



HERE Maps & Location Services Data Streams ARM Template

Technical Guide

Version 1.0.0.0



Important Information

Notices

Topics:

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



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Chapter 1

Overview

Topics:

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

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



Introduction

HERE Maps and Location Services Data Streams ARM Template 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

HERE Maps & Location Services Data Streams ARM Template 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)



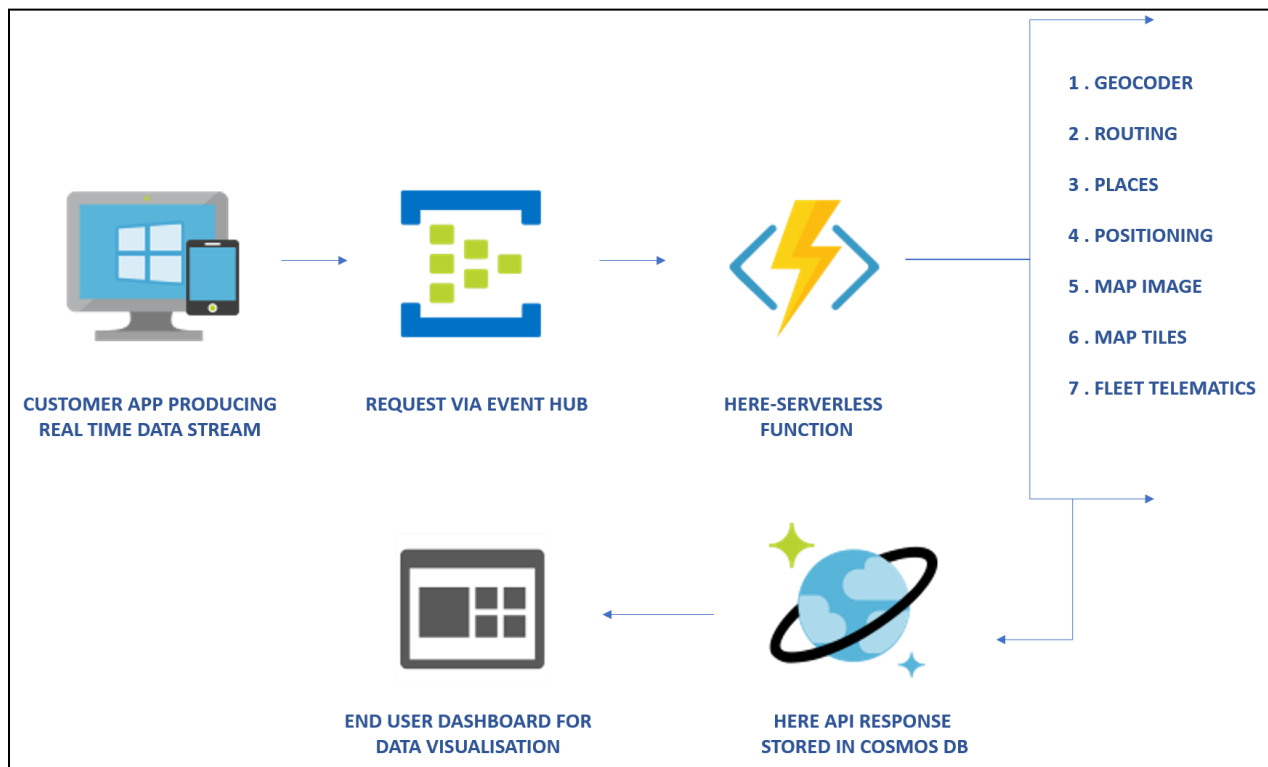
Fleet Telematics

- 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 Diagram of HERE Maps & Location Services for Data Streams:





Chapter 2

Technical Guide

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

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

Data Streams backend ingest incoming message on Event Hub in JSON format, this message internally converts to HERE Rest URL by underlying serverless functions and API response get stored in COSMOS DB in JSON format.

HERE API URL to service-bus message mapping described as below

Sample HERE App ID : `{HERE_APP_ID}`

Sample HERE App Code : `{HERE_APP_CODE}`

Geocoder :

HERE API 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}

JSON message format:

```
{  
  "uid" : "<unique_id>",  
  "api" : "<geocoder | places | routing | positioning | map_image | map_tile/traffic,  
map_tile/base | map_tile/aerial | map_tile/pano | fleet>",  
  "url" : "<part of the URL with server & app_id/app_code>",  
  "method" : "<get/post>",  
  "body" : "<applicable when method is post>",
```

```
"contenttype" : "<type of post body>"
}
```

Translated JSON Message :

```
{
  "uid" : "<unique_id>",
  "api" : "geocoder",
  "url" :
"/6.2/geocode.json?city=chicago&street=randolph&houenumber=425&country=usa&gen=9",
  "method" : "get",
}
```

Few more examples as below to show the mappings:

API Name	HERE API URL	Azure ServiceBus JSON Message
Geocoder	https://geocoder.api.here.com/6.2/geocode.json?city=chicago&street=randolph&houenumber=425&country=usa&gen=9&app_id={HERE_APP_ID}&app_code={HERE_APP_CODE}	{ "uid" : "<unique_id>", "api" : "geocoder", "url" : "/6.2/geocode.json?city=chicago&street=randolph&houenumber=425&country=usa&gen=9", "method" : "get", }
	https://geocoder.api.here.com/6.2/geocode.json?searchtext=200%20S%20Mathilda%20Sunnyvale%20CA&locationattributes=none&responseattributes=none&gen=9&app_id={HERE_APP_ID}&app_code={HERE_APP_CODE}	{ "uid" : "<unique_id>", "api" : "geocoder", "url" : "/6.2/geocode.json?searchtext=200%20S%20Mathilda%20Sunnyvale%20CA&locationattributes=none&responseattributes=none&gen=9", "method" : "get", }
Reverse - Geocoder	https://reverse.geocoder.api.here.com/6.2/reversegeocode.json?mode=retrieveAreas&prox=52.5309,13.3847,250&app_id={HERE_APP_ID}&app_code={HERE_APP_CODE}	{ "uid" : "<unique_id>", "api" : "geocoder",

		<pre>"url" : "/6.2/reversegeocode.json?mod e=retrieveAreas&prox=52.5309,1 3.3847,250", "method" : "get", } }</pre>
	<pre>https://reverse.geocoder.api.here.com/6.2 /reversegeocode.json?mode=retrieveLand marks&prox=37.7442,- 119.5931,1000&app_id={HERE_APP_ID}&app _code={HERE_APP_CODE}</pre>	<pre>{ "uid" : "<unique_id>", "api" : "geocoder", "url" : "/6.2/reversegeocode.json?mod e=retrieveLandmarks&prox=37.7 442,-119.5931,1000", "method" : "get", } }</pre>
Routing	<pre>https://route.api.here.com/routing/7.2/ca lculateroute.xml?waypoint0=geo!52.5,13.4& waypoint1=geo!52.5,13.45&departure=now &mode=fastest;publicTransport&combine Change=true&app_id={HERE_APP_ID}&app _code={HERE_APP_CODE}</pre>	<pre>{ "uid" : "<unique_id>", "api" : "routing", "url" : "/7.2/calculateroute.xml?waypoi nt0=geo!52.5,13.4&waypoint1=ge o!52.5,13.45&departure=now&m ode=fastest;publicTransport&co mbineChange=true", "method" : "get", } }</pre>
	<pre>https://matrix.route.api.here.com/routing /7.2/calculatematrix.xml?start0=52.5,13.4& destination0=52.5,13.43&destination1=52.5, 13.46&mode=fastest;pedestrian&app_id={ HERE_APP_ID}&app_code={HERE_APP_COD E}</pre>	<pre>{ "uid" : "<unique_id>", "api" : "routing", "url" : "/7.2/calculatematrix.xml?start0 =52.5,13.4&destination0=52.5,13. 43&destination1=52.5,13.46&mo de=fastest;pedestrian", "method" : "get", } }</pre>
	<pre>curl -i -X POST -H 'Content-Type: application/json' -d '{"gsm": [{"mcc": 262,"mnc": 1,"lac": 5126,"cid": 16504,"nmr": [{"bsic": "6","bcch": "82"}, {"bsic": "7","bcch": "85"}, {"bsic": "12","bcch": "93"}, {"bsic": "13","bcch": "88"}, {"bsic": "19","bcch": "88"}]}]}'</pre>	<pre>{ "uid" : "<unique_id>", "api" : "positioning", "url" : "/v1/locate", "method" : "post", "body" : { "gsms": [{ </pre>

Positioning	https://pos.api.here.com/positioning/v1/locate?app_id={HERE_APP_ID}&app_code={HERE_APP_CODE}	<pre> "mcc": 262, "mnc": 1, "lac": 5126, "cid": 16504, "nmr": [{ "bsic": "6", "bcch": "82" }, { "bsic": "7", "bcch": "85" }, { "bsic": "12", "bcch": "93" }, { "bsic": "13", "bcch": "88" }, { "bsic": "19", "bcch": "88" }] }, "contenttype" : "application/json" } </pre>
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This JSON message need to be posted using a client-app / device which connects to azure event-hub, there is support for various languages for writing event-hub clients. Refer below link for more details.

<https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-dotnet-standard-getstarted-send>