IOWA STATE UNIVERSITY
Extension and Outreach

GIS
Training and Services

**Geospatial Technology
Training Program**

Georectifying Maps with Map Warper

Welcome to the Essential ArcGIS Task Sheet Series. This series supplements the Iowa State University Geospatial Technology Training Program short course series. The task sheets are designed to provide quick, easy instructions for performing mapping tasks.
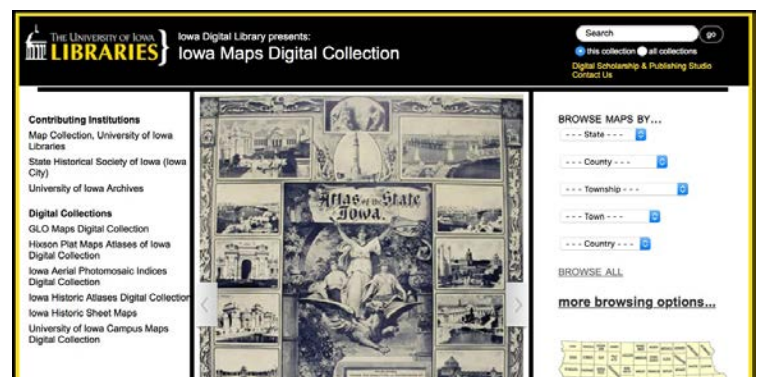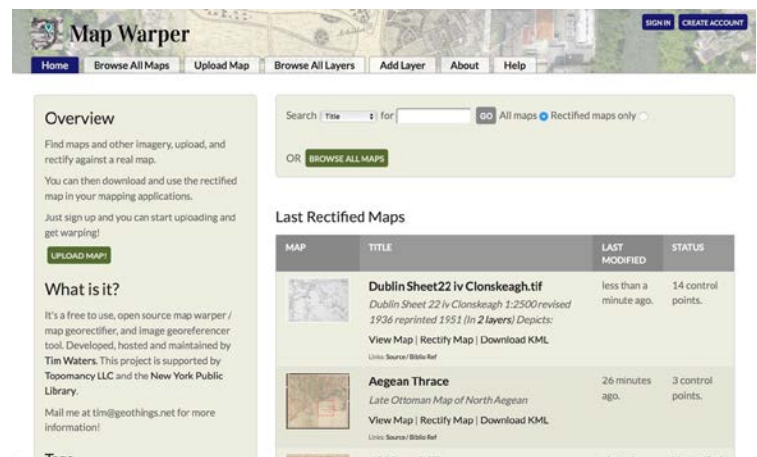
Map Warper is an open source map warping/georectifying service. With Map Warper you can find and download rectified maps, as well as upload and rectify your own maps. Georectificaiton is the digital alignment of an image with a map of the same area. A number of corresponding control points, such as street intersections, building corners, and railroads, marked on both the image and the map, and then used as reference points in the subsequent processing of the image. This task sheet will take you through the steps of using Map Warper to rectify a historic scanned map.

1. Getting Started

a. To get started, navigate to http://mapwarper.net in a web browser. If you don't already have an account set up, click **Create Account** in the top right corner, and set up an account. An account is needed in order to rectify maps.

b. If you don't already have a map you want to rectify, you can find digitally scanned historic maps at the University of Iowa Digital Library Map Collection website http://digital.lib.uiowa.edu/maps/. *Note: that's where this example map came from.*

c. Before uploading a map to Map Warper, keep in mind that by uploading images to the website, you agree that you have permission to do so, and accept that anyone else can potentially view and use them, including changing control points. Since maps that are uploaded are available to everyone, check first that the map you are uploading isn't already rectified and available through the website.

2. Uploading a Map

a. Once you have created an account with Map Warper and logged in, click on **Upload Map** in the menu at the top of the page.

b. This is where you will upload a map to rectify, as well as give the map a title, description, and additional metadata. If you are using the University of Iowa's Digital Map Collection most of metadata fields requested by Map Warper can be completed by using the metadata provided by the University of Iowa Digital Library Map Collection.

c. Click **Create** once you have uploaded a map and filled out all available information.
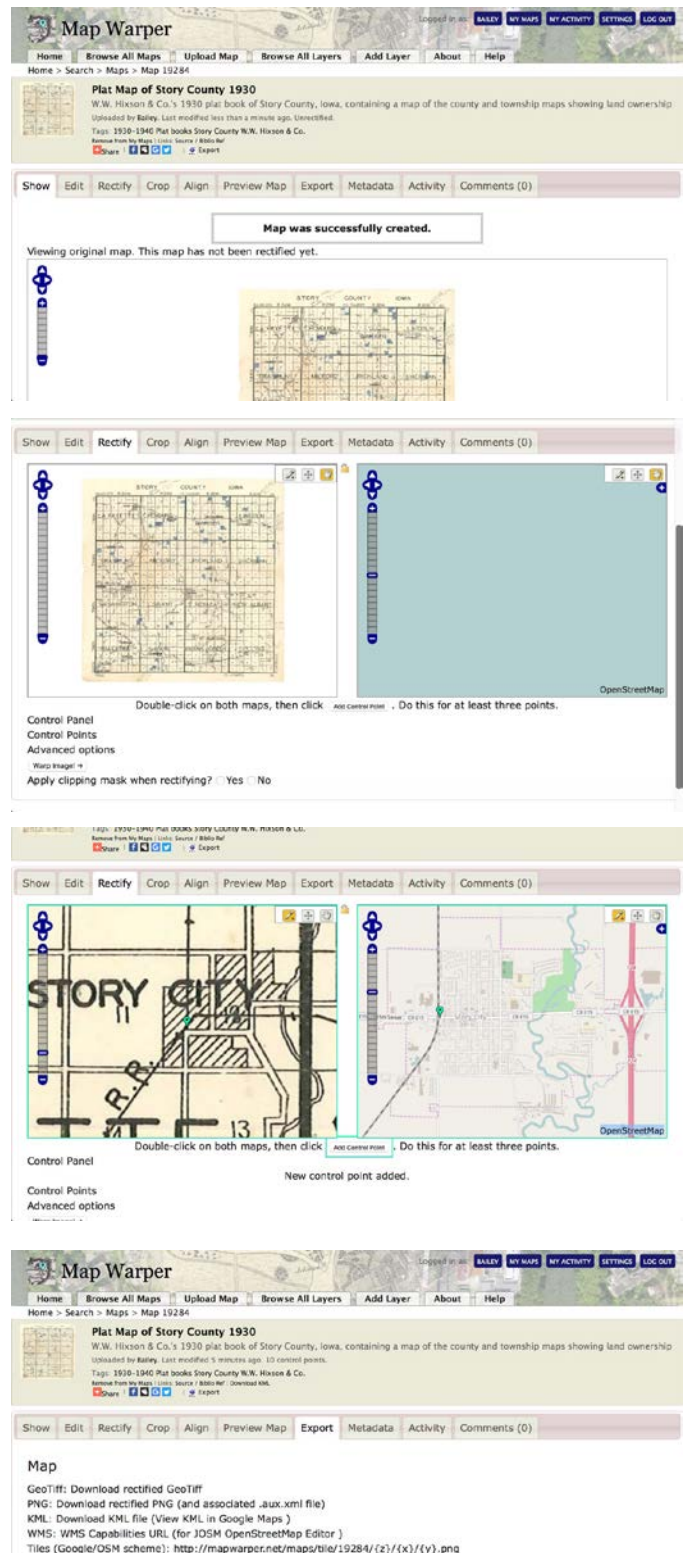
3. Rectifying a Map

a. After your map is created successfully, click on the **Rectify** tab to begin rectifying the image.

b. You will see two map views, on the left your digital map image, and on the right an OpenStreetMap web map that you will use to rectify the image. *Note: you will need to zoom out on the map on the right and pan to the correct region to get started.*

c. Next you will start adding control points between the image and the map by clicking on the **Add Control Point** icon. Click once on the image to place a marker, and once in the matching location on the map. Click the **Add Control Point** button after this is complete.

d. After placing 3-4 control points, click on the **Warp Image!** button to see how your image is lining up with the OpenStreetMap basemap. *Note: a partially transparent map image will show up on top of the OpenStreetMap basemap. Use the slider to adjust transparency.*

e. If the image and the map are lining up how you'd like, then you can stop here. If things are still not lining up, add more control points between the image and the map. Keep in mind accuracy is improved when control points are placed throughout the image, not in just one corner or half of the map.

4. Exporting a Georectified Map

a. When you are finished rectifying the image, click on the **Export** tab. There are several different export options available:

1. GeoTiff: Download rectified GeoTiff (coordinates contained in tiff)

2. PNG: Download rectified PNG (and associated .auz.xml file)

3. KML: Download KML file (view KML in Google Maps)

4. WMS: WMS Capabilities URL (for JOSM OpenStreetMap Editor)

5. Tiles: (Google/OSM scheme)

Contact: