

Using Neatline for Digital Mapping Projects

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March 12, 2014



**SCHOOL OF INFORMATICS
AND COMPUTING**

INDIANA UNIVERSITY

Department of Information and Library Science
Bloomington

On the agenda

- Overview of software
- Neatline workflow
- My experience using it
- Recommendations

Part tutorial, part narrative. Hopefully a helpful resource for Neatline explorations!

So what is Neatline, anyway?

- Suite of plugins for Omeka
- Marketed as a solution for creating handcrafted, interactive map-based exhibits
- First released in July 2012 by the Scholars' Lab at the University of Virginia
- Funded by the UVA Library, NEH, IMLS, and Library of Congress



The project

- Globalization of the US, 1775-1861
- Partnership between History Dept. professor Konstantin Dierks, Lilly Library, and IU's Digital Collections Services
- Maps treaties, military action, missionary trips, etc.
- Physical exhibit set for fall 2014 at the Lilly Library; local funding supports digital exhibit
- Neatline explorations began summer 2013 (with many starts, stops, and lulls)

Why Neatline? We were in awe!

- <http://hotchkiss.neatline.org/neatline-exhibits/show/my-dear-little-nelly/fullscreen>

How I fit into all of this

- DCS Digital Library Research Assistant
- Basic knowledge of GIS/geospatial mapping
- Basic knowledge of programming
- My thoughts don't reflect those of our Digital Collections Services department



Log in to Forums: Username

Password

Remember me

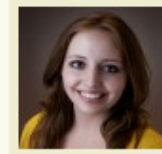
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Forums » bhmarsh

Profile

Member Since May 21, 2013 (9 months)



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User Activity

Recent Replies

Topic	Last Reply	Freshness
Neatline Editor broke after upgrading to 2.2.1	6 days ago	No replies since
WKT Coordinates	1 week ago	1 week ago
Adding WMS to Neatline Exhibit	4 months ago	No replies since
Neatline georectifying – problems with TIFF	5 months ago	5 months ago
Neatline – error during batch ingest via Ruby	5 months ago	No replies since
Forum posts highlighted yellow, not showing up	5 months ago	5 months ago
Zotero Import/Sync in omeka 2.0?	5 months ago	2 weeks ago
CSV Import error	5 months ago	No replies since
Neatline 2.0.1: can't query Omeka items into Neatline	7 months ago	7 months ago
ZoteroImport for 2.0.4?	7 months ago	7 months ago
Populating an exhibit in Neatline – alternatives to Ruby?	8 months ago	8 months ago
Neatline editor does not work	9 months ago	9 months ago

A caveat

- Just because this tool didn't always work for me doesn't mean it won't work for you...
 - Geospatial/programming knowledge
 - Time commitment
 - Updates to software
 - Growing documentation and use cases

EXPLORING NEATLINE



Plot Your Course in Space & Time

[ABOUT](#) · [DOCUMENTATION](#) · [DEMOS](#) · [NEWS](#) · [CREDITS](#)

Welcome to Neatline!

This guide is designed to be a comprehensive introduction to the Neatline project. We'll walk through the basic steps of installing and configuring Neatline, creating exhibits and records, importing items from your [Omeka](#) collection, and publishing your projects to the web.

Help us improve this guide

As you read through the documentation, if you find anything that's unclear, incomplete, or incorrect be sure to file a support ticket on the project's [issue tracker](#) on GitHub, and we'll do our best to fix the problem!

Getting Started

- [What is Neatline?](#)
- [Neatline Architecture](#)
- [Installing Neatline](#)
- [Upgrading Neatline to 2.0](#)

Working with Exhibits

- [Exhibits Overview](#)
- [Creating New Exhibits](#)
- [Managing Exhibits](#)
- [Managing User Permissions](#)

Working with Records

- [Records Overview](#)
- [Creating New Records](#)



News

August 29, 2012

Using Neatline with historical maps :: Part 3 – GeoServer

[Cross-posted with [dclure.org](#) and [scholarslab.org](#)] This is part 3 of a 3-post tutorial that walks through process of georeferencing a historical map and using it in GeoServer and Neatline. In part 1 of this series, we used ArcMap to convert a static image into a georeferenced .tiff file. In part 2, we post-processed the file.... [Continue reading.](#)

August 23, 2012

Using Neatline with historical maps :: Part 2 – Transparency

Update 8/27/12: After posting this last week, a comment by KaCeBe on the Scholars' Lab blog led me to go back and look for a way to get Geoserver to render transparent borders without having to manually add an alpha channel to the file. Although I still can't find way to make Geoserver do it.... [Continue reading.](#)

August 20, 2012

Using Neatline with historical maps :: Part 1 – Georeferencing

Archives

- [December 2013](#)
- [October 2013](#)
- [August 2013](#)
- [July 2013](#)
- [May 2013](#)
- [March 2013](#)
- [February 2013](#)
- [January 2013](#)
- [November 2012](#)
- [October 2012](#)
- [September 2012](#)
- [August 2012](#)
- [July 2012](#)
- [June 2012](#)
- [May 2012](#)
- [February 2011](#)
- [June 2010](#)
- [April 2010](#)
- [March 2010](#)
- [December 2009](#)
- [August 2009](#)

Neatline workflow

1. Install Omeka/Neatline/Geoserver
2. Georectify a historical map
3. Upload GeoTIFF to Geoserver
4. Connect Geoserver and Neatline
5. Geocode your data
6. Ingest data into Neatline
7. Design your exhibit

1. Install Omeka/Neatline/Geoserver

- You'll need a server with LAMP stack
 - Install Omeka following directions here:
<http://omeka.org/codex/Installation>
 - Install Neatline and Geoserver following directions here:
<http://docs.neatline.org/installing-neatline.html>

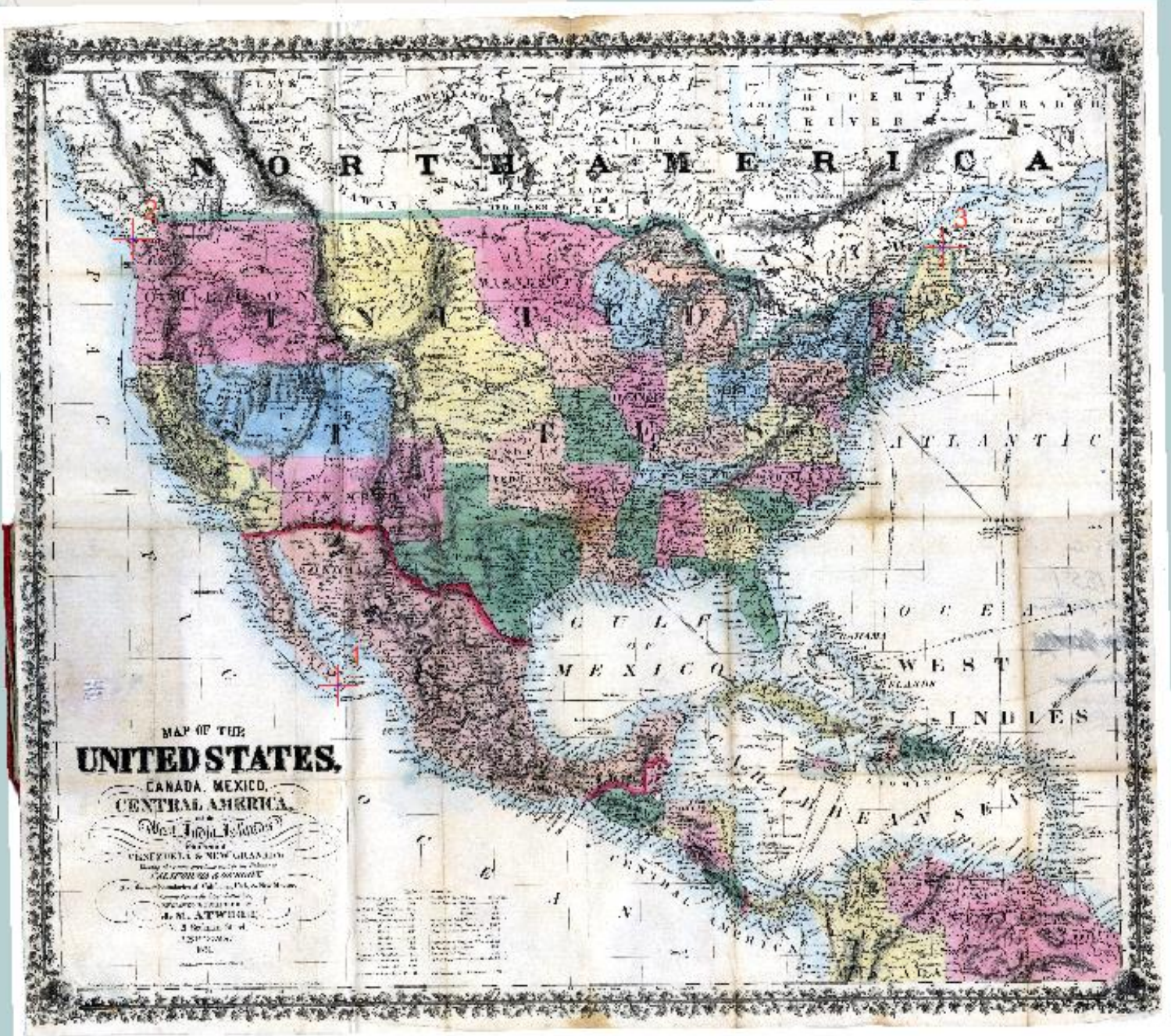
1. Install Omeka/Neatline/Geoserver

- Omeka and Geoserver are trickier
- Once Omeka is installed, installing Neatline is easy
- “The process of installing and maintaining a Java server environment generally requires quite a bit more technical expertise than what's needed to get up and running with Omeka and Neatline.”
- At IU, installations done by our sys admin

2. Georectify a historical map

- Need to create a GeoTIFF (georeferencing information embedded in a TIFF file)
- Neatline tutorial used ArcGIS, for which IU has an institutional license
- Process of adding points to the map was a breeze

<http://neatline.org/2012/08/20/using-neatline-with-historical-maps-part-1-georeferencing/>



N O R T H A M E R I C A

U N I T E D S T A T E S

G U L F O F M E X I C O

A T L A N T I C

O C E A N

W E S T

I N D I E S

C A R I B B E A N S E A

C E N T R A L A M E R I C A

MAP OF THE
UNITED STATES,

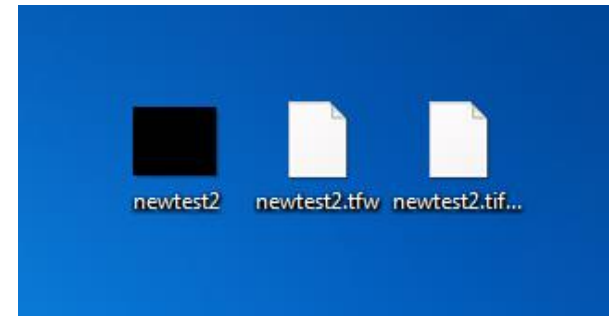
CANADA, MEXICO,
CENTRAL AMERICA

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A. N. ATWELL
1880

Scale of Miles	0	10	20	30	40	50	60	70	80	90	100
Scale of Miles	0	10	20	30	40	50	60	70	80	90	100

2. Georectify a historical map

- Problems came during the export phase, where we ran into the “black box” TIFF problem
- Consulted with IU GIS services and David McClure at UVA



2. Georectify a historical map

- Configuration problems
 - Header
 - File type (8-bit vs. 16-bit?)
- Consulted with Theresa Quill, GIS Associate in the IU Libraries; walked step by step through the tutorials

This tweet pretty much sums it up...





Overview

Find maps and other imagery, upload, and rectify against a real map. You can then download and use the rectified map in your mapping applications. Just sign up and you can start uploading and get warping!

[Upload Map!](#)

What is it?

It's a free to use, open source map warper / map georectifier, it's a bit unstable! This project is supported by Entropy Free and the New York Public Library.

Note: This has been migrated from it's old home at [warper.geothings.net](#) . It's now running much faster and previous limits about file sizes and image dimensions have been raised much higher! Mail me at tim@geothings.net for more information!




Tags

[bangalore](#) [Pakwach](#) [Ballinrobe](#) [meer](#) [arua](#) [WW](#) [roman](#) [west](#) [Kippure](#) [Clonskeagh](#) [DVI](#) [Flood](#) [italia](#) [Wien](#) [DC](#) [Paris](#) [Чернопенье](#) [geocharguia1](#) [droga](#) [zielona](#) [Бакшеевское](#) [Lake Washington](#) [Vertiefung 2004](#)

Search for [All maps](#) [Rectified maps only](#)

Browse All Maps

Last Rectified Maps

Map	Title	Last modified	Status
	Topographical Map of the City and County of New York <i>Published by J.H. Colton & Co. 1836. From the online collection of David Rumsey.</i> View Map Rectify Map Download KML <small>Links: Source / Biblio Ref</small>	about 15 hours ago.	50 control points.
	IRL-GSGS-3906-14-41-SE-Aran-Island.tif <i>(In 2 layers) Depicts:</i> View Map Rectify Map Download KML <small>Links: Source / Biblio Ref</small>	about 17 hours ago.	9 control points.
	Manchester, NH Aerial Photo <i>View from airplane shortly after takeoff January 29, 2014</i> View Map Rectify Map <small>Links: Source / Biblio Ref</small>	1 day ago.	Unrectified.

3. Upload GeoTIFF to Geoserver

- Add file to designated folder on server (command line or FTP client)
- In Geoserver, navigate to file using administrative interface
- This will expose any configuration problems with your file



Could not list layers for this store, an error occurred retrieving them: Argument "value" should not be null.

<http://neatline.org/2012/08/29/using-neatline-with-historical-maps-part-3-geoserver/>

4. Connect Geoserver and Neatline

Neatline tab → Select exhibit → “Exhibit settings”

WMS Address	To use a custom WMS layer as the base layer of the exhibit, enter (a) the address of the WMS server.
	<input type="text"/>
WMS Layers	And (b) the comma-delimited list of layers.
	<input type="text"/>

5. Geocode your data

- Neatline requires Well Known Text (WKT) data
- How granular is your location data? (Address, city, state, region)

<http://www.scholarslab.org/digital-humanities/geocoding-for-neatline-part-i/>

<http://www.scholarslab.org/digital-humanities/geocoding-for-neatline-part-ii/>

5. Geocode your data

- Get lat/long from [Google's Geocoding API](#)
- Ruby code creates WKT from lat/long (Wayne Graham): <http://www.scholarslab.org/digital-humanities/geocoding-for-neatline-part-i/>
- If you use a [KML to WKT converter](#), beware data that's in the wrong projection:
<http://omeka.org/forums/topic/importing-dublin-core-coverage-data-to-neatline>

6. Ingest your data into Neatline

- CSV Import plugin
- Zotero Import plugin
- Manually add individual records
 - Into Omeka
 - Into Neatline

6. Ingest your data into Neatline

Our workflow

- Create CSV with WKT data (aforementioned Ruby code)
- Combine this CSV with other metadata to create final CSV
- Ingest into Omeka using plugin
- Pull into Neatline exhibit

6. Ingest your data into Neatline

Initial geocoded CSV file

	A	B	C	D	E	F
1	address	city	state	point	lat	lon
2		Fiji		POINT(178.065032 -17.713371)	-17.713371	178.065032
3		Gilbert Islands		POINT(176.4508607 -1.359542)	-1.359542	176.450861
4		Yingkou		POINT(122.235418 40.667012)	40.667012	122.235418
5		Sweden		POINT(18.643501 60.12816100000001)	60.128161	18.643501
6		Norway		POINT(8.468945999999999 60.47202399999999)	60.472024	8.468946
7		Guatemala		POINT(-90.23075899999999 15.783471)	15.783471	-90.230759
8		Bremen		POINT(8.8016937 53.07929619999999)	53.0792962	8.8016937
9		Lubeck		POINT(10.6870959 53.86588560000001)	53.8658856	10.6870959
10		Hamburg		POINT(9.9936818 53.5510846)	53.5510846	9.9936818
11		Sulu		POINT(121.03351 5.974901099999999)	5.9749011	121.03351

6. Ingest your data into Neatline

Final CSV file

	A	B	C	D	E	
1	{label}	{type}	{startdate}	{historicloc}	{presentdayloc}	{point}
2	Navy punished natives on Fiji	Military Action	1840		Fiji	POINT(178.065032 -17.713371)
3	Navy punished natives on Drummond Island, Kingsmill Group	Military Action	1841	Drummond Island, Kingsmill Group	Gilbert Islands	POINT(176.4508607 -1.359542)
4	Navy punished natives at Newchwang, China	Military Action	1866	Newchwang, China	Yingkou, China	POINT(122.235418 40.667012)
5	Treaty of Friendship and Commerce	Treaty	1816		Sweden	POINT(18.643501 60.12816100000001)
6	Treaty of Friendship and Commerce	Treaty	1816		Norway	POINT(8.468945999999999 60.47202399999999)
7	Treaty of Peace, Amity, Commerce, and Navigation	Treaty	1825	Central American Federation	Guatemala	POINT(-90.23075899999999 15.783471)
8	Convention of Friendship, Commerce, and Navigation	Treaty	1827	Hanseatic Republics	Bremen, Germany	POINT(8.8016937 53.07929619999999)
9	Convention of Friendship, Commerce, and Navigation	Treaty	1827	Hanseatic Republics	Lubeck, Germany	POINT(10.6870959 53.86588560000001)
10	Convention of Friendship, Commerce, and Navigation	Treaty	1827	Hanseatic Republics	Hamburg, Germany	POINT(9.9936818 53.5510846)
11	Agreement made by the Sultan of Sulu	Treaty	1842		Sulu, Philippines	POINT(121.03351 5.974901099999999)

Dashboard

Items

Collections

Item Types

Tags

Exhibits

Neatline

Simple Pages

CSV Import

CSV Import

Search

+

Import Items **Status**

Step 2: Map Columns To Elements, Tags, or Files

	Example from CSV File	Map To Element	Use HTML?	Tags?	Files?
{label}	"Navy punished natives on Fiji"	Title	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
{type}	"Military Action"	Subject	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
{startdate}	"1840"	Date	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
{historicloc}	""	Coverage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
{presentdayloc}	"Fiji"	Coverage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
{point}	"POINT(178.065032 -17.713371)"	Coverage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Import CSV File

7. Design your exhibit

- This part of the process is a mystery to me – we haven't even gotten close to this point yet!

Quick recap of issues

- Creating a correctly configured GeoTIFF
- Getting Geoserver and Neatline to talk to each other
- Plotting WKT data points on our map

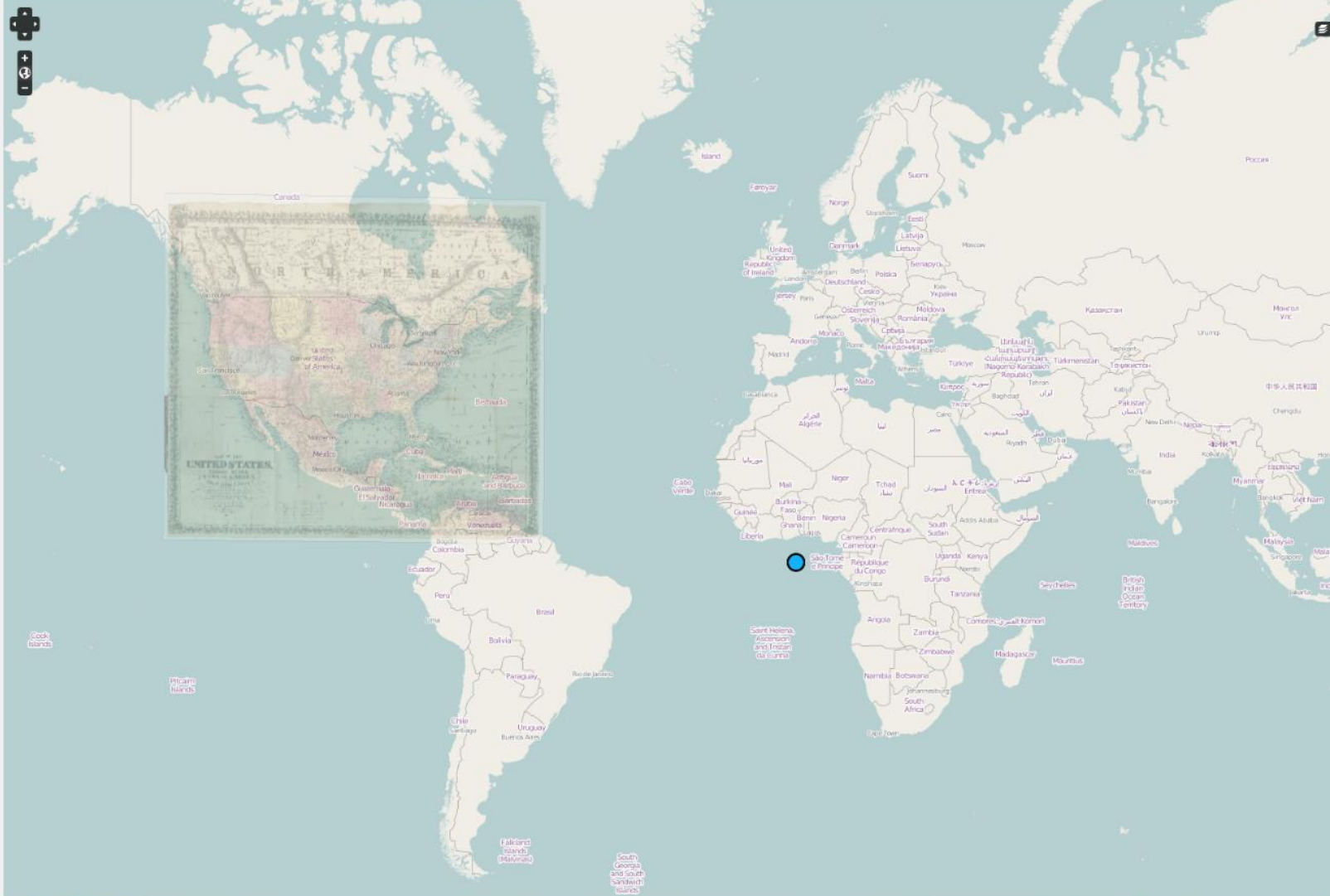
← Back to Omeka
Globalization of the US, 1775-1861

Records Styles

Search

New Record

- US Map
- Convention of Friendship, Commerce, and Navigation
- Treaty of Peace, Amity, Commerce, and Navigation
- Treaty of Friendship and Commerce
- Navy punished natives at Newchwang, China
- Navy punished natives on Drummond Island, Kingsmill Group
- Agreement made by the Sultan of Sulu
- Navy punished natives on Fiji



— Back to Omeka
Globalization of the US, 1775-1861

Records Styles

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US Map

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- Treaty of Friendship and Commerce
- Navy punished natives at Newchwang, China
- Navy punished natives on Drummond Island, Kingsmill Group
- Agreement made by the Sultan of Sulu
- Navy punished natives on Fiji



Our exhibit (so far)

- <http://sycamore.dlib.indiana.edu:8807/admin/neatline/editor/1>

Why?

- Complexity of GeoTIFFs/geospatial data (layers, projections, etc.)
- Bugs in the software
- Incompatible plugins
- Our unusual use case (batch ingest, larger data set)

Globalization project now

- Neatline explorations are ongoing
- Grant money set aside to hire a geospatial web developer; hiring process underway
- Other digital mapping platforms?
 - Leaflet, Mapbox, Google Fusion Tables

Questions worth pondering

- What kind of skills should teams have to work effectively with Neatline?
 - UNIX, GIS, programming, server admin
- What kind of time commitment?
 - Preferably more than two 3.5 hour chunks per week
- How much institutional support?
 - Possible to go it alone, but server space/money to buy AcuGIS helpful

Recommendations

- Figure out your institutional support, if any.
- FORUMS. They're your friend.
- [gdalinfo](#), too. (Geospatial Data Abstraction Library)
- Half the battle is learning what questions to ask. Sometimes that takes time.
- Work in teams as much as possible.

Final thoughts

- More talk about the messy parts of digital scholarship projects - not just the success stories
- Resources for understanding things like GeoTIFFs, layers, and projections built into tutorials and workflows
- I'm planning to contribute documentation back to Neatline project

Helpful Neatline resources

- [Neatline documentation](#)
- [Omeka forum](#)
- [Digital Humanities Q&A](#)
- [ArcGIS forum](#)

Special thanks to...

- **Michelle Dalmau**, Interim Head, IU Digital Collections Services | @mdalmau
- **Bryan Brown**, Grad Assistant, IU DCS | @bryjbrow
- **David McClure**, University of Virginia | @clured
- **Wayne Graham**, University of Virginia | @wayne_graham
- **Theresa Quill**, IU Libraries GIS Associate | @TheresaQuill
- **Anna Radue**, IU GIS Specialist

Thanks for listening. Questions?

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Omeka forum username: bhmarsha