Fall 2012 Intro to Spatial Analysis and Workshop in GIS (11.205/11.520)
# Workspace Configuration

Introduction

The ArcGIS Suite of software we will be using in this course (and is used widely in the professions) is unlike most of the software you have probably used before. Since it is used by a community of *expert* users, it has a steep learning curve, frequently counterintuitive interface, and many technical glitches and bugs. However, once you master some basic principles, ArcGIS can be a powerful and flexible tool for conducting a wide range of mapping and analysis tasks. This guide includes instructions for changing settings that will speed things up and eliminate some frustration, however learning ArcGIS always requires some amount of patience. We encourage you to seek help when you need it, and explore the help files to learn more about the tools and functions we will use this semester.

Working With GIS Files

MXD File - One of the key ways ArcMap differs from a regular software program is that an ArcMap map file, or "MXD," does not contain data, only links to data stored elsewhere. It also contains a limited set of information about layout, symbology, and display settings for the data. Therefore you cannot share a map document by sending an MXD – you must also send the data shown on the map. For these reason most maps are shared by exporting a PDF document. Designers familiar with Adobe InDesign will notice this is similar to how that program works.

Data Files - To make things worse, most of the formats for the "data" files appear as multiple files on your computer! The standard Shapefile format at the minimum consists of three different files with three different extensions (.shp, .shx, .dbf). Therefore, you should move files by selecting all files with the same name, moving entire folders, or what is best -- managing and moving GIS data files using the ArcCatalog utility available within ArcMap or as a separate program.

Default Geodatabase – In addition, when working on a map ArcMap uses a "Default Geodatabase" to store files produced by various analysis tools. By default, this scratch space is set to your WinAthena Locker, which slows the program to a crawl since it must transmit your data over the network. Below are instructions for how to set the scratch space to be your computer's local "C" drive.[1]
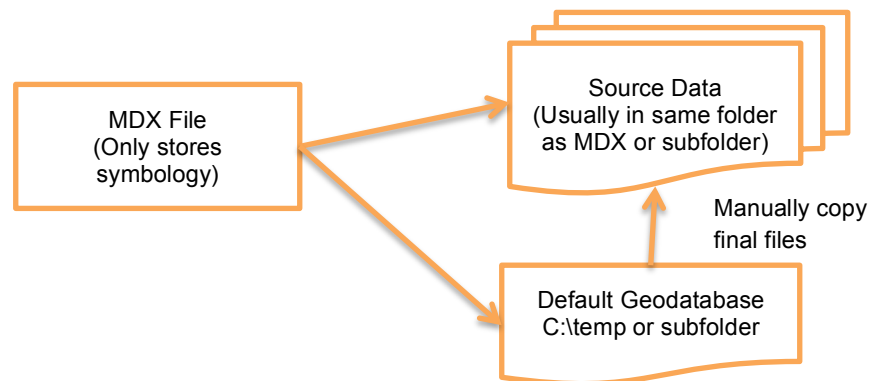
Setting the Home Folder

1. Launch ArcMap from Start Menu>All Programs>ArcGIS>ArcMap
2. From the "New Document" dialog box, select the template for Blank Map and click "OK."
3. Click on Windows>Catalog
4. Click on the "Options" Button shown in the diagram to the right
5. Select the "Home Folder" tab and set it to be C:\temp
6. Save and re-open the MXD file.
7. **This setting should be saved to your profile and stay the same for any CRON PC.**

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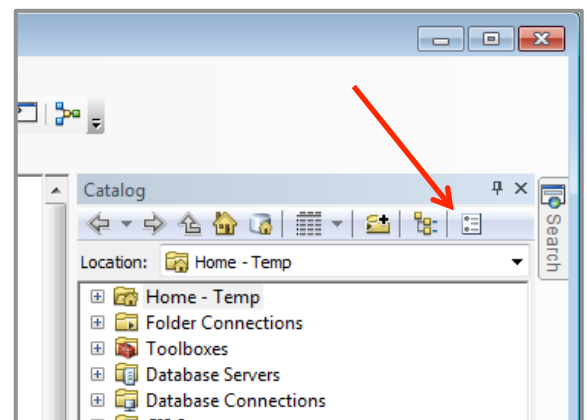
[1] We strongly recommend using this location, since many ArcMap tools will not run if the Scratch space path contains spaces.

Creating a Workspace

1. Navigate to C:\temp in Windows explorer.
2. Right click and create a folder with your username.
3. Right click and create a folder within this one called "gis_map"
4. Open a blank MXD file. Follow the directions below for creating and setting a Default Geodatabase.

Creating and Setting a Project Geodatabase

1. If your project files do not already contain a "File Geodatabase," from the "Catalog" window in an open map file, navigate to the location of your project files.
2. Right click on the project folder, and select New>File Geodatabase. Name it "scratch".
3. If the project MXD already exists, change the Default Geodatabase to this file from File>Map Document Properties. If it does not exist, select this geodatabase from the "New Document" menu shown below when creating the project MXD.
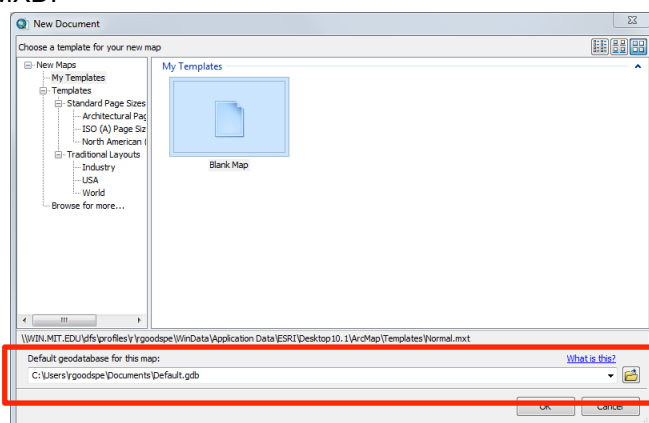
4. If you have been working on a file using a Default Geodatabase stored elsewhere (such as in C:\temp\ ) to save your work you can either find and copy this entire Geodatabase, or copy the final products into your workspace. Copy files using ArcCatalog or the Catalog window, or by right clicking on the layer in the Table of Contents and selecting "Data>Export Data."

Setting Relative Pathnames

You should save your MXD file near your source data – either in the same folder, or a folder that contains subfolders with the data. Setting the pathnames for the data files in your MXD to "relative" means you will be able to easily move between computers without "breaking" the links. Although they can be re-established, this tedious step can be avoided.

1. After starting a new MDX go to File>Map Document Properties
2. Check the box that says "Store relative filenames to data sources"
3. Click OK and save your file.

Prune Folder Connections

Because of the unique nature of GIS, when adding data to a map you will see a specialized dialog box quite different than the standard dialog boxes used to find files by other programs. By default ArcMap will save the locations of folders you have opened to retrieve or view data. Although intended to be a convenience to the user, these connections can slow down the program, especially if they are located on networked or unavailable drives (such as portable hard drives). Therefore it is a good practice to keep these folder connections to a minimum. In addition, if you are an advanced user and connect to remote Database Servers, this same principle applies. New GIS users may not have any saved connections, but when you do they can be removed using the instructions below.

1. In the "Catalog" window find the section labeled "Folder Connections"
2. Right click on all folders, except for C:\ and C:\temp, and click "Disconnect Folder" (remember these are only shortcuts).

Keeping Neat Workspaces

Working in GIS for any length of time can very easily create an overwhelming cacophony of files, resulting in wasted time and difficulty tracing your steps. We strongly recommend creating well-organized workspaces. Organize your ArcMap Table of Contents by right clicking on "Layers" and creating "Group Layers," as shown below.
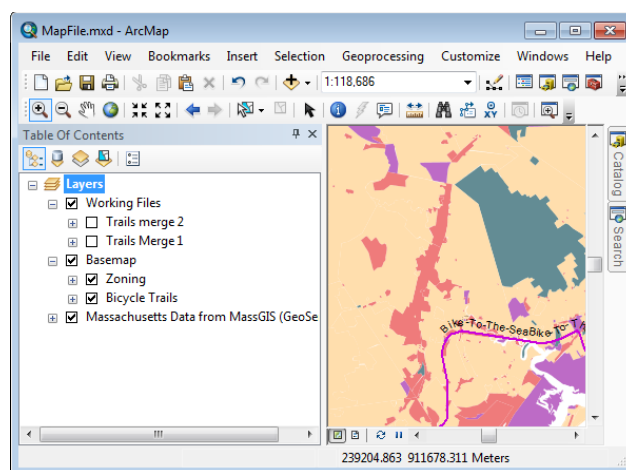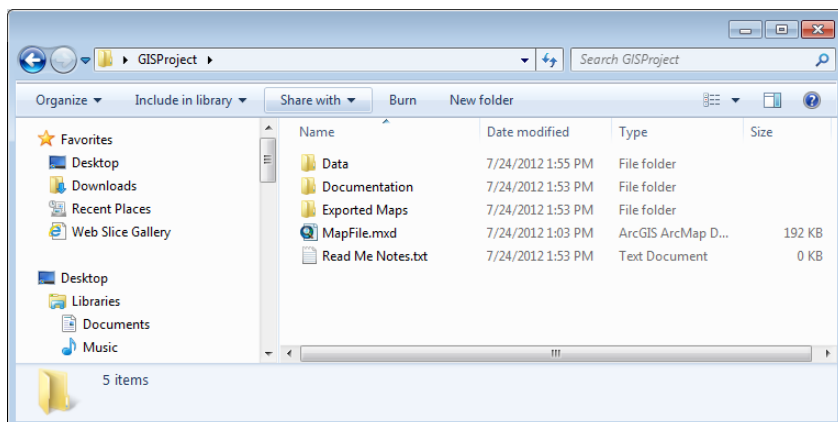
GIS Sanity Checklist

Use this checklist every time you start a new GIS project.

1. The ArcMap (MXD) file, Default Geodatabase, and data files should be located in the same folder
2. The project folder should be copied to the location C:\temp
3. The MXD file should have "relative filenames" (File>Map Document Properties)
4. The MXD file should be set to use the Default Geodatabase within the project folder (File>Map Document Properties)
5. Confirm additional settings specified by the lab as required.