Fleet Telematics

Spec sheet

Key features

Upload data

- Import of custom road data and geometriesas WKT files into custom layer
- Storage of custom data
- Road closures or removals of existing road blocks
- New road geometry
- Import handling of geofences in Shapefile and WKT format
- Imported polygons processed into tile-based format
- Manual upload of custom POIs via CSV
- Automatic upload of POIs as XML file via REST interface

Upload data

- Position in geofence/polygon
- Distance from position to border of geofence (in and outside the polygon)
- Distance to geofences within search radius when position is outside
- Customizable search radius around a position: from 1 to 20.000 meters
- Grouping of geofences in customer defined layers
- Multiple point option with up to 100 coordinates in one request
- Geometry detail in service response when geofence is within the search radius
- Proximity search
- Bounding box search
- Route corridor search
- Isoline search along route
- Attribute search
- Search HERE Map content

Routing and route matching

- Calculate the toll costs for a given route considering various vehicle profiles
- Calculate cost optimized routes considering toll cost information for various vehicle profiles
- Calculate the optimal sequence of any given waypoints along a route by time and distance, or commercial value
- Calculate routes that consider customer own road restrictions and road geometries, as well as disregard existing road blocks
- Calculate routes considering all applicable country wide truck restrictions (e.g. day of the week restrictions, holidays)
- Define custom speed profiles for any FC class road in the HERE road network to calculate more precise ETAs
- Calculate routes considering driver rest times for any type of routes (e.g. with/without waypoints, custom routes)
- Calculate routes based on desired arrival time and day to a destination while considering real-time or historical traffic
- Calculate fuel optimized routes considering road conditions like uphill, downhill, etc.
- Calculate routes considering admin Wide U-turn restrictions
- Isoline routing delivering reachable links/ roads considering time, distance or consumption
- Get the most probable route by matching customer GPS traces to the HERE road network
- Get the most probable route by matching customer GPS traces to the custom roads
- Calculate the toll costs for the most probable route by matching customer GPS traces to the HERE road network

Full product capabilities

Leveraging advanced routing algorithms

- Define custom speed profiles for any road type in the HERE road network to calculate more appropriate ETAs
- Calculate routes considering driver rest times for any type of routes (e.g. with/without waypoints, custom routes)
- Calculate routes based on desired arrival time and day to a destination while considering real-time or historical traffic
- Calculate fuel/energy optimized routes taking into account road conditions like uphill, downhill, etc.
- Calculate cost optimized routes taking into account toll cost information for various vehicle profiles
- Calculate routes taking into account admin wide restrictions
- Isoline routing delivering reachable links/ roads taking into account time, distance or consumption model
- Calculate ETAs by routing from current position, and considering taken and remaining driver rest times

Working with custom locations

Administrative module	
User management	- Create, modify and delete user - Search for existing user - Assign user role (read, write, admin) - Attribute user rights (layer permission)
Data layer management	- Create, edit or delete layer - Link POIs to layers and users - Create and manage custom search indices
Content management	- Import POIs from CSV or XML file to database - Import Polygons, Polylines and Multipolygons as shape files or WKT format to database - Manually create, edit and delete POIs and polygons - Geocode POIs based on LAT/LON or address - Drag and drop POI markers on the map - Customize field attributes, up to 50 per location (e.g. county, house number) - Create data import reports

Geospatial search service	
Proximity search	list of locations around a given position
Route corridor search	list of locations in the proximity of along a defined route
Isoline search along a route	list of locations that can be reached within a defined time and distance along a route
Bounding box search	list of locations in a given bounding box
Attribute search	list of locations considering custom defined attributes

Integrating advanced HERE Data Sets

Basic attributes	- Street type, vehicle type, route type, function class, urban-flag, unpaved, ramp, carpool road, express lane, priority and delivery road - Road shape point geometry & topology (underpass, overpass) - Administrative polygon shape for country, state, county, city and BUA
Speed limits	- Vehicle legal speed limits (posted and country rule based) - Vehicle legal speed limits w/ dependencies (e.g. type, season, weather, lane) - Truck legal speed limits (posted and country rule based) - Truck legal speed limits w/ dependencies (e.g. time, season, weather)
Signs, signals & warnings	- Traffic light w/ location - Regulatory signs w/ location (e.g. no overtaking, yield) - Priority signs w/ location (e.g. yield, stop sign) - Warning signs w/ location (e.g. road narrows, curve left) - General informative signs w/ location (e.g. protected overtaking, low gear) - Blackspots for intersections, points or road stretches
Height & slope	- Basic height values - Shape point and node level for absolute height, slope & curvature
Extended lanes & lane marking	- Number of lanes - Lane dividers - Lane markings - Lane connectivity
Toll	- System, features & supported vehicle type - Booth entry/exit points & payment type
Live traffic speed data	- Available in 15 Min intervals, within less than 30 minutes from real-time, for 7 days back - Average speed information (in km/h) capped or uncapped by speed limit - Historical long-term uncongested, free-flow speed - Jam Factor congestion indices from lowest 0.00 to highest 10.00 - Confidence level for average speed accuracy • 0.7 < CF <= 1.0 indicates speed calculated using real time data • 0.5 < CF <= 0.7 indicates speed calculation using historical data • 0.0 < CF <= 0.5 indicates speed calculation using speed limits
Other	- 2D images and sign templates for junctions and motorway rings - Scenic roads & off-roads geometry and attributes - Postal code boundaries w/ point representations

Considering toll costs along a route

Input parameters	**Toll cost per route** • Category (e.g. motorcycle, auto, truck, bus) • Trailer type (e.g. travel, utility) • Number of trailers • Number of axles vehicle • Number of axles trailer • Hybrid vehicle • Emission type (e.g. EURO I, EURO II) • Vehicle height • Trailer height • Vehicle weight • Total weight • Disabled people transporting equipped • Vehicle considered to cause minimal pollution • HOV (High Occupancy Vehicle) • Number of passengers • Number of tires • Commercial use vehicle • Hazardous type (e.g. explosives, others) • Route segments from HERE Routing service **Cost efficient routes** • Routing modes and options (e.g. shortest/fastest, traffic, truck) • Start and destination • Vehicle costs per km/mile and per hour
Output response	**Toll cost per route** • "Road section costs" for specific road segments • "Administrative area admission costs" for specific road network of a specific area **Cost efficient route** • Instructions in over 100 languages • Distance and driving time to destination • Calculated cost considering vehicle and toll cost
Considered conditions:	- Time of day (e.g. morning, evening) - Pass validity options - Currency - Methods of payment - Available discount options

Working with geofences

RESTful geospatial search service	- Point in geofence search - Distance in meters to nearest geofence border - In/out point position in reference to geofence

Administrative module	
User management	- Create, modify and delete user - Search for existing user - Assign user role (view, edit, admin) - Attribute user rights (layer permission)
Data layer management	- Create, edit or delete layer - Link geofences to layers and users (max 10,000 per layer)
Content management	- Import geofences from Shapefile or WKT file to database - Manually modify and delete geofences - Draw geofences right on the map

Route matching GPS traces

Input parameters:	- GPS traces with coordinates in WGS84 format - GPX, NMEA, KML or CSV in a POST request, plain or zipped - Consecutive set of GPS coordinates
Output response:	- Route path w/ link ID + direction of movement per link + geometry + link length - Collected GPS coordinates + matched link ID on route + matched coordinate
Key features:	- Considers legal use of public road network for cars and trucks - Warnings on illegal access, turns, one ways, vehicles weight violations etc. - Considers typical inaccuracies of GPS traces - Supports post-analysis usage and near real-time • Batch processing • Processing at select interval of times

Calculating an optimal sequence of waypoints

Input parameters:	**List of waypoints <120 (20 for pickup along route)** Start and end point/location **Route mode** • fastest • shortest • Departure time and day for considering historical traffic **Category/mode** • car • truck **Truck parameters** • Weight • Height • Width • Length • Hazardous type (e.g. explosive, flammable, poison) • Number of axles per vehicle • Vehicle trailer weigh

Calculating an optimal sequence of waypoints	
Input parameters:	**Avoidances** • Links/roads • Area **Other** • Legal rules regarding driving times and driving rest times • Vehicle costs • Vehicle capacity • Incremental value per waypoint • Drop off locations
Output response:	**List of sequence optimized waypoints** • Latitude and longitude • ID value • Sequence • Estimated departure - List of times and distances between waypoints - Distance for overall trip considering sequence of waypoints - Time for overall trip considering sequence of waypoints - Description of sequence of waypoints - Incremental driving time, distance and value per selected waypoint (only applicable for pickup along the route)

Building custom routes

Input parameters:	- Block road segment - Open road segment - Avoid construction on road segments - New road segment for last mile
Output response:	- Optimized route instructions - Distance for overall trip considering deviations and preferences - Time for overall trip considering deviations and preferences - Estimated time of arrival to destination
Key features:	- Import of custom road data and geometries as WKT - Storage of data (e.g. road closure, geometries) into custom data layers - Map matching of changes onto current HERE map release - Submitted changes are kept private in the customer environment

About HERE Technologies

HERE, a location data and technology platform, moves people, businesses and cities forward by harnessing the power of location. By leveraging our open platform, we empower our customers to achieve better outcomes - from helping a city manage its infrastructure or a business optimize its assets to guiding drivers to their destination safely. To learn more about HERE, please visit **here.com** and **360.here.com**.