

# EXTEND THE REACH OF YOUR GIS

ArcGIS® Online Tips  
& Best Practices

Bern Szukalski  
Diana Lavery  
Matt Artz



# CONTENTS

Contents	2
Introduction	4
Chapter 1: Establish the vision and governance	5
Chapter 2: Create a greater destination	8
Chapter 3: Establish your brand	13
Chapter 4: Member types, roles, and privileges	19
Chapter 5: Tune your organization	24
Chapter 6: Use groups	34
Chapter 7: Member best practices	39
Chapter 8: Use ArcGIS Living Atlas of the World	45
Chapter 9: Turn data into information	47
Chapter 10: Work with hosted feature layers	56
Chapter 11: Perform analysis	61
Chapter 12: Create apps from maps	63
Chapter 13: Keep moving forward	69

Esri Press, 380 New York Street, Redlands, California 92373-8100. Copyright © 2021 Esri. All rights reserved.

The information contained in this document is the exclusive property of Esri unless otherwise noted. This work is protected under United States copyright law and the copyright laws of the given countries of origin and applicable international laws, treaties, and/or conventions. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying or recording, or by any information storage or retrieval system, except as expressly permitted in writing by Esri. All requests should be sent to Attention: Contracts and Legal Services Manager, Esri, 380 New York Street, Redlands, California 92373-8100, USA. The information contained in this document is subject to change without notice.

US Government Restricted/Limited Rights: Any software, documentation, and/or data delivered hereunder is subject to the terms of the License Agreement. The commercial license rights in the License Agreement strictly govern Licensee's use, reproduction, or disclosure of the software, data, and documentation. In no event shall the US Government acquire greater than RESTRICTED/LIMITED RIGHTS. At a minimum, use, duplication, or disclosure by the US Government is subject to restrictions as set forth in FAR §52.227-14 Alternates I, II, and III (DEC 2007); FAR §52.227-19(b) (DEC 2007) and/or FAR §12.211/12.212 (Commercial Technical Data/Computer Software); and DFARS §252.227-7015 (DEC 2011) (Technical Data–Commercial Items) and/or DFARS §227.7202 (Commercial Computer Software and Commercial Computer Software Documentation), as applicable. Contractor/Manufacturer is Esri, 380 New York Street, Redlands, CA 92373-8100, USA.

@esri.com, 3D Analyst, ACORN, Address Coder, ADF, AML, ArcAtlas, ArcCAD, ArcCatalog, ArcCOGO, ArcData, ArcDoc, ArcEdit, ArcEditor, ArcEurope, ArcExplorer, ArcExpress, ArcGIS, arcgis.com, ArcGIS CityEngine, ArcGlobe, ArcGrid, ArcIMS, ARC/INFO, ArcInfo, ArcInfo Librarian, ArcLessons, ArcLocation, ArcLogistics, ArcMap, ArcNetwork, ArcNews, ArcObjects, ArcOpen, ArcPad, ArcPlot, ArcPress, ArcPy, ArcReader, ArcScan, ArcScene, ArcSchool, ArcScripts, ArcSDE, ArcSdl, ArcSketch, ArcStorm, ArcSurvey, ArcTIN, ArcToolbox, ArcTools, ArcUSA, ArcUser, ArcView, ArcVoyager, ArcWatch, ArcWeb, ArcWorld, ArcXML, Atlas GIS, AtlasWare, Avenue, BAO, Business Analyst, Business Analyst Online, BusinessMAP, CommunityInfo, Database Integrator, DBI Kit, EDN, Esri, esri.com, Esri—Team GIS, Esri—The GIS Company, Esri—The GIS People, Esri—The GIS Software Leader, FormEdit, GeoCollector, Geographic Design System, Geography Matters, Geography Network, geographynetwork.com, Geoloqi, Geotrigger, GIS by Esri, gis.com, GISData Server, GIS Day, gisday.com, GIS for Everyone, JTX, MapIt, Maplex, MapObjects, MapStudio, ModelBuilder, MOLE, MPS—Atlas, PLTS, Rent-a-Tech, SDE, See What Others Can't, SML, Sourcebook-America, SpatiaLABS, Spatial Database Engine, StreetMap, Tapestry, the ARC/INFO logo, the ArcGIS Explorer logo, the ArcGIS logo, the ArcPad logo, the Esri globe logo, the Esri Press logo, The Geographic Advantage, The Geographic Approach, the GIS Day logo, the MapIt logo, The World's Leading Desktop GIS, Water Writes, and Your Personal Geographic Information System are trademarks, service marks, or registered marks of Esri in the United States, the European Community, or certain other jurisdictions. Other companies and products or services mentioned herein may be trademarks, service marks, or registered marks of their respective mark owners.

# INTRODUCTION

This book 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 lifted your GIS to the cloud, or are just beginning to think about it, you'll get valuable ideas on how to leverage the cloud to your best possible advantage and experience.

The topics we cover in this book 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

*Updated 08 June 2021*

*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*

Planning and meeting in advance as you begin to think about lifting your organization to the cloud is the best first step to success. Begin with these questions that you will need to ask. If you are just beginning to think about lifting your ArcGIS Online organization, it's important to know the answer to these 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 mission and vision?
- 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 for everything from what a good user profile should contain to authoring and publishing maps and layers, and for including required item details and other documentation.

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

Be sure to communicate well. 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 what is going on.

Always be grooming new champions of the organization. The initial champions might be totally 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.
- Implement successful patterns as you find them.
- 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.
- Always be grooming new administrators and managers.

## 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 GREATER DESTINATION

### *Build your dream home*

Your organization home page is the first thing that visitors and organization members will see. How your home page looks and what visitors find there will create first impressions. These first impressions are not just about you as a 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-looking, aesthetically appealing, and well-organized home page, whether you're exposing it only within your organization or to a wider audience.

The examples shown below are attractive sites and provide a good first impression—an impression of professionalism, backed up by content that you can trust.

## BEYOND AESTHETICS

While the aesthetic impression is 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. You will want to avoid things like requiring visitors to sign in when they open content they find on your home page.

On your home page, you can add additional links and documents as desired, such as links to your ArcGIS Hub<sup>SM</sup> sites, ArcGIS Open Data sites, your city website, learning resources, and more.



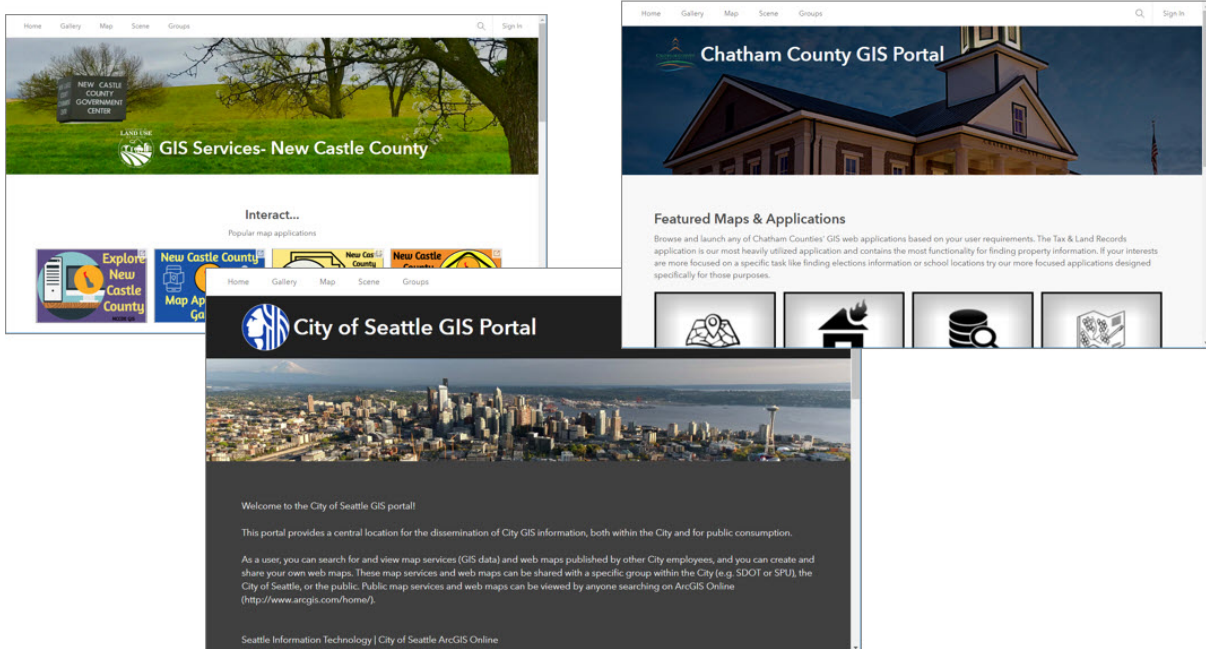
An interesting technique is to use sharing to control what visitors see—the public can see publicly shared items, but only after signing in can visitors see organization or group-only shared items.

## TIPS AND BEST PRACTICES

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

## HOME PAGE EDITOR

With the [June 2020 release of ArcGIS Online](#), Esri® introduced a new home page editor. Examples of home pages created with this editor are shown below.



The ArcGIS Online editor is designed to facilitate the creation of a secure and responsive experience across all devices.

Current users can still access the “classic” home page authoring tools. Many organizations have used custom HTML and CSS to customize their home page beyond the basics.

However, custom HTML is no longer supported in order to provide a secure and responsive page. Existing organizations are encouraged to adopt the new editor and explore the updated look and feel. New organizations can only access the new editor.

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

The new home page editor allows you to create a new 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

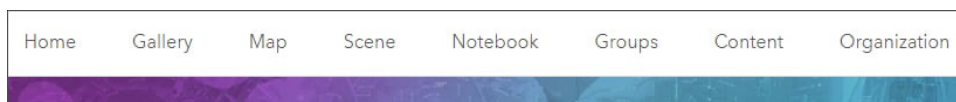
With the September 2020 ArcGIS Online release, additional improvements and capabilities were added to the home page editor, including the introduction of link blocks and an increased number of content blocks—text, galleries, and links—that you can add.

## TIPS AND BEST PRACTICES

- While the classic editor will continue to be supported, it is recommended that you migrate to the newer home page and use this editor as soon as possible.

## HOME PAGE VISIBILITY SETTINGS

Using [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.

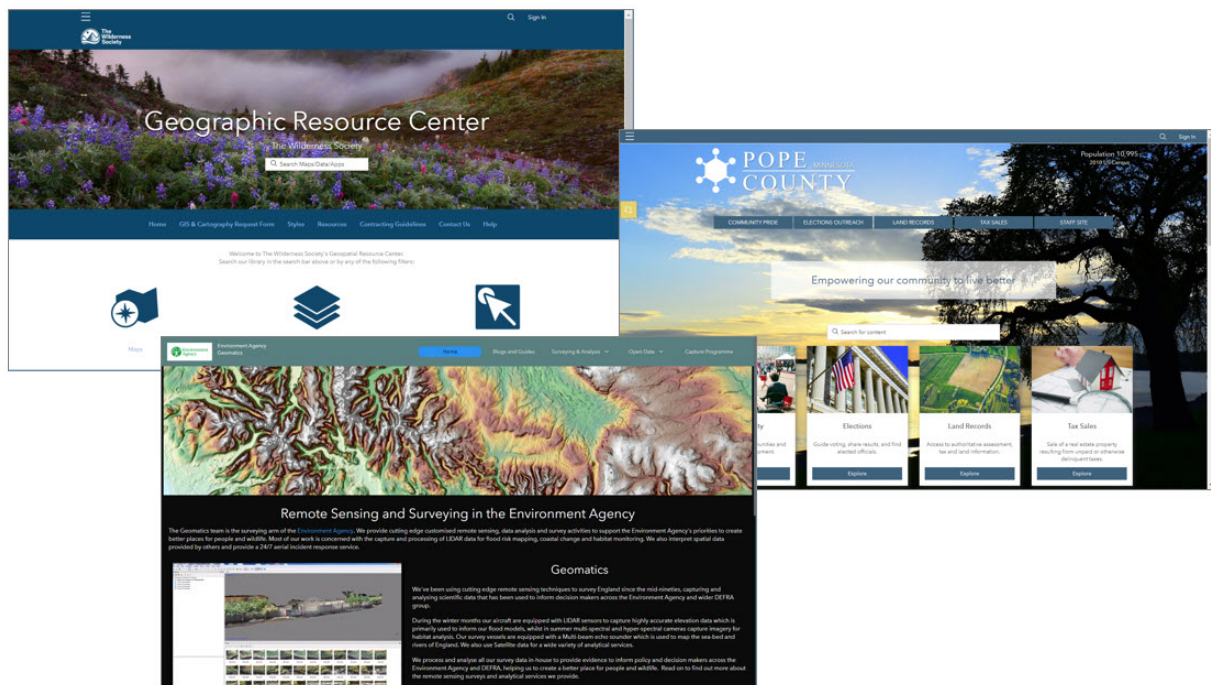
These settings enable administrators to provide a more customized experience for visitors. For example, administrators can make the Groups tab visible for organization members only, or for everyone who visits the site. For more information, see [Navigation bar](#) or [Declutter your organization's Navigation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

## TIPS AND BEST PRACTICES

- Use page visibility settings to control tab visibility for certain visitors.

## OTHER DESTINATIONS

While you can make your home page your primary destination, there are other destinations that you can create. It's up to you and depends on how you can best serve the varying audiences you want to reach. Other options include ArcGIS Hub sites and ArcGIS Experience Builder sites.



Group-based galleries and ArcGIS StoryMaps<sup>SM</sup> collections can also be thought of as more specific destinations. But groups and collections are best thought of as components of your home page, or a component of some other destination.

Remember that you can also embed gallery ribbons and apps on any website, offering yet another way to leverage and reuse what you have already done.

A good practice is to cross-link these destinations. 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.
- Use sharing to provide different resources for different audiences.
- Consider implementing more than one destination.
- Cross-link 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? Well crafted?

Example organization home pages:

- [Africa GeoPortal](#)
- [Faribault County, Minnesota](#)
- [Chatham County GIS Portal](#)

## TIPS AND BEST PRACTICES

- Consider the experiences of visitors and each member of your organization viewing your home page.
- Cross-link additional destinations.
- Migrate to the new home page editor as soon as possible.

## LEARN MORE

- [Create a great home page for your organization](#) (Blog)
- [Time for a new home page](#) (Blog)
- [Configure your home page galleries](#) (Blog)
- [Configure home page](#) (Help)
- [Configure gallery](#) (Help)
- [Set up an ArcGIS organization](#) (Tutorial)

# CHAPTER 3

## ESTABLISH YOUR BRAND

*Communicate an easily recognized identity*

What is a brand? A brand is an easily identifiable symbol or portrayal of who you are, and what you represent. A brand is very valuable and provides immediate recognition of your organization and the work you do.

An organization's brand has the following characteristics:

- Unique design, symbol, words, or a combination thereof that can be easily found, for example, in a thumbnail or user profile.
- Easily 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, you might not know that. So how can you judge the veracity of what you find via search?

We can look for the Authoritative badge (more on that later). But otherwise, it's judged by looks, by appearance, and by the profile. Not knowing other things, these are the cues that lead users to trusted content.

A professional look to the item thumbnail, item details, user profile, and home page leads us to believe 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

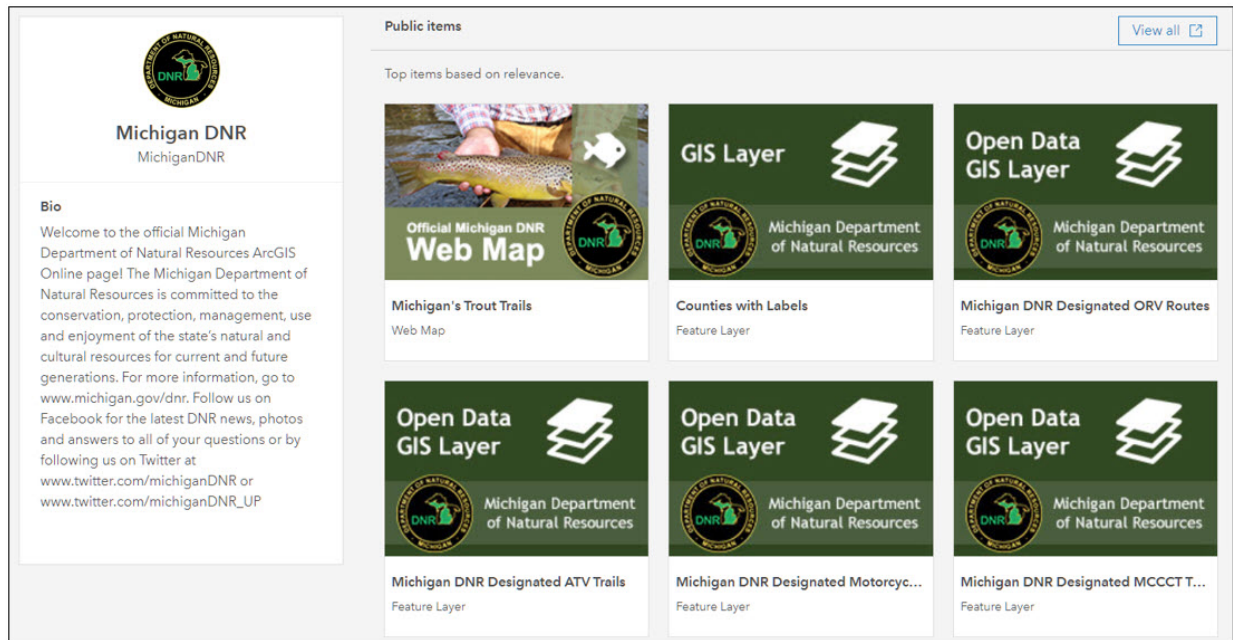
One thing that you should consider is creating a unique profile for public content that represents your organization. As organization members complete their maps, apps, and layers, they can be vetted and reviewed for good thumbnails, item summaries, and item descriptions, and then transferred by an administrator 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 of content you can trust.

The screenshot displays the 'City\_of\_Minneapolis' profile on a map application. On the left, two featured map layers are shown: 'Neighborhoods' and 'City Boundary'. Each layer includes a thumbnail map, a title, a description, and metadata such as 'Last Updated' and 'Created' dates. The 'Neighborhoods' layer was last updated on Dec 2, 2015, and created on Jun 28, 2012, with 206876 views. The 'City Boundary' layer was last updated on Nov 21, 2016, and created on Mar 9, 2012, with 243551 views. On the right, the profile card for 'Minneapolis GIS' is visible, featuring a logo with a stylized sailboat and a green circle. The bio section states: '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.'



Below is another example of a good profile. With the changes made recently to the way profiles are displayed, both items and groups are easily discovered and displayed. This means that you might need to do a little more housekeeping to make sure that what is exposed looks great. This collection shows consistent branding.



## 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 your organization profile are curated and reviewed.

## LEARN MORE

- [Manage profile and settings](#) (Help)

## 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 can't be 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 while ago, it's time to capture new thumbnails using the thumbnail editor. If you made branded thumbnails, 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)

## CONTENT STATUS

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

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.

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



## TIPS AND BEST PRACTICES

- Items can be designated authoritative or deprecated.
- Members can search by status.
- These designations are only searchable within your organization.

## LEARN MORE

- [Content status](#) (Help)

## PUBLIC AUTHORITATIVE CONTENT BADGE

To display an Authoritative badge on public items, you can go through the process of organization verification. While this has been available for some time, the appearance of the organization card has recently been enhanced.

If an organization is verified, public items that are marked as authoritative display the organization name as the item owner. Clicking the item owner link for public authoritative items shared by verified organizations displays a pop-up with information about the organization and links to its home page and gallery. The gallery provides easy access to resources or showcases featured apps or stories.

This administrative setting is found in the General > Organization verification section on your organization settings.

## TIPS AND BEST PRACTICES

- Consider verifying your organization to display a public badge for your authoritative items. Any public content marked as authoritative will display the badge and will be publicly searchable using its status. This is a setting on the General tab of your organization settings.

## LEARN MORE

- [Organization verification](#) (Help)

## EXAMPLES

Utah School and Institutional Trust Lands Administration (SITLA) is a good example of both branding and the use of an organizational profile. The first link returns a list of their items, the second displays the profiles. Note the contact information.

### ORGANIZATION BRANDING AND PROFILES

- [Search for owner \(owner: UtahSITLA\)](#) (ArcGIS Online)
- [UtahSITLA profile](#) (ArcGIS Online)

The Iowa Department of Transportation (DOT) is an example of an organization that has been verified and now displays the Authoritative badge on its authoritative public content. Note that the designation also places these search results at the top of the rankings. Click the owner name (Iowa Department of Transportation) and note that you can view their home page or gallery.

### PUBLIC AUTHORITATIVE BADGE

- [Iowa Department of Transportation](#) (ArcGIS Online)

# CHAPTER 4

## MEMBER TYPES, ROLES, AND PRIVILEGES

*Empower your members with the tools and capabilities they need for success*

Organizations are composed of many people with different duties, responsibilities, skills, and tasks. Organization members also use different apps—from ArcGIS Pro to apps for the field—that they have access to. 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 let you control how your organization works by matching members' activities and responsibilities with the capabilities and 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 user name and password—the gateway 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
- Editor
- Field Worker
- Creator
- GIS Professional (basic, standard, and advanced)

- Insights Analyst
- Storyteller

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 set 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

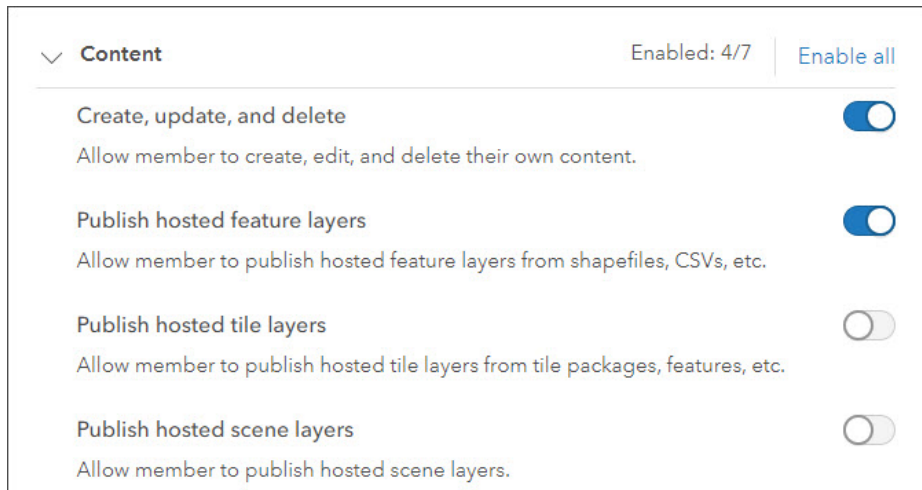
ArcGIS Online defines a set of privileges for each of the following default roles:

- **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.
- **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.

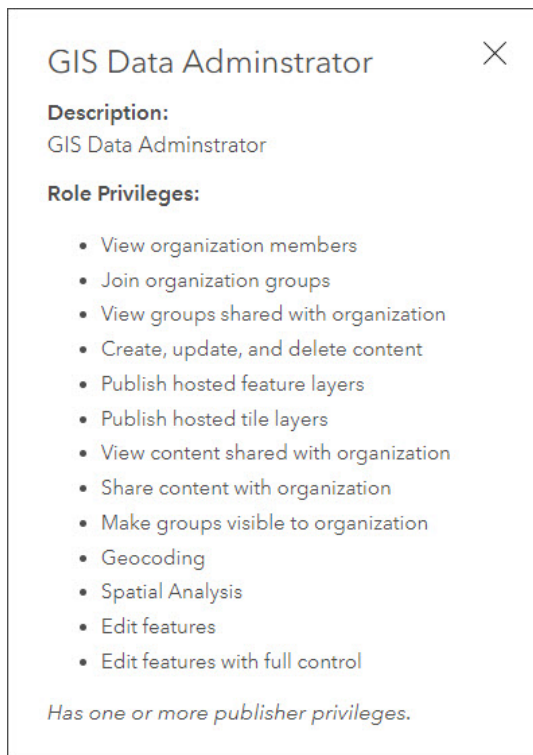
When you create a new role, you first assign a name and description. Then you can assign privileges. Privileges are grouped in categories and subcategories and can be individually turned on or off.



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 roles 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. 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 let you specify the following:

- User type and role
- Add-on licenses
- Groups
- Credit allocation
- Esri access

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 easily 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)
- [The Author, Contractor and some Managers: A Tale of Roles and Privileges](#) (Blog)
- [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 using different settings that are used to configure everything from the look and feel of the home page to what appears on 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.

Organization settings to configure your website are organized as follows:

- General
- Home page
- Gallery
- Map
- Items
- Groups
- Utility services
- Member roles
- New member defaults
- Marketplace
- Collaborations
- Credits
- Security
- Open Data
- Hub
- Organization extensions



## TIPS AND BEST PRACTICES

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

## LEARN MORE

- [Configure website](#) (Help)

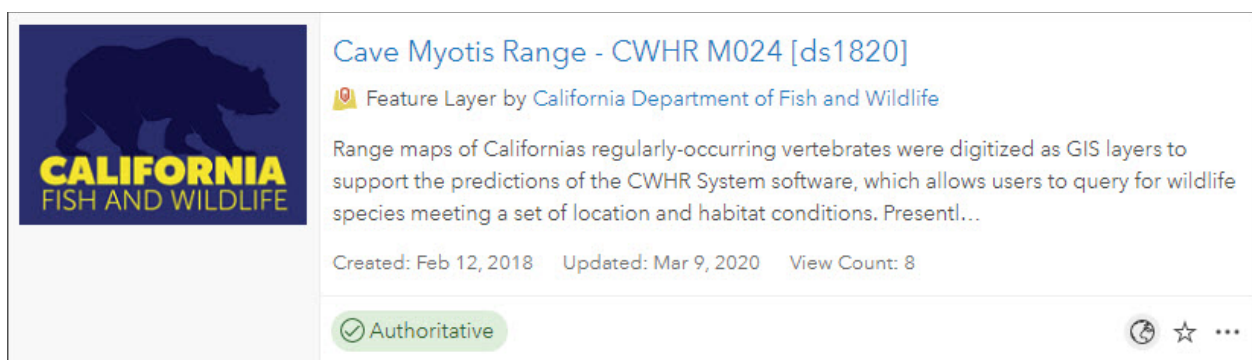
Here's a closer look at key settings.

## GENERAL SETTINGS

Default administrators and those with the correct privileges can configure general settings for the organization. You can enter a name, logo, and summary for your site. You can also choose a short name for the organization, specify the default language and region, create a custom contact link, define a shared theme for web apps created by organization members, and make web apps available to organization members.

## 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.

## TIPS AND BEST PRACTICES

- Verifying your organization enables your public, authoritative content to be more visible and discoverable in ArcGIS Online.
- Configuring the navigation bar is a good way to provide good experiences for all visitors to your organization home.

## LEARN MORE

- [Configure general settings](#) (Help)
- [Navigation bar](#) (Help)
- [Manage apps in the app launcher](#) (Help)
- [Organization verification](#) (Help)
- [App launcher: A customized suite of apps for your organization](#) (Blog)

## GALLERY SETTINGS

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

## LEARN MORE

- [Configure gallery](#) (Help)

## MAP SETTINGS

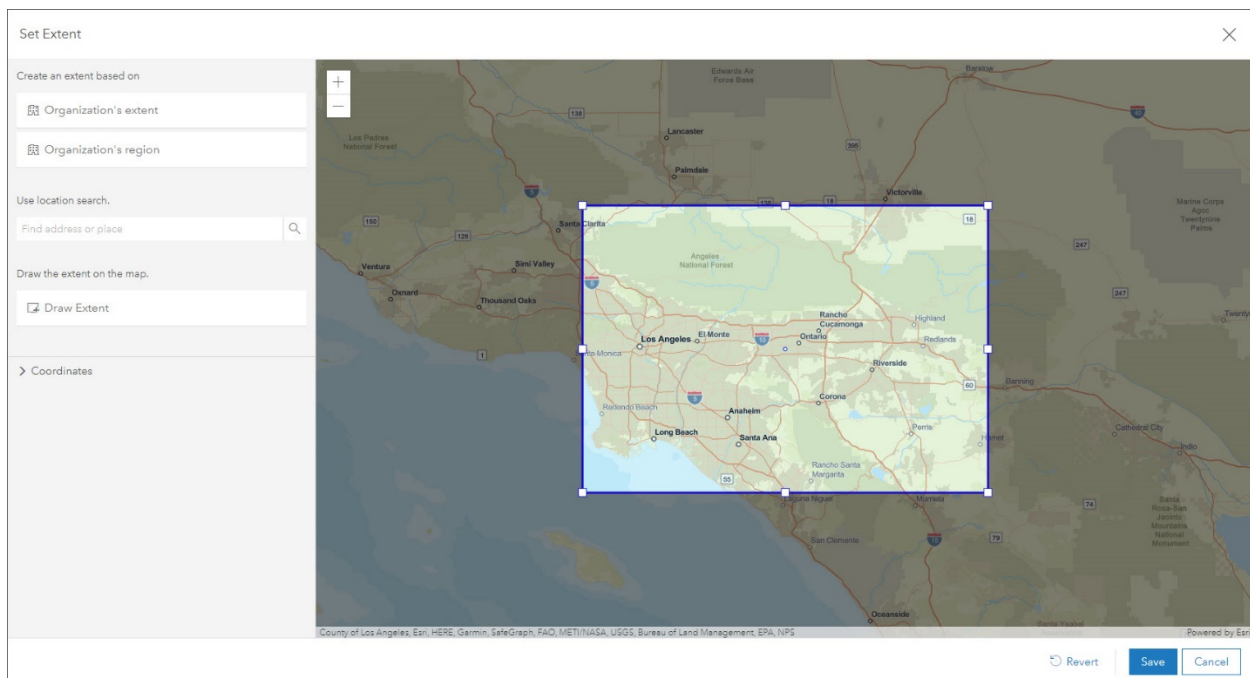
Some of the key organization settings can be found on the Map tab. These let you enable Map Viewer and set the basemap gallery, default basemap, default extent and units, and more.

## BASEMAP GALLERY

The basemap gallery group is set on the Map tab. The maps in the group will participate in the basemap gallery for the organization. You can use Esri default basemaps or create custom basemap galleries combining Esri basemaps with others from Living Atlas or your own maps.

## MAP DEFAULTS

The default basemap specified here opens when users click New Map. The map will open at the specified 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.

## TIPS AND BEST PRACTICES

- Explore Map Viewer if you haven't done so already.
- If appropriate, enable Map Viewer for members of your organization, but note that some smart mapping styles and other features are not supported across all apps.

- Use vector basemaps instead of tiled raster basemaps (which are entering mature support).
- 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 needs and preferences.
- Set a default basemap and extent appropriate for your organization.

## 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)
- [Esri's hosted raster basemap services moving to Mature Support](#) (Blog)

## ITEM SETTINGS

Everything stored in ArcGIS Online is an item. This section lets you specify settings that apply to all items in your organization.

## 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 turned on. You can choose from a variety of metadata styles.

## ORGANIZATION CATEGORIES

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

Some things to know about categories include the following:

- They are a hierarchical way to organize content.
- You can start with a template (ArcGIS, ISO, INSPIRE) or use your own custom categories.
- Categories are supported in groups.
- Categories are searchable and filterable.

Categories can also be transient. For example, you might create a category named “Route 1 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.

Categories, unlike tags, are easy to modify and maintain. Also, and unlike tags, Esri will not add categories. For example, when you perform analysis, your item will get additional analysis tags, but your categories are never modified. Categories are also easily managed from one location for use across your organization.

## 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)
- [Content Categories Four Ways: An Introduction to Organizing and Finding Content by Theme](#) (Blog)
- [Explore content with Category Gallery](#) (Blog)

## GROUP SETTINGS

Groups are a primary organizing component in ArcGIS Online. For example, your basemap gallery is populated using a group containing maps. Groups also contain relevant content for members of your organization or can contain content intended for public audiences.

## FEATURED GROUPS

This setting lets you choose the groups that will be displayed when the Groups tab at the top of your website is clicked. 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 via 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.

## LEARN MORE

- [User types, roles, and privileges](#) (Help)
- [Configure member roles](#) (Help)

## 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

Credits are the currency used across ArcGIS and are consumed for specific transactions. Most of what members can do does not consume credits; however, several tasks can consume significant credits. 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

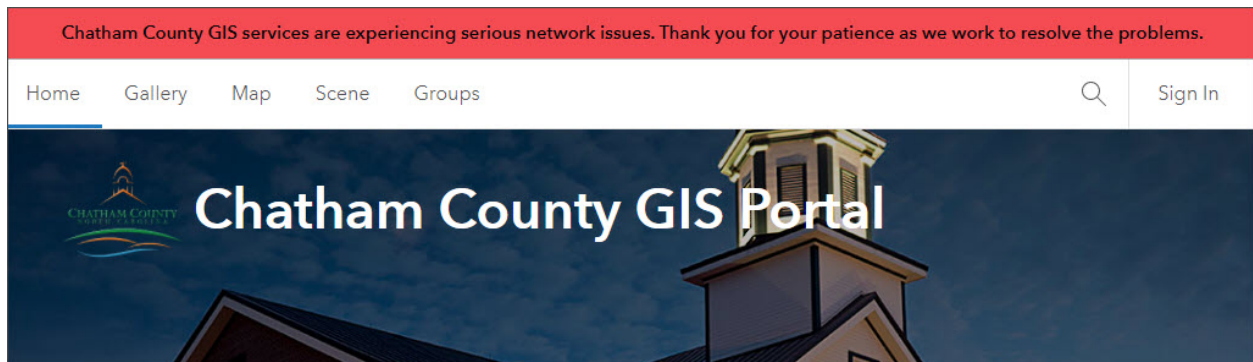
- [Configure credits](#) (Help)
- [Understand credits](#) (Help)
- [Understanding and managing credits in ArcGIS Online](#) (Blog)

## SECURITY SETTINGS

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

## 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.
- Set the ArcGIS Online organization password expiration time to match your organization policies.
- When allowing anonymous access (recommended), ensure you've configured a great 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](#) (Website)
- [ArcGIS Security Advisor](#) (Website)

# CHAPTER 6

## USE GROUPS

### *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 as building blocks for 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. A very good practice is to 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.

## WHAT GROUPS DO YOU NEED?

What groups will you need? Obvious candidate groups 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 new groups to accommodate activities, and members can create their own to manage their content and collaborate.

## TIPS AND BEST PRACTICES

- Get ideas 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 lots of flexibility to suit your needs. Sharing and visibility can be controlled and how members can participate, update, contribute, and collaborate.

### Group visibility

- Private
- Internal to your organization
- Public

### Group membership

- Request membership/approval
- Admission by invite only
- Anyone

### Group contributors

- Only group owner/manager
- All members of the group

## Group member content updates

- Only their own items
- All items

## LEARN MORE

- [Manage groups](#) (Help)

# 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 for 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 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)
- [Administering Your Collaboration – Tips and Tricks](#) (Blog)

# ESTABLISH GROUP CONVENTIONS

Eventually your organization will grow in size and the number of groups. It's a good idea to establish some early conventions.

It's common to 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 by the use of color. You can also use naming conventions to list related groups in order.

These little tricks 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 good group destination; include a meaningful summary, description, tags, and thumbnail.

## LEARN MORE

- [Get started creating groups](#) (Help)
- [Create groups](#) (Help)
- [Configure groups](#) (Help)
- [Manage groups](#) (Help)
- [Assign members to groups](#) (Help)

# GROUP-BASED CONFIGURABLE APPS

Like maps, groups have easy-to-configure apps that can be used to present the content within them in different ways. The two most popular are Minimal Gallery and Category Gallery. Also, like maps, groups can be embedded into websites as gallery ribbons.

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

StoryMaps collections are another opportunity to gather lots of different content together in an easy, shareable way. These are built in to the story workflow at [ArcGIS StoryMaps](#). Because they are built in to the storytelling workflow, they are ideal for creating collections of your stories, but other item types are also supported.

## LEARN MORE

- [From groups to gallery apps](#) (Blog)
- [Explore content with Category Gallery](#) (Blog)
- [Create a simple, card-based gallery using Minimal Gallery](#) (Blog)
- [Optimize group settings to share stories like never before](#) (Blog)

## EXAMPLES

- [COVID-19 Learning Resources](#) (uses Category Gallery)
- [Population Migration to Each State in the US](#) (uses Minimal 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 via your profile and documenting and managing the content you author.

### PROFILES

A profile tells others who you are, whether within your organization or outside it 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, a best practice is to expose your profile (in your profile settings) so that those who find your public content can identify the source.

### PROFILE BIO

There are many styles that you can use to create a good profile. In the first example, there is basic, but good, information about Sandy as the content owner.




**Sandy Ebersole**  
SandyEbersole

**Bio**

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


In the second example below, you can learn a lot more about Lindsay and the organization she represents.



**Lindsay Withers**  
lindsay.withers

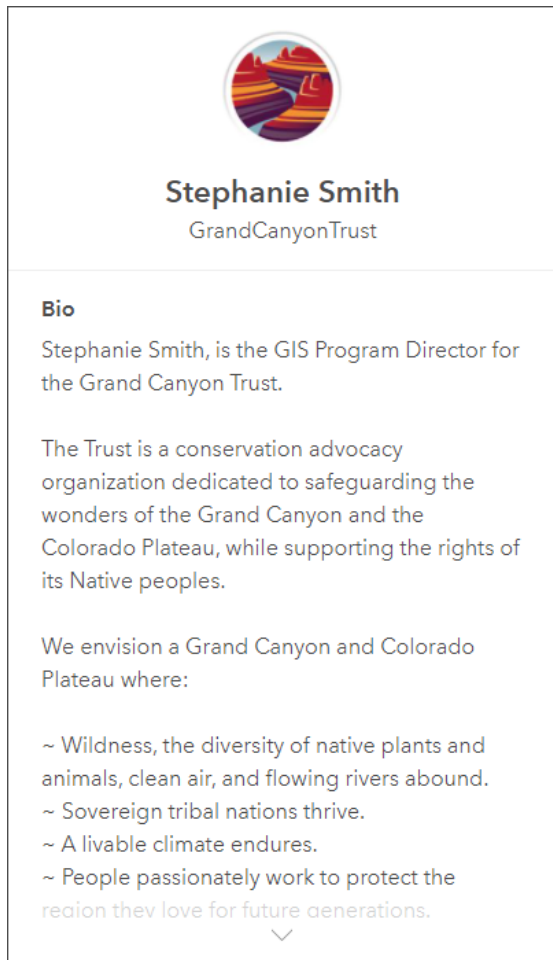
**Bio**

GIS Cartography Manager at the The Trust for Public Land. The Trust for Public Land works to protect the places people care about and to create close-to-home parks—particularly in and near cities, where 80 percent of Americans live. Our goal is to ensure that every child has easy access to a safe place to play in nature. We also conserve working farms, ranches, and forests; lands of historical and cultural importance; rivers, streams, coasts, and watersheds; and other special places where people can experience nature close at hand. The Trust for Public Land’s Vision and GIS service uses cutting-edge research and innovative mapping techniques to create parks, protect open space, and deliver community-driven conservation plans. To learn more about The Trust for Public Land and its GIS services, visit [the-trust.org](#)





In the third example, Stephanie clearly identifies herself as the source for Grand Canyon Trust authoritative content by using the Trust logo and clearly identifying her affiliation with that organization.



All of these are good profiles and include contact info and other details that help you learn about the item owner.

## 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.

## LEARN MORE

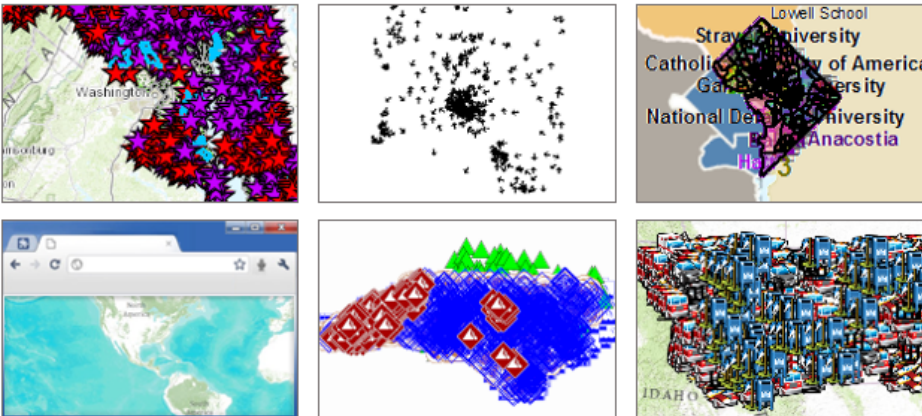
- [Be somebody \(and show your best profile\)](#) (Blog)
- [Brand yourself with the refreshed User Profile page](#) (Blog)
- [Manage profile and settings](#) (Help)

## 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:



These thumbnails inspire . . . doubt. 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 guide viewers to understanding 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.

## LEARN MORE

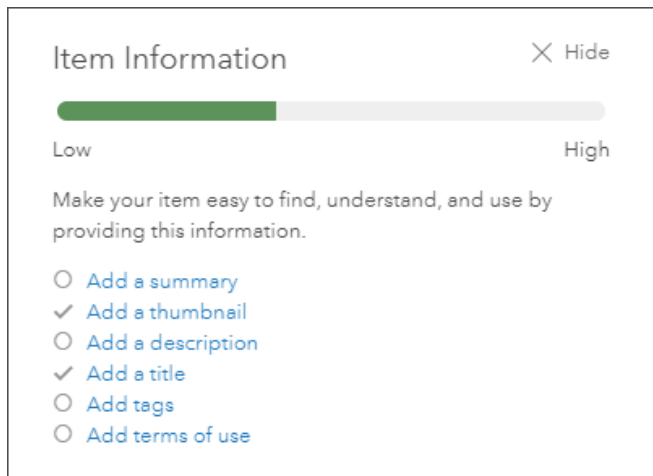
- [Thumbnail image](#) (Help)
- [Put your best thumbnail forward](#) (Blog)
- [Create a thumbnail style and brand](#) (Blog)

## ITEM DETAILS

Any job is not complete 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.



Of special consideration is the Updated date, visible just below the summary. This is when the item description was last updated, and not necessarily when the data was updated. Because of this, it is important and a best practice to add the data update date or refresh interval in the item description as prominently and easily discoverable as possible. This could also be part of the summary.

## TIPS AND BEST PRACTICES

- Use a good title for your item.
- Create a concise and descriptive summary.
- Include all relevant details in the description.
- Include information on the date and time of the data 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.

## LEARN MORE

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

# CHAPTER 8

## USE ARCGIS LIVING ATLAS OF THE WORLD

### *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 Esri and the global GIS community.

The content is curated, authoritative, and continually updated. It's very much a *living* atlas. The collection of content is ever-growing, and many of the items are “live,” meaning updated in real 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 ArcGIS Living Atlas Browser, where you can discover content using keywords and filter by type, category, region, and even date (past month, year, or custom date). What makes this such a valuable resource is that 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 for easy discovery later.
- Remember that you can contribute content to ArcGIS Living Atlas.

## LEARN MORE

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

## ARCGIS LIVING ATLAS APPS

ArcGIS Living Atlas apps are useful applications that can be used for visualization and analysis and show how you can use ArcGIS Living Atlas content. Some of these apps enable you to create maps or download data, for example:

**World Imagery Wayback** offers a way to go back through 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** lets you browse topo maps from 1882 to 2006. You can download and share the maps, or open them in ArcGIS Pro.

**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 expertly crafted and expressive ArcGIS Living Atlas maps that have been chosen because they reveal important community facts. Use the Policy Maps web app to browse and view the collection of maps that combine a variety of topics to help gain insight about demographics and more. Use the app to view and share single maps or create your own 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.

## LEARN MORE

- [Use World Imagery Wayback](#) (Blog)
- [Use World Imagery Wayback to create a custom basemap](#) (Blog)
- [Explore, Collect, and Share Maps About Issues Important to Your Community](#) (Blog)
- [Use a collection of policy maps in ArcGIS StoryMaps](#) (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 just a few simple considerations.

### MAPS

Maps are our *lingua franca*. We apply our tradecraft and skills in creating expressive and meaningful maps that help us share our 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 easy-to-understand 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 unique basemaps.

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. Layer pop-ups offer another way to craft useful, creative, and meaningful displays of information. Finally, a map is made complete by using it in a variety of different apps.

### AUTHORING 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 great building blocks for you to use and reuse. If your organization has content marked as authoritative, you can filter for those layers or mark them as favorites to find them easily.

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. Configure pop-ups.
4. Save and share.
5. 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 of your own 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 via ArcGIS Living Atlas. In addition, you can create your own 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 different fonts and styles to render the vectors in distinctive and unique ways.

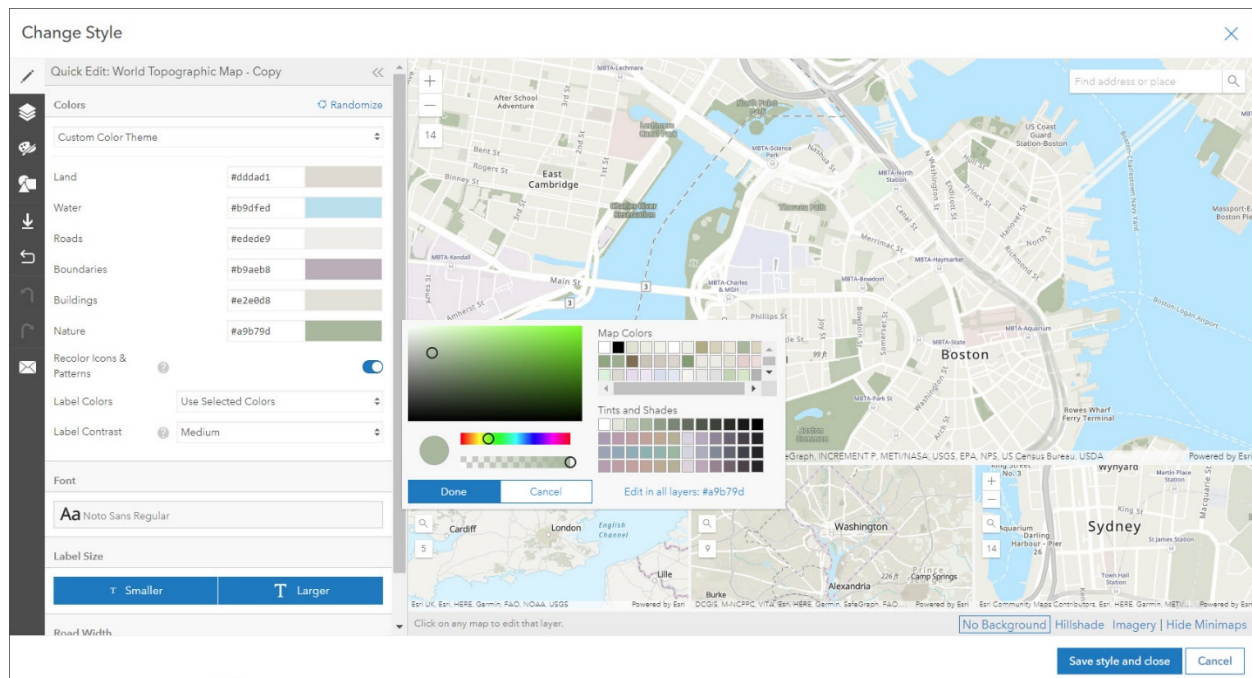




Vector basemaps have a number of advantages over raster tile basemaps. Unlike raster tile layers, vector tile layers can adapt to the resolution of the device display, can be rotated, and can be restyled. Vector tiles have a smaller file size than raster tiles, which translates to faster maps and better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



The VTSE delivers a fast and easy way to create a custom basemap style or edit the style of any vector layer. Open it as a separate app or launch it from the layer by clicking Change Style.

## TIPS AND BEST PRACTICES

- If you haven't done so already, use Esri vector basemaps.
- You can extend your basemap gallery by adding your own basemaps using a custom gallery.

## LEARN MORE

- [Choose basemap](#) (Help)
- [Switch basemap](#) (Help)
- [Make your own map style](#) (Blog)
- [Update vector tile layer style](#) (Help)
- [What is the 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 can be features or imagery and are called operational layers. Depending on the type, you can change how a layer is rendered, change its style, configure pop-ups, edit features, and perform analysis.

The visualization of layers is configured in the layer itself, but when added to a map, you can override the defaults. You can change the style, visibility, transparency, and pop-ups and save changes in your map.

Layers you add to your map can come from a variety of sources. You can add layers from your organization or from ArcGIS Living Atlas, or add and publish your own layers.

## FEATURE LAYERS AND FEATURE COLLECTIONS

Features on your map can come from a variety of sources, for example, from existing services you have, new ones you publish, or from ArcGIS Living Atlas. These layers can be styled, saved, and reused in many maps and apps.

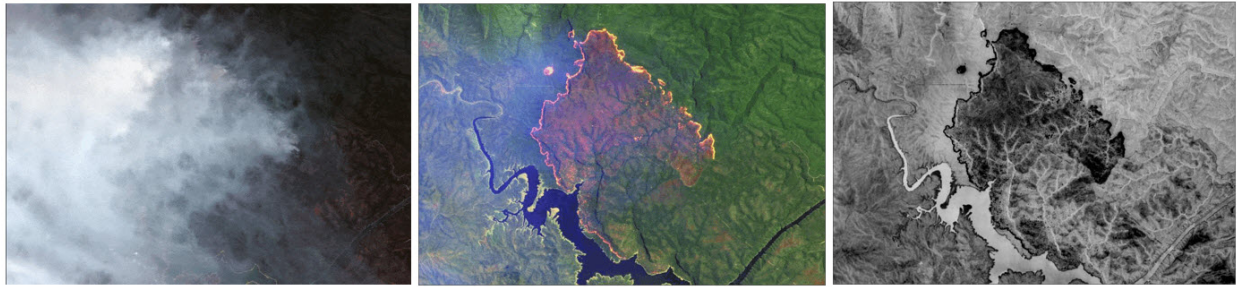
Another way to add features is from local files, such as shapefiles, CSV, GPX, and others. When you add these types of content directly to your map, they create a feature collection within the map. Those features are not available outside your map, so they cannot be reused in other maps. If you want your layers to be reusable, publish them as feature layers.

## 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. You will find them in the image layer context menu by choosing Image Display. Multitemporal imagery can be selected by date using the Image Filter found in the layer context menu.

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.



## SMART MAPPING

Smart mapping helps you use your data to create beautiful and informative maps quickly. Smart mapping uses a data-driven approach to help you make decisions about the best way to represent your data, making it easy 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 and predominance mapping. For example, if you've chosen two attributes of the same type, it will suggest predominance, relationship, or size and color.

## EXAMPLES

Types (unique symbols): [Public Universities in California](#)

Color and size: [Where are the Uninsured?](#)

Above and below: [Is a 40-hour Work Week Normal?](#)

Predominance: [What is the most common place of birth among those who are foreign-born?](#)

Relationship: [Households who spend more than 30 percent of income on housing](#)

The following is a sizable list of smart mapping styles:

- Location
- Heat map



- Counts and amounts (color)
  - High to low
  - Above and below
- Counts and amounts (size)
- Color and size
- Compare A to B
- Relationship
- Relationship and size
- Predominant category
- Predominant category and size
- Types (unique symbols)
- Types and size
- Continuous timeline (color)
- Continuous timeline (size)
- Color (age and size)
- Color and size (age)
- Types and size (age)

There are many different data-driven smart mapping styles that help you make beautiful and expressive maps.

## TIPS AND BEST PRACTICES

- Think about the attributes 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.
- After styling new layers, use Save Layer so your changes will be preserved on the layer, not just in your map.

## LEARN MORE

- [Change style](#) (Help)
- [Apply styles](#) (Help)
- [Smart Mapping](#) (Website)
- [Size maps get turbocharged in Map Viewer](#) (Blog)
- [Enhanced clustering in the new Map Viewer](#) (Blog)
- [Mapping time in the new Map Viewer](#) (Blog)

- [New color ramps in Map Viewer](#) (Blog)
- [Dot density in Map Viewer](#) (Blog)

## LAYER POP-UPS

While it's easy to craft good pop-ups, they are often overlooked, and in too many maps you see a default dump of often meaningless fields and values.

At a minimum, the attributes should be configured. Remove 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. You should also format numeric attributes; adjust the number of decimal places and decide if 1,000 separators are needed.

Pop-ups can be configured in a variety of ways:

- A list of field attributes
- Description from one field
- A custom display

Custom displays enable you to use HTML for a completely custom experience. You can also use Arcade to format values in your pop-ups and can add media such as images and charts.

## TIPS AND BEST PRACTICES

- No matter which way you choose to display the pop-up content, configure the attributes first.
- Use Arcade to format attribute values and color dynamically.
- After configuring pop-ups for new layers, use Save Layer so your changes will be preserved on the layer, not just in your map.

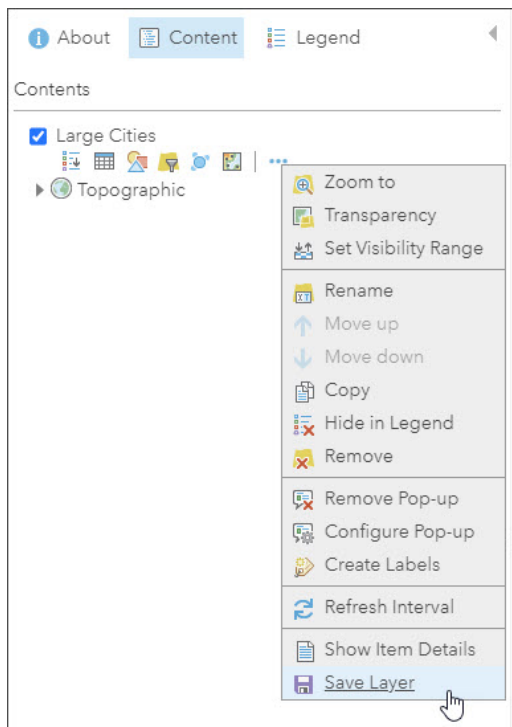
## LEARN MORE

- [View pop-ups](#) (Help)
- [Configure pop-ups](#) (Help)

# SAVING LAYERS

*(Note: This functionality is currently only supported in Map Viewer Classic).*

The Save Layer option can be found on the context menu for any layer. A newly published layer shows the default pop-up, style, and other settings. After you style and configure the layer, use Save Layer to preserve all your changes. This stores the configurations with the layer, making it ready to use by others.



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.

# 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 takes care of hosting 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 different sources can be used to publish hosted feature layers.

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, use Save Layer to save your changes. The next time you or others use the layer, it will be already 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.
- Use Save Layer after publishing and configuring your hosted feature layers to create ready-to-use operational layers.
- For feature layers with complex lines or polygons, optimize the layer drawing as appropriate.
- 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)
- [Rebuild the spatial index](#) (Help)
- [Overwrite hosted feature layers](#) (Help)
- [Append data to layers](#) (Help)

## EDITABLE FEATURE LAYERS

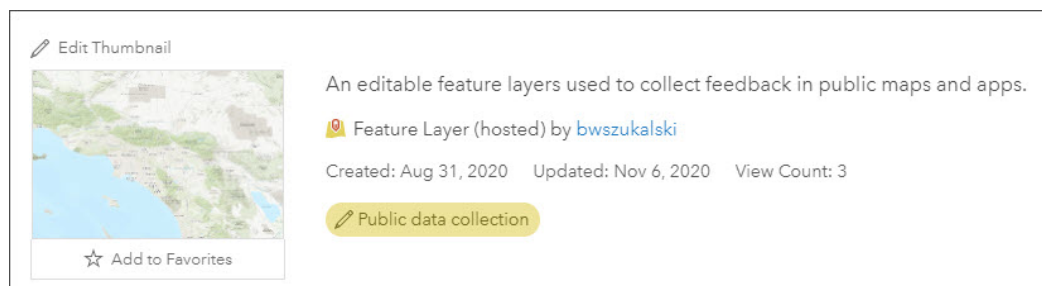
As the owner of a hosted feature layer or an organization administrator, you can decide who has edit access to your feature layer data. You can control that access through a combination of hosted feature layer views, editing settings, and sharing properties.

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)
- [Filter edits](#) (Help) \*Currently only supported in Map Viewer Classic
- [Disable editing](#) (Help) \*Currently only supported in Map Viewer Classic

## 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 might 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 in the Settings toolbar to open the Filter window and construct your filter.

A screenshot of a 'Filter Expression' window. The title 'Expression' is at the top left, and '\*\*\*' is at the top right. Below the title are three stacked dropdown menus. The first dropdown is labeled 'TYPE' and has a downward arrow. The second dropdown contains the text 'is' and has a downward arrow. The third dropdown contains the text 'Hospital' and has a downward arrow. At the bottom of the window is a button with a plus sign and the text '+ Add expression'.

## TIPS AND BEST PRACTICES

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

## LEARN MORE

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

## VIEWS

Views are a very powerful and useful way 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.

## 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

*(Note: This functionality is currently only supported in Map Viewer Classic).*

In ArcGIS Online, analysis tools are organized into categories. Click the tool button to open the analysis tool pane. Fill in the options and run the tool. The analysis runs in the background, so you can continue working as the analysis completes.

Essential analysis tasks include the following:

- Summarize data
- Find locations
- Data enrichment
- Analyze patterns
- Use proximity
- Manage data

You can preview credit consumption prior to the analysis and 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

*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 configurable apps, you can present your maps in focused and interactive ways.

### MAKE AN APP

You can create a web app with a map using [ArcGIS Configurable Apps](#), [ArcGIS Web AppBuilder](#), [ArcGIS Dashboards](#), [ArcGIS StoryMaps](#), or [ArcGIS Experience Builder](#).

Each of these apps offers various functionality and capabilities. Choose an app template from ArcGIS Configurable Apps or open Web AppBuilder, Dashboards, StoryMaps, or Experience Builder to configure their components and publish the app.

Once created, these show up as the following item types in search results or Content:

- Web Apps
- Dashboards
- StoryMaps
- Experience Builder Apps
- Web AppBuilder Apps

### CONFIGURABLE APPS

ArcGIS Configurable Apps make it easy to create and share interactive web applications in ArcGIS Online. Based on your goals and your audience's needs, select from a variety of app templates. Configurable apps are the fastest and simplest way to go from a map to an interactive app. They are easy to configure—no coding required. Several of the apps feature express setup options to streamline configuration, but you can switch to a more detailed, full setup option if needed.

Configurable apps are also available for group-based content.

Configurable apps are organized in the Create a New Web App gallery under the following topics:

- Showcase a map
- Collect / Edit data
- Compare maps / Layers
- Explore / Summarize data
- Interpret Imagery
- Map Social Media
- Provide Location Information
- Route / Get directions

## TIPS AND BEST PRACTICES

- Use Preview for a “quick share” or to get an idea of how the app looks.
- Try out a handful of different configurable apps to see what works best with your map and how you envision viewers using it.
- Use your organization’s branding colors when configuring your app for a polished and consistent look.

## LEARN MORE

- [Create apps from maps](#) (Help)
- [Create apps from groups](#) (Help)
- [Choose and ArcGIS Configurable Apps template](#) (Help)

## 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 a single line of code. Choose a theme, add widgets and configure them, then preview, save, and open. As you add your map and tools, you can see them in the app and use them right away.

Developers can build custom widgets and themes to extend ArcGIS Web AppBuilder using the Developer Edition.



## TIPS AND BEST PRACTICES

- ArcGIS Web AppBuilder is a way to create custom app templates for your organization's app template gallery. Build your app, then create a template using the app.

## LEARN MORE

- [What is ArcGIS Web AppBuilder?](#) (Help)
- [ArcGIS Web AppBuilder overview](#) (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

- 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)

# ARCGIS STORYMAPS

ArcGIS StoryMaps let you use maps and media to tell stories that inform and inspire. 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.

You can give storytellers in your organization the ability to create StoryMaps with the new Storyteller user type. This user type is ideal for people who solely want to make stories by embedding shared ArcGIS content from their organization or by creating their own express maps. Often, people who work in marketing, communications, public relations, or other content creation roles use the Storyteller user type.

Use ArcGIS StoryMaps to do the following:

- Author stories with the story builder. Stories can include maps, narrative text, lists, images, videos, embedded items, and other media.
- Publish and share your stories. Published stories each have their own URL, and you can use these URLs to share your stories within your organization, to specific groups, or with everyone.
- Create and publish collections of stories. Collections can include stories and ArcGIS web apps bundled together for easy sharing and presenting.
- Manage your stories. View and edit your stories from the Stories page, find stories authored by others in your organization, and add stories to your favorites list.

## TIPS AND BEST PRACTICES

- Use the Design panel to try out different themes, or even create your own 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 map's item details page. This will also be the text that gets displayed when your story map is shared on social media.

## LEARN MORE

- [ArcGIS StoryMaps overview](#) (Website)
- [ArcGIS StoryMaps resources](#) (Website)
- [Storytelling tips](#) (Website)

- [Quick tips for mastering the ArcGIS StoryMaps builder](#) (Blog)
- [What is an express map, and why should you use one?](#) (Blog)
- [4 things to know about Esri's new Storyteller user type](#) (Blog)
- [Get started with ArcGIS StoryMaps](#) (Tutorial)

## ARCGIS EXPERIENCE BUILDER

ArcGIS Experience Builder allows you to create unique web experiences using flexible layouts, content, and widgets that interact with 2D and 3D data. Start with templates to create mobile-adaptive apps, modify template layouts for a custom design on different screen sizes, or build apps from scratch for more creative freedom.

You can do the following with Experience Builder:

- Build single and multipage apps (map centric or not) for display on a fixed or scrolling screen.
- Interact with 2D and 3D content in one app.
- Add interconnected tools with drag-and-drop widgets.
- Brand apps with themes.
- Deploy responsive apps to any device.
- Design custom app templates.
- Create, deploy, and manage apps in a single place.

## TIPS AND BEST PRACTICES

- Explore the various templates before you dive in to building your experience.
- Build multiple iterations of your experience for best desktop and device use.

## 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 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 to 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.

### ADMINISTRATION TOOLS

ArcGIS Online administration tools enable organization administrators to invite and manage members, 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 COMPANION

ArcGIS Companion is a native mobile companion to your ArcGIS Online or ArcGIS Enterprise organization. ArcGIS Companion is a useful tool for administrators and members on the go, letting you monitor and manage your content, members, licenses, and groups.

ArcGIS Companion lets you:

- Manage users
- Browse and view content and people
- View and manage notifications
- View and manage groups
- View, share, and delete content
- View, add, reply, and delete comments
- View, add, and remove favorites
- Manage profile and settings

Find ArcGIS Companion on [Google Play](#) or in the [App Store](#).

# ARCGIS NOTEBOOKS

While generally used for analysis and machine learning tasks, ArcGIS Notebooks also provides you with the capability 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, to 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 your own 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](#), an excellent resource for security, privacy, and compliance information.

## ARCGIS MARKETPLACE

[ArcGIS Marketplace](#) is destination to find 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](#) is a “Swiss army knife” for a variety of housekeeping duties and item maintenance.

With ArcGIS Online Assistant you can:

- 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 that can help keep your organization moving forward.

Resources to help keep you informed include:

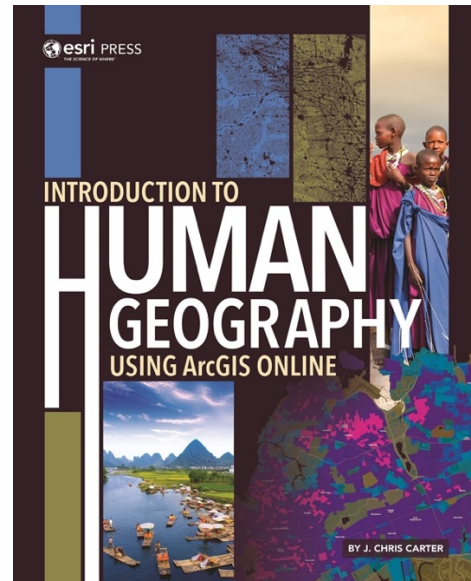
- [ArcGIS blog](#)
- [ArcGIS Living Atlas web site](#)
- [GeoNet](#)
- [Product emails and newsletters](#)
- [ArcWatch](#) and [ArcUser](#) magazines
- [Esri events](#)
- Your [Esri account team](#)



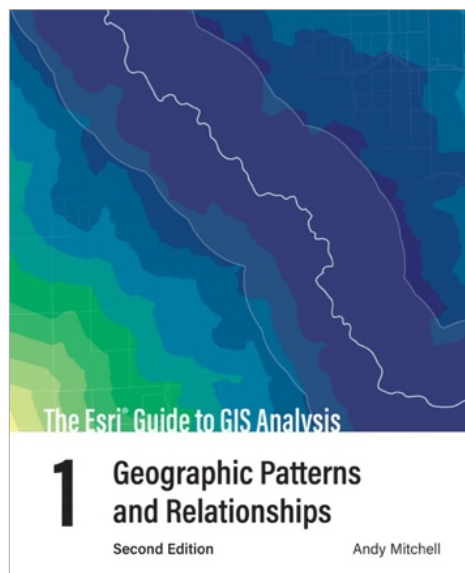
## ALSO AVAILABLE FROM ESRI PRESS



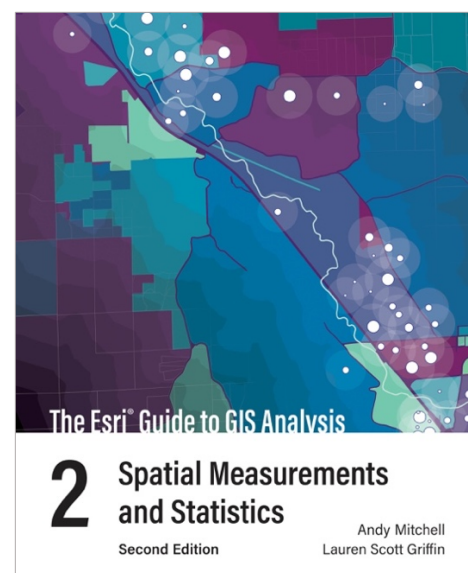
*Getting to Know Web GIS*, fourth edition  
(2020)



*Introduction to Human Geography Using ArcGIS Online* (2019)



*The Esri Guide to GIS Analysis, Volume 1: Geographic Patterns and Relationships*  
(2nd edit. 2020)



*The Esri Guide to GIS Analysis, Volume 2: Spatial Measurements and Statistics*  
(2nd edit. 2020)