ArcGIS Best Practices

Central Oregon GIS User Group, July 16, 2019

By

John Sharrard, Esri Solutions Engineer, jsharrard@esri.com
“…You wouldn’t build a house without a blueprint…”

- Warren Peterson
“…So don’t build your life GIS without one either!”

- Warren Peterson
Best Practice: Patterns of Use

Common geospatial functions that re-occur across business models and environments

- **Mapping & Visualization**: Understand locations and relationships with maps and visual representations.
- **Data Management**: Collect, organize, and maintain accurate locations and details about assets and resources.
- **Field Mobility**: Manage and enable a mobile workforce to collect and access information in the field.
- **Monitoring**: Track, manage, and monitor assets and resources in real-time.
- **Analytics**: Discover, quantify, and predict trends and patterns to improve outcomes.
- **Design & Planning**: Evaluate alternative solutions and create optimal designs.
- **Decision Support**: Gain situational awareness, and enable information-driven decision making.
- **Constituent Engagement**: Communicate and collaborate with citizens and external communities of interest.
- **Sharing & Collaboration**: Empower everyone to easily discover, use, make, and share geographic information.

*The patterns are a framework for driving value*
Best Practice: Determine your implementation pattern

ESTABLISH THE FOUNDATION OF YOUR GIS
Consider your implementation pattern

Let your needs guide you
Best Practice: Manage Identities
Uniquely and securely describe user access to maps, apps, data, and analysis

- Configure in the portal
  - Users
  - Roles
  - Privileges
- Incorporate in your apps

Identity enables participation!
Best Practice: Application Implementation Strategies
Minimize cost and maximize development resources

- Configure **First**
- Extend **Existing** Apps & Templates
- Use the ArcGIS Web **APIs** and **SDKs**

Configure first for the lowest cost and least effort

Deviations from “core” increase risk!
Best Practices Documented
**Best Practice: Environment Isolation**
Separate and distinct compute environments

- **Production:** *an operational, real-time compute environment*
- **Staging:** *a separate, mirrored, pre-production environment*
- **Development:** *a limited scale environment sufficient for primary code and data modeling*

Reduce risk and protect operational systems from unintentional changes and negative business impacts
Steps for Success for Your ArcGIS Organization Portal(s): A Best Practices Approach

Presented by John Sharrard, Esri Solutions Engineer, jsharrard@esri.com

but…

Derived from Bern Szukalski’s annual presentation at User Conference (see link below for Bern's wonderful blog)
Best Practice: Establish the vision and governance

UNDERSTAND YOUR ROADMAP TO SUCCESS
AND WHAT SUCCESS MEANS
Vision and Governance

Find the right people
- Who are the champions?
- Who are the stakeholders?
- Who is the audience?

Discover what they need
- What is the mission and vision?
- What workflows will it support?
- What are the deliverables?

Consider the following
- Establish a curator, or group of curators
- Form a governance committee
- Meet early and often
Best Practice: Create a great destination

BUILD YOUR DREAM HOME
The first impression

- Appealing design
- Featured gallery, with branding
- Featured links and resources
- Links to city website and Open Data
- Gallery and Group tabs

✔ Consider all page elements

💡 Add home page as item
Organization home
Organization home

State of Oregon
Geospatial Data, Maps & Applications

View Participating Agency Pages
Oregon Geospatial Enterprise Office
Oregon Department of Transportation
Oregon Department of Forestry
Oregon Chief Financial Office

My City Houston
City of Houston, Texas - Maps & Applications

Welcome to the official City of Houston’s My City ArcGIS Maps

- Enterprise GIS: We serve the GIS and geospatial needs across departments and the citizen.
- My City Open Data: Licensed cloud-based GIS data.
- Tree GIS: Find out the tree guidelines and documentation to using city's data.
- Map Gallery: Better stuff than what's on the Leisure. Houston needs to get a shot.
- Houston Events on Map: Finding great things to do, and bring your MOWE Signature Events on map.
- City Hall Parking: Find parking around City Hall during the City Council Meetings, and other events.

© 2017. All rights reserved. City of Houston. mycity.houstontx.gov
Organization settings – Esri vector basemaps

Create a custom basemap gallery that includes both...
Groups are building blocks

- For your organization
  - Basemaps, configurable apps
  - Galleries, featured content
  - Public galleries

- For members and their work
  - Mirror organization structure
  - Support organization projects, workflows, and initiatives

More details on groups later...
Best Practice: Establish a brand

AN EASILY RECOGNIZED VISUAL IDENTITY
What is a brand?

brand

/brand/
noun

• Unique design, sign, symbol, words, or a combination.
• Creates an image that identifies a product and differentiates it.
• The image becomes associated with a level of credibility, quality, and satisfaction in the consumer's mind.
Organization branding
Organization profile

KYTC GIS
This user has not provided any personal information.

or

Montana State Library
The Montana State Library, Geographic Information, develops and maintains an extensive collection of Montana’s geographically referenced information about the cultural and natural resources for the state. Visit: http://geoinfo.msl.mt.gov | Phone: 406-444-8354

Profile Items Groups

?
Organization profile

Use for best public content

More on public authoritative content later...
Best Practice: Turn content into information building blocks

THE FUEL FOR YOUR ORGANIZATION,
THE KEY TO SELF-SERVICE MAPPING
Information building block taxonomy

- Apps
- Maps
- Layers
- Files and Services
Add existing content

- ArcGIS services
- Shapefiles, spreadsheets, map templates, and more…
- Publish new hosted layers as needed
Optimize for reuse
Consider service type

- Hosted map service
- Hosted feature service
- Enterprise map service
- Enterprise feature service
- Image service
- Vector tile
- Raster tile
- Scene service
- Elevation service
- WMS / WFS
Views

- Common feature layer with multiple user views onto the layer
- A view is a live-linked feature layer defined by an expression
- Different privileges and access can be set

**Public**
- Add new sightings to the map
- Only view sightings that have been reviewed by city staff

**City Staff (field)**
- Add new sightings to the map
- View sightings regardless of their review status

**City Staff (reviewers)**
- Update and delete sightings when reviewing (duplicates, fake reports)
- View only sightings that are pending review
Registering your ArcGIS services

(1) Add service

(2) Configure

(3) Save layer
Refining your layers

- Transparency
- Scale dependencies
- Labels
Pop-ups
Consider the entire information experience

Charts

Images and Links

Formatted text and Charts
Use Save Layer

- Enabled for layer item owner
- Preserves style, pop-ups, scale, transparency, etc.
- Makes layers ready-to-use
- Can be overridden in maps

☑ Don’t share unconfigured layers

💡 Think of layers as building blocks, and craft accordingly
Maps
Reflect the complete experience from the basemap on through layers

Check that layers work well together in your map
2015 Clothing/Accessory Store Market Opportunity in the United States

Description

This map shows the market opportunity for clothing and accessories stores in the U.S. in 2015 in a multiscale map (by state, county, ZIP Code, tract and block group). The map uses the Leontief Surplus Factor, an indexed value that represents opportunity (leakage), saturation (surplus), or balance within a market. This map focuses on the opportunity for clothing/accessories stores (NAICS 448).

The pop-up is configured to include the following information for each geography level:

- Count of clothing/accessory stores - NAICS 448
- Total annual NAICS 448 sales (supply)
Graphic hints

Location hints

Content hints

Hybrid
Editing thumbnails

Free tools available on GitHub
Third-party tools are available
A group containing a collection of resources supporting research in community and physiological ecology.

Forest trees cover over 1/3 of the land surface, and they are prominent determinants of carbon cycling and the climate. Given their importance for the wellbeing of humans and the functioning of terrestrial ecosystems. We use global datasets of forest inventories to understand the patterns in forest structure at a global scale, and the relationships between forest functioning at broad spatial scales. This research will also help us to understand how to stimulate and restore forests in the fight against biodiversity loss, poverty and climate change.

The Crowther Lab is a research group based at ETH Zürich. We are a collection of researchers, scientists and technical staff with a range of expertise from microbiology to digital marketing, all working with one thing in mind – the climate. We study the ecological processes that influence the climate to help us predict and combat anthropogenic climate change.

Terms of Use

Information provided in the Michigan DNR Open Data Portal is accurate to the best of our knowledge and is subject to change on a regular basis, without notice. While the Michigan DNR makes every effort to provide useful and accurate information, we do not warrant the information to be authoritative, complete, factual, or timely. Information is provided on an "as is" and an "as available" basis. The State of Michigan disclaims any liability, loss, injury, or damage incurred as a consequence, directly or indirectly, resulting from the use and application of any of the contents of this web site.

Can be automated using Python
Third-party tools are available
Item completeness guide

Item Information

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

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

A measure of item completeness
Best Practice: Organize your organization

ESTABLISH A FRAMEWORK FOR SUCCESS
Groups are a framework for your organization
Supporting departments, projects, workflows, collaboration

- Access to resources
- Collaboration within the organization
- Collaboration between organizations
What groups do you need?

- Departments in your organization
- Org chart
- Current projects
- Solution templates
Group best practices

- Use consistent visual cues
- Intuitive naming conventions
- Add useful descriptions
- Pre-populate with content
- Auto-assign members

✔️ Create a destination
Content Status

- Items can be designated authoritative or deprecated
- Members can search by Status
- Only searchable within your organization*

*More on publicly discoverable authoritative content later...
Group settings

- Groups can be:
  - Private (only owner and members can find)
  - Organization only
  - Public

- Membership:
  - Users can request membership
  - Admission by invite only
  - Anyone

- Contributors:
  - Only group owner
  - All members of the group
Best Practice: Create interesting and useful apps

GREAT APPS THAT SUPPORT WORKFLOWS, DELIVER ACCESS, TELL STORIES…
Apps complete the user experience
Apps complete the user experience
Map viewer vs. apps
Deliver your map in the right context

Map viewer (for authoring)

Public Information

Storytelling basic

Story Map Tour

✔ Try a “quick share”
Easy to configure
Web AppBuilder

- Build apps using widgets
- Easiest way to create custom configurable apps for your organization
- Developer edition
Alternative: Download source, modify and host
ArcGIS Solution templates for organizations

• Tailored to specific domains
• Follow best practices & trends
• Include:
  - Platform (ArcGIS organization) configurations
  - Configurable apps and map resources
  - Community
Example: ArcGIS for Local Government

Maintain Property Inventories
A collection of maps and apps used by local governments, in conjunction with
property appraisers and property tax assessors, to
inventory deed, mortgage, and property ownership
records and publish property information

Photo Inventory Properties
The Photo Survey application can be used to publish street-level photo collections and
conduct focused property surveys that may identify blight, damaged structures, or construction activity.

Download
Try it Now
Learn more

Note information model requirements
Best Practice: Invite members and make them feel welcome

PROVIDE A GREAT EXPERIENCE FOR MEMBERS
Invite users

1. How would you like to invite or add members to your organization?
   - Add members automatically without sending an email.
   - Send invitations to preestablished user names.
   - Send invitations for existing users.

   (Pre-establish recommended)

2. Invite and establish Role

   Preestablish new ArcGIS logins one at a time or in batch from a file.
   Select any role without administrative privileges for the member to be a part of.

   - One at a time
   - From a file

   - Email:
   - First Name:
   - Last Name:
   - Username:
   - Role:

   Message to Member Will Receive: Bern Szykalski has invited you to join an ArcGIS Online Organization, Earth’s Disaster Response Program.

   - BACK
   - INVITE ANOTHER
   - REVIEW INVITATION(S)

Use enterprise logins (Best)
As an admin…

- Assign roles
- Assign users to groups
  - Make sure groups have good content to get them started
- Assign credit limits (if desired)
- Ensure users complete a profile
- Monitor and manage
Organization roles

- Built-in roles
  - Administrator
  - Publisher
  - User

- Custom roles
  - Based on templates
  - Created by an administrator

- User Types
### Organization settings – Budgeting credits

<table>
<thead>
<tr>
<th>Level</th>
<th>Role</th>
<th>Credits remaining</th>
<th>Licenses</th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Administrator</td>
<td>No limit</td>
<td>![License Icon]</td>
<td>![Group Icon] +28</td>
</tr>
</tbody>
</table>

*Bern Szukalski*  
bwszukalski • Last logged in today

<table>
<thead>
<tr>
<th>Level</th>
<th>Role</th>
<th>Credits remaining</th>
<th>Licenses</th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Publisher</td>
<td>No limit</td>
<td>![License Icon]</td>
<td>Configure groups</td>
</tr>
</tbody>
</table>

*Kelly Hutchins*  
kelley_hutchins • Last logged in Jun 29, 2018
Assign member to meaningful groups
Pre-populate groups with useful content
User profiles

This user has not provided any personal information.

Who can see your profile?
- Everyone (public)
- Organization
- Private
What a good profile looks like

Sandy Ebersole
Organization: Geological Survey of Alabama, Geologic Investigations Program; sebersole@gsa.alabama.gov; Specialties: Geology

Lindsay Withers
GIS Cartography Manager at The Trust for Public Land. The Trust for Public Land works to protect the places people love, and to create close-to-home parks—particularly in and near areas where 80 percent of Americans live. Our goal is to ensure every child has easy access to a safe place to play in nature. We 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 at hand. The Trust for Public Land’s Vision and GIS services include cutting-edge research and innovative mapping techniques, parks, protect open space, and deliver community-driven conservation plans. To learn more about The Trust for Public Land and its GIS services, visit https://www.tpl.org/how-we-work/plan

Stephanie Smith
The mission of the Grand Canyon Trust is to protect and restore the Colorado Plateau – its spectacular landscapes, flowing rivers, clean air, diversity of plants and animals, and areas of beauty and solitude. The Trust was established in 1985 by Arizona Governor Bruce Babbitt and other leading conservationists as a national trust for projects in the Grand Canyon. Soon after, Trustee Stewart Udall made an impassioned plea that issues do not stop at the boundaries of the Park, and the Trust should be an advocate for both the Grand Canyon and the surrounding Colorado Plateau. The suggestion was adopted and Grand Canyon Trust emerged as a leading regional conservation organization, with offices across the Plateau and extensive connections among policymakers, land managers, scientists, and community leaders.
Best Practice: Open access to your data, maps, and apps beyond your organization

THE MORE USERS THE MORE VALUE

EXTEND YOUR REACH
Make your content discoverable

Description and Tags

Flood and Hurricane Inundation Risk Map of Gloucester, MA

Description
This map displays the combined risks from flooding and hurricane inundation, focusing on low-income and low-income elderly communities. In addition, risk and hazards, a number of adaptation strategies and challenges are marked. Many impacted areas are not candidates for infrastructure aimed at mitigating flooding. Gloucester does, however, have plans in place to install a second tide gate on Mill Pond, which could alleviate some flooding in that area. Other areas are marked that have no current adaptation strategies and that are significantly vulnerable, due to their demographics. Schools and community centers are also marked as potential temporary shelters following extreme weather events. To meet the challenges of adapting to climate change-related coastal flooding, Gloucester should consider: setting policies into place that address the needs of environmental justice areas. These might include establishing a "chief fund for low-income households", improving communities in coastal flood zones of their risk, establishing community centers for post-disaster relief (taking into account where roads may become impassable). Additionally, restoring wetland habitat and not allowing "rebuilding in lowered areas could enhance community resilience in the future.

Groups and group galleries

Organization gallery

Online Labs Workshop - 3D
A group containing sample maps and apps for use in ArcGIS Online workshops.

Description
A group containing sample maps and apps for use in ArcGIS Online workshops.

Latest Content

Gallery
Resilient Communities Featured Content

Share
经济 Resilience Gallery
Transportation and Infrastructure Resilience
Public Safety Resilience

Layers

Add All Layers

Website or wiki for the ArcGIS Marketplace

View All Group Content

Members

View All Group Content

Settings

Join Group

Groups and group galleries
Other ways to deliver access to your content

- Embed maps and apps
- Group gallery apps & ribbons
- Open Data for ArcGIS
Authoritative public content

- Verify your organization via Esri customer service
- Public content marked authoritative will get badge
- Publicly searchable via Status

Note that link goes back to org home
Open Data

- Built-in to your organizations
- Uses your organization content
- Group-based
- Multiple sites
- Serves data for
  - Developers
  - Contractors
  - Businesses
  - Citizens
  - Others…
Open Data

Open Data Is All Over the World

Explore 48,632 Open Datasets from 3,155 Organizations Worldwide.

Newest Data

ROUTE83 V EVT ORL MAINTENANT
- June 26, 2016
- #eventex

ROUTE83 V EVT ORP MAINTENANT
- June 26, 2016
- #eventex

GRSM BACKCOUNTRY SHELTERS
- June 26, 2016
- #national park service
Configuring Open Data

(1) Settings

(2) Enable Open Data

(3) Designate participating Groups

(4) Configure Sites

Now configured via hub.arcgis.com
ArcGIS Hub

- Connects your org to citizens
- Initiatives
- Components:
  - ArcGIS Hub Open Data
  - ArcGIS Hub Collaboration
  - ArcGIS Hub Initiatives
Best Practice: Curate, monitor, manage, and grow…

KEEP YOUR ORGANIZATION HEALTHY & VIBRANT
Member and item curation

- Usage by app
- Usage by member
- Members by role and credit usage
- Utilization summary
- Pro usage
- More…
Organization Status and Management
ArcGIS Marketplace – marketplace.arcgis.com
ArcGIS Companion

- Native app for portal access and administration

Tap into your organization anytime, anywhere

Secure
Sign in using your organization credentials.

Discover
Learn about your organization content, keep up with the blogs, tweets, and news.

Explore
Browse and view content, people, and groups in your organization.

Manage
Your profile, settings, content, groups all in one place.
ArcGIS Online Assistant

A swiss army knife for your ArcGIS Online and Portal for ArcGIS accounts.

Log in to ArcGIS Online

Log in to Portal for ArcGIS

Inspect
View the underlying JSON for any item in ArcGIS Online or your Portal.

Update
Modify the URLs for services in web maps and registered applications.

Copy
Search for and copy content to your account and other accounts.
ArcGIS Monitor
ArcGIS Enterprise Sites

- Available with ArcGIS Enterprise
- Enables you to create destinations within your organization
- Composed of *Sites* and *Pages*
- Creates a focused experience for a topic or audience
The challenge
ArcGIS Enterprise Sites

The same portal, now with the ability to tailor the user experience to meet users’ needs and expectations.
Who are sites for?

- Sites are for the end users of the portal – people who do not need to use the map making and data editing capabilities of the portal in their everyday work
  - Non-GIS users within the organization
  - Decision makers
  - External users

- Sites is not intended to be used by:
  - Admins
  - Data editors
  - Publishers
  - “Internal sites” are an exception
What is the best way to use Sites?

- Provide strategic touchpoints with portal capabilities
  - Example: “View as web map” option in a site

- Prioritize and organize data and content
  - Accomplished through site design:
    - What content is shown
    - The order
    - The widgets used

- Contextualizing content
  - Telling bigger, interconnected stories
Features

• Drag and drop widgets
• Custom colors and branding
• Ability to create a sophisticated web experience
  - Sites with subpages
  - Customization options (HTML/CSS)
• Content security is maintained
• No extra installation or setup – just launch Sites from the app launcher