

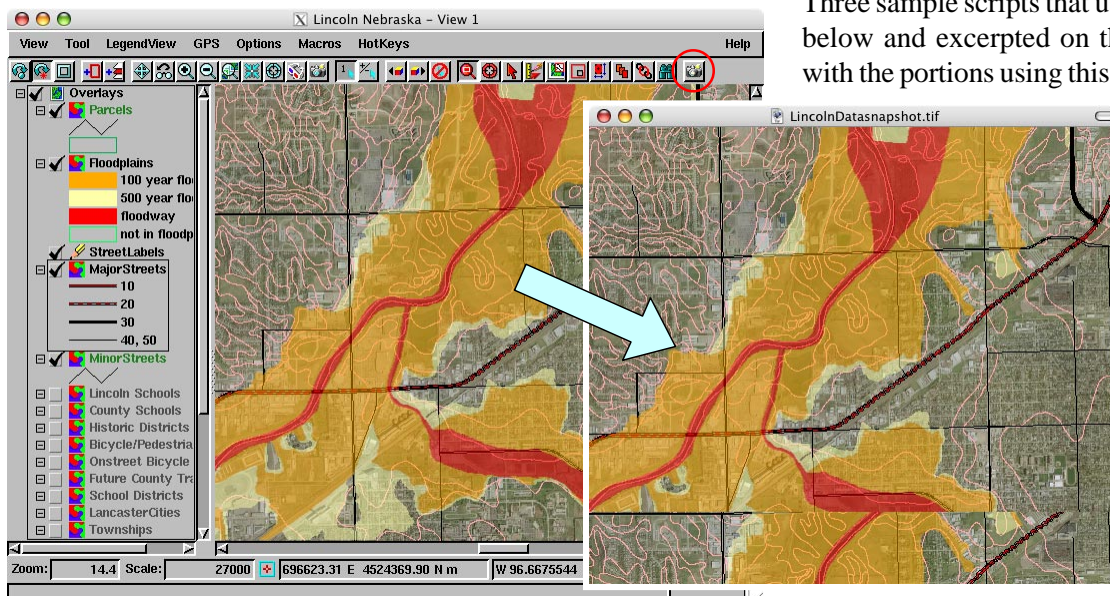
Sample Geospatial Scripts

Launch Programs with TNTmips Data

Interactive geospatial scripts such as Tool Scripts and Macro Scripts can process the spatial objects in a View window to derive information and/or new spatial objects that can be saved or exported to various external file formats. Once such

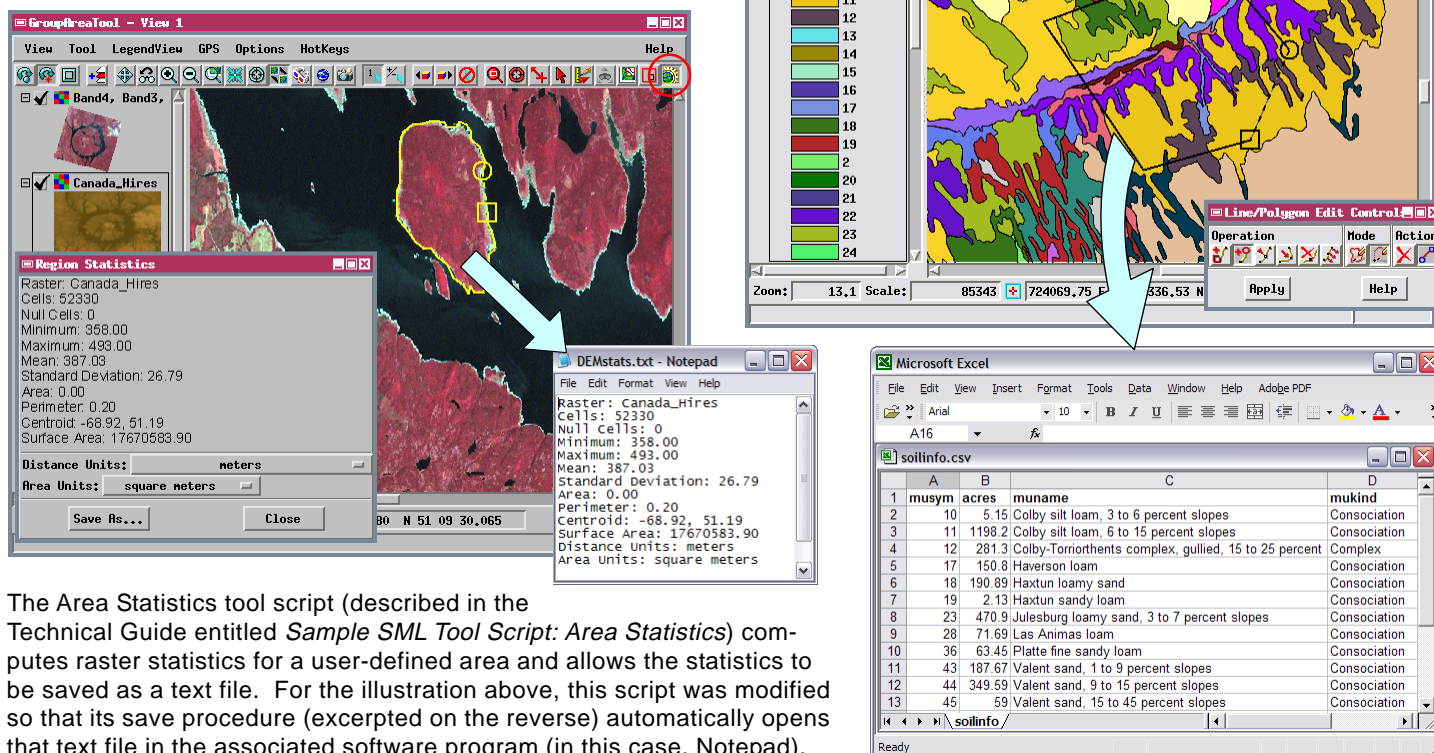
a file has been created, the script can also automatically open the file in the software program with which you have registered that file type on your computer. A simple function called **RunAssociatedApplication()** is used for this purpose.

Three sample scripts that use this function are illustrated below and excerpted on the reverse side of this page, with the portions using this function highlighted in color.



The Snapshot macro script takes a snapshot of the View contents, exports it to the desired raster file format (such as JPEG, TIFF, PNG, and BMP) and then opens the file in the program associated with that file type. In this example run under Mac OS X, the output TIFF file opens in Preview.

In the illustrations to the right, the Soil_Info tool script compiles cumulative area and soil attributes from a user-defined portion of a vector soil map, writes the information to a CSV (Comma-Separated Values) file, and opens that file in the program associated with that file type (in this case, Microsoft Excel).



The Area Statistics tool script (described in the Technical Guide entitled *Sample SML Tool Script: Area Statistics*) computes raster statistics for a user-defined area and allows the statistics to be saved as a text file. For the illustration above, this script was modified so that its save procedure (excerpted on the reverse) automatically opens that text file in the associated software program (in this case, Notepad).

Many sample scripts have been prepared to illustrate how you might use the features of the TNT products' scripting language for scripts and queries. These scripts can be downloaded from www.microimages.com/downloads/scripts.htm.

Excerpt from Snapshot Macro Script (Snapshot.sml)

```
CreateTempRaster(rast, 1, 1, "binary"); Create a temporary raster and  
then get the filename from it.  
Get the snapshot.  
ViewSaveSnapshot(View, rast.$Info.FileName, "snap", "snapshot of view");  
Export and open the snapshot.  
if (MenuChoice$ == "JPEG") {  
  OpenRaster(ras, rast.$Info.FileName, "snap");  
  ConvertCompToComp(ras, rast.$Info.FileName, "snapa", 24);  
  CloseRaster(ras);  
  jpegHandle.exportCompressFactor = 75;  
  ExportRaster(jpegHandle, _context.ScriptDir + "snapshot.jpg",  
    rast.$Info.FileName, "snapa");  
  RunAssociatedApplication(_context.ScriptDir + "snapshot.jpg");  
}
```

[... similar steps for PNG, BMP, PCX, and GIF formats omitted...]

```
else if (MenuChoice$ == "TIFF") {  
  tiffHandle.CompressionType = "NONE";  
  tiffHandle.PlanarConfiguration = "Pixel interleaved";  
  tiffHandle.ExportGeoTags = 1;  
  OpenRaster(ras, rast.$Info.FileName, "snap");  
  ConvertCompToComp(ras, rast.$Info.FileName, "snapa", 24);  
  CloseRaster(ras);  
  ExportRaster(tiffHandle, _context.ScriptDir + "snapshot.tif",  
    rast.$Info.FileName, "snapa");  
  RunAssociatedApplication(_context.ScriptDir + "snapshot.tif");  
}  
else if (MenuChoice$ == "TXT") {  
  ExportRaster(asciiHandle, _context.ScriptDir + "snapshot.txt",  
    rast.$Info.FileName, "snap");  
  RunAssociatedApplication(_context.ScriptDir + "snapshot.txt");  
}  
else if (MenuChoice$ == "DOC") {  
  ExportRaster(asciiHandle, _context.ScriptDir + "snapshot.doc",  
    rast.$Info.FileName, "snap");  
  RunAssociatedApplication(_context.ScriptDir + "snapshot.doc");  
}
```

```
DeleteTempRaster(rast); Delete the temporary file.
```

Area Statistics Tool Script (regstats.sml) with modifications (red) to open output file (modified version: regstats2.sml)

```
proc cbSave() { Called when the save button is pressed.  
Saves statistics to text file.  
  
# outfile = GetOutputTextFile(_context.ScriptDir, "Choose file...", "txt");  
Prompt user for the name of the output text file,  
open the file, write to it, and close it  
textfile$ = GetOutputFileName(_context.ScriptDir, "Choose file...", "txt");  
outfile = fopen(textfile$, "w", "ASCII");  
fprintf(outfile, "Raster: %s\nCells: %d\nNull Cells: %d\nMinimum:  
  %2f\nMaximum: %2f\nMean: %2f\nStandard Deviation:  
  %2f\nArea: %2f\nPerimeter: %2f\nCentroid: %2f, %2f\n  
Surface Area: %2f", rasterName$, count, cells - count, min, max,  
  mean, stdDev, larea, lperimeter, centroid.x, centroid.y, lsurface);  
fprintf(outfile, "\nDistance Units: %s\nArea Units: %s\n\n",  
  distMenu.value, areaMenu.value);  
fclose(outfile);  
  
RunAssociatedApplication(textfile$); Open text file in  
associated program  
}
```

Excerpt from Soil Info Tool Script (Soil_Info.sml)

```
proc OnRightButtonPress () { Called when user presses right mouse button.  
  if ( checkLayer() ) {  
    soilVec.GetDefaultGeoref(vGeoref); get the georeference for the soil vector  
  
    Region created by tool has screen coordinates; must translate to  
    map coordinates of the view (view coordinates) and then to map  
    coordinates of the vector object in the active layer.  
    toolRegion = RegionTrans(tool.RegionData, View.GetTransViewToScreen(1));  
    toolRegion = RegionTrans(toolRegion,  
      View.GetTransMapViewToView(vGeoref.GetCoordRefSys(), 1) );  
  
    convert region to temporary vector object to use for extraction  
    CreateTempVector(regionVec);  
    regionVec = ConvertRegionToVect(toolRegion);  
  
    View.SetMessage("Extracting area...");  
    CreateTempVector(xSoilVec);  
    xSoilVec = VectorExtract(regionVec, soilVec,  
      "InsideClip", "AddBorder,RemExRecords");  
    CloseVector(regionVec);  
    View.SetMessage("Making CSV file...");  
  
    extract the area of the  
    soil vector object to a  
    temporary vector for  
    processing  
  
    prompt user for name of output CSV file; open file and write header line  
    outfileName$ = GetOutputFileName(dfiltName$, "Choose output CSV file:", "csv");  
    outfile = fopen(outfileName$, "w");  
    fprintf(outfile, "musym,acres,muname,mukind");  
  
    loop through extracted polygons to get areas from POLYSTATS table;  
    use HASH to keep track of soil types and accumulate areas  
    for i = 1 to xSoilVec.$Info.NumPolys {  
      key$ = xSoilVec.Poly[i].mapunit.musym$;  
      polyarea = xSoilVec.Poly[i].POLYSTATS.Area;  
  
      if (soilAreaHash.Exists(key$) ) { soil type is already in  
      the soil area hash  
  
        add area of current polygon to value already stored for that soil  
        soilAreaHash[key$] = soilAreaHash[key$] + polyarea;  
      }  
      else { new soil type assign area of polygon to soil  
      area hash key  
        soilAreaHash[key$] = polyarea;  
        polyNumHash[key$] = i; assign element number of  
        polygon to polynum hash key  
      }  
    }  
  
    get list of hash keys as a stringlist to loop through them  
    keylist = soilAreaHash.GetKeys();  
  
    loop through keys by numeric position in stringlist (starting with 0)  
    for i = 0 to keylist.GetNumItems() - 1 { soil identifier  
      musym$ = keylist.GetString(i); area for soil type; convert area  
      from square meters to acres  
      polyarea = soilAreaHash[musym$];  
      polyarea = polyarea * areaScale;  
  
      get soil name and kind from fields in mapunit table  
      using polygon numbers stored in polynum hash  
      polynum = polyNumHash[musym$];  
  
      field contains commas, so must be quoted for use in CSV file  
      muname$ = "\" + xSoilVec.Poly[polynum].mapunit.muname$ + "\"";  
      mukind$ = xSoilVec.Poly[polynum].mapunit.mukind$;  
  
      write values to a line in the output CSV file  
      fprintf(outfile, "%s,%2f,%s,%s\n", musym$, polyarea, muname$, mukind$);  
    }  
    View.SetMessage("Done.");  
    fclose(outfile);  
    RunAssociatedApplication(outfileName$); launch program associated  
    with the CSV file type  
    (e.g. Excel)  
    CloseVector(xSoilVec);  
  }  
  end of OnRightButtonPress  
}
```