

# Arcview GIS Maps to FXC as a Mapped Image

**Overview:** These instructions demonstrate how to export a ArcMAP GIS image into AWPS FXC as a state scale mapped Image. It is anticipated that the state scale image will be the standard image for CRH WxStory. A mapped image in FXC will allow users to overlay such AWIPS data as radar, obs and redbook graphics.

**FXC Version** : 4.4.2 Final  
**Instructions Update** : 3/04/2008  
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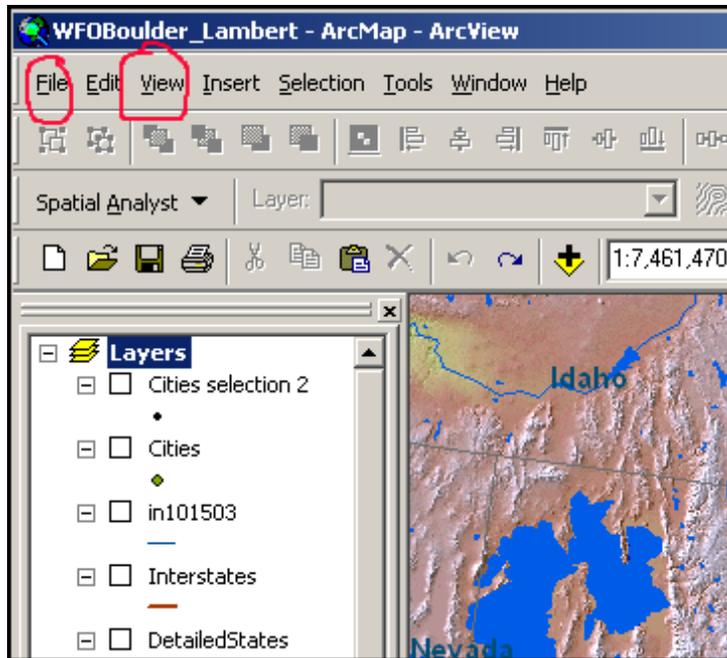
**Step 1) Edit your GIS Image using ArcMap and define proper AWIPS coordinate system.**

- a) Be sure to use the proper **AWIPS Coordinate System**. *Note that you need to obtain your Central Meridian, Standard\_Parallel values from your FXC/fsl/data/config/Localizations.txt.* Each location will have different values. The values below are from **WFO BOU's** Localizations.txt.
  - a) To do this, open up ~/data/config/Localizations.txt
  - b) Note your Scale Name (ie. CONUS, State...etc)
  - c) Note the Projection after the Scale Name
  - d) Note the Central Meridian value after Projection
  - e) Note the Standard\_Parallel, or False\_Easting values after Central Meridian.
  - f) Note the Standard\_Parallel\_2, or False\_Northing values after Standar\_Parallel or False\_Easting.

Below list AWIPS coordination values for **WFO BOU** State Scale:

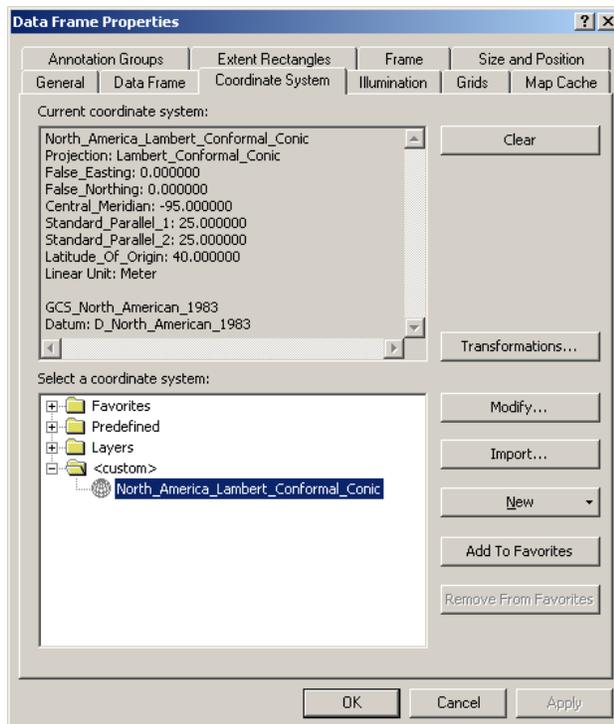
- a) **State Scale - Geo Lambert (-95.00 25.00 25.00)**
  - \* Central Meridian = -95.00
  - \* Standard\_Parallel\_1 = 25.00
  - \* Standard\_Parallel\_2 = 25.00

- b) The example below will demonstrate how to set these coordinates in **ArcMap**. Note that the example is for a **State Scale**:



1) In **ArcMap**, click **View->Data Frame Properties** from the top pull down menu.

2) Click the **Coordinate System** tab at the top



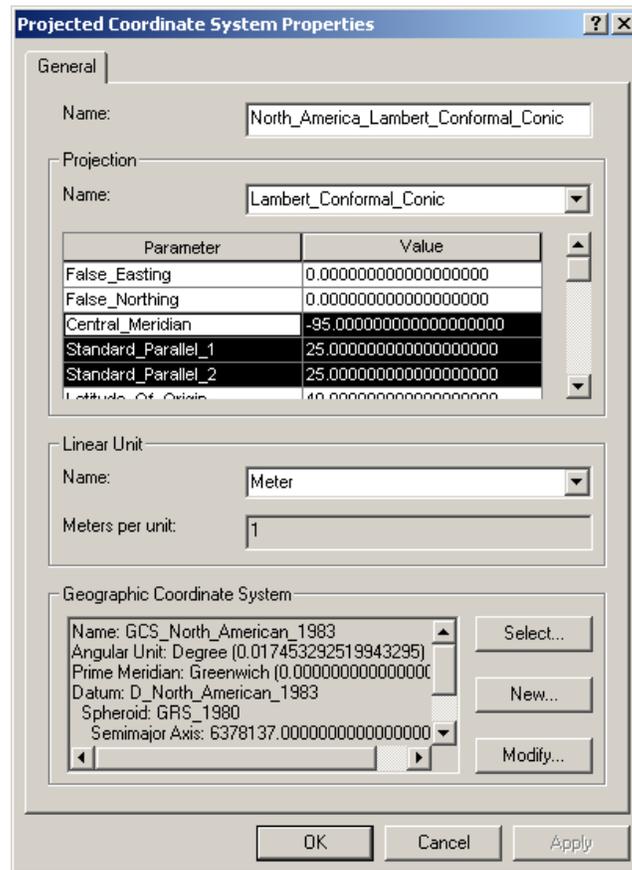
3) From the Coordination System you will be selecting:  
**North\_America\_Lambert\_Conformal\_Conic**: To do this:

a) In the Select **Coordinate System Entry Box**: Click on the following:

- 1) Select **Predefined Layers**
- 2) Select **Projected Coordinate**
- 3) Select **Continental**
- 4) Select **North America**
- 5) Select **North\_America\_Lambert\_Conformal\_Conic**

4) Once loaded, select **Modify** on the right hand side. This will bring up another window. You will need to change the following values:

- 1) Change the **Central Meridian** value to -95.00000
- 2) Change the **Standard Parallel\_1** value to 25.00
- 3) Change the **Standard Parallel\_2** value to 25.00



5) When done, click **OK**, followed by **Apply** and then followed again by **OK**.

**Step 2) Define upper left and lower right crop points. These points will appear on the image that is exported and you will use points as a guide to crop your image for AWIPS.**

a) Be sure your ArcMap **Tools toolbar** is available to you. The image below describes the appearance of the ArcMap 9.2 **Tools** toolbar.



b) If you do not see this toolbar, it may not be enabled. To determine this: from the **ArcMap** top menu:

1) Select the **View** pull down menu, followed by **toolbars** and then finally **Tools**.

2) Note that this **Tool** menu works as a toggle. A check next to a tool denotes a tool that is loaded, or available. If the **Tools** toolbar does not have a check to the left, then simply left click on **Tools**. A check will then appear and the tools will be ready for use.

c) Determine your **upper left** and **lower right** values.

1) To do this, in your AWIPS FXC directory, **open up** /data/local/localapps/XXX/FXC/fsl/data/config/Localizations.txt, where **XXX** is your 3 letter site identifier. See example below:

LOC NAME LL CORNER	UNIQUE NO.	PROJECTION UR CORNER	LAMBDA 0	PHI 0 LR CORNER	PHI 1	PHI 2	ORIGIN (UL xy)	DISTANCE	UL CORNER
SL N.Hen	0	stereo	-105.000000	80.000000	90.00	0.00	-1.730752,1.6204981	3.499984,-3.4999861	-9.702374,121.834315
-13.892300,-147.641144			-10.369893,27.487919	-14.060216,-61.730839					
SL N.Amer	1	stereo	-105.000000	80.000000	90.00	0.00	-0.83332604,0.08888501	1.749976,-1.7499759	44.530045,158.9116
21 4.208513,-131.641739			40.550247,-0.461442	3.021185,-76.108490					
SL COMUS	2	lambert	-95.000000	25.0	25.00	0.00	-0.54009354,0.74351856	0.95604575,-0.95604575	59.344807,-144.80443
9.509294,-125.528216			61.163147,-95.872288	10.877032,-71.31884					
SL Region	3	lambert	-95.000000	25.0	25.00	0.00	-0.3262205,0.42791523	0.325183,-0.32518294	47.152657,-120.460709
9.398008,-116.479424			48.763000,-95.081940	30.875656,-95.068893					
SL State	4	lambert	-95.000000	25.0	25.00	0.00	-0.22053607,0.33848995	0.14633238,-0.14633222	43.292755,-111.47355
35.242210,-110.249634			43.936393,-100.567162	35.861843,-100.150307					
SL NFO	5	stereo	-104.443657	39.768330	39.76	0.00	-0.08976302,0.03070102	0.079450235,-0.07945035	42.002846,-107.508530
37.455566,-107.312561			42.002995,-101.384621	37.455704,-101.580223					
SL World	9	mercator	-105.000000	0.000000	0.00	0.00	-3.1415932,3.1415932	6.2831864,-6.2831864	-85.08443,-285.00003
85.08443,75.00003			-85.08443,74.99996	85.08443,74.99996					

**Step 3) Locate your Scale Resolution and note the lat/lon values at the end of the line. The first set of lat lon values is your upper left and the second set of lat/lon values is your lower right values.**

d) On the Tools bar, click on the XY Tool outlined in Red Below.



e) This will launch the XY Tool outlined below.



f) Once loaded, first click on the Units Pull down menu (Outlined in Red) and select **Decimal Degrees**.

g) **Define Upper Left corner point:** Enter your **upper left** corner Longitude and Latitude values gathered from above. When done, click on the **Add Point button** outlined in red below. Once pressed you will note a dot on your ArcMap Spatial Editor.



h) **Define Lower Right corner point:** Enter your **upper right** corner Longitude and Latitude values gathered from above. When done, click on the **Add Point button** outlined in red below. Once pressed you will note a dot on your ArcMap Spatial Editor.

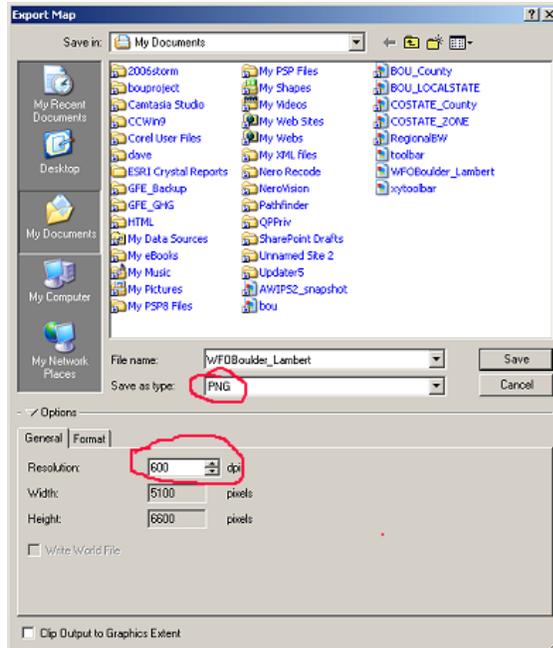


i) Once done, you will see two dots in your spatial editor. You are ready to export your map in step 3 below.

#### Step 4) Export your Map as a PNG Image

a) Center your Map as desired. Be sure both upper left and lower right points are visible.

b) From top **ArcMap** pull down menu, click on **File**, followed by **Export Map**. You will next see the **Export Map Window** as shown below.



- c) In the **Save as Type** pull down menu, select **PNG**
- d) Choose a **filename and location** to store your file. You can use the defaults, just remember your filename and the location of the PNG you create.
- e) For resolution, **select or enter 600 dpi**. Note: This will create a large file. This is ok, as the higher the resolution, the better FXC zoomed images will appear.
- d) Click **Save** to save your PNG Image

## Step 5) Export the Image you created in Step 2 to AWIPS

- a) Secure copy the image you saved above to your LDAD.
- b) Secure copy your image from LDAD to into AWIPS. I would suggest importing your image to the **/tmp** directory on your AWIPS workstation.

## Step 6) Crop the Image you imported into AWIPS using GIMP

**Notes:** Once the image is brought over to AWIPS, the image needs to be cropped to line up with the Scale you save the image as. This is a bit of tedious trial and error process. ***In addition, you will need to be sure your image is finally saved with a square resolution. In other words, save your image as 3000x3000, or 4000x4000, etc.*** The numbers do not really matter, but your

image **will not** appear in FXC if it is not square. To do this, I would suggest using GIMP, which is an IMAGE editor that is available in AWIPS.

a) In one window, Launch **D2D: Select the scale your image was saved as (ie. State)**.

b) In another window, Launch **GIMP**: To do this:

- \* `cd /tmp` (This is where the directory of the image you created above is stored)

- \* From an AWIPS terminal, type **`gimp yourimage.png`** (Where yourimage.png is the name of the image you have stored)

c) Once GIMP is open, if your file doesn't automatically load, do the following:

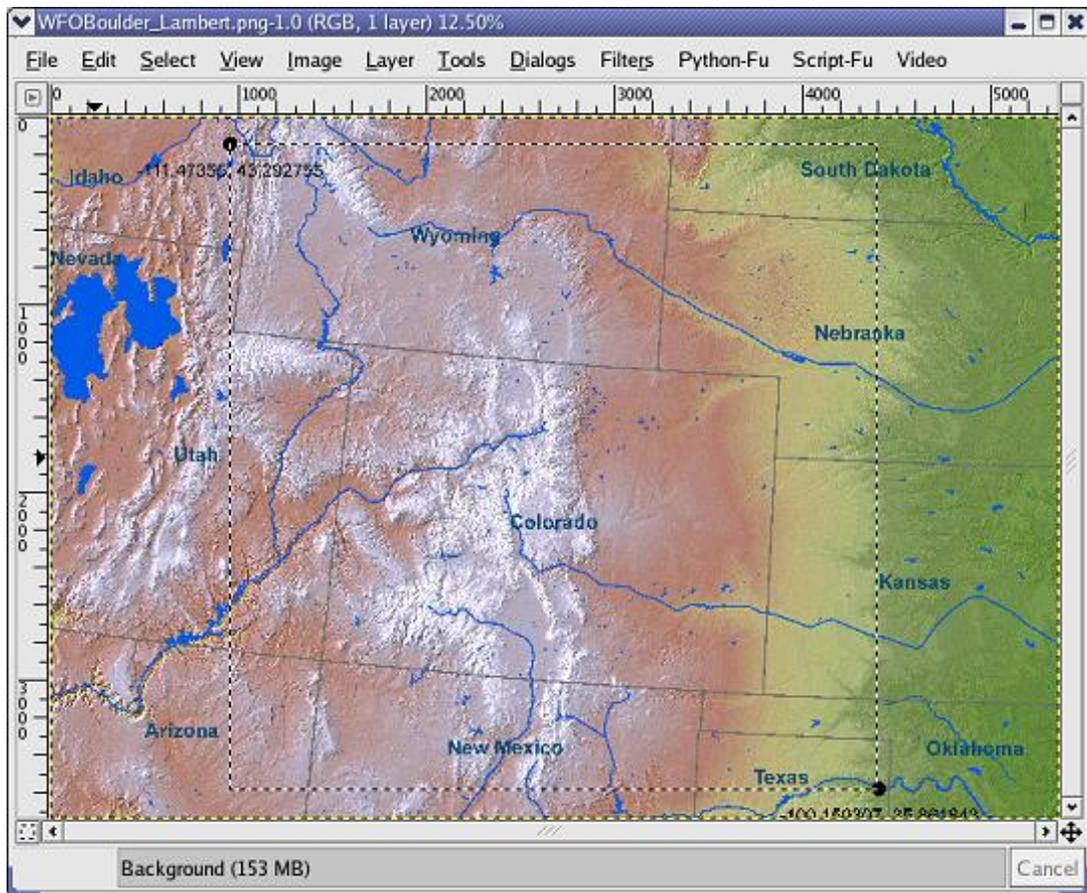
- \* Click on **File->Open** and then select the directory where your image from Step 3 was saved to (ie. **`/tmp/yourimage.png`**). Once found, click on your image to load it into GIMP.

d) Once open, you will need to select the **Select rectangular regions tool**. This tool is available by clicking on the rectangle icon below File, or by simply pressing R.



e) Once your tool is loaded, left click on your upper left point in your image.

f) Once your upper left corner has been identified, left click, hold and drag your mouse button to the lower right point in your image. **See Example Below:**



\* Note your selection resolution (width x height) in the far lower left your image. You need to make sure your resolution is a square box. For example 4000x4000. Otherwise your image will not load in FXC.

g) Once done, save your image. Again I would save it in your `/tmp` directory on the workstation you will be importing your image to FXC.

### Step 7) Import GIS Image into FXC:

a) FXC version 4.4.2 contains a menu/tool that simplifies the process of importing GIS images into FXC.

1) Launch the **FXCinstall Menu**. To do this:

**`/data/local/localapps/HWO/XXX/FXC/fs/linux/FXCinstall`**

2) Select **Option 0** (Manage System Configuration)

3) Select **Option 9** to Add/delete a **Map (On Menu)**

- 4) Select **Option 3** for a mapped GIS Image
- 5) Select **Option a** to add a map
- 6) Enter the name for the map. This is the name that will appear on the Maps pull down menu in FXC.
  - For example: Standard\_State\_GISMap
- 7) Enter the file name and path of the image. Note that in **Step 6** it was suggested you name and save the png image in /tmp.
  - In this case you would enter: /tmp/yourfilename.png
- 8) Specify the scale. **Enter 4** for the state scale.
- 9) You can choose whether or not you wish to make it load by default.
- 10) Once done, you will note some feedback from FXCinstall. You will then be prompted to continue or quit. If you are done, **enter n** to quit.

#### b) Define default scale for FXC

\* You may wish to define a default Scale for FXC. This will tell FXC to start your session of FXC in this scale upon startup. To do this:

1) Launch the **FXCinstall Menu**. To do this:  
\* `~/FXC/fsi/linux/FXCinstall`

2) Select **Option 0**

3) Select **Option 7** to set default scale at startup

4) **Enter 4** for State Scale

#### c) Define default zoom for FXC

\* You may wish to define a default Zoom for FXC. This is especially true if your office will be using the State Scale Mapped Image most of the time.

1) Launch the **FXCinstall Menu**. To do this:  
\* `~/FXC/fsi/linux/FXCinstall`

2) Select **Option 0**

3) Select **Option 8** to set default zoom

4) Select **a** to Add

5) **Enter 4** for State Scale

6) **Enter 1** for desired zoom factor

7) Accept value

# Appendix A.

## Procedures for manually adding or configuring a GIS image in FXC.

### a) **Edit** and **add** your image to **FXC/fsl/data/config/NWS/MenuAndToolBars.txt**

1) Go the **MENU Maps** Section of this file. You will insert your **COMMANDITEM** for your map at the bottom of this section.

2) The COMMANDITEM format is as follows:

COMMANDITEM "Pull down Menu Name" LTR "ShortcutKey" "load ImageName"

3) Below is an example of this:

**COMMANDITEM "HiResTopo\_StateColor" H "" "load hiresTopo\_statecolor"**

\* To break down the command above:

a) **COMMANDITEM** = the map command trigger

b) **"HiResTopo\_StateColor"** is the FXC MAP pull down menu Name.

c) **H** is a short cut key. This can be any letter or number

d) **""** is blank by default. This can be a short cut key.

e) **load** hiresTopo\_statecolor = loads the name

hiresTopo\_statecolor from **/data/keys/Scale.txt** described below. Note that the name after load above needs to match name entered in **fsl/data/keys/Scale.txt**

### b) **Edit** and **add** entry to **FXC/fsl/data/keys/Scale.txt**

1) This file sets a depict key for your product. Note the description key at the top of this file.

2) For map images, add an entry to the first available key after **KEY 60**. So for example, if you see **KEY 62 followed by KEY 100, start at KEY 63**.

3) Follow the example below to add your image. Note the explanation key that follows:

## **63 4 y n P - M\_IMAGE - "hiresTopo\_statecolor"**

- a) **63** is your unique key number
- b) **4** is your default Scale (4 is the state Scale)
- c) **y** refers to Client supplied. Just use y.
- d) **n** refers to whether the file is preprocessed or not. Just use n.
- e) **P** refers to the Projection Type. P is Plan View
- f) **-** refers to Compress Type. Enter - for no compression
- g) **M\_IMAGE** is the VISUAL TYPE. Enter M\_IMAGE for mapped image.  
Note that U\_IMAGE (Unmapped IMAGES) are used for flat JPG and PNG
- h) hiresTopo\_statecolor refers to the Name of the product.

### c) **Edit** and **add** entry to **FXC/fsl/data/config/URLocators.txt**

- 1) This file matches the depict key defined above to a URL or image. Note that Keys are in order, so if your key number is 63 or example, you will want to insert it after 62.
- 2) Follow the example below: Note the explanation key that follows:

```
:0000000063  
../data/depictables/backgrounds/hiresTopo_statecolor.png
```

- a) :0000000063 is your depict key. Note the : and 8 zeros that prefix the number. This is needed.
- b) ../data/depictables/backgrounds/hiresTopo\_statecolor.png is the location of you image. Note the .. at the beginning of the line which highlights a relative path.

### **6) Troubleshooting:** If your image does not load after following the instructions above, note the suggestions below:

- 1) **Image will not load:**
  - a) Be sure there are no spelling mistakes in your configuration files you edited above.
  - b) Be sure your image scale/res is an exact square. For example:

3000x3002 will not work, while 3000x3000 will.

**2) Image does not line up correctly:**

- a) You may have to re-crop your image using the instructions in step 4 above. Unfortunately there is no easy way to do this. Trial and error.

**7) Loading Overlay Images (ie. Radar) onto your GIS Images**

- 1) In order to overlay an AWIPS image (ie. Radar) onto your Mapped GIS Image, you need be sure your combine Image option is checked. To overlay an image from scratch do the following:

- a) From FXC top menu, select **Options**
- b) Under **Options**, select **Image Properties**
- c) In the **Image Properties**, be sure **Combine Image** is selected or checked
- d) Load your GIS Map
- e) Overlay an AWIPS Map (ie. Radar)
- f) Go back to your **FXC->Options->Image Properties** to adjust your image Opacity. Note Image 1 is your GIS Map image, while Image 2 will be your Overlay Image.