

Exercise - Developing a Dashboard

Step 1: Build Your First Operations Dashboard

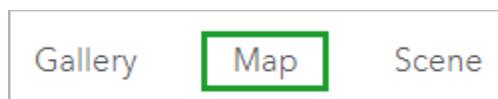
1. View the [completed dashboard](#).
2. Sign into [ArcGIS Online](#).



Your dashboard will include live data, so your map and its information will differ from this image.

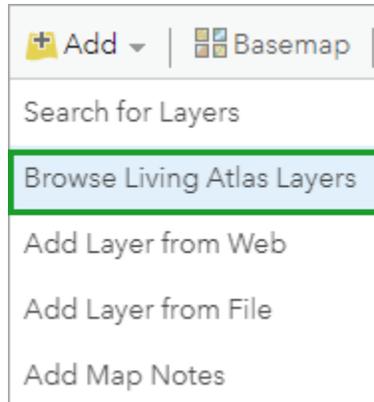
The first step in creating an operations dashboard is to prepare a web map supporting its construction.

3. Close the dashboard and, if necessary, reopen [ArcGIS Online](#).
4. In ArcGIS Online, click the **Map** tab.

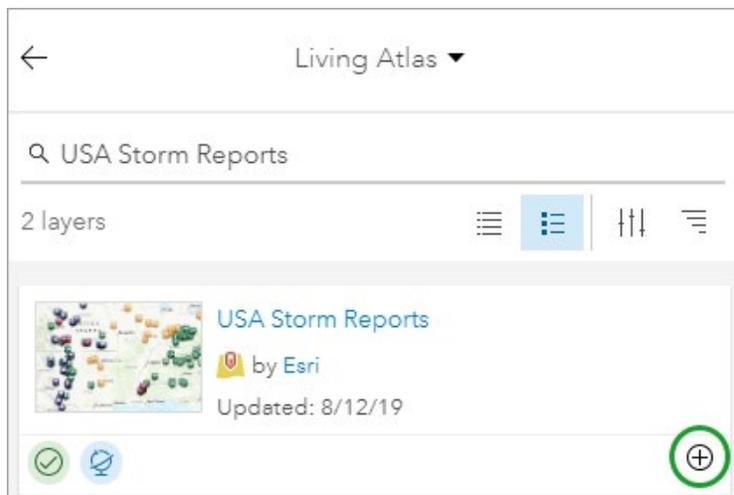


A new map is created. Here, you'll access USA Storms Reports, a [feature service](#) from the Living Atlas. The layers within the map, drawn from National Weather Service's [Storm Prediction Center](#), are updated every 5 minutes by default.

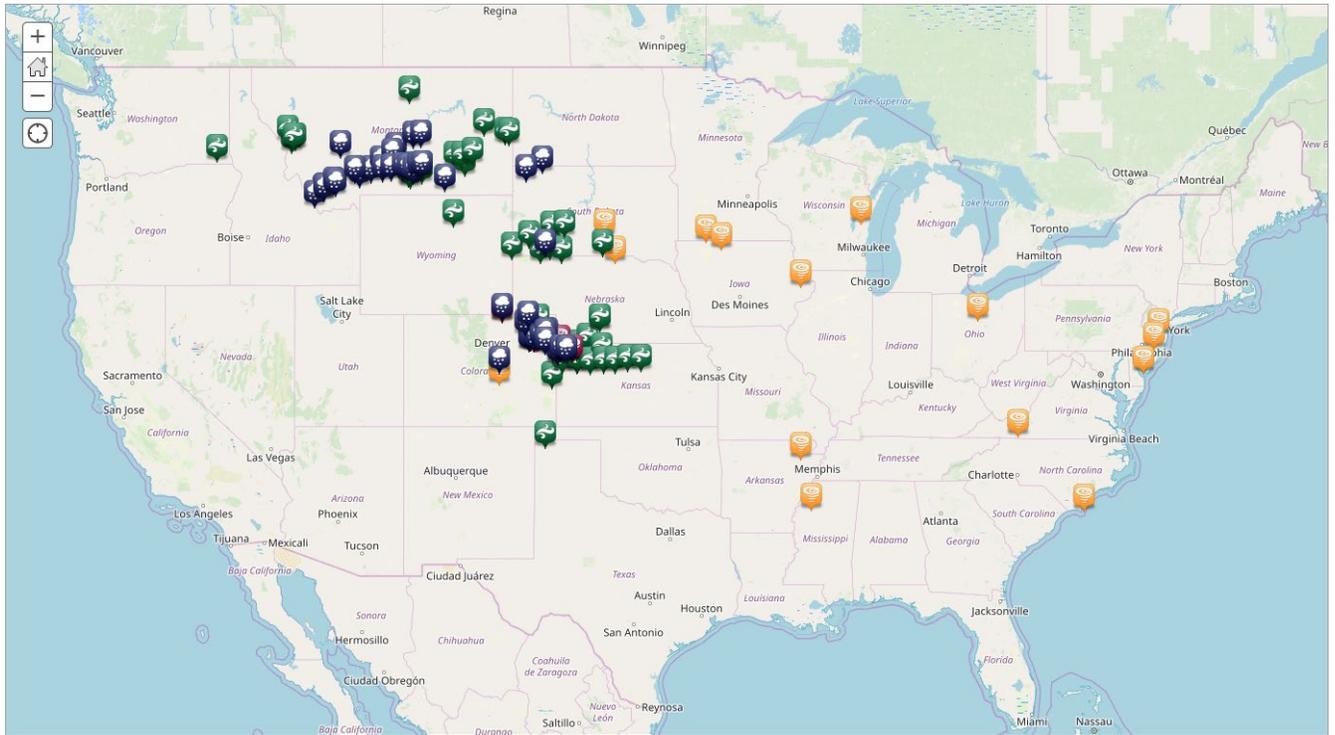
5. On the ribbon, click **Add** and select **Browse Living Atlas Layers**.



6. In the search box, type USA Storm Reports and press **Enter**.
7. Click the **Add** button to download that layer to your map.



Your map shows active storms within the continental United States. Again, as with all live data, the maps and data you see on your screen will differ with those within these lessons.



8. Click the **Back** button.

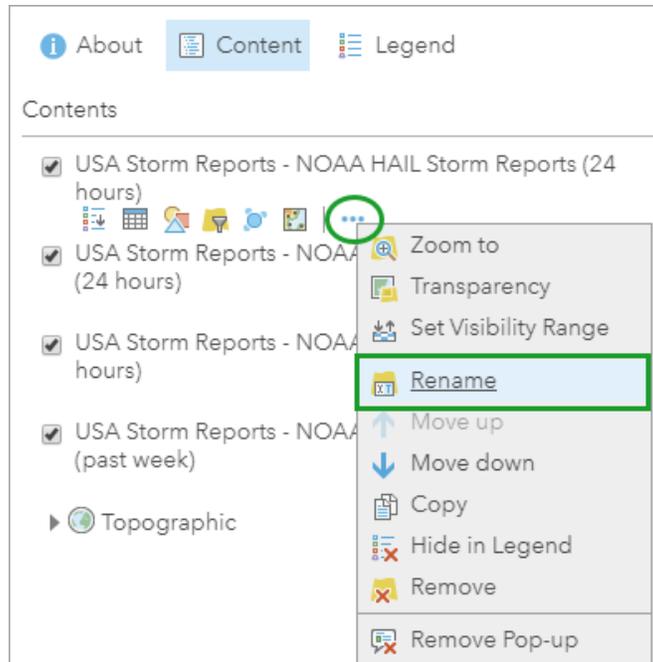


9. Click the **Content** tab to see the list of layers in the **Contents** pane.

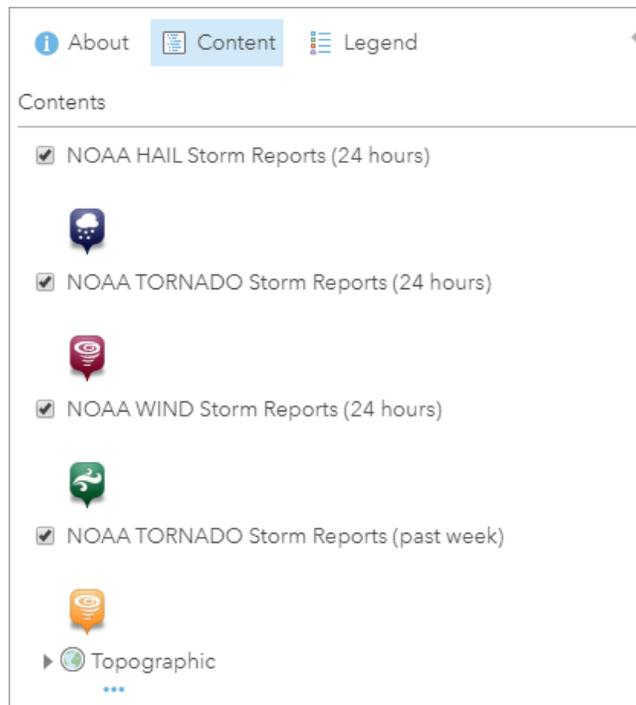
Your Contents pane includes layers showing active hail and wind storms, as well as tornadoes, within the last 24 hours. One layer reflects tornadoes within the last week. These layers are from the [National Oceanic and Atmospheric Administration](#). Because of these constant updates, some of the symbology within your map may temporarily flash or disappear. They will reappear momentarily.

The layer names, as downloaded, add clutter to Contents. You can simplify your map as well as expose its symbology for easier interpretation.

10. Point to **USA Storm Reports – NOAA HAIL Storm Reports (24 hours)**, click **More Options**, and click **Rename**.

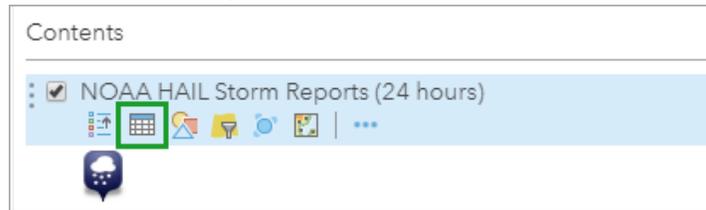


11. In the **Rename** window, delete **USA Storm Reports** – and click OK.
12. Repeat the same process for the other three layers.
13. Click each layer title so the map symbology is displayed in **Contents**.



It's a good practice to explore attribute tables before you start working their data. That way, the tables and data will make more sense when you extract them.

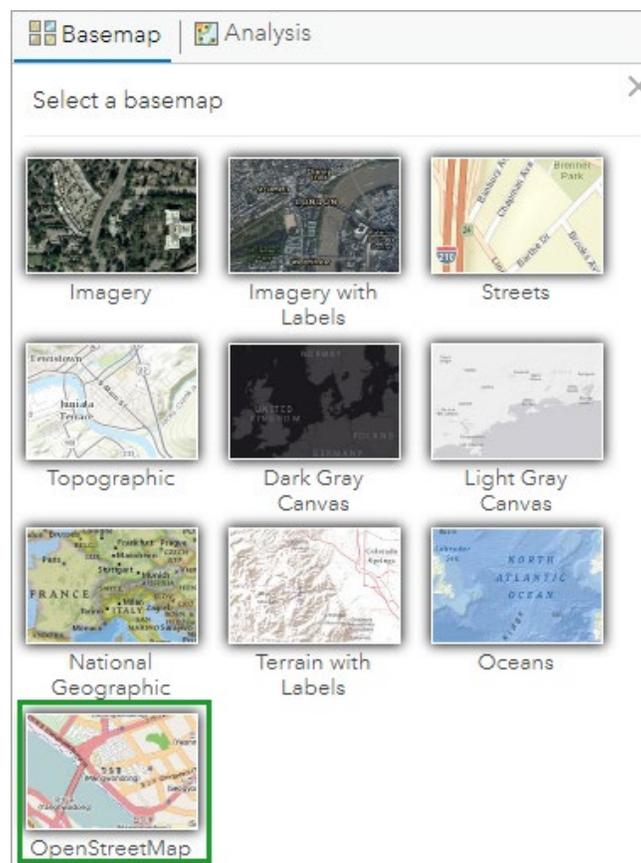
14. Point to the **NOAA HAIL Storm Reports (24 hours)** and click the **Show Table** button.



15. After exploring the table, close the attribute table by again clicking the **Show Table** button. Explore the attribute tables for the other three layers.

To add some geographic context, you'll change the basemap to Open Street Map.

16. Click **Basemap** and select **Open Street Map**.



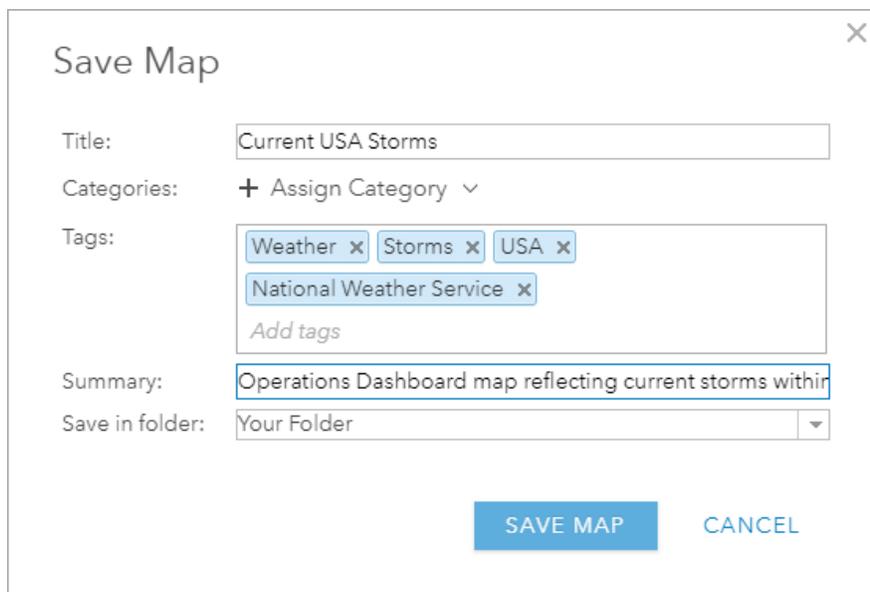
NOTE: Your map includes four layers with default refresh intervals of 5 minutes. Optionally, you can change the time by clicking **More Options** and selecting **Refresh Interval**.

17. Verify you map is zoomed to the contiguous 48 American states.

18. Click **Save** and **Save As**.

19. In the **Save Map** window:

- For **Title**, type Current USA Storms
- For **Tags**, type Weather, Storms, USA, National Weather Service. Press **Enter** after each entry.
- For **Summary**, type Operations Dashboard map reflecting current storms within the continental USA.
- Save in your folder.
- Click **Save Map**.



The screenshot shows a 'Save Map' dialog box with the following fields and values:

- Title:** Current USA Storms
- Categories:** + Assign Category
- Tags:** Weather, Storms, USA, National Weather Service
- Summary:** Operations Dashboard map reflecting current storms within
- Save in folder:** Your Folder

Buttons: SAVE MAP, CANCEL

The map is saved to your My Content folder.

Q1. As a cartographer, why would you want to declutter a map (10 pts.)?

A1. _____

Q2. What is the advantage of changing your basemap from Topographic to Open Street Map (10 pts.)?

Q2. _____

Step 2: Add Eight Elements to the Operations Dashboard

In this step, you'll add the elements that'll allow your audience to easily understand how many, and of each type, of storms that are currently active. Those elements include a map legend, list and header as well as four indicators describing the number of active storms.

1. On the ribbon, click **Share**.
2. In the **Share** window:
 - Check **Everyone (public)**
 - Click **Create a Web App**
3. In the **Create a New Web App** window:
 - Click the **Operations Dashboard** tab
 - For **Title**, type Current USA Storms web app
 - Accept the current **Tags**
 - For **Summary**, type Operations Dashboard reflecting current storms within the continental USA
 - Save in your folder

Create a New Web App

Configurable Apps | Web AppBuilder | Operations Dashboard

To create a new app with Operations Dashboard, enter a title, tags, and summary.

Title: Current USA Storms web app

Tags: Weather x Storms x USA x National Weather Service x
Add tags

Summary: (Optional) Operations Dashboard map reflecting current storms within the continental USA

Categories: + Assign Category v

Save in folder: Your Folder

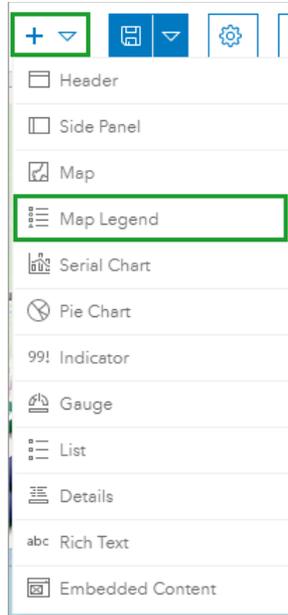
Share this app in the same way as the map (Everyone, Learn ArcGIS)

BACK DONE CANCEL

- Click **Done**

Your web app opens with the dashboard, the only element on your screen. Here, you'll add the other elements that will make it easier for your audience to understand what they're seeing.

4. In the upper right of your screen, click the **Plus** button, and in the menu, select **Map Legend**.

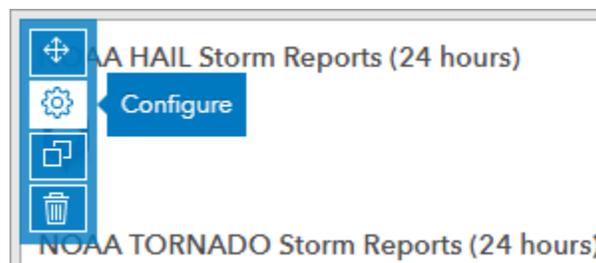


5. Click **Done**.

The legend may consume half of your screen.

6. If necessary, click on the gray divider between the map and the legend and drag it toward the legend, which will create more screen space for your map.

The Map Legend element you just added includes a small blue bar enabling you to drag, configure, copy and delete. You can activate the expandable box by pointing to the blue bar. By pointing at the buttons, you will activate a tool tip revealing its name. All the elements you'll add include a blue bar.



Next, you'll add four indicators that'll display the number of storms within each of the four layers.

7. Click the **Plus** button and select **Indicator**.

8. In the **Layers from Current USA Storms map**, working from top to bottom, select **NOAA HAIL Storm Reports (24 hours)**.

The **Indicator** element shows the number of hail storms active within the last 24 hours. That number is listed because, under **Data Options**, **Statistic** is set to **Count**.

Value Type	Statistic Feature
Statistic	Count
Value Conversion	<input type="checkbox"/>

9. Click the blue **Indicator** tab.

10. Under **Indicator Options**:

- In the **Top Text** box, type Hail Storms within the last 24 hours
- The **Middle Text** box is already set **{value}**, which is the displayed number
- Leave the **Bottom Text** box empty

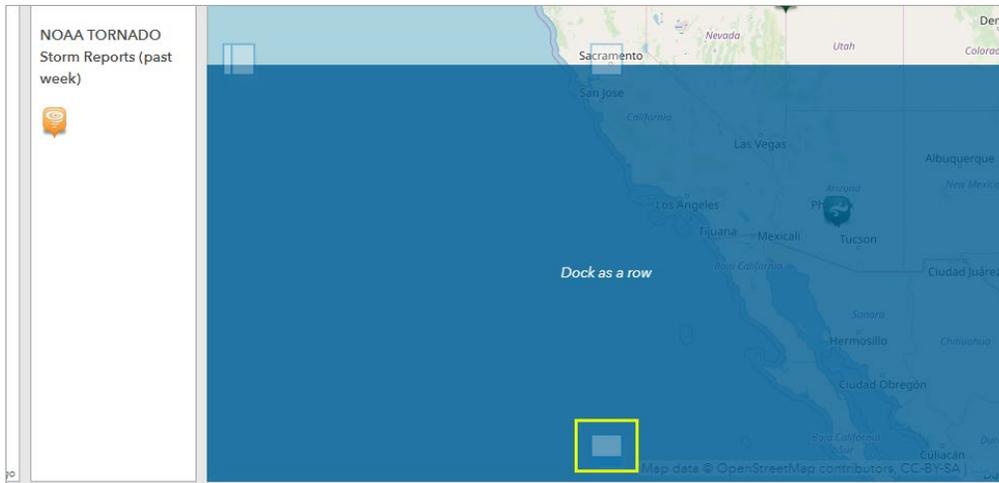
Data	Indicator Options	
Indicator		
General	Top Text	Fields: {} ■ □ A
	<input type="text" value="Hail Storms within the last 24 hours"/>	
	Middle Text	Fields: {} ■ □ A
	<input type="text" value="{value}"/>	
	Bottom Text	Fields: {} ■ □ A
	<input type="text"/>	
	Icon	None Left Right

NOTE: Optionally, you can change the colors of the information appearing in the indicator while you're working in the Indicator tab. If desired, you can click the black square to change the font color and the white square to change the outline.

- Click **Done**.

This indicator is now the third element in your dashboard.

11. In the upper left of the **Indicator**, point to the expandable blue bar, click and hold **Drag item**, then move and release the element into a blue and white box at the bottom of the web map.



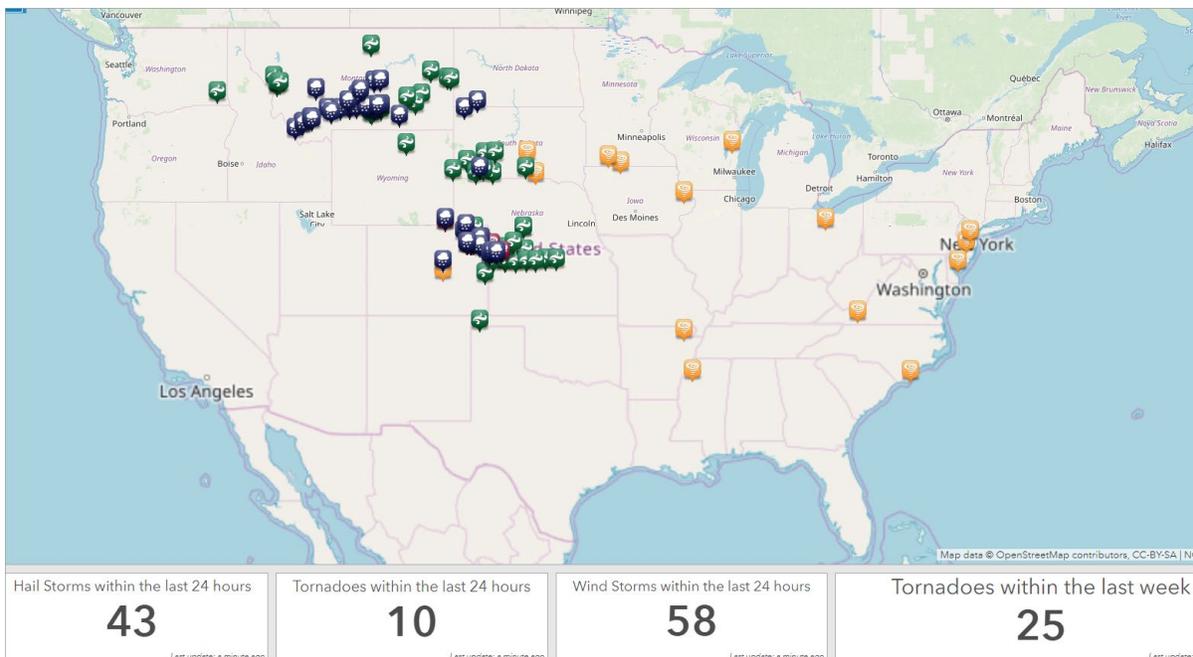
You docked the item as a row, which means it will display along the bottom of the web map.

12. As necessary, adjust the gray dividers to the element consumes a small space along the bottom of your web map.

13. Repeat the process to create an **Indicator** for the other three layers and dock them, as a column, to the bottom of the web map so all four elements are adjacent:

- Name those elements **Tornadoes within the last 24 hours**, **Wind Storms within the last 24 hours**, and **Tornadoes within the last week**
- In **Indicator Options**, ensure that you appropriately rename the layers.
- When you dock the element, drop it in the blue and white box to the right of the row under the web map.

14. When complete, adjust the gray divider and pan and zoom the web map so that the continental United States is centered.



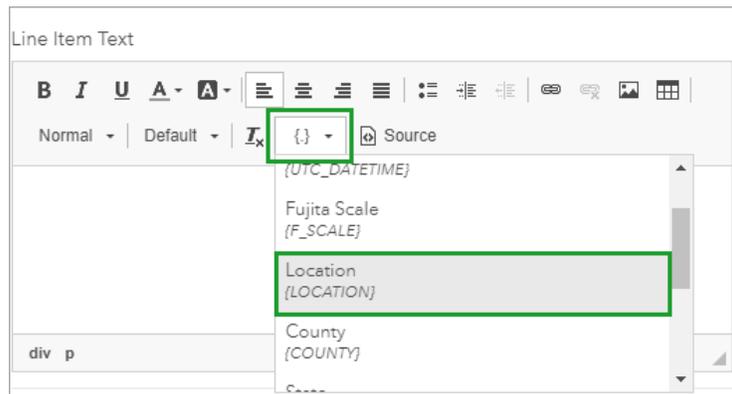
The next element you'll add is a list, which will enable you to create a list of text boxes connected to specific tornadoes within the past week.

15. Click the **Plus** button and select **List**.
16. Click **NOAA TORNADO Storm Reports (past week)**.
17. Click the **List** tab.

The **Line Item Text** box has the flexibility to accommodate three types of text:

- Generic text means the words you type will appear in every list item
- Attribute-specific text allows you to import attribute table information directly into a list item
- Generic text and attribute combine both types of text

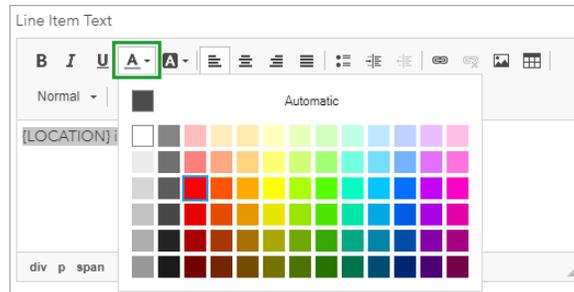
To add attributes, you will need to click the brackets button and select the attribute as it appears in the drop-down menu.



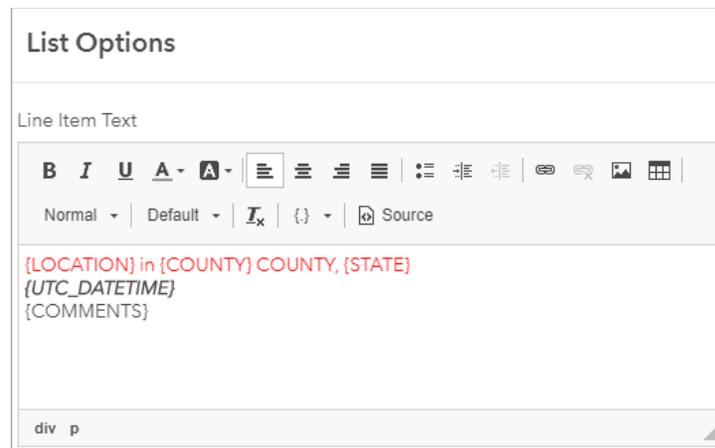
Together, these three text types let you tailor the list items to your liking. In addition, the text box includes options for bold, italics, underlines, and colors. As you type in the **List Options** box, you'll see, under **List**, how your changes are shaping the appearance of the individual list items.

18. In the **Line Item Text** box:

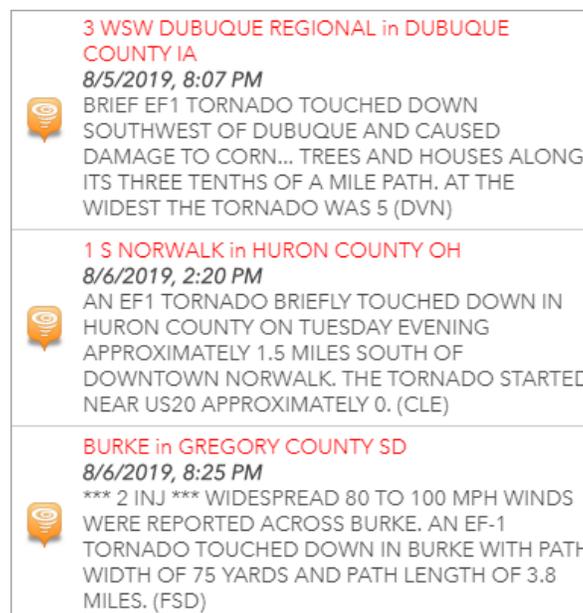
- In the first line:
 - Use the **brackets** button and select **{LOCATION}** and press the **space bar**
 - Type **in** and press the **space bar**
 - Using the **brackets** button, add **{COUNTY}** and press **space bar**
 - Type **COUNTY**, and press the **space bar**
 - Add **{STATE}**
 - Highlight entire line and change the color to red



- Press **Enter** to start a new line
- In the second line, select **{UTC_DATETIME}**, then highlight the entire line and add italics and bold. Press **Enter** to start a new line. (Ensure that you change the font color back to black.)
- In the third line, select **{COMMENTS}**.

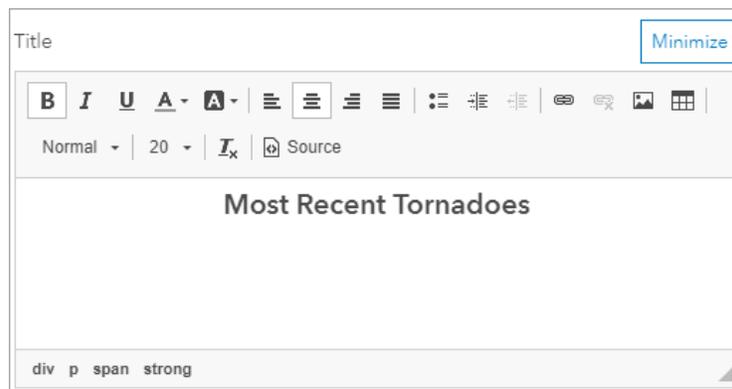


The list updates as you type and add attributes to it.



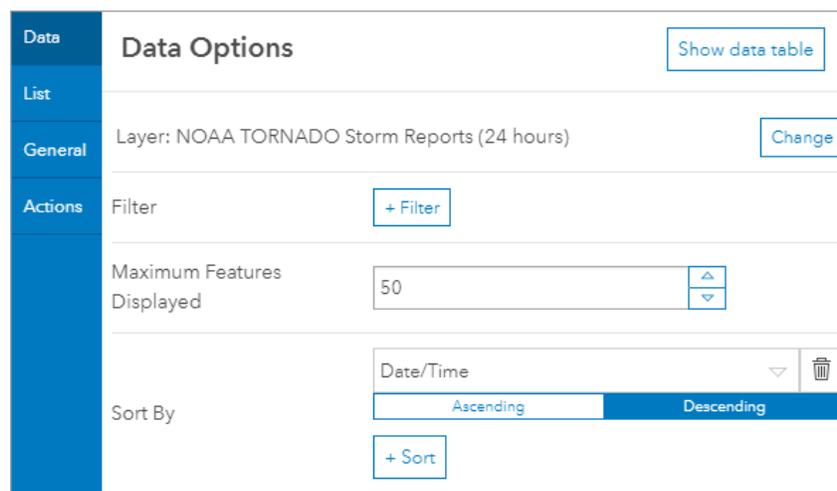
The list items are not in chronological order, so you'll add a title to the top of your list.

19. Click the **General** tab.
20. Under **General Options**, for **Title**, click **Edit**.
21. In the Title box, type Most Recent Tornadoes.
22. Highlight the title and add bold, black, and 20 point.
23. Center justify the title.



Tornado season varies throughout the United States. As a result, the number of tornadoes in your list items could be few. To capture more data, and to display them on your map, you'll increase the default from 25 events to 50 events. In addition, you'll sort so events display with the most recent on top.

24. In the **Data Options** box:
 - Click the **Data** tab and, for **Maximum Features Displayed**, change from **25** to **50**.
 - Next to **Sort By**, click the **Sort** button.
 - Click inside the attribute box and select **Date/Time**
 - Click **Descending**.



- Click **Done**.

25. Using the expandable blue bar in the list box, drag and dock the **Most Recent Tornadoes** list to the right of your web map.

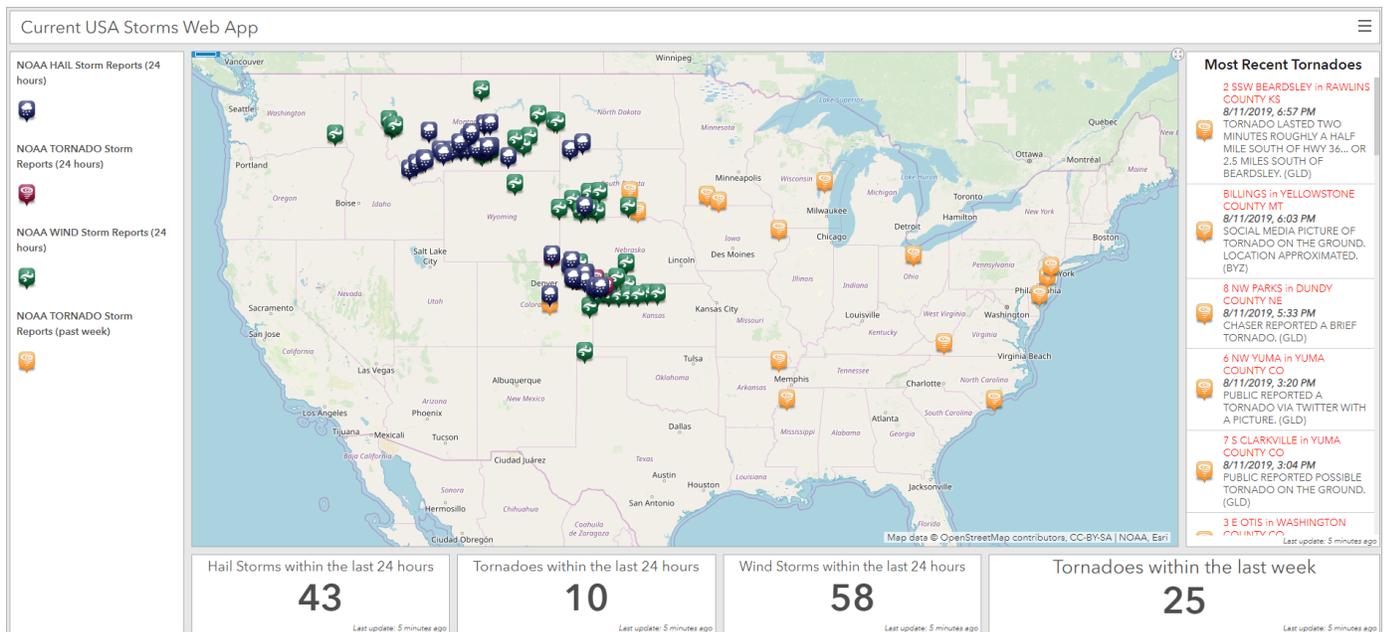
26. Adjust the gray dividers and center the map so the continental USA is in the middle of your web map.

The final element you'll add is a header.

27. Click the **Plus** button and select **Header**.

By default, the header panel displays the same name you gave the dashboard when you created it. Optionally, you can change by clicking inside the **Title** box and then clicking **Done**.

Your operations dashboard now has eight elements: The web map, a legend, a list, header, and four numerical indicators.



Q3. As a cartographer, how does docking an element impact the appearance of your map (10 pts.)?

A3. _____

Q4. The map in this lesson reflects heavy tornado activity in the upper Midwest. Using the internet, how will the seasons affect the locations of these storms (10 pts.)?

A4. _____

Step 3: Add Actions to the Operations Dashboard

The dashboard updates every five minutes. However, the dashboard is largely a passive experience until you add action features, which gives the user some control over the map.

With these steps, you can better manipulate the web map.

1. In the upper left corner of the **web map**, point to the expandable blue bar and choose **Configure**.
2. In the box for **Current USA Storms**:
 - Toggle on the **Scalebar (Ruler)**, **Basemap Switcher**, and **Zoom In/Out**.

Current USA Storms			
Settings	General	Map Actions	Layer Actions
Pop-ups	<input checked="" type="checkbox"/>		
Scalebar	<input type="button" value="None"/> <input type="button" value="Line"/> <input checked="" type="button" value="Ruler"/>		
Default Extent and Bookmarks	<input type="checkbox"/>		
Legend	<input type="checkbox"/>		
Layer Visibility	<input type="checkbox"/>		
Basemap Switcher	<input checked="" type="checkbox"/>		
Search	<input type="checkbox"/>		
Zoom In/Out	<input checked="" type="checkbox"/>		
Point Zoom Scale	<input type="text" value="10000"/>		

- Click **Done**.

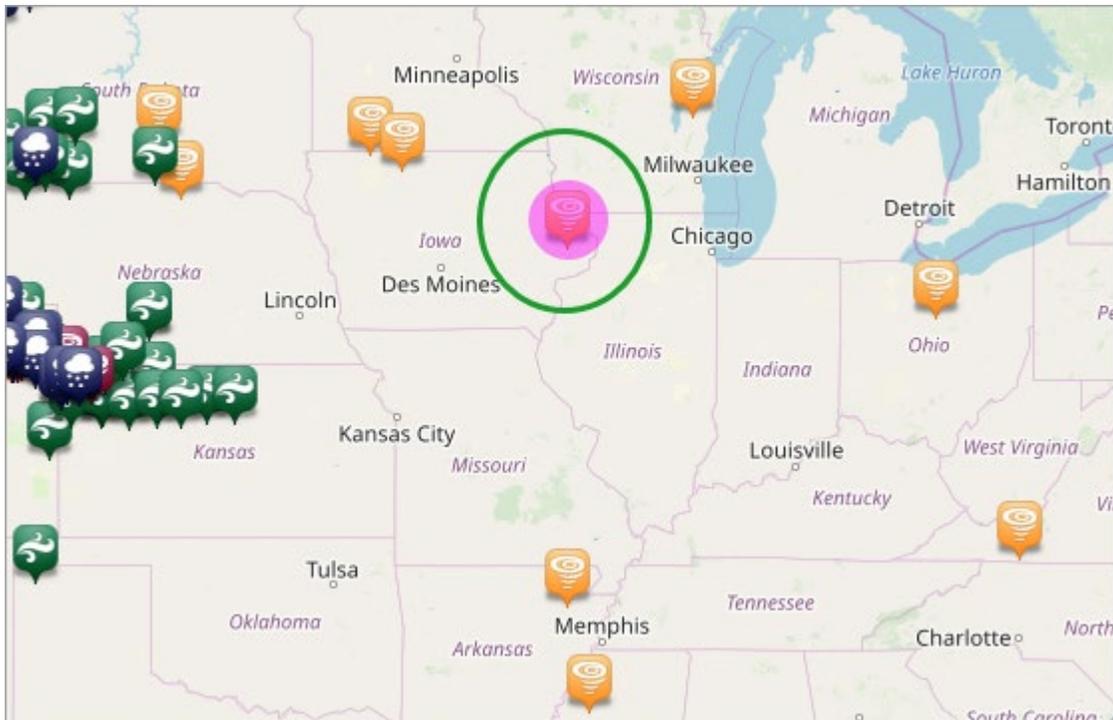
You'll enable the latest events to be clickable, which will allow your audience to click a tornado and have the map flash and center on that symbol.

NOTE: Constant updates of data may cause some of your data to temporarily disappear. Should that occur, ensure that you save the web app before clicking refresh.

3. In the **Most Recent Tornadoes** list, point to the expandable blue bar and click **Configure**.
4. Click the **Actions** tab.
5. In the **Actions** box:
 - Click **Add Action** and select **Pan**.
 - For **Pan**, click **Add Target** and select **Map (1)**.
 - Click **Add Action** and select **Flash**.
 - For **Flash**, click **Add Target** and select **Map (1)**.

Data	Actions
List	
General	Selection Mode <input type="radio"/> Single <input type="radio"/> Multiple
Actions	When Selection Changes <input type="button" value="Add Action"/> ▾
	Pan
	<input checked="" type="checkbox"/> Map (1) <input type="button" value="Trash"/>
	Flash
	<input checked="" type="checkbox"/> Map (1) <input type="button" value="Trash"/>

- Click **Done**.
6. On the list, click any tornado report.



You could also click any icon on the map and have its information appear in a pop-up.

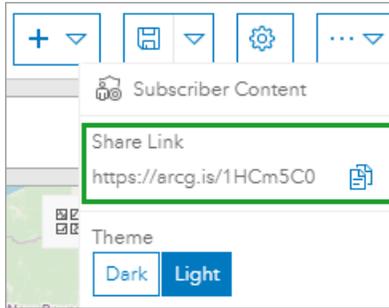
7. Save the web app.

NOTE: You can change the color of the flash by going to **Dashboard Settings**, and in **Selection Color**, click the colored square and select a different color.

You will want to test the sharing of your dashboard.

Under the last drop-down button, under **Share Link**, copy the link and paste into a new window or email to yourself for testing.

Email the link to Dr. Smith for grading. smithrm@wssu.edu (60 points)



Congratulations! You have successfully created an Operations Dashboard from a basic Web Map of Living Atlas content. Your dashboard features 8 elements, including a clickable List, and automatically updates according to a specified time interval.

In the second lesson, you'll build on the experiences of building a weather dashboard by building one focusing on traffic accidents anywhere in the USA.