

## GIS III: GIS Analysis Toolset Online Mapping

\*\*\* Files needed for the exercise: *XX\_county10\_HD.shp*, *XX\_county10\_Stroke* and *XX\_Stroke\_Centers\_2012.shp*

**Goals:** The goal for this exercise is to publish your research output as an online map for the general public.

**Skills:** After completing this exercise, you will be able to publish your local data to the web. You will also be able to use multiple interactive maps to tell a story to your target audience.

**Scenario:** We have created multiple maps that show the mortality rate of heart disease and stroke. Now we want to publish these maps to show the general public where the burden of disease in our specific state is and how CDC/State & Local health departments are addressing it.

### Upload Shapefiles to ArcGIS Online

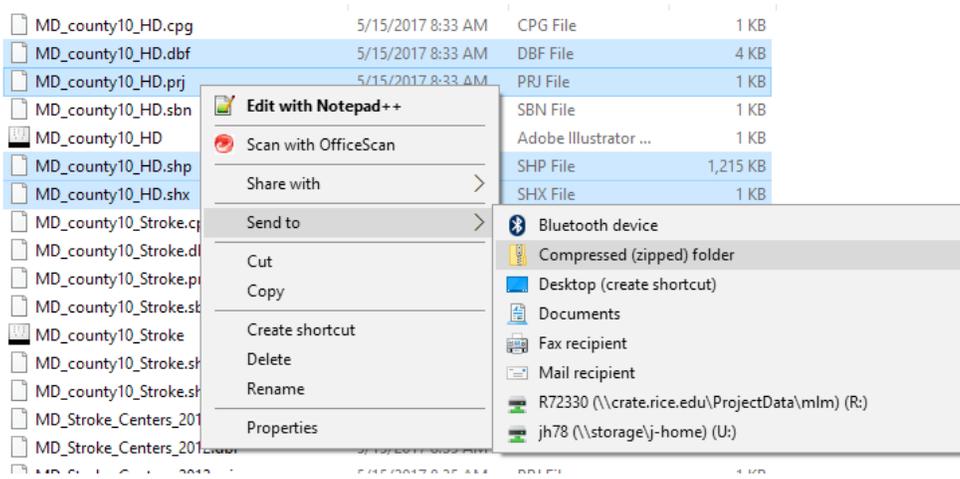
1. Open this exercise's **Data** folder and find the files for your state's Heart Disease and Stroke mortality rates (**XX\_county10\_HD** and **XX\_county10\_Stroke**) and primary stroke centers (**XX\_Stroke\_Centers\_2012**). You need all four files to display a shapefile in ArcGIS Online: ".dbf", ".shx", ".shp" and ".prj".

Name	Date modified	Type	Size
MD_county10_HD.cpg	5/15/2017 8:33 AM	CPG File	1 KB
MD_county10_HD.dbf	5/15/2017 8:33 AM	DBF File	4 KB
MD_county10_HD.prj	5/15/2017 8:33 AM	PRJ File	1 KB
MD_county10_HD.sbn	5/15/2017 8:33 AM	SBN File	1 KB
MD_county10_HD	5/15/2017 8:33 AM	Adobe Illustrator ...	1 KB
MD_county10_HD.shp	5/15/2017 8:33 AM	SHP File	1,215 KB
MD_county10_HD.shx	5/15/2017 8:33 AM	SHX File	1 KB
MD_county10_Stroke.cpg	5/15/2017 8:33 AM	CPG File	1 KB
MD_county10_Stroke.dbf	5/15/2017 8:33 AM	DBF File	4 KB

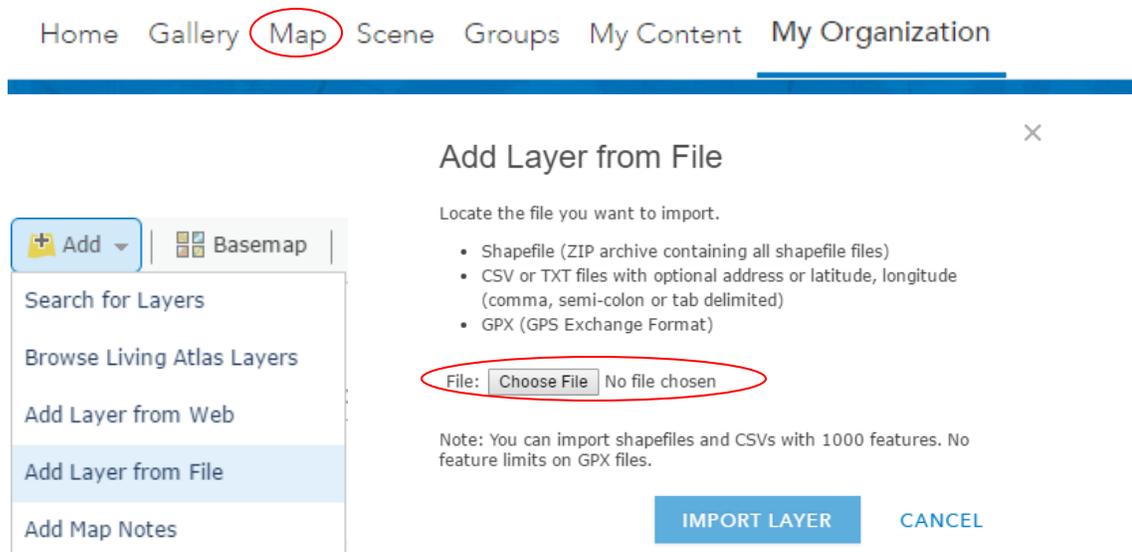
It is good practice to do most, if not all, of your analyses in ArcMap and only upload the final prepared shapefiles to ArcGIS Online. For example, table join rates to county boundaries, select and export only stroke centers in the state, remove unnecessary fields – these have already been completed in preparation for the exercise.

2. Create a zip file for each data layer. Hold **Ctrl** key and select all four files for a layer. **Right Click** -> **Send to** -> **Compressed (zipped) folder**. Please keep the name identical to the separate files. ArcGIS Online can't recognize data layers when the names of files are not consistent.

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- Log-in to ArcGIS Online and browse to **Map**. Click New Map if you have previously created a map on ArcGIS Online. Select **Add -> Layer from File**. Select **Choose file** in the popup window. Select "**XX\_county10\_HD.zip**" and click **Open**. Select **Keep original features** to avoid shape distortion and click **IMPORT LAYER** (It's recommended you generalize your shapefile before uploading it; you will have much more control of it that way).

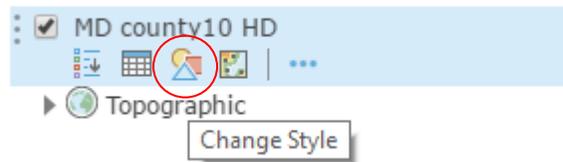


- A Configuration Window will appear in the left panel. This conversation window can also be opened by clicking the Change Style Icon under the layer name. Use the first dropdown menu to choose to show the attribute HD\_all\_sm. These are 2012-2014 age-adjusted, spatially smoothed,

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county-level, heart disease death rates per 100,000. Click the **Counts and Amounts (Color)** drawing style to select it and create a choropleth map.

- Click **OPTIONS** to specify symbols, transparency, and visible range. Click **Symbols** to change the color ramp fill and outline to red to represent heart disease. Use the arrows to flip the color ramp so darker colors reflect higher values. Check the **Classify Data** box to show classification options. We will use Quantiles with 5 classes. The distribution can be seen in the histogram adjacent to the color ramp. Click **Legend** to edit individual symbols or labels. Click **OK** and **Done**.



Change Style  
MD county10 HD

**1** Choose an attribute to show

HD\_all\_sm  
Show location only  
GEOID10  
HD\_35up\_sm  
**HD\_all\_sm**  
NAMELSAD10

New Expression

Counts and Amounts (Color) **SELECT**

Counts and Amounts (Color) **OPTIONS**

Change Style  
MD county10 HD

**HD\_all\_sm**

Divided By: None

Classify Data

Using: Quantile

With: 5 classes

Round classes: Select an option

Draw features with out of range or no value.

**Transparency**

Overall: 0% to 100%

Per feature: Set from Attribute Values

Visible Range: Suggest

**OK** **CANCEL**

- Similarly, add the **XX\_county10\_Stroke** data and display by **STR\_all\_sm**.

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- We can also point data. Add the **XX\_Stroke\_Centers\_2012** data and instead of choosing an attribute, choose to “Show location only”. Click **Options** and **Symbols** to choose an appropriate symbol, color, and size. When satisfied, click **OK** and **Done**.

Change Style  
MD Stroke Centers 2012

- Choose an attribute to show  
Show location only
- Select a drawing style  
Location (Single symbol)

SHAPE FILL OUTLINE

Shapes

Use an Image

Symbol Size  
20 px

OK CANCEL

- Change the name of the layers by clicking the **More options (...)** -> **Rename**.

- MD Stroke Centers 2012
- MD county10 Stro...
- MD county10 HD
- ▶  Topographic

- Zoom to
- Transparency
- Set Visibility Range
- Move up
- Move down
- Rename**
- Remove

- Take a break and explore the web map features. Check layers on and off to view them on the map and reorder them in the Contents panel by dragging each layer up or down. Select a different basemap by using the **Basemap** button at the top of the page.

Details Add Edit Basemap Analysis

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10. Notice, if you click a feature on the map, a Pop-up will appear with attribute information for that feature. To improve readability, click **More options(...)** -> **Configure Pop-up**. Click the blue link to **Configure Attributes**. Here you can change Field Alias names and their display status. You can write a standard Pop-up Title or click the + button to dynamically use the field name as a title.

### Configure Attributes

Check the fields you want to display and edit. Select a field to change its alias, order it, and format it.

<input type="checkbox"/> Display	<input type="checkbox"/> Edit	Field Name	Field Alias
<input type="checkbox"/>	<input type="checkbox"/>	{FID}	FID
<input type="checkbox"/>	<input type="checkbox"/>	{GEOID10}	GEOID10
<input type="checkbox"/>	<input type="checkbox"/>	{NAMELSAD10}	Name
<input type="checkbox"/>	<input type="checkbox"/>	{STR_35up_s}	Rate per 100,000
<input checked="" type="checkbox"/>	<input type="checkbox"/>	{STR_all_sm}	Rate per 100,000

↑  
↓

**Format**

Use 1000 Separator

Hint

OK CANCEL

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11. You can also select **CONFIGURE** to open the **Custom Attribute Display** where you can specify a way to convey the message to the target audience. You can click the “plus sign” to insert a field value for the display and enter {Street\_Add} {City}, {St} {Zip\_Code}” in the text box. This will display the address of the stroke center in a more readable format. Then, **Save pop-up**.

Primary Stroke Centers

Show Pop-ups

**Pop-up Title**

**Pop-up Contents**  
 Display:

**CONFIGURE**  
[Configure Attributes](#)

Custom Attribute Display ×

Use the area below to define, format, and lay out the information you want to display.

**B I U**

Font  Size

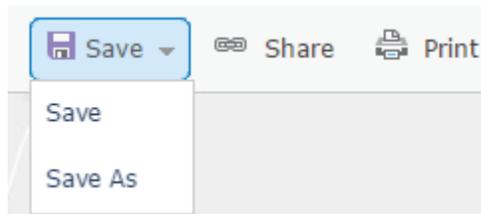
{Street\_Add}  
 {City}, {St} {Zip\_Code}

- FID {FID}
- Certificat {Certificat}
- Organizati {Organizati}
- Street\_Add {Street\_Add}

**OK** **CANCEL**

Click around the map again to view the pop-ups. Alternatively, you can create a new field in the shapefile and specify the messages you want to display for each record by using the field calculator. You will have more flexibility this way, but the size of the file will increase if the message is long.

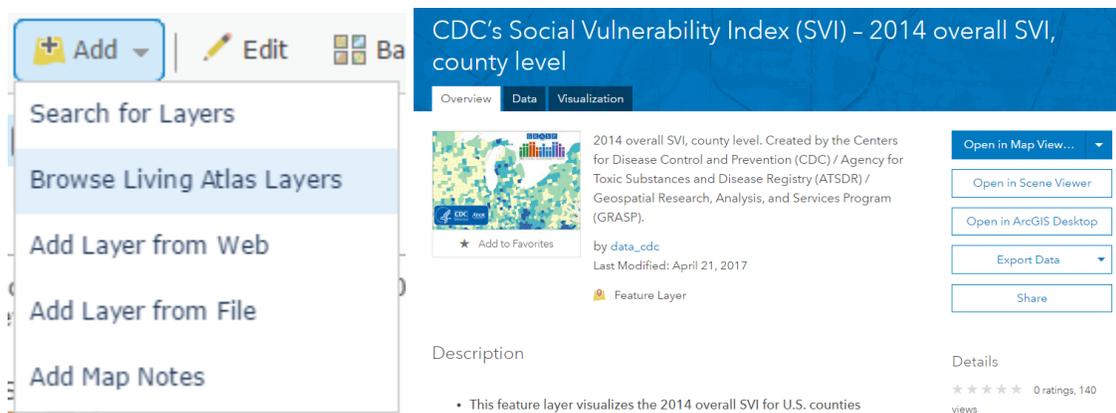
12. Save the Map with the relevant metadata.



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### Adding Data from Other Sources

1. You can also include data in your map from other web sources such as your organization's ArcGIS Online account or an ArcGIS Server web service. We will **Add** data using **Search for Layers**. If you are using an organizational account, you can choose to Add data using **Browse Living Atlas Layers** – this is a collection of data prepared by or curated by ESRI, most of which is free to use and add to your own maps.
2. We want to include some socio-economic demographic data for comparison in our maps. For example, search for CDC's Social Vulnerability Index (SVI) – 2014 overall SVI, county level and click to **add layer to map**.

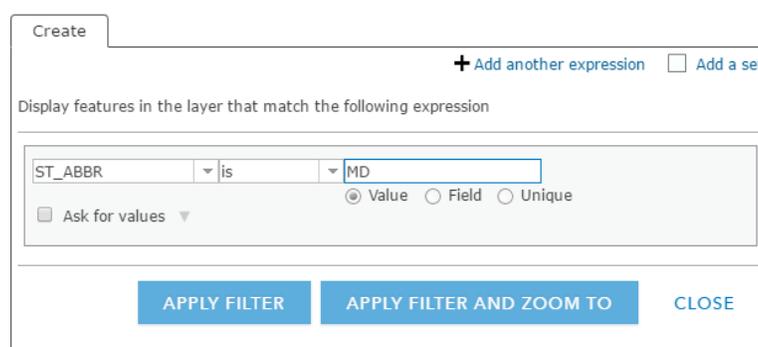


The screenshot shows the ArcGIS Online interface. On the left, the 'Add' dropdown menu is open, showing options: 'Search for Layers', 'Browse Living Atlas Layers', 'Add Layer from Web', 'Add Layer from File', and 'Add Map Notes'. The main content area displays the details for the layer 'CDC's Social Vulnerability Index (SVI) - 2014 overall SVI, county level'. It includes a thumbnail map, a description, and various action buttons like 'Open in Map View...', 'Open in Scene Viewer', 'Open in ArcGIS Desktop', 'Export Data', and 'Share'. The description states: '2014 overall SVI, county level. Created by the Centers for Disease Control and Prevention (CDC) / Agency for Toxic Substances and Disease Registry (ATSDR) / Geospatial Research, Analysis, and Services Program (GRASP). by data\_cdc Last Modified: April 21, 2017'. Below the description, it says 'This feature layer visualizes the 2014 overall SVI for U.S. counties'.

Click on the layer's more options and select **Show Item Details**. This will open up a new webpage with details of how the SVI was created and what variables were included.

3. Since this layer is for the entire United States, use the **Filter** button to display only the counties in your respective states. Click either **Apply Filter** or **Apply Filter and Zoom To**.

Filter: CDC's Social Vulnerability Index (SVI) – 2014 overall SVI, county level



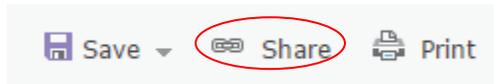
The screenshot shows the 'Filter' dialog box in ArcGIS Online. The title is 'Filter: CDC's Social Vulnerability Index (SVI) – 2014 overall SVI, county level'. The dialog has a 'Create' tab and options to '+ Add another expression' and 'Add a set'. The main text says 'Display features in the layer that match the following expression'. Below this, there is a search bar with 'ST\_ABBR' selected in the dropdown, 'is' in the operator dropdown, and 'MD' in the text input field. There are radio buttons for 'Value' (selected), 'Field', and 'Unique'. A checkbox for 'Ask for values' is present. At the bottom, there are three buttons: 'APPLY FILTER', 'APPLY FILTER AND ZOOM TO', and 'CLOSE'.

4. Save the Map. We will use it in the next part of the exercise.

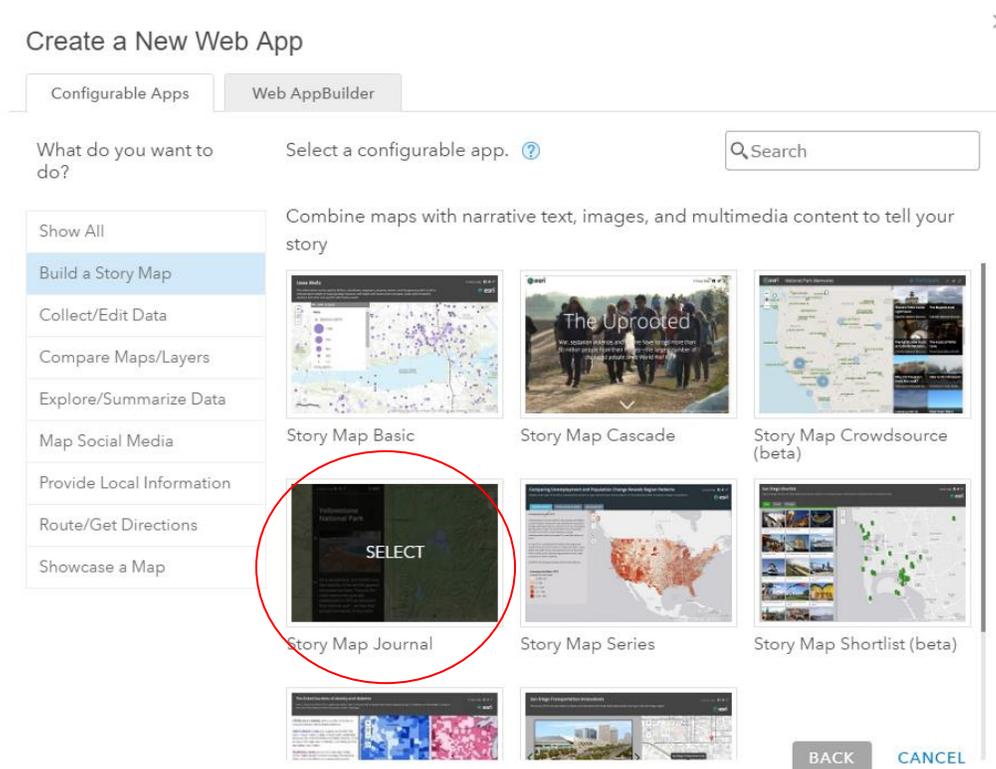
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### Create a Story Map Journal

1. Click Share at the top of the page. A link to the map is automatically generated for you to share just the map with others. Let's go further and embed the map in a Story Map. Choose to Create a Web App.

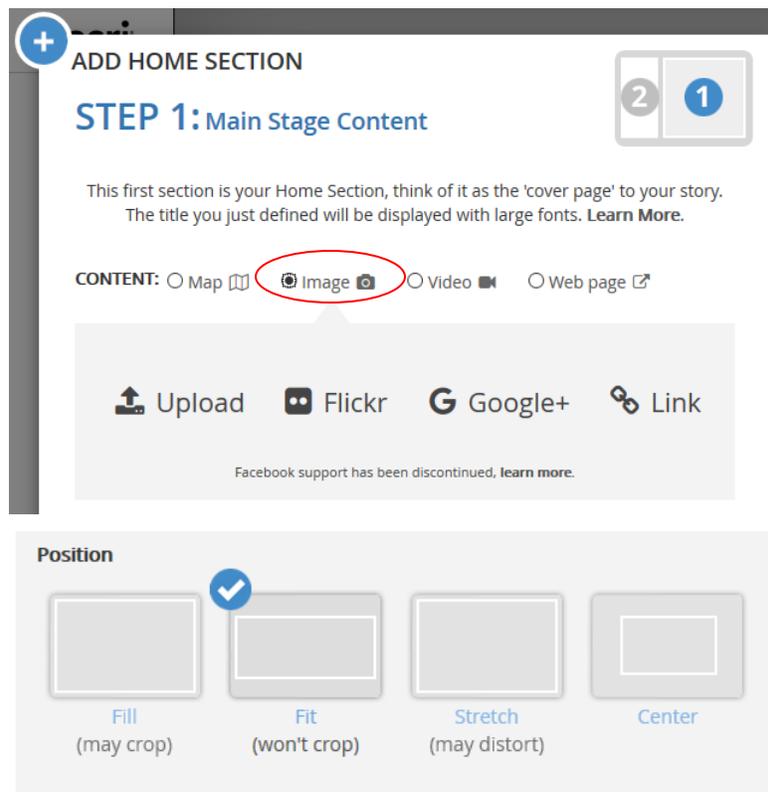


2. ESRI has a number of configurable apps, or templates, for presenting geographic information and maps. We will use the **Story Map Journal** under Build a Story Map. Select it and click Create Web App. Specify the appropriate metadata.



3. Select your preferred layout and title or continue with the default options.
4. In the following dialogs, we will create the home page that introduces the reader to the Map Journal content. Select **Image** for the first **Main Stage**. You can upload a CDC infographic included in the data folder or you can link the URL of different photo of your choice. Choose a Fit position so the photo isn't cropped. You can change this later if you choose. Click **next**.

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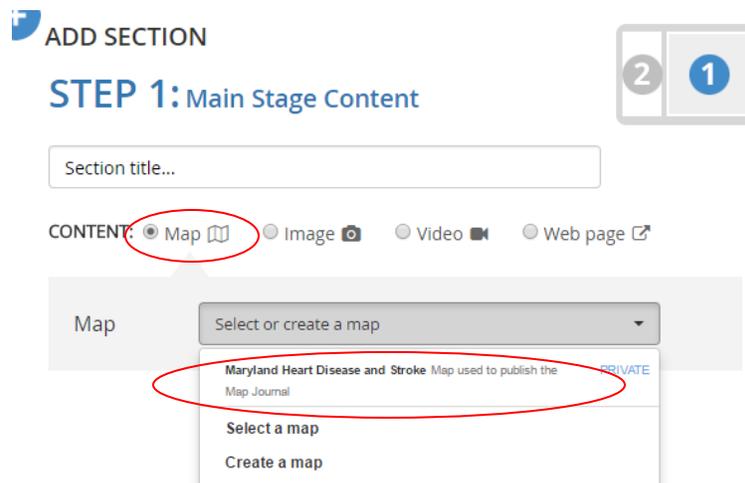


5. Fill in the **Side Panel Content** with a short description about heart disease and stroke.



6. Click **ADD SECTION** to add a new page of content.

7. Select **Map** in the pop-up windows. Choose the web map you just created for your state.



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- You can configure the map location, layer visibility and pop-up status in the following dialog. You can also add an **Overview Map**, **Legend**, or **Address Finder** to the main stage.
- Name this section Heart Disease Mortality. Change the Content to **Custom configuration** and turn off all layers except Heart Disease Mortality. Then click Save Map Content.

**ADD SECTION**

**STEP 1: Main Stage Content**

Heart Disease Mortality

CONTENT:  Map  Image  Video  Web page

Map: Maryland Heart Disease and Stroke

Location:  Map default  Custom configuration

Content:  Map default  Custom configuration

Pop-up:  Map default  Custom configuration

Extras:  Overview Map  Legend  Address, Place, and Feature Finder

**MAP CONTENT**

Select which layers will be shown. Map navigation is disabled.

- CDC's Social Vulnerability Index (SVI) – 2014 overall SVI, county level
- Primary Stroke Centers
- Stroke Mortality
- Heart Disease Mortality

**SAVE MAP CONTENT**

RESET | CANCEL

NEXT CANCEL

- Include a short map description in the **Side Panel Content**.
- Add another section for **Stroke Mortality** and change the content configuration to include only the stroke mortality layer and the stroke centers in the map.
- The side panel can trigger content change in the main stage. For example, let's include a link to zoom into Baltimore City for a better view of all the primary stroke centers located there.
- Highlight the phrase you want to set as a switch (**Baltimore City** in example). Next to Story Actions, click the **Change the Main Stage content** icon.

- Change the Location to a **Custom Configuration** and zoom in on Baltimore City. **Save Map Location** and **Apply**. Next to Story Actions, click the **eye** icon to preview the zooming effect.

**Save the side panel description.**

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15. Add another section for **CDC's Social Vulnerability Index** and include a description of how it may relate to heart disease and stroke. Remember to change the content configuration to include only the SVI layer.
16. For the final story map page, we'll provide some information on CDC programs that address heart disease and stroke by directly **embedding a web page** into the main stage. Add a new section and select **Web page**. Enter the following CDC link: <https://www.cdc.gov/dhdsp/programs/index.htm> and click **Configure** and **Next**.

**ADD SECTION**

**STEP 1: Main Stage Content**

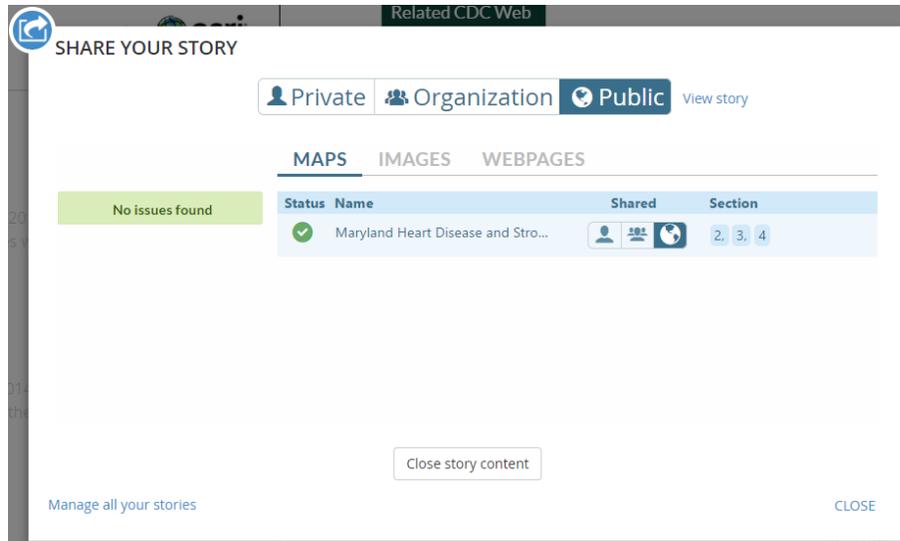
CDC Funded Programs

CONTENT:  Map  Image  Video  Web page

Web page link

<https://www.cdc.gov/dhdsp/programs/index.htm> **Configure**

17. Add a short description to the Side Panel Content and click **Add**.
18. **Save** your work. When you are ready to share, change the privacy settings from Private to Public so others can see it. Note: this will also change the privacy settings of any embedded maps you own.



SHARE YOUR STORY

Private Organization **Public** View story

MAPS IMAGES WEBPAGES

No issues found

Status	Name	Shared	Section
✓	Maryland Heart Disease and Stro...		2, 3, 4

Close story content

Manage all your stories CLOSE