GPX Plug-in for ArcGIS 10

# Installation

The installation is very simple, but there is no single click installation package. By keeping the installation a Do It Yourself project, it remains flexible enough to support more computer configurations. See the section on Permissions for more information.

1. Unzip the download file into a stable local (not network) directory. I recommend **C:\Program Files\GPX Plugin** if you have permission to write to the system folders, otherwise create a folder in your personal workspace (c:\documents and settings\loginname on XP, or c:\users\loginname on Windows 7). In between the register/unregister process, ArcGIS will look for the plug-in in the folder where it was registered. If it is deleted or moved the plug-in will cease to function.
2. There should be two batch files (**reg.bat** and **unreg.bat**) provided with the plug-in (**GpxPlugin.dll**). These batch files will register and unregister the plug-in with ArcGIS. They must be in the same folder as the plug-in in order to work correctly.
3. Run reg.bat as a user with permission to write to the ArcGIS folders. (On windows 7 right click on **reg.bat** and select **Run as administrator**)
4. Open ArcCatalog and browse to a folder with a GPX file or use the Add Data command in ArcMap or ArcScene to browse to a GPX file.

# Uninstall

1. Close all ArcGIS Desktop applications (ArcMap, ArcCatalog and ArcScene)
2. Run the unreg.bat as a user (administrator) with permission to write to the ArcGIS folders.
3. Delete the provided files (GpxPlugin.dll, reg.bat, and unreg.bat)

# Permissions

* The plug-in file (GpxPlugin.dll) can reside in any local (not network) folder to which you have write permission.
* The plug-in does not write to any personal or system folders.
* Neither the plug-in nor the registration (on ArcGIS 10) needs permission to read or write from the windows registry.
* The registration (on ArcGIS 10) requires write permission to C:\Program Files (x86)\Common Files\ArcGIS\Desktop10.0\Configuration.

# Features

* Each GPX file is a feature dataset with one or more feature classes (waypoints, routes, route points, closed routes, tracks, track points, closed tracks) depending on the data in the GPX file.
* Routes and tracks are polyline features. However sometimes, they represent a polygon boundary, so the route and track data is also provided as a polygon by connecting the first point in the route/track to the last point. This polygon representation is provided in the closed route and closed track feature classes.
* View GPX files natively in ArcCatalog and ArcMap without any conversion software.
* View all attributes and use the attributes to symbolize, filter, and label data
* Easily export the GPX files to a shapefile or geodatabase
* Drag and drop the GPS feature classes from ArcCatalog to ArcMap
* The GPX parser will not fail on improperly formatted numbers or dates. Improperly formatted numbers or date attributes will be appear in the table view as missing values (null or no value). If the missing number is a lat or long, then the shape will be empty. A record for the attributes will be present in the table view, but the record will not draw on the map.

# Limitations

* Only tested with ArcGIS 10.0. It should work with ArcGIS 9.x, however the registration process will different. If you want to test with ArcGIS 9.x, I would love to hear your results.
* If a feature has multiple link attributes, all but the first are ignored. Plan is to have link1,…, linkN as attributes. N is determined by the feature with the most links.
* If a feature has extensions, all the extensions appear in one xml text field. It would be nice to break this down into a separate attribute for each sub-element.
* GPX 1.0 elements ‘url’ and ‘urlname’ as well as any “private” elements are not recognized as attributes.
* All the attributes declared by the GPX 1.1 schema format are displayed in table view, even if they are not used by the GPX file being viewed. The plan is to limit the attributes to just those attributes being used.
* I am currently ignoring the name and type sub-elements of the link element
* The metadata element in the GPX 1.1 schema is ignored. Hopefully I can use this data to populate ArcGIS metadata in a future release.
* The plug-in will “claim” any files with the .gpx extension. If the file does not contain valid gpx data, then the dataset will appear empty. If the file is valid, but has no waypoints, no tracks and no routes, then it will correctly appear empty. If your file appears empty, but you think the file is a valid gpx file (with data), please validate it in accordance with the instructions at <http://www.topografix.com/gpx_validation.asp>. If the file validates, then you have discovered a limitation in the plug in. If you can send me a copy of your file, I will try to correct the plug-in.
* Closed routes and closed tracks are not 3-D surfaces. Even though the vertices have elevation, the derived polygon has a single elevation of zero.
* ArcCatalog does not display the Type/Size/Modified date, etc for the feature classes in the GPX file. These are file attributes, which are valid for the feature dataset (however ArcCatalog only displays these attributes for feature classes). Since the feature class is not a file, ArcCatalog cannot display anything. There is no ability in the Plug-in architecture to remedy this.
* Any extensions on a trkseg element are ignored. Track segments are individual polylines in a single multi-polyline (track) feature. In this way a track can contain multiple disconnected segments, which is the intent of the GPX format. However ArcGIS only allows attributes on the single track feature, not the constituent segments.
* Since GPX files are feature datasets (i.e. they contain multiple feature classes, just like a geodatabase), you cannot drag the GPX file from windows explorer and drop it onto ArcMap, just like you cannot drag and drop a geodatabase (\*.mdb or \*.gdb) onto ArcMap.
* Gpx Files (and all other plug-in datasources) are not recognized by geoprocessing tools.
* Export to other formats only works in ArcMap. ArcCatalog uses a geoprocessing tool.