Data Exercises

Exercise 1 – Importing data into .vdfs

A - Importing DAT-format files

Vensim can import time series data from text files in the following format:

```
variable name
time      value
time      value
another variable name
time      value
time      value
…
```

This is a quick and useful format for small datasets (and for larger datasets in some applications). We generally use the suffix *.dat to identify these files.

1. In Vensim, use the text editor (*File>Edit File*) to review Data050.dat.

2. Close the text editor. Then use *Model>from .dat format* and select Data050.dat. Vensim will create Data050.vdf from those data.

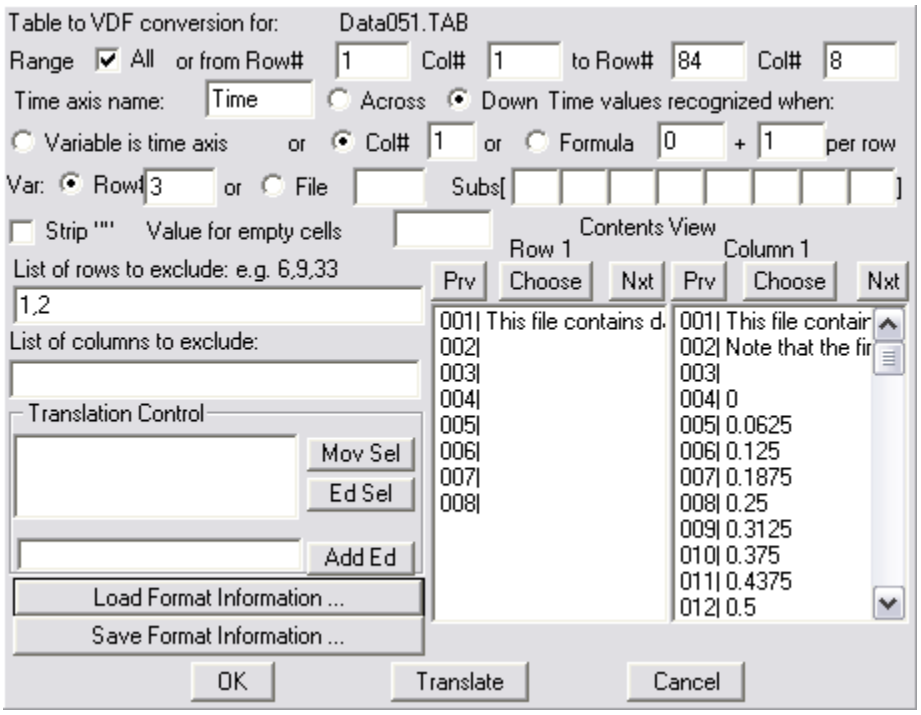
For more information on the .dat format, see the Vensim Reference Manual, chapter 9.

B - Importing spreadsheets and tables

More commonly, time series data appear in a table, with time running across (or down) and one row (or column) for each variable.

1. If your computer has Excel or a similar spreadsheet program, use it to open and review Data051.tab.

2. In Vensim, use *Model>Import Dataset* and select Data051.tab. A dialogue box will appear:



Fill it out as above and click "OK".

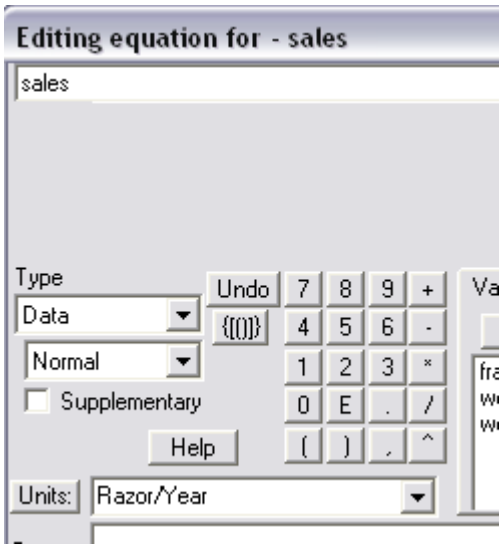
If you are prompted to save your format information, do so, choosing any name you wish. *(The entries pictured above can be saved in a Format file (*.frm), so that if later you need to import another worksheet with the same format, you can simply load the format information. We have already done this and saved the settings above in a format file called Data051.frm.)*

For full information on this dialogue and for options when importing spreadsheets and tables, see Chapter 9 of the Vensim reference manual.

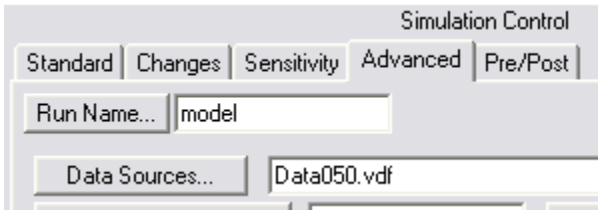
Exercise 2 – Using exogenous data to drive the model

Open Raz050.mdl and save a copy under a different name (perhaps DataEx2.mdl). In your model, rather than using the existing model equation to compute *sales,* you will have the model read sales directly from the historical data you imported into Data050.vdf. This will require two steps, one to tell Vensim to read sales from data, and one to tell it in which file to find the data:

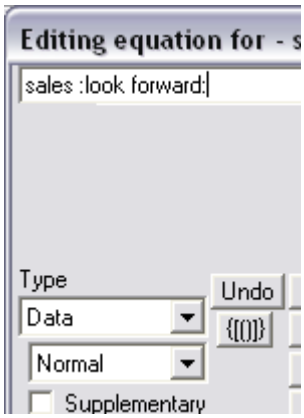
1. Open *sales* in the equation editor, and change the Type to Data:



2. Choose *Model>Simulate…* (or, equivalently, the simulation control icon) and select the Advanced tab. Click Data Sources and select Data050.vdf:



3. Run the model.
4. Do a causal trace of *new customers*. What value of *sales* is Vensim using after time 5?
5. Change the equation for *sales* by putting the keyword :look forward: after the variable name:



Change the run name to LookForward and run the model again. Now do a causal trace of *new customers,* with both the original run and the new run loaded. What is Vensim doing differently?

6. Change the *sales* equation again, using the keyword :hold backward: instead of :look forward:. If you were to run the model again, what would you expect the graph of *new customers* to look like? Sketch your guess here:

7. Run the model using run name HoldBackward and confirm your sketch.

Full information about the way Vensim interpolates exogenous data is available in Chapter 2 of the Vensim Reference Manual.