

How to Create Spatial Data from GPS Coordinates

What to Do – An Overview of the Process

- Save the gdb file from the Garmin GPS unit to your computer.
- Use the MapSource software to export tree locations as decimal degrees in a tab delimited text file format.
- Edit the file in Excel 2003 and save it as a 2003 Excel File.
- Create a file geodatabase in ArcCatalog and import the Excel file.
- Use ArcMap to create a feature class representing tree locations.

Step-by-Step Instructions

Part 1: MapSource

- Save the gdb file from the Garmin unit to your computer.
- Open the MapSource software.
- Open the gdb file. (File > Open)
- Edit the Preferences in MapSource Software so coordinates are in decimal degrees.
 - Edit > Preferences
 - Position Tab
 - Grid: Change from Lat/Lon hddd°mm.mmm' to Lat/Lon hddd.dddd°
 - Save the file as a tab delimited text file. File > Save As. File Type: Text (Tab delimited) (*.txt)
 - Close MapSource.

Part 2: Excel 2003

- Open Excel 2003.
- Open the tab delimited text file in Excel 2003
 - Files of Type: All Files
 - Text Import Wizard – Delimited Next > Next > Finish
- Clean the file in Excel 2003:
 - Remove all unnecessary rows and columns
 - Tip: Ctrl + Shift + Arrow Keys will highlight all rows/columns that contain data.
 - Field Headings must have no spaces in them
 - Delimit coordinates into two columns.
 - Highlight Column > Data > Text to Columns
 - Fixed Width > Next
 - Add line just before W. Next > Finish
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 - Remove hemisphere information from coordinates
 - Delete the Ns from the Latitude values (using Edit > Replace). Rename the field Latitude.
 - Replace Ws from Longitude Values with Negative Signs (-) or the points will plot in Asia. (Use Edit > Replace). Rename the field Longitude.

- Save the file in 2003 Excel format (Save As). Type: Microsoft Office Excel Workbook (*.xls).
- Close the file. Close Excel.

Part 3: ArcCatalog

- Open ArcCatalog.
- Use the Connect to Folder button to create a connection to your workspace (where your files are located).
- After creating the folder connection, click on it on the left side (Catalog Tree).
- Right-click on the right-side in the white space - New File Geodatabase.
- The geodatabase appears. Name it.
- Import the worksheet from the Excel file into the File Geodatabase. Right-click on the new file geodatabase > Import > Table (single).
- The Table to Table Tool opens. Input Rows: That is the table you are importing, or the Excel worksheet. Click the open folder icon and browse to the worksheet. You have to double-click on the excel workbook and then select the worksheet that contains the data.
- Leave the Output Location as it is.
- Give the output table a name.
- Make Sure Latitude and Longitude are listed as (Double).
- Right-click on each of them and make sure they have Precision 15, Scale 5. OK.
- Close ArcCatalog.

Part 4: ArcMap

- Open ArcMap.
- Add the table from the file geodatabase using the Add Data Button.
- Filename.xls will appear in the table of contents (TOC). Right-click on the worksheet name in the TOC, and choose "Display XY Data..."
- In the dialog box, the X Field should be Longitude and the Y Field should be Latitude.
- Provide the spatial reference of the input coordinates. Click the "Edit..." button, then the "Select..." button, Geographic Coordinate Systems -> World -> WGS 1984.prj -> OK.
- If you do not select a spatial reference, the data will have an Unknown Coordinate System.
- Click OK.
- The coordinates should plot as a point event theme. Note that it is not a feature class, just an event theme. To create a feature class from the event theme, right-click the event theme in the TOC and select Data -> Export Data... Then navigate to the file geodatabase. Save as type: select File and Personal Geodatabase feature classes. Name the file (something other than what you named the table in your geodatabase) and click Save.