



# HERE Maps & Location Services

## Technical Guide

Version 1.0.0.0



# Important Information

## Notices

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Topics:

- [Legal Notices](#)
- [Document Information](#)



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## Document Information

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# Chapter 1

## Overview

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Topics:

- [Introduction](#)
- [Solution Template Overview](#)

This document introduces the technical steps for HERE Maps & Location Services Serverless Functions on Azure Marketplace. The HERE Location Services Serverless Functions is a Solution Template on Azure Marketplace which deploys the HERE Maps & Location Services Serverless Functions into your resources.

## Introduction

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HERE Maps and Location Services Serverless Functions bring enterprise-grade, SLA backed location services to Azure applications. HERE Maps and location services solve a range of problems from map visualization, navigation and routing, geocoding, time zone look ups to geofencing, custom locations and routing, route matching GPS traces, geospatial, sequencing multiple waypoints, truck routing, positioning, etc.

## Solution Template Overview

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HERE Maps & Location Services Serverless Functions deploys HERE's enterprise class SLA backed Maps & Location Services for all your Azure Applications.

These services address a range of use cases like Fleet Utilization, Supply Chain Optimization, Urban Movement, etc., and open up new location intelligence opportunities in diverse industries like Automotive, Insurance, Internet and Media, Mobile Payments, Public Sector and Infrastructure, Telecom and Utilities, and Transportation and Logistics.

The function app in this ARM Template consists of the following HERE Location Service APIs:

### Geocoding and Search

- Geocoder: Forward and Reverse
- Batch Geocoder
- Geocoder Autocomplete
- Places

### Maps

- Map Image
- Map Tile

### Navigation and Routing

- Routing - Mode (car, truck, public transit, bicycle) and algorithm (matrix, isoline routing)

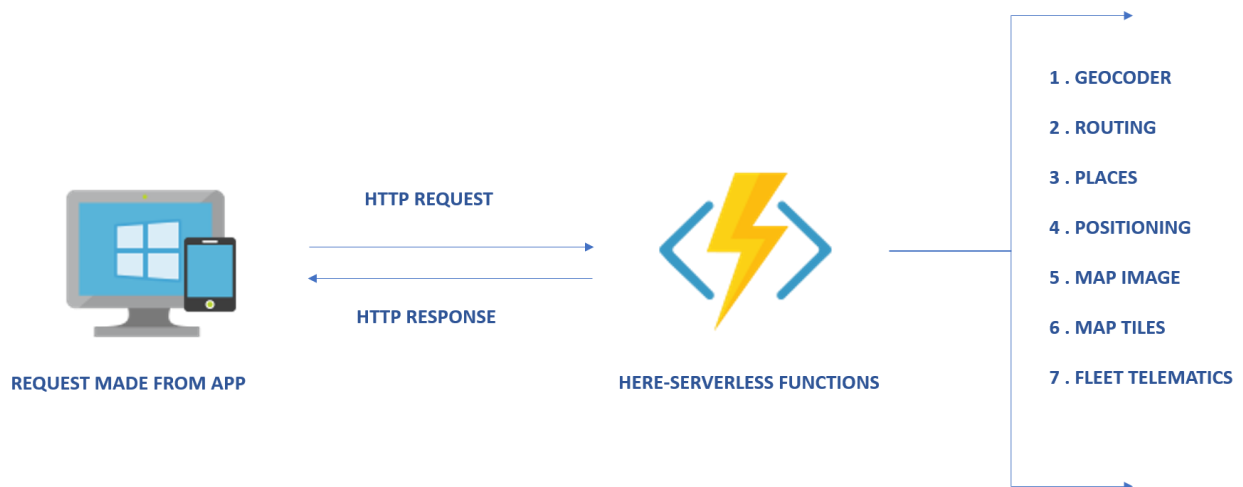
### Fleet Telematics

- Considering toll costs along a route
- Working with geofences
- Working with custom locations
- Building custom routes
- Integrating advanced HERE data sets
- Route matching GPS traces
- Calculating an optimal sequence of waypoints

### More APIs

- Positioning - Provides positioning estimates based on global Wi-Fi and Cell coverage, which includes the latitude and longitude of the position with accuracy.

### Architecture of HERE Maps & Location Services:







## Chapter 2

### Technical Guide

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Topics:

- [Acquiring HERE App ID and HERE App Code](#)
- [Technical Guide for using Solution Template on Azure Portal](#)

## Acquiring HERE App ID and HERE App Code

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All users of HERE APIs must obtain authentication and authorization credentials and provide them as values for the parameters HERE App ID and HERE App Code in the HERE Credentials section in Azure’s template deployment page.

To obtain the credentials for the deployment of HERE Maps & Location Services Serverless Functions, please visit <https://developer.here.com> to register for FREE with HERE.

## Technical Guide for using Solution Template on Azure Portal

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HERE Azure HTTP Functions are available as REST endpoints and are in specific format. Customers can choose “Function App Name” as part of deployment which builds a globally unique URL in format of <https://<UniqueAppName>.azurewebsites.net>

Each HTTP function maps to a REST API out of listed 7 APIs, availability of these will end in URL as below

S. N..	API Name	Azure HTTP Function URL
1	Geocoder	<a href="https://&lt;UniqueAppName&gt;.azurewebsites.net/api/geocoder/">https://&lt;UniqueAppName&gt;.azurewebsites.net/api/geocoder/</a>
2	Routing	<a href="https://&lt;UniqueAppName&gt;.azurewebsites.net/api/routing/">https://&lt;UniqueAppName&gt;.azurewebsites.net/api/routing/</a>
3	Places	<a href="https://&lt;UniqueAppName&gt;.azurewebsites.net/api/places/">https://&lt;UniqueAppName&gt;.azurewebsites.net/api/places/</a>
4	Positioning	<a href="https://&lt;UniqueAppName&gt;.azurewebsites.net/api/positioning/">https://&lt;UniqueAppName&gt;.azurewebsites.net/api/positioning/</a>
5	Map Image	<a href="https://&lt;UniqueAppName&gt;.azurewebsites.net/api/map_image/">https://&lt;UniqueAppName&gt;.azurewebsites.net/api/map_image/</a>
6	Map Tiles	<a href="https://&lt;UniqueAppName&gt;.azurewebsites.net/api/map_tile/">https://&lt;UniqueAppName&gt;.azurewebsites.net/api/map_tile/</a>
7	Fleet Telematics	<a href="https://&lt;UniqueAppName&gt;.azurewebsites.net/api/fleet/">https://&lt;UniqueAppName&gt;.azurewebsites.net/api/fleet/</a>

HERE REST API URL maps with Azure Function URL as below:

S. N.	API Name	HERE URL	Azure HTTP Function URL
1	Geocoder	<a href="https://geocoder.api.here.com/">https://geocoder.api.here.com/</a> <a href="https://reverse.geocoder.api.here.com/">https://reverse.geocoder.api.here.com/</a>	https://<UniqueAppName>.azurewebsites.net/api/ <b>geocoder</b> /
2	Routing	<a href="https://route.api.here.com/routing/">https://route.api.here.com/routing/</a> <a href="https://isoline.route.api.here.com/routing/">https://isoline.route.api.here.com/routing/</a> <a href="https://matrix.route.api.here.com/routing/">https://matrix.route.api.here.com/routing/</a>	https://<UniqueAppName>.azurewebsites.net/api/ <b>routing</b> /
3	Places	<a href="https://places.api.here.com/places/">https://places.api.here.com/places/</a>	https://<UniqueAppName>.azurewebsites.net/api/ <b>places</b> /
4	Positioning	<a href="https://pos.api.here.com/positioning/">https://pos.api.here.com/positioning/</a>	https://<UniqueAppName>.azurewebsites.net/api/ <b>positioning</b> /
5	Map Image	<a href="https://image.maps.api.here.com/">https://image.maps.api.here.com/</a>	https://<UniqueAppName>.azurewebsites.net/api/ <b>map_image</b> /
6	Map Tiles	<a href="https://{1-4}.aerial.maps.api.here.com/">https://{1-4}.aerial.maps.api.here.com/</a> <a href="https://{1-4}.base.maps.api.here.com/">https://{1-4}.base.maps.api.here.com/</a> <a href="https://{1-4}.pano.maps.api.here.com/">https://{1-4}.pano.maps.api.here.com/</a> <a href="https://{1-4}.traffic.maps.api.here.com/">https://{1-4}.traffic.maps.api.here.com/</a>	https://<UniqueAppName>.azurewebsites.net/api/ <b>map_tile</b> /
7	Fleet Telematics	<a href="https://fleet.api.here.com/">https://fleet.api.here.com/</a>	https://<UniqueAppName>.azurewebsites.net/api/ <b>fleet</b> /



Azure serverless functions are protected at function level and need an extra parameter to authenticate. Please refer below link for more details. <https://docs.microsoft.com/en-us/azure/azure-functions/functions-bindings-http-webhook#authorization-keys>

## Examples:

Let's assume our azure function-app is running as <https://funcapp4hls.azurewebsites.net>

Sample HERE App ID: `{HERE_APP_ID}`

Sample HERE App Code: `{HERE_APP_CODE}`

Sample FunctionAccessCode :

`iAcAWqx78cA3b2heZnaFHjMHbYC0/I/JcO7zyDM3FyfA6fjHM2BeSw=====`

Geocoder :

HERE URL :

[https://geocoder.api.here.com/6.2/geocode.json?city=chicago&street=randolph&housenumber=425&country=usa&gen=9&app\\_id={HERE\\_APP\\_ID}&app\\_code={HERE\\_APP\\_CODE}](https://geocoder.api.here.com/6.2/geocode.json?city=chicago&street=randolph&housenumber=425&country=usa&gen=9&app_id={HERE_APP_ID}&app_code={HERE_APP_CODE})

HERE URL part	Azure URL part (translated)
<a href="https://geocoder.api.here.com">https://geocoder.api.here.com</a>	<a href="https://&lt;UniqueAppName&gt;.azurewebsites.net/api/geocoder/">https://&lt;UniqueAppName&gt;.azurewebsites.net/api/geocoder/</a>
<code>app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}</code>	Not required
<code>/6.2/geocode.json?city=chicago&amp;street=randolph&amp;housenumber=425&amp;country=usa&amp;gen=9</code>	As is (no change)
<code>code=&lt;function-access-key&gt;</code>	New addition in the URL

Translated URL will look like:

<https://funcapp4hls.azurewebsites.net/api/geocoder/6.2/geocode.json?city=chicago&street=randolph&housenumber=425&country=usa&gen=9&code=iAcAWqx78cA3b2heZnaFHjMHbYC0/I/JcO7zyDM3FyfA6fjHM2BeSw=====>



Few more examples as below to show the mappings:

API Name	HERE API URL	Azure HTTP Function URL
Geocoder	<a href="https://geocoder.api.here.com/6.2/geocode.json?city=chicago&amp;street=randolph&amp;house number=425&amp;country=usa&amp;gen=9&amp;app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}">https://geocoder.api.here.com/6.2/geocode.json?city=chicago&amp;street=randolph&amp;house number=425&amp;country=usa&amp;gen=9&amp;app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}</a>	<a href="https://funcapp4hls.azurewebsites.net/api/geocoder/6.2/geocode.json?city=chicago&amp;street=randolph&amp;house number=425&amp;country=usa&amp;gen=9&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/I/JcO7zyDM3FyfA6fjHM2BeSw====">https://funcapp4hls.azurewebsites.net/api/geocoder/6.2/geocode.json?city=chicago&amp;street=randolph&amp;house number=425&amp;country=usa&amp;gen=9&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/I/JcO7zyDM3FyfA6fjHM2BeSw====</a>
	<a href="https://geocoder.api.here.com/6.2/geocode.json?searchtext=200%20S%20Mathilda%20Sunnyvale%20CA&amp;locationattributes=none&amp;responseattributes=none&amp;gen=9&amp;app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}">https://geocoder.api.here.com/6.2/geocode.json?searchtext=200%20S%20Mathilda%20Sunnyvale%20CA&amp;locationattributes=none&amp;responseattributes=none&amp;gen=9&amp;app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}</a>	<a href="https://funcapp4hls.azurewebsites.net/api/geocoder/6.2/geocode.json?searchtext=200%20S%20Mathilda%20Sunnyvale%20CA&amp;locationattributes=none&amp;responseattributes=none&amp;gen=9&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/I/JcO7zyDM3FyfA6fjHM2BeSw====">https://funcapp4hls.azurewebsites.net/api/geocoder/6.2/geocode.json?searchtext=200%20S%20Mathilda%20Sunnyvale%20CA&amp;locationattributes=none&amp;responseattributes=none&amp;gen=9&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/I/JcO7zyDM3FyfA6fjHM2BeSw====</a>
Reverse - Geocoder	<a href="https://reverse.geocoder.api.here.com/6.2/reversegeocode.json?mode=retrieveAreas&amp;prox=52.5309,13.3847,250&amp;app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}">https://reverse.geocoder.api.here.com/6.2/reversegeocode.json?mode=retrieveAreas&amp;prox=52.5309,13.3847,250&amp;app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}</a>	<a href="https://funcapp4hls.azurewebsites.net/api/geocoder/6.2/reversegeocode.json?mode=retrieveAreas&amp;prox=52.5309,13.3847,250&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/I/JcO7zyDM3FyfA6fjHM2BeSw====">https://funcapp4hls.azurewebsites.net/api/geocoder/6.2/reversegeocode.json?mode=retrieveAreas&amp;prox=52.5309,13.3847,250&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/I/JcO7zyDM3FyfA6fjHM2BeSw====</a>
	<a href="https://reverse.geocoder.api.here.com/6.2/reversegeocode.json?mode=retrieveLandmarks&amp;prox=37.7442,-119.5931,1000&amp;app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}">https://reverse.geocoder.api.here.com/6.2/reversegeocode.json?mode=retrieveLandmarks&amp;prox=37.7442,-119.5931,1000&amp;app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}</a>	<a href="https://funcapp4hls.azurewebsites.net/api/geocoder/6.2/reversegeocode.json?mode=retrieveLandmarks&amp;prox=37.7442,-119.5931,1000&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/I/JcO7zyDM3FyfA6fjHM2BeSw====">https://funcapp4hls.azurewebsites.net/api/geocoder/6.2/reversegeocode.json?mode=retrieveLandmarks&amp;prox=37.7442,-119.5931,1000&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/I/JcO7zyDM3FyfA6fjHM2BeSw====</a>
	<a href="https://route.api.here.com/routing/7.2/calculateroute.xml?waypoint0=geo!52.5,13.4&amp;waypoint1=geo!52.5,13.45&amp;departure=now&amp;mode=fastest;publicTransport&amp;combineChange=true&amp;app_id={HERE_APP_ID}">https://route.api.here.com/routing/7.2/calculateroute.xml?waypoint0=geo!52.5,13.4&amp;waypoint1=geo!52.5,13.45&amp;departure=now&amp;mode=fastest;publicTransport&amp;combineChange=true&amp;app_id={HERE_APP_ID}</a>	<a href="https://funcapp4hls.azurewebsites.net/api/routing/7.2/calculateroute.xml?waypoint0=geo!52.5,13.4&amp;waypoint1=geo!52.5,13.45&amp;departure=now&amp;mode=fastest;publicTransport&amp;combineChange=true&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/I/JcO7zyDM3FyfA6fjHM2BeSw====">https://funcapp4hls.azurewebsites.net/api/routing/7.2/calculateroute.xml?waypoint0=geo!52.5,13.4&amp;waypoint1=geo!52.5,13.45&amp;departure=now&amp;mode=fastest;publicTransport&amp;combineChange=true&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/I/JcO7zyDM3FyfA6fjHM2BeSw====</a>

Routing	<a href="#">&amp;app_code={HERE_APP_CODE}</a> <a href="#">}</a>	
	<a href="https://route.api.here.com/routing/7.2/calculateroute.json?waypoint0=geo!52.5,13.4&amp;waypoint1=geo!52.5,13.45&amp;mode=fastest;bicycle&amp;app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}">https://route.api.here.com/routing/7.2/calculateroute.json?waypoint0=geo!52.5,13.4&amp;waypoint1=geo!52.5,13.45&amp;mode=fastest;bicycle&amp;app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}</a>	<a href="https://funcapp4hls.azurewebsites.net/api/routing/7.2/calculateroute.json?waypoint0=geo!52.5,13.4&amp;waypoint1=geo!52.5,13.45&amp;mode=fastest;bicycle&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/1/JcO7zyDM3FyfA6fjHM2BeSw====">https://funcapp4hls.azurewebsites.net/api/routing/7.2/calculateroute.json?waypoint0=geo!52.5,13.4&amp;waypoint1=geo!52.5,13.45&amp;mode=fastest;bicycle&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/1/JcO7zyDM3FyfA6fjHM2BeSw====</a>
	<a href="https://matrix.route.api.here.com/routing/7.2/calculatematrix.xml?start0=52.5,13.4&amp;destination0=52.5,13.43&amp;destination1=52.5,13.46&amp;mode=fastest;pedestrian&amp;app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}">https://matrix.route.api.here.com/routing/7.2/calculatematrix.xml?start0=52.5,13.4&amp;destination0=52.5,13.43&amp;destination1=52.5,13.46&amp;mode=fastest;pedestrian&amp;app_id={HERE_APP_ID}&amp;app_code={HERE_APP_CODE}</a>	<a href="https://funcapp4hls.azurewebsites.net/api/routing/7.2/calculatematrix.xml?start0=52.5,13.4&amp;destination0=52.5,13.43&amp;destination1=52.5,13.46&amp;mode=fastest;pedestrian&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/1/JcO7zyDM3FyfA6fjHM2BeSw====">https://funcapp4hls.azurewebsites.net/api/routing/7.2/calculatematrix.xml?start0=52.5,13.4&amp;destination0=52.5,13.43&amp;destination1=52.5,13.46&amp;mode=fastest;pedestrian&amp;code=iAcAWqx78cA3b2heZnaFHjMHbYC0/1/JcO7zyDM3FyfA6fjHM2BeSw====</a>