

Attachment D - Alpha Version Application Creation Procedures

1. Incorporating data into the ATR theme attribute table from SAS statistical software reports

The shapefile *atr.shp* is a point data source depicting each ATR station's location by an *x,y* -coordinate. The accompanying database, *atr.dbf*, contains attribute information about each site, including, among other things, the ATR unique ID, station number, route, and location. New information obtained through the SAS software needed to be incorporated into the database as well. This was accomplished by creating a new Dbase table, *hot linktable.dbf*, with three attributes named *best_fit1*, *best_fit2*, and *best_fit3* depicting the three best-fit groups for each ATR station. A fifth attribute, *current_assignment*, is a copy of the values in *best_fit1*. This field is used to symbolize the ATR theme, and will be updated by the user if necessary with values from *best_fit2* and *best_fit3*. The ATR unique ID was also added to the new table to act as a link between it and *atr.dbf*.

2. Creating the project and organizing data

The project, *seasonal.apr*, was first customized to contain two View components. The first acts as an interactive map display of the data, displayed in a View as themes, and the other a locator map.

The first View component contains one view window, entitled NCSU-ITRE Seasonal Group Assignment Application, or SGAA. The SGAA view displays several statewide themes, including county and municipal political boundaries, ATR stations, and various surface features.

Once the *atr.shp* shapefile was added to the SGAA view it was renamed Continuous Traffic Count Station and its attribute table was opened. The table was joined to *hot linktable.dbf*. With the information from *hot linktable.dbf* accessible through the attribute table, the theme was categorized into eight classifications based on each station's (i.e. *current_assignment* = 0), it was keyed as an eighth classification, *Not Enough Data*.

Other themes were added to the SGAA view. If appropriate, the theme's name and symbol were changed. The following list indicates the themes added by their name and the source:

NAME	SOURCE	SOURCE TYPE
Continuous Traffic Count Station	<i>atr.shp</i>	shapefile
Primary Road	<i>lrs96 (route.hwy)</i>	cover
Secondary Roads	<i>nonlrs (arc)</i>	cover
Railroad	<i>rail (arc)</i>	cover

Surface Water	hydro.shp	shapefile
Municipality	mb1997 (region.towns)	cover
North Carolina County	cbsl (region.co)	cover

Some of the coverages have a minimum and maximum scale in which they will display. This prevents too much clutter when viewing the display at a small scale. The Secondary Road theme, for example, has a maximum display scale of 1:250001. Thus, its features do not display when the view scale is smaller than 1:250000. The minimum and maximum scales at which a theme displays is manipulated by the theme property's *Display* component.

1. Creating Annotation

Four annotation layers were created and added to the SGAA view by converting a few features from the cbsl shapefile into a new shapefile, label_extent.shp. This shapefile was in turn copied three more times and renamed ATR Annotation Layer 1, 2, 3, and 4, respectively. Each ATR station was then labeled at a small scale. These labels were attached to ATR Annotation Layer 4. The mapextent was then scaled up and each ATR station was labeled again. Those labels were then attached to ATR Annotation Layer 3. This process continued twice more until there were four complete annotation layers, all depicting the ATR unique ID, but at different font sizes. Each layer was scaled so when a user zooms into or out from the display, the size of the annotation will grow or shrink as well. To omit overlap, each layer has a specific minimum and maximum scale in which it will display. For example, the layer ATR Annotation Layer 3 displays when the display is scaled between 1:550000 and 1:850000. Once the display is zoomed in past 1:550000, Layer 3 no longer displays. Layer 2 has a minimum / maximum scale between 1:300000 and 1:550000, so when Layer 3 turns off, Layer 2 turns on. This prevents labels from becoming too large when a display is shown at a large scale and too small at a small scale.

A fifth annotation layer was created for labeling some of the primary highways. This was done at a small scale extent, and only for Interstate and US highways. At a scale larger than 1:550000 or smaller than 1:850000, the labels do not appear.

2. Creating a locator map and associated scripts

The second of the two view components was added to incorporate a special view, named Locator Map, with a customized interface. The view component was named Locator and given a unique icon. An Avenue script called View.LocatorMap associated with a button on the SGAA view opens, activates, and promotes the Locator Map and draws a box mocking the extreme coordinates of the SGAA view extent. The size and position of the box can be manipulated by the user by clicking and dragging the edges. Another script, named View.ExtentRedraw and associated with a button labeled "E" in the Locator Map view interface, allows the user to return to the SGAA view redisplayed to the extent of the resized / repositioned locator box. A third button, labeled with a "B", is associated to a simple script,

View.BackToView1, that returns the user to the SGAA view at its extent previous to activating the Locator Map View window.

Each of the three scripts were written in ArcView's script editor and are accessible through the project's Scripts component.

3. Creating a hot link

Each ATR feature has an accompanying document that contains statistical information in graphs by group for that station. The documents were created using Microsoft Word. An image of the .doc files were captured and stored as .gif files, each named by according to their unique ID. For example, the document station0001.doc was captured as station0001.gif. These .gif images were stored in their own directory. Then a new character field was created in hot linktable.dbf called *images*. Values indicating the location of each station's associated .gif image were calculated into the field. A hot link was then activated for the Continuous Traffic Count Station theme. The hot link is activated through the theme property's *Hot link* component.

4. Creating the splash-screen banner

The initial startup of the project from ArcView takes a moment to load. During that time interval, a banner introducing the project and another that reads *Project Uploading, Please Wait...* displays. These banners, or message boxes, are activated using a startup script that remains active for twenty seconds. This period is based on the time the project takes to start on a local PC with a 200 Mhz processor and 32Mb of RAM.