



Exploring and creating basemaps

Introduction to more, better, and unique basemap

You have been tasked with showing your GIS colleagues new and different ways to customize basemaps. You are to reproduce various scenarios in which unique basemaps would be needed and give explicit instructions on creating these basemaps. You have decided to do a presentation highlighting the following:

- Basemaps created from multiple layers
- New Firefly basemap with custom halo icons
- Basemaps created by Mapstyler app
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Build skills in these areas

- Combining multiple layers to create basemaps
- Use the basemap Firefly
- Using Mapstyle to create basemaps

What you need

- Account required
- Estimated time: 1 hour

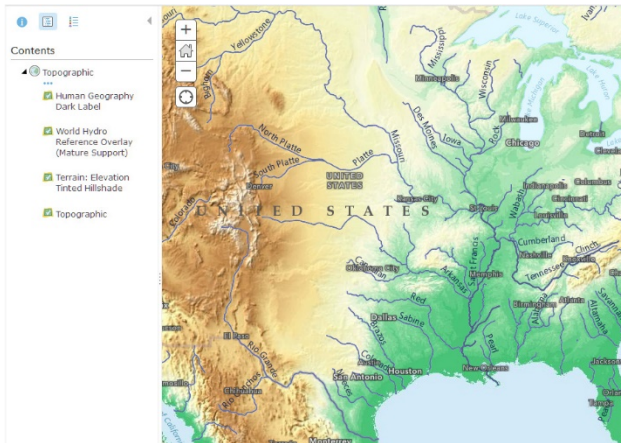
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1. Scenario #1: Create basemap from multiple Layers

Your team has been assigned a project on world hydrology. The following will produce a basemap that can be used as a standard for the project.

1. Sign into your [ArcGIS organizational account](#).
2. Click Map to open a new map.
3. Click Add>>Browse Living Atlas Layers.
4. Search for Tinted Hillshade.
5. Click the + to add the layer.
6. Click the back arrow to return to the Contents Pane.
7. Click the More Options icon (three dots) beneath the layer name, Terrain: Elevation Tinted Hillshade
8. Click Move to Basemap.
9. Click Add>>Browse Living Atlas Layers.
10. Search for the Esri Hydro Reference Overlay.
11. Add to the map and click the back arrow to return to the contents pane.
12. Move World Hydro Reference Overlay to Basemap. This layer provides a reference overlay highlighting water features for use with layers related to the natural sciences.
13. Zoom in and out on the map. Notice how more or less detail changes as the scale changes by zooming in and out.
14. Click Add>>Browse Living Atlas Layers.
15. Search for Human Geography Dark Label.
16. Click the + button to Add.
17. Click the back arrow to return to the Contents Pane.
18. Move Human Geography Dark Label to Basemap.

You should now have a basemap composed of four different layers to use as your customized basemap for your world hydrology map.



19. On the top menu, click Save As.
20. Enter the following information in the Save As Menu:
 - a. Title: World Hydro Map__Your Initials
 - b. Tags: IGARC2_YourInitials
 - c. Summary: World Hydro Basemap
21. Save Map.
22. You can share your map with your organization or specific groups by selecting Share on the top ribbon.

2. Scenario #2: Use Firefly cartography

World Imagery Firefly is an alternative view of the default World Imagery Basemap. This map is designed to be used as a neutral imagery basemap, with desaturated colors, that is useful for overlaying other brightly styled layers. You will use this basemap with some custom images to create a map of college attendance of students of the senior class in a high school.

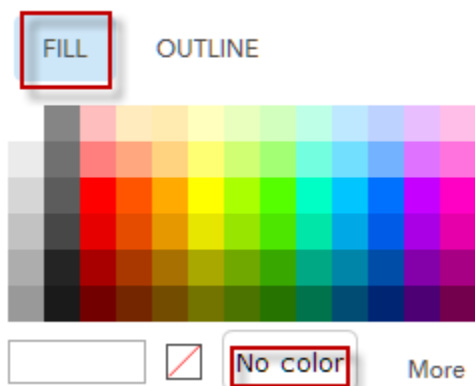
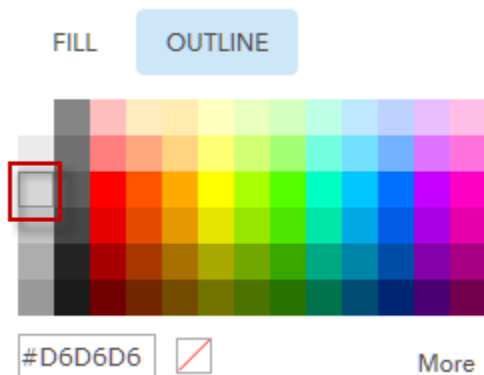
[Firefly Cartography](#) is a wonderful resource to read before doing this exercise.

Prepare the Firefly basemap with basic state outlines and labels

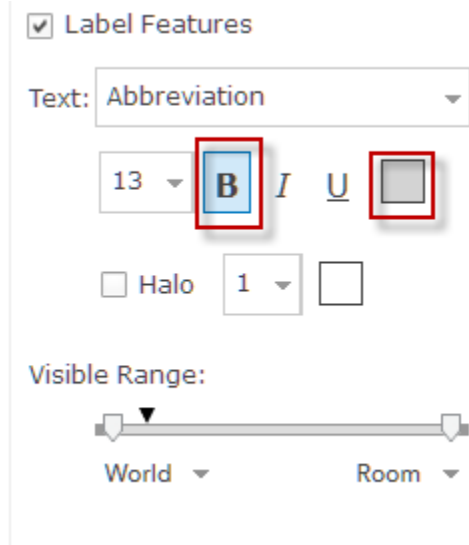
1. Sign into your [ArcGIS organizational Account](#).
2. Click on Map to create a new map.
3. Click Add>>Browse Living Atlas Layers.
4. Search for Firefly and click the + to add to the map.
5. Click the back arrow to return to the Contents Pane.
6. Click the three dots at the end of Firefly and move to basemap.

You notice immediately how subdued the Firefly basemap is compared to the standard imagery basemap. You will now add states and labels.

7. Click Add>>Browse Living Atlas Layers.
8. Search for USA States (Generalized)
9. Click + to add to the map.
10. Click the back arrow to return to the Contents Pane.
11. Click the Change Style icon under USA States.
12. Click OPTIONS.
13. Click Symbols.
14. For Fill, click No Color. For Outline click Dark Gray.



15. Click OK and OK.
16. Click DONE.
17. Click the three dots at the end of USA State and go to Create Labels.
18. Choose Abbreviation.
19. Choose Bold.
20. Choose Light Gray.



21. Click OK.
22. Click Save As on the top of the Menu.
23. Use the following parameters in the Save Map menu:
 - a. Title: Firefly University Attendance
 - b. Tags: Remove tags and use individualized tags
 - c. Summary: Attendance of universities from VA high school.

You have now constructed a map using a Firefly basemap with labels.

Add layers to the map

To complete the next part of the exercise you will add two layers; the layer for Fairfax High School and the layer for the universities attended by the senior class.

1. Click Add and search for IGARC2_fhs in ArcGIS Online.
2. Add Fairfax_High School and FHS_Universities.

Search for Layers

Find:

In:

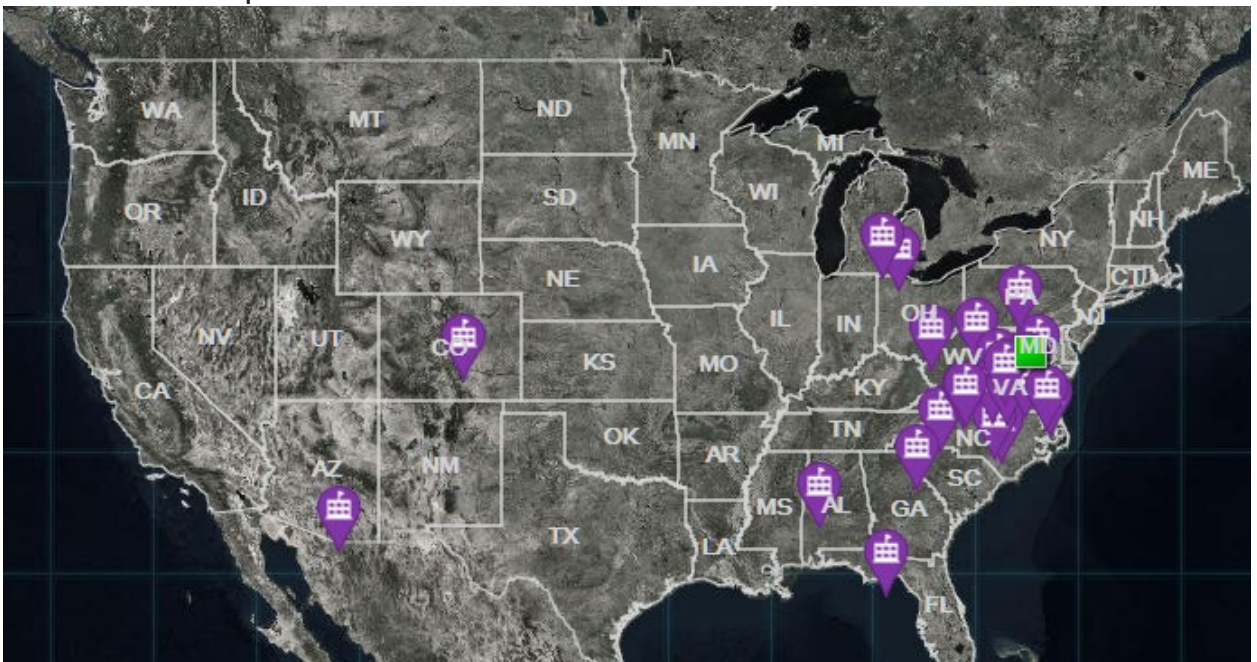
Within map area

2 Results Found

Fairfax_High_School
by Kathryn_Keranen_LearnArcGIS

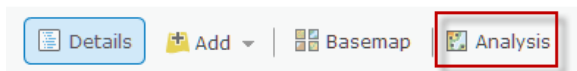
FHS_Universities
by Kathryn_Keranen_LearnArcGIS

3. Click DONE ADDING LAYERS.
4. Click the three dots to the right of Fairfax High School and move up to the top of the Contents.
5. Change Style in Fairfax High School.
6. Click OPTIONS.
7. Click Symbols.
8. Change the symbols size to 40.
9. Change to Color to Green.
10. Click OK and OK.
11. Click DONE.
12. Save the map.



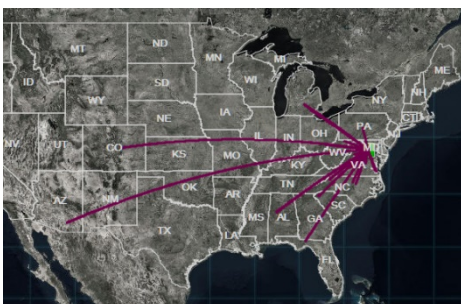
Connect origin to destinations

You can illustrate university attendance by creating lines from Fairfax High School to all the different universities. This can be done by using the analysis tool Connect Origins to Destinations. The tool can report straight-line distances from the origin to the destinations. Diagrams such as this are referred to as spider diagrams.



1. Click Analysis on the top menu.
2. Click Use Proximity.
3. Click Connect Origins to Destinations. This uses a straight-line distance.
 - a. Fairfax_High School is the point layer.
 - b. FHS_Universites is the Route to destinations.
 - c. Line distance is Measure. This tool connects origins to destinations using straight-line distance.
 - d. Result layer is Fairfax_High_School to FHS_Universities_yourinitials.
 - e. Save the result in your folder.
 - f. Uncheck Use current map extent.
 - g. Renew credit usage. Remember analysis is not free but uses credits.
4. Click RUN ANALYSIS.
5. Click Change Style under Fairfax High School to FHS Universities_Fairfax School to FHS.
6. Change Choose an attribute to Show Location Only.
7. Click OPTIONS.
8. Click Symbols.
9. Make the Symbol a purple/burgundy with a Line Width of 3.
10. Click OK and OK.
11. Click DONE.

You can now see a line drawn from Fairfax High School to each individual university.



Symbolize universities by attendees.

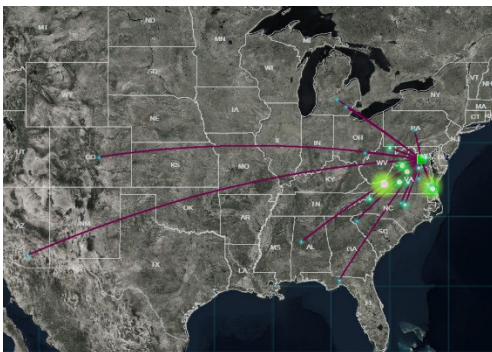
Of course, there are some universities that more than one student attended. The universities need to be symbolized by quantity of attendees.

1. Click Change Style under FHS Universities.
2. Under Choose an attribute to show select FHS_Attendees.
3. Click Counts and Amounts (Size) OPTIONS.
4. Click Classify Data.
5. Change the size to be 15 Min to 50 Max.
6. Click OK then DONE.
7. Click Save.

Use custom glow effect symbols

Point symbols with a glow effect are ideal for a Firefly basemap.

1. Click Change Style under FHS Universities.
2. Move FHS Universities layer above the lines layer.
3. Counts and amounts OPTIONS.
5. Click Legend.
6. Click >12 – 20.
7. Search for Firefly and choose the bright green firefly symbol.
8. Click > 6 – 12 and choose the dark green firefly symbol.
9. Click >2 – 6 and choose the light blue firefly symbol.
10. Click 1 – 2 and choose the dark blue firefly symbol.
11. Click OK and OK.
12. Save.



In this exercise, you have displayed student attendance data at universities on a Firefly basemap with custom halo symbols. This gives you knowledge of how to use more cartographic options.

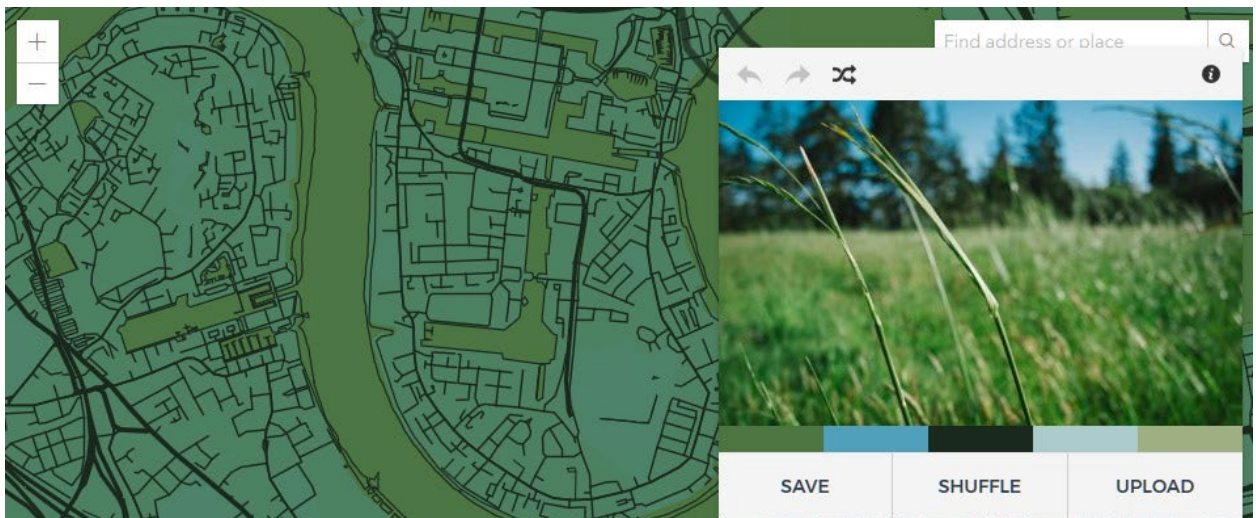
3. Scenario #3: Produce Mapstyler basemap

As chief cartographer for a major university you have been tasked with producing three basemaps: one representing historical colors, one oceanic color, and one that represents emergencies. You have chosen the app [Mapstyler](#).

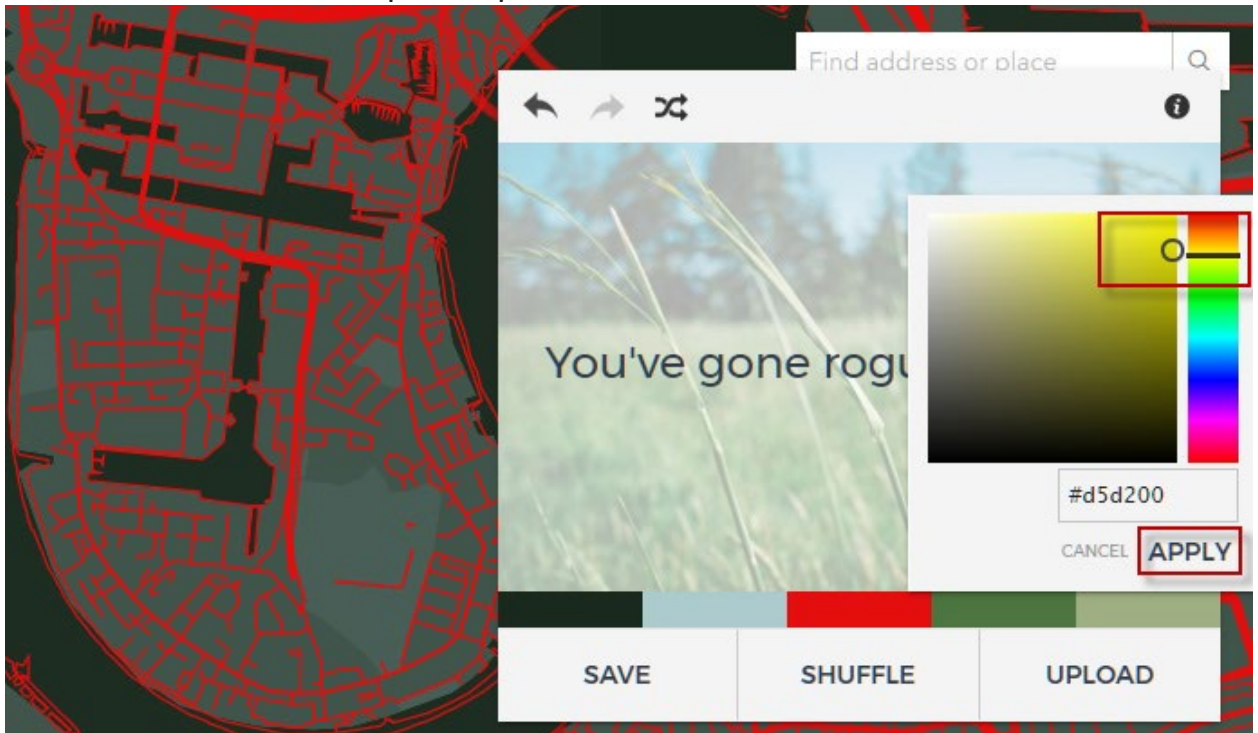
[Mapstyler](#) has been designed by Esri UK to make vector tile color editing simple. There are two methods of selecting colors for a new basemap. You can use a random color shuffle button, or you can select an image that has a color scheme that is appealing to you and drag the image onto the map and let the vector tile basemap adopt the colors in the image. After you have selected a basemap of your choice you save the basemap to your content by clicking the heart in the upper right corner.

Basic Map

1. Open Mapstyler. (The opening default map varies, and you may have to zoom in to trigger the display.)
2. Examine the three tabs: SAVE, SHUFFLE, and UPLOAD.

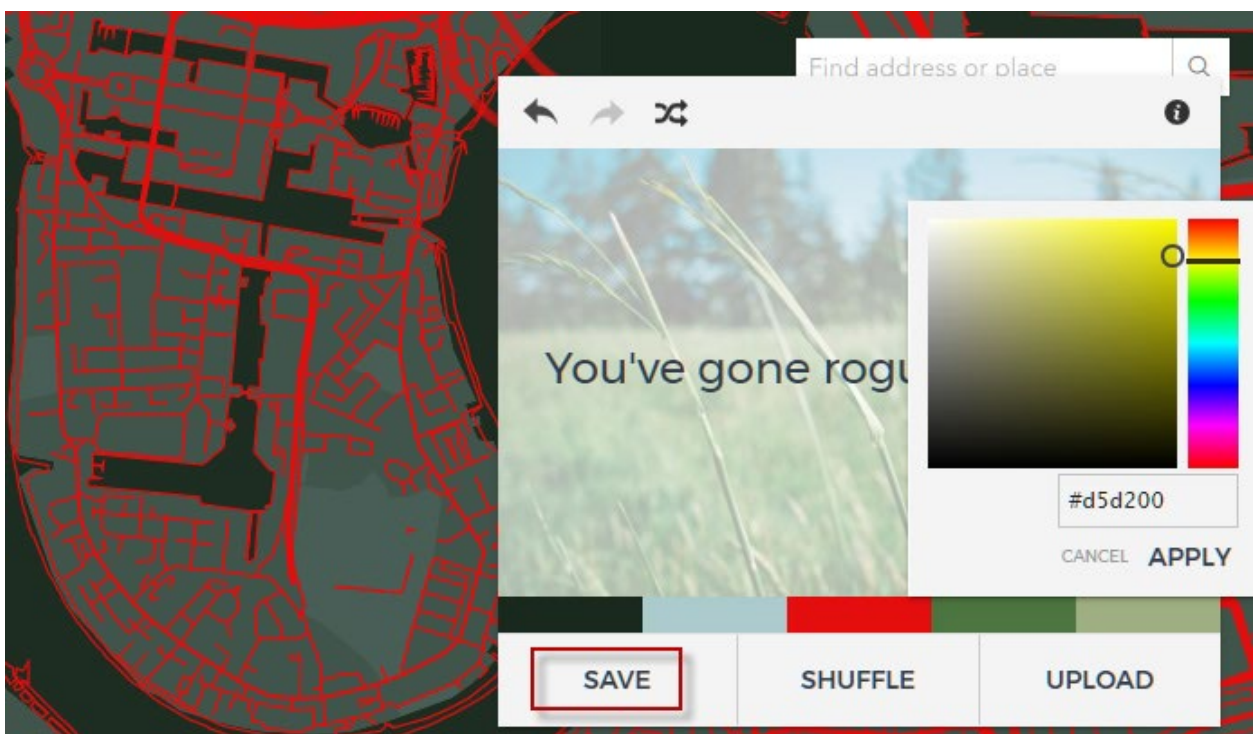


3. Click SHUFFLE to cycle through examples.
4. Or click on a color and pick a specific color and click APPLY.



Remember your task is to pick a color that represents a historical cartographic look.

5. Click Save to save your map into your organizational Contents.

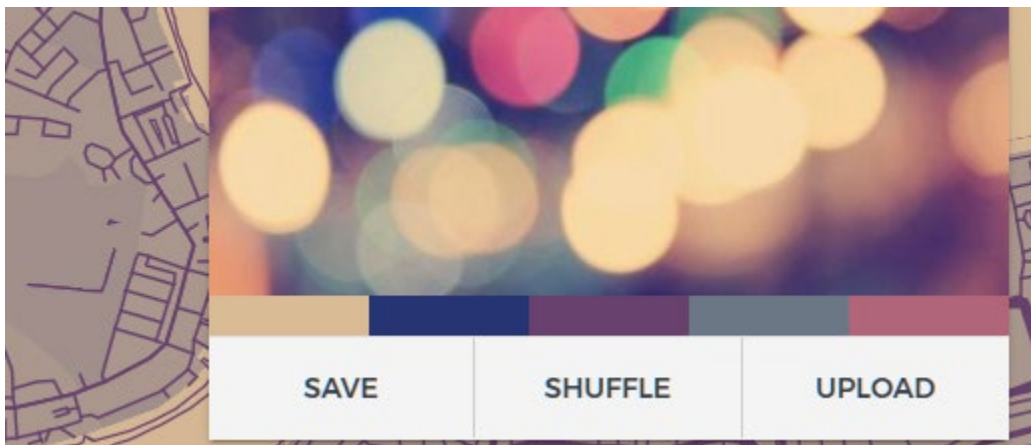


6. Go to your Contents.
7. Click the map.
8. On an Overview page for your map, click the edit to the right of the title and rename your basemap.
9. Click Save.



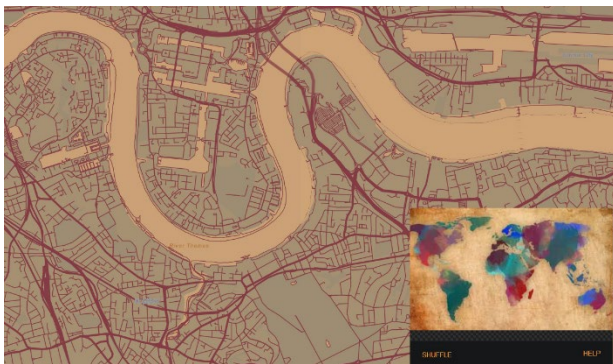
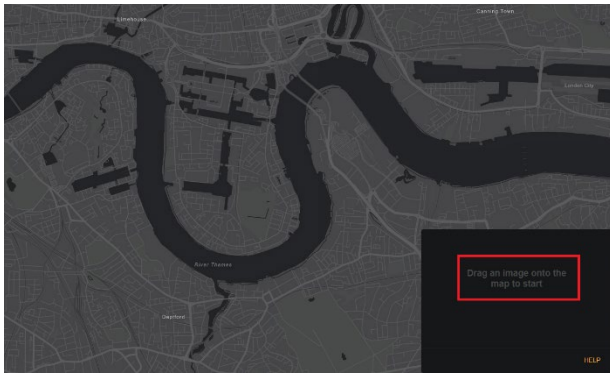
Upload an image

Using the Upload mode, you can select a jpeg or png image and drag it onto the map. The vector tiles will adopt the color palette of the image. You can then use the shuffle button to reorder the colors.



1. Open [Mapstyler](#).
2. Do some research and find a map that stylistically represents your ideas. Make an image of the map (jpg or png format). Tiffs cannot be used.

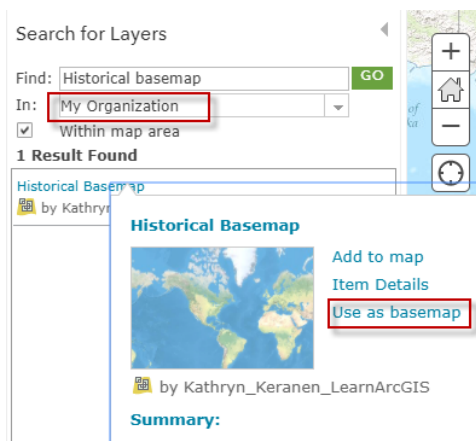
3. Drag the map to the area designated below.



4. Click Save at the top right to save your new basemap into your content.
5. Rename your basemap.

Make your new map the basemap

1. Create a new web map.
2. Search for the name of your new basemap.
3. Click and Use as Basemap.



4. Click Done Adding Layers.
5. Add more layers to your map.

Create a custom historical, ocean, and emergency map.

