Spatial Display
Render WMS and ArcIMS Layers to KML

All the layers in a group or layout in the view of a TNT product can be rendered into a local KML or KMZ file for use as temporary places in Google Earth. This includes web layers that have been located on the Internet and added to the view from sites that are publishing maps and images using an ArcIMS or Web Map Service (WMS). Layers in a view selected from ArcIMS and WMSs can be rendered into links only (i.e., modified URLs) in a KML/KMZ file that Google Earth will automatically use to update the content of the KML files. You can also render these web layers into a local KML file that are linked to raster files created from the view in TNTmips. During rendering, the currently viewed portions of these ArcIMS and WMS layers are automatically converted from their web source's data type, format, and coordinate reference system into PNG or JPEG rasters. These rasters have the latitude/longitude cells using the WGS84 datum required by Google Earth. When rendering to a KML file is selected, all the rasters created are separate PNG or JPEG files located on a local drive linked into the KML file. If rendering to a KMZ file is selected, all the rasters created are embedded in the KMZ file. In either case, KML or KMZ, these rasters and the other rendered TNT geometric objects, attributes, styles, etc. in the view are all on the local drive.

Selecting KML or KMZ file will launch Google Earth and display all of the rendered layers, including the ArcIMS and WMS captured layers, as Temporary Places that are local and independent of their original locations, formats, coordinate reference systems, projections, etc. For more information on using map and image layers published on the Internet by a Web Map Service as Temporary Places in a KML/KMZ file see the Technical Guide entitled *Spatial Display: Locating and Using WMS layers*.

The render to KML window has Options, Raster Controls, Geometric Controls, and WMS/ArcIMS Controls tabbed panels. The Options panel allows you to render web layer to match the extents of the Entire Display (main view window) or the extent of a sub-area displayed in a secondary view (View 1, View 2, …). A toggle button is available to compress a KML file and all its linked components into a single compressed KMZ file. A toggle button is also available to automatically launch Google Earth when the rendering is complete. The WMS/ArcIMS Layer Controls and the Raster Controls panels work mutually exclusive for the web layers depending on the status of the Create Dynamic Web Layer toggle button. Once you toggle on this button, the WMS/ArcIMS Layer Controls panel is dimmed and the Raster Controls panel becomes active. The WMS/ArcIMS Layer Controls panel allows you to set the maximum height and width of the image canvas that will be viewed in Google Earth. Increasing the maximum height and width values will let you get higher resolution at the expense of slower display speed.

The ArcIMS layer is rendered in full extents regardless of the selection when rendered as dynamic web layer.

This tab is active once a raster object is added in a group along with the ARC-IMS layer and/or the Create Dynamic Web Layer button is toggled off.

This tab is visible only when there is a TNT geometric object in a group along with the web layer.

This tab is active only when creating a dynamic web layer.

Toggle on this button to create a KMZ file.

Toggling on this button creates a dynamic web layer where the image accessed by the KML is automatically updated when the original data provided by the ArcIMS is amended.
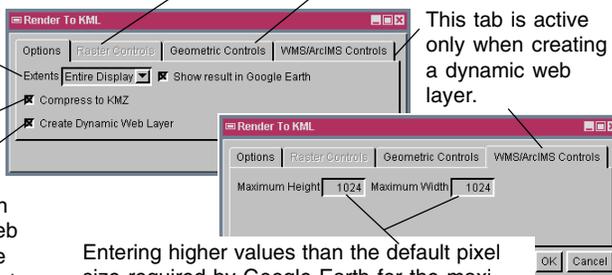
Entering higher values than the default pixel size required by Google Earth for the maximum height and width increases the resolution at various zoom levels at the expense of slower display speeds in Google Earth.
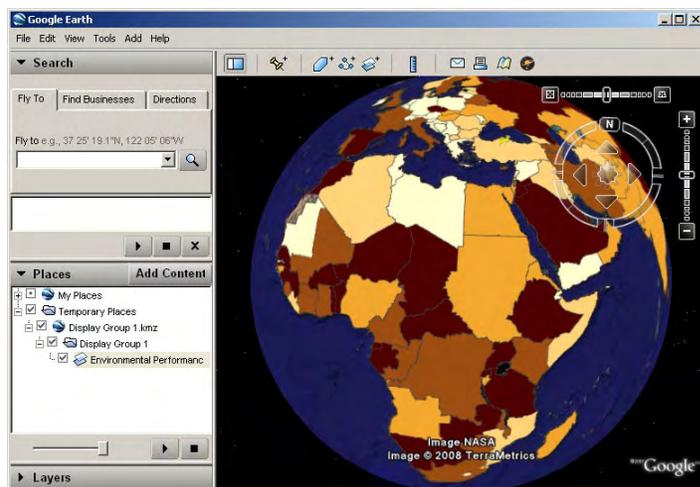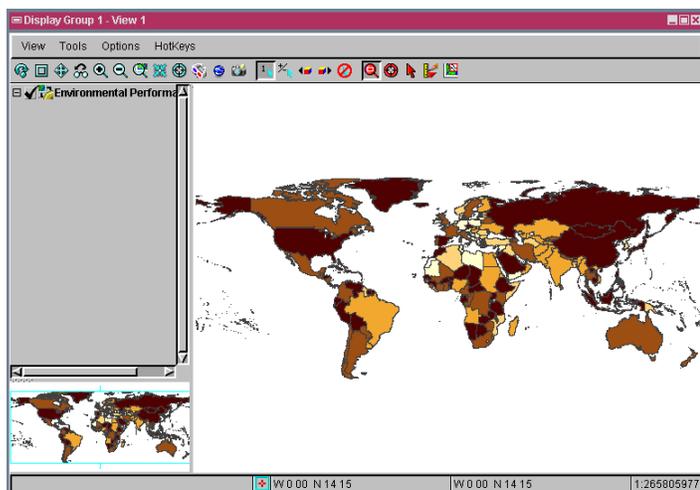
The illustration above shows the rendering of a WMS layer in a group in a TNT view into a KMZ file to create a Temporary Places in Google Earth. The Extents used were the full extent of the primary view (Entire Display). As shown in the illustration to the left, the layer in the TNTview was a WMS layer showing the ecoregion protection indicator for 2006 Environmental Performance Index from the Socioeconomic Data and Applications Center (located at http://beta.sedac.ciesin.columbia.edu/mapserver/wfs/EPI2006)

The Raster Controls panel is used to specify if the web layer is to be converted to PNG or JPEG and the compressed quality for the JPEG raster when rendering the web layer as a static image. An automatic option is also available that will automatically select from these options based on the data type advertised by the ArcIMS or WMS source (for example, PNG is used to provide for transparency). The cell size and units for the rendered raster are also set on this panel. The default cell size is meters and calculated based on the extents of the layers added to the group in the view if only web layers are being viewed . If additional local raster objects have been added to the group the default is calculated from the raster in the group that has the smallest cell size. You can change from the recommended defaults to some other desired cells size and units. If you enter a smaller cell size you may get more detail for a layer, if it is available from the source, but get larger KML/KMZ files and slower rendering. The minimum cell size you can enter for a web layer or other rasters in a group is one-half the automatically specified cell size derived from the layers in the group. Note that the extent of a layer that can be requested from an ArcIMS or WMS source is controlled and limited by that source. It is usually set as small to control how much demand you can put on that server and how much of that map and image you can capture. As a result, requesting a much smaller cell size to match your view's extent may not yield the desired result from a particular source. A request for more data than the limits set by the web layer source can result in no response at all, an extent matching the limits at the resolution requested, smaller cells and a bigger file but with no increase in detail, or other unanticipated results.

The Geometric Controls panel shown in the views here is only visible if you have a local geometric layer in the group with the web layer. Information on the use of the Geometric Control panel can be found in the TechGuide entitled *Spatial Display: Render Raster Objects to KML*.

Select any open view window or Entire Display to specify the extents of the ArcIMS layer in the KML file.

This tab is active when the Create Dynamic Web layer button is toggled on.
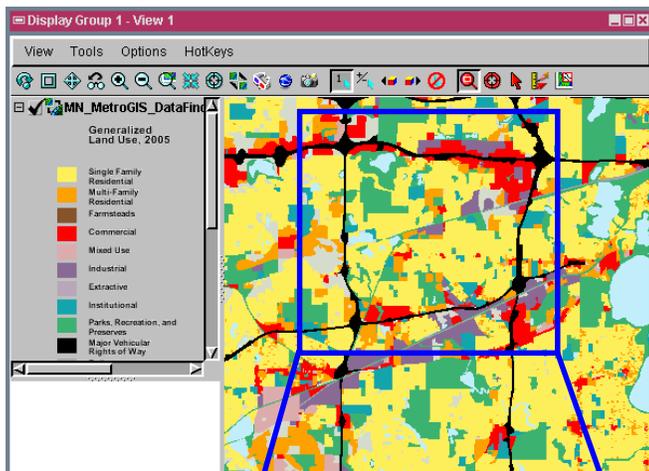
Toggle off this button to create a local KMZ file.
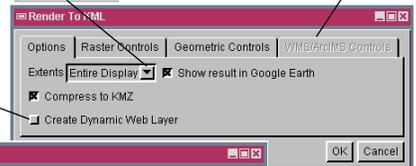
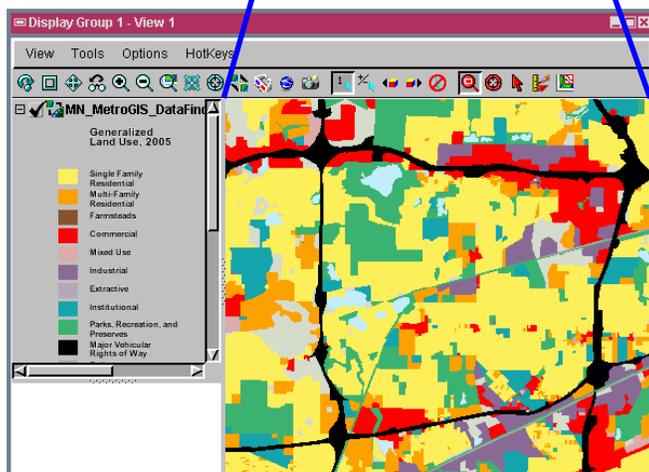Select the format of the image created from the web layer.

Entering smaller values than automatically specified value for the Cell Size and increasing JPEG Quality increases the size of the KML file generated.

Entire Display

View 1 extents

In the example at the left, the primary view (Entire Display) was used to view the entire extent of the ArcIMS layer from the site that is publishing it to locate the specific area of interest. This view was used for reference to open a second view (View 1) zoomed to a local area of interest. This View 1 was selected in the Render to KML window to determine the extent to be converted and to control the size of KML/KMZ files. The ArcIMS layer shown at the illustration below is 2005 Generalized Land Use of Minnesota (located at http://gis.metc.state.mn.usservlet/com.esri.esrimap. Esrimap?ServiceName=MN_MetroGIS_DataFinder__Planning_Development &ClientVersion=9.0) in Google Earth.
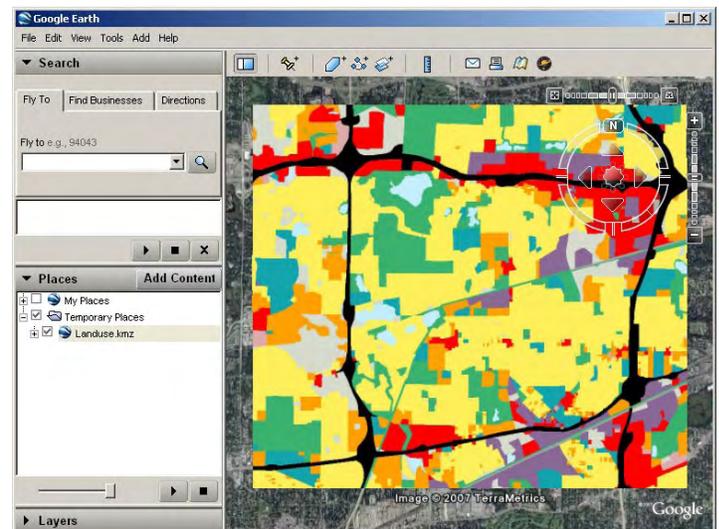
The group shown to the right is rendered to KML using the View 1 extents instead of being rendered at its full extents by choosing Match View 1 from the Extents menu in the Options tabbed panel.