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## Before you begin: Access Library in the Education sandbox

The Education sandbox is a shared, cloud-based environment to help you learn about and experiment with MicroStrategy Web and Library.

Use the Education sandbox to complete various report and dossier exercises. Complete the steps below to access the sandbox.

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### Access Library in the Education sandbox

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- 1 In your browser, navigate to **education.microstrategy.com/MicroStrategy/servlet/mstrWeb**.
- 2 Log in to the sandbox with your **MicroStrategy Account** credentials.  
**Open the Tutorial project**
- 3 The MicroStrategy landing page opens. Click the **MicroStrategy Tutorial** project.



#### MicroStrategy Tutorial

MicroStrategy Tutorial project and application set designed to illustrate the platform's rich functionality. The theme is an Electronics, Books, Movies and Music store. Employees, Inventory, Finance, Product Sales and Suppliers are analyzed.  
**Server name** ENV-218880LAIOUSE1

The MicroStrategy Tutorial home page opens.

- 4 Click **Go to MicroStrategy Library**.
- 5 If prompted, enter your **MicroStrategy Account** credentials, and then click **Log in with Identity**.

Your Library home page displays.

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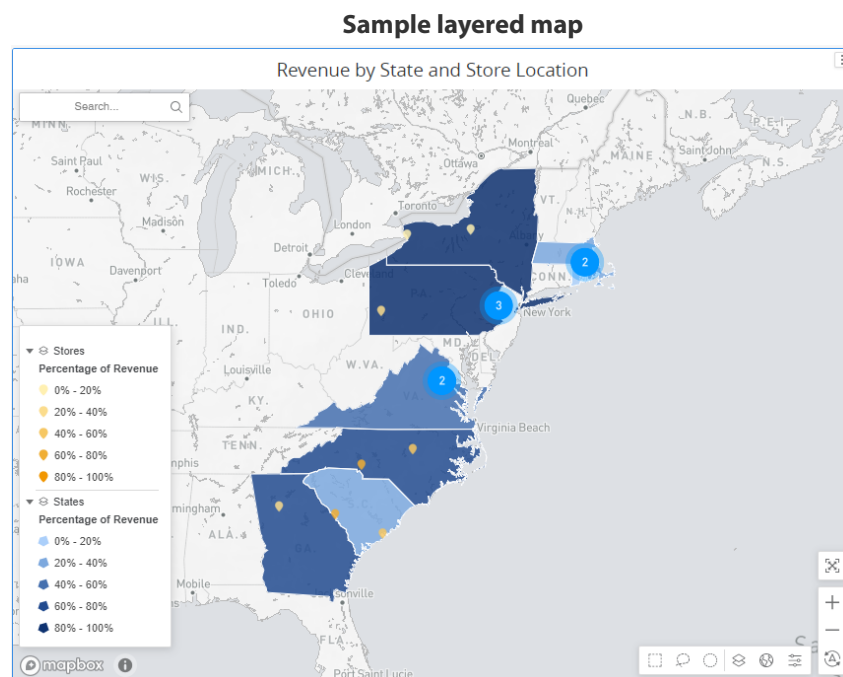
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## Exercise: Create a layered marker and area map

As a result of your excellent work and analysis as a store manager, you have been promoted to Vice President. In this new position, you want to analyze revenue based on geographic location. Specifically, you want to compare revenue across individual store locations and across states that your store locations are in.

To view both levels of geographic analysis at the same time for a comprehensive understanding of revenue performance, create a layered marker and area map.

Your completed layered map looks like the image below, though your clustered markers might differ depending on your screen size and zoom level.



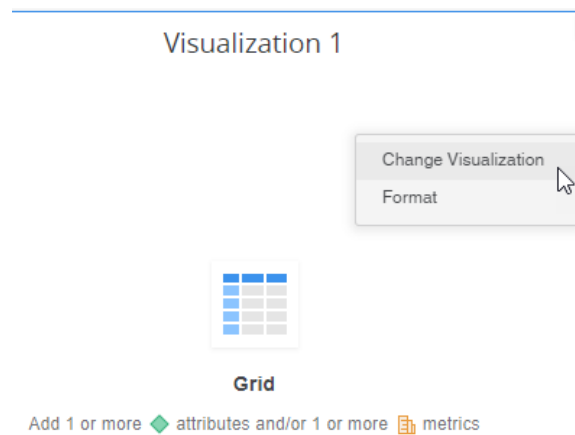
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### Create the marker map layer

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- 1 In the Education sandbox Library, open the **Visualization Types** dossier in Edit mode, if not already there. For a reminder on how to do this, see *Exercise: Access Library in the Education sandbox*, and *Exercise: Add the Visualization Types dossier to MicroStrategy Library*.
  - 2 In the Contents panel on the left, in the Geographic Data chapter, click the **Marker and Area Map** page.
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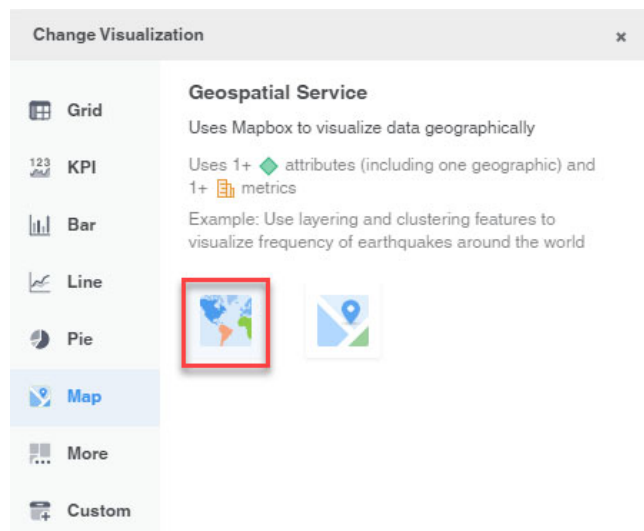
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- 3 By default, a new page displays a blank grid visualization on the canvas. To change the visualization to a map chart, right-click inside the visualization and select **Change Visualization**.



The Change Visualization window opens, displaying the Visualization Gallery.


- 4 In the Visualization Gallery, point to **Map**, and then click the **Geospatial Service** icon.

*MicroStrategy offers two map options, Geospatial Service and ESRI. In this lesson, you use a Geospatial Service map.*



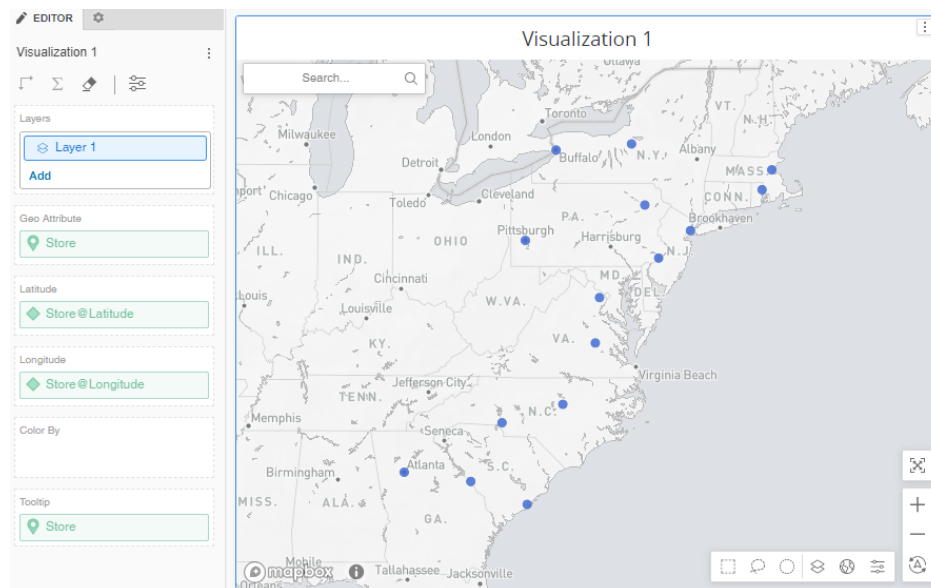
The dossier canvas displays a blank map visualization.

- 5 The data you need for this analysis is stored in the Satisfaction and Performance dataset. In the Datasets panel, click the arrow icon ► to the left of the **Satisfaction and Performance** dataset to expand it, if it isn't already. The dataset's attributes and metrics display.
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
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- 6 To focus on the objects in the Satisfaction and Performance dataset rather than the other datasets, collapse any other datasets that are expanded by clicking the arrow icon ▼ to the left of the dataset name.
  - 7 Click the **Editor** icon  to display the Editor panel, if not already displayed.
  - 8 From the Satisfaction and Performance dataset, double-click the **Store** attribute to add it to the **Geo Attributes** drop zone in the Editor panel.

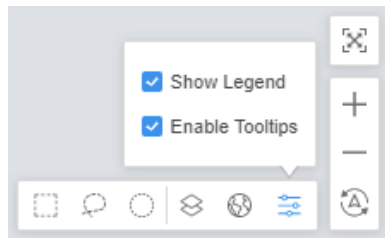
The map zooms in to show the region of the United States where your stores are located, and markers are displayed for each store. The Latitude and Longitude drop zones are automatically filled in from the city geo role of the Store attribute.

*To learn more about geo roles, see the Accessing Data Sources and Wrangling Datasets in Dossiers chapter of the Departmental Analyst learning path.*



- 9 Double-click **Revenue** to add it to the **Color By** drop zone.
- Each store marker is colored according to its revenue value.
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- 10** Display the legend so that users understand what the marker colors represent. At the bottom right of the map, click the **More Controls** icon , and then select the **Show Legend** check box.

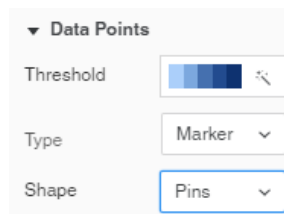


The legend displays in the lower left of the map, and you can see that stores with a higher revenue display in a darker blue, and stores with a lower revenue display in a lighter blue.

- 11** To keep track of what this marker map layer represents, give it an informative name. In the Editor panel in the **Layers** drop zone, right-click **Layer 1**, and select **Rename**. Type **Stores**.

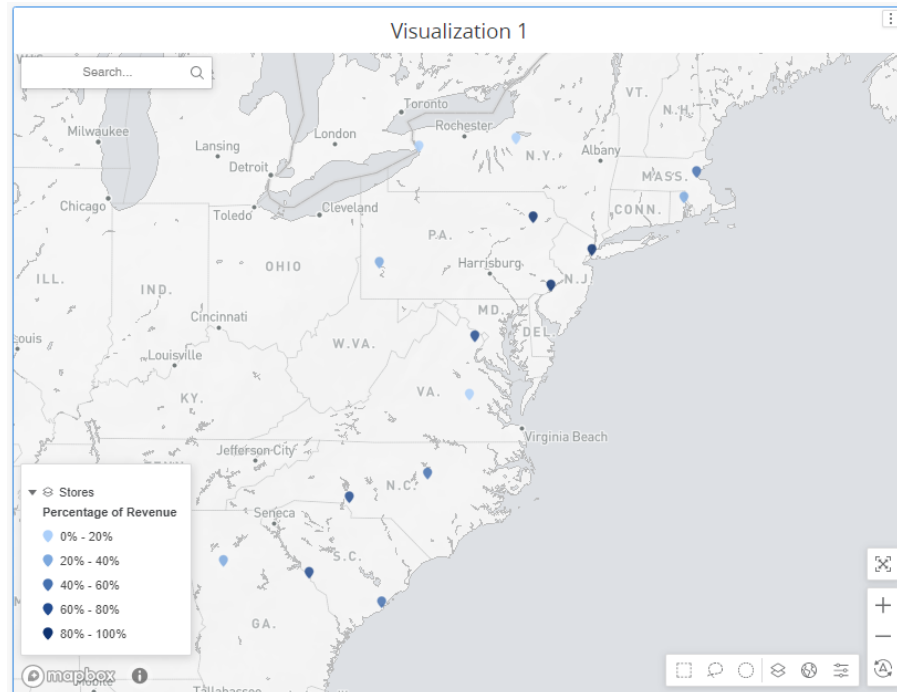
**Change the marker shape to pins**

- 12** Click the **Format** icon  to display the Format panel.
- 13** In the Format panel, expand **Data Points**, and from the **Shape** drop-down list, select **Pins**.



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The markers now display as pin shapes on the map.

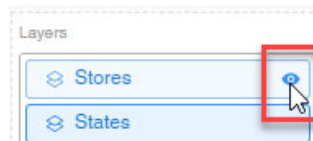


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### Create the area map layer

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- 1 Click the **Editor** icon  to display the Editor panel.
- 2 In the **Layers** drop zone, click **Add**. The marker map you created is represented by the Stores layer, and now you are creating an area map on Layer 2.
- 3 To keep track of what this new map layer represents, give it an informative name. Right-click **Layer 2**, and select **Rename**. Type **States**.
- 4 To focus on the States layer, hide the Stores layer. In the Layers drop zone, hover over **Stores**, and click the hide icon on the right.



The store location markers no longer display on the map because the Stores layer is hidden.

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- 5 From the Satisfaction and Performance dataset, double-click the **State** attribute to add it to the **Geo Attributes** drop zone in the Editor panel.

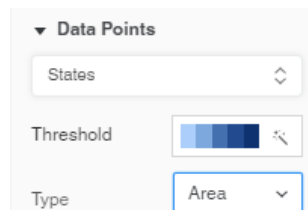
A marker is displayed in the center of each state that has a least one of your stores. The Latitude and Longitude drop zones are automatically filled in from the city geo role of the Store attribute.

- 6 Double-click **Revenue** to add it to the **Color By** drop zone.


Each state marker is colored according to its revenue value.

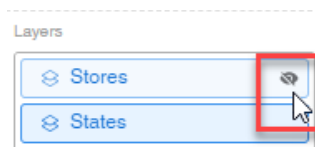
- 7 You enabled the legend for the Stores layer, but it is not yet enabled for the States layer. Click the **Format** icon  to display the Format panel, and then enable the **Legend**.

- 8 To change the marker map to an area map, in the Format panel, expand **Data Points**. From the **Type** drop-down list select **Area**.

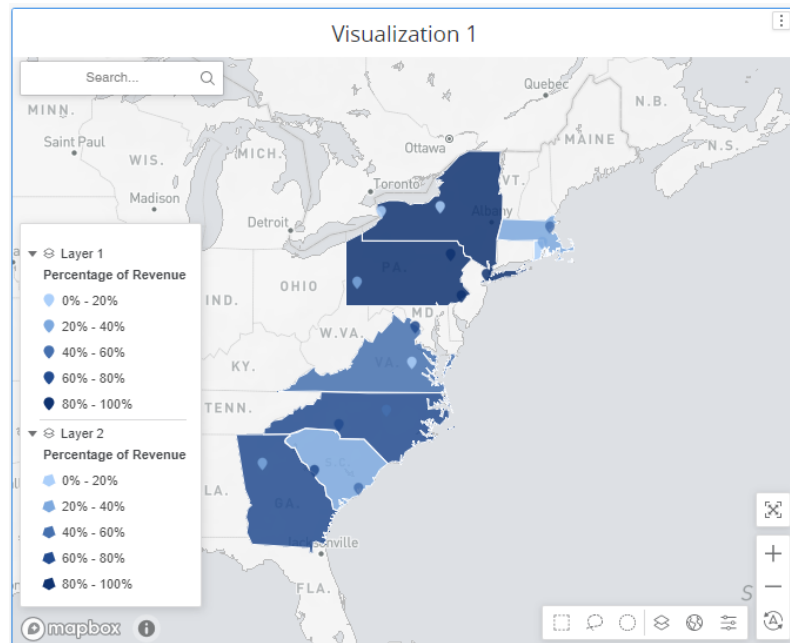



The markers in the center of the states change to colored areas that cover the geographic shape of the states.

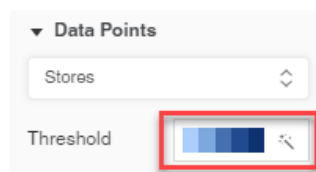
- 9 Click the **Editor** icon  to display the Editor panel, and in the Layers drop zone, hover over **Stores**, and click the unhide icon.



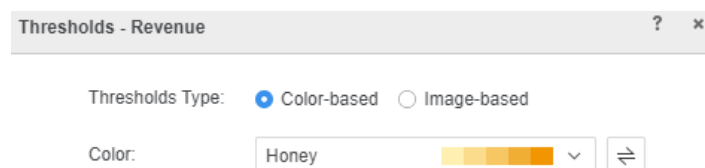
The Stores layer (with the store location markers) is now shown on top of the States layer (with the state areas).



- 10 The layers use the same color threshold, so it is hard to see some of the markers when the colors are similar. Change the color for the Stores layer threshold. In the Editor panel, click the **Stores** layer to select it.
- 11 Click the **Format** icon  to display the Format panel, and expand **Data Points** if it is not already expanded.
- 12 Next to **Threshold**, click the color range to select a different one.



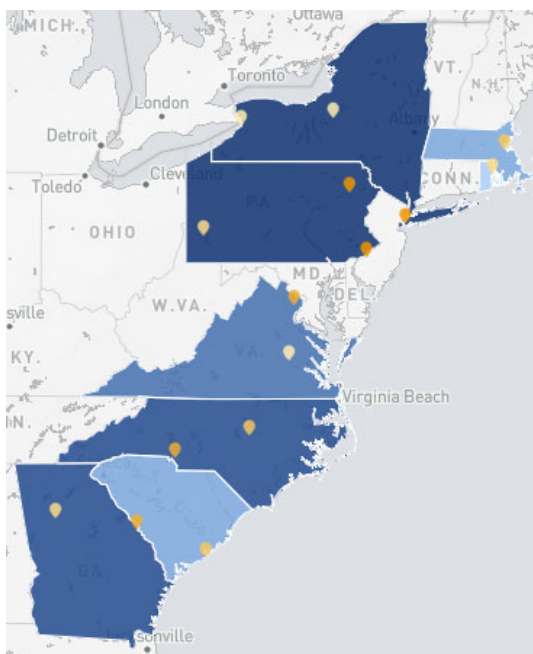
- 13 In the Thresholds-Revenue window, from the **Color** drop-down list, select **Honey**, and then click **OK**.





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The store location markers in the Stores layer are now easier to see on top of the States layer.



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### Cluster the map markers

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When multiple markers are displayed in the same map area, you can cluster markers into a circle. This makes it easier to analyze details of more than one marker at the same time and can reduce clutter if you have many markers.

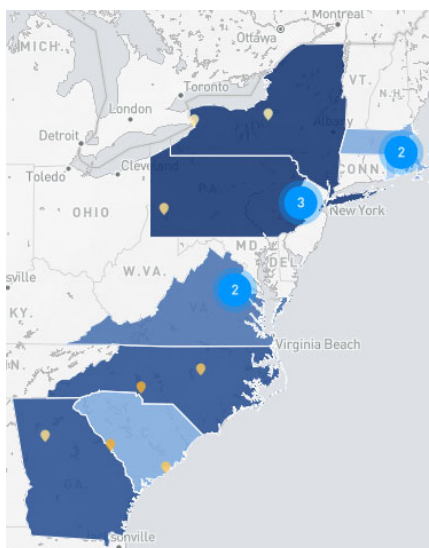
- 1 In the Format panel, in the **Data Points** area, select the check box for **Enable Clustering**.



Markers that are close together are now clustered into a circle. The number in the circle indicates how many markers are included in the cluster. Your clusters

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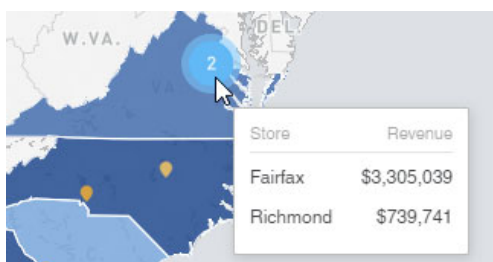
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might differ from the image below, depending on your screen size and zoom level.



You can use the Zoom In icon  and Zoom Out icon  at the bottom right of the map to adjust your zoom level. Zoom out to display more clusters.

- 2 Hover over a cluster to view the details of the markers included in the cluster. In the example below, when you hover over the cluster in the state of Virginia, you see details for Fairfax and Richmond stores.



- 3 To rename the visualization, double-click the **Visualization 1** title, and type **Revenue by State and Store Location**. Your map now resembles *Sample layered map*.
- 4 Click **Save** in the upper right of the dossier toolbar.

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### Analyze the layered map

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- 1 As you examine and interact with the map, answer the following questions:
    - Can you quickly identify the states with the lowest revenue figures?
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*The legend for the States layer identifies the color shading by percentage contribution to total revenue across all states. The lightest states generated 0%-20% of total revenue. Hover over a state to view its exact revenue amount.*

- Can you quickly identify which store locations contribute the most to revenue generation?

*The legend for the Stores layer conveys the color shading by percentage contribution to total revenue across all stores. The darkest markers indicate store locations that generated 80%-100% of total revenue. Hover over a store location marker to view the location's exact revenue amount.*

- Is there anything you might change about this visualization to make the information easier to interpret?
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