

Using Stella files.

You can examine High Performance System's short tutorials on their web page at www.hps-inc.com. (They are now selling version 7; these models were written in version 6.) It is probably most helpful to look at that. These are notes to get by enough to read the models I have written.

A Stella file has three "levels": interface, map/model, equation. The models are generated at the map/model level. The interface level can be set up to provide an easy way to manipulate the options and parameters in the model. The equation level shows you what the equations are, although you normally do not work at this level (and the equations include elements you would not have in a real equation set, or express them differently). You move between the levels using the little arrows at the upper left of the work area, just below the tool bar.

At the map/model level, there is a toggle which shows either a globe or a chi-square. You need to be in model mode (the chi-square) to see the mathematical specification of an item when you double-click on it.

Stella basically creates difference equations. Everything operates as a function of time. At the map/model level, there are three items that form equations: stocks (rectangles) which are basically the x_t 's, flows (pipes) which are basically the dx/dt 's, and converters (circles) which manipulate the algebraic relations among stocks and flows and are also used as option switches. If you set up a simple pipe flowing into a stock, that represents: $x_{t+dt} = x_t + (dx/dt)dt$. If you add an outflow pipe, that represents $x_{t+dt} = x_t + (dx_1/dt - dx_2/dt)dt$. If you specify that the outflow (dx_2/dt) equals the stock, then you are specifying $x_{t+dt} = x_t + (dx_1/dt - x_t)dt = (dx_1/dt)dt$. When the chi-square is showing, if you double click on a model element, you can see its specification.

Some items are arrays. They look like stacks. It is a little tricky to find out the dimension of an array: you have to go into the array editor and basically click on things until you see "new." I usually add stocks to my models that just count the dimension of arrays for me. This is the "Num Actors" variable. Where possible I used this variable rather than "hard wiring" the array size into equations, so the arrays in the models can be more easily modified.

Sector frames are used to give some order to the drawing. The interface level shows these sectors and their relations. Sometimes this is helpful, sometimes not.

I have put controls on the interface level to allow switching between model options and setting parameters.