

# Using Mapserver to Create an Internet Map

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## Steps in brief

1. Create or edit .map and .html files using a text editor
2. Upload shapefiles needed, along with .map and .html files to your directory on the server
3. Test your application
4. Repeat steps 1-3 until successful

## Steps in Detail

### Create or edit .map and .html files using a text editor

Use some editor capable of creating text files. Microsoft Word? .doc files will NOT work, although if you choose the option to *save as* .txt files they will.

Below is a sample .map file for a basic map with one data layer. Note that everything following a # on a line is a comment and can be omitted

```
NAME northampton # set the map name to anything you like

# Set the extent to match YOUR shapefile(s)
# coordinates are Westernmost Southernmost Easternmost Northernmost
EXTENT 407997.812 4103475.750 443135.000 4157027.250
# here is an example for Lat/Lon.
#EXTENT -97.5 41.619778 -82.122902 49.38562

# can leave the font-set alone
FONTSET "/usr/local/etc/htdocs/mapserver/fonts/fonts.list"

# set the size of the Image to be displayed
SIZE 400 300

# Set the SHAPEPATH to point where you have stored your shapefiles
# substitute your user ID for YOUR_ID below.
# SHAPEPATH "/home/evsc468/public_html/YOUR_ID/"
# or point to shapefiles in some other directory
SHAPEPATH "/home/evsc468/public_html/jhp7e/shapefiles/"

# you will need to customize the layer definitions for YOUR layers
# remember that the SHAPEFILES for the LAYERS should be stored in the
# directory pointed to by SHAPEPATH above.

# LAYER DEFINITIONS -----
LAYER
  NAME "myoutline"
  DATA outline
  STATUS DEFAULT # Show the layer at all times
  TYPE LINE # choices for type are POLYGON, LINE and POINT
  CLASS
    COLOR 0 0 0 # use black lines
    OUTLINECOLOR 0 0 0 # numbers represent brightness of Red, Green and Blue
```

```
END
END
END # end of map file
```

In the example above, there are several things to note. First you need to customize:

- ?? EXTENT – make it match the extent of your shapefile, in whatever units are used in the shapefile
- ?? SHAPEPATH – needs to point to where your shapefiles will be stored on the computer hosting mapserver. This can be in your “home” directory or in a subdirectory.
- ?? LAYER – you will need to customize the layer information to be suitable for the layer(s) you are trying to display

The map file above produces the graphic:

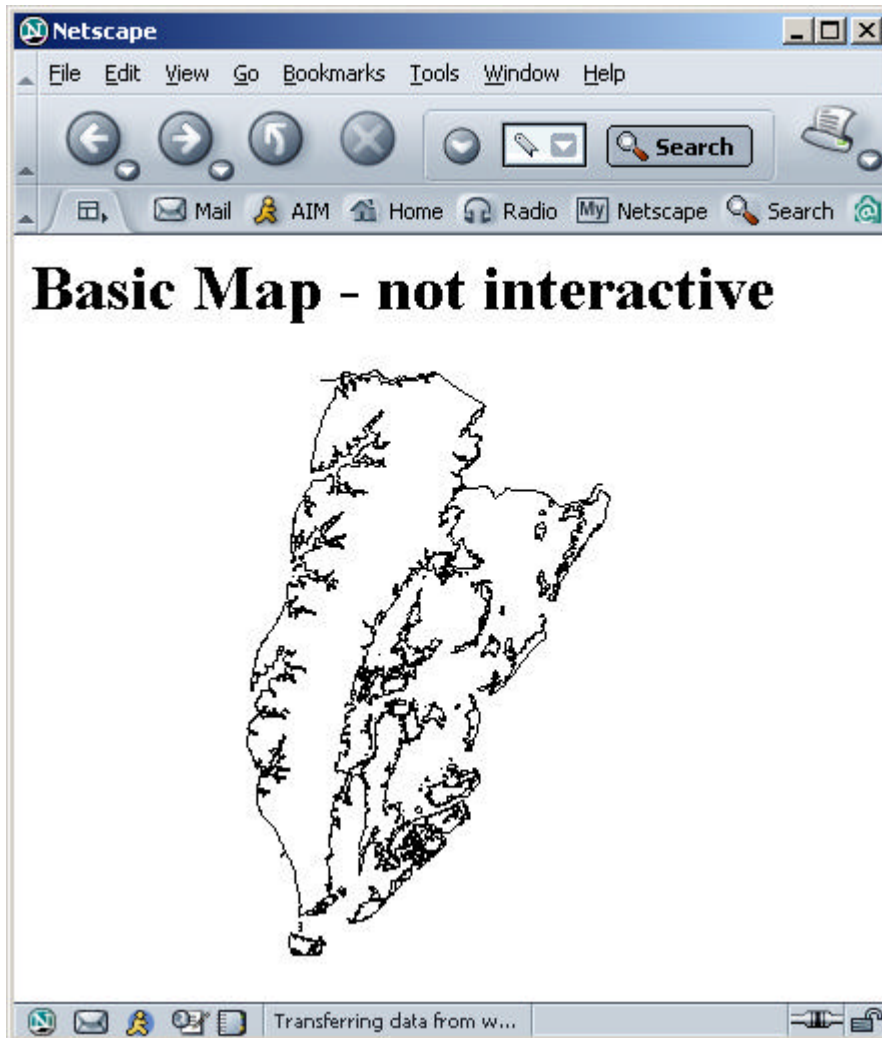


To have this map display automatically, you will also need to have a .html file. Again, this is just a text file. Here is a sample .html file:

```
<h1>Basic Map - not interactive</h1>
<img SRC=
"/cgi-bin/mapserv?map=/home/evsc468/public_html/jhp7e/basic.map&mode=map">
```

Note: you will need to change the *jhp7e* to YOUR user ID and the name of the .map file to match YOUR .map file. HTML files do not care much about lines, except if line breaks occur in the middle of “”s.

This produces the web page:



## Upload the Shapefiles, .map and .html files to the Server

You can use a variety of file transfer programs for moving your files to the server. The example below uses the command prompt to manually transfer files. However WS-FTP and SecureFX (available to UVA students at:

<http://www.itc.virginia.edu/desktop/central/>) programs provide a more attractive interface. Note that if using SecureFX use FTP over SSH2 as your transport.

Details:

?? host: **scycles.evsc.virginia.edu**

?? user name **evsc468**

?? password distributed in class

?? You should create a subdirectory in the public\_html directory under the main evsc468 directory based on your UVA User ID for your files.

Example (start a command prompt – available in Program/Accessories). Things typed in are in **bold**, comments are in *italics*:

```
C:\> cd myfiles  GO TO THE DIRECTORY WHERE YOUR FILES ARE STORED
C:\myfiles>ftp scycles.evsc.virginia.edu
Connected to scycles.evsc.virginia.edu.
220 scycles.evsc.Virginia.EDU FTP server (Version wu-2.6.1(1)p
User (scycles.evsc.virginia.edu:(none)): evsc468
331 Password required for evsc468.
Password: PUT THE CLASS PASSWORD HERE -IT WON'T SHOW UP
230 User evsc468 logged in.
ftp> cd public_html  CHANGE TO public_html DIRECTORY
250 CWD command successful.
ftp> mkdir mst3k  MAKE A PERSONAL DIRECTORY FOR YOUR STUFF (Only need to do
first time you log on)
257 "/p3/users/evsc468/public_html/mst3k" new directory created.
ftp> cd mst3k  CHANGE TO YOUR PERSONAL DIRECTORY
250 CWD command successful.
ftp> dir  CHECK TO SEE WHAT FILES ARE IN YOUR DIRECTORY (INITIALLY NONE)
200 PORT command successful.
150 Opening ASCII mode data connection for /bin/ls.
total 0
226 Transfer complete.
ftp: 9 bytes received in 0.02Seconds 0.56Kbytes/sec.
ftp> put basic.map  UPLOAD YOUR .map FILE
200 PORT command successful.
150 Opening ASCII mode data connection for basic.map.
226 Transfer complete.
ftp: 1310 bytes sent in 0.00Seconds 1310000.00Kbytes/sec.
ftp> put basic.html  UPLOAD YOUR .html FILE
200 PORT command successful.
150 Opening ASCII mode data connection for basic.html.
226 Transfer complete.
ftp: 125 bytes sent in 0.00Seconds 125000.00Kbytes/sec.
ftp> dir  CHECK AGAIN TO SEE IF UPLOAD WAS SUCCESSFUL
200 PORT command successful.
150 Opening ASCII mode data connection for /bin/ls.
total 6
-rw-r--r--  1 users      122 Apr 22 12:59 basic.html
-rw-r--r--  1 users     1273 Apr 22 12:59 basic.map
226 Transfer complete.
ftp> binary  Convert to Binary mode (shapefiles aren't text!)
200 Type set to I.
ftp> mput myshapefile.*  PUTS ALL THE FILES ASSOCIATED WITH MYSHAPEFILE
```

You can repeat the **put** commands to put fresh versions of the .map and .html files.

## Test Your Application

You can test your application by accessing the web page at:

<http://www.VCRLTER.virginia.edu/~evsc468/mst3k/basic.html>

where you substitute your UVA User ID for mst3k and your .html file name for basic.html.

Alternatively, you can look directly at the map (this sometimes gives better error messages) by accessing:

[http://www.VCRLTER.virginia.edu/cgi-bin/mapserv?map=/home/evsc468/public\\_html/mst3k/basic.map&mode=map](http://www.VCRLTER.virginia.edu/cgi-bin/mapserv?map=/home/evsc468/public_html/mst3k/basic.map&mode=map)

Sorry this line is so long it wrapped, even with a smaller font. Again substitute your user id for *mst3k* and your map file for *basic.map*

If you are using a TEMPLATE in your application, things are a bit different. There you would want to use:

[http://www.VCRLTER.virginia.edu/cgi-bin/mapserv?map=/home/evsc468/public\\_html/mst3k/basictemplate.map](http://www.VCRLTER.virginia.edu/cgi-bin/mapserv?map=/home/evsc468/public_html/mst3k/basictemplate.map)

Again substituting your user ID for *mst3k* and your map file name for *basictemplate.map*

Should you need to make corrections, change the text files on your PC, save the file (an important step!) then use the PUT command in FTP to upload the new version. You can leave your FTP link open so that you don't need to log on each time, so only the PUT commands are required.

## ***Sample Browsing Application***

### **Sample MAP file – northampton.map**

```
NAME northampton # set the map name to anything you like

# Set the extent to match YOUR shapefile(s)
# coordinates are Westernmost Southermost Easternmost Northernmost
EXTENT 407997.812 4103475.750 443135.000 4157027.250
# here is an example for Lat/Lon.
#EXTENT -97.5 41.619778 -82.122902 49.38562

# can leave the font-set alone
FONTSET "/usr/local/etc/htdocs/mapserver/fonts/fonts.list"

# set the size of the Image to be displayed
SIZE 400 300

# Set the SHAPEPATH to point where you have stored your shapefiles
# substitute your user ID for YOUR_ID below.
# SHAPEPATH "/home/evsc468/public_html/YOUR_ID/"
# or point to shapefiles in some other directory
SHAPEPATH "/home/evsc468/public_html/jhp7e/shapefiles/"

# Set your template file to the name of YOUR template file
# you can leave the image path and image URL alone
WEB
  TEMPLATE "/home/evsc468/public_html/jhp7e/northampton_template.html"
  IMAGEPATH "/usr/local/etc/htdocs/tmp/"
  IMAGEURL "/tmp/"
```

END

LEGEND

STATUS ON  
LABEL  
TYPE TRUETYPE  
FONT arial  
COLOR 0 0 0  
SIZE 10  
ANTIALIAS TRUE  
END  
END

# you will need to customize the layer definitions for YOUR layers  
# remember that the SHAPEFILES for the LAYERS should be stored in the  
# directory pointed to by SHAPEPATH above.

# LAYER DEFINITIONS -----

LAYER  
NAME "myoutline"  
DATA outline  
STATUS DEFAULT # Show the layer at all times  
TYPE LINE # choices for type are POLYGON, LINE and POINT  
CLASS  
# NAME outline # if you leave out the name, the class does NOT show up in  
the legend  
COLOR 0 0 0  
OUTLINECOLOR 0 0 0 # use black lines  
END  
END

LAYER #

NAME "mylandcover"  
DATA nhtm93s3  
STATUS OFF # show layer, but allow it to be turned off  
TYPE POLYGON # choices for type are POLYGON, LINE and POINT

CLASSITEM "LANDCOVER"

CLASS # water  
NAME "Water"  
EXPRESSION 'Water' # match only those where [landcover]='Water'  
COLOR 225 225 255  
OUTLINECOLOR 0 0 0  
END

CLASS # grassland  
NAME "Grassland"  
EXPRESSION /Planted\*/ # search for landcovers starting with Planted  
COLOR 0 240 0  
OUTLINECOLOR 0 0 0  
END

CLASS # forest  
NAME "Forest"  
EXPRESSION /Forest\*/  
COLOR 200 140 0  
OUTLINECOLOR 0 0 0  
END

CLASS # salt marsh  
NAME "Salt Marsh"  
EXPRESSION /Salt\*/  
COLOR 0 200 140  
OUTLINECOLOR 0 0 0  
END

CLASS # sand

```

    NAME "Sand"
    EXPRESSION /Bare*/
    COLOR 240 240 240
    OUTLINECOLOR 0 0 0
  END
END # end of layer object

LAYER
  NAME "myroads"
  DATA rtf100k
  STATUS ON
  TYPE line
  CLASS
    NAME Roads
    COLOR 200 0 200
    OUTLINECOLOR 0 0 0
  END # end of class
END # end of layer object

END # end of map file

```

## Sample TEMPLATE file – northampton\_template.html

```

<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML//EN">
<html>
  <head>
    <title>Northampton GIS</title>
    <script>
      //functions called from within the mapimage applet that allow us
      //to do box zooms and queries
      function mapplet_apply(name, minx, miny, maxx, maxy, redraw) {
        document.mapserv.imgbox.value = minx + " " + miny + " " + maxx + " " +
maxy;
        document.mapserv.imgxy.value = minx + " " + miny;
      }

      function mapplet_error(message) {
        alert(message);
      }
    </script>
  </head>

  <h3>Northampton GIS<br>
  <p>

    <form method="GET" action="/cgi-bin/mapserv">

      <input type="hidden" name="map" value="[map]">
      <input type="hidden" name="imgext" value="[mapext]">
        <input type="hidden" name="imgxy" value="199.5 149.5">
        <input type="hidden" name="savequery" value="true">
      <table border=1 cellpadding=3>
        <tr>
          <td align=center>
            <input type="image" name="img" src="[img]" border="0">
          </td>

          <td valign=top>

```

```

<div align="center"><font size=+1 face=arial,Helvetica>Map
Controls</font></div>
<center>
<input type=hidden name=mode value="browse">

Select layers to display/query:<br>
<select multiple name="layer">
<option value="mylandcover" [mylandcover_select] > Land Cover</option>
<option value="myroads" [myroads_select] > Roads</option>
</select>
<br>
Set your zoom option:<br>
<select name="zoom" size="1">
<option value="10" > Zoom in 10 times
<option value="8" > Zoom in 8 times
<option value="4" > Zoom in 4 times
<option value="3" > Zoom in 3 times
<option value="2" > Zoom in 2 times
<option value="1" selected > Recenter Map
<option value="-2" > Zoom out 2 times
<option value="-3" > Zoom out 3 times
<option value="-4" > Zoom out 4 times
<option value="-8" > Zoom out 8 times
<option value="-10"> Zoom out 10 times
</select>
<br>
<br>
<input type="submit" name="submit" value="Redraw/Query">
</center>

<hr>
<p align="center"><font face=arial,Helvetica><b>Legend</b></font><br>

</td>

</tr></table>
</form>

</body>
</html>

```

