

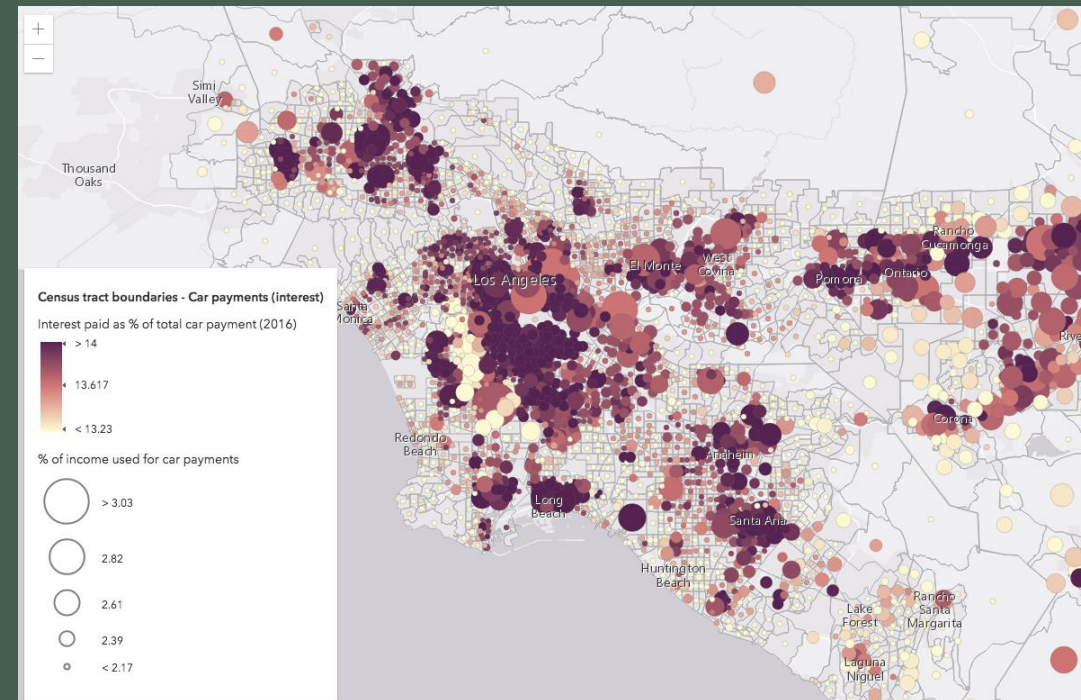
ONLINE MAPPING

Su Zhang, Ph.D., GISP, CMS-RS



INTRODUCTION

- Online mapping or Web mapping is a process of compiling and delivering geospatial data in the form of an interactive web application
- Allows users to visualize and interact with geographic and/or tabular data via internet
- An easy way to share geographic information with large audiences
- Comprises a server and a client



COMPONENTS OF GIS ARCHITECTURE



Desktop GIS

- ArcGIS ArcMap
- ArcGIS Pro
- QGIS
- GRASS GIS
- SAGA GIS
- MapInfo
- ...



Server GIS

- ArcGIS Server
- ArcGIS Online (AGOL)
- MapServer
- GeoServer
- ...



Client Apps

- ArcGIS Online (AGOL)
- ArcGIS Web AppBuilder
- Collector for ArcGIS
- Explorer for ArcGIS
- Web APIs
- Mobile Apps and SDKs
- Open Layers
- Leaflet
- ...

WEB GIS ARCHITECTURE



GIS Database Server

- Data (e.g. Shapefiles, rasters, geodatabases)



Web GIS Server

- Contents
- Functionality
- Capabilities



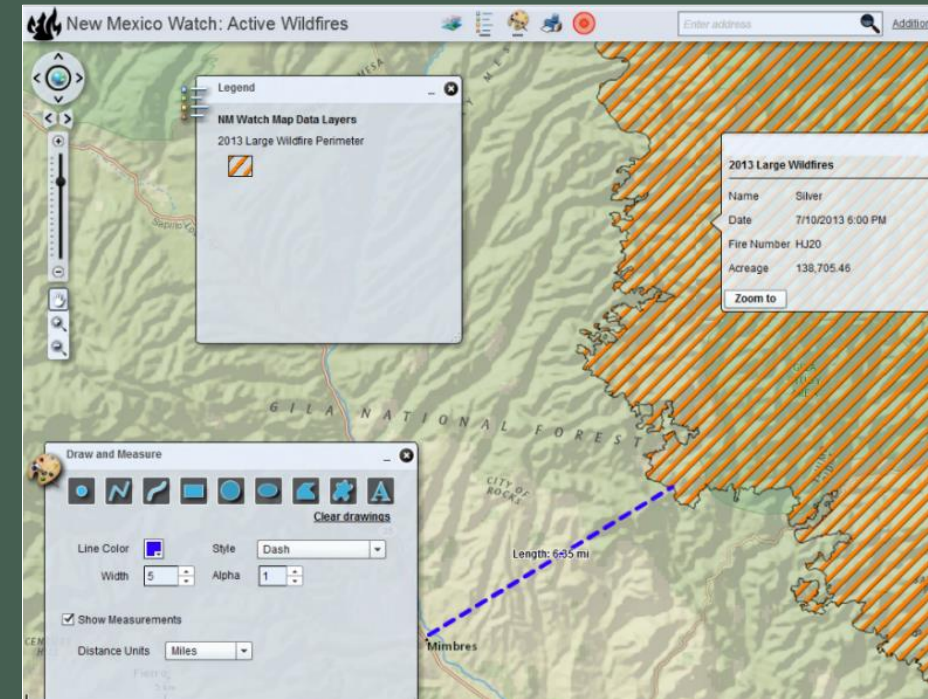
Web GIS Clients

- Content Delivery



COMPONENTS OF AN ONLINE MAPPING APPLICATION

- Basemap Layers
 - Streets, Imagery, Topographic, National Geographic, OpenStreetMap, etc.
- Operational Layers
 - Geospatial data layers created from shapefiles, CSV, TXT, GPX, map services, Web Map Service (WMS), Web Map Tile Service (WMTS), Web Feature Service (WFS), Web Coverage Service (WCS), KML, and GeoRSS formats, etc.
- Tools
 - Geocoding, routing, measurement, spatial analysis, etc.
 - User created tools
- Optional Features
 - Multimedia contents such as animation, images, video, text, etc.

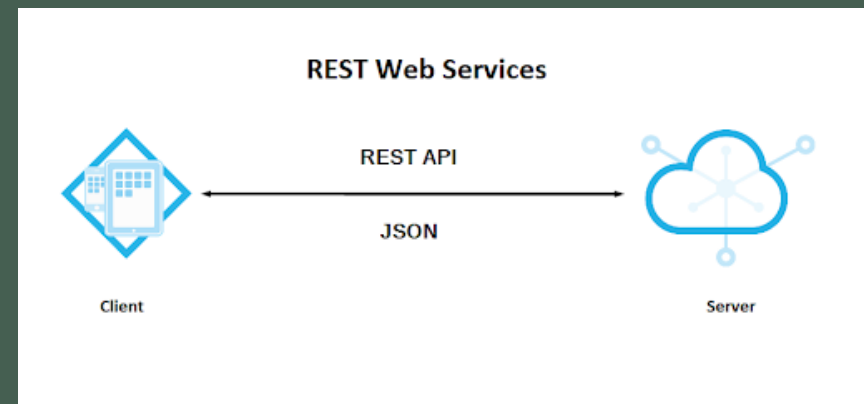


GIS WEB SERVICES

- Open Geospatial Consortium (OGC) standard services
 - WMS (Web Map Service), used for sharing both vector data and raster data as a picture of the data, it cannot query or edit the data
 - WMTS (Web Map Tile Service), used for sharing both vector data and raster data as picture of data in tiles, it cannot query or edit the data
 - WFS (Web Feature Service), used for sharing vector data, WFS-T can create, delete, and update features
 - WCS (Web Coverage Service), used for sharing raster datasets, it can query the data
 - GML (Geography Markup Language), describing GIS data in XML format, encoding geographic content for any application
 - KML (Keyhole Markup Language), XML form GIS data, used in Google Maps and Google Earth
 - ...
- ArcGIS standard
 - REST Web Services (Representational State Transfer), which is a software architectural style used to create lightweight and scalable web services



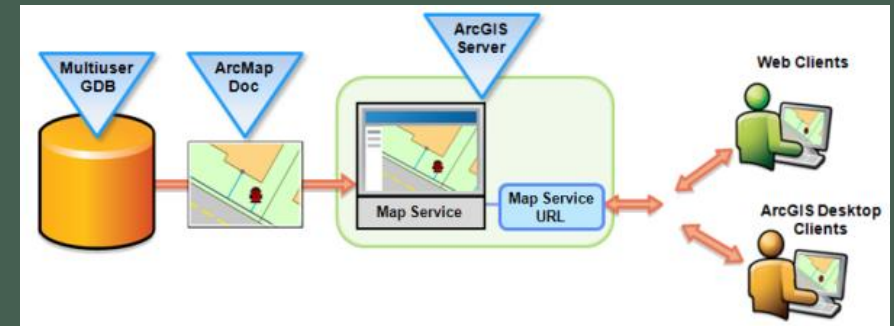
geospatialworld.net



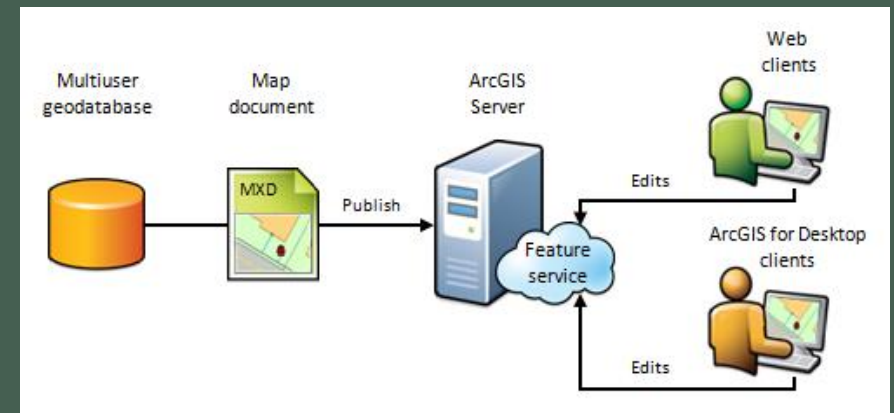
isecurion.com

ARCGIS WEB SERVICES

- Map Services
 - Make maps, features, and attribute data available inside many types of client applications
 - Begin inside ArcMap, where you create your map and then publish it through ArcGIS Server
- Feature Services
 - Allow users to serve features over the internet and provide the symbology to use when displaying the features
 - Publish it through ArcGIS Server
- Image Services
 - Provide serving, processing, analysis, and extracting value from images, rasters, and other remotely sensed data
 - Publish it through ArcGIS Server



esri.com



enterprise.arcgis.com

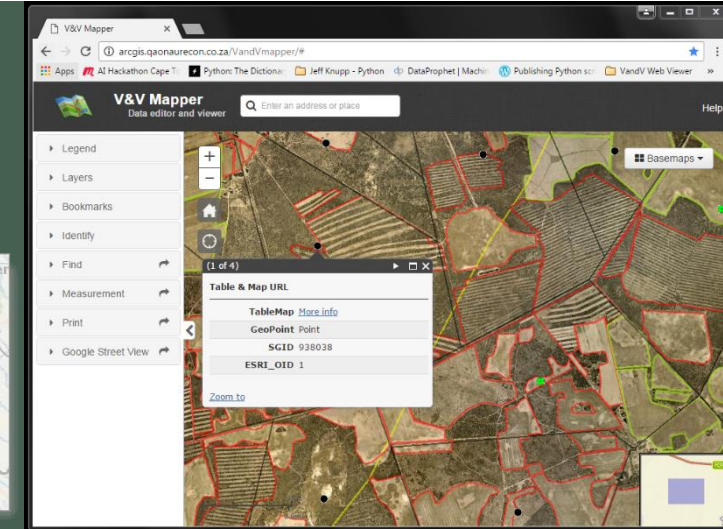
ARCGIS WEB SERVICES

- Geocoding Services
 - Can convert addresses and place names into x, y locations
- Geodata Services
 - Allows accessing to a geodatabase through a local area network or the internet using ArcGIS Server
- Geoprocessing Services
 - Shares the server's workflow and analysis functions with web clients, including printing
- Routing Services
 - Allows performing network analysis
- Geometry Services
 - Allows geometric calculations, simplifying, buffering, etc.

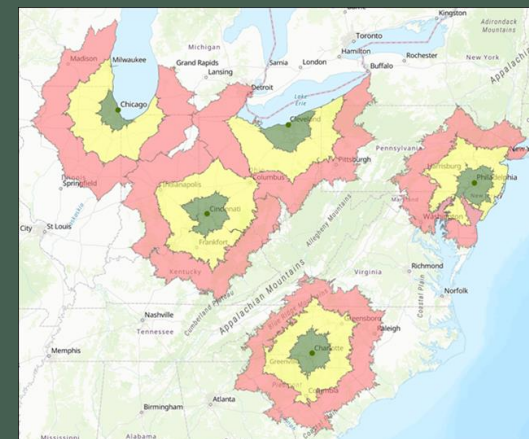
Berkestraat 26, 4462 VX GOES
Borlagestraat 41, HEERLEN
Bernhardstraat 28, 4532 AT TERNEUZEN
BEUKBERGENPLIN 123, 3712 BX HUIS TER HEIDE UT
Bovenroestraat 1-G-2, 5612 BO NIJENEN
Bramelbaan 318, 2116 TV BENTVELD
Broekhofstraat 3, 5312 TP VENLO
Gijpingsstraat 61G, 3026 FJ ROTTERDAM
Gildestraat 18, 5663 CD GELDROP
Griffiersveld 311, T327 DW APELDOORN
Heckhofstraat 60, 1066 KL AMSTERDAM
Herkingestraat 33, 3086 BC ROTTERDAM
Hoofdw 2, 3773 BL BARNEVELD
Incestraat 23, 3563 XA UTRECHT
Irenestraat 1, 6824 LM ARNHEM
Irenestraat 2, 3142 VH MODDERGAT



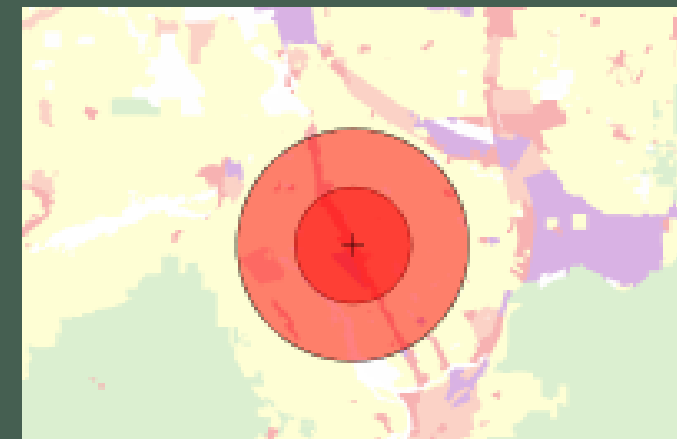
arcgis.com



esri.com



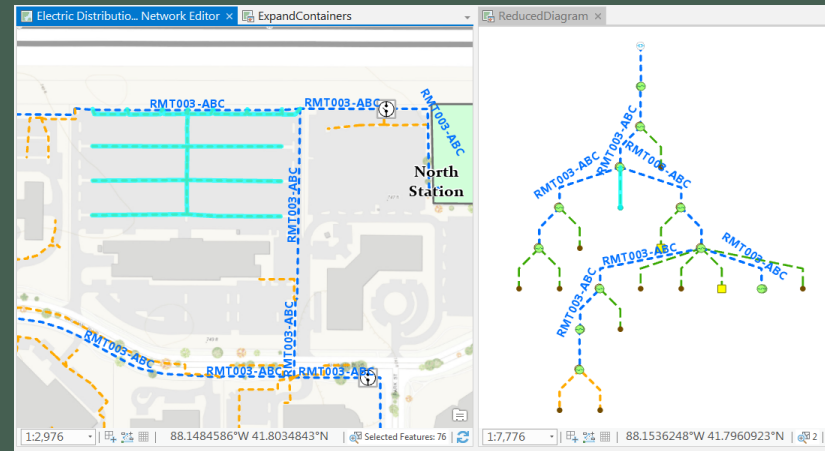
arcgis.com



arcgis.com

ARCGIS WEB SERVICES

- KML Services
 - Allows drawing points, lines, and polygons on maps and globes and share them with others
- OGC Services
 - Support WMS, WMTS, WFS, WCS, and WPS
- Schematics Services
 - Allows a web application to access schematic diagrams through a web service
- Utility Network Services
 - Support utility network workflows
- Scene Services
 - Allows web clients to request maps in 3D
- Cache Services
 - Make map, feature, image services run faster
- Stream Services
 - Allows low latency, real-time data dissemination
- Vector Tile Services
 - Enable sharing and consuming vector tiles
- Workflow Manager Services
 - Allow integrating existing business process with GIS workflow



esri.com



esri.com

WEB SERVICES AND LAYERS

ArcGIS REST Services Directory

[Home](#) > [services](#)

[JSON](#) | [SOAP](#)

Folder: /

Current Version: 10.51

View Footprints In: [ArcGIS Online map viewer](#)

Folders:

- [CDC_Native_Diabetes](#)
- [DebrisFlow](#)
- [DHSEM](#)
- [EDD](#)
- [EPSCOR](#)
- [FEMA](#)
- [Geocoder](#)
- [GeoProcs](#)
- [Hondo](#)
- [Imagery](#)
- [LTAP](#)
- [McKay](#)
- [nmdgf](#)
- [NMDPS](#)
- [NMFlood](#)
- [NMInfews](#)
- [NMWatch](#)
- [NMWRAP](#)
- [opendata](#)
- [Utilities](#)

Services:

- [GhostTowns](#) (MapServer)
- [NM_QuadGrid_75](#) (MapServer)
- [NM_Surface_Landownership](#) (MapServer)
- [NMED_Web](#) (MapServer)
- [NMRCL_Jul2015_zip_AddrLoc](#) (GeocodeServer)
- [PLSS_Map](#) (MapServer)
- [Populated_Places](#) (MapServer)
- [Roswell2Publish](#) (MapServer)
- [Ruidoso2Publish](#) (MapServer)
- [SampleWorldCities](#) (MapServer)
- [test](#) (MapServer)

Child Resources : [Info](#) [Self](#)

Supported Interfaces: [REST](#) [SOAP](#) [Sitemap](#) [Geo Sitemap](#)

ArcGIS REST Services Directory

[Home](#) > [services](#) > [LTAP](#) > [natural_disasters \(MapServer\)](#)

[JSON](#) | [SOAP](#)

LTAP/natural_disasters (MapServer)

View In: [ArcGIS JavaScript](#) [ArcGIS Online map viewer](#) [Google Earth](#) [ArcMap](#) [ArcGIS Explorer](#)

View Footprint In: [ArcGIS Online map viewer](#)

Service Description:

Map Name: Layers

[Legend](#)

[All Layers and Tables](#)

[Dynamic Legend](#)

[Dynamic All Layers](#)

Layers:

- [Earthquakes](#) (0)
- [Hurricanes](#) (1)

ArcGIS REST Services Directory

[Home](#) > [services](#) > [LTAP](#) > [natural_disasters \(MapServer\)](#) > [Earthquakes](#)

[JSON](#)

Layer: Earthquakes (ID: 0)

Name: Earthquakes

Display Field: LOCATION

Type: Feature Layer

Geometry Type: esriGeometryPoint

Description:

Definition Expression: N/A

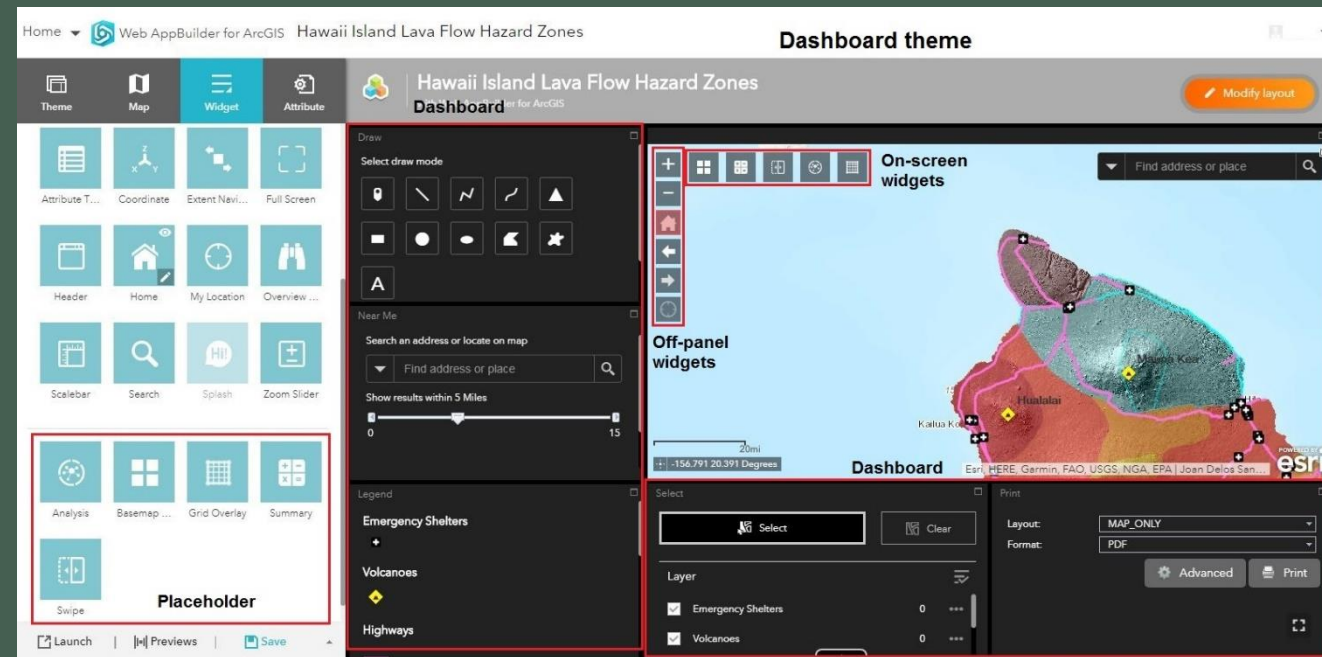
Copyright Text:

Default Visibility: true

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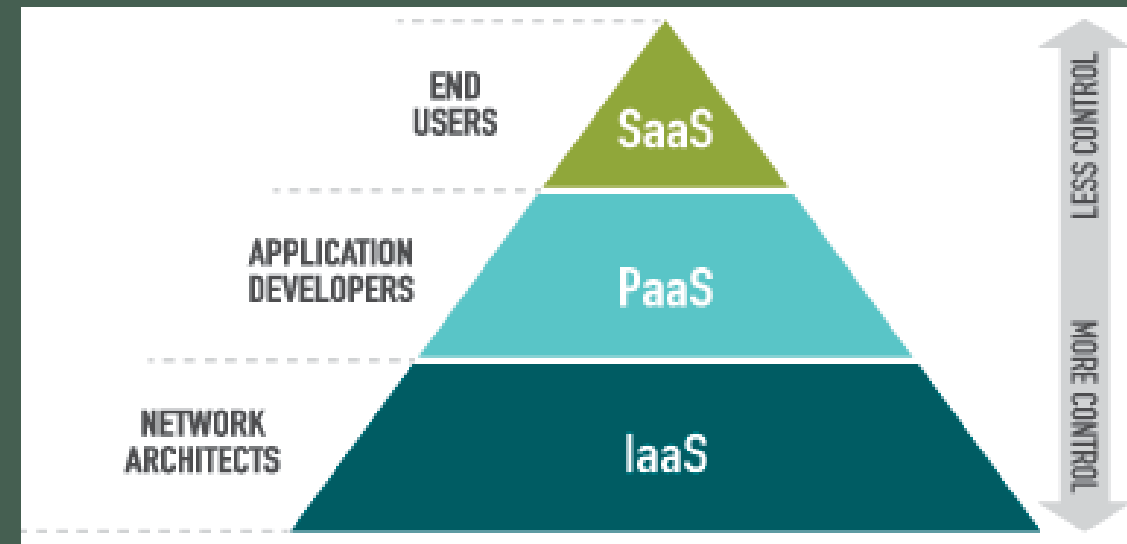
WEB APPLICATIONS

- Provide an interface to deliver data and tools to users via web.
- Application development using APIs or software technologies
- Proprietary Commercial-off-the-Shelf (COTS) applications
- Free and Open Source Software (FOSS) solutions
- Technologies: Python, JavaScript, HTML, Java, Objective C,...
- ArcGIS Online, ArcGIS AppBuilder, ArcGIS API for JavaScript, Mango Map, CARTO, GeoServer, MapGuide Open Source, MapFish, MapServer, OpenLayers, Leaflet, Google Maps API, Bing Maps API...



WEB GIS MODELS

- Infrastructure as a Service (IaaS)
 - a cloud computing service where enterprises rent or lease servers to perform GIS related computation and storage in the cloud
- Platform as a Service (PaaS)
 - A cloud computing service where enterprises build GIS applications using a cloud based platform
- Software as a Service (SaaS)
 - Use map services or applications hosted on a cloud by other user communities to build GIS applications



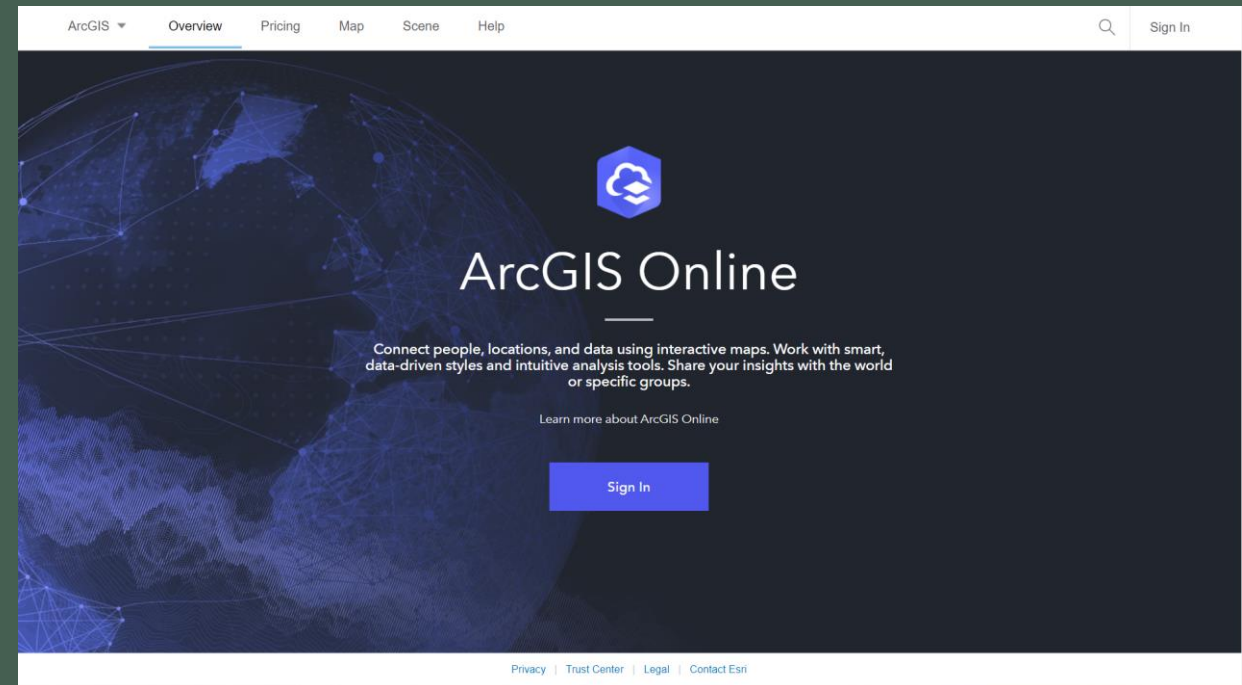
codematters.online

ARCGIS ONLINE

A cloud based GIS

ARCGIS ONLINE

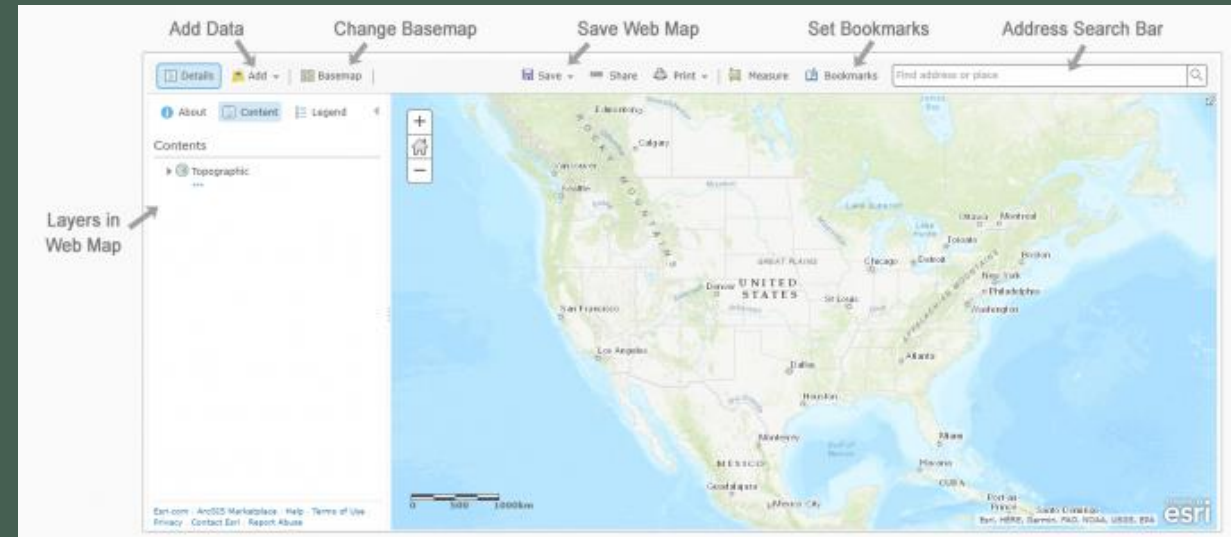
- An online mapping content management system
- Ability to extend capabilities of ArcGIS for Desktop, Server, Applications, APIs, and SDKs
- A subscription based service
- Consumes Service Credits*
 - Ex: Geocoding: 40 credits for 1,000 geocodes
 - <https://www.esri.com/en-us/arcgis/products/arcgis-online/pricing/credits>



arcgis.com/index.html

FEATURES

- Create Maps
 - An interactive map that displays geographic information
 - 2D environment
- Create Scenes
 - Dynamic scenes to visualize geospatial content
 - 3D environment
- Create Apps
 - Applications combining maps, scenes, or groups with text, multimedia
 - Share content with public
- Analysis Tools
 - Perform data analysis using ArcGIS Online tools
 - Limited compared to ArcGIS Desktop
- Host and Manage Data
 - Store, manage, and host spatial data in the form of files and web layers



gisgeography.com

FEATURES

- Administer ArcGIS Online Organizational Subscription

- 1 *Configure site*
- 2 *Invite members*
- 3 *Organize and share content*
- 4 *Get apps*
- 5 *Monitor usage*

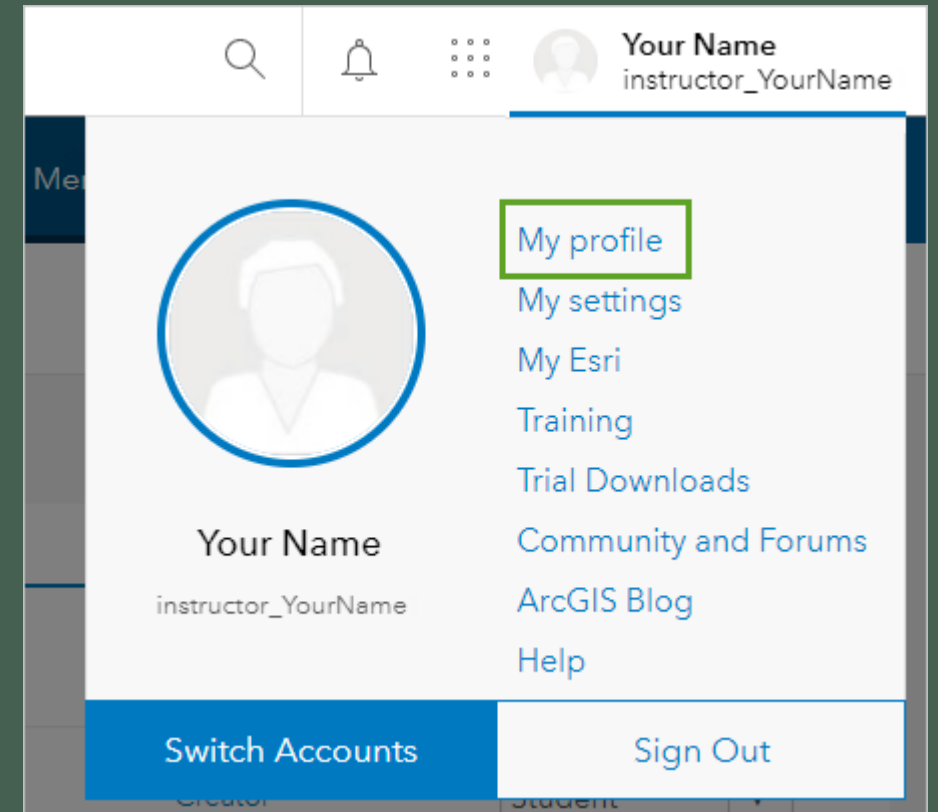
<https://doc.arcgis.com/en/arcgis-online/administer/get-started-with-administration.htm>

The image displays two overlapping browser windows. The top window shows the Earth Data Analysis Center (EDAC) website, featuring a navigation menu (Home, Gallery, Map, Scene, Groups), a search bar, and a 'Sign In' button. The main content area includes the EDAC logo and a section titled 'EDAC Maps' with several map thumbnails. The bottom window shows the New Mexico Community Data Collaborative (NMDC) website, which has a similar navigation menu and a 'Sign In' button. The main content area features a large banner for 'NEW MEXICO COMMUNITY DATA COLLABORATIVE' and a section titled 'VISIT THE GALLERY TO SEE MORE MAPS'. Below this, there are four map thumbnails with titles: 'ALCOHOL-OUTLETS, DWI CRASHES & RELATED', 'RURAL NEW MEXICO: PERSPECTIVES ON HEALTH', 'NM HEALTHCARE PROVIDERS OF SERVICE, 2016', and 'Bernalillo County Greenprint: A COMMUNITY-DRIVEN'. At the bottom, there is a definition of 'Collaborate' and a section titled 'BUILDING COMMUNITY CAPACITY TO MOVE DATA INTO ACTION'.

USER ACCOUNTS

- Public
 - Free, 2GB of storage, limited functionality
 - Personal, non-commercial use only
- Organizational
 - Allows to create a website for an organization to share customized content
 - Associated with ArcGIS licenses, 3 user accounts per license, option to purchase additional user accounts
 - Can be purchased separately
 - Roles: Viewer, Data Editor, User, Publisher, and Administrator

More information on ArcGIS Online User Roles and Privileges can be found at <https://doc.arcgis.com/en/arcgis-online/reference/roles.htm>



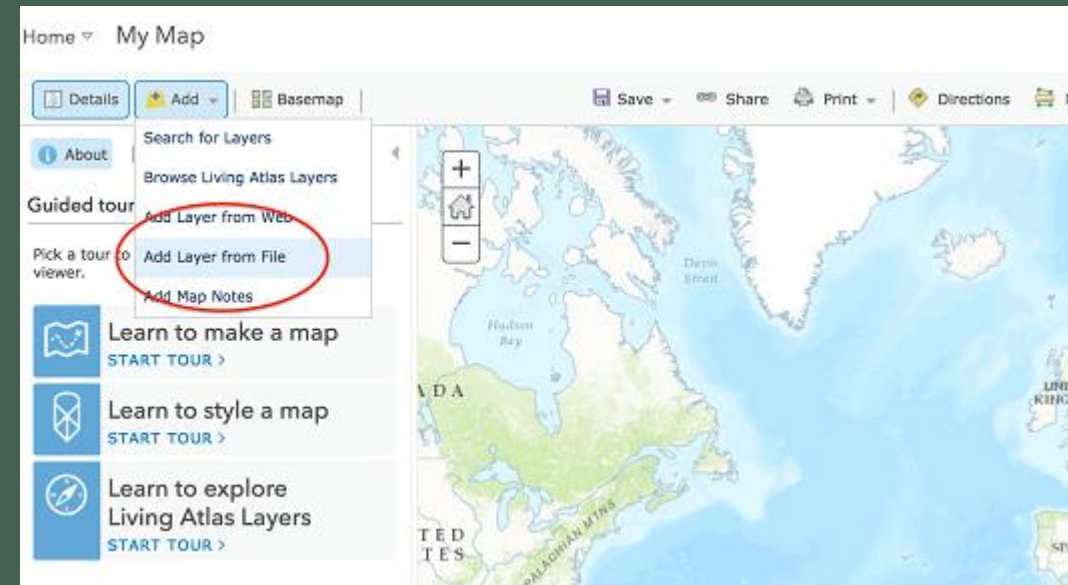
DATA FORMATS

- CSV, TXT, and GPX formats
 - Organizational Account
 - 4000 rows (features) can be added directly to the map
 - Geocoding consumes credits
 - Public Account
 - A 250 feature limit for geocoding addresses or mapping
 - If data contains more than the limit...
 - Needs to be broken into multiple files or
 - Publish as a map service on ArcGIS Server or AGOL Hosted Feature Layer Using credits
 - Only point features can be uploaded in CSV or TXT formats
 - Polyline or polygon geometry types should be uploaded as zipped shapefiles



DATA FORMATS

- Shapefiles
 - Accepts only .zip file format for lines and polygons
 - Must contain valid geometry
 - Can have multiple shapefiles in a zip folder
 - Size of the shapefiles must be less than 10 MB
 - 4000 point features or 2000 line or polygon features
 - If data contains more than the limit, it needs to be broken into multiple files or can be published as a map service on ArcGIS Server or AGOL Hosted Feature Layer using credit
 - If files are large, choose generalize features option to improve web display*



DATA FORMATS

- GeoJSON
 - JavaScript Object Notation (JSON)
 - A open source format for encoding a variety of geographic data
 - GeoJSON supports the following geometry types:
 - Point, LineString, Polygon
 - Multipart collections of Point, LineString, Polygon
- Does not support raster files or geodatabases

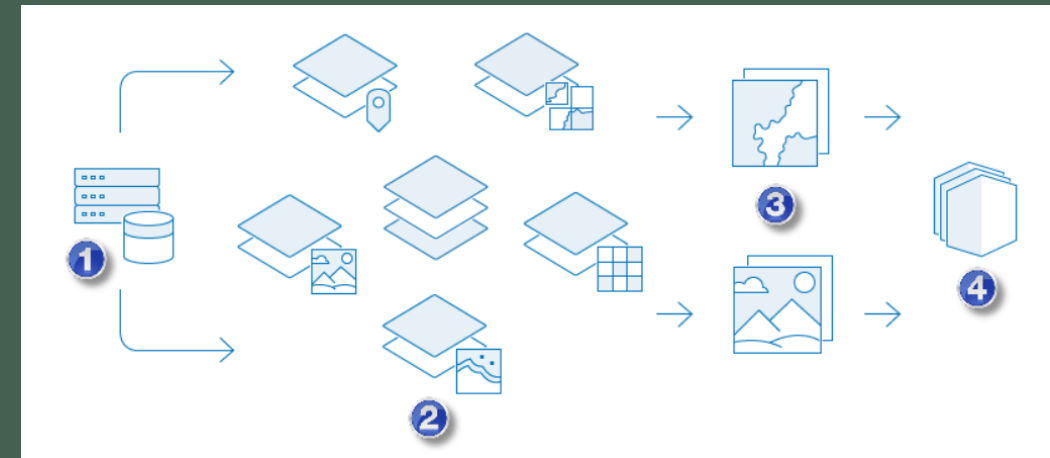
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    { "type": "Feature",
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        "coordinates": [102.0, 0.5]
      },
      "properties": {
        "prop0": "value0"
      }
    },
    { "type": "Feature",
      "geometry": {
        "type": "LineString",
        "coordinates": [
          [102.0, 0.0], [103.0, 1.0], [104.0, 0.0], [105.0, 1.0]
        ]
      },
      "properties": {
        "prop0": "value0",
        "prop1": 0.0
      }
    },
    { "type": "Feature",
      "geometry": {
        "type": "Polygon",
        "coordinates": [
          [ [100.0, 0.0], [101.0, 0.0], [101.0, 1.0],
            [100.0, 1.0], [100.0, 0.0] ]
        ]
      },
      "properties": {
        "prop0": "value0",
        "prop1": {"this": "that"}
      }
    }
  ]
}
```

WEB LAYERS

How data are served?

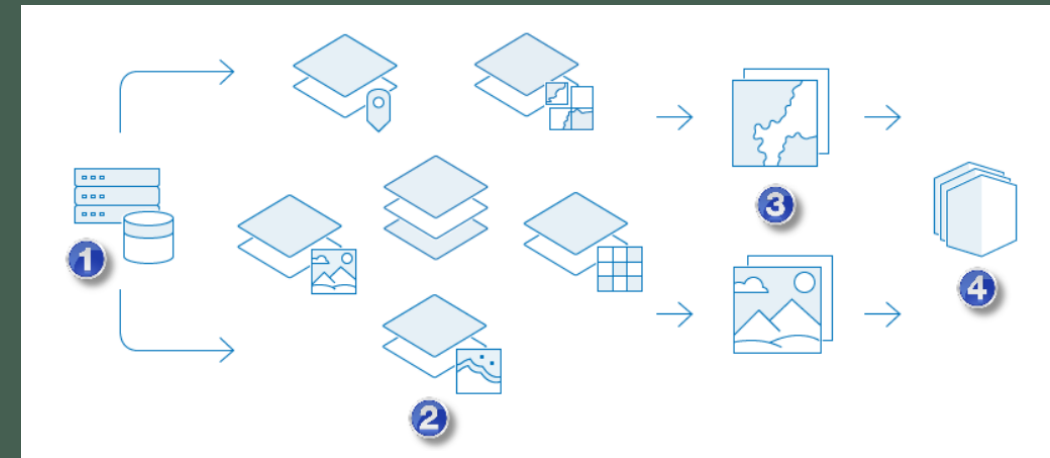
TYPES OF WEB LAYERS

- Map image layer
 - Vector data includes points, lines, and polygons; Map image layers are dynamically rendered by server or from tiles
 - Supports map visualization and feature querying
- Feature layer
 - Features can be points, lines, or polygons
 - Supports editing, visualizing, and querying data and their attributes
 - It's a dependent layer to a map image layer
- Imagery layer
 - Imagery layers can be displayed dynamically or pre-rendered as cached image tiles
 - Supports visualization, metadata, mensuration, and image processing functions
- Tile layer
 - A set of web-accessible tiles that reside on a server. Tile layers include pre-rendered Tile map raster tiles or Vector tiles
 - Supports fast map visualization



TYPES OF WEB LAYERS

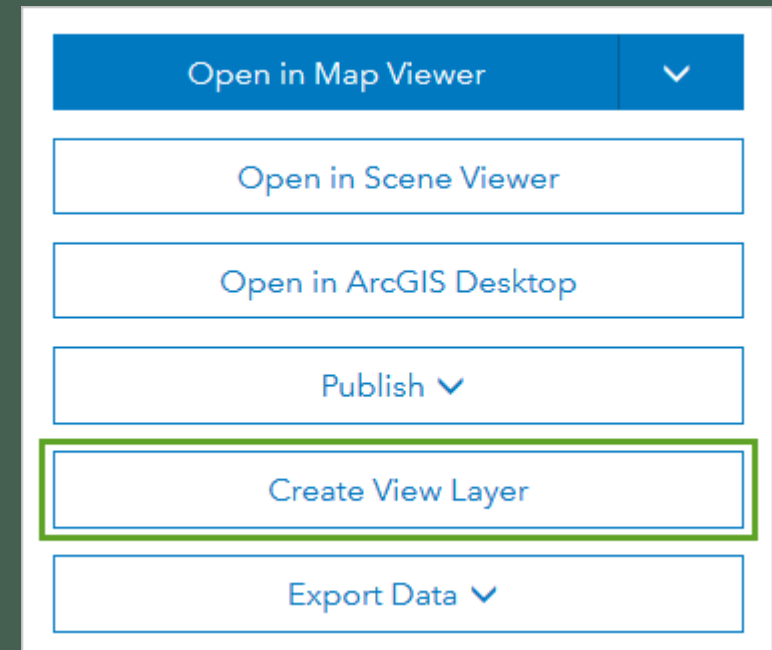
- Vector tile layer
 - Displays pre-drawn vector tiles for fast visualization
 - Can adapt to resolution and be restyled easily
 - Does not support raster data
- Scene layer
 - Supports querying and visualization of point, 3D object, building and point cloud data
 - Can have an associated feature service that allows editing data on a scene layer
- Elevation layer
 - Supports visualization, metadata, mensuration, and image processing of elevation data sources in the ground surface of a scene
 - The elevation layer is used in web scenes to display 3D content on a custom elevation surface



arcgis.com

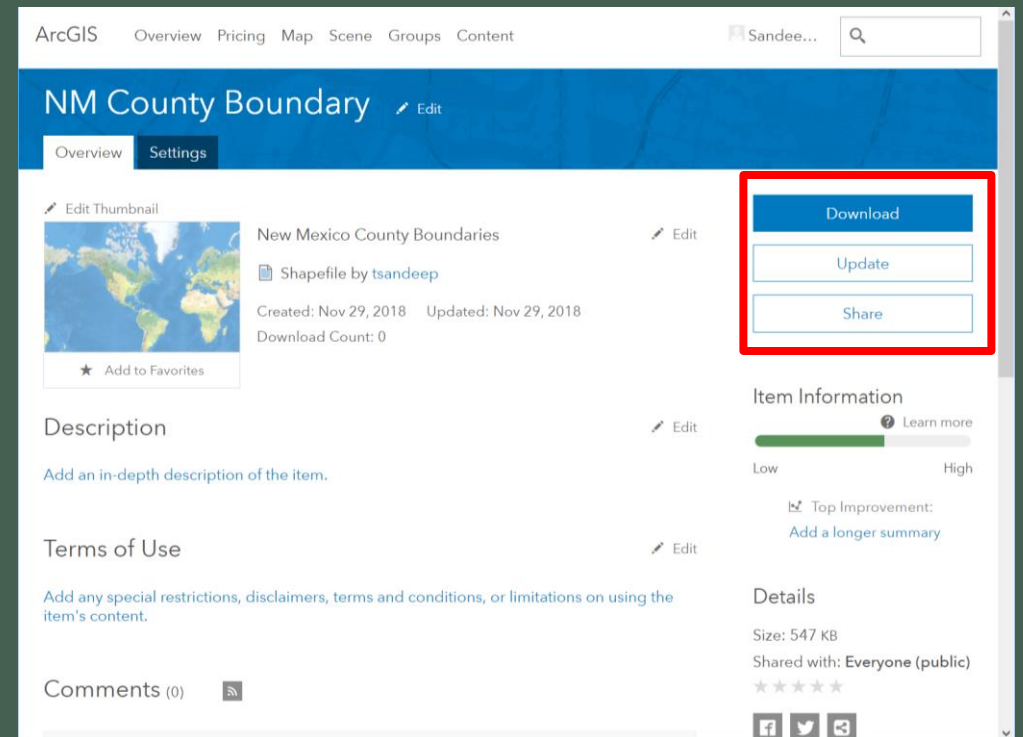
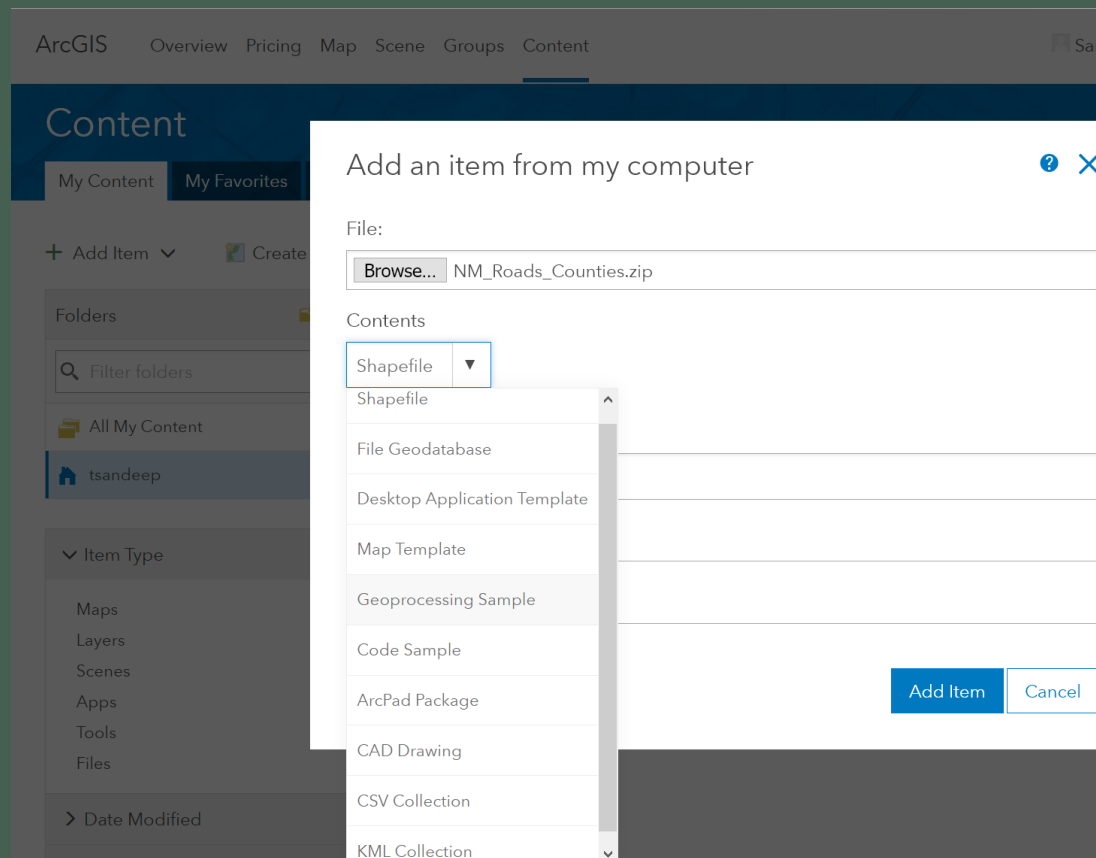
HOSTED FEATURE LAYERS

- Can publish maps and data as hosted layers to ArcGIS Online
- ArcGIS Online hosted layers are useful when you do not have your own ArcGIS Server site; or when ArcGIS Server site cannot be made public
- Requires an ArcGIS Online organization account
- Publish feature layers from any of the following formats:
 - Comma-separated values (CSV) files
 - Microsoft Excel files (.xlsx or .xls)
 - Google Sheets from Google Drive
 - GeoJSON files or zipped shapefiles
 - Feature collections
 - Zipped file geodatabases
 - Zipped collections of Georeferenced photos
 - ArcGIS Pro maps and ArcMap documents



HOSTING AND MANAGING DATA

- ArcGIS Online allows users to upload and share datasets



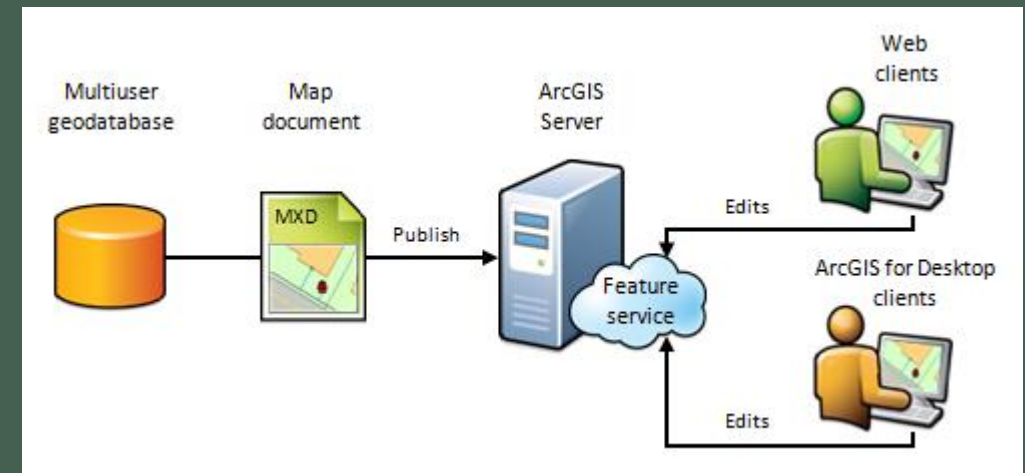
DO YOU NEED TO EDIT DATA ONLINE?

Map Service Layers vs Feature Layers

Functionality/Service Layer	Map Service Layer	Feature Layer
Geometry and attributes	Remain on server side	Downloaded to client side
Map drawn by	Server side	Client side
Scalability	More load on the server side; Handles large amounts of data	More load on the browser side; Less scalable for large data, except when using on-demand mode, scale dependency, vector tiling, or feature generalization
Responsiveness to mouse events	Less responsive	More responsive to user's mouse clicks

CREATING AND EDITING DATA ONLINE

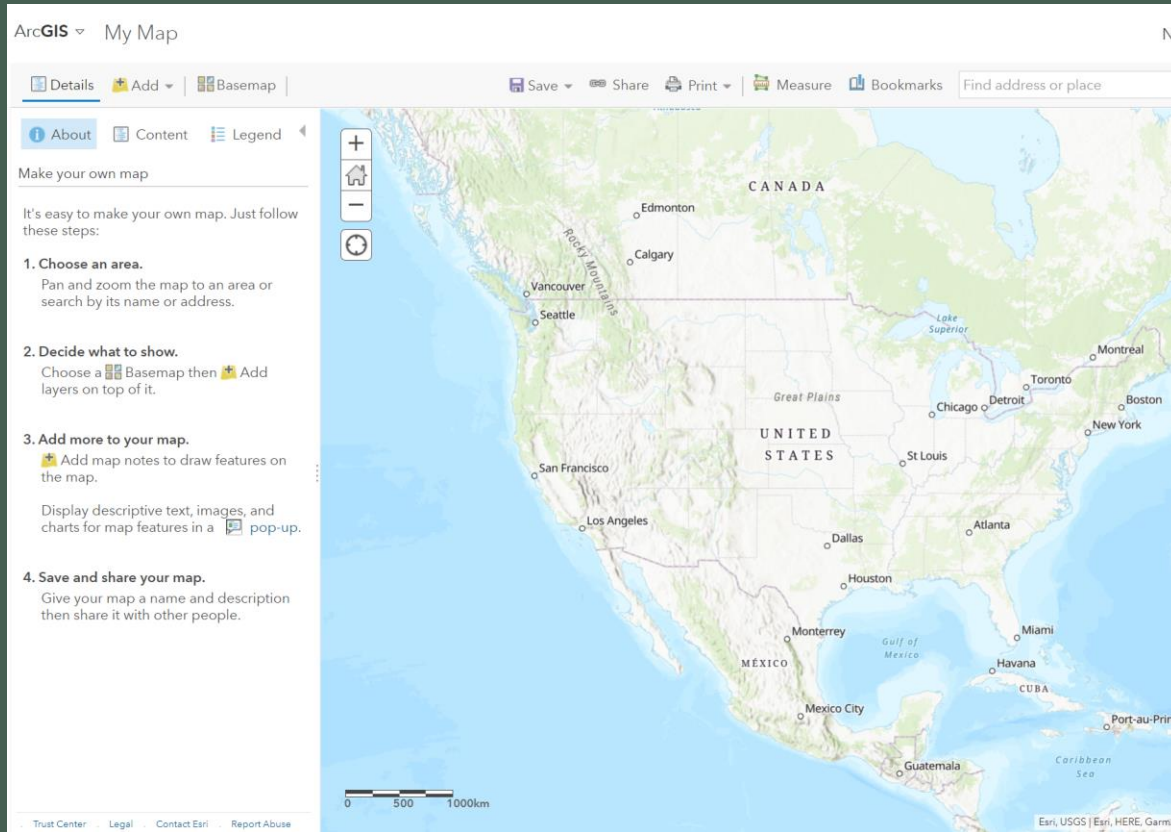
- Feature Services support both read and write access
- Can be created or configured on ArcMap or ArcGIS Online
- For ArcGIS Online – Requires an organizational account
- For ArcGIS Server – Requires an Enterprise geodatabase
- Editor tracking and ownership-based editing capabilities
- Ability to include Attachments (images or other relevant files)
- Offline Editing Mode



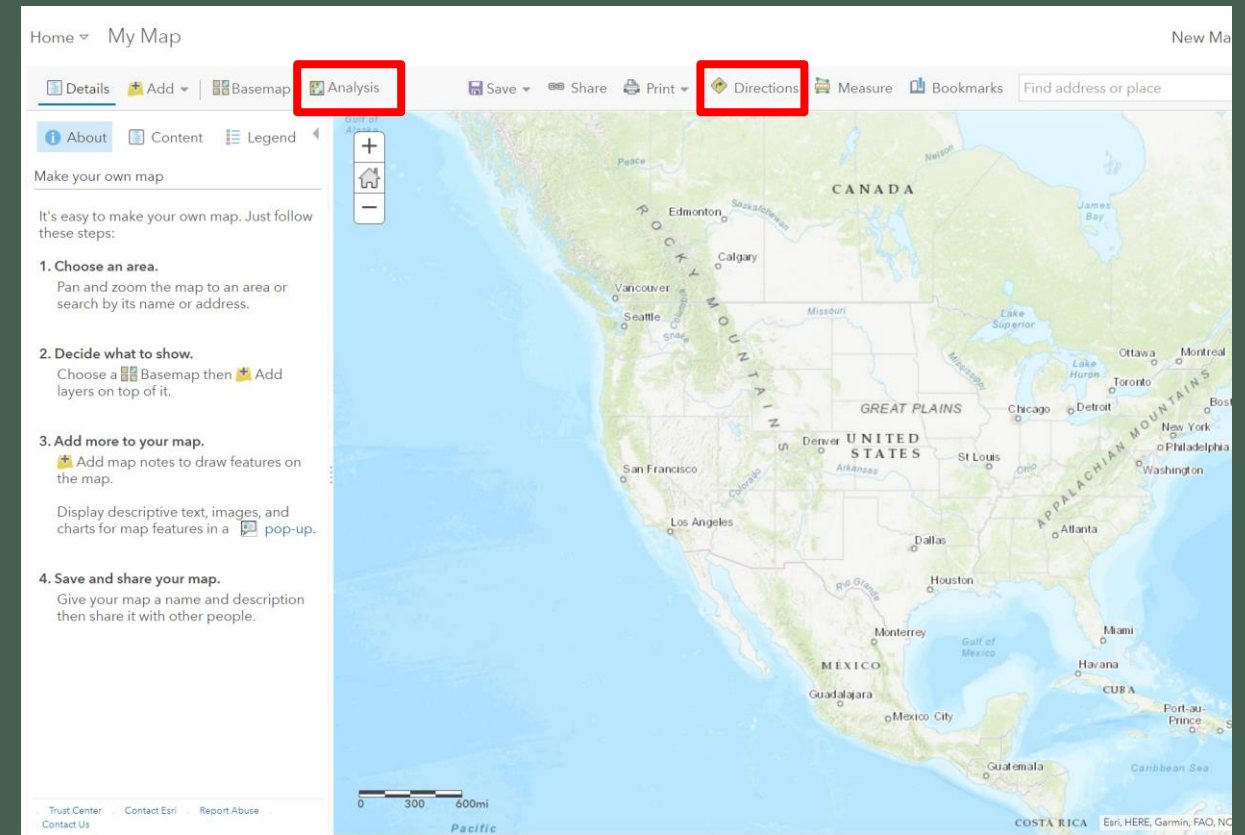
arcgis.com

ARCGIS ONLINE – ANALYSIS TOOLS

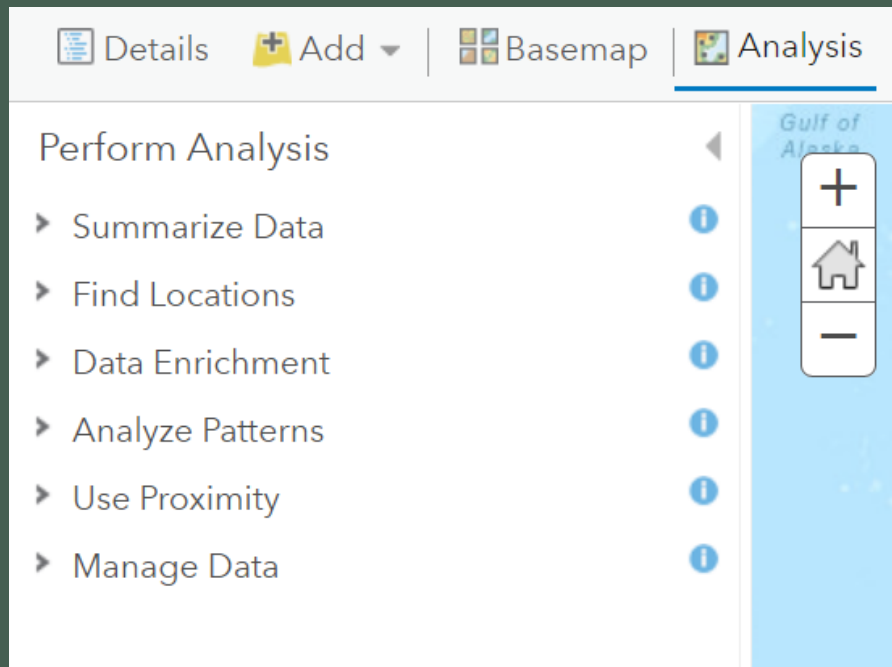
- Public Account



- Organizational Account



ARCGIS ONLINE – ANALYSIS TOOLS

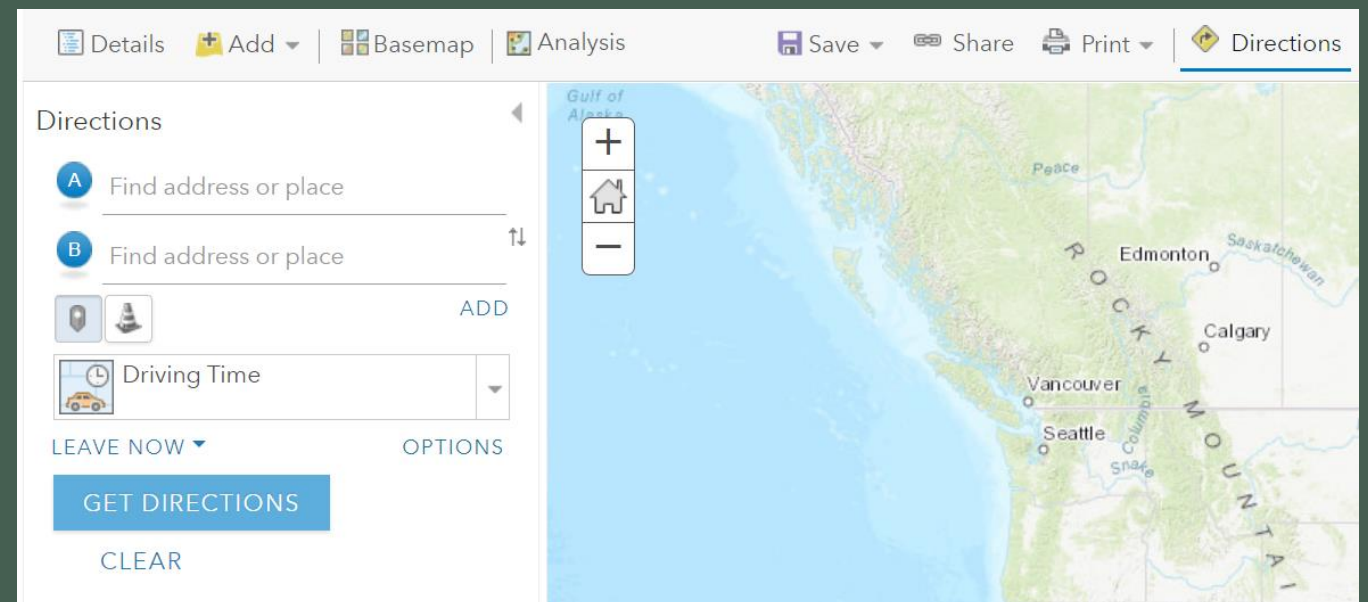


The screenshot shows the 'Analysis' tab selected in the top navigation bar. The left sidebar contains a list of analysis tools under the heading 'Perform Analysis':

- Summarize Data
- Find Locations
- Data Enrichment
- Analyze Patterns
- Use Proximity
- Manage Data

Each tool has an information icon (i) to its right. On the right side of the panel, there is a vertical toolbar with three icons: a plus sign (+), a house icon (home), and a minus sign (-). The background map shows the Gulf of Alaska.

Analysis Tools



The screenshot shows the 'Directions' tab selected in the top navigation bar. The interface includes a 'Directions' panel on the left and a map on the right. The panel contains:

- Two input fields labeled 'A' and 'B', each with the placeholder text 'Find address or place'.
- An 'ADD' button next to a location pin icon.
- A 'Driving Time' dropdown menu with a car icon.
- 'LEAVE NOW' and 'OPTIONS' labels.
- A blue 'GET DIRECTIONS' button.
- A 'CLEAR' button.

The map on the right shows a portion of Western Canada, including the Rocky Mountains, with cities like Vancouver, Seattle, Edmonton, and Calgary marked. The Gulf of Alaska is visible to the west. A vertical toolbar with plus (+), home, and minus (-) icons is overlaid on the map.

Directions

ANALYSIS & DIRECTION TOOLS

▼ Summarize Data ⓘ

- Aggregate Points ⓘ
- Join Features ⓘ
- Summarize Nearby ⓘ
- Summarize Within ⓘ
- Summarize Center and Dispersion ⓘ

▼ Find Locations ⓘ

- Find Existing Locations ⓘ
- Derive New Locations ⓘ
- Find Centroids ⓘ
- Find Similar Locations ⓘ
- Choose Best Facilities ⓘ
- Create Viewshed ⓘ
- Create Watersheds ⓘ
- Trace Downstream ⓘ

▼ Data Enrichment ⓘ

- Enrich Layer ⓘ

▼ Use Proximity ⓘ

- Create Buffers ⓘ
- Create Drive-Time Areas ⓘ
- Find Nearest ⓘ
- Plan Routes ⓘ
- Connect Origins to Destinations ⓘ

▼ Analyze Patterns ⓘ

- Calculate Density ⓘ
- Find Hot Spots ⓘ
- Find Outliers ⓘ
- Find Point Clusters ⓘ
- Interpolate Points ⓘ

▼ Manage Data ⓘ

- Dissolve Boundaries ⓘ
- Extract Data ⓘ
- Generate Tessellations ⓘ
- Merge Layers ⓘ
- Overlay Layers ⓘ

Directions

A Find address or place

B Find address or place ↑↓

ADD

Driving Time

- Rural Driving Distance
- Driving Distance
- Rural Driving Time
- Driving Time**
- Trucking Distance
- Trucking Time
- Walking Distance
- Walking Time

<https://doc.arcgis.com/en/arcgis-online/analyze/perform-analysis.htm>
<https://doc.arcgis.com/en/arcgis-online/get-started/get-directions.htm>

DEMO & EXERCISES

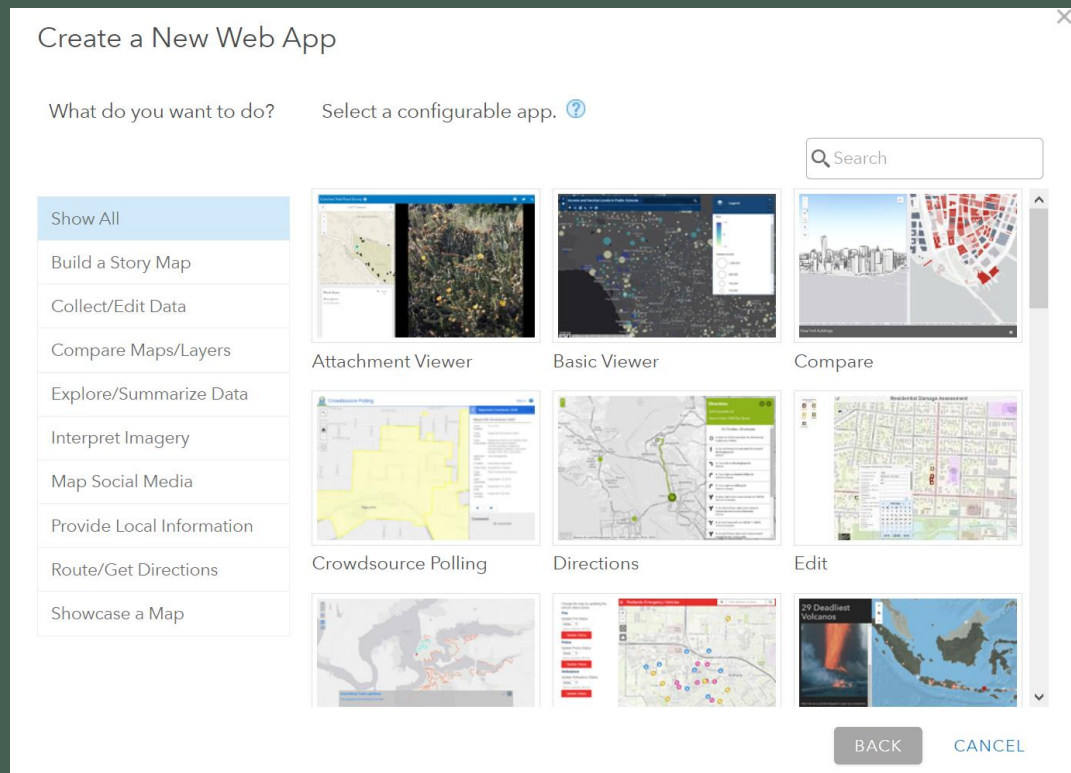
- Exercise 1: create a web map
 - Map a spreadsheet (CSV file) with coordinates
 - Map a spreadsheet (CSV file) by Geocoding
 - Map a line/polygon data set by uploading a shapefile
 - Map a layer by search
 - Map a layer from ArcGIS Server
- Exercise 2: Customize Data
 - Edit Data
 - Symbology
 - Pop-up
 - Add images and charts

WEB APPLICATIONS

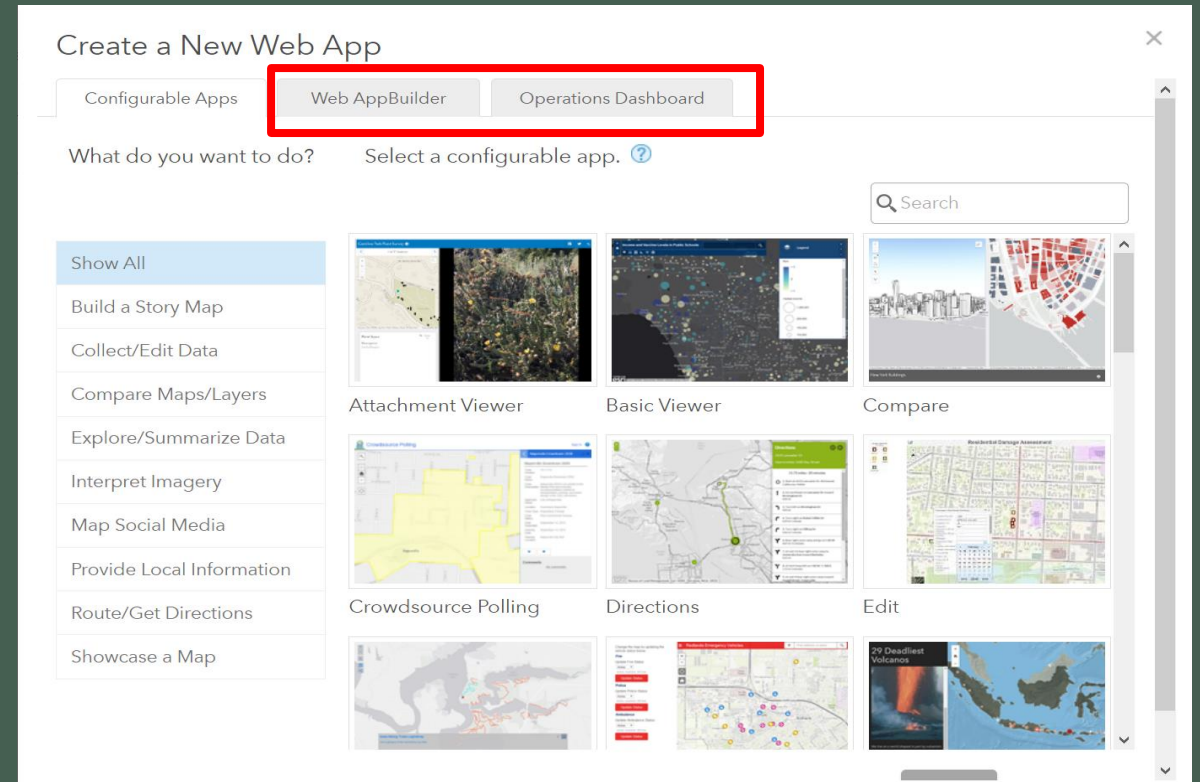
Customizing pre-built apps or Build apps from scratch?

ARCGIS ONLINE – WEB APPS

- Public Account



- Organizational Account



CONFIGURABLE APPS

- Prebuilt web application templates
- A selection of templates based on themes: Story Maps, Collect/Edit Data, Compare Maps/Layers, etc.
- Requires no coding and are customizable
- Perfect for creating a web application faster

The screenshot shows the 'Create a web app' dialog box in ArcGIS Online. The dialog has a title bar with a close button (X) in the top right corner. Below the title bar, there is a search bar with the text 'Search' and a magnifying glass icon. The main content area is titled 'What do you want to do?' and 'Select a configurable app. ?'. Below this, there is a list of templates on the left and a grid of preview images on the right. The list of templates includes: Show All, Build a Story Map, Collect/Edit Data, Compare Maps/Layers, Explore/Summarize Data, Interpret Imagery, Map Social Media, Provide Local Information, Route/Get Directions, and Showcase a Map. The 'Showcase a Map' option is currently selected, indicated by a blue vertical bar. The grid of preview images shows five different app templates: Basic Viewer, Map Styler, Media Map, Minimalist, and Story Map Basic. Each preview image is accompanied by its name. At the bottom right of the dialog, there is a 'Cancel' button.

Create a web app

What do you want to do? Select a configurable app. ?

Provide a simple user interface to allow others to focus on your map

Show All

Build a Story Map

Collect/Edit Data

Compare Maps/Layers

Explore/Summarize Data

Interpret Imagery

Map Social Media

Provide Local Information

Route/Get Directions

Showcase a Map

Basic Viewer

Map Styler

Media Map

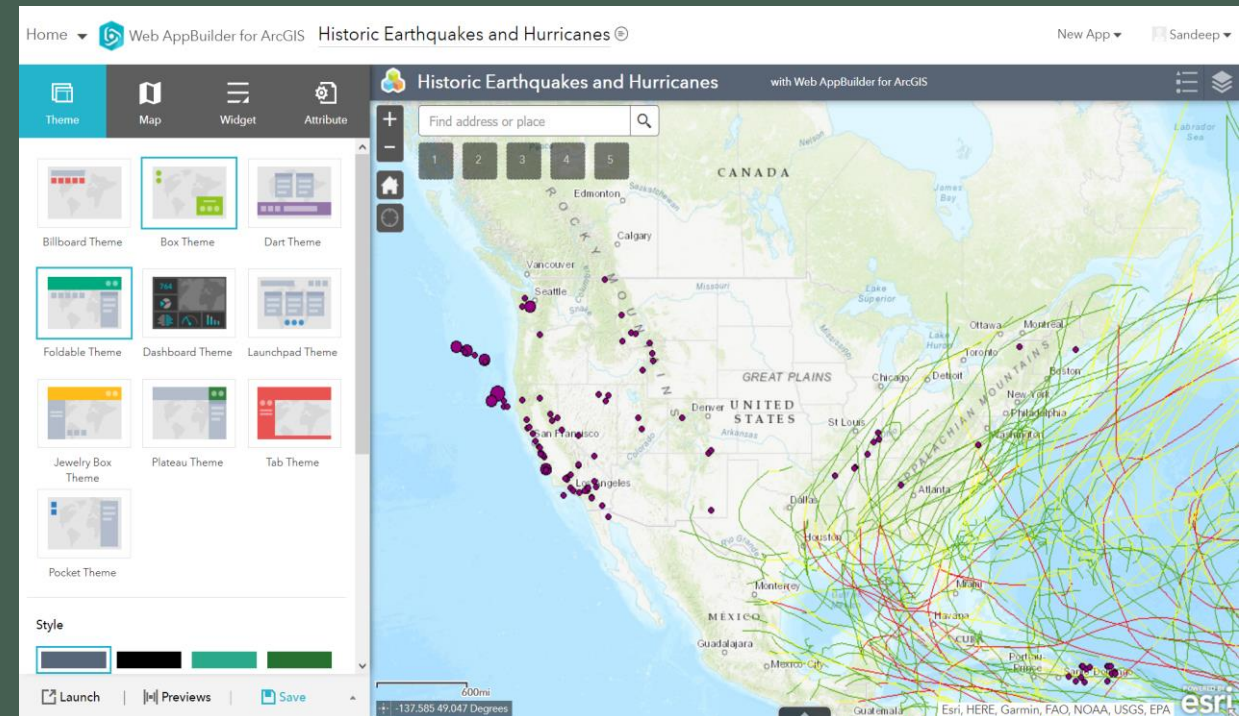
Minimalist

Story Map Basic

Cancel

WEB APPBUILDER FOR ARCGIS

- Create web mapping applications without programming
- Built on HTML5 and ArcGIS API for JavaScript
- No plug-ins required (as the case with Flex API)
- WYSIWYG (what-you-see-is-what-you-get) application
- Developer Edition is available
- Cross device compatibility
- Pre-built widgets
- Supports 2D and 3D web apps
- Requires ArcGIS Online Organizational Account



WEB APPBUILDER FOR ARCGIS (DEVELOPER EDITION)

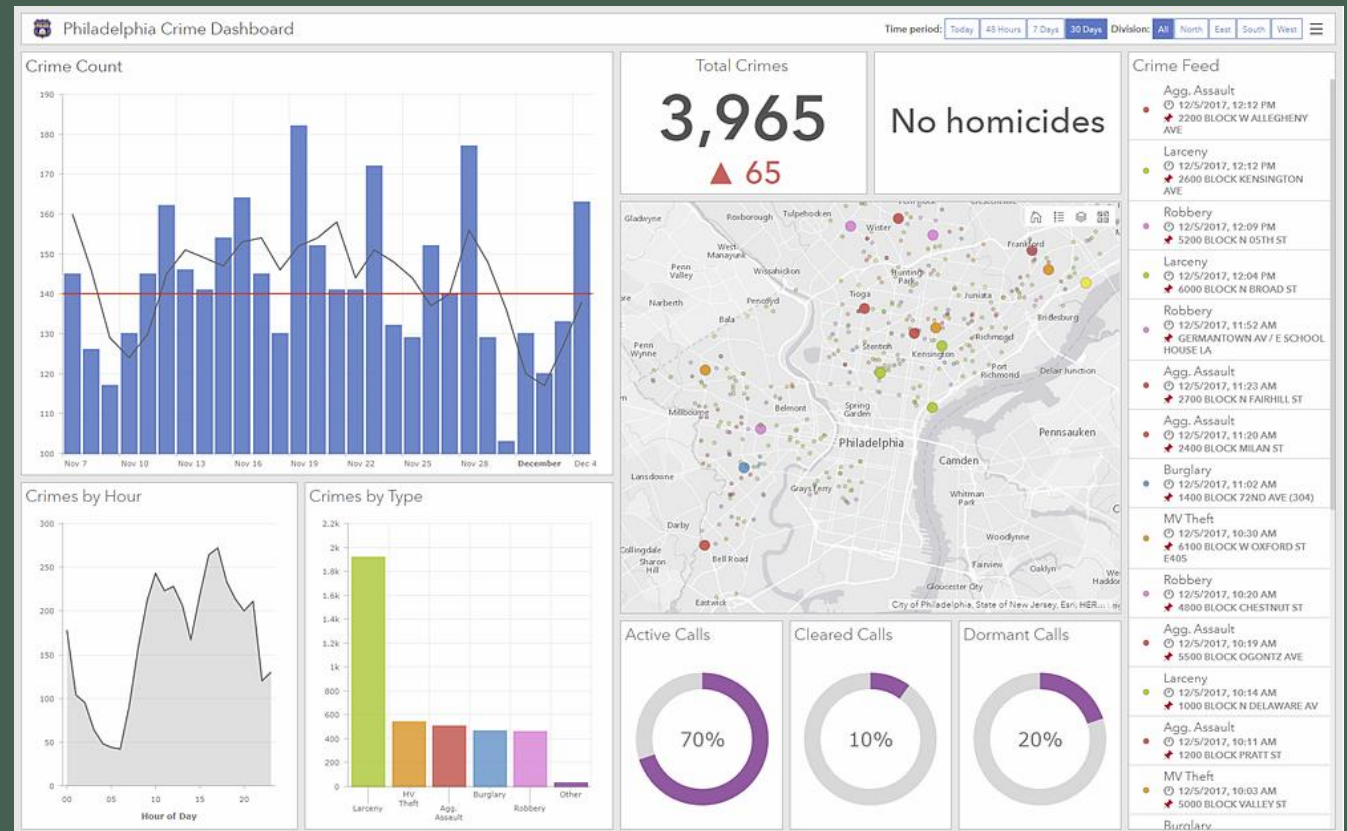
- Similar capabilities as of ArcGIS Online version*
- Create custom widgets, themes and app templates
- Host web app on a local server
- Customized web app URL
- Latest SDK: Version 2.19

ArcGIS Web AppBuilder (Developer Edition)

<https://developers.arcgis.com/web-appbuilder/>

OPERATIONS DASHBOARD

- Allows to monitor events or activities
- Multiple data visualizations on a single screen
- Dashboard elements include maps, lists, charts, gauges, and indicators

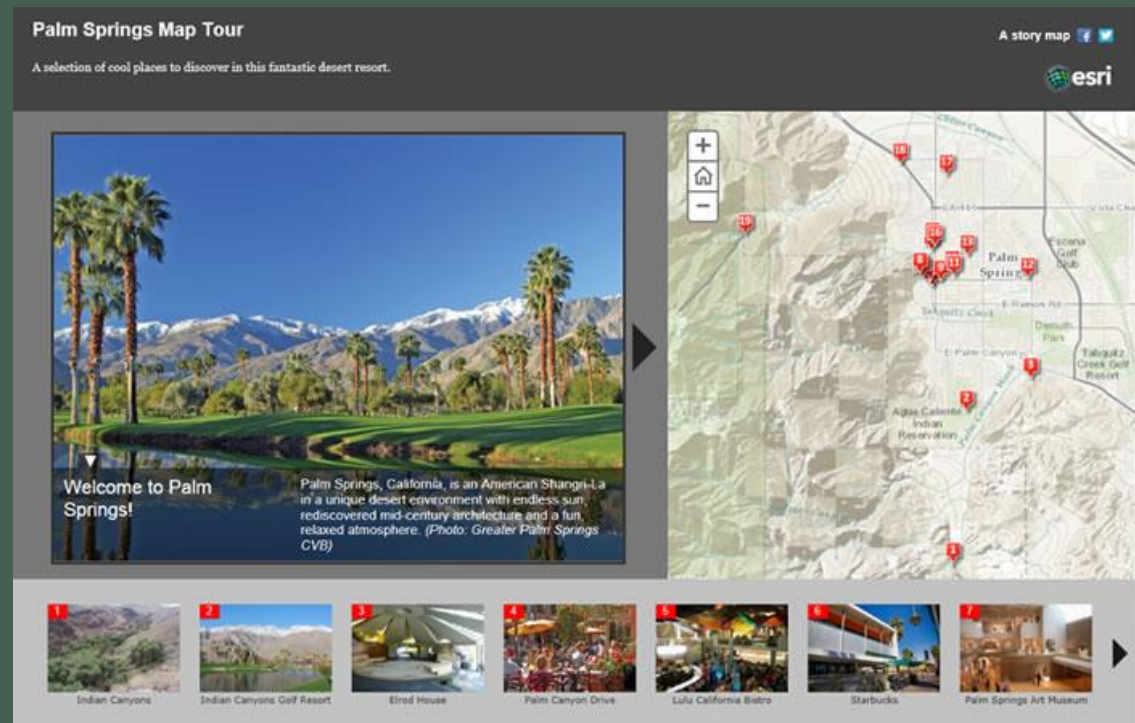


STORY MAPS

- A simple web app that combine interactive maps, multimedia content, and user experiences to tell your story
- No coding needed, easy to configure
- Cross device compatibility

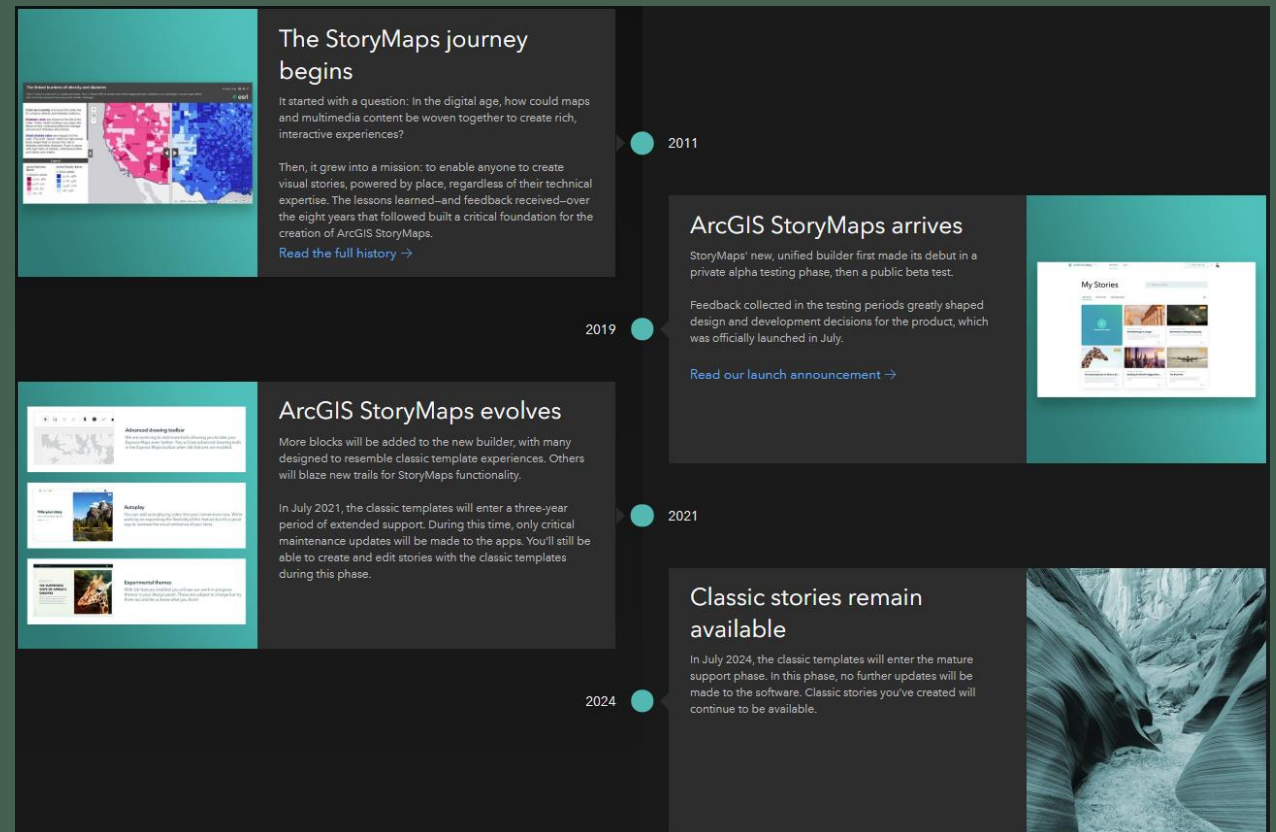


<https://storymaps.arcgis.com/>



ARCGIS STORY MAPS

- Renamed as ArcGIS Story Maps
- The classic ESRI Story Maps templates are available until mid-2020 and existing stories can be edited until 2024
- After that time, stories created using the classic version can only be viewed and shared, with limited support
- Unfortunately, story maps created in the classic version cannot be migrated to the new version



CLASSIC STORY MAPS

- Integrated into ArcGIS Online
- Build a Story Map (as a Web App) using the web map created in AGOL
- Prebuilt templates

The screenshot shows the 'Create a New Web App' interface in ArcGIS Online. At the top, it asks 'What do you want to do?' and suggests selecting a configurable app. A search bar is present. On the left, a vertical menu lists various actions, with 'Build a Story Map' highlighted. The main area displays a grid of Story Map templates, each with a thumbnail and a title: 'Story Map Basic', 'Story Map Cascade', 'Story Map Journal', 'Story Map Series', 'Story Map Shortlist', and 'Story Map Swipe and Spyglass'. At the bottom right, there are 'BACK' and 'CANCEL' buttons.

Create a New Web App

What do you want to do? Select a configurable app. ?

Search

Show All »

Build a Story Map

Collect/Edit Data

Compare Maps/Layers

Explore/Summarize Data

Interpret Imagery

Map Social Media

Provide Local Information

Route/Get Directions

Showcase a Map

Combine maps with narrative text, images, and multimedia content to tell your story. Looking for the new ArcGIS StoryMaps? [Click Here](#)

Story Map Basic

Story Map Cascade

Story Map Journal

Story Map Series

Story Map Shortlist

Story Map Swipe and Spyglass

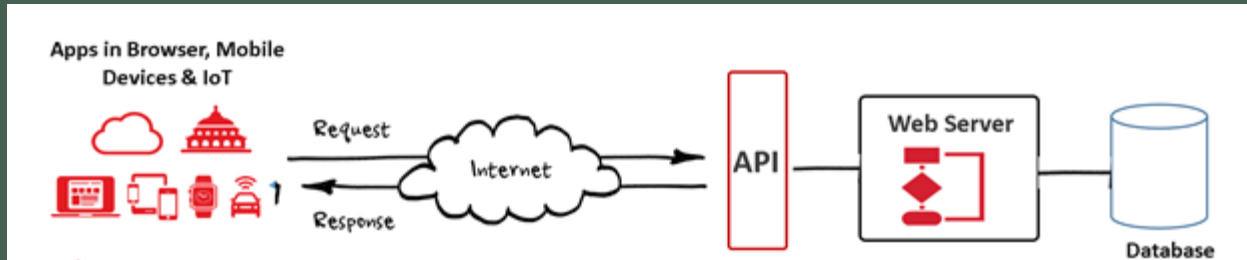
BACK CANCEL

CLASSIC STORY MAPS – TEMPLATES












- Can also be accessed directly at <https://storymaps-classic.arcgis.com/en/>



ARCGIS API



apifriends.com

All Products	 JavaScript	 Android	 iOS	 NET	 Qt
 Java	 macOS	 ArcGIS Online	 REST API	 Python	 Pro SDK

ARCGIS API FOR JAVASCRIPT

- For developers
- JavaScript is a widely used programming language
- All browsers support JavaScript
- Cross-platform capabilities 9desktop and mobile0
- Any text editor can be used to write code
- Requires basic knowledge of HTML and CSS

ArcGIS API for JavaScript Sandbox

```
1 <!DOCTYPE html>
2 <html>
3
4 <head>
5   <meta http-equiv="Content-Type" content="text/html; charset=utf-8">
6   <meta name="viewport" content="initial-scale=1, maximum-scale=1, user-scalable=no">
7   <title>Create web map from id/title</title>
8
9   <link rel="stylesheet" href="https://js.arcgis.com/3.35/dijit/themes/claro/claro.css">
10  <link rel="stylesheet" href="https://js.arcgis.com/3.35/esri/css/esri.css">
11
12  <script src="https://js.arcgis.com/3.35/" data-dojo-config="async:true"></script>
13  <script>
14    require([
15      "dojo/parser",
16      "dojo/ready",
17      "dijit/layout/BorderContainer",
18      "dijit/layout/ContentPane",
19      "dojo/dom",
20      "esri/map",
21      "esri/urutils",
22      "esri/arcgis/Utils",
23      "esri/dijit/Legend",
24      "esri/dijit/Scalebar",
25      "dojo/domReady!"
26    ], function (
27      parser,
28      ready,
29      BorderContainer,
30      ContentPane,
31      dom,
32      Map,
33      urutils,
34      arcgisUtils,
35      Legend,
36      Scalebar
37    ) {
38      ready(function () {
39
40        parser.parse();
41
42        //if accessing webmap from a portal outside of ArcGIS Online, uncomment and replace path with
43        //portal URL
44        arcgisUtils.createMap("ee2fd96e6eb4d5dbc2d497f88bf5531", "map").then(function (response) {
```

Predominant Educational Attainment - gray-vector base
Example map showing predominant educational attainment. Darker colors indicate stronger predominance.

NY Educational Attainment

- Graduate Degree
- College Degree
- Associates Degree
- Some College
- High School Degree
- Some High School
- No High School
- Tie

Precent Predominant of Total

- > 39
- < 21

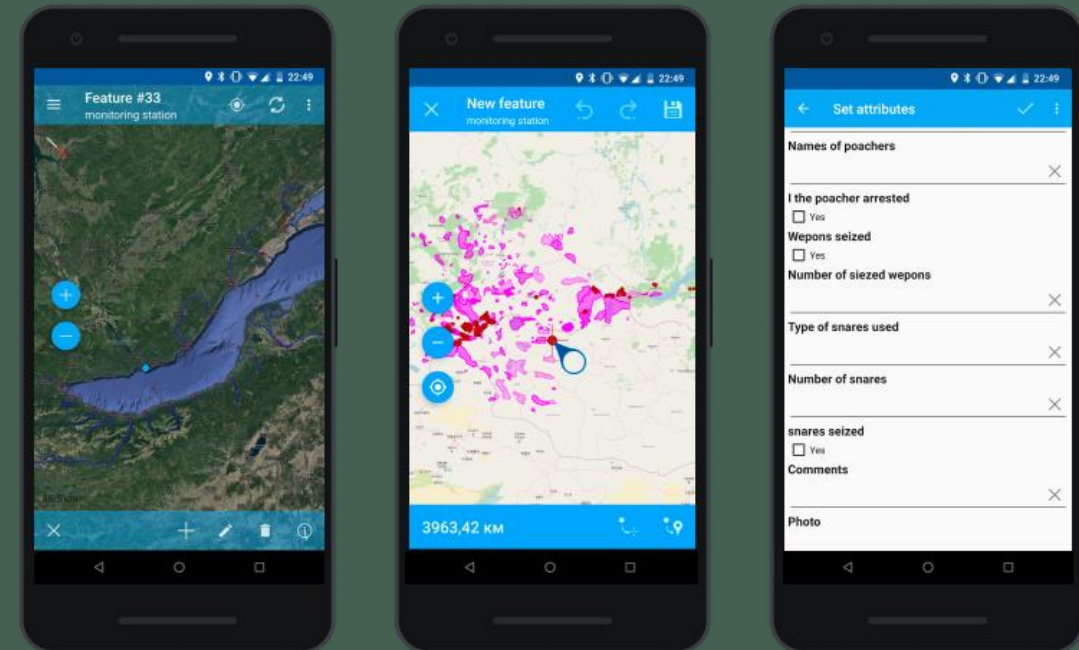
NYC OpenData. Esri, HERE, Garmin, esri

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arcgis.com

MOBILE GIS

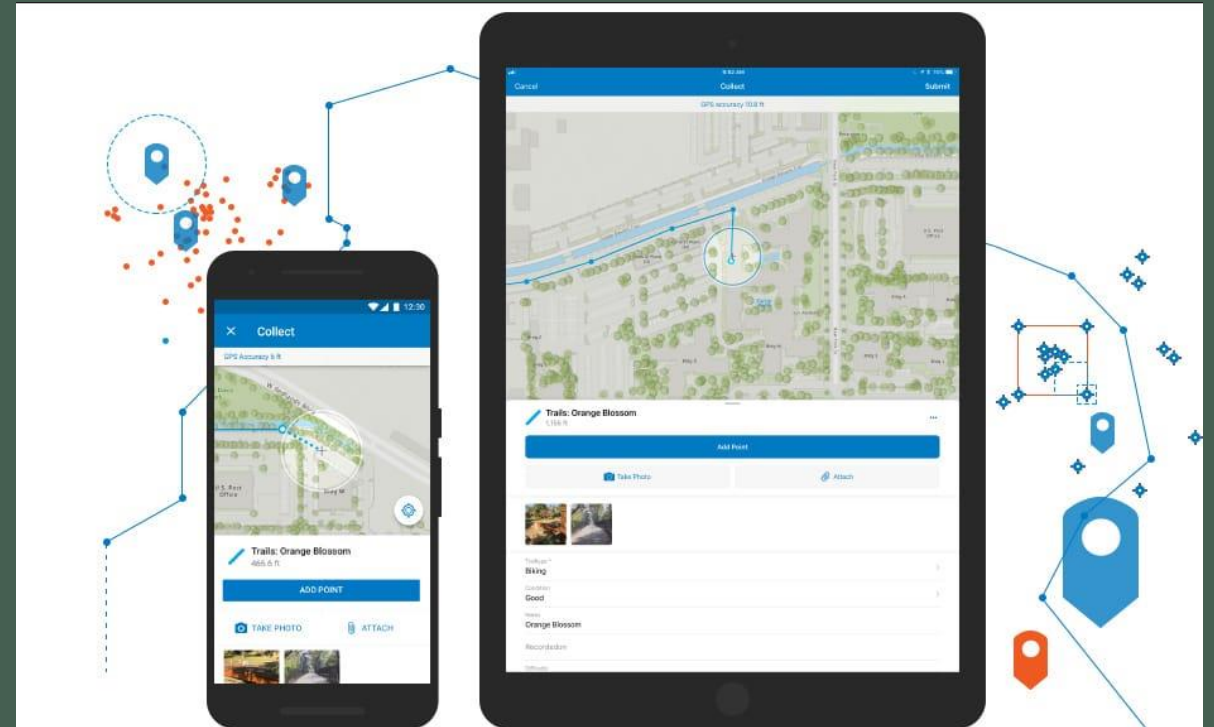
- Browser based, Native-app based, and hybrid based
- Provides rapid data collection and seamless data integration
- Decreases task redundancy and keep data more current
- Improves efficiency and accuracy of field operations
- Allows to make accurate, real-time business decisions
- Replaces paper based workflows



nextgis.com

MOBILE GIS APPLICATIONS

- ArcPad
- ArcGIS for Collector
- ArcGIS for Smartphones and Tablets (Discontinued)
- ArcGIS Companion (New)
- Collector for ArcGIS
- Explorer for ArcGIS
- Workforce for ArcGIS
- Navigator for ArcGIS
- Survey123 for ArcGIS
- AppStudio Player for ArcGIS



esri.com

BENEFITS OF MOBILE GIS

- Mobility
- Location awareness
- Multiple user accessibility
- Versatile means of communication
- Sharing more current information

