

Documentation https://aka.ms/AA51utk

Bing Maps Dev Center to create account https://www.bingmapsportal.com/

Bing Maps Terms of Use https://www.microsoft.com/en-us/maps/product/terms

Bing Maps Sales Specialist mailto:mapping@greymatter.com

Contact your Microsoft Bing Maps Reseller to learn more about Bing Maps licensing and the full set of APIs:

E: mapemea@microsoft.com

Call: +44 (0)1364 655 133

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