
Getting Started with Open Data and ArcGIS Hub

Tutorial Overview

What is currently referred to as 'open data' comprise data resources that are typically freely accessible for anyone to download via the Internet, and subsequently modify, use, and redistribute without any legal, financial, or other restrictions. However, there are widely varying interpretations of the concept of open data, including, especially, the actual extent of 'openness' in the data resources being accessed. The major characteristics of data that are truly open include^{1,2}:

- Availability: the data must be freely downloadable from the internet
- Accessibility: the data must be distributed in a convenient form for modifying
- Reusability: the data must be provided under terms that permit reuse
- Redistribution: the data can be integrated with other datasets
- Restrictiveness and universal participation: the data must be available to the public regardless of how they want to use the data. There should be no discrimination against people and groups.

Open data are an important concept because of the benefits they bring, such as^{1,2}:

- Increase in data interoperability to share and intermix data
- Increase in the possibilities for further research
- Increase in the extent of public participation in data use
- Improvement in the overall economy.

Open data are made accessible through posting data resources to a data repository. ArcGIS Hub provides a platform to share data with the public. ArcGIS Hub also enables organizations to use the ArcGIS platform to share content such as open data.

Skills

By completing this tutorial, you will become comfortable with the following tasks/skills:

- Setup ArcGIS Hub
- Create ArcGIS Hub Site
- Customize ArcGIS Hub Site.

Time Required

The following time is required to complete this tutorial:

- 60 minutes

¹ York University website <https://www.library.yorku.ca/web/open/overview/open-data/>

² Open Data handbook <http://opendatahandbook.org/guide/en/what-is-open-data/>

Materials Required

Technology:

- ArcGIS Online organization account
- ArcGIS Hub.

Licenses:

- You need to be a member of the Hub team with privileges to manage open data sites.

Production Date

The Education and Research Group at Esri Canada makes every effort to present accurate and reliable information. The Web sites and URLs used in this tutorial are from sources that were current at the time of production but are subject to change without notice to Esri Canada.

- Production Date: November 2019.

References and Reading

- ArcGIS Hub documentation
<https://doc.arcgis.com/en/hub/>
- ArcGIS Hub overview
<https://www.esri.com/en-us/arcgis/products/arcgis-hub/overview>
- ArcGIS Hub: An introduction
<https://www.esri.com/videos/watch?videoid=KsSjpNmbsbE>
- Getting started with Open Data and initiatives in the ArcGIS Hub
<https://www.esri.com/videos/watch?videoid=HsFdhsWQil8&title=ArcGIS%20Online%3A%20Getting%20Started%20with%20Open%20Data%20and%20Initiatives%20in%20the%20ArcGIS%20Hub>
- ArcGIS Hub Site and Page Customization: Tips, Tricks, and Samples!
<http://hub.arcgis.com/pages/site-customization>

Part A: Setup and Configuration


To configure a Hub Site and share items on the site, its open data capabilities must be enabled. Complete the following steps to enable the open data capabilities from your organization account.

1. Sign in to ArcGIS Online (<https://www.arcgis.com>) as your organization administrator.
2. Navigate to **Organization** from the menu at the top.
3. Click **Edit Settings** to open the Settings page.

4. Select **Open Data** from the menu on the left and then click **Enable Open Data** button on the right.

Once the open data capabilities are enabled, a URL is provided to configure and edit your organization's ArcGIS Hub Site.

5. Click **Manage Sites** to navigate to the **Site Manager** page.

Click on **App Launcher** Icon at top-right  to make sure that ArcGIS Hub has been added to your apps.

Part B: Configure Groups and Items on ArcGIS Hub

By enabling open data capabilities, a group is created in your organization's ArcGIS Online subscription named *Open Data Collaboration Group*. The members of this group or other groups in ArcGIS Online that have been made available for open data and have access to your site can provide data for your Hub Site. You can create new groups or modify the existing ones to make groups available to your Hub Site. To create a new group for your Hub complete the following steps:

1. Sign in as your organization administrator or any other accounts with the privileges to make groups available to open data (see <http://doc.arcgis.com/EN/ARCGIS-ONLINE/REFERENCE/ROLES.HTM>).
2. Click **My Groups** at the top and then click **Create Group** button.
3. Type your **Group Name**, **Summary**, and **Tags**.
4. If desired, select the **Everyone (public)** as the answer to "Who can view this group?".
5. Check the box next to **Allow this group to be accessed in Open Data sites**.
6. Keep the default options for other sections and click **Create Group**.

A large number of data formats can be shared on ArcGIS Hub, for instance: tables, feature layers, csv files, web maps, documents, image services, and external URLs. The complete list of supported items can be found at <https://doc.arcgis.com/en/hub/data/prepare-data-for-your-site.htm>.

Part C: Configure Hub Team

The members of your Hub team are users in your organization that have permission for creating and editing content on ArcGIS Hub.

1. Select **Hub** from **App Launcher**.
2. On the ArcGIS Hub page, click **Team** at the top to review the members of your Hub team.

You can add members to or remove members from your Hub team if you signed in as your organization's administrator.

3. Click **Add Members** button at the top-right.

4. Check the box left to the user you want to add and click **Add Team Members**.

For removing a user of your organization from the Hub team:

5. Click the trash icon  beside the member's name.

All Hub users can see the Team tab and review a list of users who can create and edit content but only the organization administrator can manage members of a Hub team.

Part D: Creating and Customizing a Hub Site

You can create a Hub Site to share its content with the public.



1. From the **App Launcher**, click **Hub** to navigate to the ArcGIS Hub configuration page.
2. Click **Sites** at the top of the page to go to the **Site Manager** page.

On the site manager page, you can see a list of all Hub sites created by members of your organization's Hub team. Moreover, you can create a new Hub Site.


3. Click **Create New Site** button at the top-right of the page.
4. Type a suitable descriptive **Site Name** and a **Site URL**.

This is important as the site name is the name that appears on the browser tab. You can also customize the icon that appears on the browser tab by changing the icon URL from the **Browser Icon** text box.

Basic Information


Site Name (Required)  

Sample Hub Site

Browser Icon 

http://www.myorg.com/favico.ico

Domains

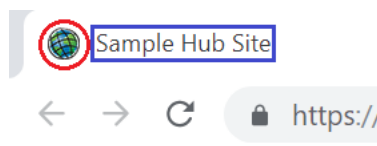
Site URL (Required) 

Full URL: sample-edu.hub.arcgis.com

sample

Manage Custom Domain

The following screen capture highlights the default icon and the site name that appears on your browser tab once you create a Hub Site.



5. If necessary, change the default extent under the **Set Extent** section.
6. Also, if necessary, change the default basemap under **Select Basemap Option**.
7. Click **Next**.

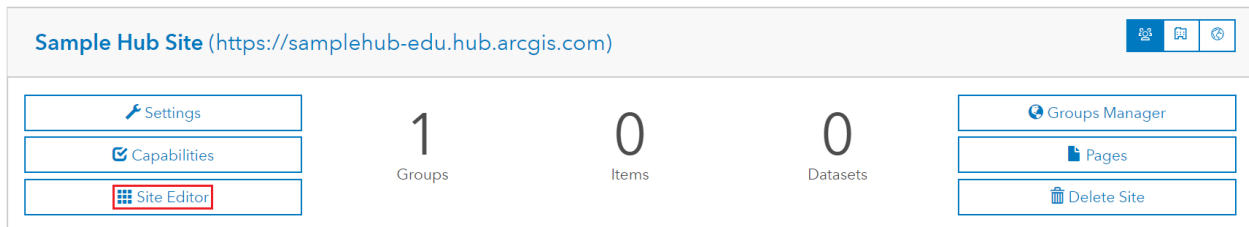
By clicking next you will be directed to the **Groups Manager** tab. In this tab, you need to select one

or more groups to make them available for the Hub Site. On the left side, there is a panel that displays a list of available open data groups. The list contains the groups that you configured in **Part C** of this tutorial.

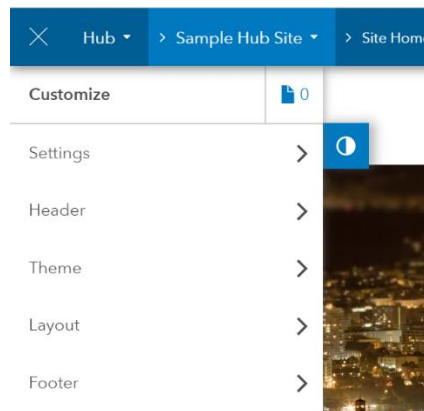
8. Click **Add** button on the left of the group name to add a group to the **Selected Groups** panel.
9. Click **Next**.

By clicking next the edit page will open in your browser. At this stage you have already made your first, very basic, ArcGIS Hub Site. You can view your site by clicking **View** at the top-right. Notice that the URL is the site URL that you typed in **Step 4**. Also, notice the browser title and icon are those that you set.

10. Open your ArcGIS Online home page and from **App Launcher** click **Hub**.
11. Select **Sites** from the menu at the top to navigate to **Site Manager**.
You can see the newly created site has been added to the list of your organization sites.
12. Click **Site Editor** under your Hub Site to open Hub Site edit page.



13. On the left, find the **Customize** panel.



There are five items under the customize panel which are discussed in the next section.

Part D.1: Settings

Use settings if you want to modify the Site Title, Site URL, icon, or basemap.

1. Expand **Settings**.
2. Update **Custom Basemap** by selecting Dark Gray Canvas from the dropdown list.
3. Click **Save** at top right.

Note: make sure to hit save button every time you make changes to your Hub Site to protect your work in the event of anything going wrong.

Part D.2: Header

1. Go back to Customize menu and click **Header**.
2. Under **Appearance** select **Standard**.

There are three options for header appearance: **Standard**, **Prominent**, and **Custom HTML/CSS**. Select **Prominent** if you need more space for the header. Select **HTML/CSS** if you have some familiarity with hypertext markup language and cascading style sheets so you can make changes such as creating your own custom header.

3. Open **Branding** and change the **Name** to Sample Hub Site.

You can also set the **Short Name** for mobile devices if the header name is too long.

4. Click **Upload** and browse to a picture you want to use as the logo for your site.

The header of your site should be similar to the picture below.



Sample Hub Site

5. Open the **Menu** and click **Add Link**.
6. Click to **External Page**.
7. In the opening **Edit Link** prompt, type Esri Canada in the **Link Name** box and <https://esri.ca/en> in the **Link Destination** box and click **Save**.

Edit Link ✕

Link Name

Link Destination ?

Open Link in New Tab

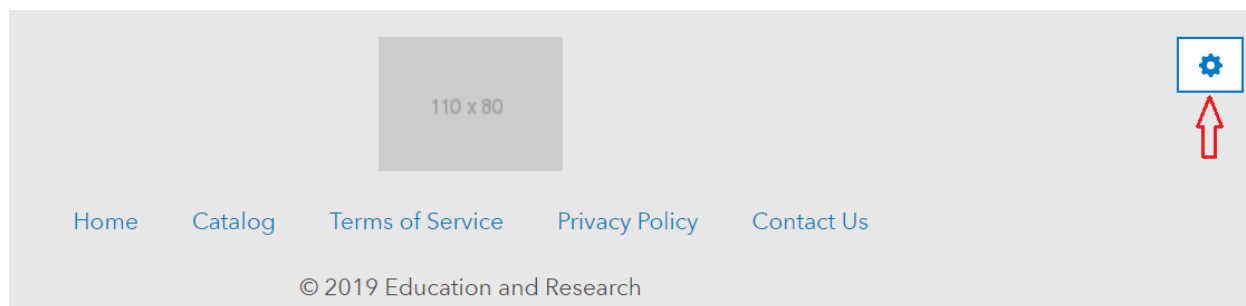
Accessibility Tip: Per the WCAG 2.0 [G200 technique](#), opening links in new tabs or windows is not recommended.


Part D.3: Footer

1. Go back to the Customize menu and click **Footer**.
2. Select **Custom** in the opening panel.

On the right panel, you can see a row with three columns has been added at the bottom of the site (see the capture below). Each row is declared with an html `<div>` tag. The `<div>` tag specifies a section in an html document. It is typically used as a container of html elements to make the page design better. For more information see https://www.w3schools.com/tags/tag_div.asp.

3. Click **Settings** button at the top-right of the footer div element to modify the footer (highlighted by the red arrow in the picture).



4. Click **Code View**  to open the code editor window.

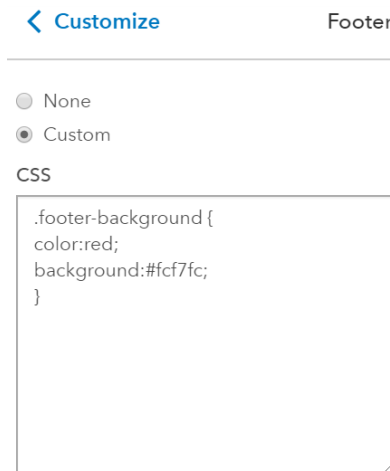
In the code view window, you can see the html code behind the footer element. You can customize the footer layout by modifying the html code. Copy and paste to replace the existing code in the window with the following block of html code:


```

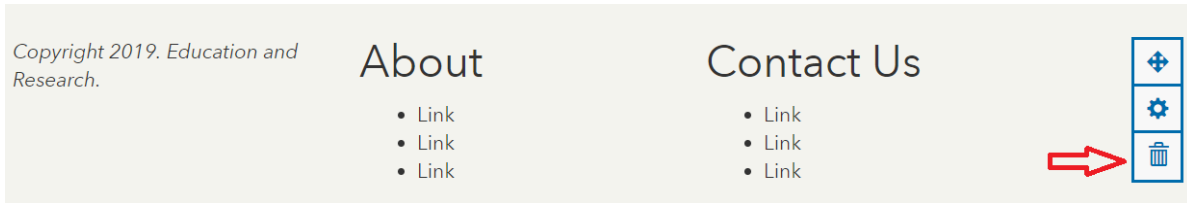
<div class="footer-background">
  <div class="container">
    <div class="col-xs-12">
      
    </div>
    <div class="col-xs-12 center-block">
      <ul class="nav nav-pills">
        <li role="presentation"><a href="https://esri.ca/en/communication/preferences">Email Preferences</a></li>
        <li role="presentation"><a href="https://esri.ca/en/legal">Legal</a></li>
        <li role="presentation"><a href="https://esri.ca/en/privacy">Privacy</a></li>
        <li role="presentation"><a href="https://esri.ca/en/accessibility">Accessibility</a></li>
      </ul>
    </div>
    <div class="col-xs-12">
      <div class="text-center">© 2019 Esri Canada. All Rights Reserved.</div>
    </div>
  </div>
</div>




```

5. Click **Settings** button to close the Settings panel.
6. In the **Footer** panel on the left, type the following code in the CSS container to style the footer element.



7. Click **Save** at the top-right to save the changes.
- Note: you can click **View** at the top-right at any stage of the tutorial to view your Hub Site.
8. On the edit page, hover your mouse over the division above the footer and click the trash icon  to remove the section from your site.



Note: when you hover the mouse over each element, a menu including three options appears, like the above capture. By clicking , you can drag the element to a new position on the page. By clicking , the customize panel for that element will open to let you modify the element properties and style. By clicking , the element will be removed from your Hub Site.

Part D.4: Theme

From theme you can customize the background colour, text color, link color, and font type of different elements on the Hub Site.

1. From the **Customize** panel, click **Theme**.
2. Change the **Global Nav Background Color** and **Global Nav Text Color** to `#bde7ee` and `#470707`, respectively.
3. Change Button Background Colour and Button Text Colour to `#bbbbbb` and `#e1ede1`, respectively.
4. Click **Save** and then refresh the View page if you have it open on a separate browser tab; otherwise click **View** to see the changes you made to the site.

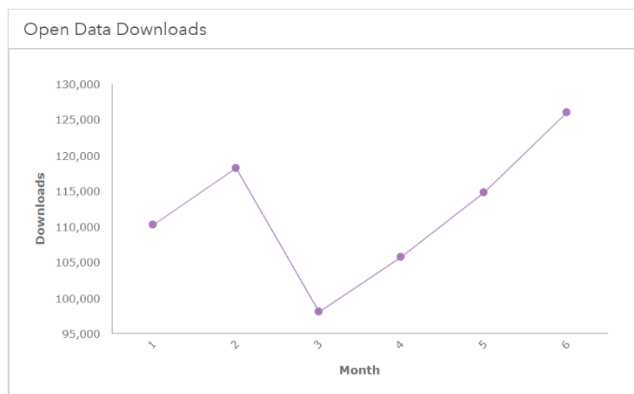
Part D.5: Layout

From layout, you can add different elements or cards to your Hub Site.

1. Navigate to **Layout** from the **Customize** panel.
2. Drag and drop a new **Row** below the **Cross-Functional Events** section.
3. Drag and drop a **Chart** and a **Text** card in the row.
4. Open the **Settings** panel for **Chart** card and select **Line Chart** as the chart type.
5. Select the data that the chart card is intended to display by clicking **Find an Item** button.
6. In **Choose Category Attribute**, select the variable rendered on X axis.
7. In **Choose Value Attribute**, select the type of aggregation (count, minimum, maximum, sum, or average) and the variable rendered on Y axis.
8. From **Options**, select the **Sort** field and the direction of the order.


- Click **Settings** button for the **Text** card and write a brief description of what the chart is representing.

For example, the screen capture shown below uses synthetic data to visualize the monthly downloads from the Hub Site for the first half of 2019.



This chart shows monthly downloads from the site for the first half of the 2019 calendar year.

Part E: Customizing the body of Hub Site

- Click  by hovering your mouse over the banner to open the **Banner Settings**.




- Type "Sample Open Data Site" in the **Headline** box on the left.
- Expand the **Search** section and check the box next to **Show Searchbar**.
- Type "Search for Open Data" in the **Search Placeholder Text** box.
- Expand the **Background Image** section and change the image by either providing the URL for a hosted image or browsing to an image on your machine.

6. Scroll to the section that contains **Find Data** search box and remove the search box by hovering your mouse over the element and click the trash icon.
7. Click the **Settings** icon by hovering your mouse over **Explore your data** and then click **Code View**.
8. Replace the existing code with the following code to update the header.

```
<h2 class="text-center">Find data by category</h2>
```

9. Click the **Settings** icon for **Agriculture** category.
10. Change the **Link Text** to *Utilities* in the **Category Settings** panel.
11. In the **Icon** section, select **Choose from Library** and click **Pick an Icon**.

12. Select a meaningful icon from the list of icons (for example utility1 )

13. Type `#005cff` for the icon background color.

14. Find the **Query** section under the **Category Settings**.

Note: as mentioned earlier in this tutorial, the data on the Hub Site comes from ArcGIS Online groups that have been made available for open data and have access to your site (see **Part B**).

You can set the query for each category in two ways. First, the category returns all data that have a tag matching the keyword you typed in the **Tag Query** box. Second, the category returns all data shared to the selected group from the **Groups** dropdown list. Therefore, before setting the Query section, you need to configure proper groups and publish relevant items with proper tags.

15. Select **Use Tag Query** and type *Utilities* as the keyword in the **Tag Query** box.

16. **Save** your work and then click **View**.

17. Click the **Utilities** category you just configured to test it.

You can see all datasets with the *Utilities* tag will be returned. If there is no match, you will see a “*No results here yet*” message.


Customize all categories similar to what you did for the utilities. You can remove categories by clicking the trash icon. If you need more categories than the existing ones, complete the following steps:


18. Under **Customize** panel, click **Layout**.
19. From the list of elements find **Category**. Drag a Category card on your page and drop it at any position you like.
20. Hover your mouse over the newly added **Category** and click **Settings** icon.
21. In the **Category Settings** panel, modify the card setting as the picture below.

Category Settings

Link Text

Query


Use Tag Query 

Use Group 


Tag Query


Icon

Choose from Library

Provide URL for Your Own 

[Pick an Icon](#)





22. Click **Save**.

23. If you are happy with the existing categories, scroll down to the **Applications** section and click **Code View**.

For this section, you can remove, add, or modify cards from the code view. Remove a card by deleting the corresponding code, add a card by adding a div element, and modify a card by changing the html properties.

24. Remove the **Local Perspective** and **Ops Dashboard** cards by deleting their corresponding code in the Code View window.

25. Change the **Story Maps** card name to Bike Maps and update its associated link.

```
<h4><a href="https://www.fixmystreet.com">Fix My Street</a></h4>
```

26. Delete the `<a>` tag for View to remove the **View** button, and replace the `#` signs for the `href` property of **Details** with an appropriate URL.

```
<a class="btn btn-default" href="https://www.fixmystreet.com/faq">Details</a>
```

```
<a class="btn btn-primary" href="#">View</a> → Delete
```

27. Update the card image by modifying the `src` property for an `img` tag. The `src` property must be set to the URL to a hosted image.

```

```

28. Click **Save** and **View** your Hub Site.

You can modify the **Unlock the Data**, **Data Narratives**, **Connect to your data's API**, and **Cross-Functional Events** sections in the same way you modified the **Applications** section.

ArcGIS Hub is an easy-to-configure Esri platform for sharing content with your community. This tutorial introduced you to how to enable and configure ArcGIS Hub on your ArcGIS Online organization account. Moreover, you learned how to create and customize an ArcGIS Hub Site. In the next tutorial you will learn how to post data on a Hub Site, how to discover data by keywords, and how to download data from a Hub Site.

<https://hed.esri.ca>



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