QGIS: Adding WMS Layers

Welcome to the Essential ArcGIS Task Sheet Series. This series supplements the Iowa State University GIS Geospatial Technology Training Program short course series, "Essential ArcGIS Tutorial Series." The task sheets are designed to provide quick, easy instructions for performing specific tasks in GIS.

Web Map Service (WMS) layers are map layers that are streamed over the web. These layers can range from imagery to map coverages and anything in-between. There are several advantages to using this type of layer over downloading data and storing it on your local machine. For one, high resolution imagery usually has a very large file size which can quickly use up memory on a local machine. WMS layers are usually updated by the publisher, giving you the most up-to-date layer without having to download it again. Secondly, using a WMS layer for imagery gives you a seamless image between counties boundaries. Seamless images are important because there is not always exact alignment between county boarders when downloading imagery on a county by county basis. An important high speed Internet connection is needed when using a WMS layer in order to view the layer quickly. This task sheet will demonstrate how to connect to WMS layers using QGIS and show you the difference between a seamless and a seamed image.

1. WMS layers for Iowa and the U.S.
   a. The Iowa Geographic Map Server provides current and historic statewide imagery at [http://ortho.gis.iastate.edu/IGMS_WMS.html](http://ortho.gis.iastate.edu/IGMS_WMS.html).
   b. The Iowa Environmental Mesonet provides weather data for Iowa and the U.S. (such as precipitation, and visible and infrared imagery) at [http://mesonet.agron.iastate.edu/ogc/](http://mesonet.agron.iastate.edu/ogc/).

2. Add WMS Layer
   a. Open QGIS. Click on the **Add WMS layer** icon. This will bring up the **Add layer(s) from a WM(T) Server** window.
   b. In the **Add layer(s) from a WM(T) Server** window, click on the **New** button in the upper left corner near the **Connect** button. The **Create a new WMS connection** window will open.
   c. In the **Name** box type: Iowa 2015 Summer Natural Color and in the **URL** box below enter in this link: [http://ortho.gis.iastate.edu/arcgis/services/ortho/naip_2015_nc/ImageServer/WMSServer?request=GetCapabilities&service=WMS](http://ortho.gis.iastate.edu/arcgis/services/ortho/naip_2015_nc/ImageServer/WMSServer?request=GetCapabilities&service=WMS)
   Click the **OK** button to close the **Create a new WMS connection** window.
   d. Click **Connect** in the **Add layer(s) from a WM(T) Server** window, and naip_2015_nc will be added to the box below. Click on the layer name to select it, then click **Add**. The layer should now appear on your map and in your **Layer Panel**.
e. An alternative method for adding WMS layers in QGIS is to right-click on WMS from the Browser Panel and click New Connection... to open the Create new WMS connection window. Follow step 2c to add the WMS connection. Hint: try this WMS layers from the Iowa Mesonet.

4. Seamless Image vs. Seamed Image

a. Compare the two images below. You can see that the top image smoothly flows from Mahaska County to Keokuk County without any interruption in the image. This represents the WMS layer Iowa 2015 Summer Natural Color from the Iowa Geographic Map Server.

b. In the second image you can see a large black bar cutting between the two counties. This represents what might happen if you download aerial imagery from the NRGIS by county and the county boundaries in the imagery don’t quite line up. Hint: the NRGIS stands for the Iowa National Recourses Geographic Information Systems Library http://www.igsb.uiowa.edu/nrgislibx/.

c. This is one of the benefits of using a WMS layer for imagery rather than downloading and stitching together your imagery by county.

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