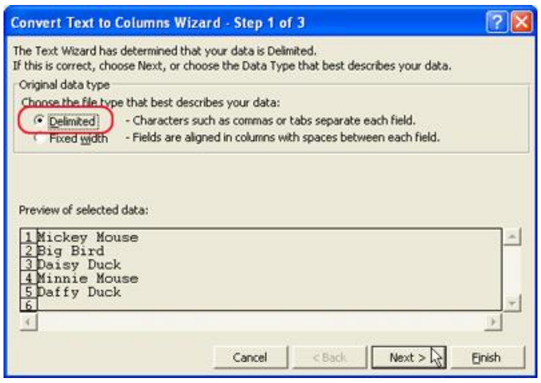
SAS Tips and Tricks

Disclaimer: I am not an expert in SAS. These are just a few tricks I have picked up along the way.

Saving Data Files

Note: You can skip this step entirely by reading the data in directly from a URL if you'd like. Scroll down to "Reading from a URL" to see how. For many classes, datasets are presented in odd file types, such as .DAT. This can be problematic. The following steps ensure your data will easily be read into SAS: (Note: the images I show work in Excel 2003. I am sure there are similar processes in Excel 2007 and other versions.)

- Step One:
  Save the dataset where you can find it. You can save it as any type you want. Open the data with Excel.
- Step Two:
  The data will probably be read into one column, with spaces and/or tabs between the numbers. To fix this, click Data → Text to Columns.
- Step Three:
  Indicate that the data is separated by Delimiters:



Convert Text to Columns Wizard - Step 1 of 3

The Text Wizard has determined that your data is Delimited.
If this is correct, choose Next, or choose the Data Type that best describes your data.

Original data type

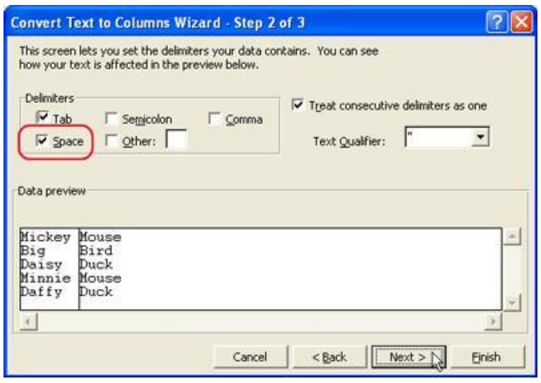
Choose the file type that best describes your data:

[✓ Delimited] - Characters such as commas or tabs separate each field.
Fixed width - Fields are aligned in columns with spaces between each field.

Preview of selected data:

```
1 Mickey Mouse
2 Big Bird
3 Daisy Duck
4 Minnie Mouse
5 Daffy Duck
6
```

- Step Four:
  Indicate that there may also be spaces used to separate values in the dataset:



Convert Text to Columns Wizard - Step 2 of 3

This screen lets you set the delimiters your data contains. You can see how your text is affected in the preview below.

Delimiters

[✓ Tab] Semicolon Comma
[✓ Space] Other:

[✓ Treat consecutive delimiters as one]

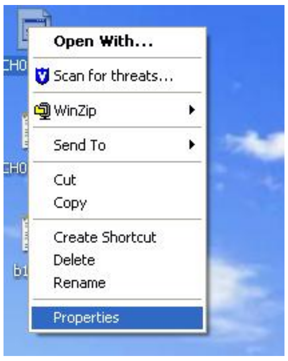
Text Qualifier: "

Data preview

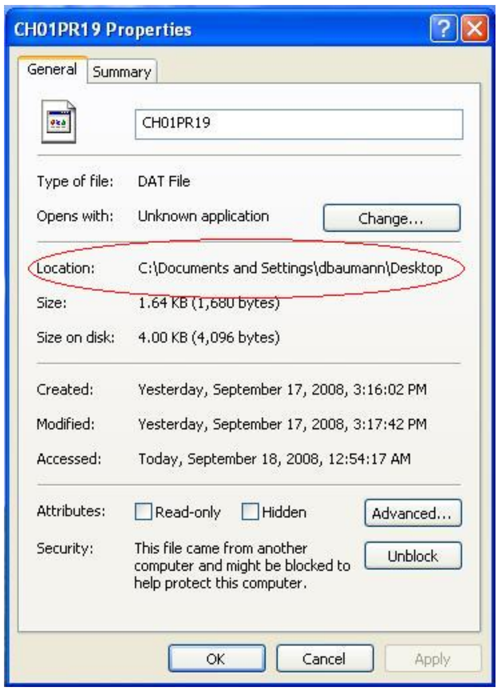
```
Mickey Mouse
Big    Bird
Daisy  Duck
Minnie Mouse
Daffy  Duck
```

- Step Five:
  Save the Excel file in any format you prefer. I suggest comma-delimited, or .csv.

To determine exactly where the file was saved (the full file extension), browse to the file. Once there, right-click and select Properties:



The window that appears shows the Location of the saved file:


CH01PR19 Properties

General | Summary

CH01PR19

Type of file: DAT File
Opens with: Unknown application
Location: C:\Documents and Settings\dbaumann\Desktop
Size: 1.64 KB (1,680 bytes)
Size on disk: 4.00 KB (4,096 bytes)
Created: Yesterday, September 17, 2008, 3:16:02 PM
Modified: Yesterday, September 17, 2008, 3:17:42 PM
Accessed: Today, September 18, 2008, 12:54:17 AM
Attributes: ☐ Read-only ☐ Hidden
Security: This file came from another computer and might be blocked to help protect this computer.

In the following tips and tricks, I simplify this to 'yourfileextension.' Instead, substitute your full file location and file name such as:

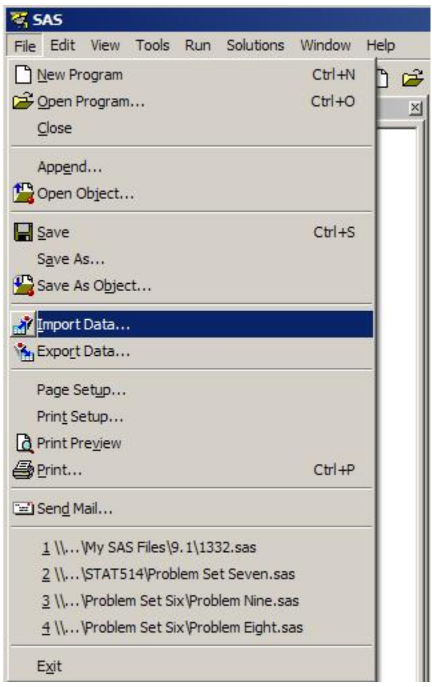
C:\Documents and Settings\dbaumann\Desktop\CH01PR19.csv

Reading Data into SAS

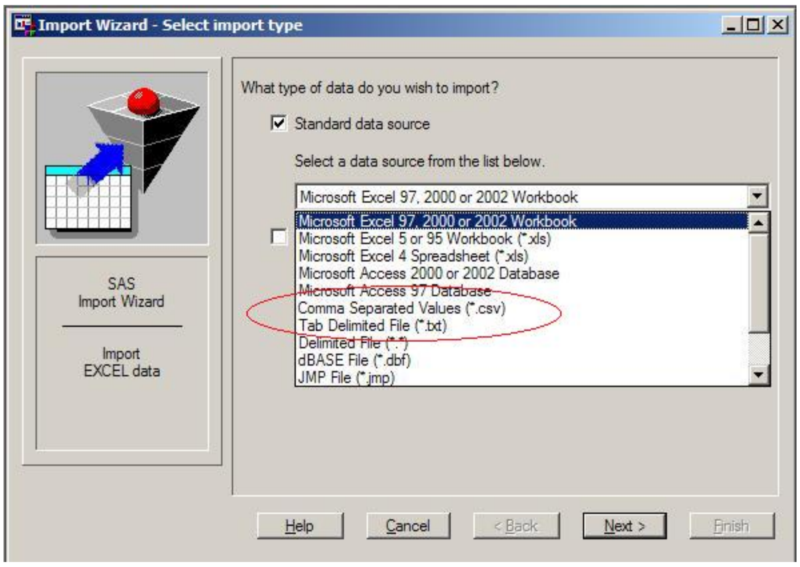
I have always found reading data into SAS to be the hardest part about using SAS. There are essentially three ways to read data into SAS: importing the data, reading the data from a file, and using cards/datalines.

1. **Using 'proc import'**
   This is the point-and-click way to get files into SAS. Below are step-by-step instructions for importing data. At the end, I have included the SAS code which performs the same steps. This set of instructions assumes you have variable names in the first row of your datafile.

   - Step One:
     Click File → Import Data



   - Step Two:
     Choose which type of file you are importing. See the 'Data Cleaning' section above for tips. Click 'Next.'



What type of data do you wish to import?

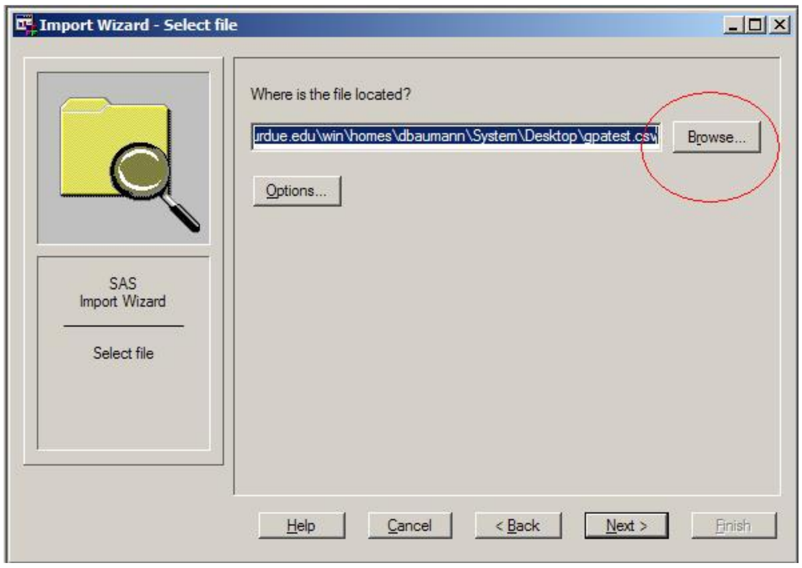
☑ Standard data source

Select a data source from the list below.

Microsoft Excel 97, 2000 or 2002 Workbook

- Microsoft Excel 97, 2000 or 2002 Workbook
- Microsoft Excel 5 or 95 Workbook (*.xls)
- Microsoft Excel 4 Spreadsheet (*.xls)
- Microsoft Access 2000 or 2002 Database
- Microsoft Access 97 Database
- Comma Separated Values (*.csv)
- Tab Delimited File (*.txt)
- Delimited File (*.*)
- dBASE File (*.dbf)
- JMP File (*.jmp)

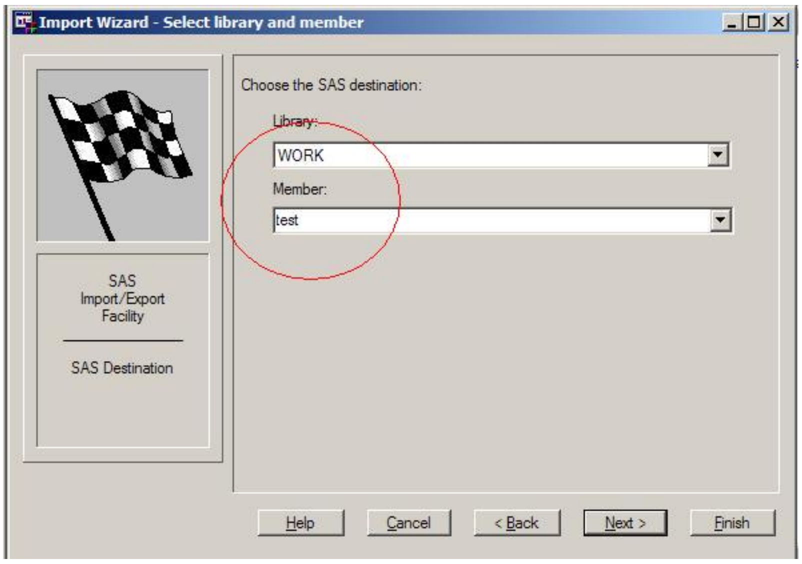
- Step Three:
  Browse to the file you want to import (or type in the full extension – see 'Data Cleaning' for tips). Click "Next.'



Where is the file located?

urdue.edu\win\homes\dbaumann\System\Desktop\gpatest.csv

- Step Four:
  Indicate 'Library' and 'Member.' I leave the 'Library' set to the default 'WORK,' and name 'Member' whatever I want to name my dataset. Click 'Next.'


Import Wizard - Select library and member

Choose the SAS destination:

Library: WORK

Member: test

- Step Five:
  Create SAS Statements. I generally just skip this step. I will include the code which SAS would output below. Click 'Finish.'

The data is now saved in SAS. To take a look at the data, type:

proc print data=yourdataname; run;

The SAS code that will perform these same steps automatically looks like:

proc import datafile='yourfileextension' out=test dbms='Identifier' replace; run;

Replace *'Identifier'* in the code above with one of the following:

Type	*Identifier*
.csv	CSV
.txt	TAB
other	DLM

2. **Using the 'infile' command**

The second method for reading data into SAS is likely the most common. The difficulty most people have with this method is dealing with various delimited files. Let's assume you named your data 'test' and you have the full extension for your file (see above). (This can be extended to more than just two variables as well.) The general framework is as follows:

```
data test;
   infile 'yourfileextension';
   input variable1 variable2;
proc print data=test;
run;
```

The difficulty with most data sets is the *delimiter*, or the way the file indicates the end of one number and the beginning of another. In most class datasets, this delimiter is a tab. Other common delimiters are spaces and commas. In SAS, the 'data' step, as above, sets the default delimiter to be a space.

To work with a tab delimited file, we need to specify the delimiter. This is done with the *dlm* command right after your infile file extension:

infile 'yourfileextension' dlm='09'x;

Other common delimiters are as follows:

Delimiter	*Code*
Tab	dlm='09'x
Comma	dlm=','
Pipe	dlm='|'

3. **Using 'cards' or 'datalines'** This is probably the easiest method to use for small datasets. Its usefulness decreases with large datasets because all of the data is written directly into the SAS Editor.

   I prefer to use cards, because I've found it can handle class datasets better. The typical code is:

```
data test;
   input variable1 variable2 variable3 $ ;
   cards;
      Insert your data here
   ;
proc print data=test;
run;
```

   I have included the dollar sign ($) after variable3 which indicates a text variable. Notice that there is a semicolon on the line *after* the data. When entered correctly, the data will be highlighted in yellow. Most often, for classes, datasets will be formatted nicely, in clean columns for each variable:

Variable 1	*Variable 2*	*Variable 3*
59	3.46	C
62	4.56	D
94	4.64	B
...	...	...

   However, sometimes the data isn't formatted so nicely:

```
59 3.46 C 62 4.56
D 94 4.64 B ...
```

   To account for this, you can add '@@' to the end of your input line as follows:

   input variable1 variable2 variable3 $ @@;

   This takes groups of numbers together (based on how many variables you have), and considers them to be a single observation. You only need to add '@@,' no matter how many variables you have in your data.

Reading from a URL

There is not a lot different between this method and the 'infile' command above. However, this can save the step of saving the data. The code looks like:

```
filename mydata url 'http://www.yourwebsite.com/datafile.txt';
data a1;
   infile mydata;
   input Variable1 Variable2 Variable3;
proc print data=a1;
run;
```

The text right after 'filename' in the first line defines the dataset name. 'url' indicates that the data is on a website which is defined in the 'http:// ... ' step. Then, the 'infile' command uses that dataset as the source.

The same additional options that were found in the 'infile' section still apply here.