

## (Unofficial) Steps for Creating a Model in Stella Online

Diana M. Fisher

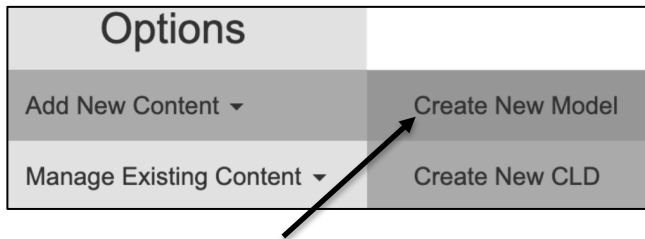
1. You must get an account from isee systems, inc. This only needs to be done once. Go to: [publish.iseesystems.com](http://publish.iseesystems.com). Click on “Create Account” in the upper right hand corner of the page. On the next screen type in your name, email address, and password (twice). Click to agree to the terms of service and click “Create Account.”

[isee Exchange](#) shows many published interfaces that other people have created and made available to use for free.

2. At the top of the window you will see:



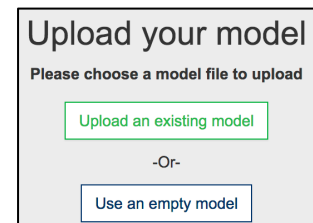
3. On the left of the window you will see “Options.” (Note: The first time you will also see 3 choices in the center of the window under “My Activity.” Try them or ignore them.)



4. Select “Add New Content/Create New Model” and just type in the name for the new model.

You must also check the “Creative Commons” agreement at the bottom of the dialog box. Click “Add Model.”

5. In the next dialog you will want to choose “Use an empty model.” (Note: it is possible to upload models that were created using the purchased Stella software.)



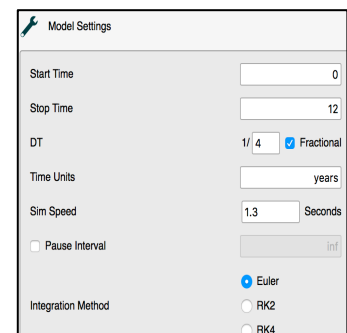
6. The next screen places you in the editor for actually building a new Stella model.



Stock flow converter connector text box graph pad Model view Edit Mode Explore Mode

Modeling icons

7. Notice also there is a properties panel that has opened up at the right of the screen. In this panel you can specify the simulation time, how often you want the calculations made (per time unit) = DT, the name for the time units, how quickly you want the simulation to run (Sim Speed), and the Calculation Method (Note: for real-time approximations RK4 is the best calculation method to use.) You can always display this panel at any time, if you are in Edit mode, and you double click on any white space in the modeling window. Note: you can close the panel by clicking on the little triangle that is in the left column of the panel, midway from top to bottom.



8. To create a model click on the **Stock** icon (to select it) and release the click. (We usually start with a stock, which represents the variable we want to track in our simulation.) Then click in the modeling window to deposit the stock icon. You want to give it a name. Notice that a little yellow warning sign has appeared in the icon. That means it is not yet defined. Double-click on the warning sign. Notice that a new properties panel has opened on the right side of the screen that allows you to define the property of the icon (ie, enter a value or a formula). Note: you may have to open the panel if double-clicking on the stock does not automatically open it. You can do this by clicking on the little triangle at the right border of the window about half way up the window. If you enter a value for the stock and click back in the model window the yellow warning sign in the icon disappears. This is the method used to let you know which icons you have defined at any given point in the modeling process. Note: the free version of Stella Online only allows a maximum of 2 stocks in a model, and a total of 12 icons (excluding connectors).

Notice two other things in the Stock properties panel. There is a check mark in the top of the panel that indicates the stock will not allow negative values. Always remove that check mark. Also, you can define units in the bottom part of the properties panel by just typing in the units you want.

Note: You can make the model diagram larger or smaller by zooming in/out, using the magnifying glasses on the top, right of the tool bar.



9. Next we usually add the **flows**. Flows require a click and drag process in order to work. For an inflow select the flow icon and release the click. Then, when on the left of the stock (about 1-2 inches, but on the same horizontal level) click and drag the flow (moving toward the stock) until you reach the stock and the stock turns blue. You can name the flow and define it now or later. You will never be able to specify flow units – the software always defines the flow units to be the stock units per time units (which is always how they should be defined).


If you want to create an outflow you must start your initial placement of the flow INSIDE the stock and click and drag to the right (or up, or down) moving outside the stock.

Inflows and outflows must always contain positive values. The direction of the flow indicates whether it will add to or subtract from the stock value. If you want one flow to be positive sometimes and negative other times (as is necessary for the oscillating spring) you will need to use a bi-flow (which can be selected using the drop down menu for the flow icon in the tool bar).




10. **Converters** are used to hold additional important parameters or formulas. Select, release click, click to place, define (just like you did for the stock).
11. **Connectors** work like flows in that they also need click and drag movement to connect two icons. Connectors just send numerical information from one icon to another (like a telephone wire). You can connect most of the icons using a connector, but you can NEVER draw a connector into a stock. Stock values can only be changed by inflows or outflows.
12. To set up a **graph**, click on the graph pad, release the click, and click to place it in the modeling window. Double-click on the blank graph to open its property panel. Click on the button with a green circle with a plus (+) sign inside. You will see a list of all the components in your model.

Click on the name of the variables you want to have displayed in the graph. Those variables will now be listed in the “Series List.” Click on a variable name in the Series List and type in Min and Max Values for its vertical scale and select the thickness and color of its curve. You can position the legend to the right or below the axes. You can place items on the same or different scales and place some scales on the left axis or on a right axis (good for putting some variables on the same scale but not others). You can add grid lines to the graph. You can make a comparative graph by choosing only one variable and then clicking the Comparative option in the top of the graph panel. Stella Online only allows two runs for one variable to be displayed on a comparative graph pad.

Note 1: you can read the values of any graph by clicking inside the axes and dragging left and right on the grid. The point values of each graph will be displayed next to their respective names. Note 2: the free version of Stella Online only allows one graph pad to be created with a maximum of 3 different graphs displayed.

13. You can **run a simulation** by going to the triangle in the bottom left of the window. You can erase all graphs by pressing the restore all devices button  (also in bottom menu bar). Once a model has been run you can click on the big blue ball at the end of the status bar (to the right of the “restore all devices” button) and move it left to move to an earlier point in the simulation. It erases the part of the graph that was created after it’s current location.

14. Some trouble shooting tips.

- A. If you double-click on an icon and do not get the properties panel that will allow you to define the icon, you may be in map mode  rather than in model mode . 99.9% of the time you will want to be in model mode.
- B. If you cannot seem to open a properties panel when you think it should open, make sure you are in edit mode. 

I hope this document will help you get started more easily.

You will want to create your own models, of course. But if you want some small ones to just practice with I have copied some diagrams and values/formulas below for your convenience.

