

Converting KML files to shapefiles in ArcGIS with the KML to SHP tool

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The purpose of the [Convert KML to SHP](#) tool is to convert Google Earth kml files to shapefiles. The output shapefile will contain feature names, descriptions, and Google Earth folder as attributes. The coordinate system of the output shapefile is in geographic coordinates (WGS84). The kml file may contain any number of points, lines, and polygons. The script will create a shapefile for the feature type of interest. If the kml file contains more than one type of feature, you will need to run the script once for each feature type that is to be converted to a shapefile.

When digitizing in Google Earth, it is recommended that you store all features intended for a given shapefile in a single folder. You can do this by using the following procedure:

- Create a folder in the google Table of Contents by 1) right-clicking on My Places, 2) click Add, and 3) click Folder.
- Add features to the folder by clicking on the folder so that it is highlighted. Then proceed to create polygons, lines, or points.
- When finished creating features, save the entire folder as a kml file by 1) right-clicking on the folder, 2) select "Save As", and 3) change type to kml. Individual features may also be saved as kml files.

About the script...

The KML to SHP tool is a python (version 2.4) script that has been set up to work from within the ArcToolbox of ArcGIS version 9.2 or later. The script will not work with ArcGIS 9.1 since it does not use an equivalent version of python. The script is designed to read kml files generated by Google Earth version 4.2 (Nov 13 2007) or later and may not read kml files generated by earlier versions. The script cannot convert kml files generated in Google Maps. Before you can run the script in ArcGIS, you will need to load the script's toolbox into ArcToolbox.

Loading the KML_to_SHP toolbox into ArcToolbox:

The download from the ESRI ArcScripts site contains the file [KML_to_SHP.tbx](#) – this file is the toolbox which you will need to load into ArcToolbox (unless you are using ArcGIS v9.2). If you are using ArcGIS 9.2, you will need to load the [KML_to_SHP_9_2.tbx](#) toolbox. The [kml_to_shp.py](#) is the script file which must always be kept in the same location as the .tbx file so that the toolbox can find the script.

To load the toolbox into ArcToolbox:

- 1) Start ArcMap and open ArcToolbox .
- 2) In ArcToolbox, right-click on **ArcToolbox**
- 3) Click on **Add Toolbox**, navigate to the **KML_to_SHP.tbx** (or **KML_to_SHP_9_2.tbx**), and click **Open**
- 4) Click the plus symbol  to the left of the **Convert KML to SHP** toolbox to expand it. The toolbox will contain the **Convert KML to SHP** script.
- 5) Double-click on the script to run it.

The **Convert KML to SHP** tool contains documentation on how to use it. To view the documentation, double-click on the script to open the dialog window. The help column to the right will provide general information about the tool as well as specific information for each parameter when you click in the parameter input box. For further information, click on  Help at the top of the Help column. This will open up an html page containing further documentation for the tool.

Troubleshooting...

- The script does not read older kml formats. If the script has a problem reading a kml file, you should try recreating the file in Google Earth v4.2 or later. To do this, load your kml file into Google Earth and resave the file. Try running the new kml file in the script.
- The script cannot read compressed kml files (files with .kmz extensions). To convert to a kml file, open the kmz file in Google Earth and save as a kml file.
- The script cannot convert kml files generated in Google Maps even after resaving in Google Earth. These kml files do not contain actual data, they only contain a link to the data on Google's server. To convert a Google Map kml file to a shapefile, it would need to be re-digitized in Google Earth and then saved to a new kml file. The resulting kml file can then be converted to a shapefile.
- If you receive the error "**ArcGIS Data Management Toolbox not found. Script cannot execute**", then you will need to modify the script to give it the location of the Data management toolbox. Refer to the PowerPoint file called "Specifying toolbox location.ppt" for an illustration of how to do this.
- If you are using ArcGIS 9.2, make sure you are using the **KML_to_SHP_9_2.tbx**.

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- Thanks to Charles Morton for sharing his modification of the script which allows the script to handle polygon features that have holes in them