Simple GTL Example

```sas
proc sort data=sashelp.class out=class;
  by sex;
run;
proc template;
  define statgraph groupreg;
    begingraph;
      entrytitle 'Separate Fit by Sex';
      layout overlay;
        scatterplot y=weight x=height /
          group=sex;
        regressionplot y=weight x=height /
          group=sex degree=3 name='reg';
        discretelegend 'reg' / title='Sex';
      endlayout;
    endgraph;
  end;
run;
proc sgrender data=class template=groupreg;
run;
```

For more information, see the following:
- Basic ODS Graphics Examples:
- Advanced ODS Graphics Examples:

For complete information, see the SAS 9.4 documentation at [http://support.sas.com/documentation/](http://support.sas.com/documentation/).

Other GTL Statements

- `notes "template-description";`
- `dynamic dynamic-variable list;`
- `mvar macro-variable list;`
- `mmvar numeric-macro-variable list;`
- `if (condition) GTL-statements else GTL-statements endif;`
- `sidebar / <options>; GTL-statements endsidebar;`
- `cell / <options>; GTL-statements endcell;`

Layout Lattice Example

```sas
proc template;
  define statgraph res;
    begingraph;
      entrytitle 'Residuals by Predictor';
      layout lattice / rows=2 columns=2;
      layout overlay;
        scatterplot y=r x=height / group=sex;
        loessplot y=r x=height;
      endlayout;
      layout overlay;
        boxplot y=r x=sex;
      endlayout;
      layout overlay;
        scatterplot y=r x=age / group=sex;
        loessplot y=r x=age;
      endlayout;
      endgraph;
    end;
run;
proc glm data=sashelp.class;
  class sex;
  model weight = height sex age;
  output residuals=r out=r;
quit;
proc sgrender data=r template=res;
  label r= 'Residuals';
run;
```

Graph Template Language Tip Sheet

This tip sheet collects frequently used information in one place so you don't have to search through the online documentation. It also gives you examples to take home and try.

ODS Graphics is an extension of ODS (the Output Delivery System). The Graph Template Language (GTL) specifies the layout and details of each graph produced by ODS. This powerful language includes statements for specifying plot layouts (such as lattices and overlays), plot types (such as scatter plots and histograms), and text elements (such as titles, footnotes, and insets). It also provides support for built-in computations (such as histogram binning) and the evaluation of expressions. Visual attributes of graphs are determined by the active ODS style. However, options are available for specifying colors, markers, and other plot features.

This tip sheet presents the statements and options that are most commonly used with the Graph Template Language in SAS® 9.4.
**GTL Overview**

For every graph and style, SAS provides an ODS template, which is a SAS program that gives instructions for creating the graph or style. You do not need to know anything about templates to create statistical graphics. With just a little knowledge of the template languages, you can modify graph and style templates and make permanent changes that apply every time you run a procedure. Some GTL statements and options are listed on this page.

**Graph Template Structure**

- `proc template;` define statgraph template-name;
- `begingroup / designing=height | width | endgraph;` GTL-global-statements
- `end;` run;

**Legend Statements**

- `continuouslegend names = / <options>;` discretesegend legendtype = / name = / <options>;
- `mergedlegend names = / <options>;`

**Text Statements**

- `entrytext text-items < / <options>;` entryfootnote text-items < / <options>;
- `entrytitle text-items < / <options>;`

**Linear Axis Options**

- `integer = boolean` minor ticks = boolean
- `origin = number` threshold max = number
- `thresholdmin = number` tickvalue = thin | rotate |stag | other
- `tickvalueformat = (format-options) | data | format` tickvalue = (numeric-list)
- `tickvaluepriority = boolean` tickvaluesequence = (start = end = < increment = )
- `viewmax = number` viewmin = number

**Layout Statements**

- `layout dataline write = rowdata = c-var [ <options> ];`
- `layout grid = grid | center | bottom time = (time-axis-options) type = auto | discrete | linear | time | log`