

ArcGIS Tutorial for Mapping Data from SlaveVoyages

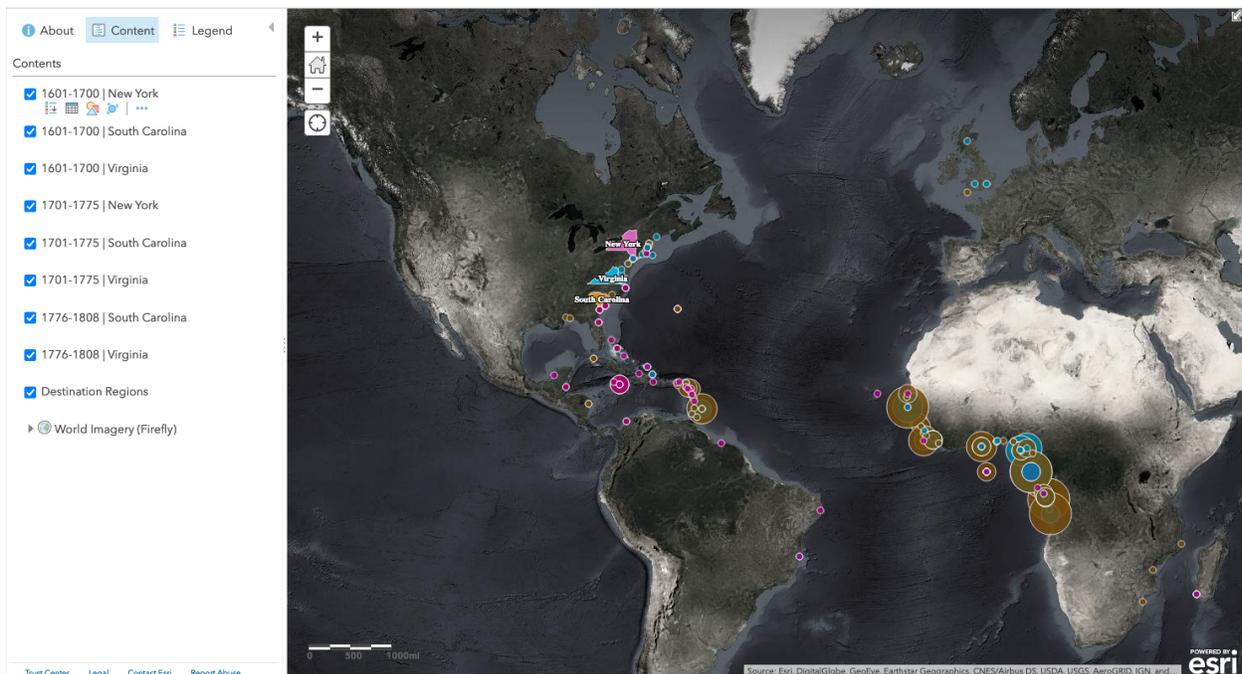
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This tutorial will guide you in creating a digital map using data from SlaveVoyages.org. There are many types of spatial representations one could make with this data, but here you will visualize the ports of origin for captives whom traders forcibly transported to New York, South Carolina, and Virginia. We chose these three colonies/states because of their significance to the slave trade to mainland North America and to compare different types of colonies, but the same steps you will follow below could be applied to any part of the Americas.

The exercise has two main goals. First, you will learn to use digital mapping software to present historical information, a transferable skill that incorporates not only technical training but attention to the meanings of and silences in the historical data and the interpretive choices that such an exercise requires. Second, you will consider what this sort of mapping exercise can teach about the patterns of forced migration of African peoples to the Americas.

Your finished map should end up looking like this:



GETTING STARTED

1. Download [this SlaveVoyages data](#) and unzip the file. Make sure the files are stored on your computer in place where you'll be able to find them later. NOTE: The data has been custom prepared for this exercise, and you can learn how to gather and prepare your own data for such a map yourself by completing the Preparing Your Data tutorial, linked on the SlaveVoyages website.
2. Sign up for an ArcGIS Online account. You may have access to an account through your university, but a [free public account](#) will work for this tutorial. (Be sure to select "public account," not "free trial.") Once you've signed up, log into [ArcGIS.com](#).
3. In the top menu in your dashboard on ArcGIS.com, select "Map." This opens a blank map in the map viewer.
4. Before you proceed, in the top menu select "Save," then "Save As" and give your map project a name and a tag (at least one tag is required for all ArcGIS projects—you can input something generic like "history," or you can be more descriptive.) Click on "Save Map."

IMPORTANT: ArcGIS does NOT autosave!! You have to save your map at the start and after any changes you make in order for those changes to stick.

SET YOUR BASEMAP

5. Along the left side of the map is a panel that lists your map layers. Map layers are simply sources of spatial data that are used to create the image in your map. To see these layers, select the "Content" button at the top of this panel. For now, you'll have only one layer called "Topographic," which is the default basemap.
6. To change this basemap, select "Basemap" in the top left menu and make a selection. For this exercise, a darker and visually simpler basemap will work best. "Firefly Imagery Hybrid" is a good choice if that option exists in your version of ArcGIS. If not, choose another basemap that is dark in color in order to make the items we map easy to view.

7. Click the arrow next to the name. There are actually two layers that make up most basemaps. For Firefly there are layers called “Hybrid Reference Layer” and “World Imagery.” Since the political boundaries included in these basemaps are modern day boundaries, and because for our purposes we want a visually simpler basemap, let’s remove the reference part of the basemap. To do that, click the three dots under “Hybrid Reference Layer” (or whatever the reference layer is called in your version of ArcGIS) and select “Remove.” (Do NOT select “remove baselayer.”)

ADDING AND STYLING DESTINATION DATA

Now we’re ready to begin adding our own data to the map. We’ll start with a layer that shows the destination regions of New York, South Carolina, and Virginia.

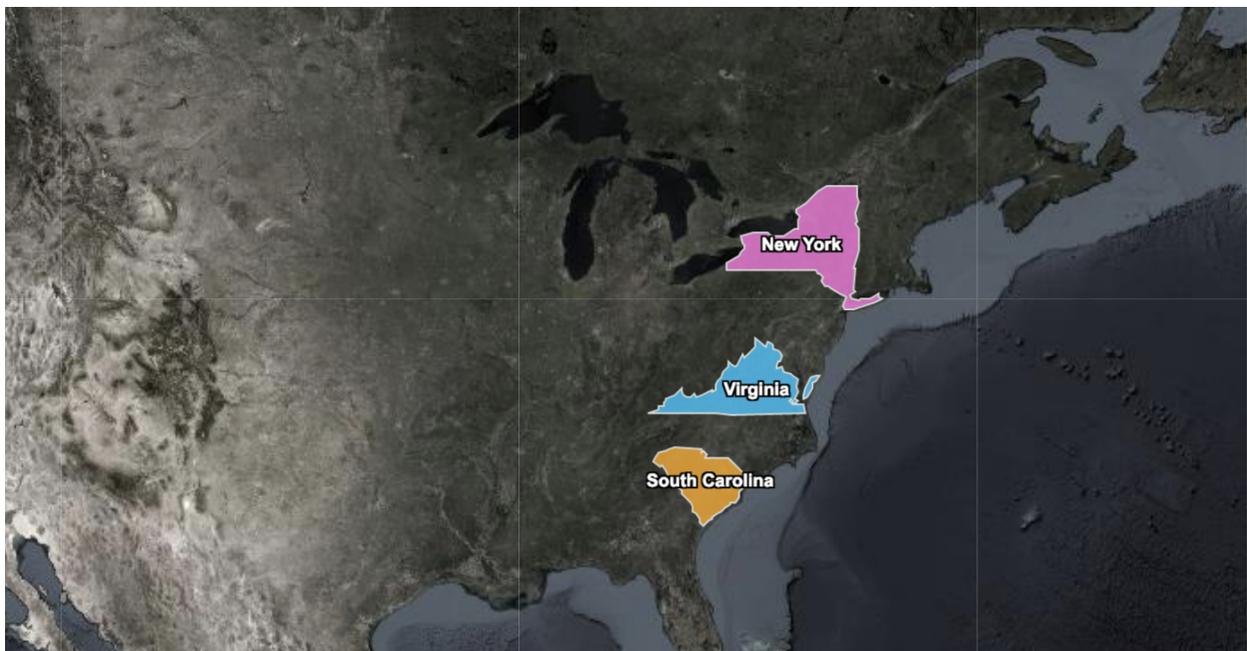
8. In the top left menu, select Add > Add Layer from File. Then click “Browse...” and find the file “destinations.geojson” in the data you downloaded earlier. Click Open, then Import Layer.
9. In the left pane, ArcGIS will suggest a few style options for the data. For the attribute to show, make sure that “name” is selected. Then for the drawing style, select “Types (Unique symbols).” There should be a check mark next to the box. Don’t click “Done” just yet.
10. While there’s nothing inherently wrong with the default color scheme, we’re going to modify it. Under Types (Unique symbols), click Options for the drawing style. Next to each of the three state names, click the color square to change the square’s color.
11. For fill color, paste in the following hex values for each state:
 - a. New York: #FF73DF
 - b. South Carolina: #FFAA00
 - c. Virginia: #00C5FF

A Note on Visualization

We've also chosen these colors because they are more distinguishable for people with colorblindness than some other options. One could choose other colors here, but if you do, it will be important to use matching colors later when formatting the markers for ports of embarkation so that viewers of your map can see the connections between the ports of departure and arrival for enslaved people.

12. In the same menu where you pasted the hex values, click on Outline, change the outline of each state to white (#FFFFFF), and slide the transparency over to zero.
 13. Click OK and then Done.
 14. Finally, under the destination layer in the left panel list, click the three horizontal dots and select Create Labels. Make sure that Label Features is checked, then set the font color to white and the halo to black. Click OK.
- This is a good moment to SAVE your work.**

The destinations data should now look something like this:



This is a good time to save your map. If you happen to exit and come back to the map, you'll notice that saving it also maintains its current scale and frame.

ADDING AND STYLING DEPARTURE DATA

Next, we'll add the data on slave trading voyages that trafficked people to each destination. The following steps will guide us in adding points to the map to represent the various places enslaved people boarded ships that ended up in these three places, and we will color code those circles to make the connection to a particular destination clear. The size of the points will indicate the relative number of people who came from that place. The SlaveVoyages databases report either documented numbers of people on board a ship or, when the exact number of people was not listed in surviving documents, an estimated number of people boarding the ship (derived from an evaluation of other voyages traveling similar routes). The size of each circle on the map reflects the total number of people on all documented voyages that carried people from that place.

Because we want to distinguish between the voyages that delivered people to each of our different destinations and to analyze the slave trade's evolution over time, we will add the data in batches, organized by destination colony and by time period.

A Note About the Data

Keep in mind that the points being added to the map in this step reflect data on where enslaved people boarded ships that carried them across the Atlantic. However, the enslaved people boarding ships at a particular port were not necessarily from that place originally. The slave trade within Africa often moved people over considerable distances to reach the ports where traffickers forced them to embark on ships for the Americas.

First, we need to import the data taken from SlaveVoyages.org into ArcGIS.

15. Select Add > Add Layer from File. Then click “Browse...” and find the “1601-1700 | New York.csv” dataset in your downloaded data. Click Open, then Import Layer.

You will see a warning message for some imported layers saying “Warning: This file contains invalid characters or is missing some location data. Not all features have been added to the map.” Just click OK. There are some voyages in the slave trade databases for which historians do not know exactly where enslaved people were forced to board ship. ArcGIS is just warning you that it will ignore those voyages in making your map because it doesn’t know where to depict the origin point for those voyages. This illustrates one of the challenges of representing historical documents via a database. The database is simply a composite of existing documentation, and complete documentation does not survive.

16. Once again, ArcGIS will suggest style options. Make sure that “Choose an attribute to show” is set to “Total_Imputed.” For “Select a drawing style” make sure “Counts and Amounts (Size)” is selected.

Using “Counts and Amounts (Size)” will display a series of circles on the map that are sized based on the attribute we chose to display from our dataset (“Total_Imputed”) number of enslaved people). The imputed number is an estimate of the number of enslaved people based both on existing records and estimated based on all voyages that stopped at a given port. Larger circles will indicate more enslaved people boarded ships at that location. This provides a very readable way of illustrating the number of enslaved individuals that were taken from specific locations.

Now we need to make a few adjustments to how the circles will appear.

17. For Counts and Amounts (Size), select Options.

18. First we’ll set the fill color and outline for the data. Click the colored Symbols button, then Fill, and paste in the appropriate hex value (in this case, the value for New York):

- a. New York: #A80084
- b. South Carolina: #734C00

c. Virginia: #0084A8

Design note: as in Step 11, you could choose other colors, but make sure your choices here correspond with the colors you chose to mark the destination regions in Step 11.

19. Under Outline, set the color to white (click the box or paste #FFFFFF) and slide the transparency over to zero. Click OK. The circles for New York should now be a magenta color with a white outline. **This is another good moment to save your work.**

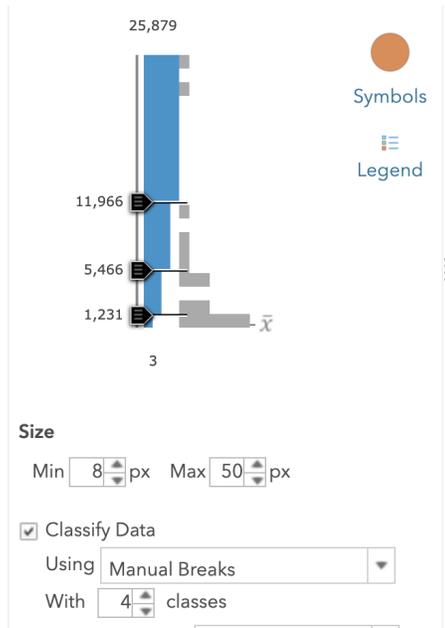
Now we've got circles of different sizes for this dataset, but we need to adjust them to facilitate comparison with the other data we will add to the map. Because ArcGIS creates the size calibrations independently for each dataset, the size of the circles can be misleading when we compare one dataset to another. For example, if one dataset had values from 1–10 and the other had values from 1–100, ArcGIS's automated settings would make the same size circle for the value of 5 for the first dataset and the value of 50 for the second one. We'll need to standardize the classification breaks for each dataset so that viewers of the map can compare the numbers of enslaved people sent to and from different places.

We're taking this step to make it easy to see on the map which ports sent larger or smaller numbers of people to each colony. This can help us understand the cultural and economic connections between different places and communities. This is important given the wide diversity of distinct peoples who lived in different parts of Africa, as it helps us avoid imagining the continent as a monolith. For example, if most people arriving to New York came from Senegambia, it is likely that they may have encountered people who spoke their same language.

20. With the Counts and Amounts (Size) options still in the left panel, just below the Size settings, check Classify Data. Then select Manual Breaks and set the number of classes to 4.

21. In the slider ramp up above, click on each of the four number breaks and paste in the below values, moving from largest (located on the top the slider) to smallest (located along the left side of the slider). If needed, drag the slider arrows up slightly for easier access.

- a. 25879
- b. 11966
- c. 5466
- d. 1231



If you get an error message when you're entering your numbers that says a number is out of range, it is probably because you didn't start from the very top. It is important that you enter the largest number first and that you enter it into the topmost number break, which is actually on top of the slider, as opposed to the other three numbers that are along the left side of the slider.

NOTE: There is nothing especially significant about these exact numbers of people as the cutoffs for the different sized circles in our map. We arrived at the numbers for the classification breaks by loading all of the voyage datasets into a single spreadsheet, loading that into ArcGIS, and then selecting "Natural Breaks" for the classification type. Natural Breaks is a classification type that creates classes based on groupings detected in your data (read more about Natural Breaks [here](#)). If you happen to be loading in a different collection of datasets, you can generate a set of classes appropriate for that collection by following this same procedure.

22. Click OK and Done. **This is another good moment to save your work.**

Your map should now look something like this:



For our data from the earliest time periods, steps 20-22 have taken rather large dots and shrunken them. As you'll see in a moment, this relatively small size is because in the following century, the number of captives trafficked across the Atlantic grew dramatically. We can take the sizes of the circles before we made the adjustment as a reminder of the significance of these earlier voyages. In raw numbers of people, the early voyages were eventually overshadowed by the later expansion of human trafficking networks, but those early voyages were still very important for establishing the institution of slavery and introducing African cultures to various parts of the Americas.

REPEAT THE PROCESS TO ADD MORE DATASETS

You'll now need to repeat steps 15–22 for each of the voyage datasets you add.

Remember to save again after you add each dataset!

VIEWING AND SHARING YOUR FINISHED MAP

Once you've finished adding all of the voyage data, you should see each dataset in the layers list in the left-hand panel. It might be good to reorder the layers in a way that makes sense for the analysis you want to do. For instance, you might choose to group layers by state/colony or by year range. To reorder, simply hover over the left side of a given layer in the list, click the three vertical dots that appear, and drag the layer to where you want it.

You can check and uncheck each layer in order to view layers individually or together. This is very helpful for inspecting the data and observing patterns and trends. You can also click on individual points on the map to see data about that point, including the imputed and recorded numbers of enslaved individuals taken from that location.

Finally, be sure to Save your map. If you want to share the map, click Share. You'll need to check the box to make the map visible to Everyone (public). Then you can copy the URL or an embed code. You can also screenshot your map with different layers turned on or off. If turning in your map for a class, check for guidelines from your instructor on how to submit a link or screenshot of your work.

ANALYZING YOUR MAP

To help interpret and draw conclusions from your map or to inspire further research, reflect on the following questions.

- Does anything surprise you about your map? Did any colonies/states receive more or fewer enslaved people than you expected, or receive them at different times?
- Did each of these colonies rely primarily on a single place for arriving enslaved people or did they draw captives from a variety of places?

- Do you notice any patterns in when enslaved people tended to arrive in each colonial directly from Africa vs. from elsewhere in the Americas?
- Do the patterns in the slave trade to each colony/state look similar to each other or do you notice significant differences?
- How might you reread your map in light of the process that it took to make it? Does anything you learned about the data underlying your map change how you understand it as a visualisation of the slave trade?
- How does attention to the gaps or silences in the data affect the meaning that you draw?
- How might you extrapolate from what is represented here?
- What other information would you want to connect to this map? More quantitative data? Text? Other media?
- What is the emotional impact of creating this map and working with this data, given that the numbers behind the map represent people forced to endure the slave trade? Do you have ideas for calling viewers attention to the human impact of the broad trends depicted?