

## Assembling a Matrix Using GeoVISTA *Studio*

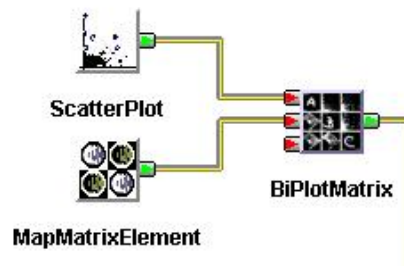
### 1. Before you begin:

If you are not yet familiar with the basic functionality of GeoVISTA *Studio*, check out our Quickstart guide located at:

<http://www.geovistastudio.psu.edu/jsp/tryit.jsp>

### 2. How Matrices work in *Studio*

Studio currently has beans that enable the creation of fixed row, biplot, and multiform matrices. Each of these can be created by connecting their respective Java Bean matrix components to a set of desired representation forms in the GeoVISTA *Studio* DesignBox. For example, Figure 1 shows a sample composition of a map and scatterplot matrix (an example of which is shown in Figure 2). This design can be created by connecting the **ScatterPlot** bean and the **MapMatrixElement** bean to the **BiPlotMatrix** bean.



**Figure 1: A map and scatterplot matrix is set up by connecting map and scatterplot beans with the generic matrix bean.**

The composed map and scatterplot matrix can then be connected with the *Studio* coordinator bean or data input beans, so that it can be coordinated with other beans and share data, classification schemes, interactive selections, and dynamic conditioning. Figure 2 shows an example design of a map and scatterplot matrix, employing a spreadsheet bean and several converter beans to handle data inputs.

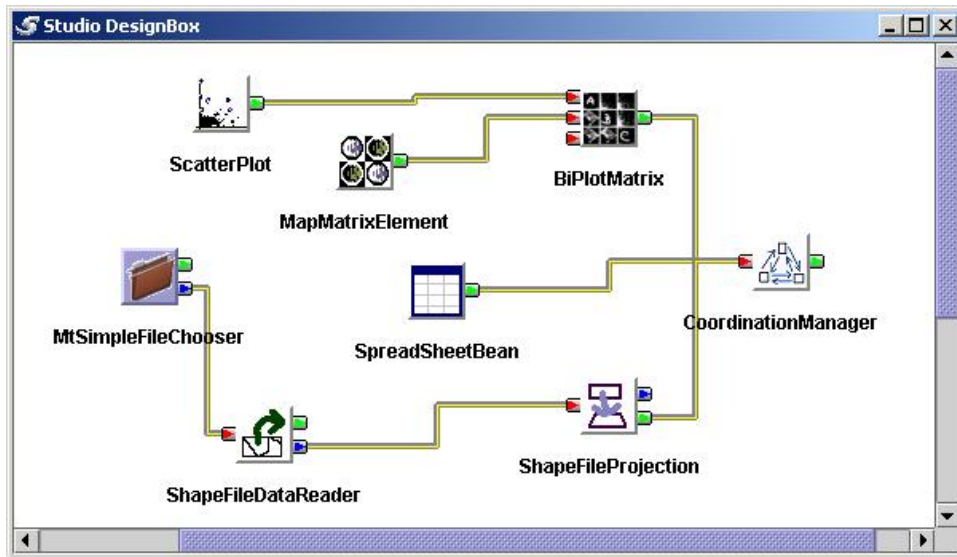


Figure 2: A *Studio* design with beans for data input, a *SpreadSheetBean* and a *Bivariate Matrix* component.

### 3. Building your own Matrix

The differences between the design in Figure 5 and the design built in the Quickstart guide to *GeoVISTA Studio* are that the **FixedRowMatrix** bean has been replaced by **BiPlotMatrix** bean and there is one additional component — the **SpreadSheetBean**. You can replace the **BiPlotMatrix** bean by deleting **FixedRowMatrix** bean in the design built in Quickstart Tutorial, and add the **BiPlotMatrix** bean from '*geoviz*' palette to the *Studio* DesignBox window.

Now you need to connect the **BiPlotMatrix** to the **CoordinationManager** bean. Connect the green '**this**' communicator from the **BiPlotMatrix** bean to the '**this**' input of **CoordinationManager** bean. This will cause a dialog box to appear. Select '**yes**' and click on '**Next >**.' This will bring up another dialog box. Select '**Do nothing**' and click '**Finish**.' These options are there to control how beans are loaded and what should happen if they are disconnected.

Next you need to add two inputs to the **BiPlotMatrix** bean. Right click on the bean icon, select the '**Property**' menu item and enable **SetElementClass1( Object )** and **SetElementClass2( Object )**. This exposes the methods that set the types of graphs inserted in the matrix. Now, connect the '**this**' green connector from the **ScatterPlot** bean to the **SetElementClass1( Object )** input on the **BiPlotMatrix** bean. This inserts scatterplots into the first row of graphs in the **BiPlotMatrix** bean. To see which input is which, roll over the input with your mouse and wait for the tooltip to appear. When you connect the **ScatterPlot** to the **BiPlotMatrix** it will show you the same '**Self Adapter Wizard**' that you just saw above. Follow the same steps and complete your connection.

Repeat the process with the **MapMatrixElement** bean, connecting it to **SetElementClass2( Object )** on the **BiPlotMatrix** bean. Now, you've made a design for a scatterplot and map matrix and connected it to the **CoordinationManager**.

To add a **SpreadSheetBean** to the design built above, we use the same procedure as required to connect the **BiPlotMatrix** to the **CoordinationManager** bean. Connect the green **'this'** communicator from the **SpreadSheetBean** to the **'this'** input of the **CoordinationManager** bean.

Congratulations – You're finished building the design!

If you run into problems, or would simply rather not build this design yourself, click here to launch a full version of **GeoVISTA Studio** that has this design pre-loaded:

<http://www.geovistastudio.psu.edu/autobuild/gvstudio-matrix.jnlp>

#### 4. Try it out:

That's it! You've built a matrix using *GeoVISTA Studio*. Now you can tweak the interface design by manipulating the windows in the **Studio GUIBox** before you save your design and run the application.

Remember, it's important to save your design before you load data. *Studio* designs saved after data has been loaded are unreliable and non-transferable – we're working on resolving this issue!

Once you're finished changing the GUI, find the **DataLoader** component and click the **'Load data'** button to start using the application you've just designed.

A step-by-step guide describing how to use matrices in *Studio* is available at

<http://www.geovista.psu.edu/grants/nci-esda/tutorials.html>

**Questions or comments? We welcome your input! Email us at [arobinson@psu.edu](mailto:arobinson@psu.edu)**