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Publishing maps and resources using ArcGIS Online

Exercise 1: Exercise
Estimated time:

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This exercise will introduce you to ArcGIS Online, a free resource you can use to create simple maps to share with anyone. The main portal of ArcGIS Online is the ArcGIS.com web site. From here, you can view and access other maps, and create your own maps to share.

Creating your own map is a simple process where you can incorporate your choice of basemaps with additional map content. You can leverage ArcGIS Explorer Online to access more mapping and presentation functionality. You can create groups to determine who has access to your maps. And you can ultimately share your map by creating a new web application, embedding a map with any HTML web page, or by sharing your maps via Twitter, Facebook, or by tiny URL.

After completing this exercise, you will be able to:

- View and access content from the ArcGIS.com web site.
- Build your own map using ArcGIS.com, including features such as time awareness and pop-up windows.
- Create a group to determine public or private access to your maps.
- Interact with ArcGIS Explorer Online functionality, such as measuring, querying, working with editable layers, and making presentations.
- Share your map using Facebook, Twitter, tiny URL, or by embedding the map within a web page or building a new web application.

Step 1: Accessing ArcGIS.com

In this first step, you are going to access ArcGIS Online through the ArcGIS.com web site. From here, you can begin your exploration of many maps and applications others have created. And you will ultimately build your own maps using ArcGIS.com.

- ☐ Open Internet Explorer.

Note: You can use any supported web browser, but for this exercise you will use Internet Explorer.

- ☐ Using the URL, go to this web site: **<http://www.arcgis.com>**.

This is the main portal for ArcGIS Online. From here, you can begin to make your maps or view other maps and apps. To fully leverage ArcGIS Online, you should have an Esri Global Account, which you can create for free at any time.

- ☐ From the top menu bar, click Sign In.
- ☐ To Sign In, enter in the Username and Password for your Esri Global Account, then click the Sign In button.
- ☐ If you do not have an Esri Global Account, it is recommended for this exercise to create a new account. Click Register your Esri Global Account and follow the instructions to create a new account for this exercise.

Note: Another alternative is to use a generic account made for this exercise. For the Username, enter **educ**. For the Password, enter **educ**. Make sure the Username and Password are all lower case characters. Then click Sign In.

When you log in, you will access the My Content page, where you can keep track of all of the content stored under your Esri Global Account. You will return to the My Content page later, but for now, you will first begin to explore the ArcGIS Online Gallery.

- ☐ From the main toolbar, click Gallery.

Here is where you can see examples of maps, web applications, and mobile applications created from the ArcGIS Online community. There are a lot of interesting and relevant maps you can view and explore within the Gallery.

- ☐ Spend some time browsing through the different featured maps in the Gallery.

As you hover your mouse over an interesting map, notice an information window appears which provides more details on what is contained in the map.

- ☐ Go ahead and click Open or Detail for several maps to see its content.
- ☐ When you are finished exploring Maps, click Web Apps, and discover some of the web applications available to view.

Note: The primary difference between a Map and a Web Application is that the map is viewed generically within ArcGIS.com, while a Web Application has a customized user interface with unique buttons and functionality.

Once you have finished playing with several Maps and Web Applications, you are now ready to begin to build your own map from scratch using ArcGIS Online.

- ☐ Close all instances of Internet Explorer except for one. In that browser, return to the main ArcGIS Online site at: **<http://www.arcgis.com>**.

Step 2: Making your own map

In this step, you will use ArcGIS Online to construct an online map, highlighting the recent earthquakes near Japan. You will intergrate several resources into this new map. And you will save this map so you can share it with others and view it with the ArcGIS.com viewer.

- ☐ From the main ArcGIS.com page, click the Make a Map link.

Notice the four steps on the left-hand side of the viewer under Details. You will follow a similar workflow for the creation of your map.

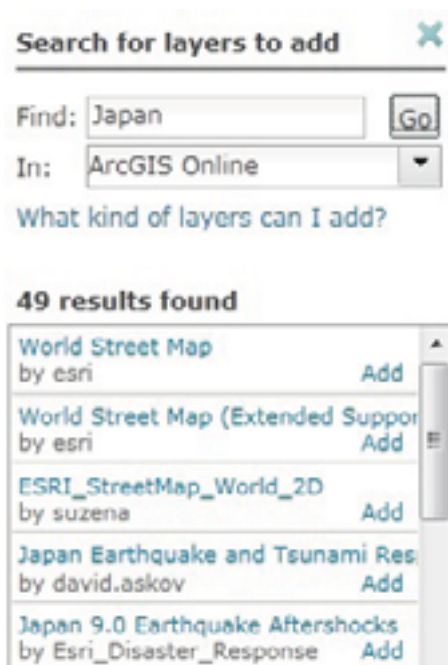
- ☐ Use the panning functionality to move around the world. Notice that the map pans continously around the globe, so the map never ends - there are no finite extents horizontally.
- ☐ In the Search box labeled *Find address or place*, search for a location using the keyword: **Japan**.

That should center the map towards Japan.

You will now search for additional map content to add on top of the current basemap.

- ☐ Close any map tips appearing on top of the map.
- ☐ Under the title My Map, click the Add button, then choose Add Layers.
- ☐ Under Search for layers to add, for Find, enter **Japan**. Leave the search in ArcGIS Online.
- ☐ Click the Go button.

A list of results should appear underneath.



- ☐ From the results, find the Japan 9.0 Earthquake Aftershocks result.
- ☐ Click the main link for that result to get some basic information about this map service.
- ☐ Click Add to map to add this new map layer on top of your base map.

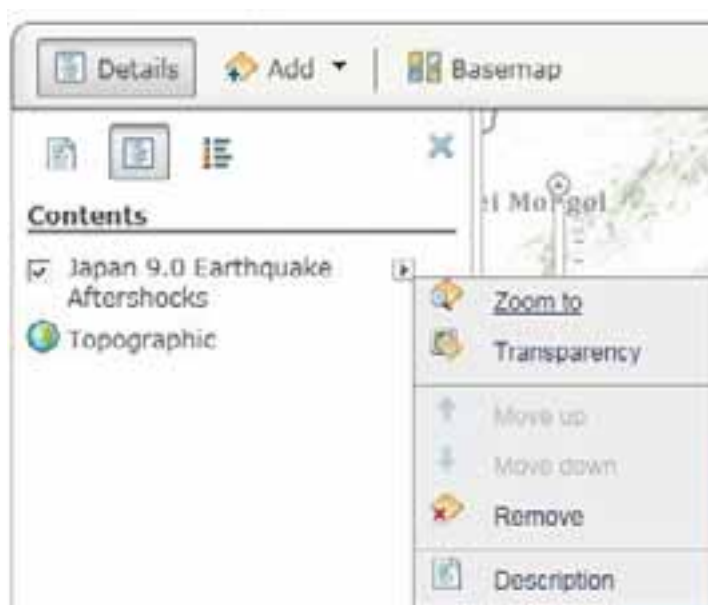
You should now see a series of red dots representing earthquake epicenters around Japan.

- ☐ Under the map title, click the Details button, then click the Show Contents of Map button below the Details button (the second button).

Notice there are two layers under Contents.

- ☐ Uncheck and check the check box next to the Aftershocks layer to toggle the visibility of the added map.
- ☐ Turn the layer back on, then hover your mouse over the Aftershocks layer name. Click on the little arrow that appears to the right of the layer name.

Some options now appear inside a context menu.



- ☐ Click the Zoom to link.
- ☐ Return to the context menu, and click Transparency. Set the transparency to approximately 25%.
- ☐ Return to the context menu, and click Description.

A new web page appears which describes the map service you are working with, along with any Access and Use Constraints associated with the map. The full URL to access the map service is also provided.

Notice that one of the tags is time aware. This indicates the map is associated with timed content, where the map data changes over a period of time. You will next test the time awareness of this map.

- ☐ In the main toolbar, click Map.

This will return you to your original map. Because the map is time aware, a slider bar is automatically added to the bottom of the map display.

- ☐ On the left-hand side of the slider bar, click the Play button (with the right-pointing arrow).

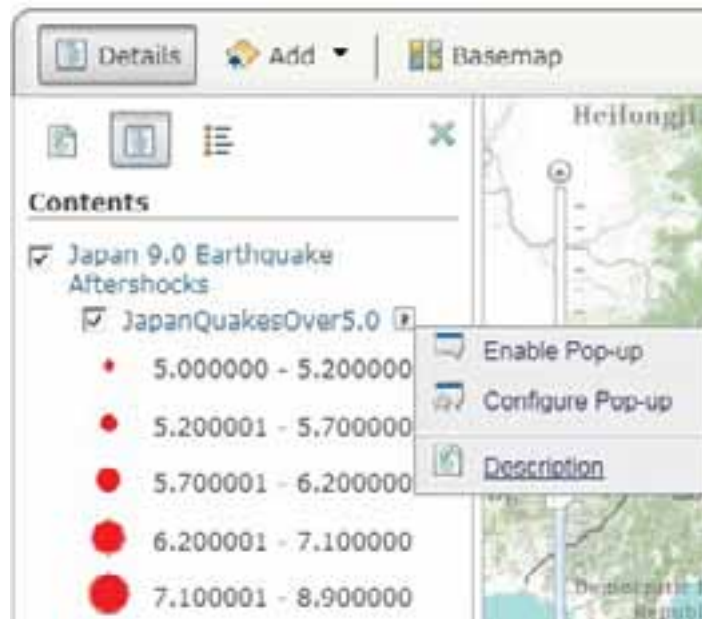
Notice how the map changes every few seconds. The slider bar indicates the progression of time from the height of the earthquake activity on March 11, 2011, and advances in 11-hour chunks to show the aftershocks during the days after the main event.

- ☐ When you are finished observing the time progression, click on the Pause button (same location as the Play button).
- ☐ Click on the Configure button on the far right-side of the slider bar. You can modify the playback speed if you wish. You can also click on the Show advanced options link to modify the settings of the time slider bar.
- ☐ Close all floating windows when completed.

You also have the ability to enable pop-up windows with this map. A feature layer was added to the map service so its attributes are accessible. When you are finished with the setup, you can click on a red dot, and the attributes of the selected earthquake epicenter will appear in a pop-up window. But first, you need to enable the pop-up functionality.

- ☐ Under Contents, click on the Aftershocks layer name to expand the listing.
- ☐ Click on the JapanQuakesOver5.0 layer name to see how the earthquakes are rendered using graduated symbols.

- ☐ Hover your mouse over the JapanQuakesOver5.0 layer name, then click on the little arrow that appears on its right to expose another context menu.



- ☐ In the context menu, choose Description.

A new tab in the browser displaying more information about the feature layer is presented.

- ☐ Look through the content of the feature layer, including the Fields in the feature layer.

- ☐ Close the browser tab with the feature layer information.

- ☐ In the map, return to the last context menu, and choose Enable Pop-Up.

- ☐ On the main map display, click on a red dot.

A large pop-up window appears listing all of the attributes for the selected earthquake.

A lot of information is provided in the pop-up. You will clean up some of the fields to display. For example, the URL links are now broken links. The Location is repeated in the title. The GUID is not important for the user to see. And there are many fields showing the time - only one date-time field is necessary.

- ☐ Close the pop-up window.

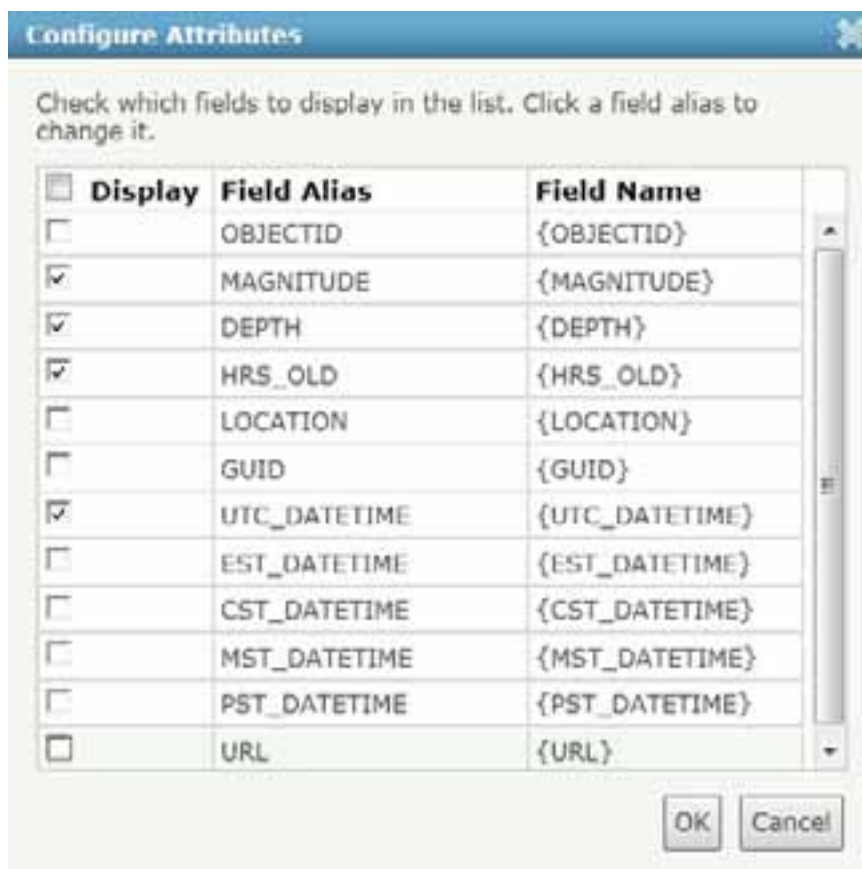
- ☐ Return to the last context menu, and choose Configure Pop-Up.

Notice that you can potentially change the title of the pop-up window, and add Pop-Up Media like images and charts to the window. But for this exercise, you will focus on changing which fields are displayed.

- ☐ Click the Configure Attributes button.

- ☐ Uncheck the following layers: LOCATION, GUID, EST_DATETIME, CST_DATETIME, MST_DATETIME, PST_DATETIME, and URL.

Note: Only four fields should remain checked.



- ☐ Click OK. Then click Save Pop-up to save the settings.

- ☐ Return to the main map, and click on a red dot.

Your changes should be reflected in the pop-up window.

☐ Close the window when finished.

Finally, you will change the contents of the Basemap.

☐ Click the Basemap button underneath the map title.

A series of potential basemaps appear - any of these could be chosen as your basemap. For this exercise, choose an imagery basemap to showcase the earthquakes.

☐ Click the Imagery with Labels basemap.

You are now ready to save the map you have been working on.

☐ Pan and zoom the map to see all of Japan and the earthquakes.

☐ Click the Save button at the top of the map, then choose Save.

A dialog box will appear for your newly-created map.

☐ Enter the contents of the Save Map dialog box based on the following:

Title:	Use Japan Map By <your name> (e.g.: Japan Map By Mark H.)
Tags:	Enter relevant keywords (e.g. Japan, Earthquakes, Epicenters, etc.)
Summary:	Enter a valid description (e.g. Map of Japan earthquakes in March 2011)
Save in folder:	Your Esri Global Account name (save in the default folder)

☐ When completed, click Save Map.

Note: If necessary, you may need to re-sign in to the Esri Global Account for this exercise, then try to Save the map again.

When the save is completed, you should see the new title to your map.

☐ From the ArcGIS Home menu near the top, choose My Content.

Your map should now appear in the My Content list.

The map is now completed, but notice that the Shared status is listed as Not Shared. In the next step, you will share this map for others to view using groups.

Step 3: Working with groups

In this step, you will set the properties of how you can share your map with others. You will see how you can use groups to include or exclude those who can access your map.

☐ In the My Content list, click the link to your map.

This will take you description page, where you can enter and view additional information about your map.

☐ Above the title of the map, click the Edit button.

☐ For the Description and the Access and Use Constraints sections, enter some appropriate text to describe the map has been designed on today's date for this conference, and the map is free for anyone to use and incorporate. Change the font properties to using your preferences.

☐ You can also add text to Add a Comment, complimenting the quality of your map, then click Publish Comment

☐ When completed, scroll to the bottom of the web page and click Save.

This should return you to the description page, where you can view your additional text. Now you will leverage groups, allowing you to determine who has access to your map.

☐ From the main toolbar, click Groups.

You will create a group for your personal maps.

☐ Click the Create a Group button.

☐ For the Name, enter a group with your name, such as: **Mark H.'s Group**.

☐ For the Summary, enter a sentence stating this group is a public group managed by you, and users can apply to join the group.

☐ For the Description, enter a sentence stating this group was created on today's date for this conference, and highlights your favorite maps and content.

☐ Under Status, keep the current selection as Public, and keep the check next to Users can apply to join group.

You could change the status to Private, where users can only join through your invitation and the group would not be visible for public users. But for this exercise, you will work with the default setting.

☐ Click the Choose from your tags link, and add each of your previous tags as tags for the group. Use the Shift key to select multiple tags.

☐ When your entries are completed, under the main toolbar, click Save.

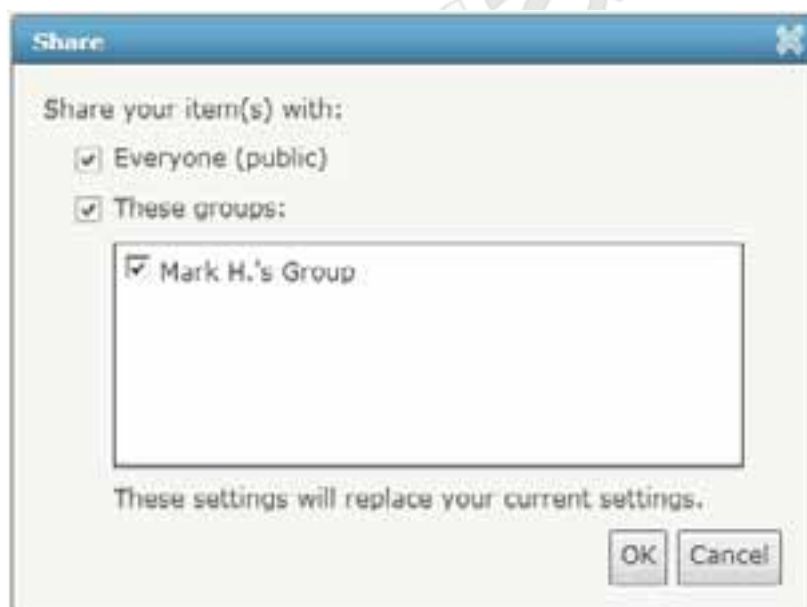
The resulting page highlights the properties of your group. Since you are already a member of this group, you can add your Japan map to this group.

☐ From the main toolbar, click My Content.

☐ Click the link to your map, which returns you to the map's description page.

☐ Above the map title, click Share.

☐ In the Share dialog, add a check next to both Everyone and These groups, then add a check next to your new group name.



☐ Click OK.

You will now confirm the map is available in your group.

- ☐ From the main toolbar, click Groups.

- ☐ From the list of groups, click the link for your group.

You should see the link for your Japan map.

- ☐ Under the thumbnail image of your map, click the Open link.

This will re-open your map in the ArcGIS.com viewer. In addition, you can view this map using other methods. In the next step, you will interact with the map using the ArcGIS Explorer Online viewer, which features some unique tools unavailable with the ArcGIS.com viewer.

Step 4: Using ArcGIS Explorer Online

ArcGIS Explorer Online is an online version of ArcGIS Explorer. This viewer highlights some sophisticated functions and tools which will make your online maps more interactive and productive. This step will showcase several of these features.

- ☐ In the ArcGIS.com viewer, under the map title, ensure the Details button is selected.

- ☐ Click on the link to open this map in ArcGIS Explorer Online.

This should another tab in your web browser which opens ArcGIS Explorer Online. This is a different type of online viewer available through ArcGIS Online.

- ☐ When the ArcGIS Explorer Online viewer opens, test the navigation control on the bottom left corner of the viewer.

- ☐ Interact with the time slider control to see if it works as expected.

- ☐ Try clicking on one of the earthquake epicenters to test the pop-up windows.

ArcGIS Explorer Online has several similar functions to the ArcGIS.com viewer. You have the ability to change the basemap, add content from other sources, and see a map legend. Instead, you will try some unique functions only available through this viewer.

- ☐ Under the Mapping tab, click the Measure button.

- ☐ Use the tool to determine the approximate distance between Tokyo and Sendai in Miles. Also try to estimate the area of the Kanto province (where Tokyo resides), in Square Kilometers.

☐ Click Done on the left side when you are finished measuring.

Now you will create a simple SQL query.

☐ Next to the Measure button, click on the Queries button.

It should list that there are no queries.

☐ To add a query, click on the Plus button on the bottom left corner of the pop-up window.

☐ To select a layer to query, select the JapanQuakesOver5.0 layer, then click OK.

☐ In the Query Definition window, change the Name of the query to **Depth GT 30000**.

☐ With the Query tab selected, define the query as follows:

Field:	Select: DEPTH
Operator:	Select: Greater than or equal
Value:	Enter: 30000



☐ Click Add.

☐ Click the Display Fields tab, and make these four fields visible: MAGNITUDE, DEPTH, LOCATION, and UTC_DATETIME. Uncheck all other fields.

☐ Click OK to perform the query.

The query results appear in a pop-up window. The epicenters on the map that meet this criteria are highlighted with a dark blue background.

- ☐ In the results pop-up window, click on different epicenters to see the location highlighted on the map.
- ☐ Click the little right arrow next to a result to see the attributes of the earthquake. Click the left arrow to return to the results.
- ☐ When completed, close the results pop-up window.

Next, you will create a presentation, featuring different extents of your map.

- ☐ Click the Presentation tab.
- ☐ Under the Presentation tab, click on the Presentation Options button.

This will be a simple presentation with no time-aware layers, and the slides need to be advanced manually.

- ☐ For Auto-advance, choose None.
- ☐ Uncheck all options under Time Display.
- ☐ Click OK.
- ☐ In the toolbar under the Presentation tab, click New Slide (the second button from the left).
- ☐ For the first slide, zoom out to see the entire earth's surface. Click on the title, and change the title to **World**.
- ☐ Click the New Slide button.
- ☐ Using the same workflow, create four more slides to the presentation, as follows:

Slide Number	Zoom to extent of:	Title
2	Eastern half of the world	Eastern Hemisphere
3	Asian countries	Asia
4	Entire country of Japan	Japan
5	Around the earthquake points	Japan Earthquakes - March 2011

- ☐ Once the five slides are completed, highlight the first slide on the bottom of the viewer.
- ☐ From the toolbar, click the Start Presentation button (first button from the left).
- ☐ This will open your browser in full screen mode. Move your mouse to display a toolbar on the bottom. Use this toolbar to advance through the slides. When completed, click the X button on the toolbar to stop the presentation.

Finally, you have the ability to draw features on top of your map display. You can think of this as adding map notes to highlight certain things on the map you want to show.

Note: You can do the following in both the ArcGIS.com viewer and the ArcGIS Explorer Online viewer.

- ☐ Click the Mapping tab.
 - ☐ From the toolbar, click Create Features (second button from the right).
- Another pop-up window appears. Currently the map does not have any editable layers.
- ☐ Click Create New Layer.
 - ☐ Another pop-up window lists the types of editable layers one could add to the map display. For this exercise, choose the generic Map Notes layer.
 - ☐ Click Map Notes, then click Create Layer.

The first pop-up window now displays different types of features you can interactively draw on top of your map display, including different types of points, lines, and polygons, as well as text.

- ☐ Pick and choose several feature types, and draw them on your map. For example, add a Pushpin on Tokyo. Add an Arrow pointing to the main earthquake. Draw a Triangle near Mount Fuji. Add your name to the map using Text. Use the Edit Features button (first button on the right of the toolbar) if you need to modify a feature.



- ☐ Once you have finished working with the editable layer, close the pop-up window.
- ☐ Click the Save button to save your work, including the presentation.
- ☐ Close the browser tab with ArcGIS Explorer Online, returning you to the ArcGIS.com viewer.
- ☐ With the Details button selected, click the View Presentation link.
- ☐ A new browser tab will open to show your presentation. Use the toolbar provided to advance through the slides. Close the tab when finished to return to the ArcGIS.com viewer.

Another potential way to share this content is to view the content in ArcGIS Desktop 10. To do this, you need to create a map package file (with a .pkinf extension), then double-click on the file with a machine containing ArcMap 10 to see the content.

- ☐ In the next step, you will learn other ways to share this map content.

Step 5: Sharing your map

You have seen how to work with ArcGIS Online maps through the ArcGIS.com viewer and the ArcGIS Explorer Online viewer. In this final step, you will learn other methods to share your map through several vehicles.

- ☐ In the ArcGIS.com viewer, from the main toolbar, click the Share button.

This will display a dialog where you can share your map using a number of different web sites.



- ☐ If you are a Facebook or Twitter user, click the Facebook and/or the Twitter link to share your map or presentation to your friends and followers. Follow the instructions to link the map or presentation to your accounts.
- ☐ If you have access to your e-mail online, copy and paste the tiny URL to your personal e-mail, and try to open the map or presentation through that URL. Or open a new browser tab, and copy and paste the tiny URL to see the map.

Another approach is to embed the map into an existing web page, or to create a new web application. Both are most useful if you host your own web sites through a local web server. However, you can test to see what an embedded map looks like using a simple HTML page, editable using Notepad.

- ☐ Open Notepad (from the Start button, click All Programs > Accessories > Notepad).

- ☐ In Notepad, from the File menu, choose Open.
- ☐ Navigate to this folder: C:\EdUC\PublishingArcGISOnline\Resources.
- ☐ Change the search from Text Documents to All Files.
- ☐ Select sample.html, and click Open.

This is a very simple HTML file, using paragraphs from the ArcGIS Online help.

- ☐ Scroll to the bottom of the page.

There is a space for you to paste some HTML code that you will copy from the ArcGIS.com viewer.

- ☐ Return to the ArcGIS.com viewer, and if needed, click the Share button.
- ☐ Click the Embed in Website button.
- ☐ Choose the options to make a Large map and Embed presentation.



- ☐ Inside the text box, highlight the entire block of HTML code, then hit the Ctrl and C keys on your keyboard at the same time to copy that code.
- ☐ Return to Notepad, move the cursor to the empty block near the end of the page, then hit the Ctrl and V keys on your keyboard at the same time, to paste that block of code into your HTML page.

- ☐ In Notepad, from the File menu, choose Save. Then minimize Notepad.
- ☐ Open Windows Explorer, and navigate to
C:\EdUC\PublishingArcGISOnline\Resources.
- ☐ Double-click the sample.html file to open the default web browser and to see the embedded presentation at the bottom of the web page. Use the presentation toolbar to advance through the slides.
- ☐ If you wish, you can go back to the Share dialog, and copy and paste the HTML code to display the map with zoom control and scale bar (make sure you uncheck Embed presentation). Replace the old code in sample.html with your new code in Notepad, and view the HTML file in a web browser.



Finally, if you have access to your own web server, another method you could use is to build a new web application.

- ☐ Return to the ArcGIS.com viewer, and if needed, click the Share button.
- ☐ Click the Make a Web Application button.

A series of templates will display, providing you with choices of how the user interface of the application will display.

- ☐ Pick one of the templates you would like to see, then click Preview for that template.
- ☐ Interact with the map, such as clicking on an earthquake to see the pop-up window.

Once you have previewed an application, you would then download the application as a zip file. When you unzip the contents into virtual directory for your web browser, you can deploy that web application over your local web server. The general instructions and map id number are provided when you click Download for a template.

☐ Close all windows and applications.

Conclusion

In this exercise, you had the opportunity to explore many aspects of ArcGIS Online, from building and sharing your own maps and presentations, to working with a number of different methods to interact with the map. This is potentially a very powerful tool that can help anyone make a simple map to share with the world.

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