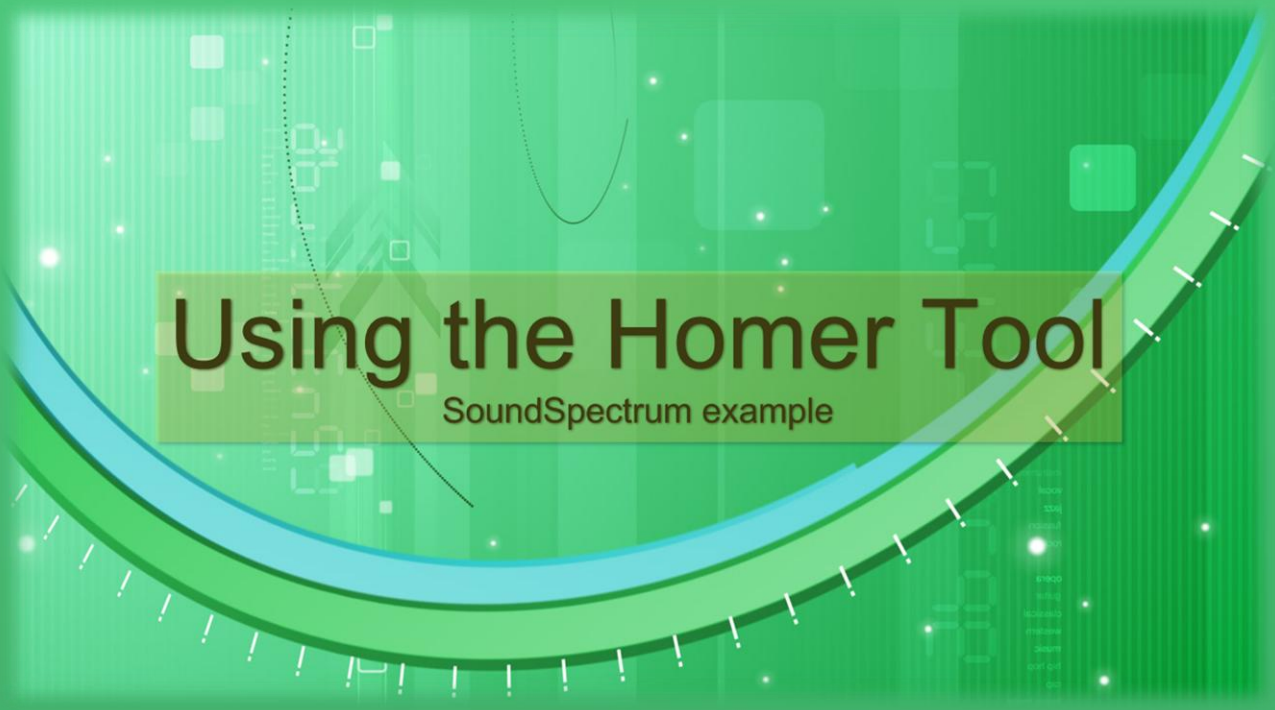

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Description

Homer is a tool to take a Ptolemy II model and specify which actors should run remotely, where sinks should be visualized on the remote device, and which attributes should be changeable and where remotely.

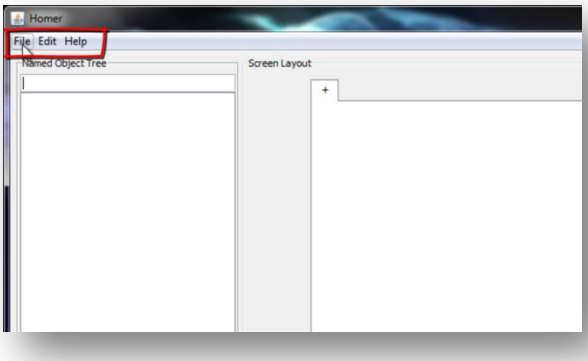
This document assumes basic Ptolemy II user knowledge, and uses the terminology defined by Ptolemy.

Using Homer: Example layout creation

To show the capabilities of Homer, let's walk through creating a layout for the SoundSpectrum model for the HTC Evo 4G smartphone.

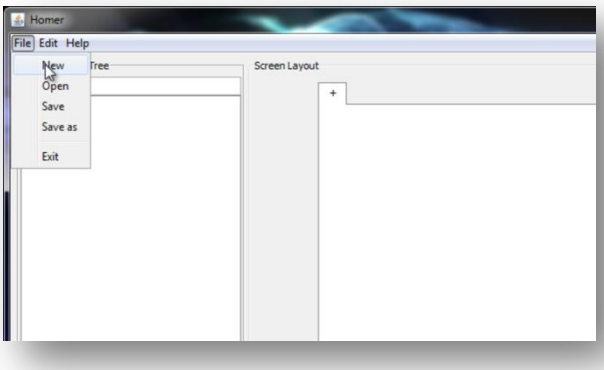
The menu bar

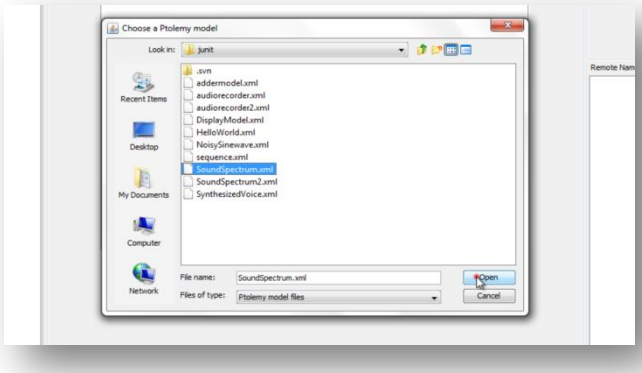
Homer contains a standard menu bar for creating a new layout, opening an already existing one, and saving the change. It's also possible to set some preferences for the layout, but we'll get back to that later.

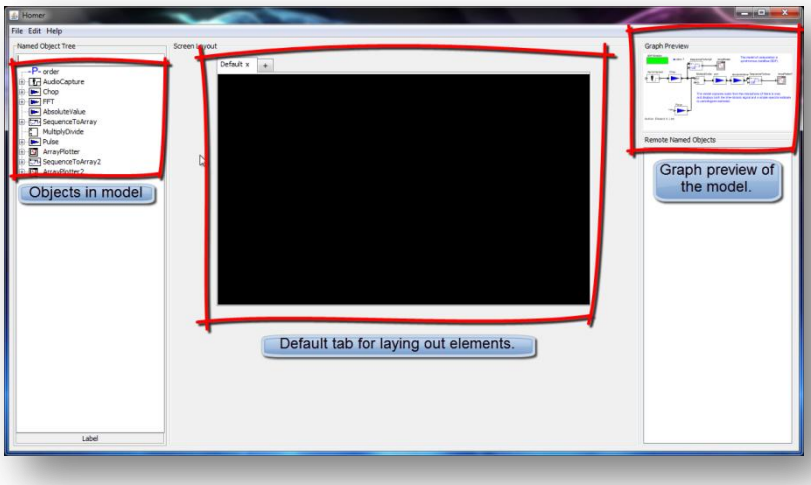


Starting a new layout

To start a new layout, go to the "File" → "New" in the menu bar. This will prompt you to select a Ptolemy model to open. For this example, let's choose the SoundSpectrum.xml containing the model and click "Open".



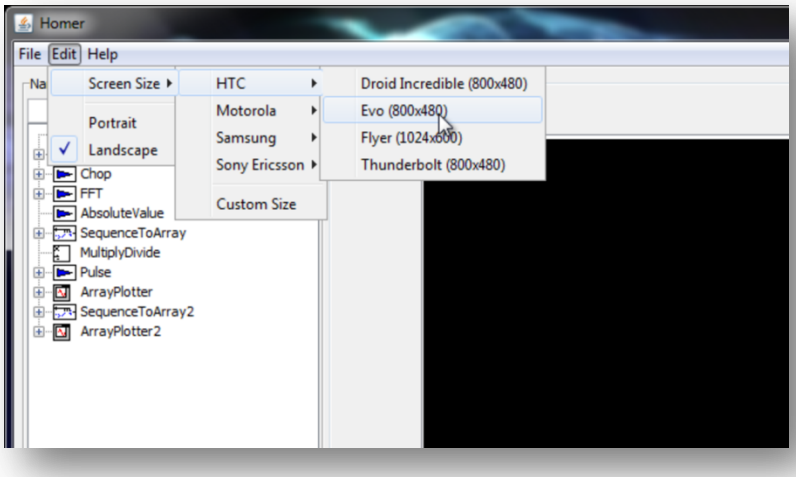




After the model is loaded, the left panel is updated with the available actors and attributes defined in the model, the graph preview shows the original model, and a default tab is created in the middle “Screen layout” portion. Let’s continue to set some global preferences to the screen layout.

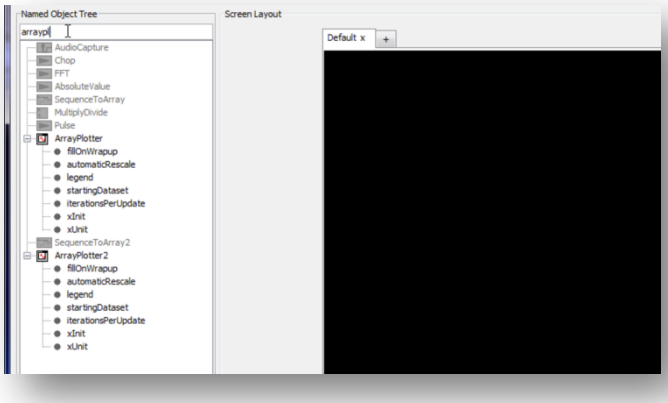
Setting orientation and screen size

In the “Edit” menu we can set the target screen size based on either a predefined model, or make it a custom size. For this example, let’s set it to “HTC” → “Evo”, which will resize our screen layout to an 800x400 screen. We would also like to use it in portrait orientation. This option can be found under the same menu.



The tree of named objects

Now we're ready to actually add named objects from the model.



Browsing the actors and their attributes

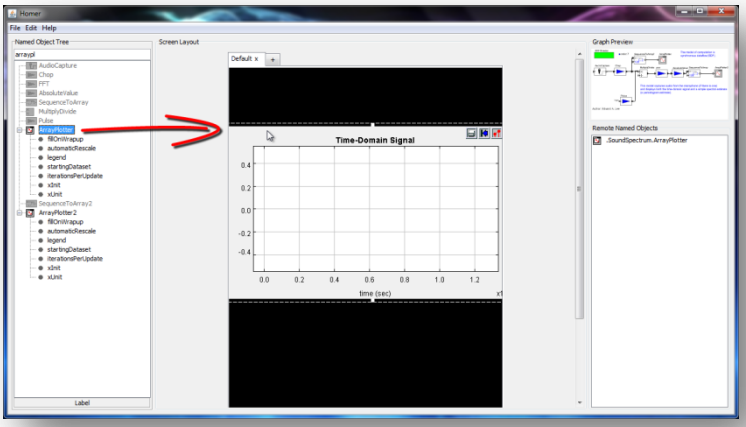
To find the object we want to add, we can either find it by expanding and collapsing the elements in the tree, or by typing its name into the search field above. The search will emphasize the elements matching the search criteria, and will also expand the tree for a found element, or if the element is under another element.

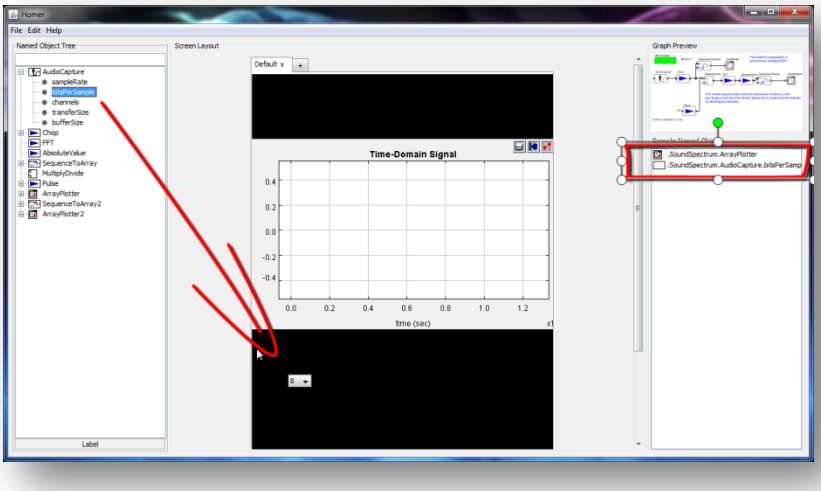
Dragging and dropping model elements

After finding the element, we can add it to the screen layout by simply dragging and dropping and dropping it. If the element does not have a representation or cannot run remotely, it will not be possible to drop it.

Screen layout panel and the tabs

For this example, let's take the first ArrayPlotter actor, and drop it somewhere on the screen layout. A representation for the element will appear on the screen layout panel. If an actor has a nice Java representation, such as this one, the tool will use that to visualize the element, otherwise it will use an image, and if that's not available than an icon is used from Vergil.



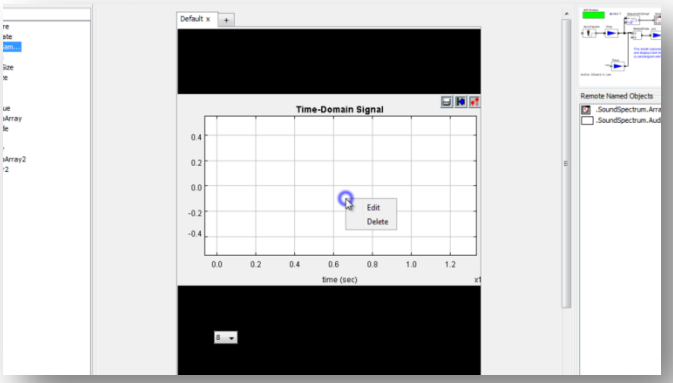


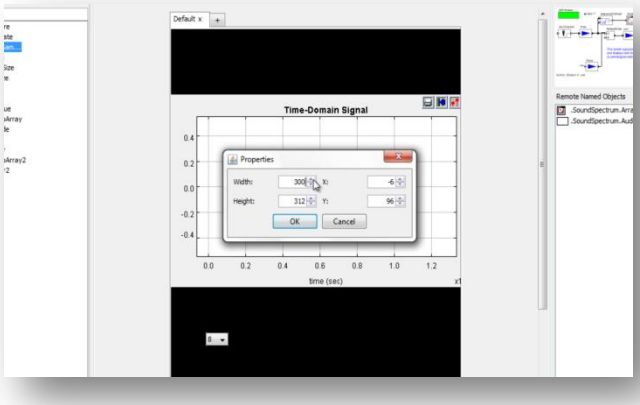
Attributes can be dropped the same way, for example, let's drop the bitsPerSample attribute of the AudioCapture. This way, when running the simulation on the HTC Evo device, this attribute can be changed from the device itself. As you see, the representation is a dropdown box, following the similar style guidelines that Vergil has.

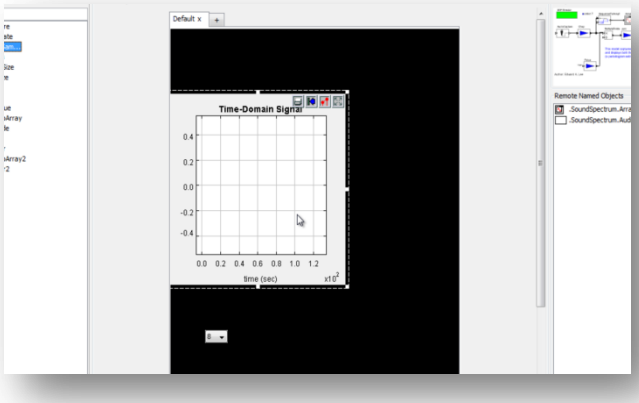
Also notice that the element got added to the remote named objects list on the right side. This indicates that that element will run remotely, on the android device, instead of executing on the Ptolemy server. We get back to this panel later.

Resizing elements

Since the Time-Domain Signal plotter is too big, let's resize it. Resizing can be done in two ways. One is to right-click on an actor and select edit. Here we can reduce the width to, for example, 300 pixels. Another way is to simply resize using the small boxes that appear as we hover over an element.

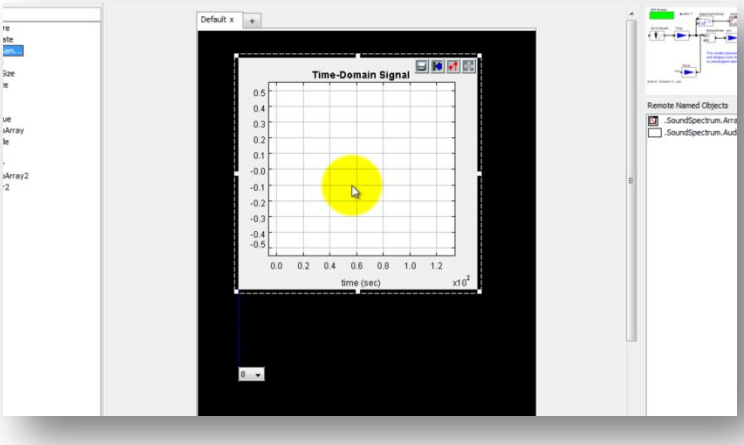


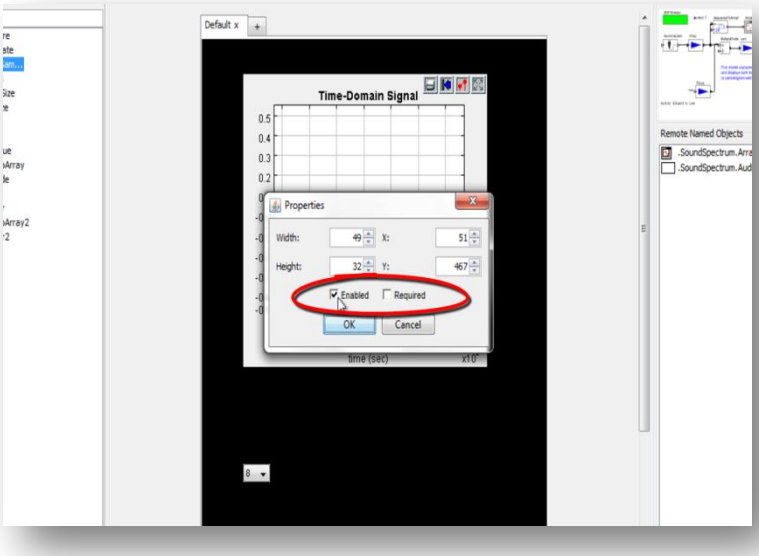




Moving elements

All the elements can be moved by simply clicking on them and moving them around without releasing the button. Some guidelines will help the organize the different elements on the screen, and they will also stick to the edge of the screen if they get too close to it.





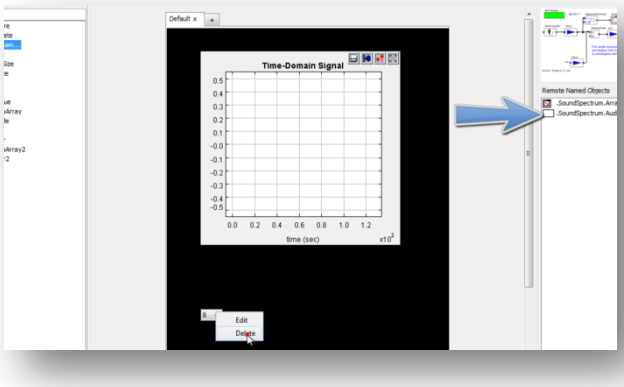
Changing properties

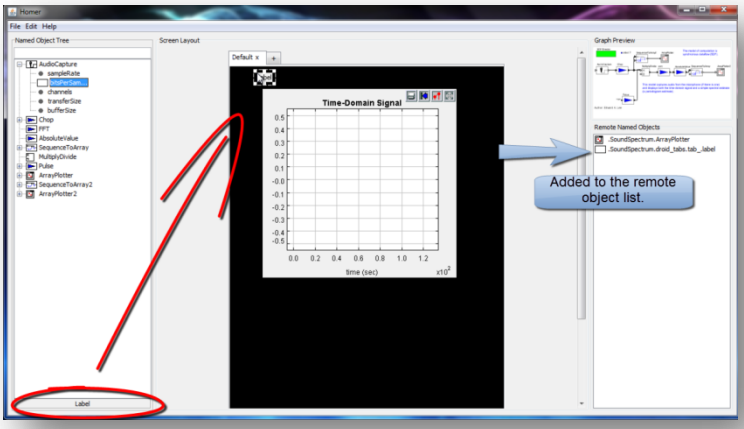
Besides the size, attributes have a few additional properties that can be set when right-clicking on them and selecting the edit option. The attributes can be disabled by unchecking the enabled button; this will make them non-editable. It's good to show some information, while making sure the user won't actually change it. The other one is the required

property. If that is enabled, the simulation will not start on the android device as long as no value is present in that field.

Deleting elements

Unwanted elements can be easily deleted by right-clicking on them and selecting the delete option. Notice that when deleting an element, it also gets deleted from the remote named objects list on the right side.



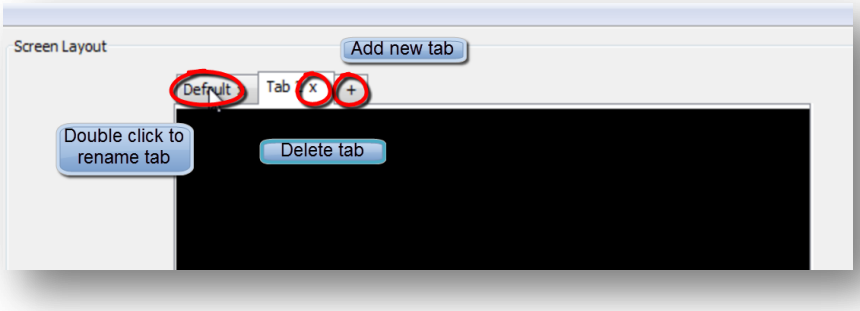


Adding labels

Occasionally we might want to add annotations or just label a dropped out actor or attribute. To add a label, it can be drag and dropped from the label button right below the named objects tree. It's actual text can be set by right-clicking on the label and selecting edit, or double clicking on it.

Adding, renaming, and deleting tabs

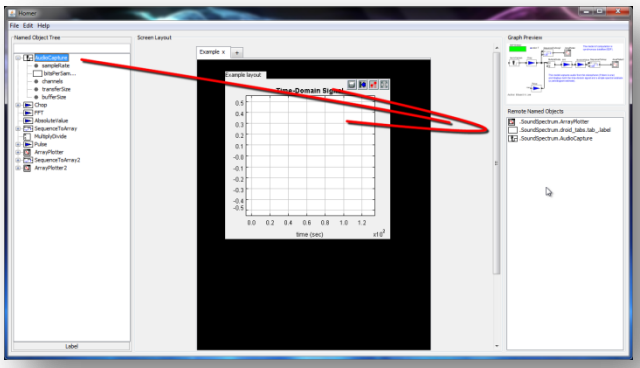
The screen layout can handle multiple tabs with multiple content. To add a new tab, simply click on the "+" button, and a new tab will be created. Switching between the tabs are done by selecting the name of the tab, while tabs can be easily deleted, using the small "x" button next to the tab's name. Be aware that all elements added to the tab are removed when the tab is deleted.



A tab can also be renamed by double-clicking on its name. Let’s rename the default tab and call it example. After hitting enter or the screen layout losing focus, the new name is set for the tab.

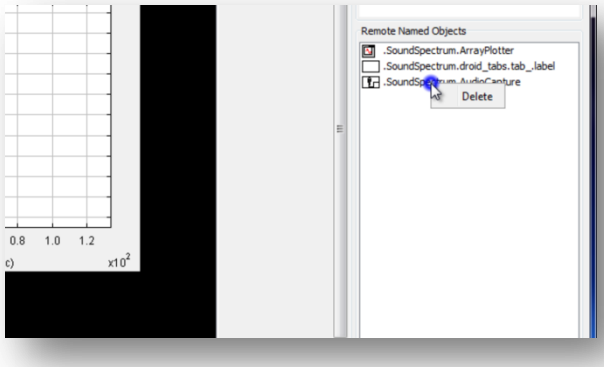
Remote named object panel

Some elements we might want to run on the Android device, but they don't really have a representation. For example, we can use the device's microphone to capture sounds instead of the microphone connected to the server.



Adding elements with no visual representation

To do this, we drop the AudioCapture actor to the remote named object panel. This indicates that the element will execute on the device.

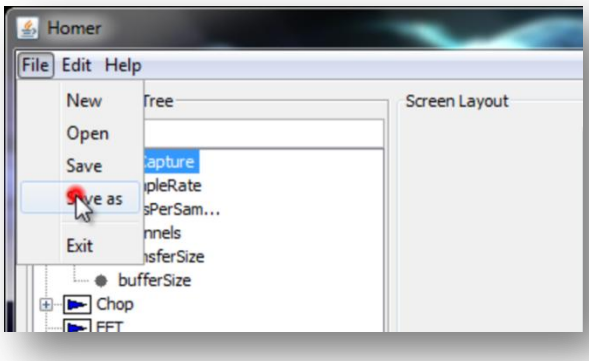


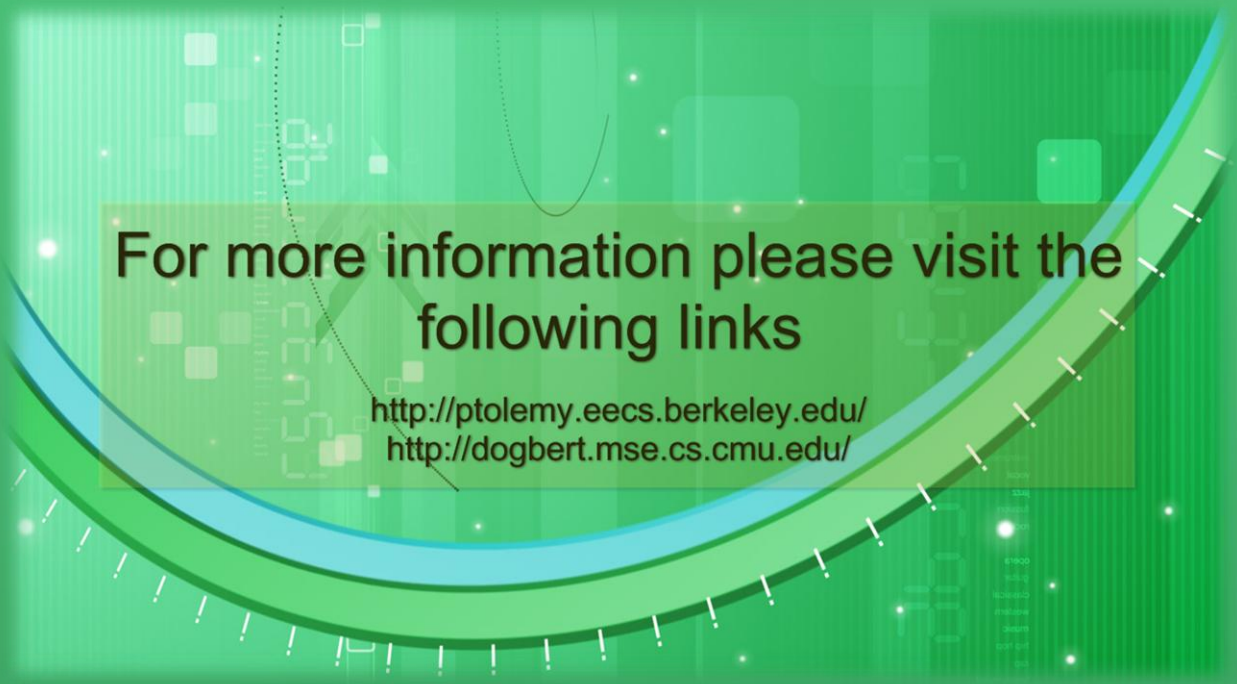
Deleting elements

To remove these elements, they can simply be right-clicked on the panel, and select delete. If an element is deleted that has a visual representation, for example the label, it will also be removed from the screen layout.

Saving and re-opening models

After the layout is finished, we can save it from the "File" → "Save as" menu. Let's name the layout "SoundSpectrum_test.layout.xml". By naming convention, the name has to start with the name of the original model, followed by an underscore and any other indicators, and finished with ".layout.xml". This layout can be later re-opened by selecting open, and specifying both the original model, and the saved layout file.




For more information please visit the following links
http://ptolemy.eecs.berkeley.edu/
http://dogbert.mse.cs.cmu.edu/