

Map Overlays in D2D

Introduction

Nearly every operation within AWIPS requires a geographic context. In addition, effective warning decision-making takes into account societal impacts which can sometimes be related to the meteorology via maps.

Follow these steps for a basic introduction to using maps within AWIPS. This exercise is designed for the Weather Event Simulator in *enhanced case review mode* using the 24 August 2006 test case.

For specific help in launching WES in enhanced case review mode, see the [example](#).

In the following pages, steps to perform on the WES are listed in a bulleted format, and any interactions with this presentation are in red.

Click on many of the graphics contained in this presentation for a larger view.

Scale Dependency

Like many other products in D2D, the display of maps is scale-dependent. For example, county boundaries are not available for a hemispheric scale map.

Using the applet at the right, change the map scale successively to **N. Hemisphere**, **CONUS**, and **WFO** and examine how the availability of maps under the **Maps** menu changes with each scale.

Because each WFO customizes many aspects of AWIPS, it is important to become familiar with the exact set of maps on your local system.

For this exercise:

- Set the scale to **WFO**
- Load a radar image product (**kabr Best Res Refl** followed by **0.5 Refl**).

Colors, Lines, and Legends

This step builds a basic CWA boundary map.

- From the Maps menu, choose **States**.
- From the Maps menu, choose **CWAs**.

- Press the keypad **Enter** key repeatedly to cycle through the product legend, map legend, and time legend.
- While on the map legend, right-click on **State Boundaries**. In the pop-up menu, choose **Set Color** and choose tan.
- Right-click on **County Warning Areas** and set the color to yellow.
- Right-click on **State Boundaries**. In the pop-up menu, choose **Line Style** and choose dashed.
- Right-click on **County Boundaries** and change the line style to dotted.
- Right-click on **County Warning Areas**. In the pop-up menu, choose **Line Width**, and choose the thickest line.
- Right-click on **County Boundaries** and choose the thinnest available line.

Click on the graphic below to see the results you should have.

Toggle and Unload Maps

This step demonstrates loading and unloading additional line maps as well as toggling maps on and off.

- Continue directly from the Colors, Lines, and Legends tab of this presentation, or use the pre-built **ABR CWA Map** bundle in the [DLOC13 Maps](#) procedure).
- Add these two maps to your display and customize them (colors, thickness, and style) to your liking:
 1. Interstates
 2. Drainage Basins

Too many maps clutter the display. However, having the maps handy is useful for analysis and decision-making.

- With the map legend visible (if necessary, press keypad Enter), left-click on a map label to toggle it off and on.

Sometimes you want to delete a map from the display altogether. In AWIPS terms, this is called "unloading".

- Right-click on the **Drainage Basins** label.
- In the pop-up menu, click **Unload**.

Point Maps

In addition to maps comprised of line segments, D2D also supports maps of point locations.

- Use the **Maps** menu to load both **County Names** and **Cities**.
- Set the color of each to your liking.

D2D has a "progressive disclosure" feature which reveals more details in city locations with greater zoom.

- Zoom (middle-click) several times to see additional cities.
- Zoom out (left-click) to the original map size.

The Density setting also changes the detail of point locations.

- Use the **Density** pull-down menu to change the setting to **2**. Then change it to **0.5**, before returning it to **1**.

The text size is changed using the Magnification setting.

- Use the **Mag** menu and change the setting to **1.25**.

Note how the county names disappeared. It is also possible to apply density and magnification settings individually to the each point map using the context menus.

- Right-click on the **County Names** label and change its magnification back to **1**.

The **Mag** and **Density** settings work together to control the level of detail shown through progressive disclosure.

Topo (Image) Map

One map in D2D is an image, rather than point locations or line segments.

To use it in conjunction with other image products (like most radar images), use the image combination mode and fade the images in and out.

- Start with the pre-built **ABR CWA Base Map** bundle in the [DLOC13 Maps](#) procedure
- Turn on image combination. There are many ways to do this:
 1. Click on the **Image Combination** icon (demonstrated in the graphic).
 2. Click on the **Options Menu** followed by **Image Combination**.
 3. Press the **<Insert>** key.
 4. The remaining methods use the **Image Properties** dialog box. In this dialog box, click on **Combine Next Image Load**. The Image Properties dialog box is available three ways: (a) clicking the Image Properties Icon, (b) Clicking the **Options Menu** followed by **Image Properties**, (c) typing **<CTRL> + I**.
- Use the **Maps** menu and choose **HiRes Topo Image**.
- Use the **keypad +** and **-** keys to fade the images in and out.

It is also possible to fade between a single image and the map overlays.

Maps with Specific Products

Some products in D2D load particular maps alongside the product. For example, the Station Plot product under the Obs menu always loads a METAR station location map along with the observed data. Thus, both the map and the data would have to be unloaded to return D2D to the state before the product was loaded.

- Set the Map Scale to **Regional**.
- For a background image, load a **IR Window** satellite image.
- Use the **Obs** menu and load the **Station Plot** product.
- Unload the Station Plot. The station location map remains.

Range Rings

Range rings can be a handy way to find distance and bearing relative to meteorological or man-made features. D2D provides three ways to obtain range rings.

The first way consists of range rings relative to a radar site.

- Start with the pre-built **ABR CWA Map** bundle in the [DLOC13 Maps](#) procedure).
- Click on the **Maps** menu, followed by **Range Rings**.
- Zoom in and out and observe changes in the spacing of the range rings.
- Unload the range rings overlay (right-click on the legend label and select **Unload**).
- Unload the radar image (press keypad Enter until the product legend appears; then right-click on the legend label for the radar image and select **Unload**).
- Load the KBIS 0.5 reflectivity image (click the **Radar** menu, followed by **kbis**, then **kbis Best Res Refl**, and finally **0.5 Refl**).
- Click on the **Maps** menu, followed by **Range Rings**.

Note how the range rings for KBIS are not the same as KABR, even though the same menu item was selected.

The second method for range rings involves the **Az/Ran Overlay**. This tool places a set of movable range rings relative to the Cursor Home location. For more information on Cursor Home, see [Radar-Related Tools in D2D](#).

- Clear the main panel display.
- Click on the **Tools** menu followed by **Az/Ran Overlay**.

The initial location for the center of the Az/Ran overlay is the location defined for Cursor Home. These rings are easily moved.

- Make the Az/Ran Overlay editable. The two ways to do this are
 1. Middle-click on the Az/Ran Overlay label in the product legend.
 2. Right-click on the Az/Ran Overlay label in the product legend and toggle "Editable" using the contextual pop-menu.
- Move the Az/Ran Overlay to a new location. There are two ways to do this:
 1. Left-click on the circle and drag to a new location.
 2. Move the mouse to a new location and right-click.

The third way to obtain range rings utilizes the **Range Rings** tool. This tool consists of a range ring overlay and an interface to specify the location and radius of each range ring. The rings obtained from the Range Rings tool do not provide any azimuth information.

- Clear the main panel display.
- Load the interactive points to see their locations (click on the **Tools** menu followed by **Points**).
- Load the Range Rings tool. To do this, click on the **Tools** menu, followed by **Range Rings**.

In the Range Rings GUI, the Fixed Rings refers to a method of placing up to three rings around a fixed "Sample" point at specified distances from the point. This sample point is defined by your local AWIPS customization. If your office has not modified its location, the default location is near Seattle.

The Movable Rings section allows you to place single rings around the Interactive Points or around any Lat/Lon point.

- Click the drop down menu next to "**New at:**" and select Point A. Type 15 in the box under Radius. Click the **Apply** button.
- Click the same drop down menu (it should say "Point A") and type 25 in the second box under Radius. Click the **Apply** button.
- Follow a similar procedure to add a range ring at 35 nm around Point C.
- Add a 50 nm range ring around the Lat/Lon point (Lat = 45.5, Lon=-98.5). Name the point with your first name.
- Move the ring centered on Point C. Left-click on the circle over Point C and drag it to a new location of your choice.

In the GUI for the Range Rings tool, the various labeling choices are made from combinations of the following:

C = label the center point with the ID.

1 = label the first range ring

2 = label the 2nd range ring

3 = label the 3rd range ring

Potential uses of this tool include marking the location of a person or event (with no range ring, but using the point label only), or marking a buffer zone around a significant feature (airport, hazardous material spill, etc.)

In the accompanying graphic, click on the tabs at the top for examples of the three ways to obtain range rings.

To obtain credit for this exercise, write the keyword for this exercise in your Topic 1 student guide. You will need this keyword for the Topic 1 post-test in the LMS. The keyword for this exercise is: scale.