

Exercise 1: Create a multipurpose app

i How can I print an exercise to PDF format?

Technical note

Software requirements

- ArcGIS Online

Use the latest version of Google Chrome, Mozilla Firefox, Apple Safari, or Microsoft Edge. Other web browsers may not display your maps and apps correctly.

For information about supported web browsers for ArcGIS Online, go to ArcGIS Online Help: Supported browsers (<https://links.esri.com/SupportedBrowsers>).

Introduction

ArcGIS Instant Apps enables you to create a web app in a short amount of time using a variety of preconfigured templates. The workflow is as simple as building or selecting a map, applying a template, configuring the app, and publishing.

Scenario

Imagine that you are a secondary school science teacher. Your students are learning about the forces that shape our planet—from the movement of the earth's plates to seismic activity in the form of earthquakes and volcanoes. For the first few weeks, students will research earthquakes. You want to provide a focused and interactive environment that allows your students to read information about individual earthquakes, as well as to see an earthquake on a map in relation to other contextual information, such as tectonic plates and fault lines.

In this exercise, you will open a web map that already contains tectonic plate and fault line layers. You will add an earthquake layer. You will then apply that map to an app template. For your project, you require a multipurpose template that will allow your students to interact with earthquake data using a variety of tools. You will configure and publish the app so that it is ready for your students to use.

Data source

The scenario described in this exercise, although based on real-world data, is fictional and was developed for educational purposes only. The data is directly from or derived from layers hosted in ArcGIS Living Atlas of the World, which is a collection of authoritative GIS data, including maps, layers, 3D scenes, apps, and tools that can be used for projects.

Note: The exercises in this course include View Result links. Click these links to confirm that your results match what is expected.

Estimated completion time in minutes: 45

[Expand all steps](#) ▼

[Collapse all steps](#) ▲

- Step 1: Locate your course account

In this step, you will visit the MOOC home page to locate your course account username and password. You will use your course ArcGIS account username and password to sign in to ArcGIS Online and complete all the MOOC exercises.

- On the MOOC home page in Esri Academy, click the Lessons tab.
- Under Lessons, locate your ArcGIS account information.

The screenshot shows the Esri Academy Lessons page. At the top, there is a navigation bar with tabs for Dashboard, Lessons (which is highlighted in blue), Forum, and Help. Below the navigation bar, the main content area is titled "Lessons" and displays the message "The course is organized into sections that contain lessons. Complete each section to earn a certificate." On the left side, there is a progress indicator showing "0% of Course Complete". Overlaid on the main content is a modal window titled "ArcGIS Account Information". The modal contains instructions: "Use the information below to access the Esri software used in course exercises." It lists the "Username: Student_geapps" and "Password: Password1234". Below this, there is a note: "Use this course ArcGIS account to ensure that you do not consume your organization's credits." The background of the page shows a blurred image of a landscape.

The username for your course account ends with `_geoapps`. For example, in the preceding graphic, the student's username is `Student_geapps`. (Please note that this is just an example—your username and password will be personalized to you.) You may want to write down your username and password for quick reference; otherwise, you can return to the Lessons tab at any time to locate your course credentials.

Note: If you registered within the past few hours, your account may not be ready. Refresh the page again in about an hour to check your account information.

- Step 2: Sign in to ArcGIS Online

In this step, you will sign in to ArcGIS Online using your course ArcGIS account.

- a In a web browser, go to www.arcgis.com.



*Step 2a***: Sign in to ArcGIS Online.*

- b Click Sign In.
c Under ArcGIS Login, enter your course ArcGIS account username (ends in _geoapps) and password.
d Click Sign In.

Note: If you see an Email Verification pop-up, click Skip For Now.

The first time that you sign in, you may be asked to change your password and set a security question.

A screenshot of a "Security Question and Answer" dialog box. At the top left is the text "Security Question and Answer" and the Esri logo. On the right side of the header is a small globe icon. The main content area contains a message: "A security question has not been set for your account. Setting a security question and answer allows you to reset your password if needed. Choose a question from the drop down menu below and enter your answer in the input box provided." Below this is a section titled "Security Question:" with a dropdown menu containing the placeholder "Select one". Below the dropdown is a section titled "Answer:" with an empty input field. At the bottom is a large blue "OK" button.

- e Follow the on-screen instructions to change your password and set your security question, if necessary.

You have signed in to ArcGIS Online using your course ArcGIS account and can now access the data that you will use in your web app.

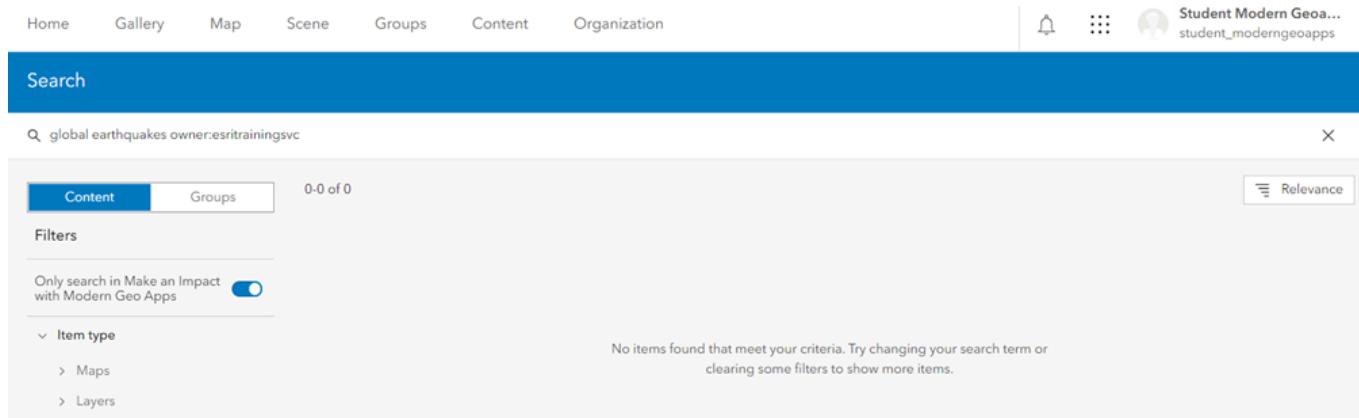
- Step 3: Open a map

To build a web app, you must first create or select a map that has been shared to ArcGIS Online.

In this step, you will open a map that contains tectonic plates and fault lines layers. You will eventually apply this map to an Instant Apps template for use in your classroom app.

- At the top of the page, click the Search button .

- Type **global earthquakes owner:esritrainingsvc** and press Enter.



The screenshot shows the ArcGIS Online search interface. At the top, there are navigation tabs: Home, Gallery, Map, Scene, Groups, Content, and Organization. On the right, there's a user profile for "Student Modern Geo..." and a search bar containing the query "global earthquakes owner:esritrainingsvc". Below the search bar, there are two tabs: "Content" (which is selected) and "Groups". A message indicates "0-0 of 0" results found. Under the "Filters" section, there's a toggle switch for "Only search in Make an Impact with Modern Geo Apps" which is turned on. In the "Item type" dropdown, "Maps" and "Layers" are listed. To the right, a message says "No items found that meet your criteria. Try changing your search term or clearing some filters to show more items."

*Step 3b***: Open a map.*

The search defaults to looking only within the MOOC ArcGIS Online organization. The map that you are searching for is hosted in ArcGIS Online.

- On the left, under Filters, turn off Only Search In <Your MOOC Organization>.



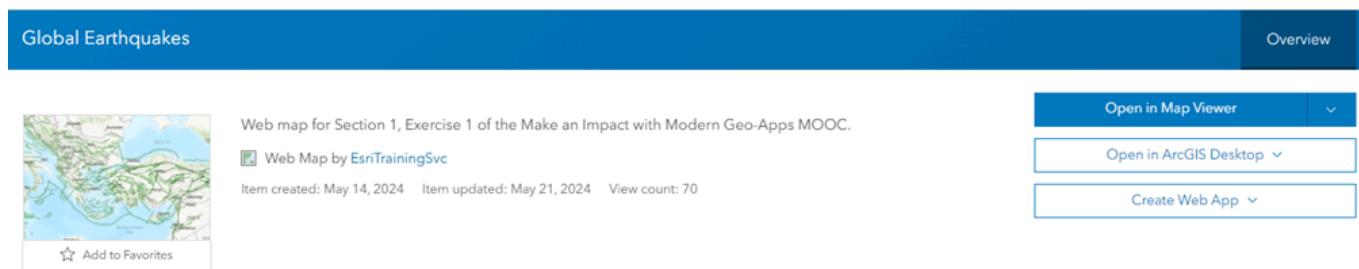
The screenshot shows the ArcGIS Online search interface with the "Only search in Make an Impact with Modern Geo Apps" filter turned off. The search results now include items from outside the organization. One result is visible: "Global Earthquakes_WFL1", described as a Feature Layer for Section 1, Exercise 1 of the Make an Impact with Modern Geo-Apps MOOC. It was created by EsriTrainingSVC on May 14, 2024, and updated on May 21, 2024. The view count is 70. There are "Open in Map Viewer" and "More Options" buttons next to the result.

*Step 3c***: Open a map.*

With the filter turned off, the search is expanded to include content outside the organization that meets the search criteria.

There are two items named Global Earthquakes: a feature layer and a web map. You will choose the web map.

- At the bottom right of the Global Earthquakes web map result, click the More Options button  and choose View Details.



The screenshot shows the "Global Earthquakes" web map details page. At the top, there are "Global Earthquakes" and "Overview" tabs. The main content area shows a thumbnail of the map and its title: "Web map for Section 1, Exercise 1 of the Make an Impact with Modern Geo-Apps MOOC." Below the title, it says "Web Map by EsriTrainingSvc" and provides creation and update dates (May 14, 2024, May 21, 2024) and a view count (70). There's a "Add to Favorites" button. To the right, there's a "Details" sidebar with "Open in Map Viewer", "Open in ArcGIS Desktop", and "Create Web App" options. Below the main content, there's a "Description" section with a paragraph about tectonic plates and boundaries, and a bulleted list: "Tectonic Plates and Boundaries" and "Global Active Earthquake Faults".

Description

This map displays active fault lines from information collected by the Global Earthquake Model Foundation, as well as tectonic plates and boundaries. All three layers are derived from data hosted on ArcGIS Living Atlas:

- Tectonic Plates and Boundaries
- Global Active Earthquake Faults

Details

Size: 6.574 KB
ID: 7c17581f8cbc4595b593327c667d005f

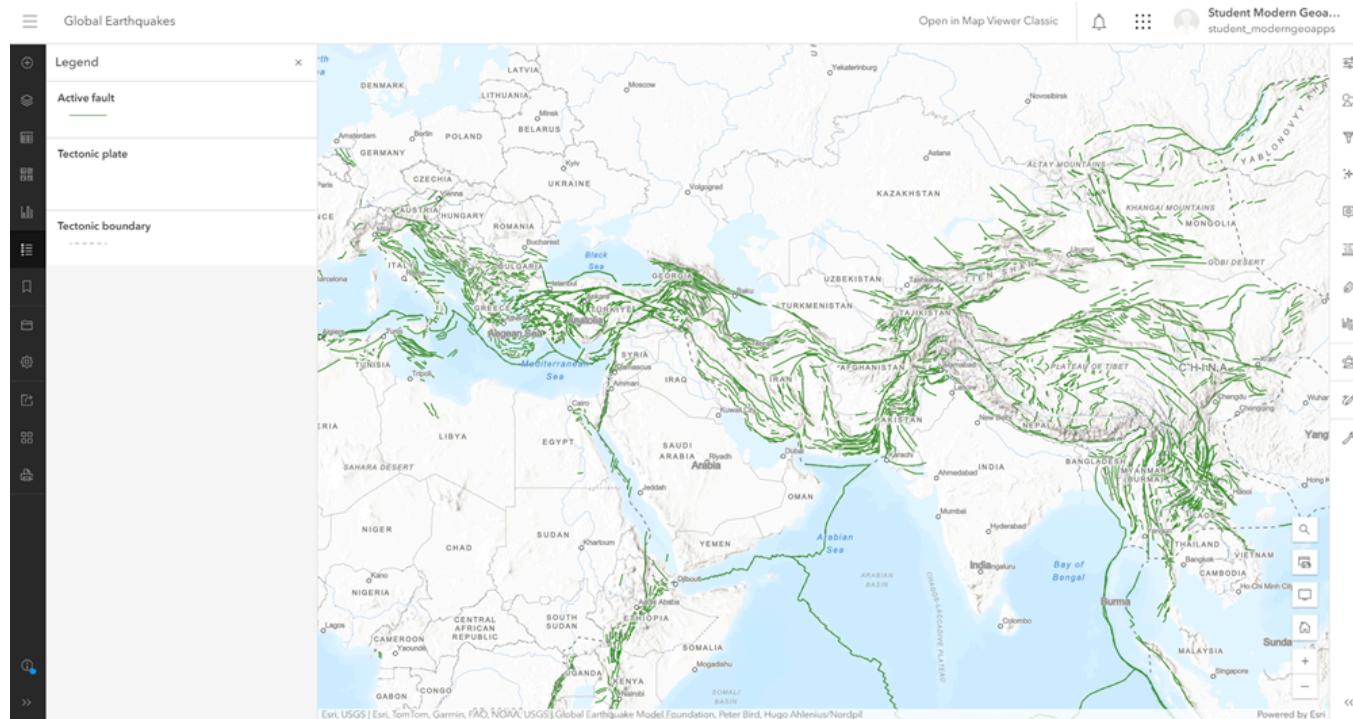

*Step 3d***: Open a map.*

You are now viewing the item details for the web map, which lists the map layers, terms of use, and other information about the map. On the right side of the page, you can also see options for viewing and working with the map. These options change based on the type of item you are viewing and its sharing settings.

In this case, the map can be opened in an online map viewer or in a desktop GIS. Additionally, you can create a web app directly from the item details.

Rather than immediately creating a web app from the item details, you will first open the map in Map Viewer. You will update the map, and then, from Map Viewer, you will create a web app.

- e Click Open In Map Viewer.



*Step 3e***: Open a map.*

The Map Viewer contains two vertical toolbars. The Contents (dark) toolbar is on the left and is used to manage the map. The Settings (light) toolbar is to the right of the map and contains options to configure map layers.

For more information about the Map Viewer interface, see ArcGIS Online Help: Get started with Map Viewer (<https://links.esri.com/MapViewer>).

- f On the Contents toolbar, click the Save And Open button  and choose Save As.

- g In the Save Map window, complete the following steps:

1. For Title, type **Earthquakes_<Your Student Name>** (for example, **Earthquakes_Student**).
2. For Folder, leave the default parameter.
3. For Tags, add **Earthquake** and **Earth Science**.
4. For Summary, type **Map of global earthquakes for Earth Science project**.

Save map

X

Title

Earthquakes_Student

Folder



student_moderngeoapps

v

Tags

Esri Training Services X

ModernGeoApps X

MOOC X

170 X

171 X

Earthquake X

X v

Earth Science X

Add tags

Summary

Map of global earthquakes for Earth Science project.

Characters left: 1996

Save

Cancel

*Step 3g***: Open a map.*

The information that you entered will be saved in the map item details. You can always return to the item page and fill out further item information, including a more robust summary and additional tags. This information will make your item easier to find and help users decide whether to use your item in their own project.

- h Click Save.

In this step, you searched for, opened, and saved a map that had already been created. You are now ready to add data to the map.

- Step 4: Add data to the map

Before you convert your map into a web app, you need to configure it so that students have all the information that they need for their research. You currently have tectonic plate and fault line layers in your map, but you also want to add a layer of recent earthquakes to explore where the movement of faults may be causing earthquake activity.

In this step, you will add a layer with updated earthquake data to your map from ArcGIS Living Atlas of the World.

- a In the Contents toolbar, click the Layers button  to open the Layers pane.

☰ Earthquakes_Student 🖊

The Layers pane displays all three layers that are currently in the map.

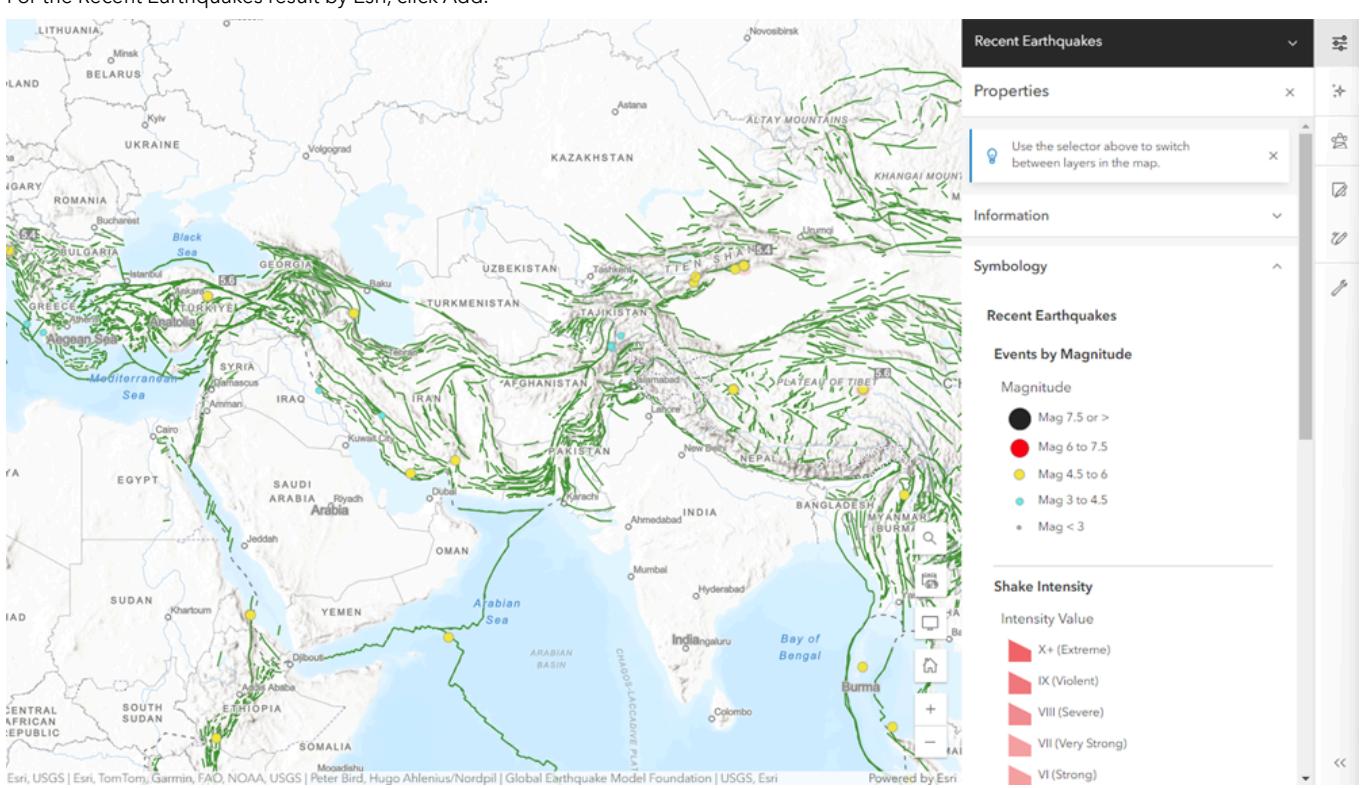
*Step 4a***: Add data to the map.*

The Layers pane displays all three layers that are currently in the map.

- b In the Layers pane, click Add.
- c Click My Content and choose Living Atlas.
- d In the Search field, type **recent earthquakes**.

*Step 4d***: Add data to the map.*

- e For the Recent Earthquakes result by Esri, click Add.



*Step 4e***: Add data to the map.*

The layer is added to your map, and the Properties pane for the layer opens to the right of the map.

For more information about the types of layers that you can add to a map, see ArcGIS Online Help: Add layers to maps (Map Viewer) (<https://links.esri.com/AddLayersMap>).

- f In the Contents toolbar, click the Save And Open button and choose Save.

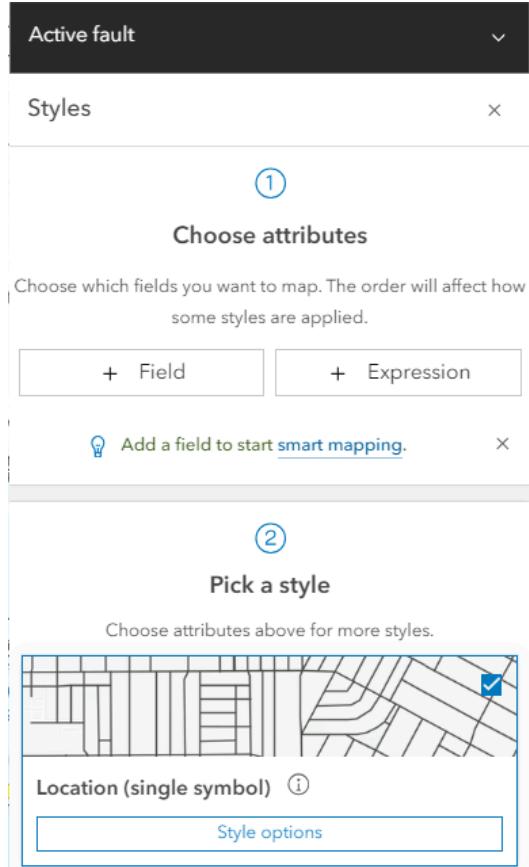
In this step, you searched for and added a layer of recent earthquakes to your map. You have all the layers needed for your map and, eventually, your app.

- Step 5: Configure layer properties

Before adding a map to an app template, you must configure the map and its layers the way that you want them to display in the app. Elements that you may want to assess include pop-ups, filters, and styles. After you have added a map to an app, you can always make changes to the source map; the changes will be reflected in the app.

In this step, you will configure the properties of the Active Fault and Recent Earthquakes layers so that the earthquakes display more prominently.

- a At the top of the Layers pane, next to Add Layer, click the back arrow to return to the main Layers pane.
- b In the Layers pane, click the Active Fault layer to select it.
- c In the Properties pane for the Active Fault layer, under Symbology, click Edit Layer Style.

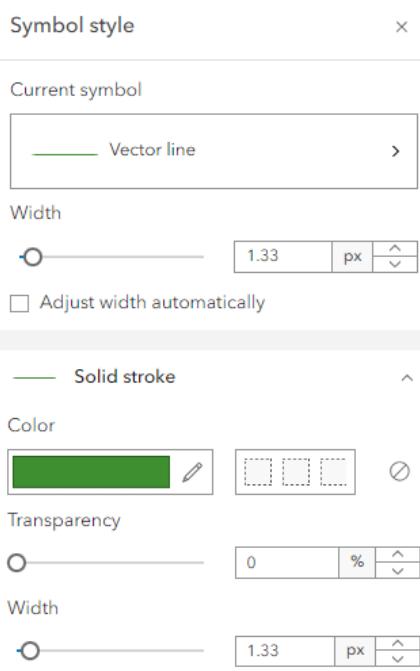


*Step 5c***: Configure layer properties.*

- d Under Pick A Style, click Style Options.

You have several options for styling your data. Because you only want to show the location of the faults in context to the earthquakes, you will choose a single color for all fault features.

- e Under Symbol Style, click the Edit button .



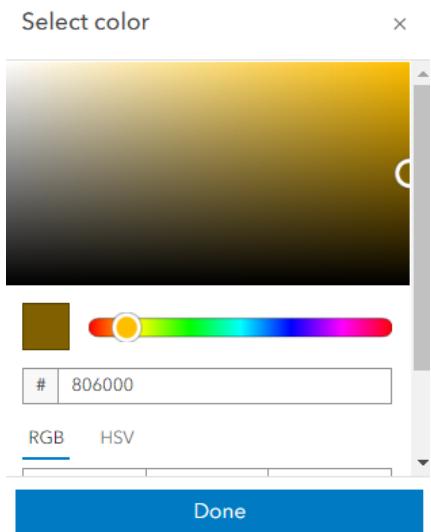
*Step 5e***: Configure layer properties.*

You can change the symbol style and color. For the fault lines, you will only change the color.

- f In the Symbol Style window, under Color, click the Edit button .

You can choose a color in the color picker, or you can input a custom color using a Hex code, RGB values, or HSV values.

- g In the Select Color window, in the Hex code box, type **806000**, and then press Enter.



*Step 5g***: Configure layer properties.*

The fault line color updates to a dark brown.

- h Click Done to close the Select Color window.
- i In the Symbol Style pane, under Transparency, drag the slider to adjust the transparency to 50%.

Symbol style

Current symbol



Width

1.33 px

Adjust width automatically



Color



Transparency

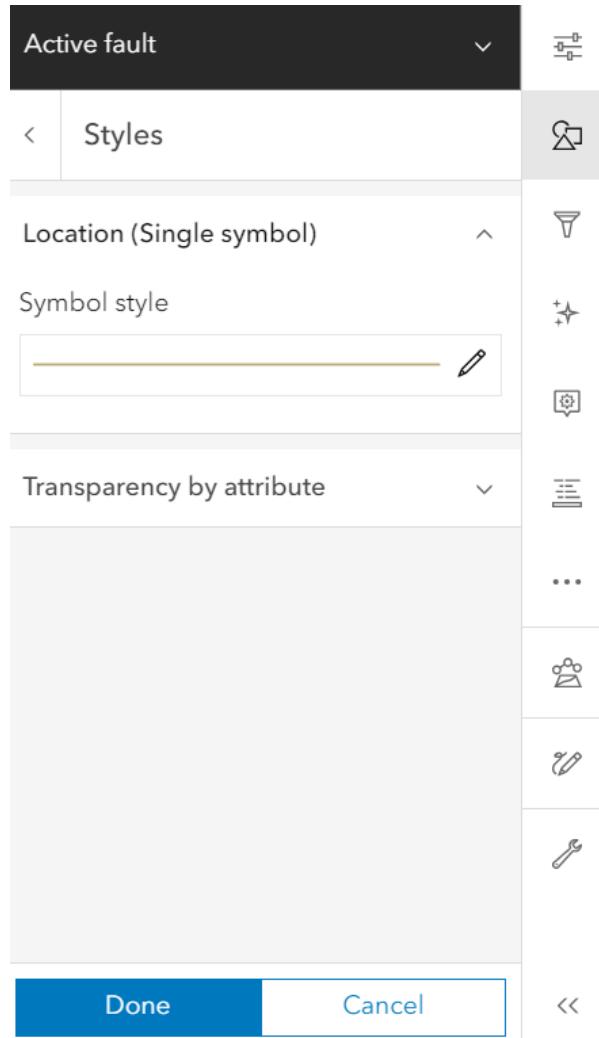
50 %

Width

1.33 px

*Step 5i***: Configure layer properties.*

- j Close the Symbol Style pane.



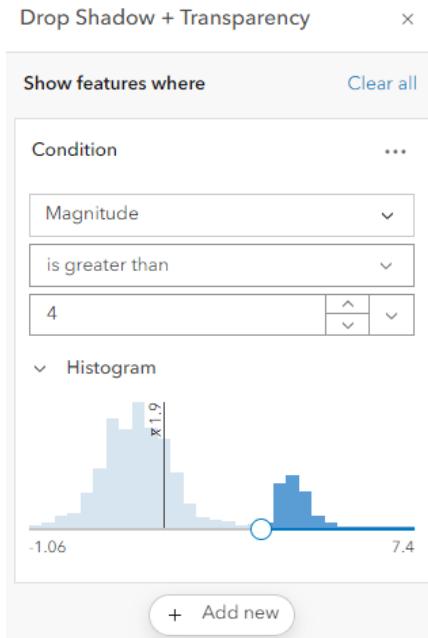
*Step 5j***: Configure layer properties.*

- k On the Styles pane, click Done twice.

- l Save the map.

You will now add an effect to the more intense earthquakes so that they stand out on the map.

- m In the Layers pane, next to Recent Earthquakes, click the arrow to expand the layers, and then click the Events By Magnitude layer to select it.
- n On the right side, on the Settings toolbar, click the Effects button .
- o In the Events By Magnitude Effects pane, click the Feature-Specific tab.
- p Click Drop Shadow + Transparency.
- q In the Drop Shadow + Transparency window, under Condition, change the number to **4**.



*Step 5q***: Configure layer properties.*

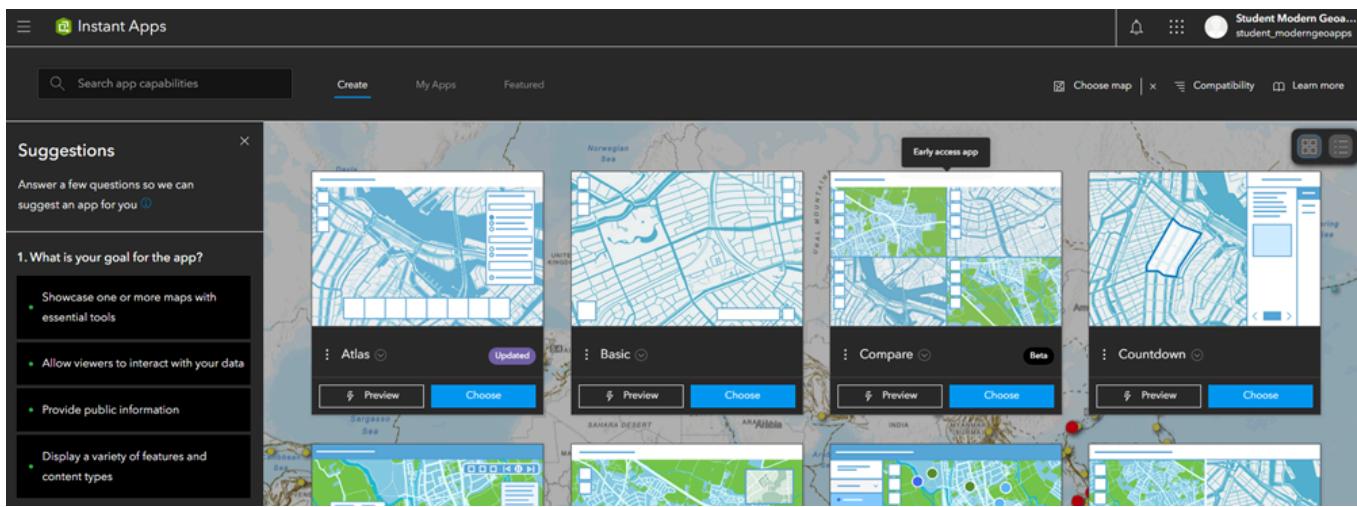
- The condition is now set to apply a drop shadow and transparency effect to any earthquake with a magnitude greater than four.
- r Close the Drop Shadow + Transparency window.
 - s Save the map.
- In this step, you adjusted the properties of the Active Faults and Recent Earthquakes layers so that the earthquakes display more prominently, particularly earthquakes of higher magnitude.

- Step 6: Select an app template

There are several ways to access the ArcGIS Instant Apps home page and choose an app template. In this step, you will open the Instant Apps home page directly from Map Viewer. You will explore the app templates and then select and apply one that fits your needs. You are looking for a basic, multipurpose app template that will provide an interactive map and tools to your students.

- a In the Contents toolbar, click the Create App button  and choose Instant Apps.

Note: Depending on your screen resolution, the Create App button may not be displayed on the Contents toolbar. If you do not see the Create App button, on the Contents toolbar, click the More button , click Create App, and choose Instant Apps.



*Step 6a***: Select an app template.*

Note: If a tour of ArcGIS Instant Apps pops up, you can close it.

The Instant Apps home page opens with several options to help you select a template.

- At the top of the page, click the Featured tab.

The Featured page is a good place to start if you are unfamiliar with the capabilities of Instant Apps. It contains information about new templates or features. Additionally, you can explore blog articles highlighting Instant Apps news and updates.

- At the top of the page, click the Create tab to return to the home page.

On left side of the home page, there is a Search App Capabilities box and a Suggestions panel. In the search field, you can input key words to find a template that matches your project needs.

- Click the search field, and then click View App Capabilities (PDF).

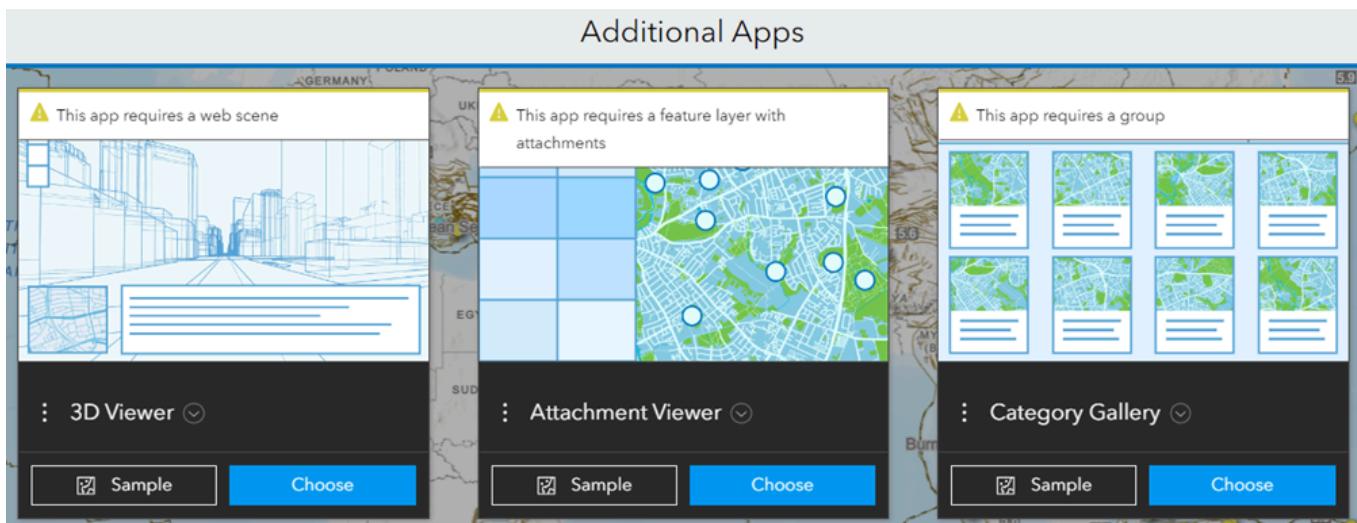
The App Tools Matrix document will either open in a separate tab or in the Adobe Acrobat application, depending on your workstation setup.

The App Tools Matrix displays all the capabilities available in ArcGIS Instant Apps and its templates. This reference is helpful when planning the design of your app and determining which template may meet your project needs.

- Return to the ArcGIS Instant Apps home page.

Another way to determine which template you should choose is to scroll through the gallery and preview individual apps. Because you are viewing the home page with a map already selected, the templates that you see are available because the data in your map has met a requirement to use the template.

- Scroll through the gallery to Additional Apps.



*Step 6f***: Select an app template.*

The templates listed under Additional Apps display a warning indicating why the data or configuration of your map does not meet the requirements. This warning makes it easier for you to select an app template that suits your map and data.

- Scroll back up to the top of the gallery.

- h Locate the Portfolio template and click the arrow next to Portfolio to read the description.

 What actions can viewers perform in an app created using this template?

- Answer

Viewers can navigate to multiple sections containing maps, apps, scenes, and other content.

- i Locate the Sidebar template and click the arrow next to Sidebar to read the description.

 What actions can viewers perform in an app created using this template?

- Answer

Viewers can interact with, update, and filter data. Viewers can also explore the map using bookmarks and map tools.

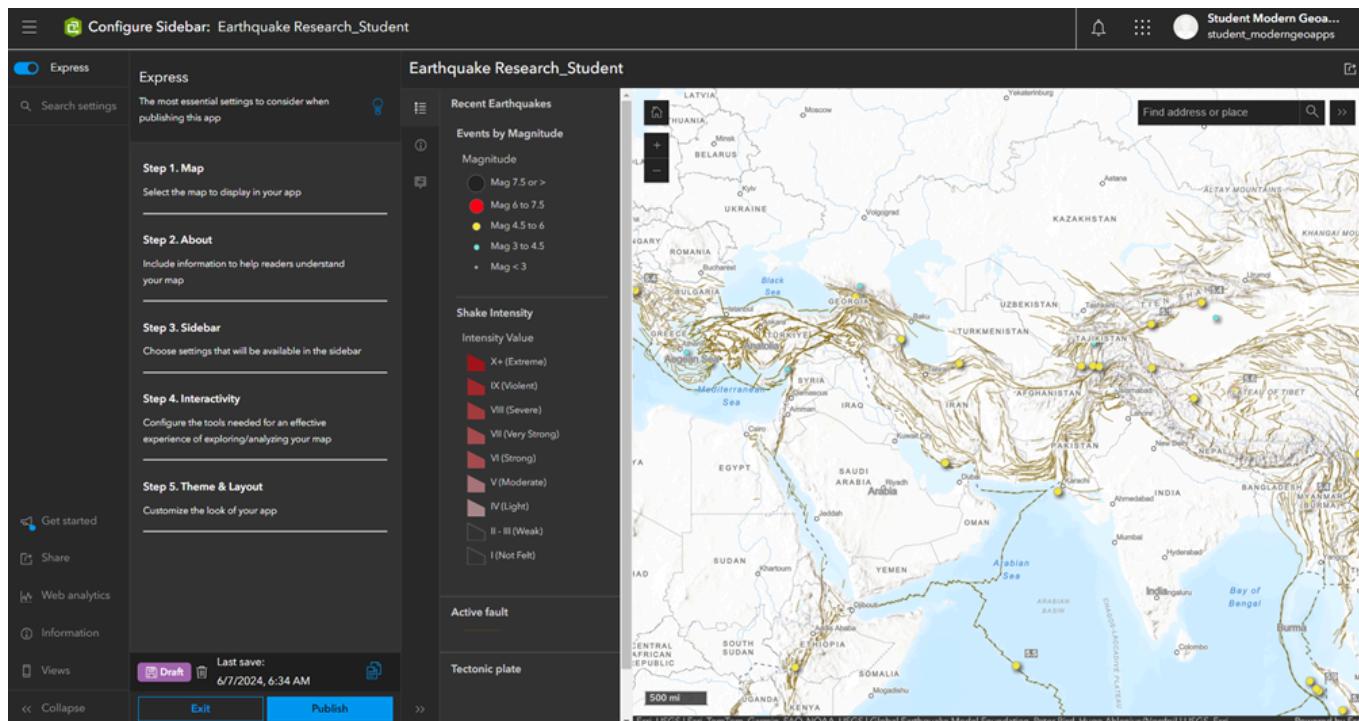
- j Close the description.

The app that you want to create for your students to use should allow them to explore earthquake data on a map using a variety of tools. While students would be able to view information on a map in the Portfolio template, there is no need for them to interact with multiple sections. Based on the description of the Sidebar template, the available tools are exactly what they need to interact with data in the map. The Sidebar template appears to be a good fit for your project.

- k Click Choose to apply the template to your map.

- l In the Create App - Sidebar window, for Give Your App A Title, type **Earthquake Research_<Your Student Name>**.

- m Click Create App.



*Step 6m***: Select an app template.*

You can now see an interactive preview of your app—in this case, a map and a sidebar. On the left side of the app is a configuration panel, where you will adjust the app settings.

Note: If a tour of ArcGIS Instant Apps pops up, you can close it.

In this step, you explored the Instant Apps page and selected the Sidebar template to use with your map.

- Step 7: Configure the app using Express mode

There are two setup modes in the Instant App configuration panel: Express and Full Setup. You can use either one or both, depending on the desired level of customization. The Express mode offers a minimum set of configuration choices tailored to the template that you are using, while the Full Setup mode contains all the configurable settings for the app.

In this step, you will use the Express mode to configure your app.

In the Express configuration panel, you may notice that there are numbered steps. You can proceed through each step in the configuration panel, or you can skip steps. For example, because you already have a map selected, you will skip Step 1. Map. You will move to the next step in the Express configuration panel and add information to help your students understand and navigate the map.

- a In the Express configuration panel, click Step 2. About.
- b Under App Title, type **Plate Tectonics: Earthquakes**.
- c Under Text Alternative For The Map, click Edit and type **Map displaying tectonic plate boundaries, faults, and active earthquakes**.
- d Close the Text Alternative For The Map window.
- e Turn on the Shortcuts Menu option to turn on keyboard shortcuts.



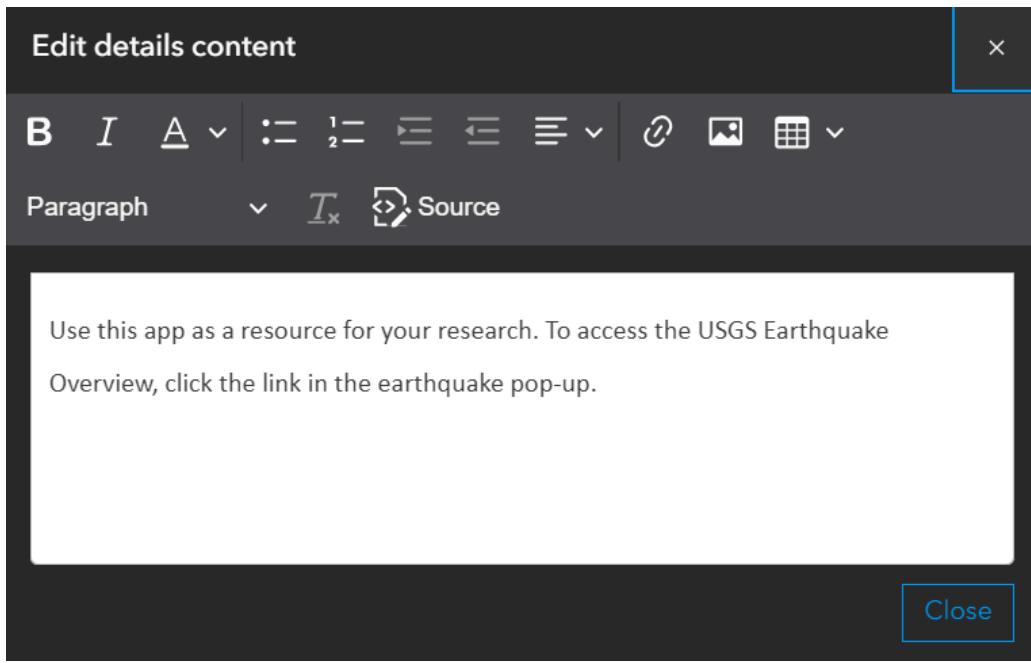
*Step 7e***: Configure the app using Express mode.*

In the upper left of the map, there is now a Keyboard Shortcuts button that students can refer to if they prefer to navigate the map using their keyboard.

- f In the configuration panel, in the upper right, click Next.
- g Scroll toward the bottom of the panel and, under Edit Details Content, click Edit.

Details Content gives your audience information about the app. In addition to text, you can add hyperlinks, images, and tables. Because you are creating this app for students working on a project, you will add basic information about how they should interact with the app.

- h In the Edit Details Content window, type **Use this app as a resource for your research. To access the USGS Earthquake Overview, click the link in the earthquake pop-up.**



*Step 7h***: Configure the app using Express mode.*

i Close the Edit Details Content window.

j In the configuration panel, click Next.

You will leave the Interactivity settings as they are.

k Click Next.

You are now in the Theme & Layout step of the Express configuration panel.

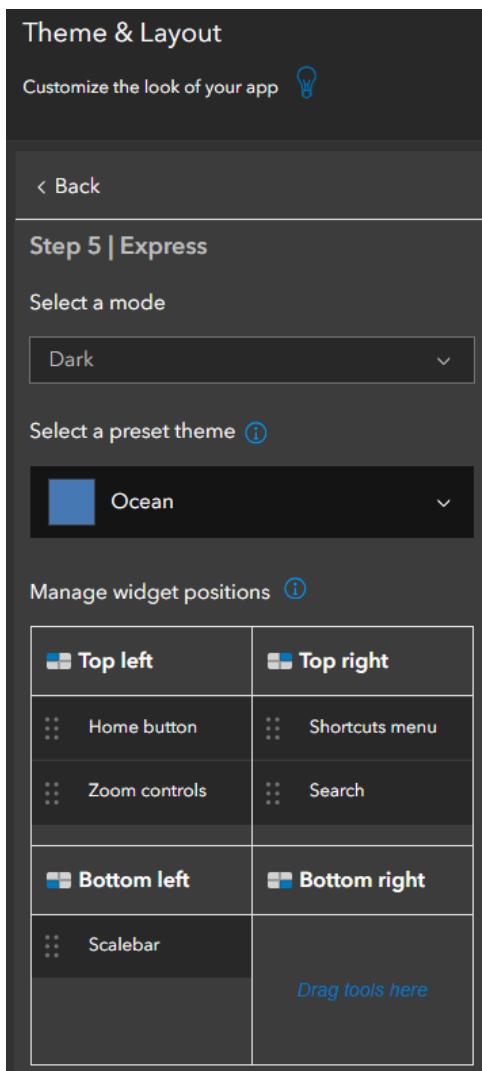
l Under Select A Mode, click Dark and choose Light.

m Under Select A Preset Theme, click None and choose Ocean.

Besides choosing a theme for your app, you can also change the layout of the widgets on the map. In this case, you want to move the Shortcuts Menu (also known as Keyboard Shortcuts) widget above the Search widget. Based on past experience, you know that these are the two widgets your students will use the most.

n Under Manage Widget Positions, next to Shortcuts Menu, point to the reposition button.

o Drag and drop the Shortcuts Menu widget under the Top Right section, above the Search widget.



*Step 7o***: Configure the app using Express mode.*

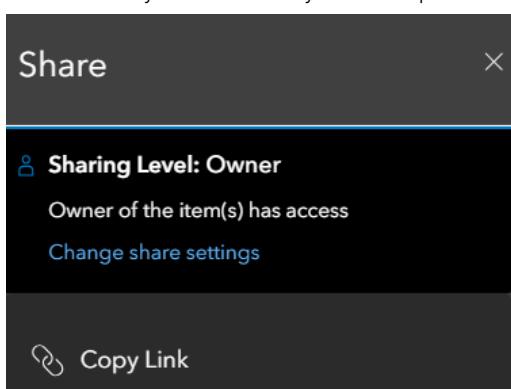
In this step, you configured your app using the Express mode. You have added information to help your students understand the app, and you have updated the theme and layout.

- Step 8: Publish the app

You have configured an app to suit the needs of your Earth Science classroom project. You are ready to publish the app and share it with your students.

In this step, you will publish the app, update the sharing settings so that your students can use the app, and view the finished app.

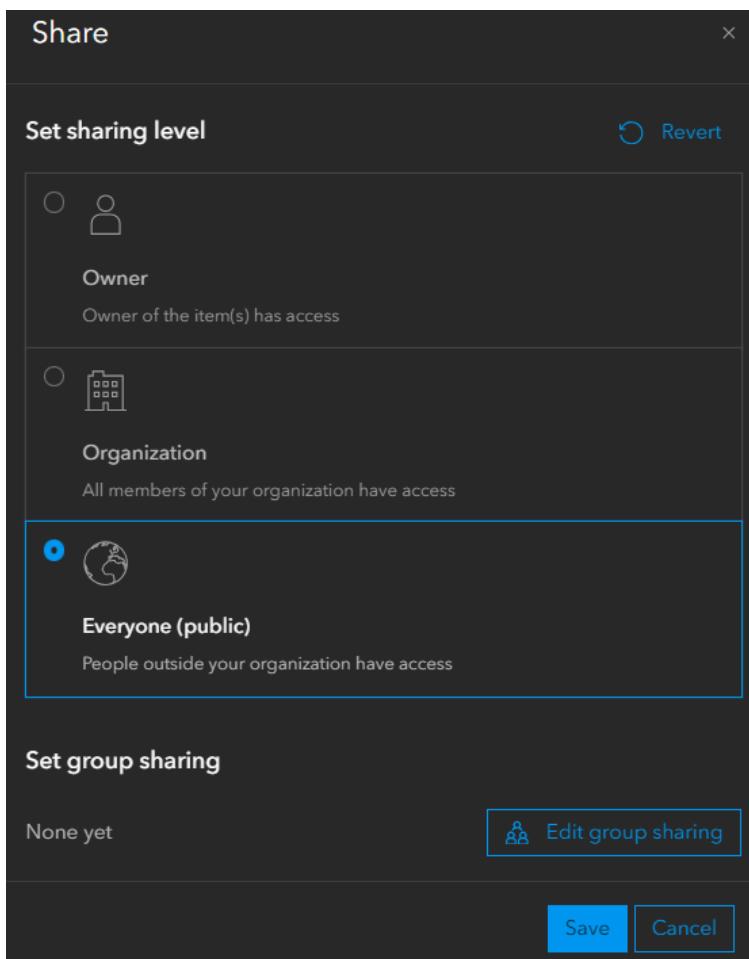
- At the bottom of the configuration panel, click Publish.
- When asked if you are sure that you want to publish the app, click Confirm.



*Step 8b***: Publish the app.*

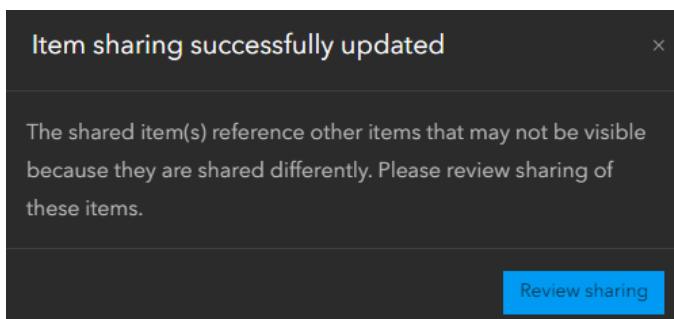
After your app has been published, you are prompted to review your share settings. By default, items that you add to ArcGIS Online are not shared with anyone else. Therefore, the sharing level is designated as Owner. For your students to be able to view and interact with the app, you will need to update the share settings.

- c From the Share window, under Sharing Level: Owner, click Change Share Settings.
- d Under Set Sharing Level, select Everyone (Public).



*Step 8d***: Publish the app.*

- e Click Save.



*Step 8e***: Publish the app.*

A window appears, informing you that, although you successfully shared the app, one or more items in the app may not be shared the same way. You will review and update the sharing settings for those items.

- f Click Review Sharing.

Review sharing

The following items may not be visible to others because they are shared differently or require a subscription to view. Click **Update sharing** to synchronize sharing of the items that you have permission to update.

Items that can be updated: 1

Earthquakes_Student
Map of global earthquakes for Earth Science project.
 Web Map | Item updated: Aug 28, 2024

Student Modern Geoapps | View full details

Don't update sharing **Update sharing**

*Step 8f***: Publish the app.*

When you saved the web map that you are using in the web app, you did not specify a sharing setting. As a result, although the app is shared with everyone, the map itself is only able to be viewed by you, the owner.

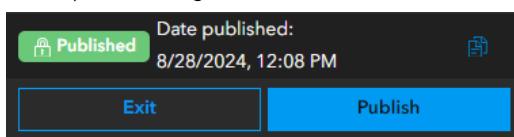
You are alerted that the sharing permission for your map (Owner) does not match the permission that you set for the app (Everyone) and your audience may not be able to see some content—in this case, the map itself.

You are given the option to update the sharing settings so that the map is shared to everyone, just as the app is shared to everyone.

Your students need to be able to view and interact with all aspects of the app, so you will update sharing.

For more information about sharing web content, see ArcGIS Online Help: Best practices for sharing (<https://links.esri.com/SharingBestPractices>).

- g Click Update Sharing.



*Step 8g***: Publish the app.*

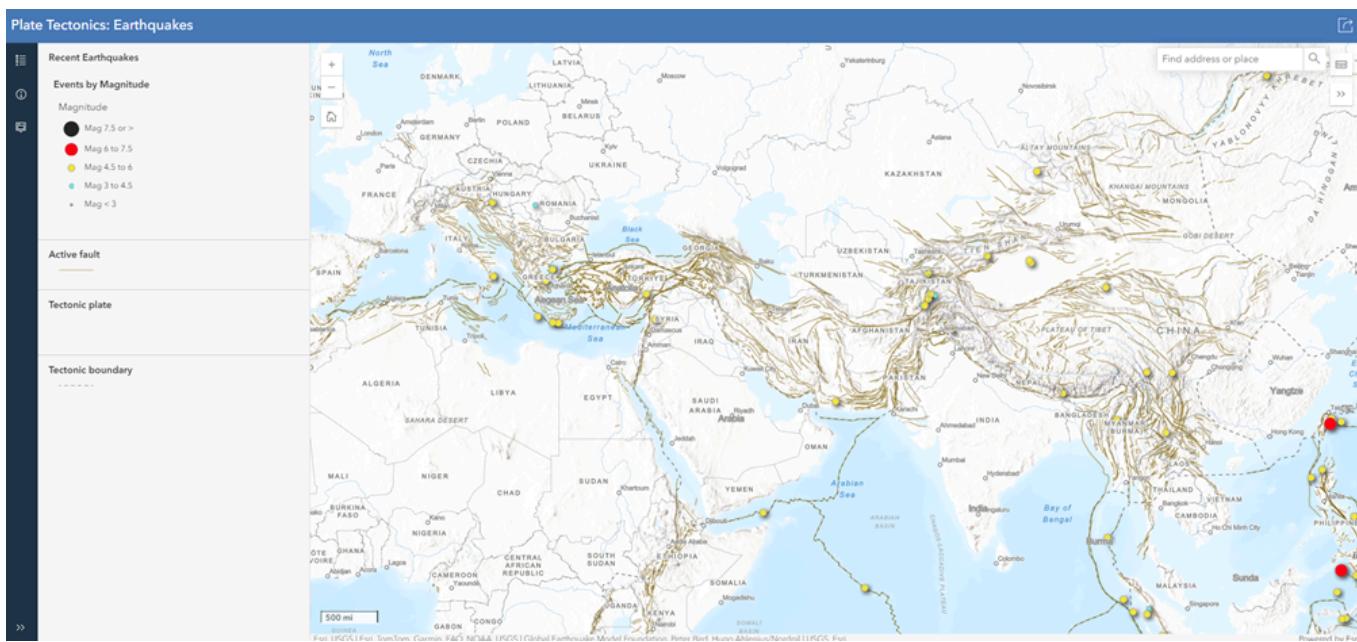
You have now published the app and updated its sharing settings so that both the app and the app content can be viewed by everyone. The app now shows the date and time that it was published. If you ever need to make changes to your app, you can always publish it again.

- h Click Exit.

- i When asked if you are sure you want to exit, click Exit again.

The web app item details page opens, allowing you to view the app or update the configuration, if necessary. You will view the app and explore a few of its features.

- j Click View.



*Step 8j***: Publish the app.*

k Click a recent earthquake in the map to view information about it.

l In the upper right of the app, click the Share button.



Copy Link

Facebook

X

LinkedIn

*Step 8l***: Publish the app.*

You can copy the link or choose to share a link to the app on various social media platforms.

m Close the app.

In this step, you published your app, updated sharing settings, and viewed the finished app.

In this exercise, you updated a map, applied an Instant Apps web app template, configured the app, and published it. Your students will now have a focused web app for their research project. They will be able to learn about individual earthquakes and also to see an earthquake on a map in relation to other contextual information, such as tectonic plates and fault lines.

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