



September 2023

# Extend the Reach of Your GIS

ArcGIS Online tips and best practices



# Contents

Introduction

Chapter 1: Establish the vision and governance

Chapter 2: Create a great destination

Chapter 3: Establish your brand

Chapter 4: Member types, roles, and privileges

Chapter 5: Tune your organization

Chapter 6: Use groups

Chapter 7: Member best practices

Chapter 8: Use ArcGIS Living Atlas of the World

Chapter 9: Turn data into information

Chapter 10: Work with hosted feature layers

Chapter 11: Perform analysis

Chapter 12: Create apps from maps

Chapter 13: Keep moving forward

# Introduction

This guide presents a stepwise framework for rapidly configuring and implementing ArcGIS Online using best practices. Learn how to implement your cloud GIS for delivering intelligent maps, apps, and analytics and how to share them with key users throughout your organization and beyond. Learn how to turn data into actionable information and streamline your workflows. Whether you've already added your GIS to the cloud or are just beginning to think about it, you'll explore how to leverage the cloud to your best possible advantage and experience.

The topics in this guide include the following:

- Governance
- Home page
- Creating your brand
- Setting things up for success
- Tips for tuning your organization
- Groups
- Member best practices
- Authoring maps
- Feature layers
- ArcGIS Online analysis
- Information products—apps and more
- Keeping your organization moving forward

*For the most up-to-date version of this book, visit [go.esri.com/extend](https://go.esri.com/extend).*

# Chapter 1: Establish the vision and governance

*Understand your road map to success and what success means.*

It is recommended that you plan and meet with your team as you think about adding your organization to the cloud. To start, ask the following questions:

- Who is the champion—the person (or people) with the vision?
- Who are the other stakeholders within the organization it should serve?
- What is the vision, mission, and purpose?
- What workflows will it support?
- What problems will it solve?
- How will it improve or enhance the organization's capabilities?
- What are the deliverables?
- What are the measures of success?

It's important to think about these questions since the answers will guide your decisions and how you will frame your organization.

Consider forming a governance committee of stakeholders. The governance committee should meet regularly as the organization unfolds and evolves.

Test methods and workflows before rolling them out across your organization and then implement the successful patterns.

Establish and document procedures and guidelines, such as what a good user profile should contain, how to author and publish maps and layers, and required item details and other documentation.

Be flexible, adapt, and evolve. As your organization grows in the number of members, tasks, and workflows it supports, adjustments will be needed along the way.

Communicate your successes and what is new on your organization's site to help others understand the value of the organization and encourage them to participate. Take advantage of internal organization communication capabilities to notify members of your organization of any changes or updates.

Always look for and mentor new champions of the organization. The initial champions might be dedicated to the success of the organization, but as they move on, it's important to have someone that can jump in without missing a beat.

## Administration

The administrator is in control of the organization and has privileges that allow configuring the organization and managing members and content. An organization must have at least one administrator; however, there is no limit to the number of administrator roles that can be assigned within an organization. It is recommended that an organization have at least two administrators.

Select one or more administrators to be responsible for the organization. For larger organizations, custom roles can be used to allocate certain administrative tasks to other members.

### Tips and best practices

- Establish a curator or group of curators to manage the organization.
- Identify one or more organization administrators. You can divvy up the administration tasks across several administrators if desired using custom roles.
- Prototype and test various methods and scenarios before rolling them out across the organization.
- Establish procedures and guidelines for administration, group owners, and members.

- Be flexible, adapt, and evolve as your organization evolves.
- Communicate early and often, especially among stakeholders.
- Look for and mentor new administrators and managers.

## Establish best practice guidelines

Early on, before your organization has lots of members and lots of content, establish guidelines for best practices. These guidelines can cover what a member profile should look like, proper item documentation (including tags or categories), and which apps and basemaps are preferred.

This information can be stored in a document that you should review and update from time to time. The document can be added to your organization and shared with members for reference where it is only visible after members sign in—for example, on your organization home page. Additionally, you can author template items and groups showing the best practices for descriptions and documentation. These can also include any template text or terms of use that should be included in publicly shared items.

### Learn more

- [ArcGIS Online Implementation Guide](#) (PDF)
- [Get started with administration](#) (Help)
- [User types, roles, and privileges](#) (Help)
- [Administer your ArcGIS Online organization](#) (Tutorial)
- [Set up an ArcGIS organization](#) (Tutorial)

# Chapter 2: Create a great destination

*Build your dream home.*

Your organization home page is the first thing that visitors and organization members will see. Your home page's appearance and content will create first impressions. These first impressions are not just about your GIS organization but also about the quality and veracity of what visitors will find there.

People do judge books by their covers, so it's important to have a professional, aesthetically appealing, and well-organized home page, whether you're exposing it only within your organization or to a wider audience.

The examples shown in the following section are attractive sites and provide an impression of professionalism, backed up by content that you can trust.

## Beyond home page aesthetics

While the aesthetics are important, success is about more than just cosmetics. It's about how the site works and what it offers visitors.

The home page can deliver helpful resources and content for organization members and public visitors. You can configure a modern and professional-looking home page that reflects your organization's branding and mission and showcases the maps, scenes, apps, and layers that are most important to your community.

Pay attention to the anonymous and signed-in experience for the featured gallery and the Gallery and Group tabs across the top of the page. Avoid barriers such as requiring visitors to sign in when they open content they find on your home page.

You can add links and documents, such as your ArcGIS Hub sites, ArcGIS Open Data sites, your city website, learning resources, and more.

You can use sharing to control what visitors to your home page see—the public can see publicly shared items, but only after signing in can members see organization or group-only shared items.

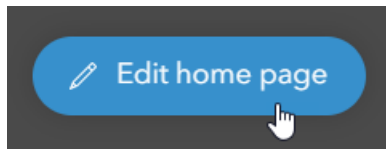
## Tips and best practices

- Add your home page as a document item, making your home page discoverable within ArcGIS Online.
- Use sharing levels to reveal different content to different visitors.
- Consider verifying your organization to expose authoritative content badges for publicly shared items in ArcGIS Online.

## Home page editor

The home page editor is designed to facilitate the creation of a secure and responsive experience across all devices. It includes a flexible set of components and options that allow you to create a unique and compelling entry point to your site. As you configure your page using the home page editor, a live preview of your design choices helps you achieve the look and functionality you want.

If you have privileges to edit your home page, you will automatically see an edit button on the home page after you sign in.



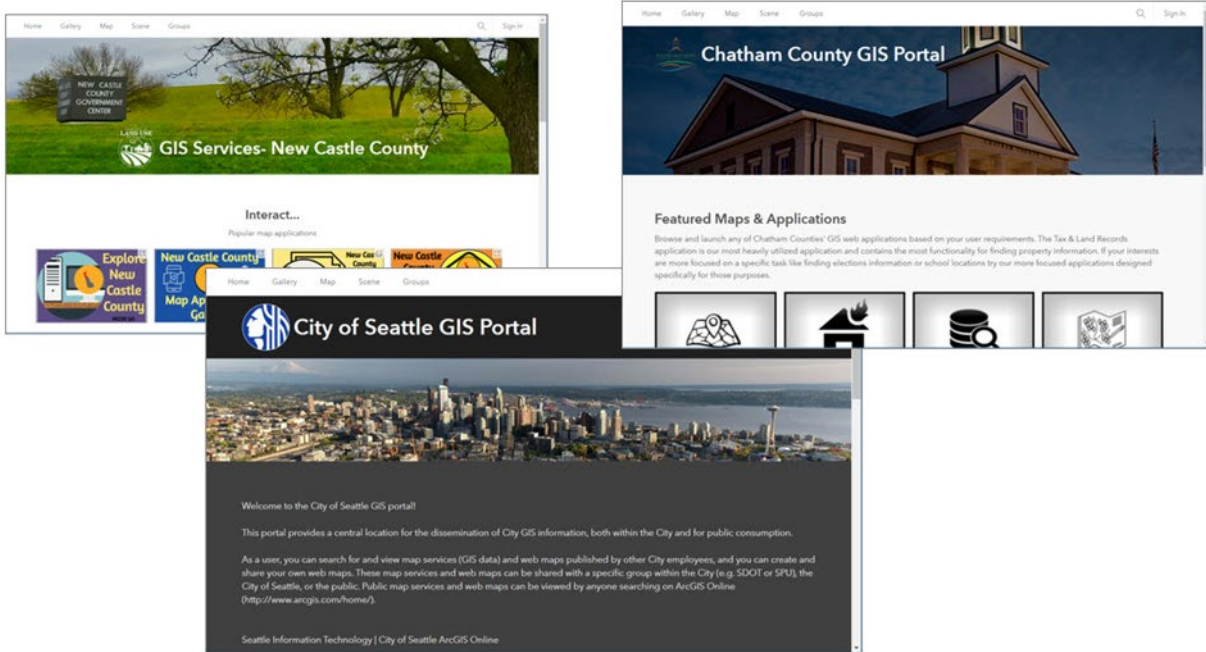
Use the editor to design your header, content blocks, and footer, and select colors and typography to suit your overall aesthetics.

The home page editor allows you to create a home page that has the following characteristics:

- Responsive and works across devices
- Accessible, without barriers that prevent interaction
- Secure so that it isn't susceptible to malicious attacks



Below are examples of home pages created with the home page editor.

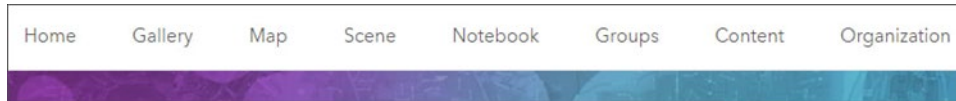


## Tips and best practices

- Remember to explore your home page as an anonymous visitor and also after you sign in to your account.
- Review home page content from time to time to make sure it's up to date.
- Consider adding a regularly updated collection of resources that will entice visitors and organization members alike.

## Home page visibility settings

Using the [page visibility settings](#), organizations can specify navigation bar access (tab visibility) for the main website pages. These tabs are seen across the top of the organization home page: **Gallery**, **Map**, **Scene**, and **Groups**.



**Home** is always visible to everyone, **Content** is always visible to members, and member roles determine **Organization** and **Notebook** visibility.

These settings allow administrators to provide a more customized experience for visitors. For example, administrators can make the **Groups** tab visible for organization members only or for everyone who visits the site. For more information, see [Navigation bar](#) or [Declutter your organization's Navigation bar](#).

### Tips and best practices

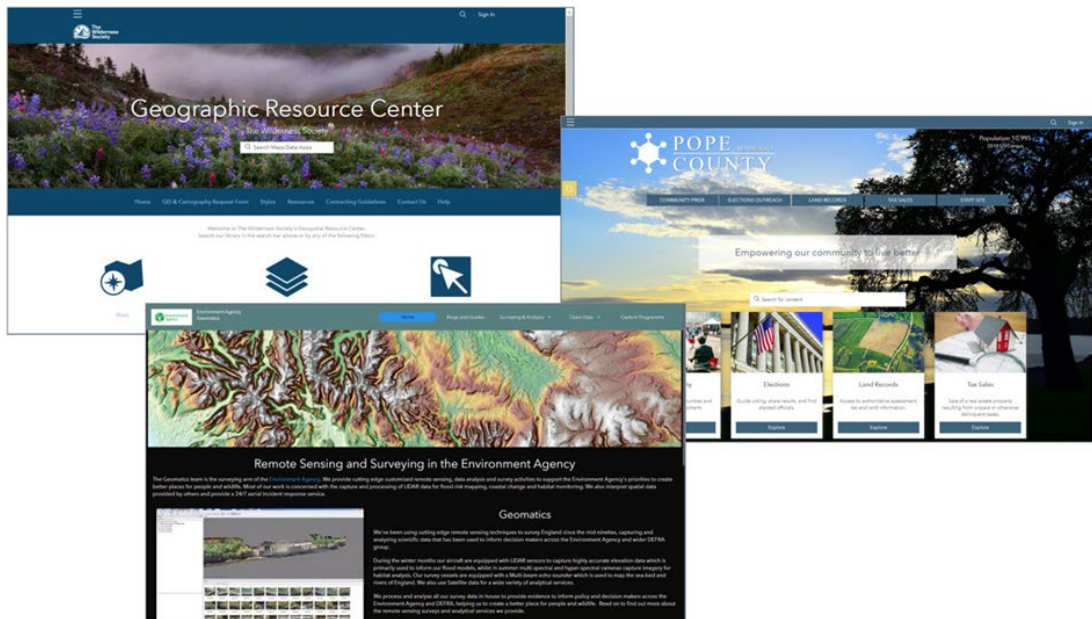
- Use page visibility settings to control tab visibility for different types of visitors.
- Configure the **Gallery** and **Groups** tabs to showcase your best content.

## Other destinations

While you can make your home page your primary destination, you can create other destinations. It's up to you how many of these you need, depending on how you can best serve the varying audiences you want to reach. Other options include [ArcGIS Hub](#) (recommended) and [ArcGIS Experience Builder](#) sites.

Hub Basic is included with every ArcGIS Online organization and allows you to create compelling, focused destinations for your audience. For more information, see [A quick start guide to ArcGIS Hub Basic](#) (Blog).

Hub Premium offers additional capabilities, such as creating and managing initiatives, community engagement, and private communications. Both Hub Basic and Hub Premium allow you to create Open Data sites that provide broad access to your data in a variety of formats.



Group-based galleries and ArcGIS StoryMaps collections can also be thought of as micro destinations. However, groups and collections are recommended as resources within your organization or components of your home page or other destinations like hubs.

When implementing multiple destinations, a good practice is to crosslink them, providing opportunities to discover all of them. For example, include a link to your ArcGIS Hub site from your home page, and vice versa.

## Tips and best practices

- Know your target audience and focus on what you want to deliver.
- Consider implementing more than one destination.
- Crosslink destinations and consider adopting a uniform look and feel.

## Examples

Explore these home pages and decide what you like and what you don't. Consider your experience as you click the featured content, visit links, and explore the Gallery and Groups tabs. Do you like what you see? Is it useful? Is it well-crafted and curated?

Example organization home pages:

- [Africa GeoPortal](#)
- [Faribault County, Minnesota](#)
- [Chatham County GIS Portal](#)
- [North Carolina Department of Transportation \(NCDOT\)](#)

## Tips and best practices

- Consider the experiences of visitors and members of your organization viewing your home page.
- Crosslink additional destinations.
- Organize home page content into groups for maintenance and editing.

## Learn more

- [Create a great home page for your organization](#) (Blog)
- [Configure your home page navigation bar and galleries](#) (Blog)
- [Best practices for creating an organization home page](#) (Help)
- [Configure home page](#) (Help)
- [Configure gallery](#) (Help)
- [Set up an ArcGIS organization](#) (Tutorial)

# Chapter 3: Establish your brand

*Communicate a recognizable identity.*

A brand is an identifiable symbol or portrayal of who you are, and what you represent. It provides immediate recognition of your organization and the work you do.

An organization's brand has the following characteristics:

- Unique design, symbols, words, or a combination thereof that can be quickly identified, for example, in a thumbnail or user profile.
- Identifies a product—in this case, your maps, apps, and layers—and differentiates it from others.
- Your brand becomes associated with a level of credibility, quality, and satisfaction in the consumer's mind.

## Organization branding

A successful brand becomes associated with a level of credibility and quality. If you found two items of interest—one from a well-known source and another from someone you can't identify—which would you think to use first?

Organization branding can take many forms. For example, a user in Utah would know that the Utah Automated Geographic Reference Center (AGRC) is the statewide source for foundational content. Yet, if you were just seeking authoritative content for Utah but not from there, you might not know that. So how can you judge the veracity of what you find in search results?

Look for the Authoritative badge (more on that later). But otherwise, it's judged by appearance and by the profile. Without other credentials, these are the clues that lead users to trusted content.

A professional look for the item thumbnail, item details, user profile, and home page adds assurance the associated content is professionally prepared, represents quality, and is authoritative.


## Tips and best practices

- Be visual (emphasize a visual element) and visually consistent when establishing a brand.
- Establish standard conventions for item documentation.
- Establish some form of governance to ensure what you publish for public consumption meets your standards.
- Demonstrate value. Ensure your content is well crafted with best practices (pop-ups, styles, scale dependencies, and so on).

## Organization profile

Consider creating a unique profile for public content that represents your organization. As organization members complete their maps, apps, and layers, they can be vetted and reviewed for good thumbnails, item summaries, and item descriptions and transferred by an administrator to the profile representing the organization.

Shown below, City\_of\_Minneapolis is a profile representing Minneapolis GIS. Note that the profile bio clearly states this is an official account and provides contact information. The profile image also matches the thumbnail branding. All of this provides an indication of professionalism and content you can trust.




**Neighborhoods**

Feature Layer by City\_of\_Minneapolis

City of Minneapolis Neighborhood boundaries.

Last Updated: Dec 2, 2015 Created: Jun 28, 2012

★ ★ ★ ★ ★ (ratings: 0) views: 206876




**City Boundary**

Feature Layer by City\_of\_Minneapolis

The official boundary of the City of Minneapolis.

Last Updated: Nov 21, 2016 Created: Mar 9, 2012

★ ★ ★ ★ ★ (ratings: 0) views: 243551




**Minneapolis GIS**  
City\_of\_Minneapolis

**Bio**

This is the official City of Minneapolis account. Data published from this account is maintained by City of Minneapolis Employees and published by the City of Minneapolis GIS Team. The City of Minneapolis GIS office can be reached by phone at (612) 673-2431 or by email at [gis@minneapolismn.gov](mailto:gis@minneapolismn.gov).

Below is another example of a good profile. When viewing a profile, both items and groups are discovered and displayed. This means that you must make sure that what is exposed is up to best practices standards. This collection shows consistent branding.




**Michigan DNR**  
MichiganDNR

**Bio**


Welcome to the official Michigan Department of Natural Resources ArcGIS Online page! The Michigan Department of Natural Resources is committed to the conservation, protection, management, use and enjoyment of the state's natural and cultural resources for current and future generations. For more information, go to [www.michigan.gov/dnr](http://www.michigan.gov/dnr). Follow us on Facebook for the latest DNR news, photos and answers to all of your questions or by following us on Twitter at [www.twitter.com/michiganDNR](https://twitter.com/michiganDNR) or [www.twitter.com/michiganDNR\\_UP](https://twitter.com/michiganDNR_UP)

**Public items** [View all](#)


Top items based on relevance.




**Michigan's Trout Trails**  
Web Map




**GIS Layer**  
Michigan Department of Natural Resources  
Counties with Labels  
Feature Layer




**Open Data GIS Layer**  
Michigan Department of Natural Resources  
Michigan DNR Designated ORV Routes  
Feature Layer



**Open Data GIS Layer**  
Michigan Department of Natural Resources  
Michigan DNR Designated ATV Trails  
Feature Layer

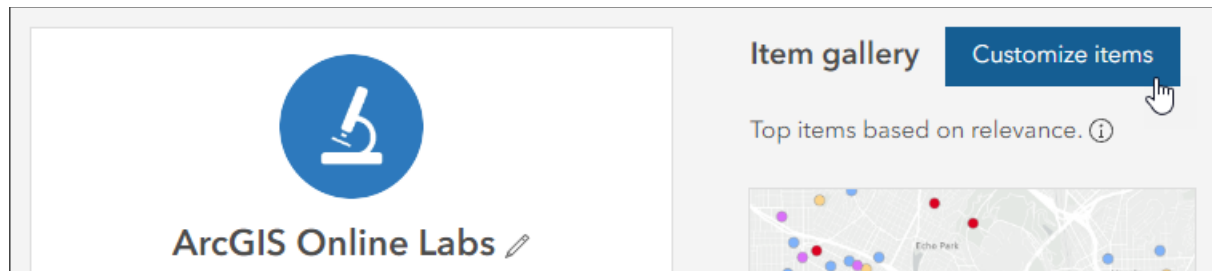


**Open Data GIS Layer**  
Michigan Department of Natural Resources  
Michigan DNR Designated Motorcyc...  
Feature Layer



**Open Data GIS Layer**  
Michigan Department of Natural Resources  
Michigan DNR Designated MCCCT T...  
Feature Layer

By default, items in the profile are the top items displayed by relevance. A better approach is to customize the items that are displayed, showcasing your best work.



## Tips and best practices

- Keep profile bios to a reasonable size but ensure that essential information about the organization is presented.
- Add links and contact information, including social media accounts, as appropriate.
- Ensure that all items associated with the profile (including groups) demonstrate best practices.
- Customize the items shown with your profile to feature your best work, rather than default to items based on relevance.

## Learn more

- [Manage profile and settings](#) (Help)
- [Create a great profile](#) (Blog)
- [Customize your profile item gallery](#) (Blog)

## Thumbnails

Over the years, the conventional wisdom about what makes for a good thumbnail has evolved. Esri used to provide solution templates to create organization-branded thumbnails that included text to describe the item type and audience.



Today, less text is considered better, and so are easy-to-recognize graphics rather than small logos that are difficult to read. These practices ensure readability across all the sizes at which thumbnails are displayed within ArcGIS Online and how they appear on devices.

If you created items a long time ago, capture new thumbnails using the thumbnail editor. Be sure to update to the new size standard. The size used to be 200 x 133 pixels; now it is 600 x 400 pixels.

## Tips and best practices

- Less text is better.
- Displaying the item type is not essential and may not be needed.
- Simple and bold thumbnails are better than complicated and subtle.
- For best results, always use a PNG file, not a JPEG or GIF, when creating custom thumbnails.
- Update any old thumbnails to current size (600 x 400 pixels) and style standards.

## Learn more

- [Item details](#) (Help)
- [Create a thumbnail style and brand](#) (Blog)

## Content status

Content can be designated as authoritative or deprecated within your organization. This status can be searched, making the content you mark as authoritative more discoverable. Assigning authoritative status also pushes it up in the search rankings.

Authoritative designations are only discoverable within your organization, not externally, until you take the next step (described in the next section).

Designating content as deprecated pushes it to the bottom of search rankings. It can be used when you need to keep content around to support apps but want to steer users toward replacement content.

## Tips and best practices

- Items can be designated authoritative or deprecated.
- Members can filter items by status.

## Learn more



[Designate items as authoritative](#) (Help)

## Public authoritative content badge

To display an authoritative badge on public items, you can go through the process of organization verification. [Verified organizations](#) have requested that Esri validate their identity. Organizations that are verified by Esri can designate public items they share as authoritative.

Designating public items as authoritative allows others inside and outside your organization to find reliable, up-to-date content. These items are also boosted in search results and are returned when the authoritative Status filter is applied.

When public items are designated as authoritative, they are identified with an authoritative badge and the name of the organization as the item owner.




Cal OES


Geopolitical Boundaries

★ Add to Favorites

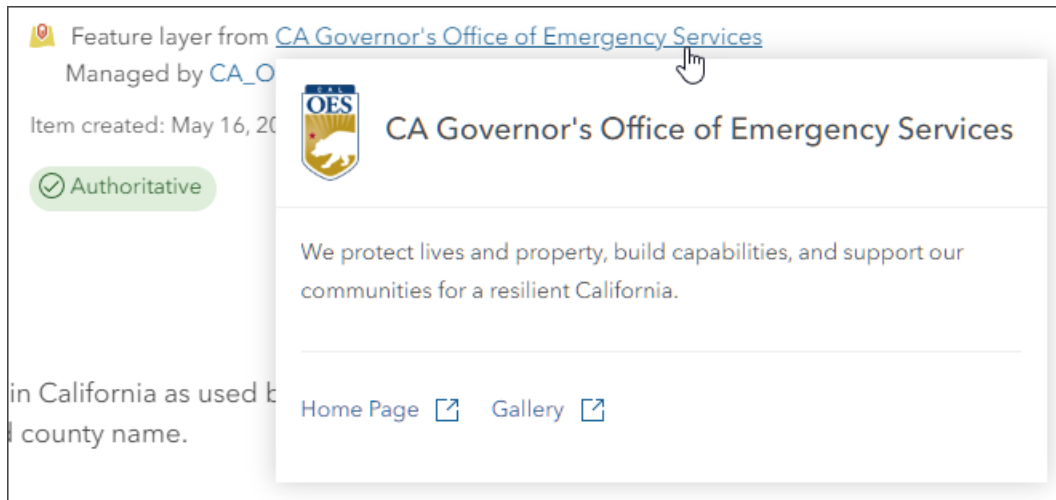
Feature layer of the Counties in the Southern California Catastrophic Earthquake Plan region, for use by Cal OES. Included is the CalOES Region and Mutual Aid Region Information.

 Feature layer from [CA Governor's Office of Emergency Services](#)  
Managed by [CA\\_Office\\_of\\_Emergency\\_Services\\_GIS](#)

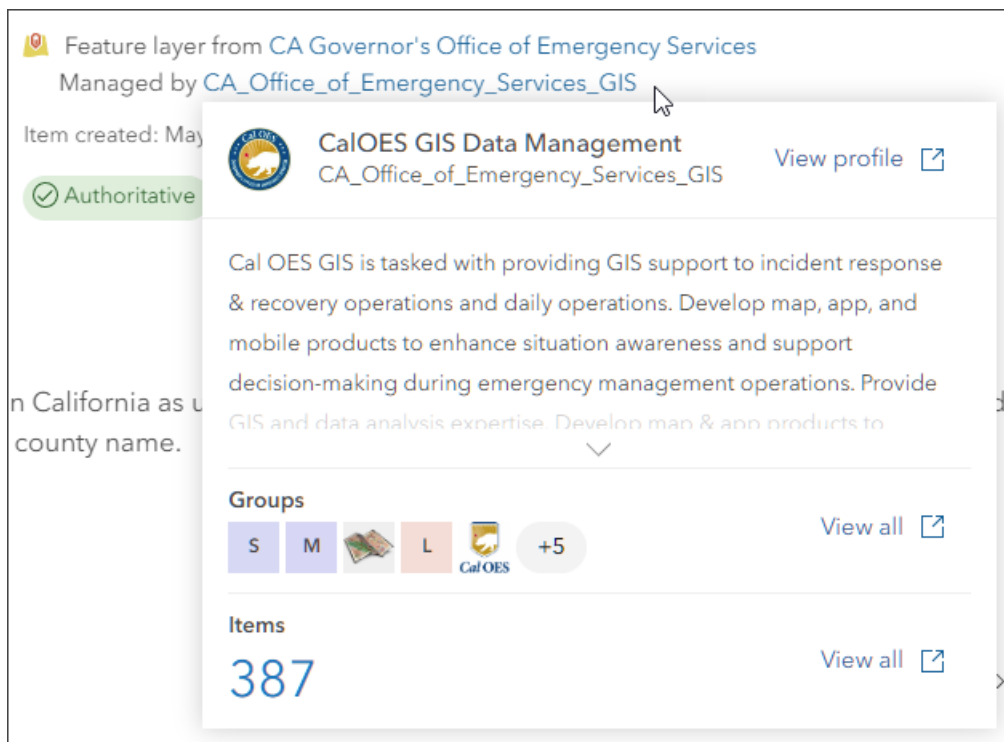
Item created: May 16, 2018   Item updated: Jan 17, 2023   View count: 7,683,328

 Authoritative

Once you verify your organization, the item owner link will display a pop-up with information about your organization and links to its gallery and home pages. To ensure the best impression, make sure your gallery and home are configured.



The item will also include Managed by, a link that points to the organization profile of the item owner or curator. For the best impression, ensure that best practices for the Managed by profiles are also applied.



The administrative setting to verify your organization is found in the **Organization verification** section under **General** in your organization settings. For more information, see [Organization verification](#) (Help).

### Organization verification

Organizations verified by Esri can designate items they have shared with everyone (public) as authoritative. They are also boosted in search results and are returned when the Authoritative Status filter is applied. [Learn more about organization verification](#)

Verify organization

## Tips and best practices

- To display a public badge for your authoritative items, verify your organization.
- Remember that your organization home page and gallery will be included as links on your card. These should be well-crafted.
- Managed by profiles should also be well-crafted.

## Examples

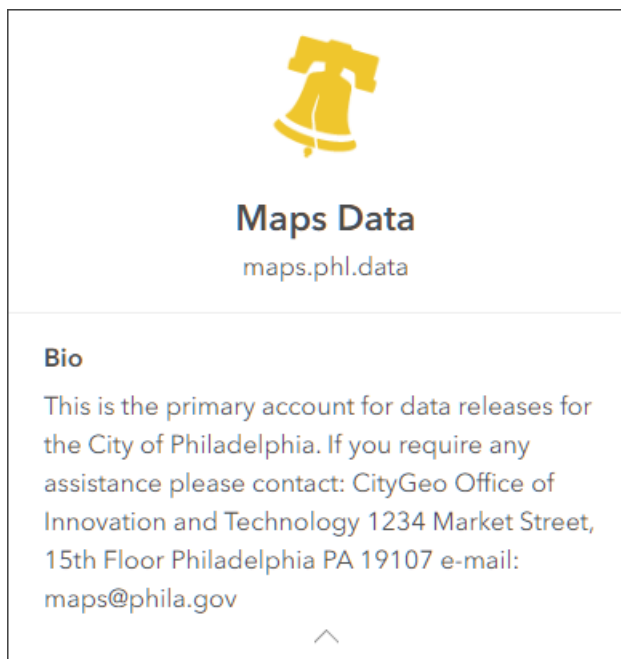
### Organization branding and profile

The City of Philadelphia is a good example of both branding and the use of an organizational profile.

The Liberty Bell logo and color scheme are carried throughout their content, providing a recognizable brand. The consistent thumbnails contribute to an impression of curation and authoritative information.



Note the contact information in the profile bio.






## Verified organizations


The Iowa Department of Transportation (DOT) is an example of an organization that has been verified and now displays the authoritative badge on its public authoritative content. The authoritative designation also places these at the top of the rankings.

## Snow Plow Truck Location AVL (Iowa DOT)

Active Iowa DOT Winter Operations Vehicles


 Feature Layer
 | Last edited: Jul 1, 2020
 |  Authoritative




[Iowa Department of Transportation](#)

[Open in Map Viewer](#)
...

Click the owner profile. The bio explains who they are, and the profile card includes links to the home page and gallery.



### Iowa Department of Transpor...

Item managed by: IowaDOT\_SODA

The Iowa DOT is committed to providing the traveling public, lawmakers and partners with easy to understand information that demonstrates how we are managing the state's transportation infrastructure. We are working hard...

[Expand](#)

Home page

Gallery

# Chapter 4: Member types, roles, and privileges

*Empower your members with the tools and capabilities they need.*

Organizations are composed of many users with different duties, responsibilities, skills, and tasks. Organization members also use different apps—from ArcGIS Pro to apps used in the field. The ability of individual organization members to access and work with apps and content in different ways depends on the types, roles, and privileges they have in the organization.

## User types

User types determine member privileges and access to apps. They allow you to control how your organization works by matching members' activities and responsibilities with the capabilities, apps, and app bundles they need to complete their work. Members are assigned a user type when they are invited into the organization.

A user type is composed of the following:

- **Identity**—Your unique username and password allow you to access capabilities, apps, and content others share with you.
- **Capabilities**—What you can do within ArcGIS Online or ArcGIS Enterprise, for example, create, edit, or view content.
- **Apps**—Software that you can use in conjunction with ArcGIS Online and ArcGIS Enterprise.

User types are as follows:

- **Viewer**—Viewers can view items that are shared with them by other ArcGIS users, which is ideal for members who need to view ArcGIS content in a secure environment.

- **Editor**—Editors can view and edit data in ArcGIS maps and apps that are shared with them by other ArcGIS users. This type is ideal for users who need to access and edit data that is shared with them.
- **Mobile Worker**—Mobile Workers can view and edit data that has been shared with them by other ArcGIS users, which is ideal for users who primarily interact with ArcGIS content through field apps.
- **Creator**—Creators can create and edit content such as maps and apps, perform spatial analysis using the analysis tools in ArcGIS Online, collect data, and collaborate and share content for use in apps.
- **GIS Professional**—GIS Professionals can build advanced 2D and 3D maps, visualizations, and analyses using ArcGIS Pro (basic, standard, and advanced)
- **Insights Analyst**—Insights Analysts have all the capabilities required to use ArcGIS Insights, including creating and sharing content and performing analysis.

Assign user types based on the members' needs. For example, Creators have access to all the capabilities in ArcGIS Online and most of the apps. Viewers can only view items that are shared with them and have access to a small collection of apps.

## User roles

A role defines the set of privileges assigned to a member. Privileges are assigned to members through a default role or a custom role. Members are assigned a role when they are invited to the organization. You can use default roles or create custom roles. Roles are managed in the Member roles section in the organization's settings.

### Default roles

ArcGIS Online defines a set of privileges for each of the following default roles:

- Viewers consume the resources of the organization. They can use the organization's maps and apps to explore data and join groups to access content shared to the groups.
- Data Editors have Viewer privileges, plus the ability to edit features.



- Users can create maps, add items, share content, and create groups.
- Publishers have User privileges, plus the ability to publish their features and map tiles as hosted web layers. They can also perform analysis on layers in maps.
- Facilitators have Publisher privileges, plus the ability to create and manage [partnered collaborations](#).
- Administrators have Publisher privileges, plus additional capabilities to manage the organization and other members. An organization must have at least one administrator.

## Custom roles

In addition to using default roles, you can also create custom roles. Default administrators and those with the appropriate privileges can configure custom roles to add control and flexibility to the default roles in an organization. For example, you may have members who need to publish hosted feature layers but not hosted tile layers. Or you may want members to have the same privileges as the default Publisher role but without allowing them to use GeoEnrichment.

When you create a new role, you first assign a name and description. Then you can assign privileges. Privileges are grouped in categories and subcategories and can be individually turned on or off.

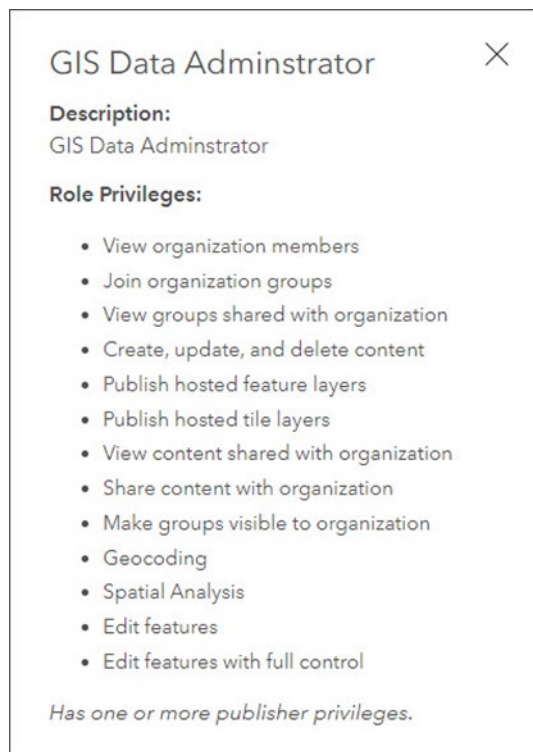
Content Enabled: 4/7 [Enable all](#)

|   |                                     |
|---|-------------------------------------|
| Create, update, and delete  | <input checked="" type="checkbox"/> |
| Allow member to create, edit, and delete their own content.                   |                                     |
| Publish hosted feature layers   | <input checked="" type="checkbox"/> |
| Allow member to publish hosted feature layers from shapefiles, CSVs, etc.     |                                     |
| Publish hosted tile layers  | <input type="checkbox"/>            |
| Allow member to publish hosted tile layers from tile packages, features, etc. |                                     |
| Publish hosted scene layers   | <input type="checkbox"/>            |
| Allow member to publish hosted scene layers.                                  |                                     |

Characteristics of roles include the following:

- You can use default roles or create custom roles.
- Custom roles are based on templates.
- Custom roles can be created by an administrator or by those with appropriate privileges.
- Custom roles can include custom administration settings to offload organization management tasks.
- Default and custom roles are set in the Member roles section in your organization settings.

Administrators can view the privileges for any role by viewing the role card. The following is an example of the privileges enabled for a custom GIS Data Administrator role.



## New member defaults

In the New member defaults section of your organization settings, you can specify the default user type and role, add-on licenses, group membership, and more.

New member defaults allow you to specify the following when adding or inviting new members:

- User type and role
- Add-on licenses
- Groups membership
- Member categories
- Credit allocation
- Esri access (use of My Esri for training, community participation, blog comments, and Esri mail communications)

New member defaults can be overridden during the member invitation process or later if necessary.

## Tips and best practices

- Custom roles are helpful to fine-tune member capabilities and access.
- Save any custom role that you have defined and apply the same privileges to other members.
- Don't go overboard with custom roles; create essential ones that are easily managed and understood.
- Distribute administrative tasks using custom roles.
- Consider obtaining an [Enterprise Agreement](#) (EA) to eliminate thinking too hard about roles, privileges, and apps and to provide the greatest flexibility as your organization grows.

## Learn more

- [User types: Building blocks of organizations](#) (Website)
- [User types, roles, and privileges](#) (Help)
- [Configure member roles](#) (Help)
- [Configure new member defaults](#) (Help)
- [ArcGIS Online Pricing](#) (Website)  
(includes detailed descriptions of what's included with each user type)

# Chapter 5: Tune your organization

*Set your organization and members up for success.*

You can fine-tune your organization settings to configure the appearance of the home page, the Gallery and Groups tabs, the basemap gallery, member roles, security, collaborations, and much more. Collectively, these factor into the success of your members and the entire organization.

## Organization settings

Your entire organization—your ArcGIS Online website—can be managed by the administrator through a series of settings organized by topic. These settings are the core framework for your organization.

To access these settings, click **Organization** and click **Settings**. Organization settings are organized as follows:

**General**—Includes organization defaults, such as region, language and extent, plus administrative contacts, navigation bar visibility, and so on.

**Home page**—Access the home page editor.

**Gallery**—Choose the group that populates the home page **Gallery** tab.

**Map**—Map defaults, basemap gallery, and so on.

**Items**—Turn on and off comments, metadata, and related item search. Configure organization categories.

**Groups**—Manage groups displayed on the featured groups tab.

**Utility services**—Configure geocoding locators, printing, geoenrichment, directions, and routing.

**Member roles**—Create, edit, and manage member roles.

**New member defaults**—Establish essential default setting for new members.

**Marketplace**—Control ArcGIS Marketplace purchases.

**Collaborations**—Create and manage partnered and distributed collaborations.

**Credits**—Manage credit budgeting for members.

**Security**—Manage policies for access and permissions, logins, and passwords, and set organization notifications.

**Open Data**—Enable and manage open data resources.

**Hub**—Manage your sites and initiatives.

**Organization extensions**—Manage organization-wide extensions, such as location sharing.

## **Tips and best practices**

Take a tour of the available tabs and options and explore what's possible before you implement it.

The following sections take a closer look at key settings that you may want to consider.

## General settings

### **Organization profile**

Set your organization name and logo in this section.

### **Organization verification**

Organizations verified by Esri can designate items they have shared publicly as authoritative. These items will display an authoritative badge, can be filtered, and will be boosted in search results.

## Administrative contacts

Choose the administrators who will be listed as points of contact in any automatic email notifications sent to members when they request assistance. These contacts will also receive communications from Esri Customer Service.

## Navigation bar

In this section, you can modify the visibility of pages (tabs) in the navigation bar of the organization. You can also add web apps to the app launcher to make them more readily available to members of your organization. The app launcher appears after members sign in.

### Learn more

- [Configure general settings](#) (Help)
- [Navigation bar](#) (Help)
- [Organization verification](#) (Help)

## Gallery settings

### Show in gallery

The **Gallery** tab is found at the top of your organization pages. The gallery can be used to highlight your organization's content. Use this setting to choose a group that will contain the items that populate the gallery.

### Learn more

[Configure gallery](#) (Help)

# Map settings

Some of the key organization settings can be found on the **Map** tab. These allow you to enable Map Viewer and set the basemap gallery, default basemap, default extent, units, and more.

## Primary map viewer

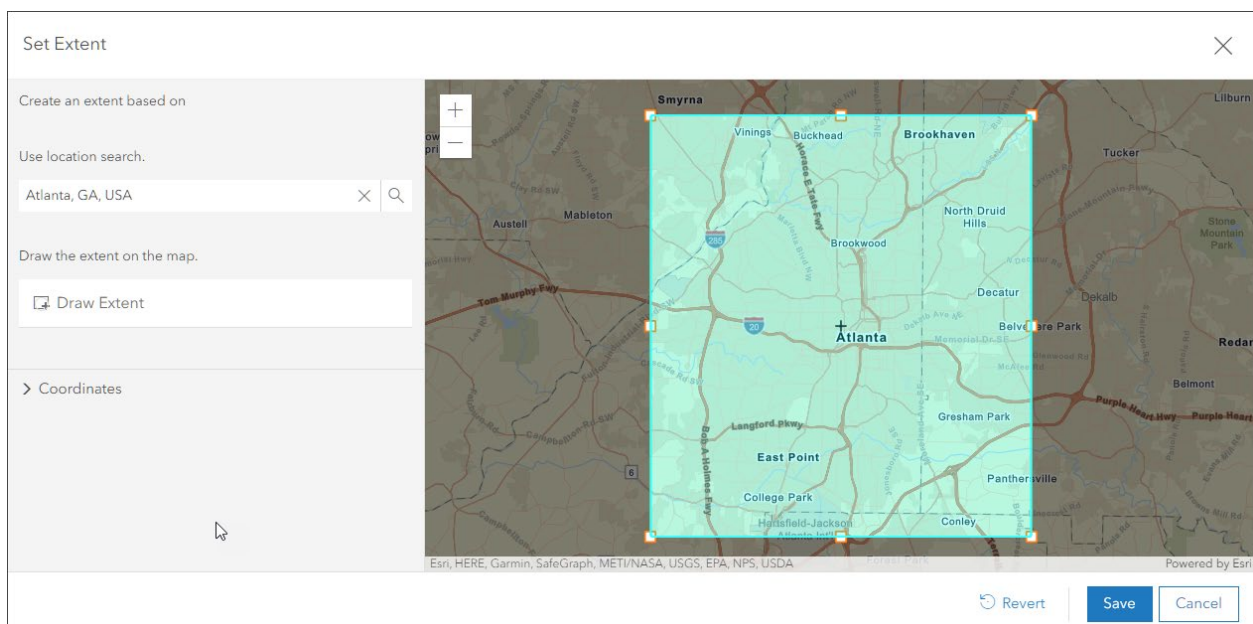
Specify the primary map viewer for your organization by choosing Map Viewer (recommended) or Map Viewer Classic.

## Basemap gallery

You can use Esri default basemaps or create a custom basemap gallery combining Esri basemaps with others from Living Atlas or your own maps. To use a custom basemap gallery, add the maps to a group and specify the group here.

## Map defaults

The default basemap specified this section opens when users create a map. The map will open at the default extent, which can be set to the extent of your city, state, or some other area. Set the extent by drawing a box or entering coordinates.





## Analysis layers

If analysis workflows in your organization commonly use specific layers—for example, city boundaries or police and fire districts—those layers can be automatically displayed in analysis tools. Place the layers in a group and select the group in this setting. For more information, see [Configure analysis layers](#).

## Tips and best practices

- Use vector basemaps instead of tiled raster basemaps (which have entered mature support and are no longer updated).
- Author your own maps to use as basemaps and combine them with the Esri defaults. You can create a custom basemap by editing the style of any Esri vector basemap using the [Vector Tile Style Editor](#) to suit your preferences.
- Set a default basemap and extent appropriate for your organization. For example, your default extent can be the boundary around your city or state.

## Learn more

- [Basemap gallery](#) (Help)
- [Create a custom basemap gallery for your organization](#) (Blog)
- [Use ArcGIS Living Atlas to create a custom basemap gallery](#) (Blog)

## Item settings

### Comments

Using this setting, you can show and allow comments on items in the organization. Comments appear at the bottom of the **Overview** tab and can be added by the item owner or other signed-in users. Once you've published a comment, you can delete it, but you can't edit it. Item owners receive email notifications of new comments and can delete comments published for items they own. However, unless you are confident that you really want comments and that they will be reviewed and managed, it's best to leave comments off.

## Metadata

Metadata is information that describes an item. Each item page includes a summary, description, terms of use, and credits. These provide flexibility in documenting items. However, if you want to use a more formalized metadata style, this setting can be enabled. You can choose from a variety of metadata styles. For more information, see [View and edit metadata](#).

## Organization categories

Categories allow you to organize your content. You can add or remove categories at any time. You can start using one of the templates or create custom categories (recommended for most organizations). Categories are searchable, so members can search for items using specific categories.

Categories can also be transient. For example, you can create a category named Route 57 Improvement Project and categorize all maps, apps, and layers that are important for the project using that category. When the project is finished, you can remove the category.

Categories are also supported in groups and the group-based Category Gallery app. Groups can use organization categories, or you can create categories unique to your group.

## Tips and best practices

- Enable comments only if they will be monitored.
- Tags are useful for search, but categories offer a more powerful way to organize and filter content in your organization.
- Custom categories are recommended to tailor their use for specific projects and workflows.

## Learn more

- [Metadata](#) (Help)
- [Content categories](#) (Help)

- [Explore content with Category Gallery](#) (Blog)

## Group settings

Groups are a primary organizing component and building block in ArcGIS Online. For example, the basemap gallery is populated using a group containing maps. A group populates what is displayed on your organization's **Gallery** tab. Groups can be used to display specific content on your home page.

### Featured groups

This setting allows you to choose the groups that will be displayed in your featured groups. By default, Esri groups will be displayed.

### Tips and best practices

Instead of using the Esri default groups, edit the featured groups to display groups that highlight your organization's maps, apps, or stories.

### Learn more

[Featured groups](#) (Help)

## Member role settings

Roles control privileges that members have within your organization. Privileges are assigned with default roles, or you can create a custom role. User roles, types, and privileges are discussed in detail in Chapter 4: Member types, roles, and privileges.

## New member default settings

When inviting new members into your organization, you can set defaults for user type and role. You can also manage add-on licenses, which groups new members will be

assigned to, and credit allocation. These settings can be changed during the invitation process.

## Learn more

- [Configure new member defaults](#) (Help)
- [Invite and add members](#) (Help)

## Credit settings

ArcGIS Online credits are the currency used across ArcGIS. Most of what members do—such as authoring maps or scenes, or creating apps—does not consume credits. Credits are consumed for specific transactions, such as performing analysis, publishing content, or geocoding addresses. The management and control of expenditures is an important component of the efficient administration of any organization.

## Credit allocation

Storage, analytics, premium content, batch geocoding, and publishing content are operations that consume credits. Batch geocoding, publishing content, and performing some types of analysis can consume significant amounts of credits. You can limit and manage credit consumption using these settings.

## Tips and best practices

Limiting credit consumption for new members of your organization can prevent inadvertent large credit-consuming tasks until best practices for reducing credit consumption are learned.

## Learn more

- [Configure credits](#) (Help)
- [Understand credits](#) (Help)

- [Understanding and managing credits in ArcGIS Online](#) (Blog)

## Security settings

Security is important for your organization and its contents. This section allows you to manage security settings throughout your organization, define password policies, manage login methods, set multifactor authentication, and control messaging to members and public visitors.

### Email verification

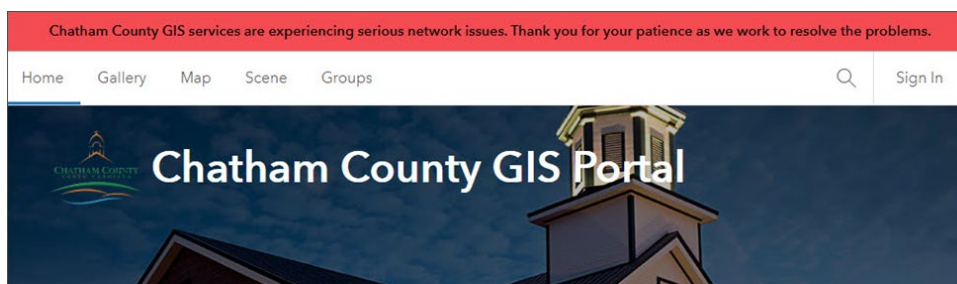
Verifying that email addresses are valid helps ArcGIS Online users and administrators receive critical information from ArcGIS Online, such as password resets and account changes.

### Access notice

The access notice controls the message that is displayed when users or visitors go to your home page. For example, it can be a terms of use message or other important information that you want to display prior to accessing your home page. Access is controlled with an **Accept** or **Decline** toggle button or an **OK** only.

### Information banner

Use information banners to alert anyone visiting your site about important news, updates, or changes.



## Tips and best practices

- Set up SAML logins to enable members to use the same login they use elsewhere in your organization. Permissions to access organization resources are still controlled using settings in your organization.
- Set the ArcGIS Online organization password expiration time to match your organization policies.
- When allowing anonymous access (recommended), ensure you've configured the experience for visitors to your home page.
- Use [ArcGIS Security Advisor](#) to view security-related settings and obtain recommendations.

## Learn more

- [Configure security settings](#) (Help)
- [ArcGIS security](#) (Help)
- [ArcGIS Trust Center](#) (Website)

# Chapter 6: Use groups

*Groups are the building blocks of your organization.*

A group is a collection of content usually related to a specific topic or area of interest. You can create groups to organize your items, deliver content to different parts of your organization, and build your organization. As a group owner, you decide who can find the group, who can join, and who can contribute content.

## **Groups organize content and people**

Groups are also destinations for members and their work. When inviting members into your organization, you can assign them to a group.

An empty group is like walking into an unfurnished hotel room. It is recommended that you ensure that groups contain meaningful content—maps, apps, layers, and so on—that help group members accomplish their work by supporting projects and workflows.

A group is an item in ArcGIS Online, which means it has a thumbnail, a summary, a description, tags, and more. Document the group so that others understand its purpose and the content it contains.

For administrators, groups are important building blocks for the organization. You can use them to create a custom basemap gallery, create galleries on your home page, organize custom app templates, and more.

## **Decide what groups you need**

You will likely need the groups that are the organization building blocks for various galleries: basemaps, home page, configurable apps, Open Data, and Hubs.

You may also want to create and set up groups for the different departments that your organization will serve. Other ideas for groups can come from current projects and initiatives.

Groups can also be used to set up management and collaboration nodes for both internal and external purposes.

As your organization evolves, you can create groups to accommodate activities, and members can create groups to manage their content and collaborate.

## **Tips and best practices**

Get ideas about which groups are needed from your organization chart or from constituents you need to engage. Use various departments or large project teams within your organization as a starting place.

## Group settings

Groups provide flexibility to suit your needs. When you create a group, you can decide who can view the group, who can be a member of the group, how users can join, and who can contribute content.

## Collaboration groups

Once administrators have created a collaboration, users can share content with groups that have been linked to the collaboration workspace. The content is then discoverable by other collaboration participants in their own environment. In a collaboration, content is shared according to the sharing settings of the organization where the data originated.

For example, you can work with someone external to your organization who already has an ArcGIS Online account. A group can be created to be able to share content across organizations within the group. You can invite people from another organization into that group to share and view content.



## Tips and best practices

If your team works with GIS analysts who are external to your organization, use collaboration groups to cut down on the named user accounts that both your organization and the analysts need to manage.

### Learn more

- [Use distributed collaborations](#) (Help)
- [How distributed collaboration works](#) (Help)
- [Create a distributed collaboration](#) (Help)
- [Manage distributed collaborations](#) (Help)

## Establish group conventions

Eventually your organization membership will grow, as will the number of groups. It's a good idea to establish some conventions early.

You can use visual cues to help identify a group that you are trying to find. For example, all groups that are part of an organization's framework might have the same logo, and those that are building blocks for the organization might be identified using color. You can also use naming conventions to list related groups in order.

These techniques will keep you organized as the number of groups and activities within them grows.

## Tips and best practices

- Use consistent visual cues in group thumbnails to help keep track of them.
- Use intuitive naming conventions and alphabetization to keep groups in order.
- Add useful descriptions.

- Prepopulate groups with meaningful content.
- Automatically assign members as you invite them to groups that help them do their work.
- Create a group destination including a meaningful summary, description, tags, and thumbnail.
- You can curate content you want to feature on your group **Overview** page for a better experience. The default is to list group content by recency, but selecting specific group content to feature may improve the experience.

## Learn more

- [Get started creating groups](#) (Help)
- [Create groups](#) (Help)
- [Configure groups](#) (Help)
- [Manage groups](#) (Help)
- [Assign members to groups](#) (Help)
- [Use a curated gallery to feature group content](#) (Blog)

# Apps for groups

Like maps, you can use configurable apps to present the content within groups in different ways. The Category Gallery app presents content from your group with a variety of ways to filter and sort your items and allows you to apply your organization's content categories or categories unique to your group.

Groups can also be hierarchical—you can create a group of groups to organize content efficiently.

[ArcGIS StoryMaps collections](#) are another way to gather lots of content that users will browse and share. You can create collections of your stories, but other item types are also supported.

## Learn more

- [Create apps from groups](#) (Help)
- [Explore content categories with Category Gallery](#) (Blog)

## Examples

- [COVID-19 Learning Resources](#) (uses Category Gallery)
- [Category Gallery \(Sample\)](#) (uses Category Gallery)

# Chapter 7: Member best practices

*Your profile and work speak for you.*

Best practices extend to all members of your organization and include documenting who you are in your profile and documenting and managing the content you author.

## Profiles


A profile tells others who you are, whether they are within your organization or outside your organization if you publish public content. Profiles are part of any discoverable item and deliver access to your groups and items for the curious discoverers.

By default, unless otherwise set by your administrator, your profile is visible only within your organization. However, if you do publish public content, it is recommended that you make your profile visible to the public (in your profile settings) so that those who find your public content can identify the source.


You can use personal profiles to publish content on behalf of your organization, but an interesting alternative practice is to use a profile you've specifically set up to own your organization's best content. Using this technique, your content is presented coming from your organization, instead of an individual. See Chapter 3 for more information.

## Profile bio

There are many styles that you can consider to craft a good profile. In the first example, there is essential information about Sandy as the content owner, including contact information.




**Sandy Ebersole**  
 SandyEbersole

View profile 

---

Organization: Geological Survey of Alabama, Geologic Investigations Program; sebersole@gsa.alabama.gov; Specialties: Geology, GIS, remote sensing, natural hazards

In the second example below, Joseph clearly identifies himself as the manager for Sonoma Land Trust authoritative content by using the Trust logo and clearly identifying his affiliation with that organization.




**Joseph Kinyon**  
 Sonoma\_Land\_Trust


---

I am the GIS manager for the Sonoma Land Trust. This account is for the management of my organization's resources.

This next example shows a profile that has been created to represent the organization. The profile uses the Montana DNRC logo, which also appears in the item thumbnails.



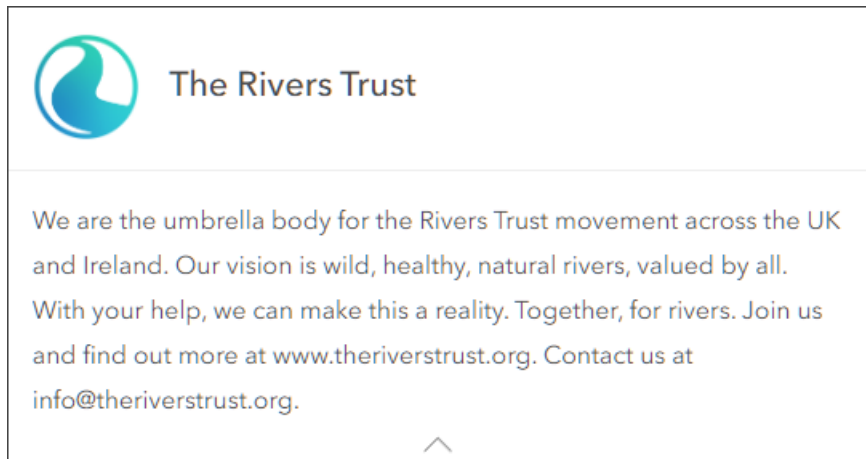
**Montana DNRC**  
 MontanaDNRC

View profile 

---

GIS data, maps, and applications from the Montana Department of Natural Resources and Conservation. Please visit our website to learn more about who we are, what we do, and where we work:  
<http://dnrc.mt.gov>.

This final example is one from a verified organization.

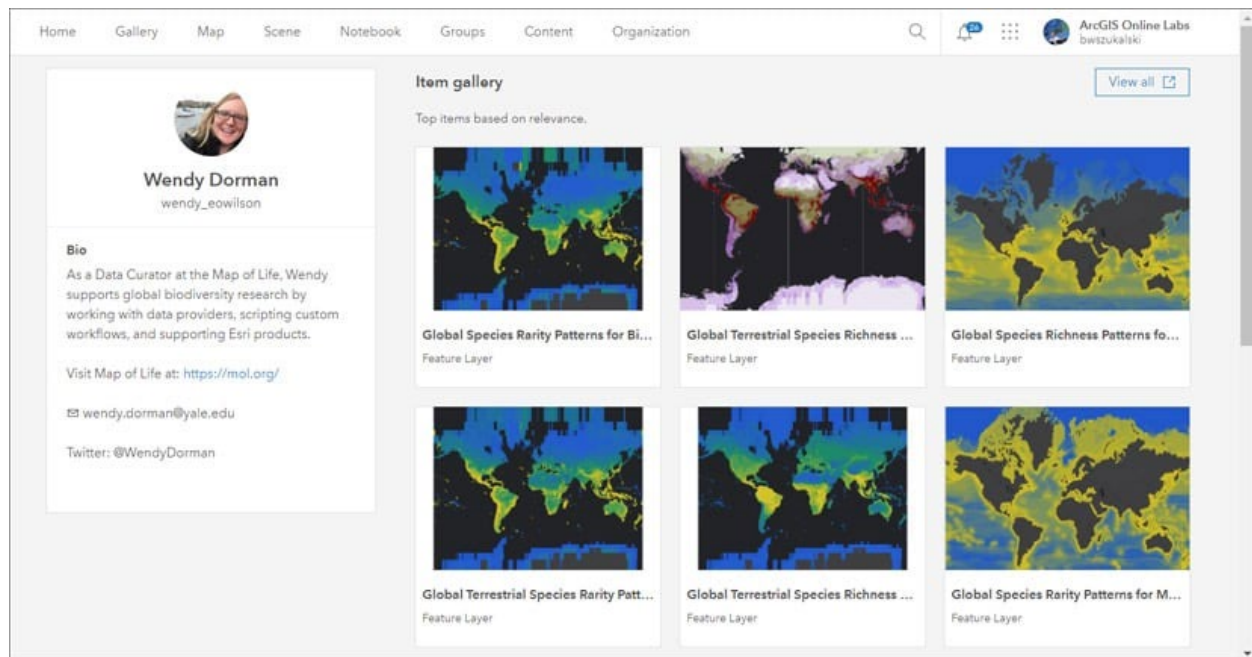


All of these include contact information and other details that help you learn more about the item owner.

## Profile item gallery

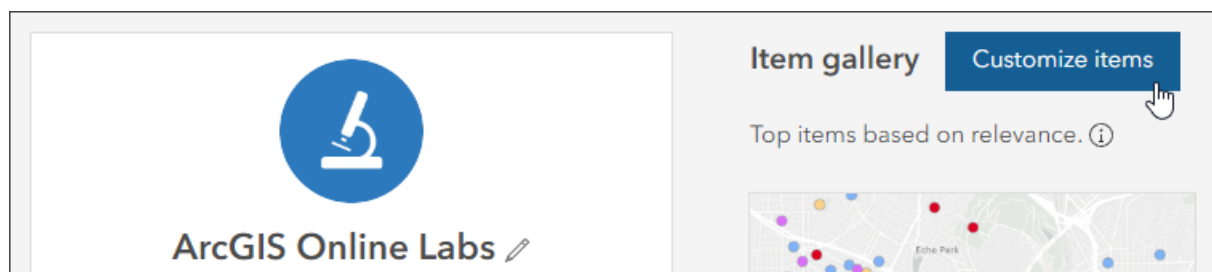
Along with your bio, your profile displays a gallery of content that you have created. The default is that your most relevant items are displayed based on usage, item quality, and whether it is marked as authoritative.

Along with items, your public groups are also viewable from your profile.



Since all your items and groups are discoverable, ensure that all your work uses best practices.

Rather than display the default relevant items you've authored, a better approach is to create a custom profile item gallery to highlight your best work, showcase popular applications, or provide access to resources.



## Tips and best practices

- Present a professional profile that represents you and your role within your organization.
- Include contact information (if appropriate) for you or your organization.

- Be complete, but not overly verbose.
- Customize your profile gallery to showcase your best content or highlight useful maps and apps that you've created.

## Learn more

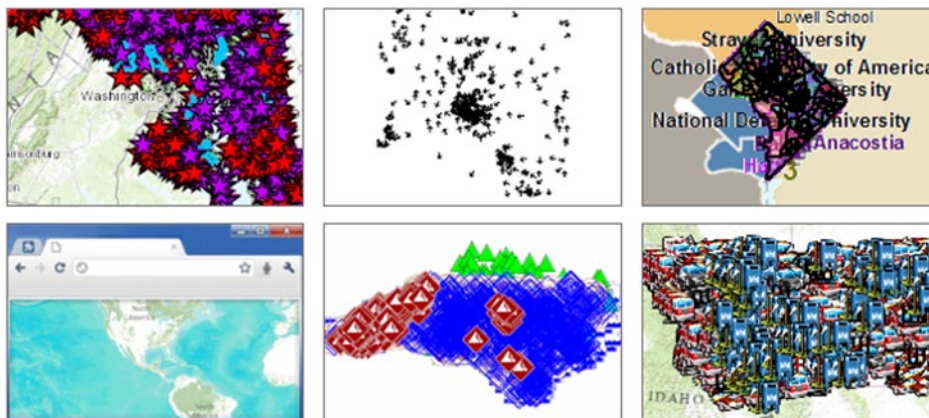
- [Create a great profile](#) (Blog)
- [Customize your profile item gallery](#) (Blog)
- [Brand yourself with the refreshed User Profile page](#) (Blog)
- [Manage profile and settings](#) (Help)

## Thumbnails

A thumbnail provides a visual cue to your item and may also include organization branding. A thumbnail image is created by default when you add the item to the site. It appears in galleries, search results, contents, and on the item page.

You can create and load a different image if the default image does not convey the information you want or if one cannot be generated by default for your item type.

Consider these thumbnails:





When these kinds of thumbnails appear, they do not provide a feeling of confidence or communicate professionalism, and instead show carelessness or hurried work and cast doubt about the veracity of the data.

Consider these thumbnails:



The thumbnails show professionalism and inspire confidence. They also provide a visual cue to the content.

A better thumbnail takes just a little more effort. You can use the built-in thumbnail editor or make a custom thumbnail. Thumbnails can use a variety of location and other visual hints to help viewers understand your content. Thumbnails can also include branding, such as your organization logo, graphics or color scheme, and text to define your organization or the content you provide.

## Tips and best practices

- Use the thumbnail editor to quickly make a better thumbnail using your map or use any graphics program to create and upload a custom graphic.
- When using custom graphics, best results are obtained by sizing the graphic at 600 x 400 pixels and saving it as a .png file.
- Simpler thumbnails, without words or details, work best at all sizes that thumbnails are presented in ArcGIS Online.

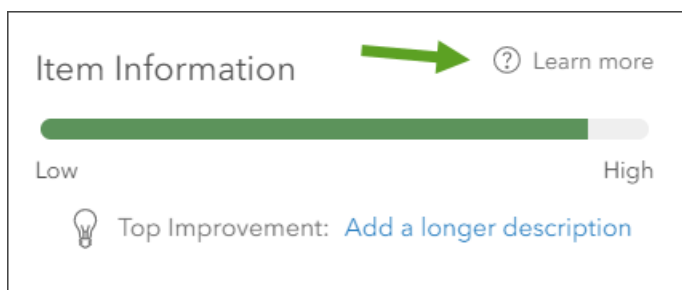
## Learn more

- [Configure item details and settings](#) (Help)
- [Put your best thumbnail forward](#) (Blog)
- [Create a thumbnail style and brand](#) (Blog)

## Item details

Any job is incomplete until the paperwork is done—in this case, the item documentation, or description. A good thumbnail is important, but so is a concise summary, thorough description, tags, categories, and more. The better you document your item, the more valuable it will be to others.

The item pages include an **Item Information** panel, which provides suggestions for improving your item pages. Click **Learn more** for suggestions on improvements.




Item Information
✕ Hide

Low
High


Make your item easy to find, understand, and use by providing this information.

- ✓ Add a summary
- ✓ Add a thumbnail
- ☐ Add a longer description
- ✓ Add a title
- ☐ Add more tags
- ✓ Add terms of use

Of special consideration is the **Item updated** date, visible just below the summary. This is when the item description was last updated and not necessarily when the layer, map, or app was updated. Because of this, it is recommended that you add the data update date or refresh interval in the item description as prominently as possible. This information could also be part of the item summary.







### Snow Plow Camera Images (Iowa DOT) - Past 1 Hour

 Feature Layer

Images that come from the Snow Plow Dash Camera in the past hour when trucks were going faster than 5 mph.

Created: Oct 8, 2018   Updated: Jan 3, 2023   View count: 911,850

 Authoritative

Iowa Department of Transportation




## Tips and best practices

- Use a good, descriptive title for your item. Avoid acronyms unless they are obvious.
- Create a concise and descriptive summary.

- Include all relevant details in the description.
- Include information about the date the data was published and update frequency.
- To ensure that items are not accidentally deleted, use delete protection.
- Consider creating a private template that contains all required metadata for items and copy and paste from there into new items you are documenting.

## Learn more

- [View and use items](#) (Help)
- [Make your work easy to find, understand, and use by others](#) (Blog)
- [Protect and manage your ArcGIS Online content](#) (Blog)

# Chapter 8: Use ArcGIS Living Atlas of the World

*Use maps, apps, and more.*

ArcGIS Living Atlas of the World is the foremost collection of ready-to-use geographic information, containing maps, apps, and more from the global GIS community. The content is curated, authoritative, and continually updated. The collection is ever-growing and many of the items are live, meaning updated in real time or near real time.

## ArcGIS Living Atlas website

The [ArcGIS Living Atlas website](#) is a one-stop destination for news, learning, discovering content, and community participation. One of the most useful parts of the site is the **Browse** tab, where you can discover content using keywords and filter by type, category, region, and date (past month, year, or custom date).

You can sign in to your ArcGIS account directly on the site. After signing in, you can use the search and filtering tools and begin making your maps right away using Map Viewer or ArcGIS Pro.

### Tips and best practices

- Sign in at the ArcGIS Living Atlas website to begin your work.
- Mark items of interest as favorites so you can find them again later.
- Remember that you can contribute content to ArcGIS Living Atlas and can also make corrections to basemaps.

### Learn more

- [Get started with ArcGIS Living Atlas of the World](#) (Tutorial)
- [Make powerful maps using ArcGIS Living Atlas of the World](#) (Tutorial)

- [Ten ways to get the most out of ArcGIS Living Atlas](#) (Blog)

## ArcGIS Living Atlas apps

[ArcGIS Living Atlas apps](#) can be used to visualize, analyze, and show ArcGIS Living Atlas content. The following apps allow you to create maps or download data:

- [World Imagery Wayback](#) offers a way to see ArcGIS Living Atlas archived world imagery and retrieve imagery at specific dates. This app is useful for selecting the imagery you prefer and viewing change over time.
- [USGS Historical Topographic Map Explorer](#) allows you browse topographic maps from 1882 to 2006. You can download and share the maps, or open them in ArcGIS Pro.
- [Sentinel-2 Land Cover Explorer](#) uses annual 10-meter resolution land use/land cover data that are presented in a web app for dynamic visual and statistical change analysis. You can download or use the data to create maps.
- [Landsat Explorer](#) is an app you can use to explore Landsat imagery. The imagery is updated daily. Use this app to draw on Landsat's different bands to better explore the planet's geology, vegetation, agriculture, and cities. Additionally, access the entire Landsat archive to visualize how the earth's surface has changed over the last 40 years.
- [Esri Maps for Public Policy](#) is a collection of ArcGIS Living Atlas maps that have been chosen because they reveal important community facts. Use the app to view and share single maps or create collections of maps that can be shared with anyone. These maps are also ready to use throughout ArcGIS, in ArcGIS StoryMaps, ArcGIS Dashboards, ArcGIS Hub sites, and apps.
- Use the [SSURGO Downloader](#) to retrieve ready-to-use project packages with over 170 attributes derived from the Soil Survey Geographic Database (SSURGO) dataset.

## Learn more

- [Explore imagery using World Imagery Wayback](#) (Blog)
- [Use World Imagery Wayback to create a custom basemap](#) (Blog)
- [5 minutes with the Esri Maps for Public Policy site](#) (Blog)

# Chapter 9: Turn data into information

*Create layers and author maps that transform your data.*

You can turn raw data into something more powerful and meaningful—actionable information—with a few considerations.

## Maps

Maps are the *lingua franca* to apply your tradecraft and skills in creating expressive and meaningful maps that help you share your geographic knowledge with others and communicate useful information. A map is more than just the cartographic representation of information; it includes the entire experience of how viewers see, use, and experience your map, including the tools that can be applied to it. Proper map craft allows you to present information in an aesthetically pleasing and understandable way, with tools that enhance its information and purpose.

A map begins with a basemap—one that complements rather than competes with your layers. Esri provides a default basemap gallery, but you can customize the gallery to include basemaps you have made.

Next are the layers, properly styled to make the meaning they carry self-evident. Smart mapping is a data-driven way to find styles and defaults that are appropriate for your data. Effects and blending can be used to further enhance visuals or apply focus to a subset of features.

Layer pop-ups offer another way to craft useful, creative, and meaningful displays of information. Finally, you can use the map in a variety of apps.

## Author maps

Map authoring is accomplished using Map Viewer or Scene Viewer to create 2D or 3D maps, respectively. When authoring maps, you will likely use content that's already in your organization and crafted as building blocks for you to reuse. If your organization has content marked as authoritative, you can filter for those layers or mark them as favorites.



ArcGIS Living Atlas is embedded in the authoring experience and offers authoritative layers that you can use.

There are five steps to making a map:

1. Choose a basemap.
2. Add layers.
3. Change style, and optionally, add effects and blending.
4. Configure pop-ups.
5. Save and share.

When finished, you can deliver the map in an app, dashboard, story, or experience.

## Basemaps

A basemap is the foundation of your map and should complement rather than compete with your layers. Your organization includes a default set of basemaps from Esri, but you can extend the collection with your own basemaps.

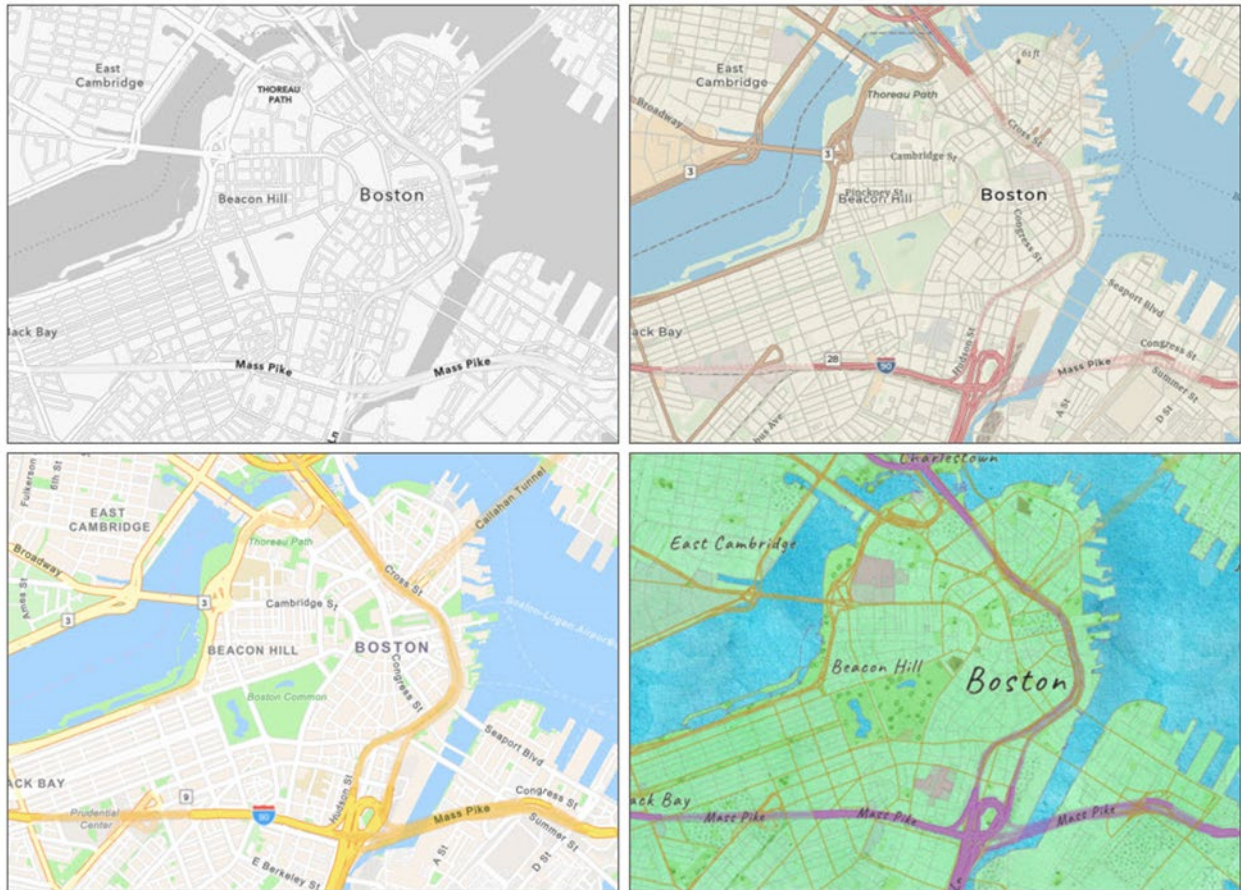
You can customize the style of any Esri vector basemap, reorder the basemap layers, or create a custom basemap to add to your organization's gallery.

While the web mapping projection standard is Web Mercator Auxiliary Sphere (WMAS), basemaps in other projections are offered in ArcGIS Living Atlas. In addition, you can create basemaps in WMAS or a projection of your choice to meet local standards. The basemap projection defines the map projection, and other content will be projected on the fly onto the basemap as necessary.

### Vector basemaps

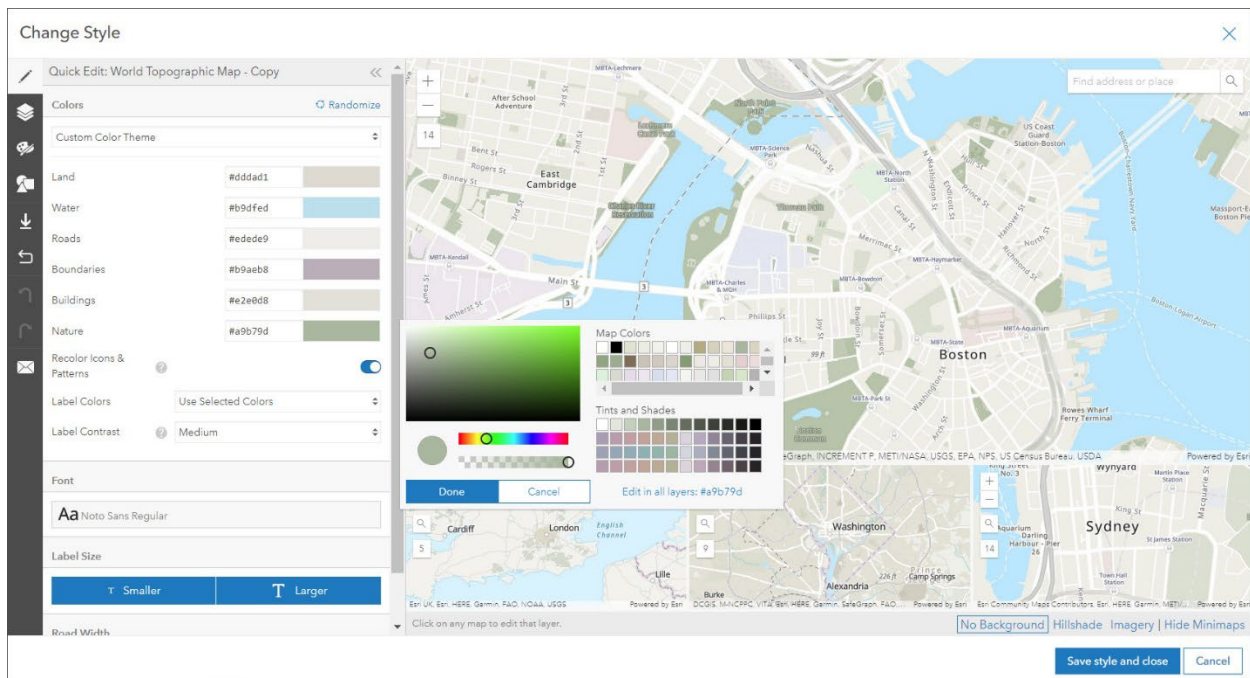
Vector basemaps are now the default for your organization's basemap gallery. Esri builds on the same vector base and adds a variety of fonts and styles to render the vectors in distinctive and unique ways.

Vector basemaps have several advantages over raster tile basemaps. Unlike raster tile layers, vector tile layers can adapt to the resolution of the device display, can be rotated, and can be restyled. Vector tiles have a smaller file size than raster tiles, which translates to faster maps and better performance.



## Vector tile style editor

Vector tile layers send the geometry of features along with labels and sprites to Map Viewer, along with a style of how they should be rendered. You can edit the style, changing colors and removing layers to suit your needs, using the Vector Tile Style Editor (VTSE) tool to create a custom vector basemap style that matches your brand and the type of app that you are building.



The VTSE also allows you to edit the style of any vector layer. Open it [as a separate app](#).

## Tips and best practices

- If you haven't done so already, ensure you are using Esri vector basemaps and that any older maps you have are using vector basemaps.
- You can extend your basemap gallery by adding your own basemaps using a custom gallery.

## Learn more

- [Switch basemap](#) (Help)
- [Make your own map style](#) (Blog)
- [Update vector tile layer style](#) (Help)
- [Introduction to ArcGIS Vector Tile Style Editor](#) (Help)
- [Personalize your maps with custom basemap styles](#) (Tutorial)

# Layers

When you author a map, you work with geographic data as layers. The layers drawn on top of your basemap are called operational layers. Layers can be of different types, such as feature layers, imagery layers, and so on. Depending on the layer type, you can change how a layer is rendered, change its style, use effects and blending, configure pop-ups, edit features, and perform analysis. For more information, see [Layers](#) (Help).

The visualization of layers is configured in the layer itself, but when added to a map, you can override the defaults and save the changes in your map.

Layers you add to your map can come from a variety of sources, such as shapefiles, .csv files, GeoJSON, and so on, which can be local files or stored in cloud drives such as Google Drive and Microsoft OneDrive.

You can add layers from your organization, from other organization on ArcGIS Online, or from ArcGIS Living Atlas. If you have the appropriate privileges, you can also publish your layers using ArcGIS Pro or ArcGIS Online. For more information, see [Publish hosted feature layers](#) (Help).

## Feature layers and feature collections

When adding layers from files, such as .csv or Microsoft Excel files, (if you have appropriate privileges) you can publish hosted feature layers to add to your map, or you can add the file and reference it in your map as a collection.

Hosted feature layers can be used in other maps, while feature collections are not available outside your map, so they cannot be reused in other maps. If you want your layers to be reusable, publish them as feature layers. For more information, see [Feature collections](#).

## Image layers

While image layers do not support smart mapping styles, there are many ways that you can manipulate multispectral or multitemporal image layers.

Many ArcGIS Living Atlas image layers support on-the-fly server-side renderers. To find them, click **Processing templates** in the **Settings** (light) toolbar. Multitemporal imagery can be filtered by date using **Filter**.

This example shows Sentinel-2 imagery from ArcGIS Living Atlas in the same area in Australia. The first image shows the default renderer—Natural Color. Smoke obscures the details. The next image shows the use of the Short-wave Infrared renderer to remove the smoke and see the active burn area. The third uses Normalized Burn Ratio to emphasize the burned areas as dark black.



## Other layer types

For more information and details on other types of layers, see [Types of web layers](#) (Help).

## Craft layer appearance

When you add layers to your map, you can configure how they appear. The appearance of the layer can use styles, effects, blending, transparency, scale dependencies, and more to achieve the desired results. Your goal should be to create an expressive display of information that is both visually appealing and intuitive.

## Smart mapping

Smart mapping uses a data-driven approach to help you make decisions about the best way to represent your data, allowing you to explore, understand, and find meaning using attractive thematic maps. For example, if the attribute you are mapping is an integer, ArcGIS Online will suggest using size to show the counts. If



your attribute is a string, it will suggest types (unique symbols) to show the different categories of your data.

Smart mapping also allows you to map multiple related attributes together in one map, such as through relationship mapping or predominance mapping. For example, if you've chosen two attributes of the same type, it will suggest predominance, relationship, or size and color.

There are many data-driven smart mapping styles that help you make beautiful and expressive maps. See the [Styles quick reference](#) for the styling options available for various types of data and some of the key questions you can answer using each style. For more information, see [Apply styles](#).

## Aggregation

When you have a large number of points, aggregation capabilities, such as clustering and binning, are useful to make the data more meaningful.

Clusters are represented by proportionally sized symbols based on the number of features in each cluster. For more information, see [Configure clustering](#).

Binning can be used to aggregate features into summary polygons called a bin. Each bin represents all features within its boundaries and are of uniform size and area. For more information, see [Configure binning](#).

## Effects

Use effects to apply eye-catching visualizations to your layers. Effects can be applied to all features in a layer or to a subset of features based on filters. See [Effects](#) to view a table listing whole layer and feature-specific effects.

Each effect has different settings you can use to fine-tune the results. Multiple effects can also be applied to a layer. For more information, see [Use effects](#).

## Blending

Blending is a way to control how overlapping layers look in your map. For example, if your map has geology on top of terrain, you could adjust the transparency of the

geology layer to see the terrain. However, transparency is applied to the entire layer uniformly, and too much transparency might make the geology look washed out.

By applying blend modes, you have far greater control over the appearance by controlling pixel-by-pixel how the overlapping layers blend together. Using various blend modes, you can, for example, target changes to just the lighter pixels but keep the dark pixels unaffected, shift colors using a tonal wash or tint but keep the text labels unaffected, or blend the textures from one layer into another.

See [Blend modes](#) to view a table of all modes and how they work. For more information, see [Use blend modes](#).

## Examples

Examples of how the techniques described above can be applied effectively can be viewed at [Esri Maps for Public Policy](#). Find a layer of interest, and click **View** to see the map. Click the layer title to view the item details, and open the layer in Map Viewer to examine how styles, effects, blending, and other techniques have been applied.

## Tips and best practices

- Think about the information you want to map. What is your map's purpose, and what is the best way to display that information?
- Experiment. Even if ArcGIS Online suggests a mapping style, you still have control as the map author to choose the style and the settings you want.
- Be creative. Styles, effects, and blend modes can be combined to achieve stunning results. Use group layers to isolate how blending is applied.
- Find maps you like, and decompile how they were crafted.
- When finished, click **Save Layer** so your changes will be preserved on the layer itself for others to use, not just in your map.

## Learn more

- [Get started with Map Viewer effects](#) (YouTube)
- [Effects in Map Viewer](#) (Blog)

- [Enhancing imagery basemaps with layer effects](#) (Blog)
- [Effects and vector basemaps](#) (Blog)
- [Aggregation, binning, and clustering](#) (Blog)

## Layer pop-ups

In too many maps, you'll see a default pop-up that contains a simple list of meaningless fields and values. However, layer pop-ups are an essential and important part of crafting the complete map information experience. Pop-ups can transform an otherwise dull list of attributes into a meaningful display of intuitive and engaging information for your audience.

At a minimum, the attributes should be [configured](#). Remove the attributes that don't make sense (like FID) and edit attribute names to remove all caps or rename them to make them more viewer friendly. Also format numeric attributes; adjust the number of decimal places and decide if 1,000 separators are needed.

Beyond the basics, pop-ups are configured by assembling content elements, or blocks. These are fields list, chart, image, text, and Arcade. If your layer has related tables, related table elements will also be available to configure your pop-up. Pop-ups can also include feature attachments, links to external resources, videos, and [Arcade expressions](#).

### Tips and best practices

- No matter how you choose to craft the pop-up, configure the fields first.
- Use Arcade to format attribute values and color dynamically, turn abbreviations into plain text, and resolve all caps.
- After configuring pop-ups for new layers, click **Save** so your changes will be preserved with the layer, not just in your map.



## Learn more

- [View pop-ups](#) (Help)
- [Configure pop-ups](#) (Help)
- [Pop-ups: the essentials](#) (Blog)
- [Pop-ups: text element essentials](#) (Blog)
- [Pop-ups: chart element essentials](#) (Blog)
- [Pop-ups: Arcade essentials](#) (Blog)

## Save layers

If you have privileges to create content, you can save some types of layers as new items in **My Content**. If you are the owner of the hosted feature, you can save the styling, pop-ups, and other settings to the original layer. A newly published layer shows the default pop-up, style, and other settings.

After you style and configure the layer, click **Save** to preserve all your changes. This stores the configurations with the layer, making it ready to use by others. Copy a layer in your map when you want to configure the properties of the layer in different ways.

Saved layers can be overridden by map authors if needed, but a well-crafted layer becomes a building block for others to use.

## Tips and best practices

- Avoid sharing unconfigured layers.
- Think of layers as building blocks and craft them accordingly.
- New, empty feature layers can be created from a template, by defining your own template, or from an existing feature layer.

## Learn more

- [Copy and save layers](#) (Help)
- [Save and duplicate layers](#) (Help)

# Chapter 10: Work with hosted feature layers

*Publish your data, use filters and tables, and create views.*

As a publisher in your organization, you can publish hosted features layers from multiple sources. Use filters and tables and create views to use them to their fullest.

## Publish layers

You can publish your data as hosted feature layers directly in ArcGIS Online. When you do this, ArcGIS Online hosts your layers and the data that populates them. Web, desktop, and mobile apps can access your hosted layers from anywhere on the internet if you choose to allow it. Many sources can be used to publish hosted feature layers, including cloud sources such as Google Drive and Microsoft OneDrive.

Note that hosted feature layers are published layers. When you add features directly to your map, a feature collection is created that does not have all the capabilities supported by hosted feature layers. Feature layers are available to anyone that you have shared with and can be used in multiple maps. Feature collections are only available in the map you've authored.

Feature layers support querying, styling (smart mapping), pop-ups, and editing. Hosted feature layers are most appropriate for visualizing data on top of your basemaps. After you have styled your layer and configured pop-ups, click **Save Layer** to save your changes. The next time you or others use the layer, it will be configured. See Chapter 9: Turn data into information in this publication for more details.

You can update or overwrite hosted feature layers by adding the source again. If the layer has large numbers of features or complex lines or polygons, you can optimize performance using layer optimization settings.

## Tips and best practices

Understand and consider the difference between feature layers and feature collections.

- Click **Save** on the layer after publishing and configuring your hosted feature layers to create ready-to-use operational layers.
- If the layer has been updated (or edited) and features have been added outside the initial extent, rebuild the spatial index to improve performance.

## Learn more

- [Publish hosted feature layers](#) (Help)
- [Manage hosted feature layers](#) (Help)
- [Optimize drawing of complex lines and polygons](#) (Help)

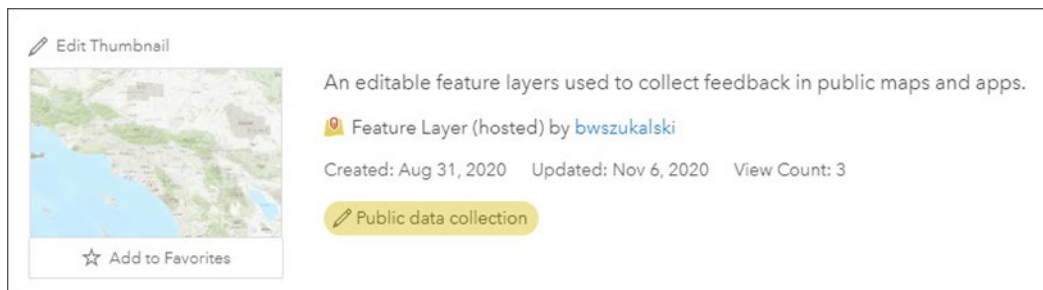
## Editable feature layers

As the owner of a hosted feature layer or an organization administrator, you can decide who has edit access to your feature layer data. You can control that access through a combination of hosted feature layer views, editing settings, and sharing properties.

The feature layer owner (or administrator) decides the who, what, and how features and their attributes can be edited. Any changes made to a feature layer are automatically visible in any other map or app the layer is used in.

The publisher of the feature layer or the administrator decides whether a feature layer is editable and sets an editing level. Editing levels determine whether you can add features, delete features, update feature attributes only, or update feature geometry and who can perform these tasks.

If an editable feature layer is shared publicly, anyone with access to it can edit it even if they don't sign in to your organization. This can be controlled using the **Public Data Collection** setting or by creating read-only views on editable feature layers. A public data collection badge will be displayed with the item when this setting is used.



## Learn more

[Data access and editing](#) (Help)

## Filters

A filter presents a focused view of a feature layer in a map. By limiting the visibility of features in a layer, you can reveal what's important. For example, you can create a filter on a crime layer so only arson fires are displayed. You can also apply multiple expressions. For example, you can create a filter that shows only arsons that occurred on weekends.

You can click the **Filter** button on the **Settings** toolbar to open the **Filter** window and construct your filter.



## Tips and best practices

- Keep the number of filters to a minimum. If many filters are needed, consider views instead.
- The Interactive Legend configurable app allows you to filter on the attribute that you have symbolized on.

## Learn more

- [Apply filters](#) (Help)
- [Use expression sets](#) (Help)

## Views

Views allow you to create derivative, live-linked hosted feature layers based on the original. Views can be shared, styled, or edited in different ways. View features are automatically updated when the original feature layer is updated.

Using views, you can control editing and access. For example, the master feature layer may be editable by members of your organization, but you can create read-only views for public viewing of the same data. You can also style views differently and control the attributes that are displayed.

Only the owner of a hosted feature layer can create a hosted feature layer view from the original layer.

## Tips and best practices

- Views are an excellent way of presenting and controlling access for different audiences.
- Views simplify data management and access considerations.

## Learn more

- [Create hosted feature layer views](#) (Help)
- [Getting started with hosted feature layer views](#) (Blog)
- [Hosted Feature Layer Views – A practical example](#) (Story)

## Tables

To see information about features in a layer, you can display an interactive table at the bottom of the map in Map Viewer or on the Data tab of the feature layer's item page. Seeing a tabular view of the data can be a quick way to analyze information and start making decisions.

You can sort, resize, reorder, and hide data, as well as select specific attributes to see on the map. If you have privileges to edit the layer, you can edit or delete attribute values and attach additional related photos and files.

If you own the layer, you can perform bulk editing operations, such as calculating field values and appending data. As the layer owner, you can also change the types of information stored in the layer by adding and deleting fields.

## Learn more

- [Show tables](#) (Help)
- [Edit tables](#) (Help)
- [Manage data](#) (Tutorial)

# Chapter 11: Perform analysis

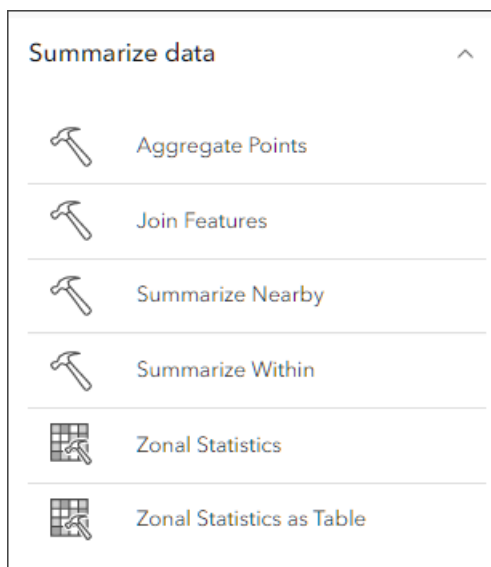
*Enrich your content and perform essential analytic tasks.*

The analysis tools in ArcGIS Online represent the most useful and used tools that can be applied to any workflow. To use analysis tools, you must have the appropriate privileges.

## Analysis tools

In ArcGIS Online Map Viewer, analysis tools are organized into categories. Vector analysis tools are available with the appropriate privileges, and when licensed for ArcGIS Image for ArcGIS Online, additional raster tools are available.

Click the **Analysis** button in the **Settings** (light) toolbar to open the analysis tool pane and view available categories. Open a category to view the tools grouped within it.



Click any analysis tool to open the configuration pane. Fill in the options and run the tool. The analysis runs in the background, so you can continue working as the analysis completes. When completed, the new analysis layer will appear in your map.



After completion, the analysis history is saved. Open the tool from its history to re-run the analysis with different parameters or layers. The history is saved with the map, so can be re-run later or can be run by others you share the map with.

The use of analysis tools consumes credits. Click **Estimate credits** to learn more about the number of credits consumed to perform the operation. To minimize unneeded credit consumption, use filters and the map extent to reduce the number of features used in the analysis, thereby reducing the credits consumed.

Administrators can set credit limits on members by using credit budgeting and allocation tools. In addition, administrators have reporting tools to monitor credit consumption by members and by task.

## Tips and best practices

- Preview credit consumption prior to running analysis tools.
- Use the map extent to limit the features used in the analysis.
- Set credit limits using credit budgeting and allocation tools.
- Analysis creates new layers, so remember to complete the item details if you save the layer.

## Learn more

- [Get started performing analysis](#) (Help)
- [Perform analysis](#) (Help)
- [Use the analysis tools](#) (Help)
- [Configure credits](#) (Help)
- [Tips for managing credits consumed by analysis tools](#) (Blog)
- [Solve a spatial problem using ArcGIS Online](#) (Tutorial)

# Chapter 12: Create apps from maps

*Use apps, dashboards, stories, and more.*

Just as you display your work from spreadsheets in polished reports for your boss and your team, you can display your maps in the form of polished web apps. Using Instant Apps and app builders, you can present your maps in focused and interactive ways for your audience.

## Make an app

You can create a web app with a map using ArcGIS Instant Apps, ArcGIS Web AppBuilder, ArcGIS Dashboards, ArcGIS StoryMaps, or ArcGIS Experience Builder.

Each of these apps offers differing functionality and capabilities. Choose an app template from the Instant Apps gallery, or open Web AppBuilder, Dashboards, ArcGIS StoryMaps, or Experience Builder. These can be opened from Map Viewer or from the item pages.

Note that Map Viewer is built on the latest ArcGIS Maps SDK JavaScript API (4.x). Web AppBuilder is built upon the 3.x JavaScript API, and therefore will not support all new capabilities in Map Viewer. It's recommended to use Instant Apps, Dashboards, ArcGIS StoryMaps, or Experience Builder instead of Web AppBuilder for that reason.

## ArcGIS Instant Apps

ArcGIS Instant Apps allows you to create and share interactive web apps in ArcGIS Online. Based on your goals and your audience's needs, select from a variety of app templates using the gallery. Instant Apps transforms a map to an interactive app—no coding required. Instant Apps features express setup options to streamline configuration, but you can switch to a more detailed, full setup option if needed.

Instant Apps is also available for group-based content.

## Tips and best practices

- Use **Preview**, one of the options on the app card in the gallery, to get an idea of how the app looks and how it will work with your map.
- Try out a handful of different configurable apps to see what works best with your map and how you envision viewers using it.
- Use **MyApps** in the gallery to copy existing apps to insert a new map and quickly make derivatives using existing configurations.

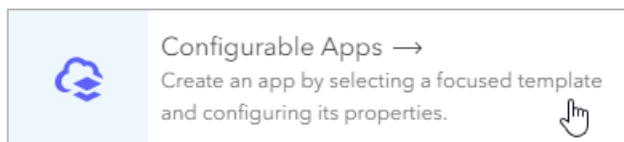
## Learn more

- [Create apps from maps](#) (Help)
- [Create apps from groups](#) (Help)
- [ArcGIS Instant Apps](#) (Help)

## Other configurable apps

ArcGIS Instant Apps templates are part of a larger collection of configurable app templates. While Instant Apps templates are built on the latest ArcGIS JavaScript API (4.x), other configurable apps are not. This means that newer capabilities in Map Viewer (built on JSAPI 4.x) will not be supported.

The entire configurable apps gallery (which also includes Instant Apps) is accessible from your map item pages. Click **Create Web App**, and choose **Configurable Apps**.



For more information, and a complete listing of all configurable apps, see [Choose an ArcGIS Configurable Apps template](#).

# ArcGIS Web AppBuilder

ArcGIS Web AppBuilder is an intuitive what-you-see-is-what-you-get (WYSIWYG) application that allows you to build 2D and 3D web apps without writing code. Choose a theme, add widgets, and configure them.

Because it is a JavaScript 3.x API app, Web AppBuilder will be retired. Use ArcGIS Experience Builder instead.

## Learn more

- [What is ArcGIS Web AppBuilder?](#) (Help)
- [ArcGIS Web AppBuilder roadmap for retirement](#) (Blog)

# ArcGIS Dashboards

A dashboard is a view of geographic information and data that allows you to monitor events, make decisions, inform others, and see trends. Dashboards are designed to display multiple visualizations that work together on a single screen. They offer a comprehensive view of your data and provide key insights for at-a-glance decision-making.

A dashboard is created by selecting elements and placing them on the dashboard canvas. Use settings to configure the elements and use actions to link elements together.

## Tips and best practices

- Think about whether your dashboard will be primarily used on mobile devices or in browsers, and design accordingly.
- Omit irrelevant information.
- Keep your layout simple.

## Learn more

- [What is a dashboard](#) (Help)
- [Create a dashboard](#) (Help)
- [Create your first dashboard using ArcGIS Dashboards](#) (ArcGIS Blog)
- [Dashboard mobile views](#) (Help)

## ArcGIS StoryMaps

ArcGIS StoryMaps allows you to use maps and media to tell stories that inform and inspire. ArcGIS StoryMaps uses a single builder through which you select blocks to hold text, media, maps, and apps in your story. ArcGIS web maps can be added to any story, or you can create an express map without leaving the story builder.

ArcGIS StoryMaps collections can be used to quickly group together stories and share or present them as a cohesive, navigable set. Collections can also be used to group any ArcGIS items together, so are valuable for organizing and presenting other types of content.

ArcGIS StoryMaps briefings are used to create presentation-style stories using a slide-based experience.

## Tips and best practices

- Use the **Design** panel to try out different themes or create a theme that aligns with your organization's branding colors. You can even upload a logo you want displayed.
- The subtitle of your story will automatically be the summary in the story's item details page. This will also be the text that gets displayed when your story is shared on social media.

## Learn more

[What is ArcGIS StoryMaps?](#) (Help)

- [Create your first collection](#) (Help)
- [ArcGIS StoryMaps overview](#) (Website)
- [ArcGIS StoryMaps resources](#) (Website)
- [Get started with ArcGIS StoryMaps](#) (Tutorial)
- [Create and publish your first briefing](#) (Help)

## ArcGIS Experience Builder

Use ArcGIS Experience Builder to build modern web apps and web pages without writing any code. Start from scratch or choose from an extensive library of customizable templates. You can add advanced functionality with widgets that you can drag, drop, and configure. Experience Builder offers a variety of layout options to build any web experience for any purpose.

### Tips and best practices

- Explore the various templates before you dive in to building your experience.
- You can customize your experience for various devices.

### Learn more

- [Get started with ArcGIS Experience Builder: Foldable template](#) (Blog)
- [Get started with ArcGIS Experience Builder: sync 2D and 3D maps](#) (Blog)
- [Get started with ArcGIS Experience Builder - Gallery template](#) (Blog)
- [Try ArcGIS Experience Builder](#) (Tutorial)

## Apps for collections of things

A group is a collection of maps, apps, and other item types usually related to a specific area of interest. You can create groups to organize your items.

Group-based gallery apps are configurable apps that can be used to display and interact with group content.

Other apps can be used for displaying collections. These include ArcGIS StoryMaps collections, ArcGIS Hub sites, and ArcGIS Experience Builder galleries.

### Learn more

- [Create apps from groups](#) (Help)
- [Create your first collection](#) (Help)
- [From groups to gallery apps](#) (Blog)

# Chapter 13: Keep moving forward

*Apps and tools help your organization grow.*

ArcGIS Online includes a full range of administrative and reporting tools to effectively manage your organization and its members. It also includes the [ArcGIS Online Health Dashboard](#), which provides information on the overall status of the entire ArcGIS Online system. Each offers an RSS feed subscription to alert you of any changes.

## Administration tools

ArcGIS Online administration tools allow organization administrators to invite and manage members and manage licenses, user types, and user roles. Member content can also be viewed and transferred to other members.

In addition, the organization status can be viewed showing credit consumption, types of content, sharing summary, member activity, and group activity.

Reports may also be created and saved to run again in the future. Report results can be saved for future reference.

## Tips and best practices

- Make monitoring your organization and member activities a regular event.
- Create reports that help you achieve your monitoring goals.

## Learn more

- [Manage members](#) (Help)
- [View and report status](#) (Help)
- [Best practices for organization maintenance](#) (Help)
- [Time-saving tips for managing members in ArcGIS Online](#) (ArcGIS Blog)



## ArcGIS Notebooks

While generally used for analysis and machine learning tasks, ArcGIS Notebooks also allows you to leverage the content management and GIS administration tools of ArcGIS API for Python to automate routine workflows and tasks.

For example, as an administrator, you can run notebooks to clean up items, notify web map authors of broken links or insecure URLs, delete inactive users, manage and allocate credits, and more.

The [sample notebooks gallery](#) includes scripts supporting administrative workflows, which you can modify to suit your specific needs. Or you can create notebooks to automate administration in your organization.

ArcGIS Notebooks is offered in several versions: Standard, Advanced, and Advanced with GPU. Standard includes ArcGIS API for Python and open-source Python libraries, ideal for administrative tasks, data engineering, and light analytics.

## ArcGIS Online Security Advisor

The [ArcGIS Online Security Advisor](#) has been developed by Esri to provide monitoring and reporting of potential site security and compliance issues. It's available at the [ArcGIS Trust Center](#), a resource for security, privacy, and compliance information.

## ArcGIS Marketplace

[ArcGIS Marketplace](#) has data, apps, and utilities that help you keep your organization moving forward. Some of what you will find is subscription based, but there are plenty of free tools as well. For example, [GeoJobe](#) offers both free and subscription tools to help you manage your organization.

# ArcGIS Online Assistant

[ArcGIS Online Assistant](#) assists with a variety of housekeeping duties and item maintenance.

With ArcGIS Online Assistant, you can do the following:

- Search for and copy content from one organization to another.
- View and edit the underlying JSON for any item.
- View tags.
- Update and modify service URLs in web maps and registered applications.
- View item statistics.

Created by Esri solution engineers, it is unsupported but widely used. The source can also be [found on GitHub](#).

## Stay informed

A key to keeping your organization running smoothly is to stay informed of changes and new products and capabilities. ArcGIS Online can be a rapidly changing landscape, so it beneficial to stay tuned to useful resources.

Resources to help keep you informed include the following:

- [ArcGIS Online blogs](#) / [ArcGIS blog](#)
- [ArcGIS Online Esri Community](#)
- [ArcGIS Online News](#)
- [ArcWatch](#) and [ArcUser](#) magazines
- [Esri events](#)
- [Esri contacts](#)

- [ArcGIS Online support knowledge base](#)
- [ArcGIS Living Atlas](#)