

# Tips for using ArcGIS Desktop on UC managed workroom computers

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## Data management

Create a separate folder for each lab/project to contain any map documents or data that you create, and ensure it is backed up.

Secondary data accumulated from other sources can quickly consume all of your personal network space (e.g. the Land Cover Database of New Zealand v4 is over 1GB). If stored with your project this data is best cut down to your area of interest, otherwise you should store it in a separate ‘gisdata’ folder alongside your projects where it won’t over burden your back ups.

Keep folder and file names short and simple to avoid potential complications with ArcGIS functions:

- **DO** use ‘a to z’ (lower or upper case), with trailing numbers if necessary, and underscores ‘\_’ are OK;
- **DO NOT** use spaces or other ‘special’ (punctuation style) characters, e.g. abc\_123 is good ☺ , abc 123 is not ☹.

ArcGIS datasets are best copied, deleted, moved, or renamed in **Catalog** or the separate ArcCatalog application, BUT be warned that such actions can/will break existing links in map documents.

Non-GIS datasets are best managed with the operating system file manager (i.e. Windows Explorer).

### Best Practice:

- [Increase Efficiency and Avoid Problems](#) (from ArcUser Fall 2014)
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## Performance and Security

### Turn off unused extensions

Enable just the extensions that you require in ArcMap from Customise> Extensions... (e.g. 3D, Data Interop., Geostatistical, Network, and Spatial Analyst).

Disable the Task Assistant Manager and Workflow Manager extensions as these can really slow down ArcMap start-up. This setting only needs to be made once as it is saved in your user profile.

### Use relative pathnames

In ArcMap, use Customise> ArcMap Options... to make relative paths the default for new map documents. In existing map documents use File> Map Document Properties. This setting is also saved in your user profile.

Relative pathnames make projects transportable, as map documents don’t look for data using the full pathname and drive letter, just the project sub-folder. This is important when working from different computers, or external storage devices.

### Work local

Working on the local machine is faster than over a network connection, especially for raster and ModelBuilder operations which can stall and time out. To avoid this frustration create a working folder in C:\Local with your username, and create/copy your lab/project folder into it. Your work is secured to your login, but is not protected from hardware failure or system upgrades which can happen without warning, so it is very important that you back up your local work (see below).

Note: Do not work from your desktop or C:\users\...

## Back up

If working in C:\Local, when you stop, save and close all documents and applications, and use Windows Explorer to copy your lab/project folder to your personal network space, overwriting previous copies.

To resume work, return to the same computer if possible, or create a new working folder with your username in C:\Local, and copy the backup from your personal network space.

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## ArcGIS projects

A good way to start any ArcGIS project is to open a new blank map document, and then save it, creating the new project folder in the process if it doesn't already exist. This folder then becomes the 'home' shortcut in Catalog and geo-processing tools.

## Coordinate systems, projections, and datums

Get this sorted before you start to avoid problems later.

Coordinate systems, also known as map projections, are arbitrary designations for spatial data. Their purpose is to provide a common basis for communication about a particular place or area on the earth's surface. The most critical issue in dealing with coordinate systems is knowing what the projection is and having the correct coordinate system information associated with a dataset. There are two types of coordinate systems—geographic and projected.

A geographic coordinate system uses a three-dimensional spherical surface to define locations on the earth. It includes an angular unit of measure, a prime meridian, and a datum (based on a spheroid). In a geographic coordinate system, a point is referenced by its longitude and latitude values. Longitude and latitude are angles measured from the earth's center to a point on the earth's surface. The angles often are measured in degrees (or in grads).

A projected coordinate system is defined on a flat, two-dimensional surface. Unlike a geographic coordinate system, a projected coordinate system has constant lengths, angles, and areas across the two dimensions. A projected coordinate system is always based on a geographic coordinate system that is based on a sphere or spheroid.

– ArcGIS Help 'Projection basics for GIS professionals'

An easy way to set the ArcMap Data Frame to the projected coordinate system you want is to ensure the first dataset you add has this correctly defined (as it should be for all your datasets). Subsequent datasets in different coordinate systems will be re-projected on the fly.

Since 2001 the official New Zealand projection has been the ‘New Zealand Transverse Mercator 2000’ (NZTM2000), which in ArcGIS is called the ‘NZGD 2000 New Zealand Transverse Mercator’. This projection is based on the geographic coordinate system GCS\_NZGD\_2000.

You may also come across the predecessor of NZTM2000, the New Zealand Map Grid (NZMG) based on the GCS\_New\_Zealand\_1949. If you add NZMG data to an ArcMap data frame in NZTM you will get a warning about alignment and accuracy problems (which could be up to 180m out). Fix this with Transformations... to convert GCS\_New\_Zealand\_1949 to GCS\_NZGD\_2000 using New\_Zealand\_1949\_To\_NZGD\_2000\_3\_NTv2.

### **Avoid the default geodatabase on the network**

On first use ArcGIS creates a default geodatabase in your personal network space, which can be slow to respond. Avoid it by using Catalog to create a file geodatabase for each new project, and right-click it to make it the default for the map document. This also sets the Environment Settings current and scratch workspace, and enables you to create and use ‘feature classes’ which can be faster to use than shapefiles.

### **Minimise the processing extent**

Another useful Environment Setting is the Processing Extent, which you can access from Environments... in individual geoprocessing tools or the document Geoprocessing menu. Use this to save processing time and disk space by restricting outputs to an existing (smaller) dataset (or the zoomed in display), rather than all of NZ or the whole world!

### **Best Practice:**

- [Organizing the Table of Contents](#) (from ArcUser Winter 2015)

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## **Adding an Esri online basemap**

Adding a basemap to ArcMap from the Esri cloud is a convenient way to provide spatial context to the data you create. In ArcMap go Add Data> Add Basemap...

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See the [ArcGIS YouTube channel](#) for more useful tips.

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