

TECHNOTE: GEOFENCED TARIFFS

Geofenced tariffs define the geographic area in which they are valid using closed polygons where each vertex is a latitude/longitude point in the world. A geofenced preset has one or more `<polygon>` elements wrapped inside a `<geofence>` element within each `<tariff>`, e.g.

```
<preset name="Acme Cabs Inc" country="United States" defaultTariff="1" useImperialUnits="true"
supportsCalendar="false" currency="$">
  <tariff id="1" description="Uptown" extras="0">
    <unit min="-1" max="0" distanceUnit="135.38" timeUnit="30.0" unitCharge="330"/>
    <unit min="0" max="-1" distanceUnit="135.38" timeUnit="30.0" unitCharge="20"/>
    <geofence>
      <polygon name="North Evesham" inverse="true">
        <point lat="52.10645602237359" long="-1.9287723257034486"/>
        <point lat="52.091478623681695" long="-1.9429934033203153"/>
        <point lat="52.086007081409505" long="-1.9525635305053584"/>
        <point lat="52.0884330987174" long="-1.9590867037964017"/>
        <point lat="52.10379045265943" long="-1.953164396533225"/>
        <point lat="52.11331858065879" long="-1.9651377878174117"/>
        <point lat="52.11454404149125" long="-1.9398177449585319"/>
        <point lat="52.10645602237359" long="-1.9287723257034486"/>
      </polygon>
      <polygon name="South Evesham" inverse="true">
        <point lat="52.10645602237359" long="-1.9287723257034486"/>
        <point lat="52.091478623681695" long="-1.9429934033203153"/>
        <point lat="52.086007081409505" long="-1.9525635305053584"/>
        <point lat="52.07324191391746" long="-1.9547951693725736"/>
        <point lat="52.07436296655676" long="-1.942778883227561"/>
        <point lat="52.07756770552595" long="-1.9314921579345992"/>
        <point lat="52.084912681290895" long="-1.9236815755249381"/>
        <point lat="52.0923619156209" long="-1.9194758820312927"/>
        <point lat="52.1002185209305" long="-1.9213748396271058"/>
        <point lat="52.10645602237359" long="-1.9287723257034486"/>
      </polygon>
    </geofence>
  </tariff>
  <tariff id="2" description="Downtown" extras="0">
    <unit min="-1" max="0" distanceUnit="135.38" timeUnit="30.0" unitCharge="360"/>
    <unit min="0" max="-1" distanceUnit="135.38" timeUnit="30.0" unitCharge="30"/>
    <geofence>
      <polygon name="North Evesham" inverse="false">
        <point lat="52.10645602237359" long="-1.9287723257034486"/>
        <point lat="52.091478623681695" long="-1.9429934033203153"/>
        <point lat="52.086007081409505" long="-1.9525635305053584"/>
        <point lat="52.0884330987174" long="-1.9590867037964017"/>
        <point lat="52.10379045265943" long="-1.953164396533225"/>
        <point lat="52.11331858065879" long="-1.9651377878174117"/>
        <point lat="52.11454404149125" long="-1.9398177449585319"/>
        <point lat="52.10645602237359" long="-1.9287723257034486"/>
      </polygon>
      <polygon name="South Evesham" inverse="false">
        <point lat="52.10645602237359" long="-1.9287723257034486"/>
        <point lat="52.091478623681695" long="-1.9429934033203153"/>
        <point lat="52.086007081409505" long="-1.9525635305053584"/>
        <point lat="52.07324191391746" long="-1.9547951693725736"/>
        <point lat="52.07436296655676" long="-1.942778883227561"/>
        <point lat="52.07756770552595" long="-1.9314921579345992"/>
        <point lat="52.084912681290895" long="-1.9236815755249381"/>
        <point lat="52.0923619156209" long="-1.9194758820312927"/>
        <point lat="52.1002185209305" long="-1.9213748396271058"/>
        <point lat="52.10645602237359" long="-1.9287723257034486"/>
      </polygon>
    </geofence>
  </tariff>
</preset>
```

The polygon can be declared `inverse="true"` in which case the location must lie outside the polygon otherwise the location must lie inside the polygon. If more than one polygon is specified for a geofence, polygons are OR'ed together so the location must be inside

polygon 1 OR polygon 2 and inverse polygons are AND'ed together so the location must be outside polygon 1 AND outside polygon 2. A preset's geofenced tariffs should be mutually exclusive otherwise the tariff with the first matching geofence area will be selected.

There is an online Geofence Polygon Tool, see <https://taximeter.planetcoops.com/geofence/>, which can be used to create the polygon XML. Simplified US ZIP code boundary polygons can be generated by substituting the required 5 digit ZIP code in the following URL, <https://taximeter.planetcoops.com/geofence/polygon.php?zipcode=13214>. There is a short video showing a useful technique for creating an adjoining polygon using the tool, see <https://www.youtube.com/watch?v=HyINbZzKYIU>.

We will gladly help put a preset together if you tell us the rates and supply us with the <polygon> data for each tariff.

Planet Coops
January 2017