

How To Download ArcGIS Data As a KMZ File

Step-By-Step Instructions

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<https://mappingsupport.com>

This PDF is online at:

[https://mappingsupport.com/p2/kmz_demo/How to download arcgis data as kmz.pdf](https://mappingsupport.com/p2/kmz_demo/How_to_download_arcgis_data_as_kmz.pdf)

Some of the data that is hosted on ArcGIS servers can be exported as KMZ files and then imported into ATAK or ITAK and used offline. KMZ files can also be displayed by Google Earth and various other software.

Limitations:

1. KMZ export is available for some MapServer layers but not all of them. This report will show you how to check.
2. There is a record count limit on the amount of data that can be exported by a single request.
3. So far I have not found any FeatureServer layer that allows KMZ export.

This data export is performed by the [ESRI ArcGIS REST API](#). Fortunately you do not have to learn the syntax for that API since ESRI provides an online form you can fill out to tell the ArcGIS server to send you a download link to a KMZ file with the data you want. **This report walks you through this process.**

The U.S. Forest Service has an ArcGIS server with a layer of trail data. First, here is an online map that displays this layer of trail data. When the map opens it is centered on part of the Eldorado National Forest in California.

https://mappingsupport.com/p2/gissurfer.php?center=38.891250,-120.196953&zoom=12&basemap=USA_basemap&overlay=National_Forest_System_Trails&data=overlay^name=National_Forest_System_Trails^url=https://apps.fs.usda.gov/arcx/rest/services/EDW/EDW_TrailNFSPublish_01/MapServer^layers=0

The steps below will result in a KMZ file with the trail data for some of this area. Additional steps are included showing how you can restyle that trail data by changing line color and/or line width. A link to the KMZ file I made is at the end of this report.

1. ArcGIS servers have a table of contents that consists of web pages. You can click around in the table of contents just like any other collection of web pages. **Open the top of the table of contents for this USFS ArcGIS server:**

<https://apps.fs.usda.gov/arcx/rest/services>

2. Look at the list of Folders and click “EDW”

3. Look at the list of Services and click “EDW/EDW_TrailNFSPublish_01”

Note that there is also a service titled “EDW/EDW_TrailNFSPublish**WithDataStatus_01**”. However, only some national forests have trail data in this layer.

4. You are now looking at the **layers page**. Scroll down to “MaxRecordCount”. If a request exceeds 200 records then the KMZ file will only have the first 200 records that satisfy the request. Each trail will consist of one or more records. This setting of 200 is unusually low. Usually this setting is 1000 or 2000.
5. Still on the **layers page**, scroll back up to the list of Layers and click “National Forest System Trails (0)”
6. Near the top of the page it now says “Layer: National Forest System Trails (ID: 0)”. Scroll to the bottom of this page and click “Query”. **The Query form is an interface for ESRI's ArcGIS REST API.**
7. Scroll to the bottom of the “Query” page. Click the button that says “HTML”. A list of file formats appears. Select KMZ.

Note that some ArcGIS data layers supports KMZ export and some do not. So it is always important to check.

8. Complete the Query form as follows.
Where: 1=1
Input Geometry: -120.270424,38.833440,-120.096359,38.953383
This is a limited area for purpose of this demonstration.
Geometry Type: Envelope
Input Spatial Reference: **4326**
Spatial Relationship: Contains
Out Fields: * (include all the attribute data)
(accept the defaults)
Format: KMZ

If you need more than 200 records from this layer then you will need to make more than one request while changing the geometry.

If you do not need all the attribute data then for “Out Fields” you can specify a list of field names. The field names are listed on the page that says “Layer: Hiking Trails (ID: 0)” near the top.

9. In the lower left corner of the Query form, click “Query (GET)” and wait for the browser dialog that lets you save a KMZ file. The Query form formulates a link that uses the ArcGIS REST API to request the data from the server.

When I downloaded the KMZ I named the file: usfs_trails_demo.kmz

At this point you might want to check and see whether your request tried to download more records than allowed by the server. Here is an online tool that can convert your KMZ file into Excel.

<https://www.gearthblog.com/blog/archives/2017/06/excel-kml-two-way-converter.html>

Each LineString you see in the Excel table is one record. I sorted the table on the LineString column and see that my request downloaded 61 records - well below the limit of 200 records for this layer.

It is a good idea to test the KMZ file by opening it in Google Earth. This is a quick and easy way to check and make sure the data in the KMZ covers the area you want. This will also give you a look at how the data is styled.

Sometimes you will likely want to change how the data is styled. The steps below show how to do that by unzipping the KMZ and editing the KML file. These steps are for a windows 10 computer.

10. Change the file extension from kmz to zip
11. Right click the file name and select “Extract all”
12. Open the new folder that was made
13. Open the doc.kml file and scroll to the bottom and you will see the KML tags that define how the data is styled. Under “LineStyle” these tweaks will make the trails bright green and 2 pixels wide:

```
<LineStyle>  
  <color>ff66ff00</color>  
  <width>2.0</width>  
</LineStyle>
```

KML color is specified in this order: transparency blue green red.
The color values are hexadecimal.

Here is an online tool that can convert from RGB color to KML color.

http://www.zonums.com/online/color_converter/

Note that the PolyStyle tag determines styling for polygons. The color tag controls polygon fill. To turn fill off set color to 00000000. The outline tag can be:

- 0 - Do not outline the polygon
- 1 - Outline the polygon using the current LineStyle

14. Save the kml file
15. Right click the kml file name and select “Send to > Compressed (zipped) folder”

16. Click the zip file name and change the extension to kmz

I put the KMZ file I made on my server:

https://mappingsupport.com/p2/kmz_demo/usfs_trail_demo_green.kmz

You can open the KMZ file in ATAK, ITAK or Google Earth then you should be able to click/tap on a trail and see the attribute data.