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Forest Service



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ENTERPRISE DATA WAREHOUSE (EDW)

Metadata User Manual



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The U.S. Forest Service (USFS), is the sponsor of this project. Approved data collected from local units that meets certain criteria is stored in the Enterprise Data Warehouse (EDW). More information can be found here: <https://www.fs.usda.gov/about-agency/enterprise-data-warehouse>. Project concept, oversight, and funding were provided under Prime Contract Number GS-35F-486BA/, Order 12760418F0685 for the USFS.

OBJECTIVES

1. Users should have a greater appreciation for EDW and its benefits to the USFS and the public.
2. Users should have a basic understanding of metadata standards and know how to find detailed information about an EDW dataset.
3. Users should be able to find public EDW data.
4. USDA users should be able to find agency-internal data.
5. Users should be able to use metadata information (e.g. extent, accuracy, currency, refresh rate, source, etc.) to determine whether the data is suitable for their purpose.
6. Users should be able to understand the various types of contact information provided in metadata records to identify the correct point of contact for dataset specific questions.
7. Users should be comfortable using XML readers.

1 INTRODUCTION TO EDW

The U.S. Forest Service (USFS) is actively involved in improving its ability to manage and share authoritative agency data. The Enterprise Data Warehouse (EDW) is a USFS repository of geospatial and tabular data that is current (the data is refreshed regularly), trusted (the data is drawn from authoritative data sources, also known as systems of record), and standardized (the data has been approved as a USFS or generally-accepted data standard, e.g., reference datasets for State, County, and Congressional Districts). Data that meets certain criteria may be approved through the EDW Content Governance Board for inclusion in the EDW.

Functionally, the EDW is a technology platform that provides business intelligence tools for integrating data used for analysis and reporting, internal and external map services, and web services that make accessible, standard reference data that is consumed by agency applications. The EDW includes hundreds of datasets spanning dozens of themes, as well as map services for authoritative agency data published and available to the public.

More information and access to EDW data can be found here: <https://data.fs.usda.gov/geodata/edw/>.

2 EDW PRIORITIES

1. Ensuring that the EDW content meets the priority information needs of agency programs
2. Ensuring that the EDW content includes the core set of data required for data integration to support management decisions
3. Fulfilling performance expectations with EDW tools
4. Meeting the needs of the user community by ensuring that the EDW program has sufficient resources

Link to Enterprise Data Warehouse (EDW) Factsheet: https://data.fs.usda.gov/geodata/edw/docs/EDW_Factsheet-External.pdf?version=2.0

3 HOW TO FIND EDW DATA AND METADATA

Before a dataset becomes part of the EDW, it must be approved by the EDW Content Governance Board (CGB). The EDW CGB may approve a dataset for external publication or for internal use only. For example, some sensitive information may not be appropriate for sharing with the public. The datasets that are part of the EDW are a subset of all the datasets that are created and maintained by the USFS. A major challenge in finding data that are not already part of the EDW is contacting the data stewards directly. This process, however, is outside of the scope of this user manual.

There are various avenues a user can take to find EDW data and associated metadata. The methods described below are divided into two sections, the first of which describes the methods that can be employed by the public or those with USFS credentials, and the latter describes methods that are only for USFS internally facing users.

3.1 All Users (External and Internal to USFS)

The subsections here provide instructions for accessing EDW data for any user with internet access. This includes the public users and internal USFS users.

3.1.1 USDA FOREST SERVICE GEODATA CLEARINGHOUSE (FSGEODATA)

Link: <https://data.fs.usda.gov/geodata/>

An online collection of digital data related to forest resources. Includes a search for datasets related to forests and grassland spatial data.



Figure 1: USDA Forest Service Geodata (FSGeodata) Front Page

Vector and raster datasets as well as each dataset's metadata can be downloaded from this site. For raster data, click the **Raster Data** link on the main page, and you will be taken to the **Raster Data Gateway Page**:


United States Department of Agriculture
Forest Service

FSGeodata Clearinghouse


Clearinghouse Home
Help
Contact Us

Enterprise Data

- Downloadable Data
- Geospatial Data Discovery Tool
- Data.gov Open Data
- Map Services

Maps

- FSTopo
- Standard Map Products
- Other Map Products

Raster Data

- Caribbean Island Land Cover
- Chugach Updates
- Climate
- Forest Biomass
- Landscape Change Monitoring System
- National Forest Type
- Rangelands
- RAVG
- Tree Canopy Cover

Special Purpose FS Data

- State and Private Forestry
- Wilderness & WSR & WSA

Raster Data Gateway

Rasters are digital aerial photographs, imagery from satellites, digital pictures, or even scanned maps. The Forest Service creates raster datasets for some Forest Service projects.

Caribbean Island Land Cover



Land Cover and Forest Formations data are downloadable, and include the following: Puerto Rico and its outlying islands of Vieques, Culebra, and Mona; the U.S. and British Virgin Islands; and five islands of the Lesser Antilles: St. Kitts, Nevis, St. Eustatius, Grenada and Barbados.

Landscape Change Monitoring System



This **geospatial dataset**, created by the USFS Rocky Mountain Research Station (RMRS) and the USFS Geospatial Technology and Applications Center (GTAC), consists of annual maps depicting change (vegetation gain and vegetation loss), land cover and land use from 1985 to present.

National Forest Biomass Dataset



This **geospatial dataset** was created by the USFS Forest Inventory and Analysis (FIA) program and the Geospatial Technology and Applications Center (GTAC) to show the extent and distribution of forest biomass across the Lower 48 States and Alaska.

National Forest Type Dataset



This **geospatial dataset** was created by the USFS Forest Inventory and Analysis (FIA) program and the Geospatial Technology and Applications Center (GTAC) to show the extent, distribution, and forest type composition of the nation's forests.

Figure 2: Raster Data Gateway Page on FSGeodata

From the **Raster Data Gateway** page, click the dataset you are interested in to navigate to further information. From there, you can follow links to download various pieces of information, such as pdf files, metadata files, and the dataset itself in various formats.

Enterprise Data

Downloadable Data
Geospatial Data
Discovery Tool
Data.gov Open Data
Map Services

Maps

FSTopo
Standard Map Products
Other Map Products

Raster Data

Caribbean Island Land Cover
Chugach Updates
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Forest Biomass
Landscape Change Monitoring System
National Forest Type
Rangelands
RAVG
Tree Canopy Cover

Special Purpose FS Data

State and Private Forestry
Wilderness & WSR & WSA
Research and Development
Puerto Rico Gap Analysis Project

Site maintained by:

Geospatial Technology and Applications Center
125 South State Street
Suite 7105
Salt Lake City, UT 84138
Need help?

USFS Landscape Change Monitoring System (LCMS)

Jump to: Products | Availability | Access | Constraints | Downloads | Docs & References

LCMS Change, Rio Grande NF: 2010

Knowing where, when, and what factors create change across landscapes is critical to making sound land management decisions. To support land managers and scientists with this need, a group of leading remote sensing scientists and application specialists in the US Forest Service, US Geological Survey, NASA, and numerous universities have collaborated to develop and produce a Landscape Change Monitoring System (LCMS).

LCMS is a remote sensing-based system for mapping and monitoring landscape change across the United States. LCMS provides a "best available" map of landscape change that leverages advances in time series-based change detection techniques, Landsat data availability, cloud-based computing power, and big data analysis methods.

LCMS Products:

LCMS produces annual maps depicting change (vegetation loss and vegetation gain), land cover, and land use from 1985 to present that can be used to assist with a wide range of land management applications. With the help of Regional and National Forest staffs we have identified many applications of LCMS data, including forest planning and revision, updating existing vegetation maps, assessing landscape conditions, supporting post-fire recovery, and meeting some broad-scale monitoring requirements.

[\[back to top\]](#)

LCMS Data Availability:

The full suite of LCMS products are now available for the Conterminous United States and Southeastern Alaska and will be updated annually.

[\[back to top\]](#)

LCMS Data Access:

LCMS data are available for viewing and download through the **LCMS Data Explorer** (<https://apps.fs.usda.gov/lcms-viewer/>) and also through the links in the table below.

The LCMS Data Explorer is a web-based application that provides users the ability to view, analyze, summarize and download LCMS data. A user-friendly set of tools allows users to upload an area of interest and perform pixel- and area-based summaries with a charting feature displaying the results of all LCMS outputs. A tutorial is available in the *Viewer Support* menu.

For questions or more information on LCMS please contact the LCMS helpdesk sm.fs.lcms@usda.gov.

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Figure 3: Raster Download Page Example on FSGeodata (LCMS Screenshot 1)

The example above is a screenshot of a portion of the download page for the Landscape Change Monitoring System (LCMS) dataset. Information such as this can be found by selecting one of the options on the Raster Data Gateway page. This particular dataset has several sections of information, which is shown in this screenshot and the two that follow. At the top of the page (above), we can see some section links¹, a brief description², information about the data products³, and their availability and data access⁴.

► **References:**

- (1) Breiman, L. 2001, Random forests. *Machine Learning*, 45, pp.5-32.
- (2) Cohen, W.B., Yang, Z., Kennedy, R.E. 2010, Detecting trends in forest disturbance and recovery using yearly Landsat time series: 2. TimeSync - Tools for calibration and validation, *Remote Sensing of Environment*, 114, pp. 2911-2924.
- (3) Cohen, W.B., Yang, Z., Healey, S.P., Kennedy, R.E., Gorelick, N. 2018, A LandTrendr multispectral ensemble for forest disturbance detection, *Remote Sensing of Environment*, 205, pp. 131-140.
- (4) Gorelick, N., Hancher, M., Dixon, M., Ilyushchenko, S., Thau, D., Moore, R. 2017, Google Earth Engine: Planetary-scale geospatial analysis for everyone, *Remote Sensing of Environment*, 202, pp. 18-27.
- (5) Healey, S.P., Cohen, W.B., Yang, Z., Brewer, C. K., Brooks, E.B., Gorelick, N., Hernandez, A.J., Huang, C., Hughes, M.J., Kennedy, R.E., Loveland, T.R., Moisen, G.G., Schroeder, T.A., Stehman, S.V., Vogelmann, J.E., Woodcock, C.E., Yang, L., Zhu, Z. 2018, Mapping forest change using stacked generalization: an ensemble approach, *Remote Sensing of Environment*, 204, pp. 717-728.
- (6) Hughes, M., Kaylor, S., Hayes, D. 2017, Patch-based forest change detection from Landsat time series, *Forests*, 8, p. 166.
- (7) Kennedy, R.E., Yang, Z., Gorelick, N., Braaten, J., Cavalcante, L., Cohen, W.B., Healey, S. 2018, Implementation of the LandTrendr Algorithm on Google Earth Engine, *Remote Sensing*, 10, p. 691.
- (8) Zhu, Z., Woodcock, C.E. 2012, Object-based cloud and cloud shadow detection in Landsat imagery, *Remote Sensing of Environment*, 118, pp. 83-94.

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Figure 5: Raster Download Page Example on FSGeodata (LCMS Screenshot 2)

Lastly, scrolling to the bottom of the LCMS dataset's page from the view we saw in the figure above, we can see reference information.

For vector data, from the main FSGeodata page, click the **Enterprise Data** link and you will be taken to the **Forest Service Enterprise Data** page. On this page, you can view and download documentation, such as the 'Enterprise Data Warehouse (EDW) Factsheet' as well as this document, and view datasets and metadata in the EDW in various formats. You will also see links to other methods of finding EDW data and metadata which are listed in this document (e.g. the Geospatial Data Discovery Tool and Data.gov). To download EDW data from the **Forest Service Enterprise Data** page, first select the **National Datasets** option.

USDA United States Department of Agriculture Forest Service

FSGeodata Clearinghouse

Clearinghouse Home Help Contact Us

Enterprise Data

- Downloadable Data
- Geospatial Data Discovery Tool
- Data.gov Open Data
- Map Services

Maps

- FSTopo
- Standard Map Products
- Other Map Products

Raster Data

- Caribbean Island Land Cover
- Chugach Updates
- Climate
- Forest Biomass
- Landscape Change Monitoring System
- National Forest Type
- Rangelands
- RAVG
- Tree Canopy Cover

Special Purpose FS Data

- State and Private Forestry
- Wilderness & WSR & WSA
- Research and Development
- Puerto Rico Gap Analysis Project

Site maintained by: Geospatial Technology

Forest Service Enterprise Data

A single point of access for data collected and managed by the Agency. You can use the Geospatial Data Discovery Tool to access data about individual forests or grasslands or about an area of interest that you specify on the national map. You can find and download datasets by topic area or theme or find and use map services published by the Agency.

Also, be sure to check out the latest [Enterprise Data Warehouse \(EDW\) Factsheet](#) which addresses such questions as: How is the EDW used? How do I get the data? How does the EDW operate? What are its priorities?

The [EDW Metadata User Manual](#) is another resource that may be of interest to the reader. This manual covers several methodologies for finding EDW metadata, provides a general introduction to what metadata are, describes and links to further resources for the metadata formats used in the EDW, and instructs on how to find frequently sought-after information in the most commonly used metadata formats in the EDW. Lastly, this manual holds an appendix which is a metadata template that can be used as a starting point for creating a new metadata record for an EDW dataset.

National Datasets

Nationwide datasets are available via [downloads](#).

The Forest Service collects many kinds of data as part of its mission to manage forests and grasslands. The data is used to produce maps and conduct resource planning, analysis and management.

Geospatial Data Discovery Tool

To access individual forest unit data files, or create a custom download file, visit our [Geospatial Data Discovery Tool](#).

This tool allows users to download portions of a national FS dataset by forest or by a user specified area of interest. [Click here for the user guide](#).

Map Services

Nationwide datasets are published as map services. These map services are available.

What data layers are available?

Some data is published on a forest by forest basis. The instructions in [this PDF document](#) will tell

Figure 6: Forest Service Enterprise Data page on FSGeodata

Click 'National Datasets' to download EDW data or metadata. (Notice the 'EDW Metadata User Manual' link above the 'National Datasets' section. This is where users can download the document you are reading.)

This option opens the **Download National Datasets** page. Datasets available for download are listed in a tabular format here. A search bar is included at the top of this table to filter the visible results.

USDA United States Department of Agriculture Forest Service

FSGeodata Clearinghouse

Clearinghouse Home Help Contact Us

Enterprise Data

- Downloadable Data
 - Biota (23)
 - Boundaries (57)
 - Environment (44)
 - Geoscientific Information (8)
 - Imagery & Basemaps (43)
 - Inland Waters (14)
 - Planning Cadastre (14)
 - Structure (9)
 - Transportation (4)
- Geospatial Data Discovery Tool
- Data.gov Open Data
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Maps

- FSTopo
- Standard Map Products
- Other Map Products

Raster Data

- Caribbean Island Land Cover
- Chugach Updates
- Climate
- Forest Biomass
- Landscape Change Monitoring System
- National Forest Type
- Rangelands
- RAVG

Download National Datasets

Data collected and managed by Forest Service programs is available in a map service and two downloadable file formats – in a shape file and an ESRI file geodatabase. Metadata is available that describes the content, source, and currency of the data. You can filter the list by the topic categories in the menu at the left to help you find information you are interested in. You can view the feature classes in a single dataset by clicking on the name of the parent dataset at the bottom of the abstract.

► More FS map services are available in [ArcGIS Online](#)

► [Topic Category Descriptions](#)

Requests for KML/KMZ output

The Enterprise Data Warehouse Team tested exporting out to KML/KMZ files as a deliverable and due to the complexity and size of the datasets this has been unsuccessful. To obtain a KML file for any EDW dataset, go to the [Geospatial Data Discovery Tool](#) and search for the dataset. An option to download to KML is available from that website. If you have questions, contact: SM.FS.data@usda.gov.

Search by keyword:

Feature Classes		Abstract
Activity Range Vegetation Improvement ESRI geodatabase (24MB) shape file (58MB) Date of last refresh: Feb 5, 2021	metadata map service	The RngVegImprove feature class depicts the area planned and accomplished areas treated as a part of the Range Vegetation Improvement program of work, funded through the budget allocation process and reported through the Forest Service Activity Tracking System (FACTS) database within the Natural Resource Manager (NRM) suite of... [see more] parent dataset: Activities
Activity Silviculture Timber Stand Improvement ESRI geodatabase (178MB) shape file (330MB) Date of last refresh: Feb 5, 2021	metadata map service	The SilvTSI (Silviculture Timber Stand Improvement) feature class represents activities associated with the following performance measure: Forest Vegetation Improved (Release, Weeding, and Cleaning, Precommercial Thinning, Pruning and Fertilization). The Activities data set portrays the areas where activities are accomplished... [see more]

Figure 7: Download National Datasets page on FSGeodata

On this page, use the search bar to filter the visible entries in the table¹, download the EDW datasets in various formats², view/download metadata³, and view the dataset as a map service⁴ (section 3.1.3 of this document has more details on map services). The abstract for each dataset is listed on the right for informational purposes.

3.1.2 USFS ON DATA.GOV

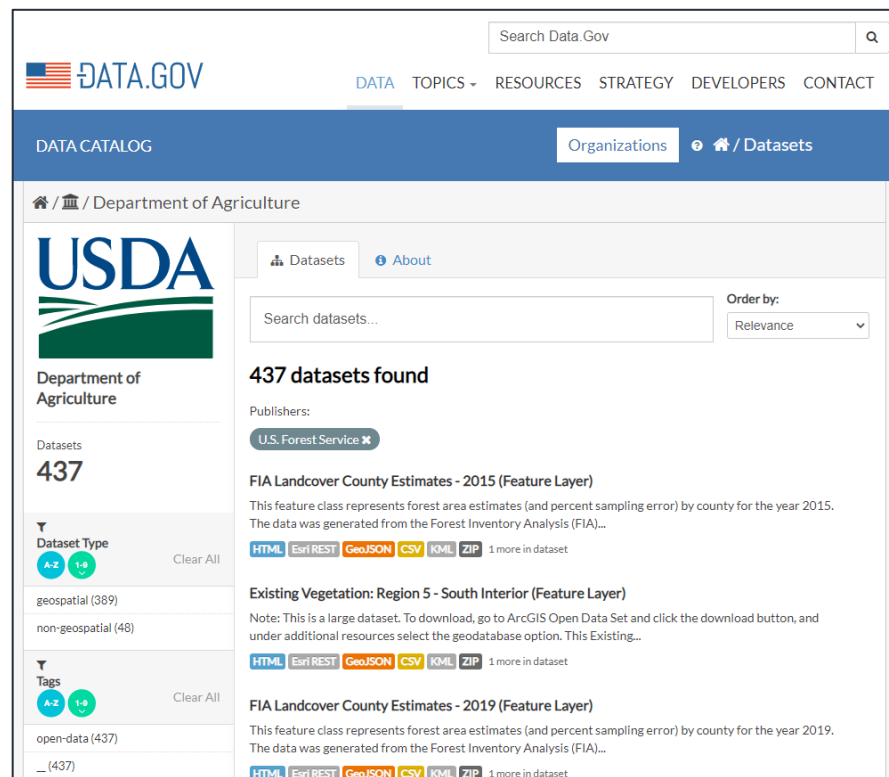
Link: <https://catalog.data.gov/organization/352b4532-793d-4075-a03f-05b778a3c43a?publisher=U.S.+Forest+Service>

This online repository holds data from government agencies including the USFS. This includes EDW and other spatial (vector and raster) and non-spatial datasets created and provided by the USFS. Most EDW data is included in this repository, though there may be some older datasets that may be missing as priority for inclusion to this repository has been placed on newer datasets.

To identify EDW data, check a dataset's metadata to see if it provides any clues. For example, metadata may include 'EDW' as a keyword or have a sentence stating that it is part of the EDW in the description tag's content. If you cannot confirm if a dataset is part of the EDW by examining the metadata, you may need to reach out to the data steward to make the determination.

Figure 8: USFS Data on Data.gov Page

(Pictured on right)



(This link can also be reached by navigating to USDA data on Data.gov - **Link:**

<https://catalog.data.gov/organization/usda-gov> - and filtering by publisher: **U.S. Forest Service**. Screenshot below)

<p>Publishers</p> <p>A-Z 1-9 Clear All</p> <p>Agricultural Resear... (714)</p> <p>U.S. Forest Service (437)</p> <p>Food and Nutrition ... (122)</p> <p>Farm Service Agency... (113)</p> <p>NRCS (96)</p> <p>Show More Publishers</p>	<p>Conservation Reserve Program Enrollment by County for 1986-2008</p> <p>Conservation Reserve Program Contract Scheduled Enrollment (acreage under contract at the end of period) by fiscal year and County for 1986 to 2008.</p> <p>EXCEL</p> <p>Conservation Reserve Program Average Payments by State</p> <p>Average Conservation Reserve Program Rental Payments by State.</p> <p>EXCEL</p> <p>Conservation Reserve Program Average Payments by County</p> <p>Average Conservation Reserve Program Rental Payments by County.</p>
--	---

Datasets on this page will have a series of one or more button options below their descriptions (example screenshot below).

FIA Landcover County Estimates - 2017 (Feature Layer)

This feature class represents forest area estimates (and percent sampling error) by county for the year 2017. The data was generated from the Forest Inventory Analysis (FIA)...

[HTML](#)
[Esri REST](#)
[GeoJSON](#)
[CSV](#)
[KML](#)
[ZIP](#)
[1 more in dataset](#)

Each of these buttons links to a method of either viewing or downloading the dataset, viewing or downloading the metadata, or viewing further information about the dataset (the last item could be considered metadata, but not in the same sense as the metadata we are referring to throughout this document, aka. geospatial metadata). Click each button for more information or to download, or click **1 more in dataset** and you will be taken to another page with further information that may help you decide whether or not you would like to download a particular dataset or its metadata.

The screenshot shows a web browser window with the URL `catalog.data.gov/dataset/fia-landcover-county-estimates-2017-feature-layer-d8cf6`. The page is the Data.gov dataset detail page for the 'FIA Landcover County Estimates - 2017 (Feature Layer)' dataset, published by the U.S. Forest Service. The page layout includes a top navigation bar with 'DATA', 'TOPICS', 'RESOURCES', 'STRATEGY', 'DEVELOPERS', and 'CONTACT'. Below this is a blue header with 'DATA CATALOG' and navigation links for 'Datasets' and 'Organizations'. The main content area is divided into a left sidebar and a main panel. The sidebar contains the Forest Service logo, the publisher name 'U.S. Forest Service', a contact link 'USFSEnterpriseContent', and social media links for Twitter and Facebook. The main panel features the dataset title, a 'Metadata Updated: December 3, 2020' timestamp, a detailed description of the dataset's origin and purpose, and sections for 'Access & Use Information' (including public access and license links) and 'Downloads & Resources' (listing 'ArcGIS Hub Dataset' and 'Esri Rest API' with corresponding 'Visit page' and 'Open With' buttons).

Figure 9: Example Dataset page on Data.gov

This is an example of what information would be presented after a user clicks **1 more dataset** for a dataset listed on Data.gov. Some of the item's metadata information is displayed along with the various methods that can be used to view or download the dataset, view or download the metadata, or view further information (more options are listed further down the page for the example dataset than this screenshot shows).

3.1.3 MAP SERVICES

Link (External/Public): <https://data.fs.usda.gov/geodata/edw/datasets.php>

Link (USFS Internal): <https://apps.fs.usda.gov/arcn/rest/services/EDW>

Public data collected and managed by Forest Service programs is available in a map service and two downloadable file formats – in a shape file and an ESRI file geodatabase. Metadata is available that describes the content, source, and currency of the data.

USDA United States Department of Agriculture
Forest Service

FSGeodata Clearinghouse

Clearinghouse Home Help Contact Us

Enterprise Data

- Downloadable Data
 - Biota (23)
 - Boundaries (49)
 - Environment (44)
 - Geoscientific Information (8)
 - Imagery & Basemaps (43)
 - Inland Waters (14)
 - Planning Cadastre (14)
 - Structure (9)
 - Transportation (4)
- Geospatial Data Discovery Tool
- Data.gov Open Data
- Map Services

Maps

- FSTopo
- Standard Map Products
- Other Map Products

Raster Data

- Caribbean Island Land Cover
- Chugach Updates
- Climate
- Forest Biomass
- Landscape Change Monitoring System
- National Forest Type
- Rangelands
- RAVG
- Tree Canopy Cover

Special Purpose FS Data

- State and Private Forestry
- Wilderness & WSR & WSA
- Research and Development

Download National Datasets

Data collected and managed by Forest Service programs is available in a map service and two downloadable file formats – in a shape file and an ESRI file geodatabase. Metadata is available that describes the content, source, and currency of the data. You can filter the list by the topic categories in the menu at the left to help you find information you are interested in. You can view the feature classes in a single dataset by clicking on the name of the parent dataset at the bottom of the abstract.

► More FS map services are available in ArcGIS Online

► Topic Category Descriptions

Requests for KML/KMZ output

The Enterprise Data Warehouse Team tested exporting out to KML/KMZ files as a deliverable and due to the complexity and size of the datasets this has been unsuccessful. To obtain a KML file for any EDW dataset, go to the Geospatial Data Discovery Tool and search for the dataset. An option to download to KML is available from that website. If you have questions, contact: SM.FS.data@usda.gov.

Search by keyword:

Feature Classes		Abstract
Activity Range Vegetation Improvement ESRI geodatabase (24MB) shape file (58MB) Date of last refresh: Oct 27, 2020	metadata map service	The RngVegImprove feature class depicts the area planned and accomplished areas treated as a part of the Range Vegetation Improvement program of work, funded through the budget allocation process and reported through the Forest Service Activity Tracking System (FACTS) database within the Natural Resource Manager (NRM) suite of... [see more] parent dataset: Activities
Activity Silviculture Timber Stand Improvement ESRI geodatabase (176MB) shape file (326MB) Date of last refresh: Oct 27, 2020	metadata map service	The SilvTSI (Silviculture Timber Stand Improvement) feature class represents activities associated with the following performance measure: Forest Vegetation Improved (Release, Weeding, and Cleaning, Precommercial Thinning, Pruning and Fertilization). The Activities data set portrays the areas where activities are accomplished... [see more] parent dataset: Activities
Activity Silviculture Reforestation ESRI geodatabase (234MB) shape file (424MB) Date of last refresh: Oct 27, 2020	metadata map service	The SilvReforestation feature class represents activities associated with the following performance measure: Forest Vegetation Establishment (Planting, Seeding, Site Preparation for Natural Regeneration and Certification of Natural Regeneration without Site Preparation). The Activities data set portrays the areas where... [see more] parent dataset: Activities

Figure 10: USFS Site Page for Map Services and Data Downloads

Select 'map service' for an item of interest to view its map service or select 'metadata' to view its metadata.

After selecting **map service**, you will be presented with a page similar to the example below.

ArcGIS REST Services Directory [Login](#) | [Get Token](#)

[Home](#) > [services](#) > [EDW](#) > [EDW_SilvicultureTimberstandImprovement_01 \(MapServer\)](#) [Help](#) | [API Reference](#)

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

EDW/EDW_SilvicultureTimberstandImprovement_01 (MapServer)

View In: [ArcGIS JavaScript](#) [ArcGIS Online Map Viewer](#) [ArcGIS Earth](#) [ArcMap](#) [ArcGIS Pro](#)

View Footprint In: [ArcGIS Online Map Viewer](#)

Service Description: Polygons depicting the area planned and accomplished acres treated as a part of the Silviculture Timberstand Improvement Program and funded through the budget allocation process and reported through the Forest Service Activity Tracking System (FACTS) database. Data is categorized by fiscal year completed and organized into groups by decade. Data is visible when zooming in past 1:750,000.

Map Name: U.S. Forest Service Silviculture Timber Stand Improvement

[Legend](#)

[All Layers and Tables](#)

[Dynamic Legend](#)

[Dynamic All Layers](#)

Layers:

- [Silviculture Timber Stand Improvement 2021 - Current](#) (9)
- [Silviculture Timber Stand Improvement 2011 - 2020](#) (0)
- [Silviculture Timber Stand Improvement 2001 - 2010](#) (1)
- [Silviculture Timber Stand Improvement 1991 - 2000](#) (2)
- [Silviculture Timber Stand Improvement 1981 - 1990](#) (3)
- [Silviculture Timber Stand Improvement 1971 - 1980](#) (4)
- [Silviculture Timber Stand Improvement 1956 - 1970](#) (5)
- [Silviculture Timber Stand Improvement 1946 - 1955](#) (6)
- [Silviculture Timber Stand Improvement 1900 - 1945](#) (7)
- [Silviculture Timber Stand Improvement \(All Years\)](#) (8)

Figure 11: Example Map Service Information for an EDW Dataset

Various methods for viewing the dataset are listed at the top of this page (in the example above, these are 'ArcGIS JavaScript', 'ArcGIS Online Map Viewer', 'ArcGIS Earth', 'ArcMap', and 'ArcGIS Pro').

A link to view the metadata on this page is listed at the end of the **Description** section (in the screenshot above, this is further down the page than is visible).

Description: A map service on the www depicting the locations of activities within the Silviculture Timberstand Improvement Program. This map service portrays the area where activities accomplished as a part of the silviculture program of work, funded through the budget allocation process and reported through the Forest Service Activity Tracking System (FACTS) database and are part of the Performance Measures used to rate Agency performance in meeting the Department's Strategic Goals. It is important to note that this map service may not contain all accomplished activities; the spatial portion of the activity description is not currently enforced by FACTS and at this time some are optionally reported by Forest Service units. This map service only represents those activities associated with the performance measure Forest Vegetation Improved (Release, Weeding, and Cleaning, Precommercial Thinning, Pruning and Fertilization). As spatial data reporting is enforced by the application and acceptance of reporting increases for both tabular and spatial we hope to improve the quality and comprehensiveness of the data used for this layer in coming years. [Metadata](#)

Figure 12: Example Link to Metadata in Map Service Description Section

3.1.4 USFS ARCGIS ONLINE

Link: <https://usfs.maps.arcgis.com/home/index.html>

From the website itself: *The USFS uses ArcGIS Online and Open Data to share maps, data, and applications for use by other federal agencies, partners, and the public.* This site provides links to data for viewing and download as well as links to training resources and to the FS Geospatial Data Discovery Tool page described in the next section. There are multiple ways to find authoritative EDW content you are interested in within ArcGIS Online (AGOL).

3.1.4.1 Search Bar

From the main AGOL Home Page, type a search text in the Search box. Click Enter.

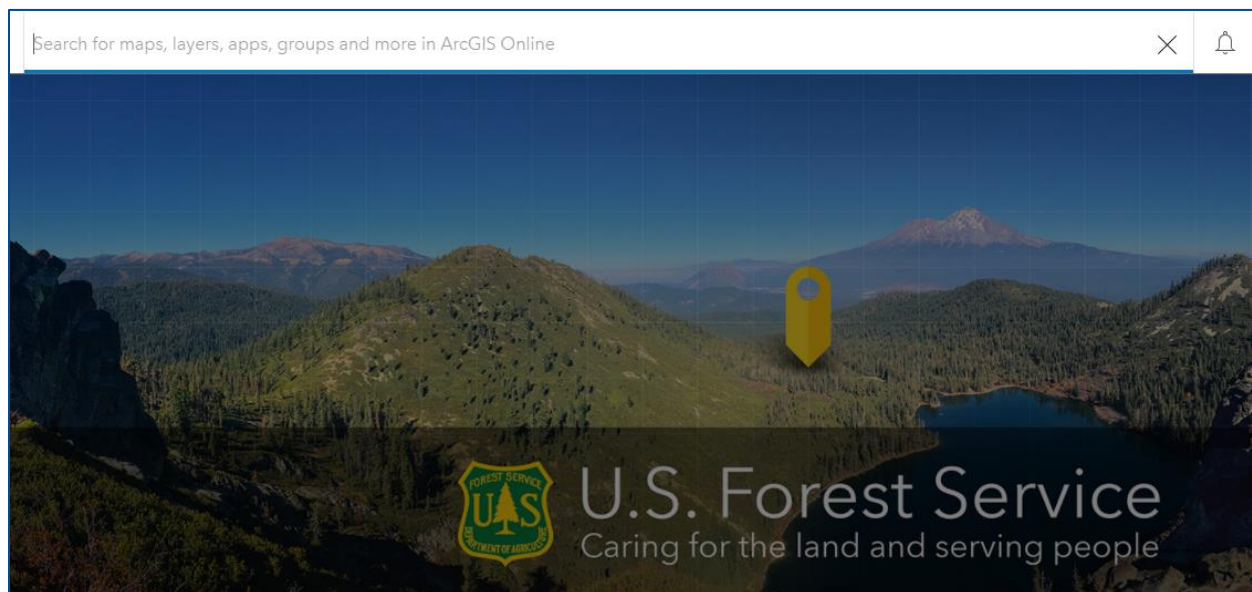


Figure 13: USFS ArcGIS Online (AGOL) Page

A list of data that matches your text will appear in the search page. All authoritative EDW enterprise content that is shared with the public will show “by U.S. Forest Service.” It will also have a green Authoritative icon in the item details.

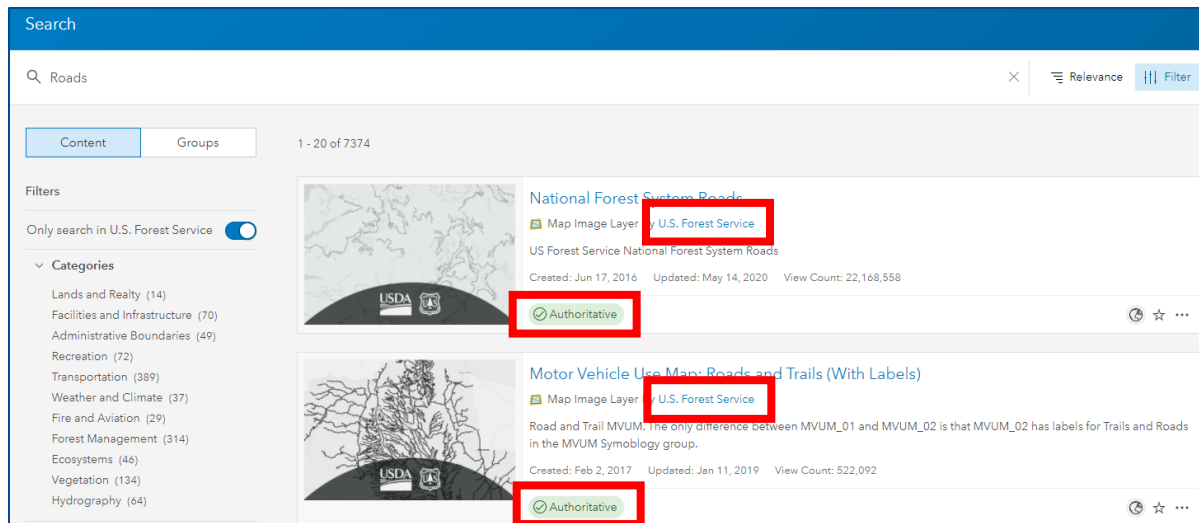


Figure 14: Authoritative EDW Datasets Publicly Available on AGOL

All authoritative EDW enterprise content that is shared with the public and shared with the Living Atlas will also show “by U.S. Forest Service”. It will have a green Authoritative icon as well as a blue Living Atlas icon in the item details.

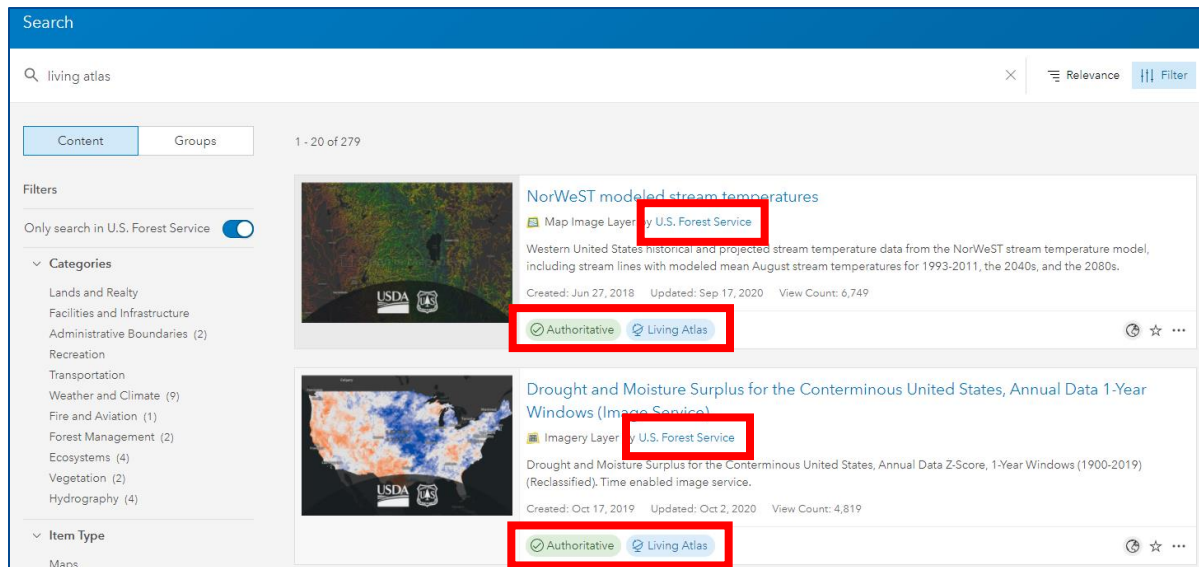
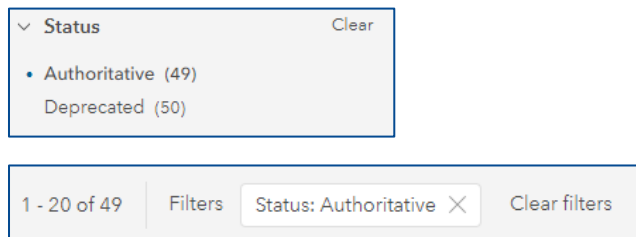


Figure 15: Authoritative EDW Datasets Shared with Living Atlas and Publicly Available on AGOL

A filter can be applied to limit the search results to only authoritative content. Other filters may be applied to further refine the results.



Clicking on the '...' and then 'View item details' will take you to the metadata for that dataset. Clicking the thumbnail for the dataset will open it in the Map Viewer.

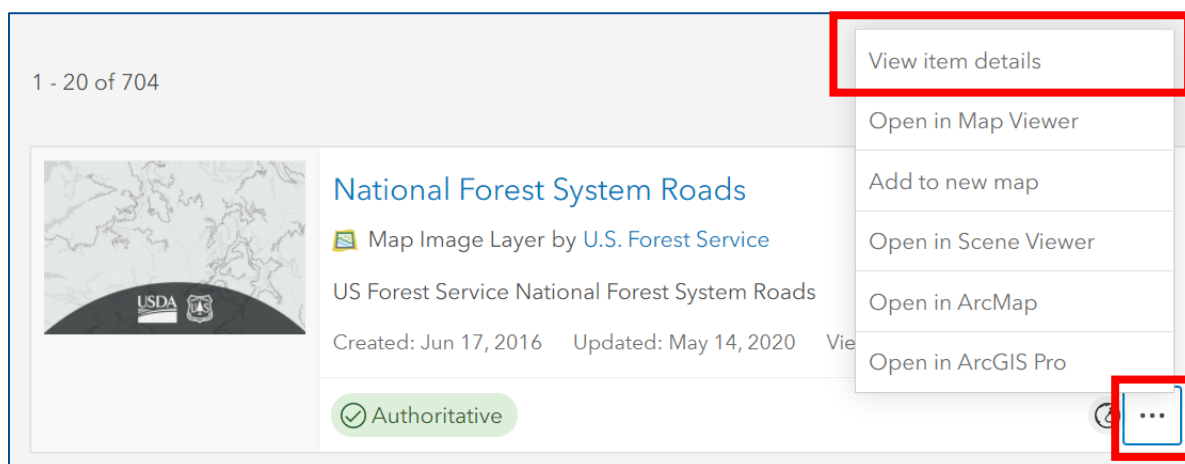


Figure 16: Accessing Metadata for Publicly Available Authoritative EDW Datasets from AGOL Search Page

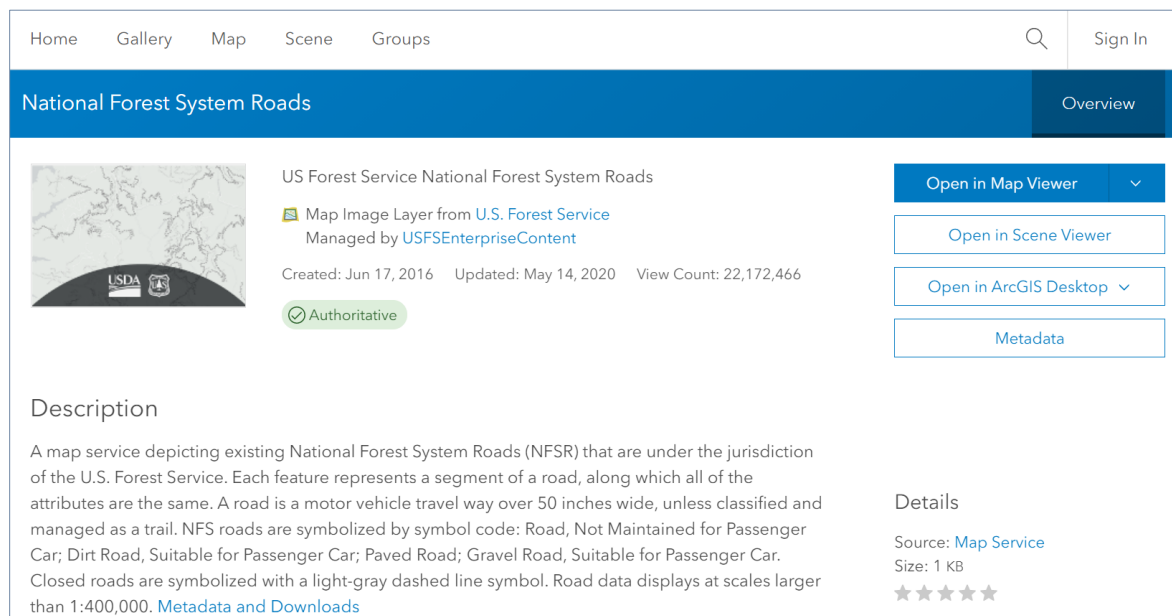
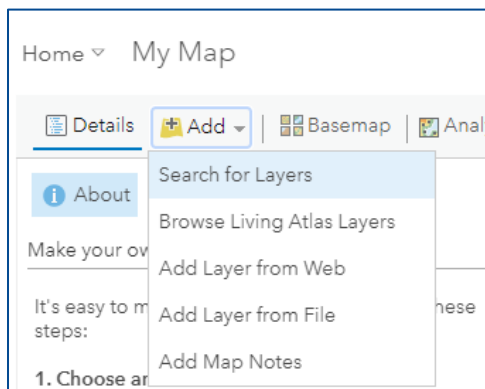


Figure 17: Example Metadata on AGOL

More metadata information is available by scrolling down this page.

3.1.4.2 Map Viewer

From the Map Viewer, select 'Add' and 'Search for Layers'.



Change the search from 'My Content' to 'ArcGIS Online' and type in the search string 'U.S. Forest Service'. Filter the results and change Status to Authoritative. This will limit the results to only authoritative EDW content. Other filters may be applied to further refine the results.

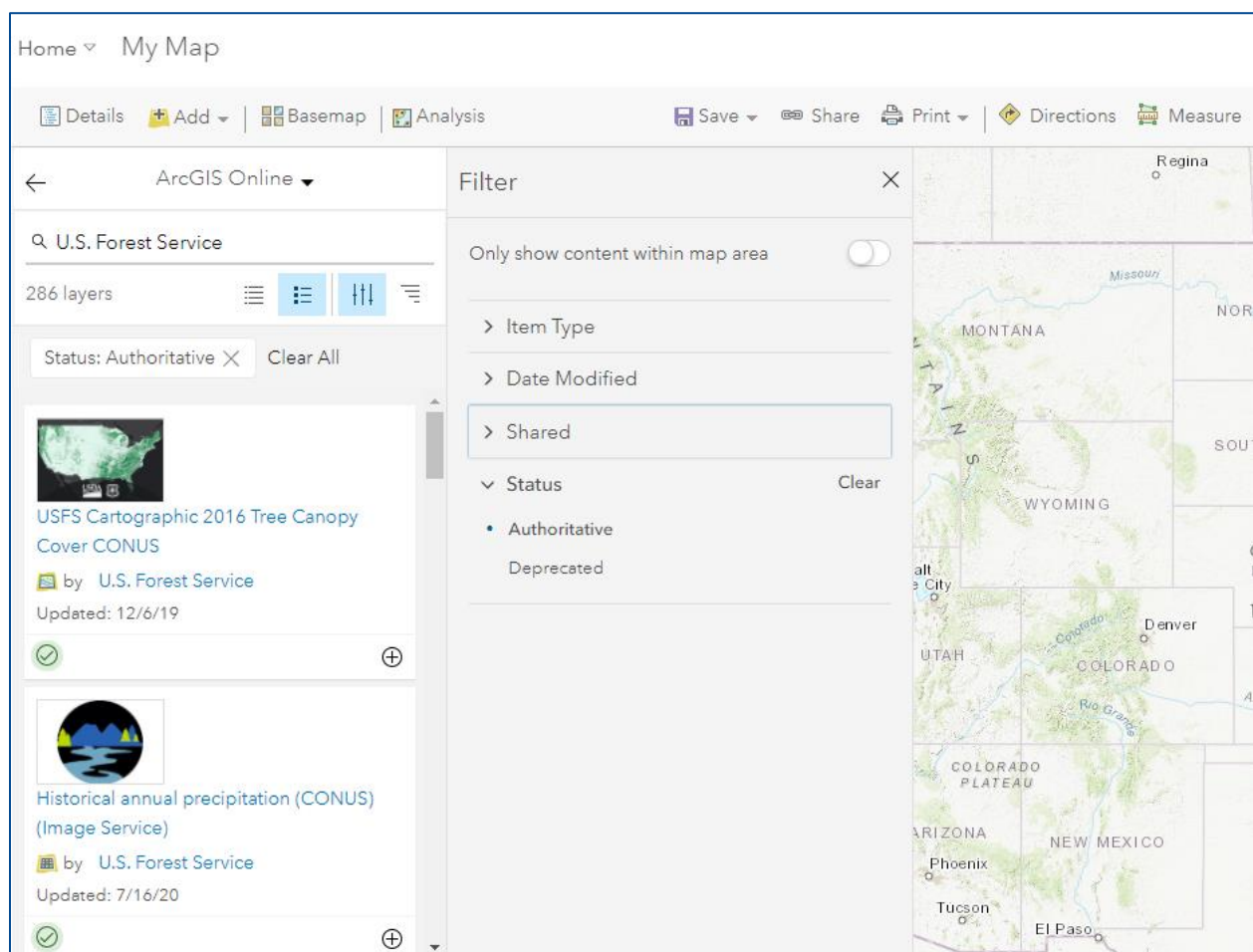


Figure 18: Searching for Publicly Available Authoritative EDW Datasets in AGOL Map Viewer

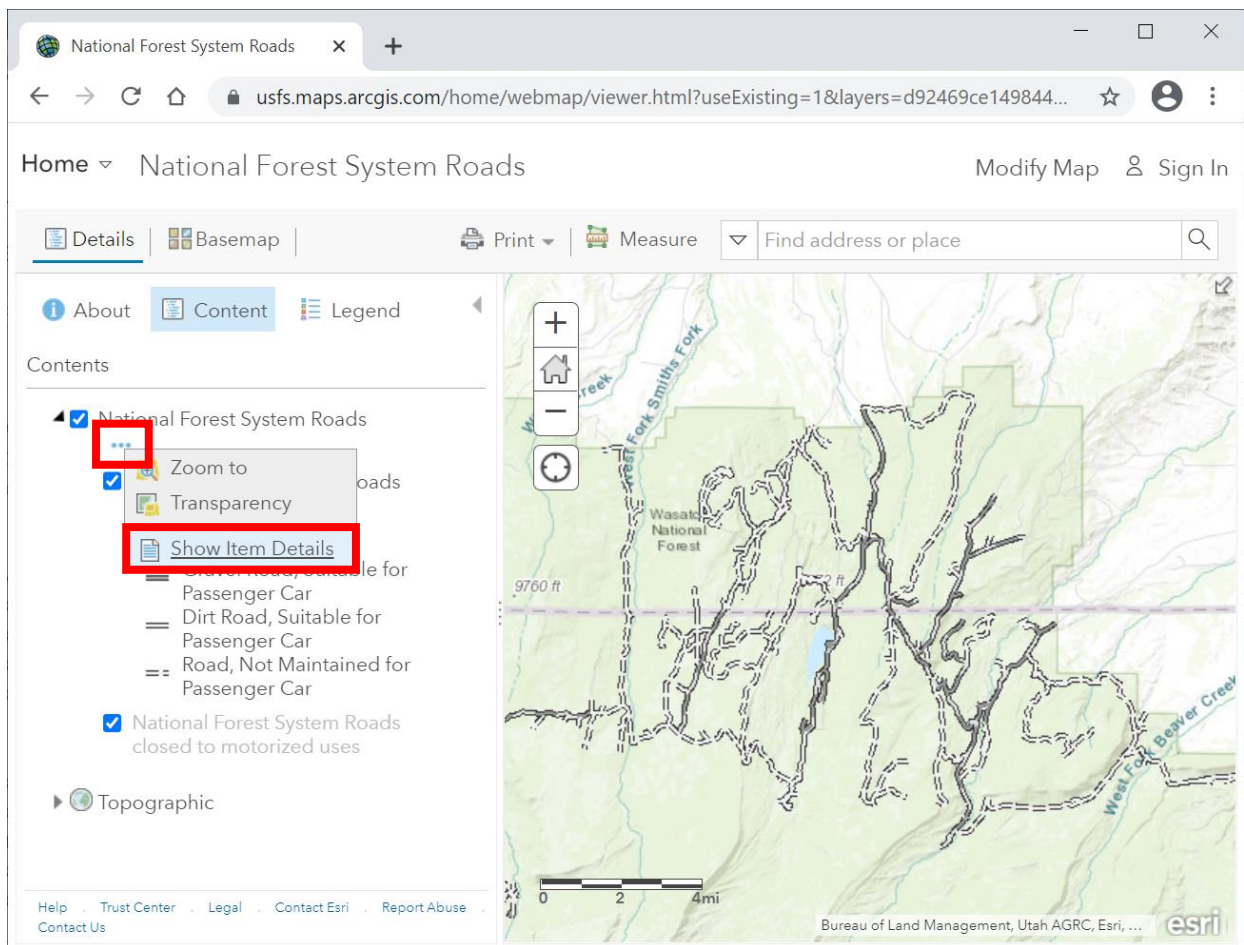


Figure 19: Navigating to Metadata in Map Viewer on AGOL

Metadata for an item in the Table of Contents in the Map Viewer on AGOL can be found by selecting the '...' underneath a layer's name and selecting 'Show Item Details'.

A Note for External vs USFS Internal Users

The USFS AGOL platform will make available only datasets that are approved for external users if the viewer is either not logged into AGOL or is logged into an account that does not have the approved credentials to view internal USFS data. USFS users who do have the credentials to view internal USFS datasets can log into their AGOL account using the 'Sign In' option on the top right of the page, and in doing so they will be able to view both externally and internally facing datasets on the 'Gallery' page.

3.1.5 GEOSPATIAL DATA DISCOVERY TOOL

Link: <https://data-usfs.hub.arcgis.com/>

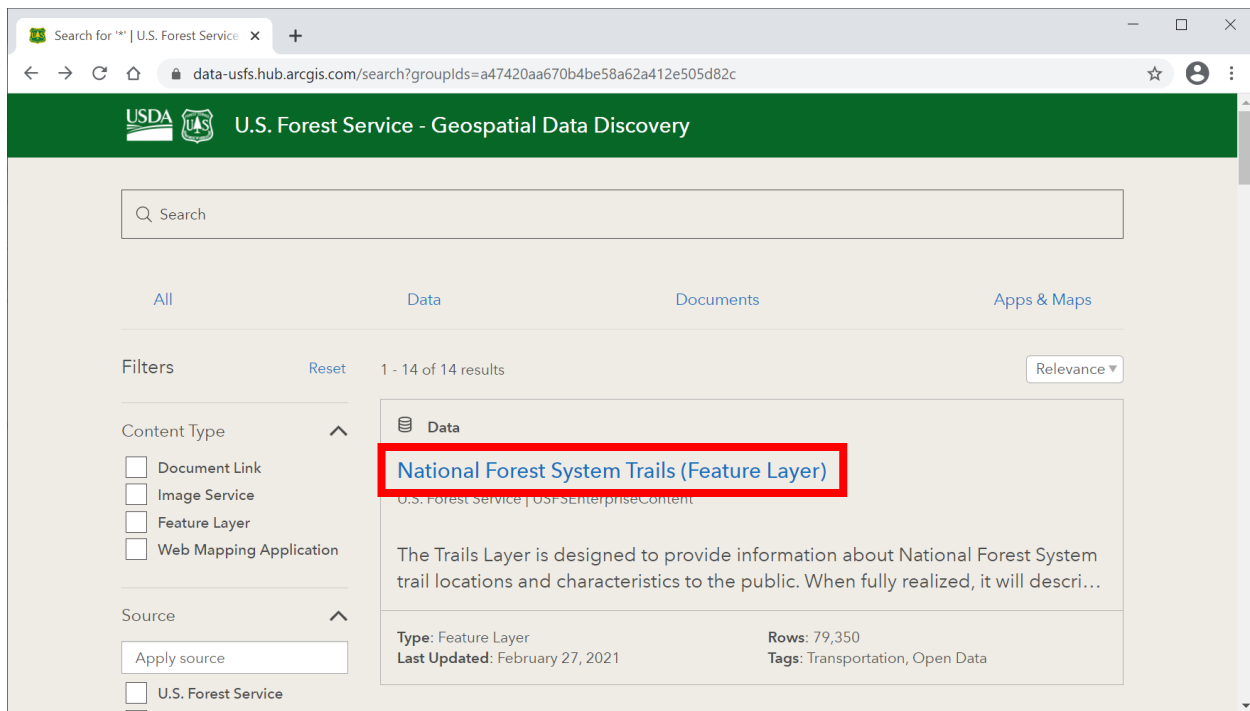
This tool can be used to search for and download data within a user specified area of interest, such as a national forest or grassland. Feature layer data can also be filtered. All EDW data that has been approved by the CGB and is USFS owned authoritative data is included. Users with USFS credentials who are logged into AGOL will see all public and internal datasets, while all other users will see only the publicly facing datasets.



Figure 20: Geospatial Data Discovery Tool Page

The User Guide for the Geospatial Data Discovery Tool covers how to download datasets is available as a PDF here: https://data.fs.usda.gov/geodata/includes/docs/Geospatial-Data-Discovery-Download_User-Guide.pdf

To find metadata, first either enter information in the search bar in the middle of the page, or select one of the topics (e.g. 'Lands & Realty', 'Facilities & Infrastructure', 'Administrative Boundaries'). Then, click the name of the dataset whose metadata you would like to view ('National Forest System Trails (Feature Layer)' in the example below).



Then scroll down to the 'View Metadata' option under the 'About' heading on the right side of the page.

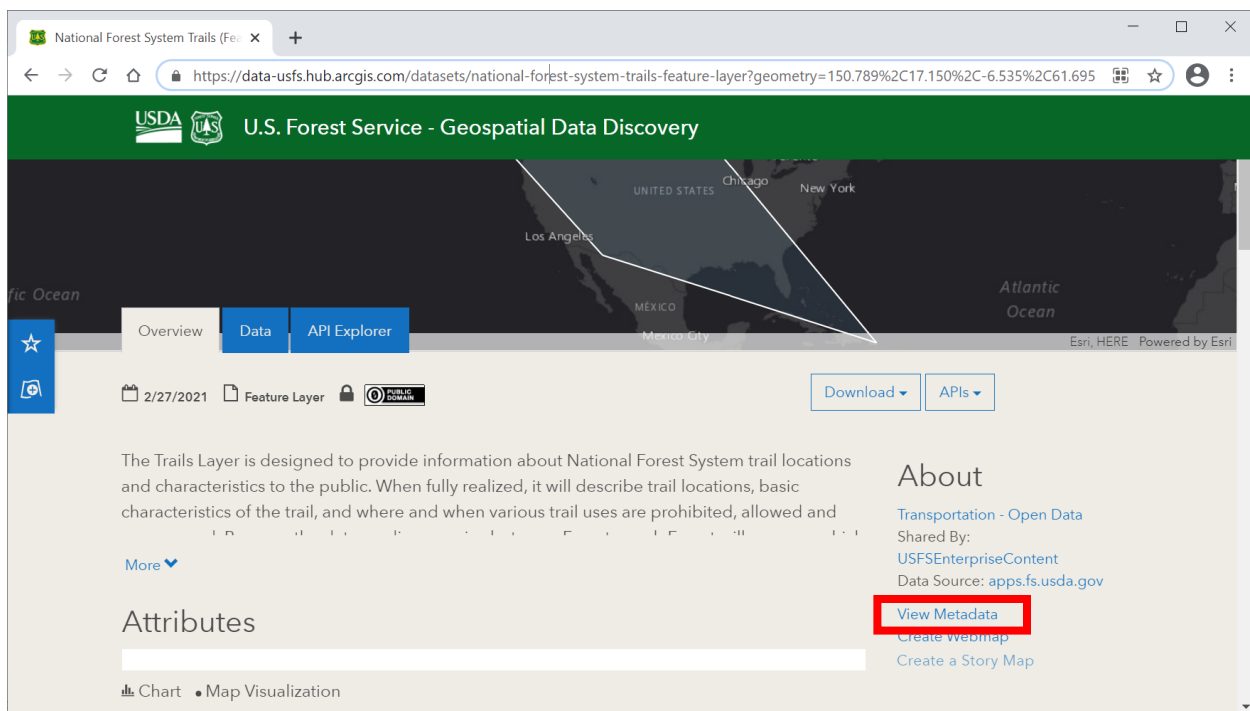


Figure 21: Navigating to Metadata from Geospatial Data Discovery Tool Page

The metadata will appear similar to the screenshot below.

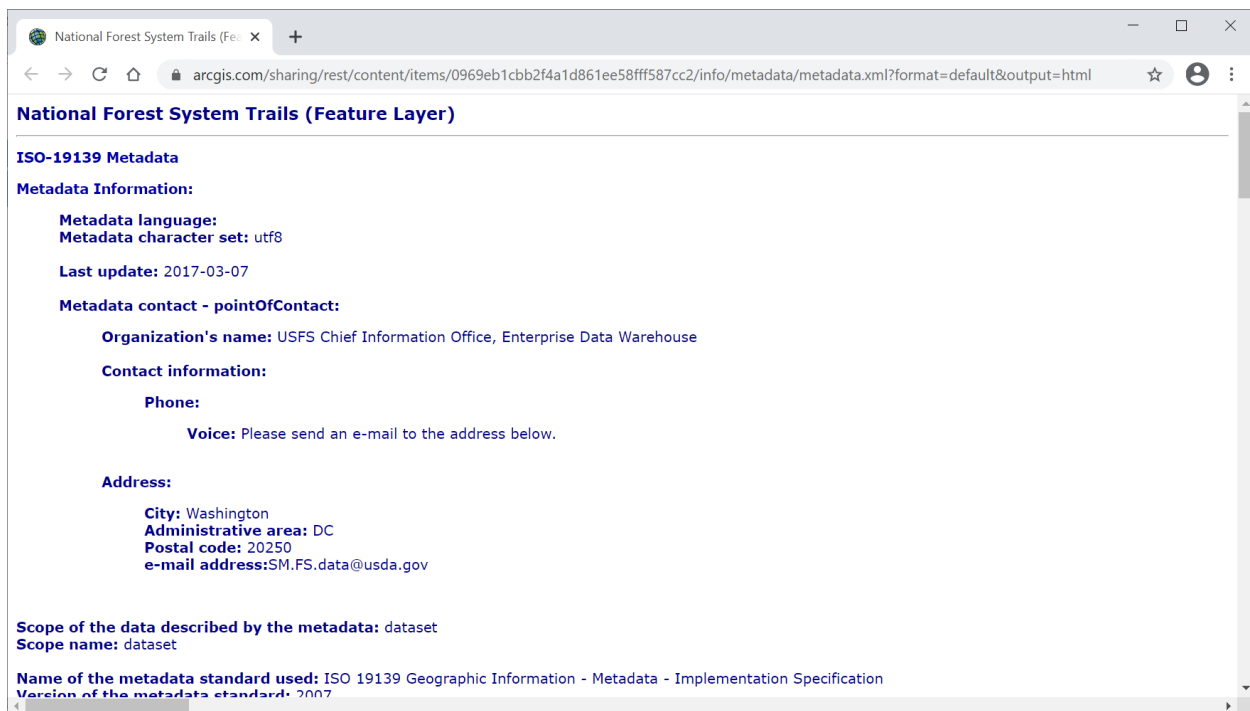


Figure 22: Metadata Record Viewed from the Geospatial Data Discovery Tool

3.1.6 ARCGIS PRO

Public users who do not have USFS credentials can access publicly facing EDW data using ArcGIS Online data through ArcGIS Pro. First, open ArcGIS Pro. Make sure you are signed into ArcGIS online (AGOL).

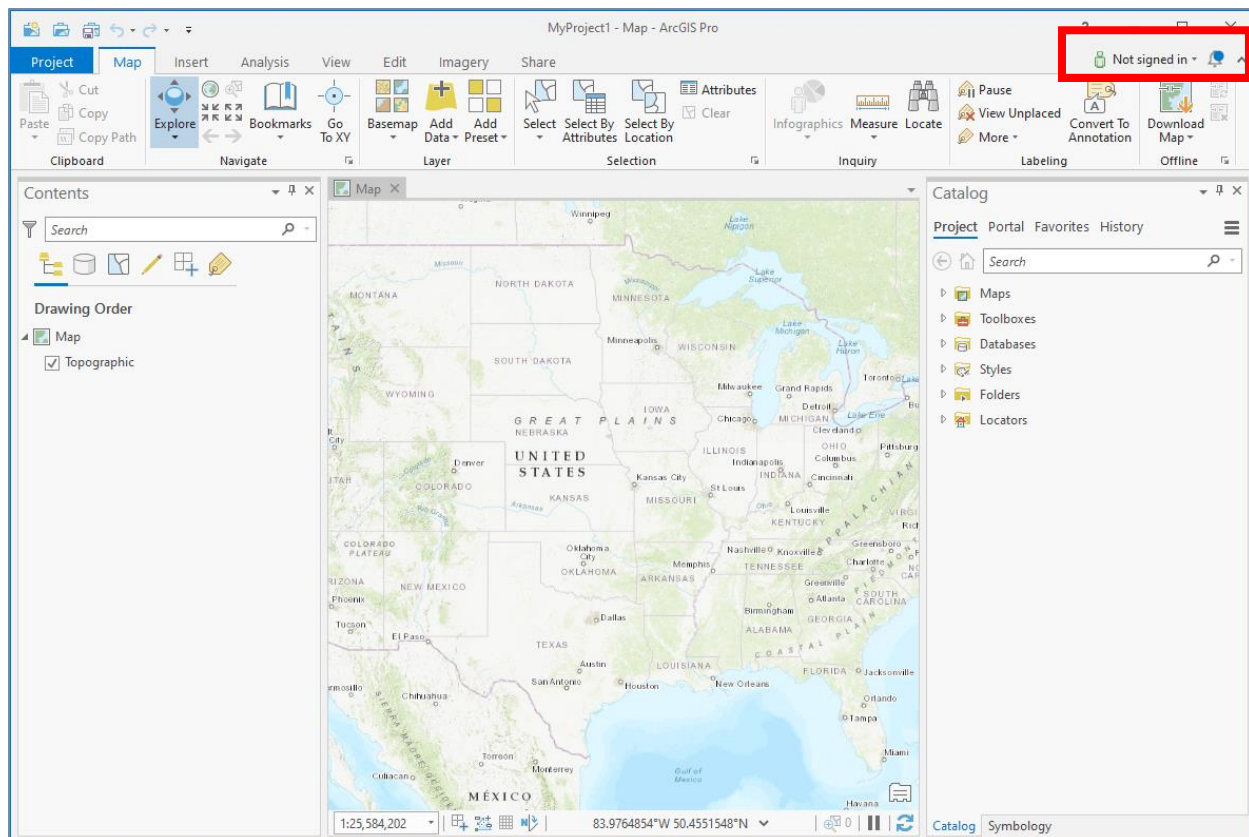
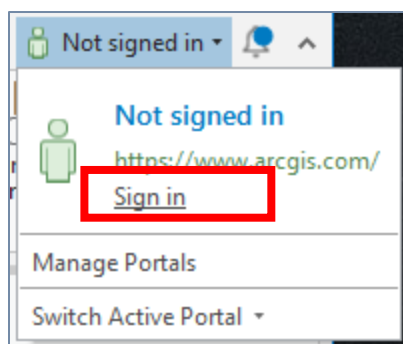


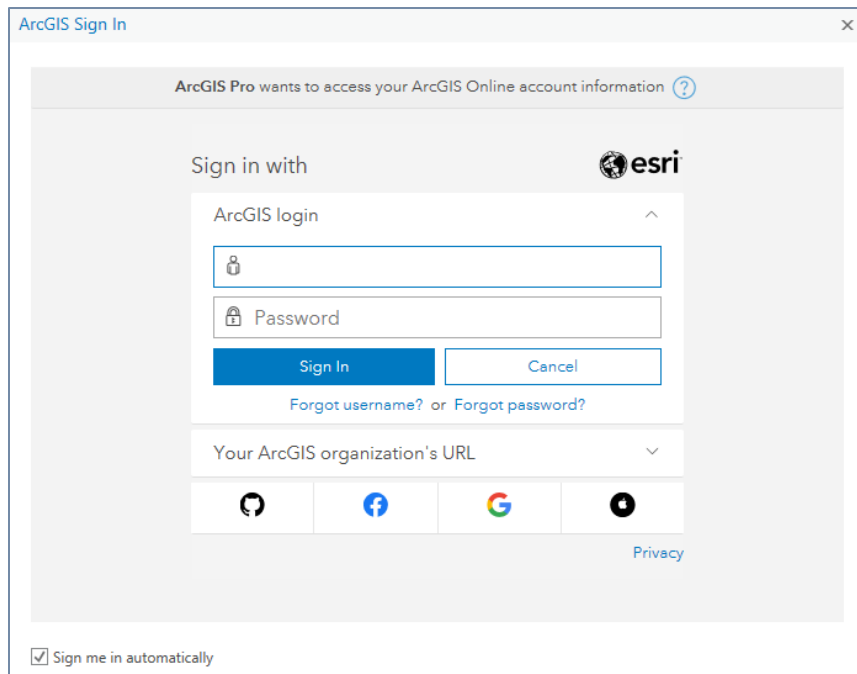
Figure 23: ArcGIS Pro: Logging into AGOL

After opening ArcGIS Pro, if you are not signed into AGOL, the text 'Not signed in' will display in the upper right of the window. Otherwise, your username will be displayed. Before searching for EDW datasets, you will need to sign into AGOL.

If you see the text 'Not signed in' in the upper right, click the dropdown next to this text and select 'Sign in'.

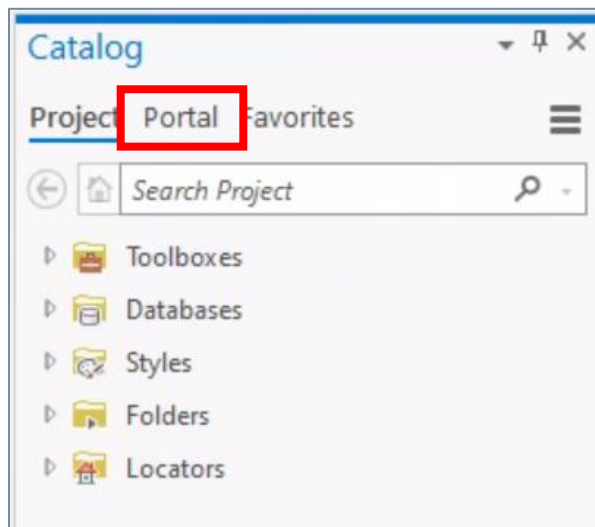


Enter your AGOL credentials in the window that pops up.



Once logged in, you should see your username in the top right corner of the ArcGIS Pro window.

Once signed into AGOL, navigate to the **Catalog** pane, and select **Portal**.



From here you can use filters and search terms much in the same way you can in AGOL itself. For EDW data, make sure to filter only by **Authoritative** (which is under **Status**) and remember that EDW data will always show as being published by “**U.S. Forest Service**”.

Filtering this way will show you authoritative EDW datasets. You can view the metadata for these datasets in the map view or in the Catalog pane. In the map view, if you have an item in the table of contents, right click it and select **View Metadata** to view the item’s metadata. In the Catalog pane, simply click the **Metadata** option (next to the **Geography** and **Table** options).

3.2 Internal USFS Users Only

The subsections here provide instructions for accessing EDW data using methods that are only available for users that have internal access to USFS accounts and drives.

3.2.1 EDW SHAREPOINT SITE (EDW DATA CATALOG)

Link: <https://usdagcc.sharepoint.com/sites/fs-cio-edwts/SitePages/DataStatus.aspx>

The EDW's SharePoint site, aka. the EDW Data Catalog, offers a list of datasets currently approved and included in the EDW. On the Data Status page (link above), there is a tabular view of EDW datasets alongside some metadata information. In case this table does not include the metadata information you are seeking, there are links to further information on this page.

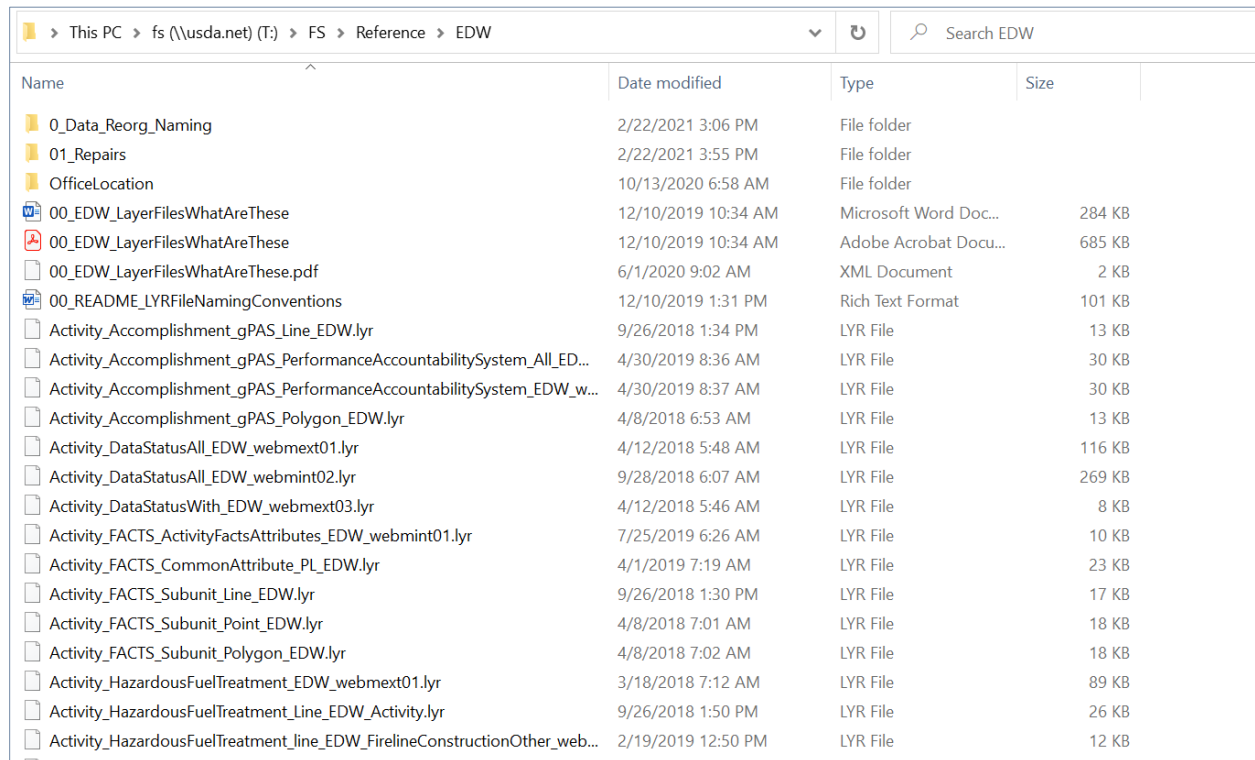
[illegible]

Figure 24: Screenshot of the EDW SharePoint Site

A table on the EDW SharePoint site (surrounded by a red rectangle here) provides some metadata information for datasets in the EDW. Throughout this page, there are also links to further metadata information (surrounded by orange rectangles in this example).

3.2.2 T:\ DRIVE LAYER FILES

Viewing EDW metadata is also possible using the repository of layer files located in **T:\FS\Reference\EDW**. An informative document on these layers is in the same location and named **'00_EDW_LayerFilesWhatAreThese'**.



Name	Date modified	Type	Size
0_Data_Reorg_Naming	2/22/2021 3:06 PM	File folder	
01_Repairs	2/22/2021 3:55 PM	File folder	
OfficeLocation	10/13/2020 6:58 AM	File folder	
00_EDW_LayerFilesWhatAreThese	12/10/2019 10:34 AM	Microsoft Word Doc...	284 KB
00_EDW_LayerFilesWhatAreThese	12/10/2019 10:34 AM	Adobe Acrobat Docu...	685 KB
00_EDW_LayerFilesWhatAreThese.pdf	6/1/2020 9:02 AM	XML Document	2 KB
00_README_LYRFileNamingConventions	12/10/2019 1:31 PM	Rich Text Format	101 KB
Activity_Accomplishment_gPAS_Line_EDW.lyr	9/26/2018 1:34 PM	LYR File	13 KB
Activity_Accomplishment_gPAS_PerformanceAccountabilitySystem_All_ED...	4/30/2019 8:36 AM	LYR File	30 KB
Activity_Accomplishment_gPAS_PerformanceAccountabilitySystem_EDW_w...	4/30/2019 8:37 AM	LYR File	30 KB
Activity_Accomplishment_gPAS_Polygon_EDW.lyr	4/8/2018 6:53 AM	LYR File	13 KB
Activity_DataStatusAll_EDW_webmext01.lyr	4/12/2018 5:48 AM	LYR File	116 KB
Activity_DataStatusAll_EDW_webmint02.lyr	9/28/2018 6:07 AM	LYR File	269 KB
Activity_DataStatusWith_EDW_webmext03.lyr	4/12/2018 5:46 AM	LYR File	8 KB
Activity_FACTS_ActivityFactsAttributes_EDW_webmint01.lyr	7/25/2019 6:26 AM	LYR File	10 KB
Activity_FACTS_CommonAttribute_PL_EDW.lyr	4/1/2019 7:19 AM	LYR File	23 KB
Activity_FACTS_Subunit_Line_EDW.lyr	9/26/2018 1:30 PM	LYR File	17 KB
Activity_FACTS_Subunit_Point_EDW.lyr	4/8/2018 7:01 AM	LYR File	18 KB
Activity_FACTS_Subunit_Polygon_EDW.lyr	4/8/2018 7:02 AM	LYR File	18 KB
Activity_HazardousFuelTreatment_EDW_webmext01.lyr	3/18/2018 7:12 AM	LYR File	89 KB
Activity_HazardousFuelTreatment_Line_EDW_Activity.lyr	9/26/2018 1:50 PM	LYR File	26 KB
Activity_HazardousFuelTreatment_line_EDW_FirelineConstructionOther_web...	2/19/2019 12:50 PM	LYR File	12 KB

Figure 25: Screenshot of EDW Layer files in T:\FS\Reference\EDW

This folder location primarily holds layer files (extension .lyr or .lyrx) associated with EDW datasets. Some informative documents regarding the creation and use of these layer files are also located here and have the prefix '00'. For the purposes of this document, the other folders in this location can be ignored.

In order to view these layer files and their metadata, you will need to use ArcGIS (ArcMap, ArcCatalog, or ArcGIS Pro).

3.2.2.1 Viewing EDW Layerfile Metadata Using ArcGIS Pro

To use ArcGIS Pro, connect to the USFS VDI (more information can be found here: [ArcGIS Pro - Working in the Data Center \(sharepoint.com\)](#)). Make sure you are signed into ArcGIS online (AGOL).

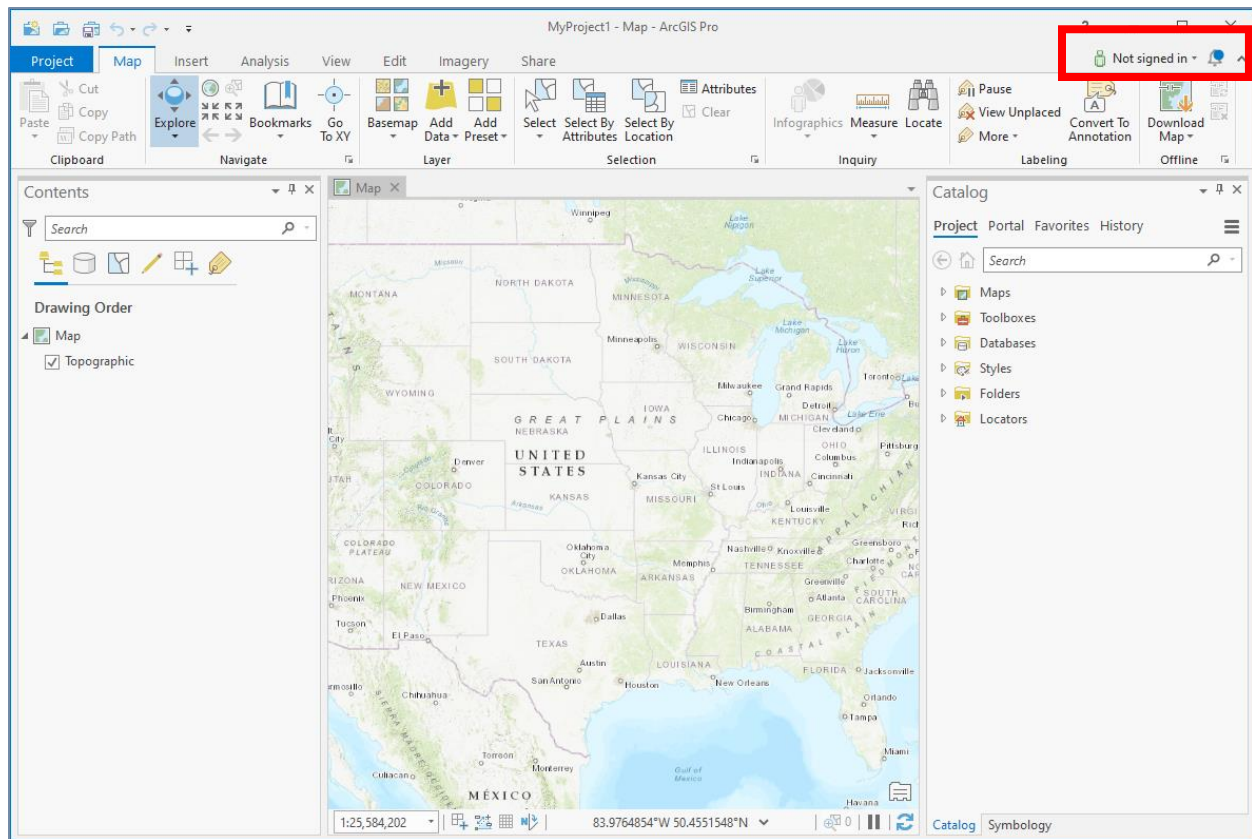
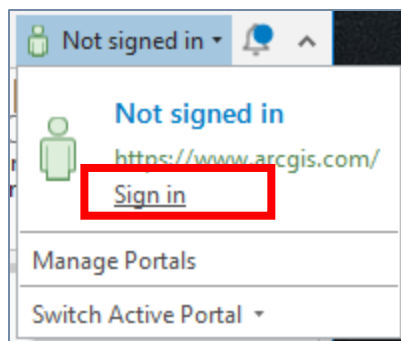


Figure 26: ArcGIS Pro: Logging into AGOL

After opening ArcGIS Pro, if you are not signed into AGOL, the text 'Not signed in' will display in the upper right of the window. Otherwise, your username will be displayed. Before searching for EDW datasets, you will need to sign into AGOL.

If you see the text 'Not signed in' in the upper right, click the dropdown next to this text and select 'Sign in'.



Once signed into AGOL, navigate to the **Catalog** tab and navigate to **T:\FS\Reference\EDW**. On the righthand side of the Catalog tab, you will see a **Metadata** tab next to two other tabs: Geography and Table. Select the layer in **T:\FS\Reference\EDW** for which you would like to view the metadata and make sure the **Metadata** tab is selected.

3.2.2.2 Viewing EDW Layerfile Metadata Using ArcCatalog

The instructions for this procedure can be found in the USFS Box account under **All Files > Data Warehouse > Operations > StandardOperatingProcedures** and is titled **Connect to the EDW from Citrix.pdf**. Link is also provided here:

<https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fusfs.app.box.com%2Ffile%2F527419907424&data=02%7C01%7C%7C5e9490d2e36f4cd65d3608d76dc04d6e%7Ced5b36e701ee4ebc867ee03cfa0d4697%7C0%7C0%7C637098545009805971&sdata=LxPguBEiAXIt0jYAZxhkru32zRXy7LiBlj0QInrHPes%3D&reserved=0>

Navigate to the **T:\FS\Reference\EDW** folder in the Catalog Tree. Information about the dataset can be viewed in the 'Contents' and 'Preview' tabs, while the metadata can be viewed in the 'Description' tab.

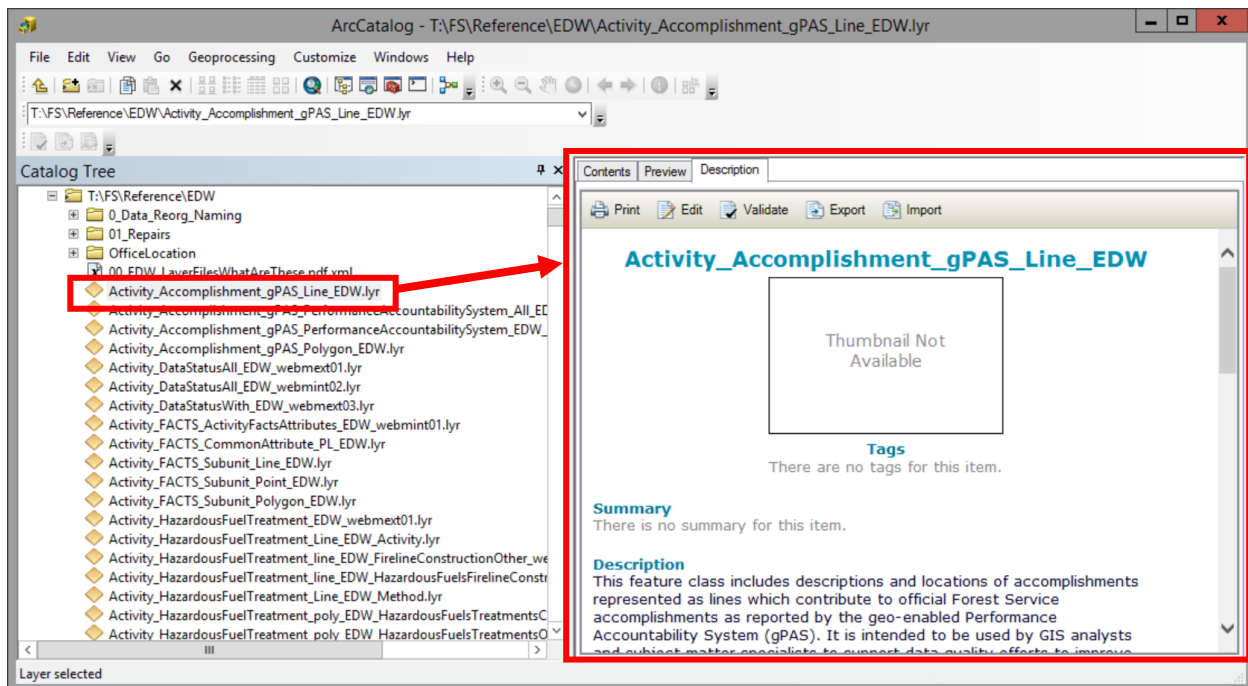


Figure 27: Viewing T:\ Drive Layer Files and their Metadata in ArcCatalog

Viewing EDW Layerfile Metadata Using ArcMap

To view metadata for layer files in ArcMap, navigate to a layer of interest in the **T:\FS\Reference\EDW** folder in the Catalog window, right click, and choose 'Item Description'. Alternatively, you can view metadata for layers in the Table of Contents by right clicking them and selecting 'Data' > 'View Item Description'.

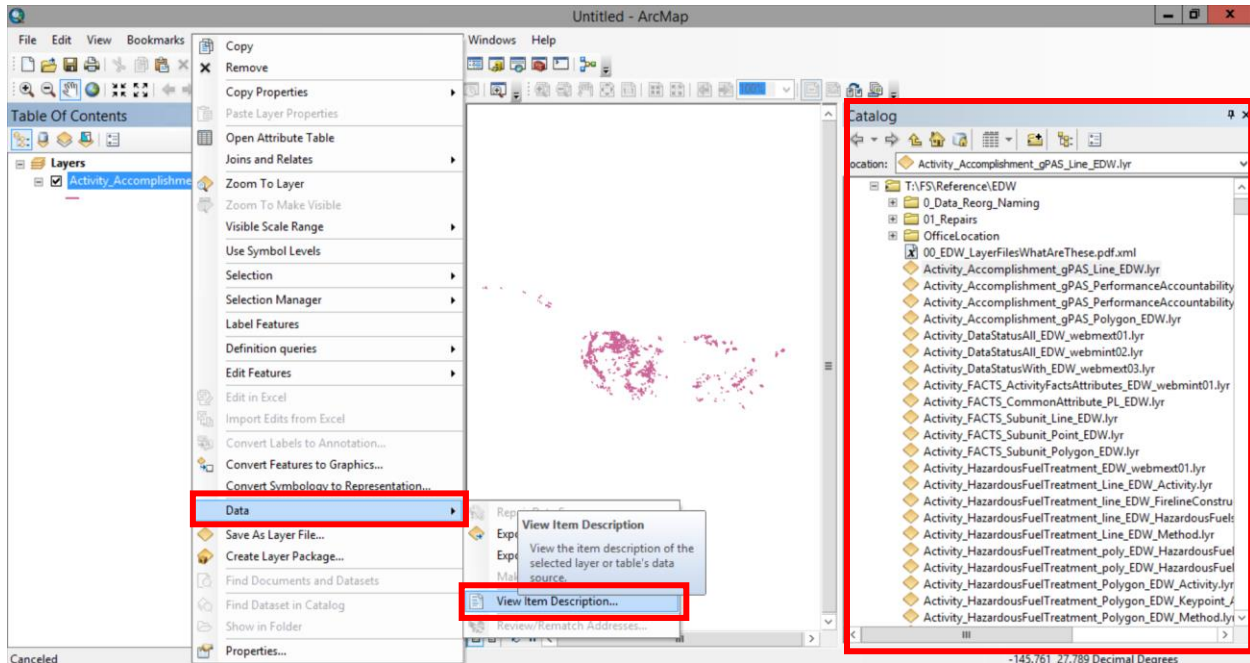


Figure 28: Viewing T:\ Drive Layer Files and their Metadata in ArcMap

3.2.3 T:\ DRIVE XML METADATA FILES

Production versions of metadata for all EDW data can be found on the T:\ drive:

T:\FS\BusOps\CIO\Project\EDW\Metadata_Final

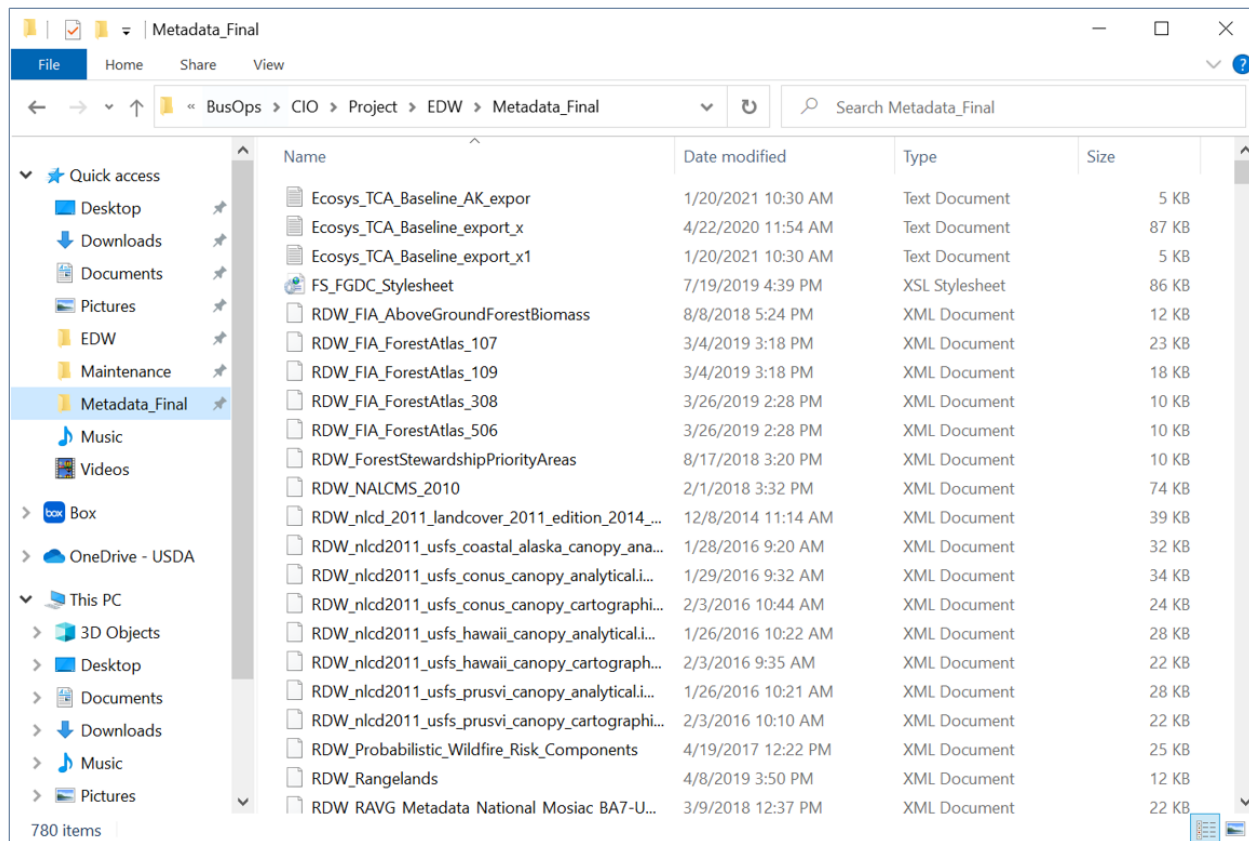


Figure 29: Screenshot of the T:\ Drive

This screenshot shows the location where production versions of metadata are stored.

For further information on suggestions on how to read XML files, see Section 5 in this document.

3.2.4 ARCGIS ENTERPRISE GEODATABASE WITH ARCSDE

EDW data (feature classes, tables, rasters, and their metadata) are accessible through an ArcSDE connection. Connection to the SDE can be performed using either ArcCatalog or ArcGIS Pro.

3.2.4.1 Connecting to the EDW SDE Using ArcGIS Pro

To use ArcGIS Pro, connect to the USFS VDI (more information can be found here: [ArcGIS Pro - Working in the Data Center \(sharepoint.com\)](https://www.arcgis.com/sharing/working-in-the-data-center)). Make sure you are signed into ArcGIS online (AGOL).

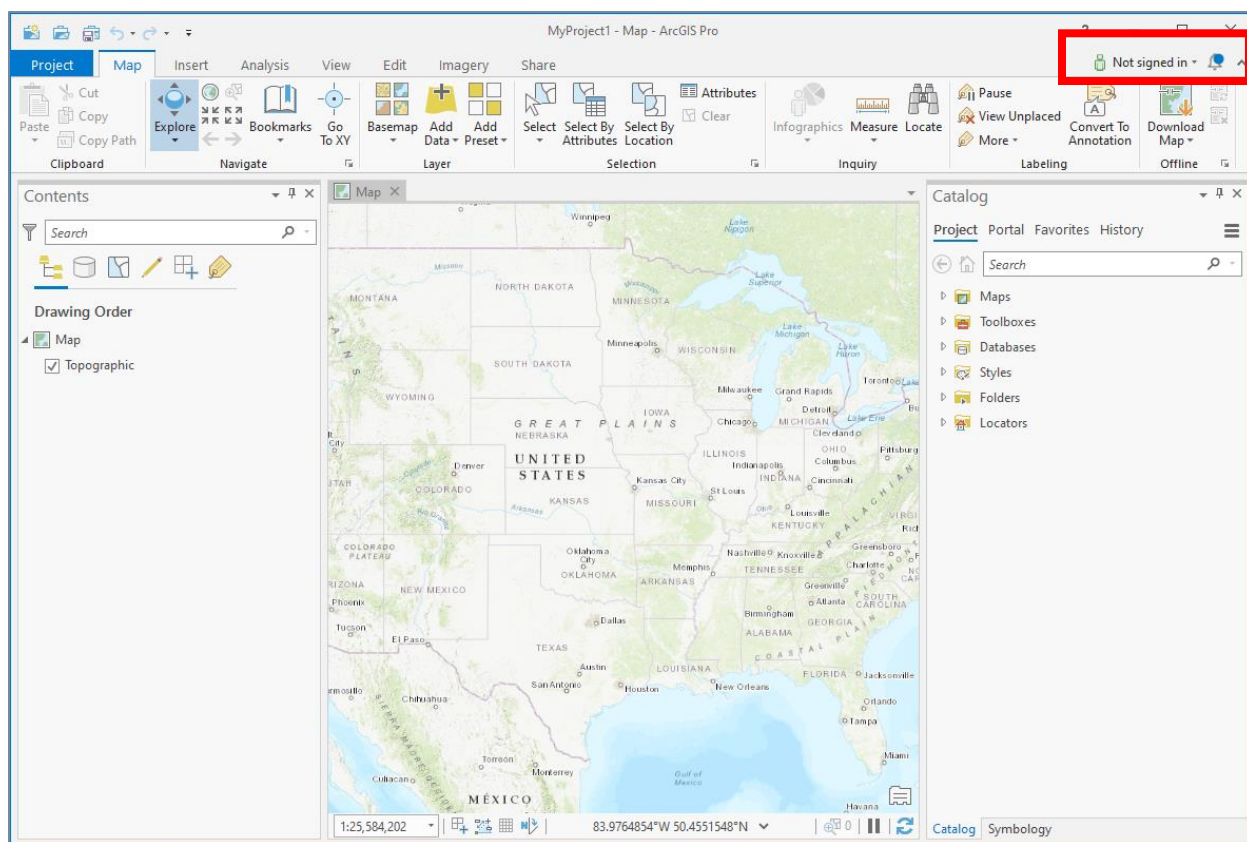
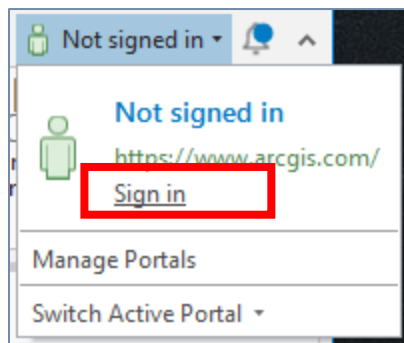


Figure 30: ArcGIS Pro: Logging into AGOL

After opening ArcGIS Pro, if you are not signed into AGOL, the text 'Not signed in' will display in the upper right of the window. Otherwise, your username will be displayed. Before searching for EDW datasets, you will need to sign into AGOL.

If you see the text 'Not signed in' in the upper right, click the dropdown next to this text and select 'Sign in'.



Once signed into AGOL, you can connect to EDW by using the public connection file stored on the T:\ drive:

T:\FS\Reference\GeoTool\agency\DatabaseConnection\edw_sde_default_as_myself.sde

Double click the edw_sde_default_as_myself.sde file to open the connection to EDW.

NOTE: If connecting for the purpose of creating layer files or mxds that will be shared with other users, it is recommended to use the standard connection file from its public location. That way, others will be able to use what was created.

3.2.4.1 Connecting to the EDW SDE Using ArcCatalog

Follow the instructions at this link (<https://usfs.box.com/s/g7l9bxrlfzahonoeg8nzi0e65b40qnf4>) to connect to the Enterprise Data Warehouse from Citrix. If this link does not work, this document can be found in the USFS Box account here: **All Files > DataWarehouse > Operations > StandardOperatingProcedures > Connect to the EDW from Citrix.pdf**.

Once logged in the ArcCatalog, you can set the Metadata Options to view metadata in many different formats.

You can view metadata on the Description tab in ArcCatalog. The metadata style presented on the Description tab is chosen from the Metadata tab on the **Options** dialog box. The style controls how you view metadata and the pages that appear when editing metadata. It identifies the metadata standard or profile to be followed, the XML schema defining the valid XML format for that standard, and how to export metadata from ArcGIS for Desktop to a stand-alone metadata XML file in that format.

3.2.5 GI CLIENT TOOL

EDW data are accessible through the GI Client ArcMap Tool available through Citrix and Desktop ArcMap applications. For more information, please see the [GI Client Home Page](#).

There are a few ways to find EDW data using this tool. First, most business specific maps that load spatial layers from EDW have EDW in the name (left side of the image below). You can also use the GI search functionality to perform keyword searches (right side of the image below). Using this latter methodology with the search term “EDW”, for example, finds datasets with “EDW” in the file name or file tags.

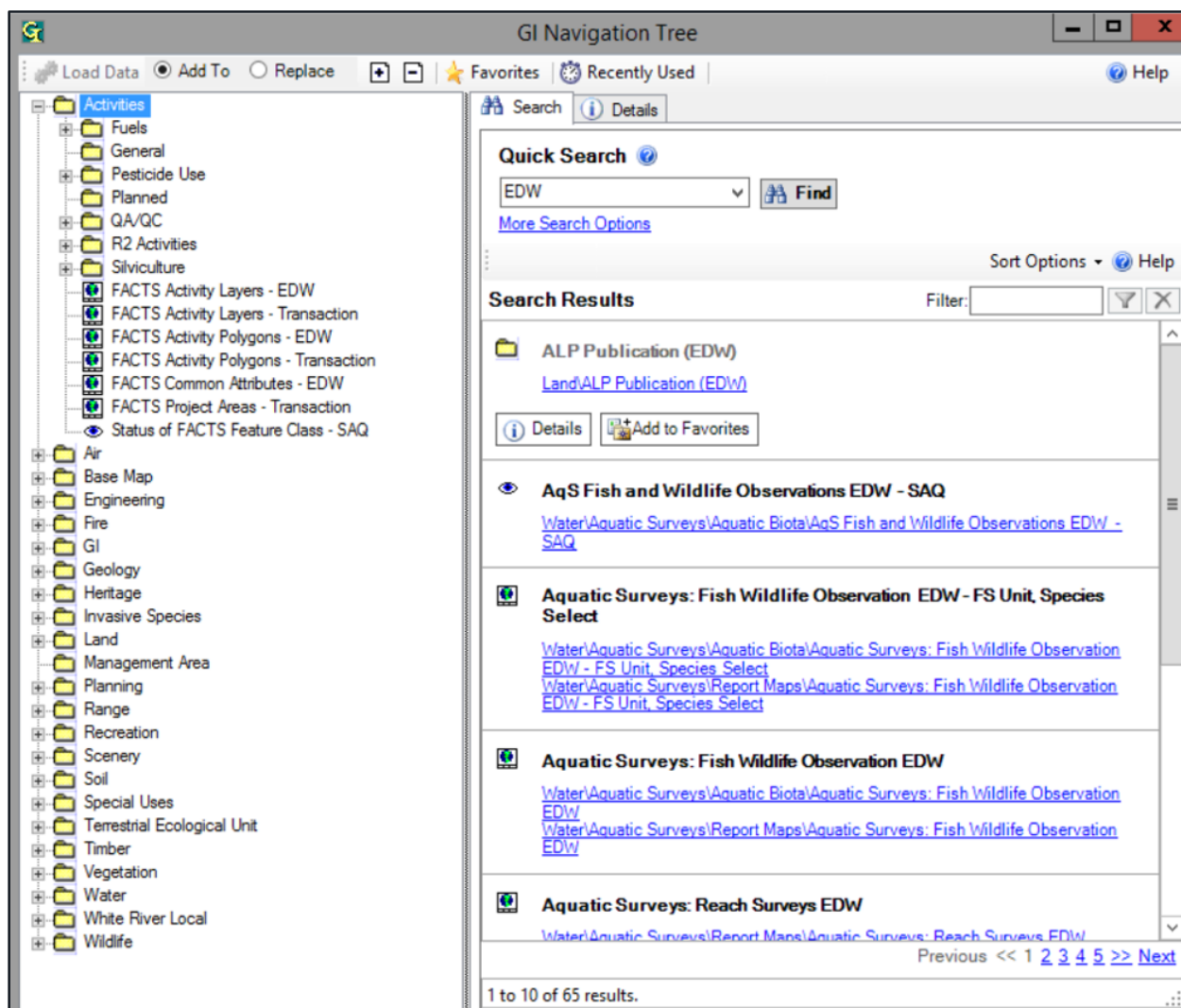


Figure 31: Screenshot of GI Tool

Searching for EDW datasets is possible by browsing in the left pane or by entering “EDW” into the Quick Search in the right pane.

Additionally, there is an advance search option (pictured below) where “EDW” is a selectable built-in keyword option.

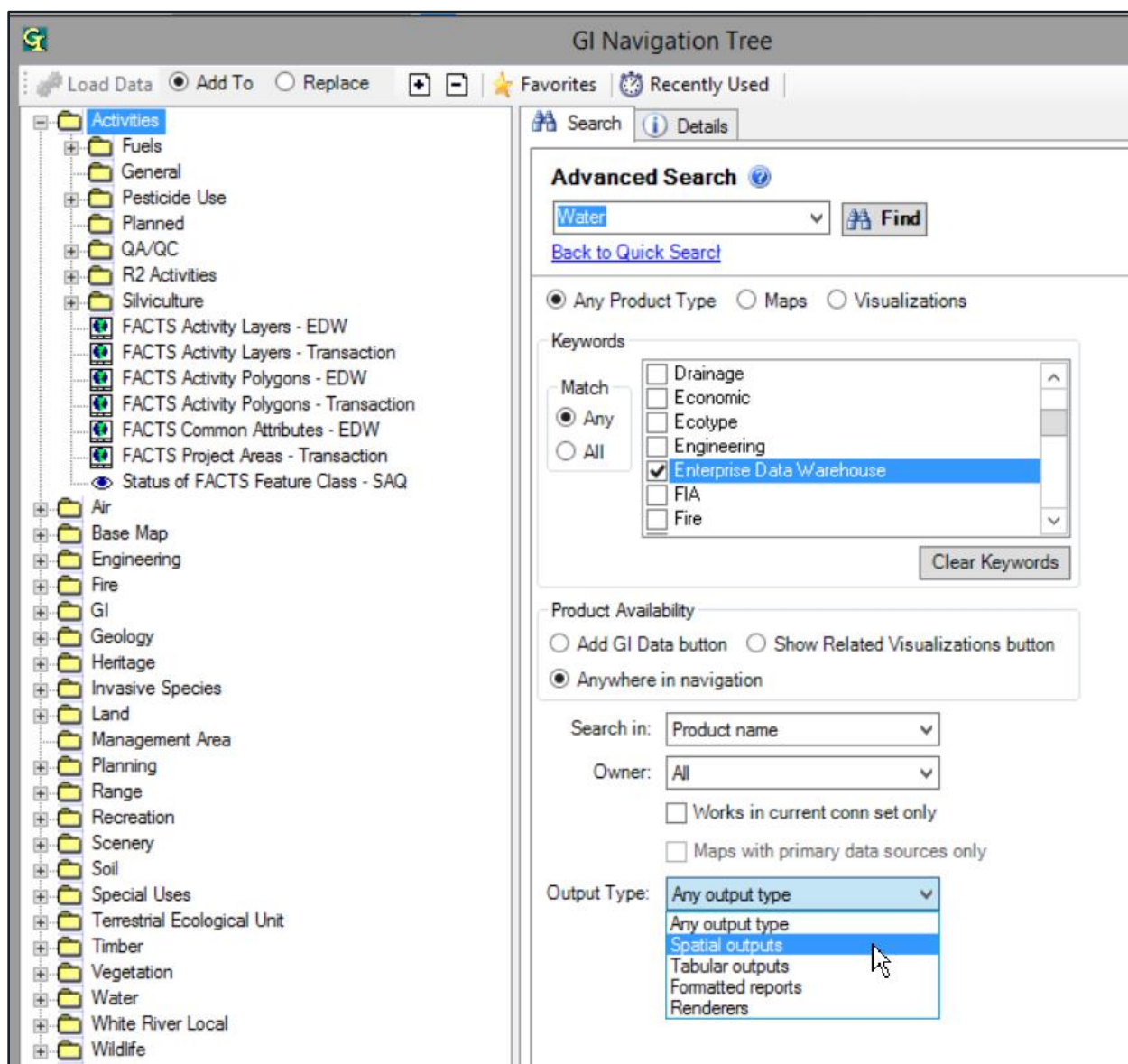


Figure 32: Screenshot of GI Tool Advanced Search Functionality

The GI Client Tool's Advanced Search functionality allows you to search for EDW data using the built-in keyword "Enterprise Data Warehouse".

3.2.6 USFS ARCGIS ONLINE

Link: <https://usfs.maps.arcgis.com/home/index.html>

From the website itself: *The USFS uses ArcGIS Online and Open Data to share maps, data, and applications for use by other federal agencies, partners, and the public.* This site provides links to data for viewing and download as well as links to training resources and to the FS Geospatial Data Discovery Tool page described in the next section. There are multiple ways to find authoritative EDW content you are interested in within ArcGIS Online (AGOL).

3.2.6.1 Search Bar

From the main AGOL Home Page, type a search text in the Search box. Click Enter.

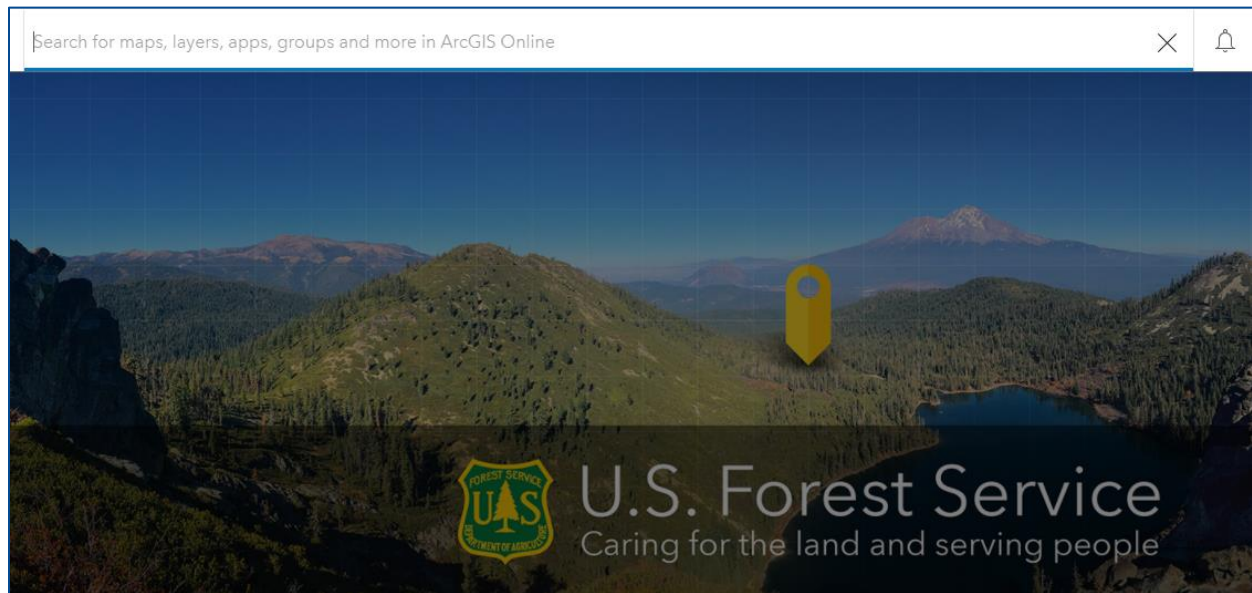


Figure 33: USFS ArcGIS Online (AGOL) Page

A list of data that matches your text will appear in the search page. All authoritative EDW enterprise content that is shared with the public will show “by U.S. Forest Service.” It will also have a green Authoritative icon in the item details.

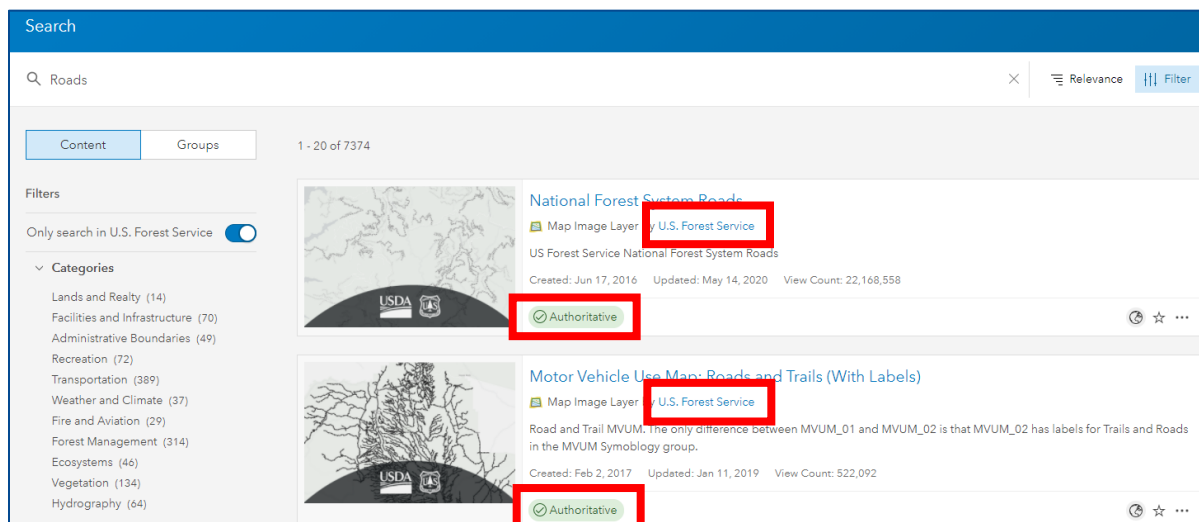


Figure 34: Authoritative EDW Datasets Publicly Available on AGOL

All authoritative EDW enterprise content that is shared with the public and shared with the Living Atlas will also show “by U.S. Forest Service”. It will have a green Authoritative icon as well as a blue Living Atlas icon in the item details.

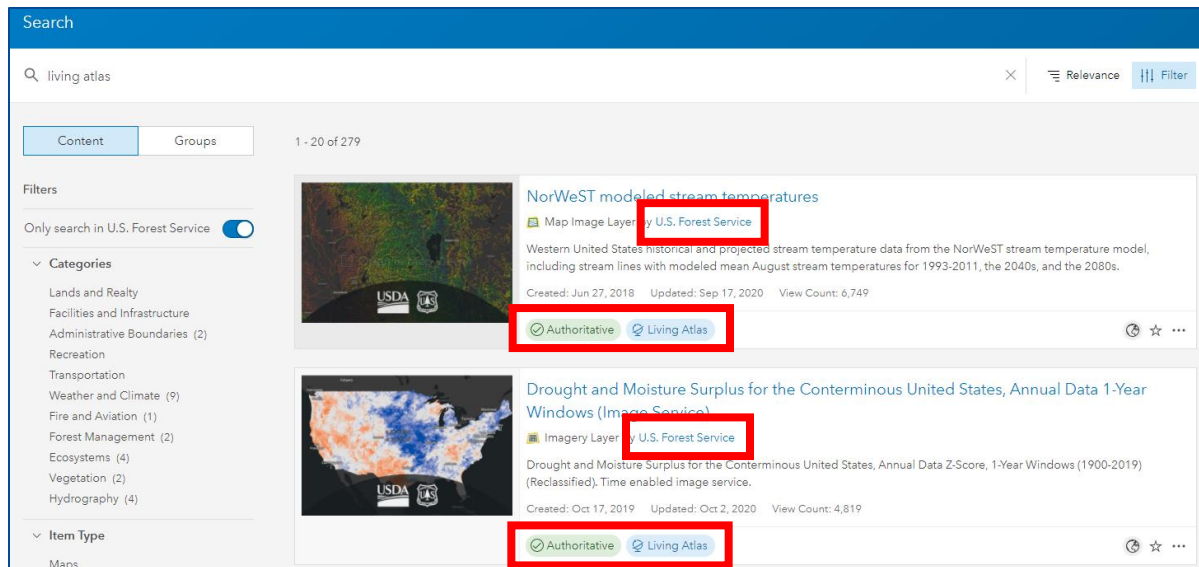


Figure 35: Authoritative EDW Datasets Shared with Living Atlas and Publicly Available on AGOL

All authoritative EDW enterprise content that is *not* shared with the public will show “by USFSEnterpriseContent”. It will also have a green Authoritative icon in the item details.

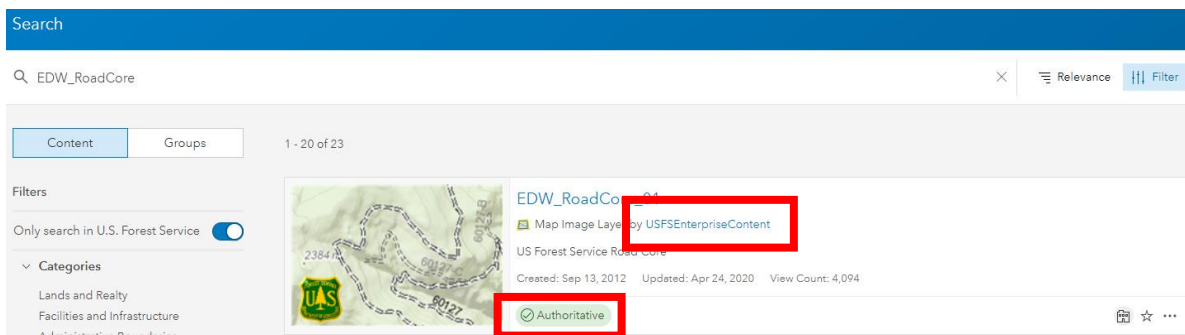
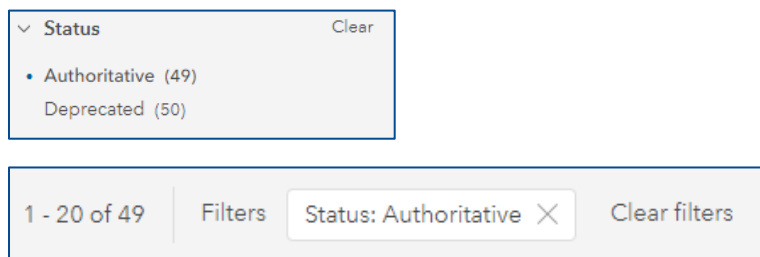


Figure 36: Authoritative EDW Datasets Not Publicly Available on AGOL

A filter can be applied to limit the search results to only authoritative content. Other filters may be applied to further refine the results.



Clicking on the '...' and then 'View item details' will take you to the metadata for that dataset. Clicking the thumbnail for the dataset will open it in the Map Viewer.

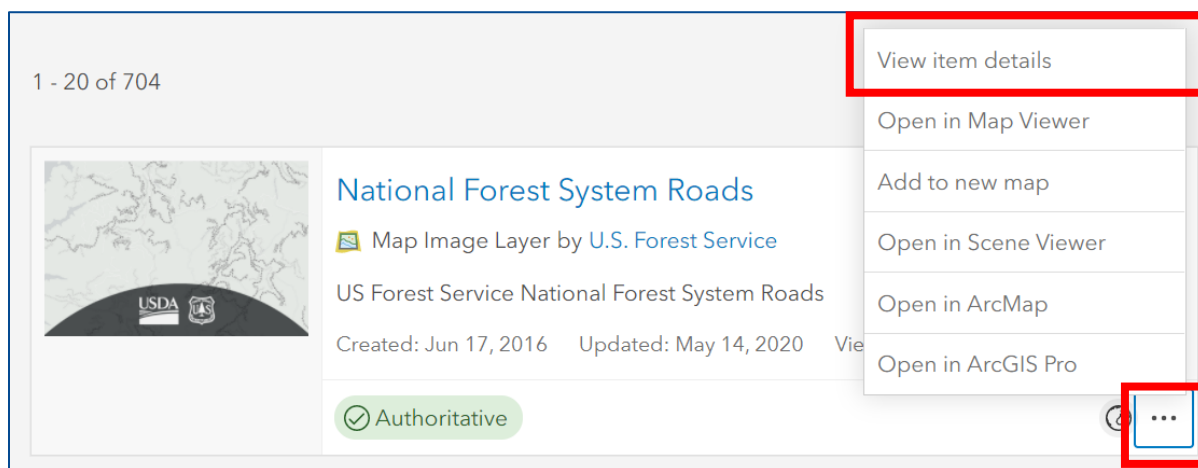


Figure 37: Accessing Metadata for Publicly Available Authoritative EDW Datasets from AGOL Search Page

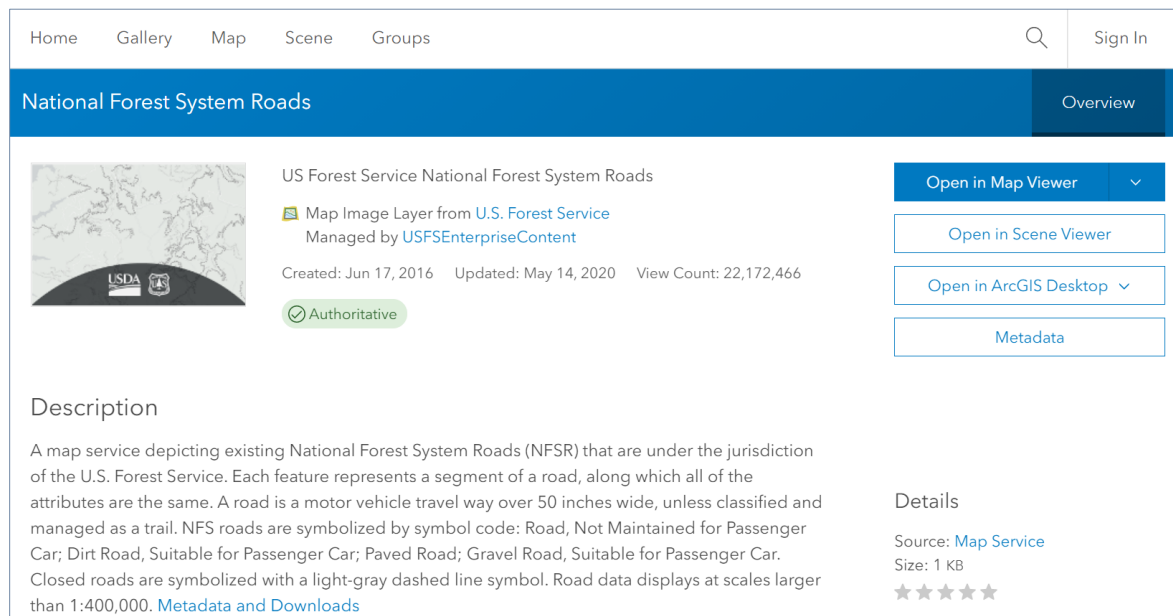
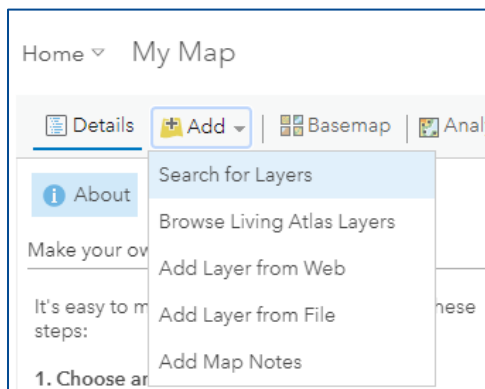


Figure 38: Example Metadata on AGOL

More metadata information is available by scrolling down this page.

3.2.6.2 Map Viewer

From the Map Viewer click Add data and Search for Layers.



Change the search from 'My Content' to 'My Organization' and type in a search string. Filter the results and change Status to Authoritative. This will limit the results to only authoritative EDW content. Other filters may be applied to further refine the results.

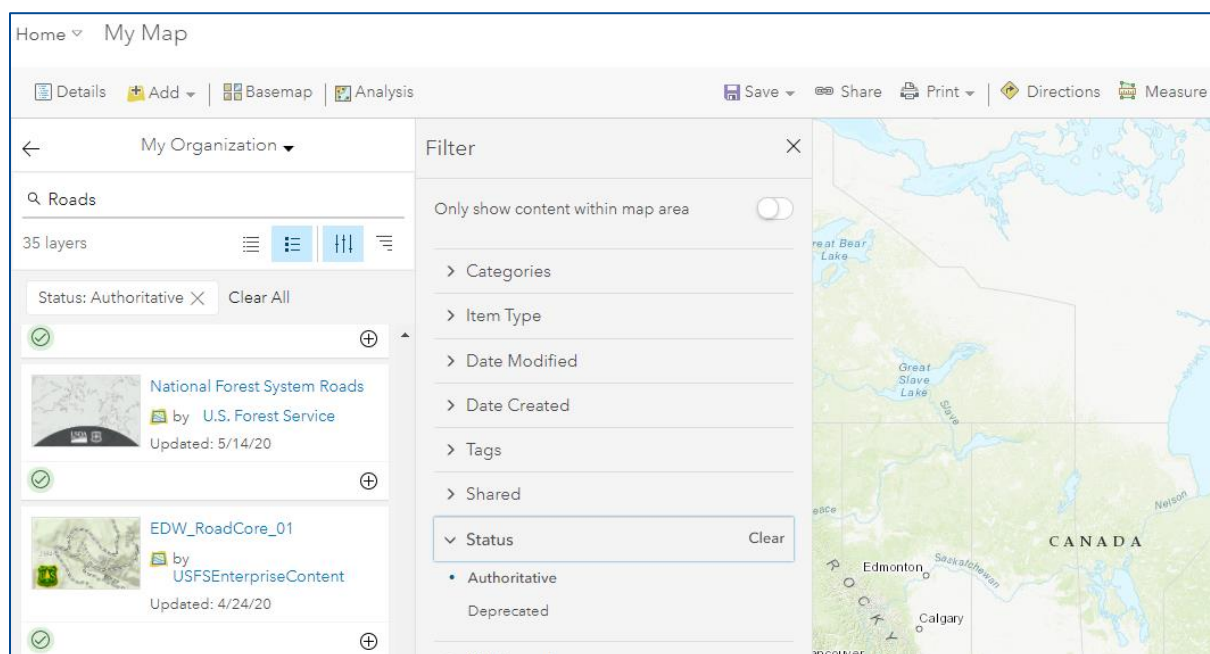


Figure 39: Searching for USFS Internal Authoritative EDW Datasets in AGOL Map Viewer

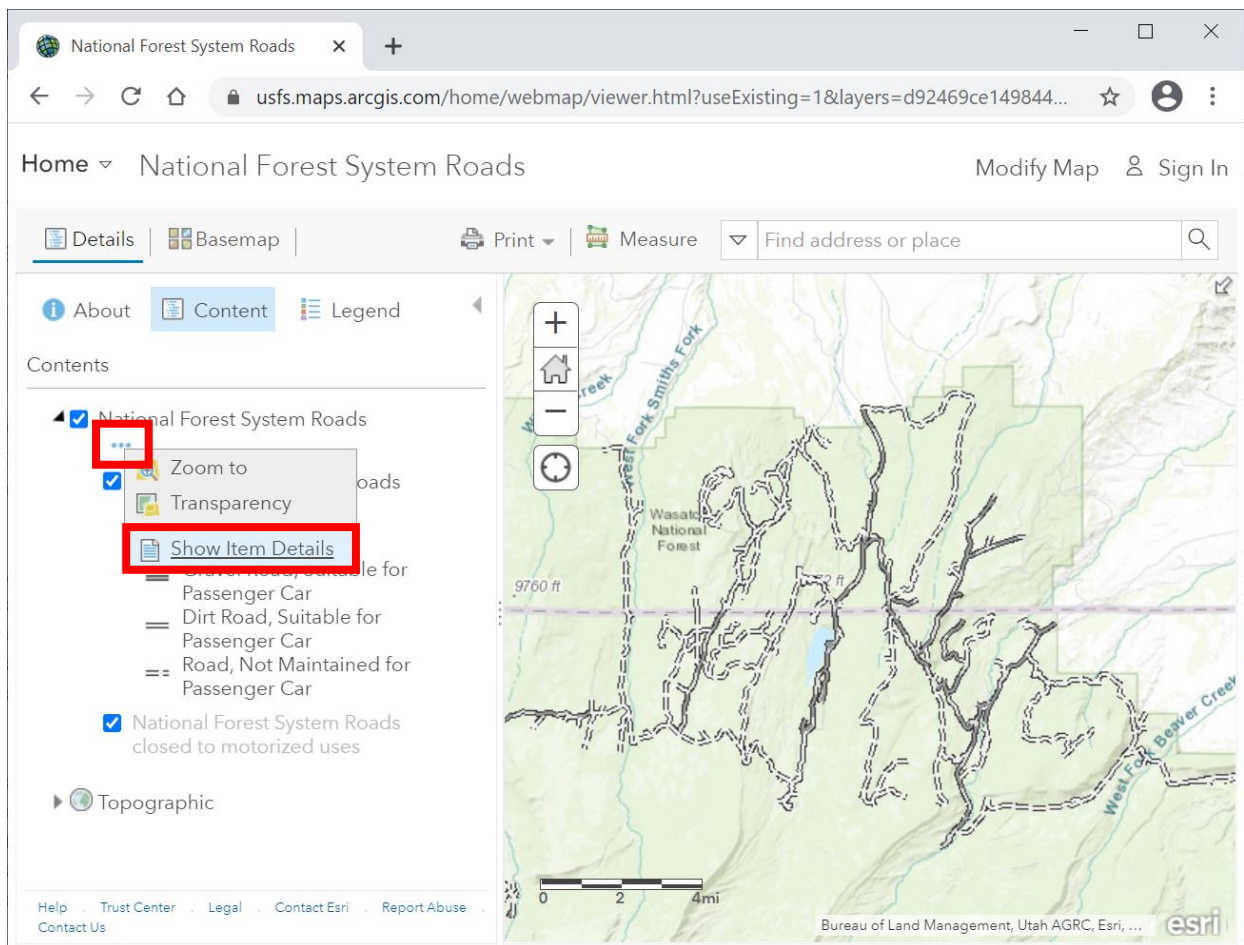


Figure 40: Navigating to Metadata in Map Viewer on AGOL

Metadata for an item in the Table of Contents in the Map Viewer on AGOL can be found by selecting the '...' underneath a layer's name and selecting 'Show Item Details'.


3.2.6.3 Groups

Go to the [U.S. Forest Service Enterprise Content](#) group and search for group content to find the authoritative enterprise content you are interested in.

U.S. Forest Service Enterprise Content

Overview

Edit thumbnail



The USFS Enterprise Content user (USFSEnterpriseContent) is an ArcGIS Online account owned by the US Forest Service for publishing, cataloging, and managing the Agency's authoritative enterprise content on ArcGIS Online.

Edit

Type a search text in the search box to find content in this group.

U.S. Forest Service Enterprise Content

Overview

Content

Members

Settings

Add items to group

mvum

List

Date Modified

Filter

Filters

1 - 5 of 5

Group Categories

No Group Categories Yet

Categories allow group members to organize items consistently and provide a simple way to browse content in the group.

Set up group categories

Item Type

Maps

Layers

Scenes

Apps

Tools

Files

Notebooks


Location

Date modified

Tags

Sharing

Collaboration




National Forest System Trails (Feature Layer)

Feature Layer by U.S. Forest Service

The Trails Layer is designed to provide information about National Forest System trail locations and characteristics to the public.

Created: Mar 27, 2017 Updated: Jul 16, 2020 View Count: 290,033

Authoritative




Motor Vehicle Use Map: Roads and Trails (With Labels)

Map Image Layer by U.S. Forest Service

Road and Trail MVUM. The only difference between MVUM_01 and MVUM_02 is that MVUM_02 has labels for Trails and Roads in the MVUM Symbolology group.

Created: Feb 2, 2017 Updated: Jan 11, 2019 View Count: 522,295

Authoritative



Motor Vehicle Use Map: Roads and Trails

Map Image Layer by U.S. Forest Service

US Forest Service Road and Trail Motor Vehicle Use Map

Created: Mar 18, 2014 Updated: Jan 10, 2019 View Count: 130,277

Authoritative

All authoritative EDW enterprise content will have a green Authoritative icon in the item details. Data that is shared with the public and/or the Living Atlas will show “by U.S. Forest Service” and data that is not shared with the public will show “by USFSEnterpriseContent”. Data shared with the Living Atlas will also have a blue Living Atlas icon in the item details.

Clicking on the ‘...’ and then ‘View item details’ will take you to the metadata for that dataset. Clicking the thumbnail for the dataset will open it in the Map Viewer.

3.2.7 USFS ARCGIS PRO

3.2.7.1 Connecting to AGOL Data

After launching ArcGIS Pro, open a new or existing map and ensure you are logged into AGOL. If you are logged in, your name will appear in the upper right of the ArcGIS Pro window. If not, it will say 'Not signed in'.

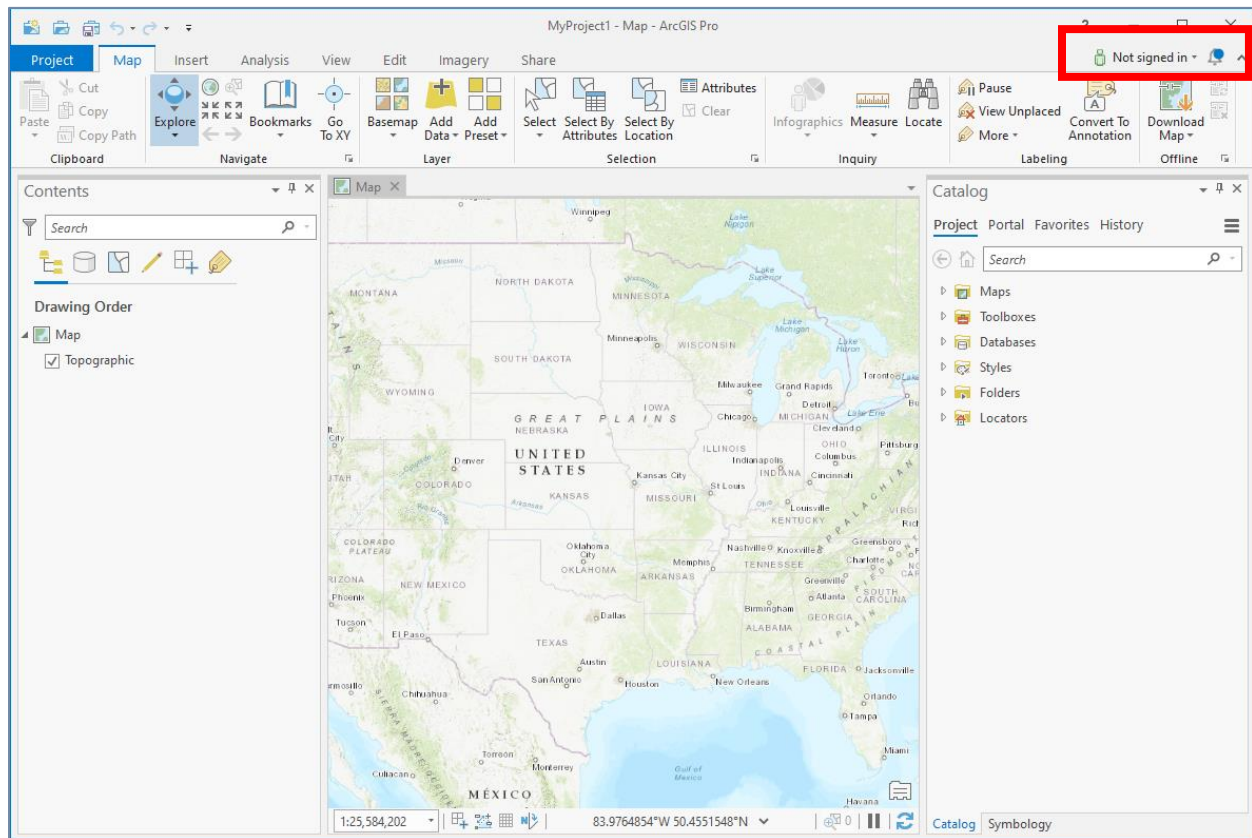
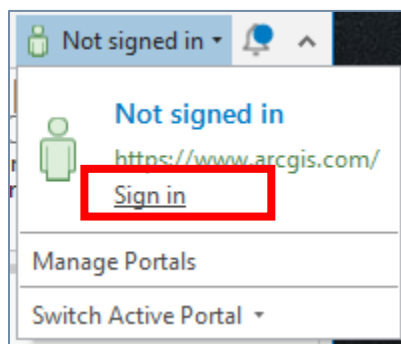


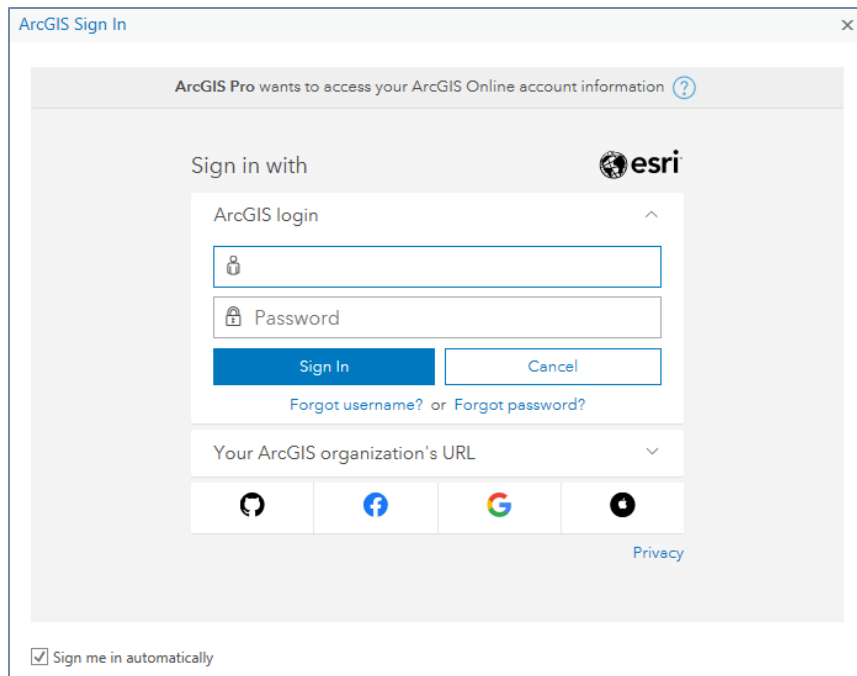
Figure 41: ArcGIS Pro: Logging into AGOL

After opening ArcGIS Pro, if you are not signed into AGOL, the text 'Not signed in' will display in the upper right of the window. Otherwise, your username will be displayed. Before searching for EDW datasets, you will need to sign into AGOL.

If the upper right corner of the ArcGIS Pro window shows 'Not signed in', click the drop down and select 'Sign in'.



Enter your AGOL credentials in the window that pops up.



Once logged in, you should see your username in the top right corner of the ArcGIS Pro window.

Once signed into AGOL, navigate to the **Catalog** pane, and select **Portal**. From here you can use filters and search terms much in the same way you can in AGOL itself. For EDW data, make sure to filter only by **Authoritative** (which is under **Status**). Publicly facing EDW data will show as being published by “**U.S. Forest Service**” and internal facing EDW data will show as being published by “**USFSEnterpriseContent**”.

Filtering this way will show you authoritative EDW datasets. You can view the metadata for these datasets in the map view or in the Catalog pane. In the map view, if you have an item in the table of contents, right click it and select **View Metadata** to view the item’s metadata. In the Catalog pane, simply click the **Metadata** option (next to the **Geography** and **Table** options).

3.2.7.2 Direct Connections to EDW Data

You can also directly connect to the EDW data that exist on the T:\ drive at the USFS Data Center in ArcGIS Pro. To do so, from the ‘Map’ ribbon in a Project’s Map view, select **Add Data**. You can then navigate to the SDE, layer files, or XML metadata files.

Path to SDE - T:\FS\Reference\GeoTool\agency\DatabaseConnection\edw_sde_default_as_myself.sde

Path to Layer Files - T:\FS\Reference\EDW (for further information on these, see section 3.2.2)

Path to XML metadata files - T:\FS\BusOps\CIO\Project\EDW\Metadata_Final (for more information, see section 3.2.3)

4 INTRODUCTION TO METADATA

Metadata is information about data. It includes answers to the questions ‘who’, ‘what’, ‘where’, ‘when’, ‘why’, and ‘how’ related to a particular dataset. You may or may not have already encountered metadata designed for geospatial data, but you most certainly have encountered metadata in other areas of your life. A soup can is a fantastic example.



Imagine encountering a can of soup without its label. Determining the type of soup it contains or its ingredients would be impossible without opening the can. Still other information, such as brand, may not be possible to determine even after opening the can. That soup label is a fantastic example of metadata. It tells you all sorts of information about the contents of the can without the need to open the can itself.

Like a soup can, geospatial data comes with metadata that provide all sorts of valuable



information that can be examined before the data are opened. Some common pieces of information in the geospatial metadata of the USFS EDW are contacts (e.g. names and contact information of the data creators and/or data stewards), an abstract or summary, use constraints on the data, date the data were created, and descriptions of each of the attributes in the data sets.

The major uses of metadata are to maintain an organization's internal investment in geospatial data, to provide information about an organization's data holdings to data catalogues, clearinghouses, and brokerages, and to provide information needed to process and interpret data from an external source.

Geospatial metadata are organized according to a standard. The remainder of this section will explore three metadata standards that a user of the EDW may encounter. These are the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata (CSDGM), ISO (International Organization Standardization) 19115-x, and ArcGIS.



4.1 FGDC's Content Standard for Digital Geospatial Metadata (CSDGM)



The Federal Geographic Data Committee (FGDC) is an organized structure of Federal geospatial professionals and constituents that provide executive, managerial, and advisory direction and oversight for geospatial decisions and initiatives across the Federal Government (<https://www.fgdc.gov/organization>). This committee is responsible for the geospatial metadata standard **Content Standard for Digital Geospatial Metadata (CSDGM)**, <https://www.fgdc.gov/metadata/csdgm-standard>.

The objectives of the standard are to provide a common set of terminology and definitions for the documentation of digital geospatial data. The standard establishes the names of data elements and compound elements (aka. groups of data elements) to be used for these purposes, the definitions of these compound elements and data elements, and information about the values that are to be provided for the data elements. The most up to date version of the CSDGM standard is version 2, or **FGDC-STD-001-1998**

(<https://www.fgdc.gov/standards/projects/metadata/base-metadata/index.html> or https://www.fgdc.gov/standards/projects/metadata/base-metadata/v2_0698.pdf).

4.2 ISO 191xx-x

The International Organization for Standardization (ISO) is an independent, non-governmental international organization with a membership of various national standards bodies (<https://www.iso.org/about-us.html>). The ISO is responsible for geospatial metadata standards **ISO 191xx-x**, where the 'x's stand for numbers representing different standards and versions (<https://www.iso.org/ics/35.240.70/x/>).



The **ISO** geospatial metadata standards have been much more recently updated than the FGDC's **CSDGM** standard, and are continuously evolving. "Since the update of the CSDGM standard in 1998, geospatial data content, format, and supporting applications have evolved significantly. In addition, the Unified Modeling Language (UML) used to develop the ISO standard provides a more robust means of describing complex relationships between metadata elements, metadata standards, and data resource types. More specifically, ISO geospatial metadata standards support:

- documentation of a wide range of geospatial resources including: data, services, sensors/technologies, collection methods, QA/QC procedures, models, application schemas, ontologies, symbol sets, and more.
- documentation of the relationships between geospatial data and associated services, technologies, methods, models, etc.
- documentation of simple and complex geospatial data parent/child/sibling relations
- simplification of metadata compliance through the use of fewer mandatory metadata elements and XML attributes that allow for flexibility in meeting requirements, e.g. 'nilreason'
- standardization and discoverability of metadata content via standardized Topic Categories, a large percentage of fixed domains, and the use of identifiers to reference published information
- standardization and discoverability of metadata records across geopolitical boundaries and community-designated profiles

- standardization and simplification of documenting geographic coordinate systems and parameters through the use of Spatial Reference System identifiers, e.g. EPSG:5070”

(Information in quotes above from: <https://www.fgdc.gov/metadata/benefits-of-iso>.)

In fact, “several ISO metadata standards are now endorsed by the FGDC and federal agencies and NSDI Stakeholders are encouraged to make the transition to ISO metadata”

(<https://www.fgdc.gov/metadata/geospatial-metadata-standards>). (NSDI stands for National Spatial Data Infrastructure. More information can be found here: <https://www.fgdc.gov/nsdi/nsdi.html>.)

However, it should be noted that as of the time of authorship of this document, there have been difficulties in fully implementing the ISO geospatial metadata standards for the EDW. This is due to the ISO standard’s frequent updates, the lack of support of full standard implementation within industry standard geospatial software packages, and the complexity of the ISO geospatial metadata standards which leads to a high maintenance burden for the agency and decreased ease of use for end users. The agency is currently working to resolve these issues.

For more information on the complexities of the ISO standard in relation to ESRI software, see <https://desktop.arcgis.com/en/arcmap/latest/manage-data/metadata/support-for-iso-metadata-standards.htm>.

4.3 ESRI ArcGIS Metadata Format

ArcGIS metadata is part of an ArcGIS item. When the item is copied, moved, or deleted, its metadata is also copied, moved or deleted (<https://doc.arcgis.com/en/arcgis-online/manage-data/metadata.htm>).



When the item is imported into a geodatabase, its metadata is also imported. Metadata is stored in the same location as the item’s data in a manner that is appropriate for its data type. For example, for shapefiles, metadata is stored in an XML file adjacent to the rest of the dataset’s files. For geodatabase items, metadata is stored in the geodatabase system tables. If your data is stored in an enterprise geodatabase, see the topic that describes the geodatabase system tables for your DBMS to learn more. For example, with an Oracle database you would look in the topic System tables of a geodatabase stored in Oracle to learn more. Metadata is stored in the Documentation column in the GDB_Items table (<https://desktop.arcgis.com/en/arcmap/latest/manage-data/metadata/the-arcgis-metadata-format.htm>).

The ArcGIS metadata format contains elements that can store all content in all metadata standards supported by ArcGIS, including Federal Geographic Data Committee (FGDC) *Content Standard for Digital Geospatial Metadata (CSDGM)* metadata content, ISO 19139 metadata content, North American Profile metadata content, and all INSPIRE metadata content. ArcGIS metadata also includes ArcGIS-internal content such as thumbnails, which are useful for the ArcGIS platform, but not included in supported metadata standards.

In ArcGIS Online, an item’s metadata is created, edited, and viewed on the item page. Item details include the title, type, and source, author, last modified date, thumbnail, and tags. It can also include additional information such as summary and description, how accurate and recent the item is, restrictions associated with using and sharing the item, credits, and so on. This information can help others discover and evaluate the usefulness of items.

For a more detailed understanding of the ESRI ArcGIS metadata format, it is recommended that the reader review the information in the following links (much of the content above comes from these links as well).

For ArcGIS Desktop: <https://desktop.arcgis.com/en/arcmap/latest/manage-data/metadata/the-arcgis-metadata-format.htm>. For ArcGIS Online: <https://doc.arcgis.com/en/arcgis-online/manage-data/metadata.htm>.

5 READING METADATA

The method used to read metadata varies depending on which of the previously mentioned standards are being adhered to (FGDC, ISO, or ESRI) and the metadata's file format. The metadata file formats that may be encountered on the EDW project are Extensible Markup Language (XMLs), those that are part of a geodatabase, and those that are part of an ArcGIS Online (AGOL) item.

The table below lists the suggested software packages for reading metadata based on its file format. It should be noted that *this is not a complete list* of all software packages that can be used to read these file formats.

Metadata File Format	Suggested Software Packages
XML	Notepad++ (https://notepad-plus-plus.org/downloads/) ArcGIS (ArcCatalog or ArcMap) Google Chrome, Internet Explorer, or other web browsers
Geodatabase	ArcGIS (ArcCatalog, ArcMap, or ArcGIS Pro)
AGOL	AGOL

Methodologies for using the software packages listed above for reading each file format are listed below.

5.1 Reading XML Files (non-ArcGIS Methods)

To read XML metadata using Notepad++ or a web browser, right click the file in windows explorer and select the appropriate software package. For example:

*Right click > **Edit with Notepad++***

or

*Right click > **Open with > Google Chrome** (or other web browser)*

```

1 <?xml version="1.0" encoding="utf-8"?>
2 <metadata>
3   <idinfo>
4     <citation>
5       <citeinfo>
6         <origin>Originator -- the name of an organization or individual that developed the data set. If the name of editors or compilers are
7         provided, the name must be followed by "(ed.)" or "(comp.)" respectively.</origin>
8         <pubdate>Publication Date -- the date when the data set is published or otherwise made available for release.</pubdate>
9         <title>Title -- the name by which the data set is known.</title>
10        <geoform>Geospatial Data Presentation Form -- the mode in which the geospatial data are represented.</geoform>
11        <pubinfo>
12          <pubplace>Publication Place -- the name of the city (and state or province, and country, if needed to identify the city) where the data
13          set was published or released.</pubplace>
14          <publish>Publisher -- the name of the individual or organization that published the data set.</publish>
15        </pubinfo>
16        <onlink>Online Linkage -- the name of an online computer resource that contains the data set. Entries should follow the Uniform Resource
17        Locator convention of the Internet.</onlink>
18      </citeinfo>
19    </citation>
20    <descript>
21      <abstract>Abstract -- a brief narrative summary of the data set.</abstract>
22      <purpose>Purpose -- a summary of the intentions with which the data set was developed.</purpose>
23      <supplinf>Supplemental Information -- other descriptive information about the data set.</supplinf>
24    </descript>
25    <timeperd>
26      <timeinfo>
27        <sngdate>
28          <caldate>Calendar Date -- the year (and optionally month, or month and day).</caldate>
29        </sngdate>
30      </timeinfo>
31      <current>Currentness Reference -- the basis on which the time period of content information is determined.</current>
32    </timeperd>
33    <status>
34      <progress>Progress -- the state of the data set.</progress>
35      <update>Maintenance and Update Frequency -- the frequency with which changes and additions are made to the data set after the initial data
36      set is completed.</update>
37    </status>
38    <spdom>

```

Figure 42: XML Document in Notepad++

Screenshot of an XML document as viewed in Notepad++. This XML document is a template that contains text prompts between tags to help the user fill in the appropriate data for a project. Tags in an XML document are denoted with the symbols ‘<’ and ‘>’, where the information applicable to that tag falls between the two symbols. Notepad++ can also be used to edit XML files, so be careful not to delete any information if your intent is viewing the metadata only.

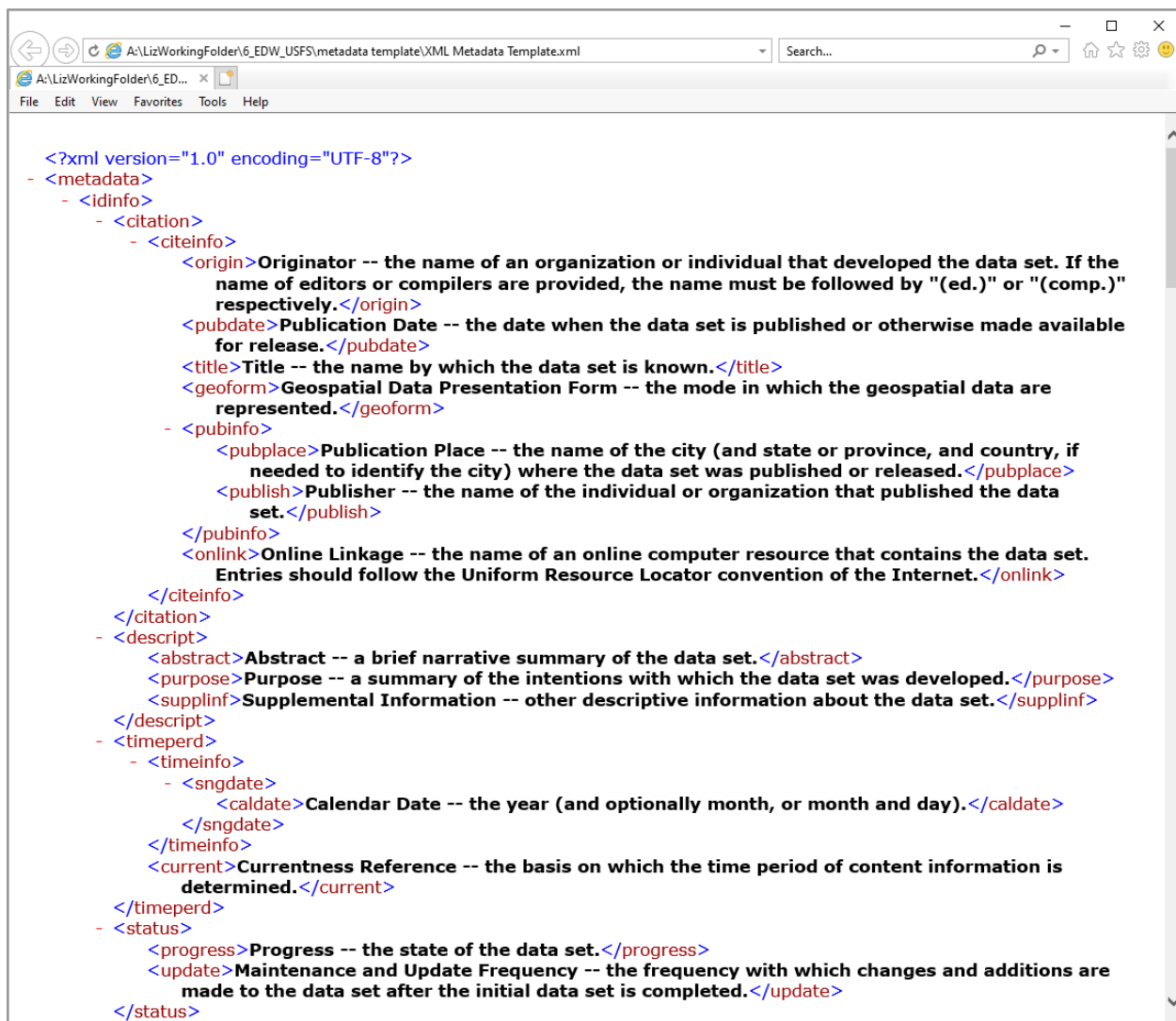


Figure 43: XML Document in Web Browser

Screenshot of an XML document as viewed in Internet Explorer. XML files cannot be edited when viewing them in a web browser, so you may elect to view metadata this way if you need to read metadata but not edit. This is the same XML document pictured in Figure 1.

5.1.1 EDW METADATA TEMPLATE EXAMPLE XML REFERENCE DOCUMENT

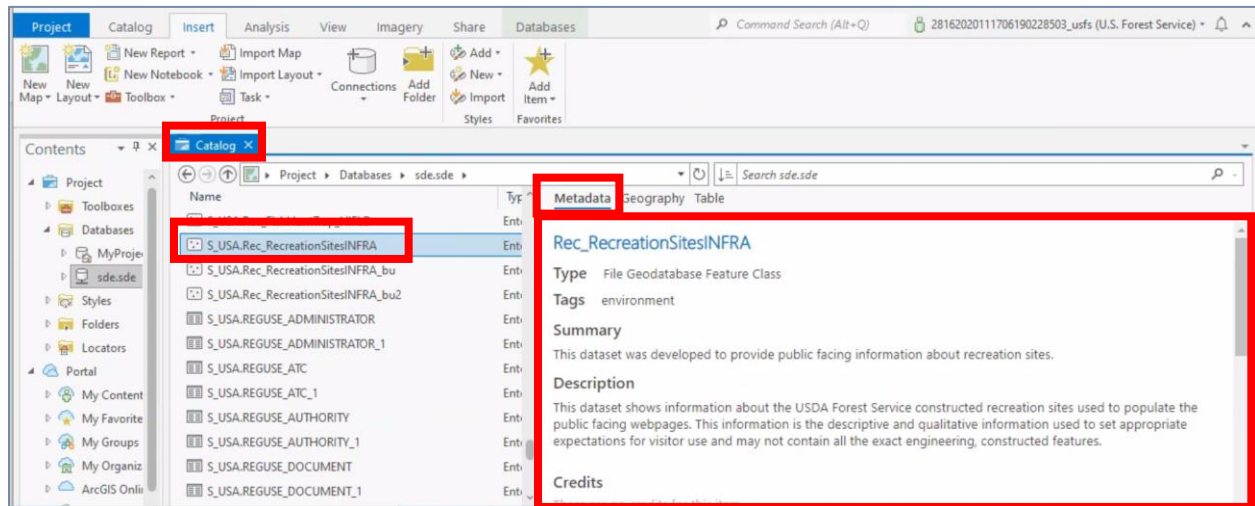
The template XML document used to create metadata and which accompanies this Metadata User Manual is titled 'EDW_Metadata_Template_User_Guide_Example.xml'. This XML document has been copied/pasted and included in Appendix A of this document for quick reference.

It is recommended that all readers acquaint themselves with this document. Comments have been added throughout that explain the information that can be found in each tag. This information includes, but is not limited to, detailed information about the extent, accuracy, currency, refresh rate, source, contact info, and use restrictions of the data.

5.2 Reading Metadata in ArcGIS Pro


ArcGIS Pro can be used to view metadata as an XML or as part of a geodatabase, and formatted as **ESRI**, FGDC's **CSDGM**, or **ISO 191xx-x**.

To view metadata in ArcGIS Pro, open the **Catalog** tab, navigate to a dataset, and make sure the **Metadata** tab on the righthand side of the **Catalog** tab is selected.



5.3 Reading Metadata in ArcCatalog

ArcCatalog can be used to view metadata as an XML or as part of a geodatabase, and formatted as **ESRI**, FGDC's **CSDGM**, or **ISO 19115-x**.

To read metadata in ArcCatalog, open ArcCatalog, open the **Catalog Tree** , navigate to and select the XML file you wish to view, then navigate to the **Description** tab on the main window.

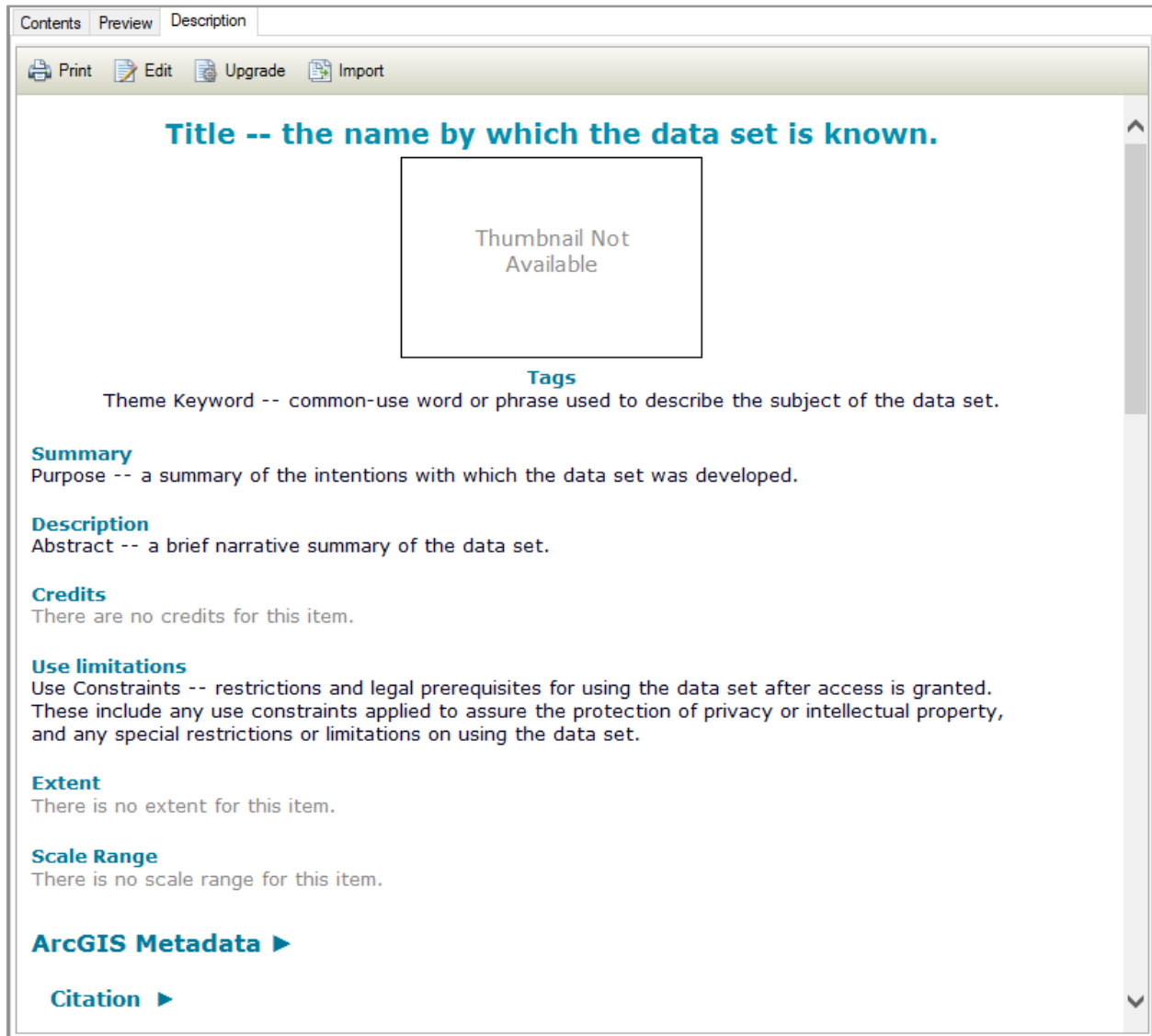


Figure 44: XML Document in ArcCatalog

Screenshot of an XML document as viewed in the Description tab of ArcCatalog. This is the same file as was shown in Figures 1 and 2. Notice that in ArcCatalog, you will not see the '<>' and '</>' symbols to signify XML tags, rather, these tags will be formatted as headings (pictured in blue here).

When using ArcCatalog, by default the **Description** tab will show metadata in the ESRI ArcGIS format, though you may choose to view metadata in another *style*. Metadata styles in ArcCatalog are like filters. In other words, when

using a metadata style, the underlying metadata format will remain the same, but how it is presented by the software will be modified.

To use a metadata style in ArcCatalog, click **Customize > ArcCatalog Options**, then click the **Metadata** tab (<https://desktop.arcgis.com/en/arcmap/latest/manage-data/metadata/choosing-a-metadata-style.htm>).

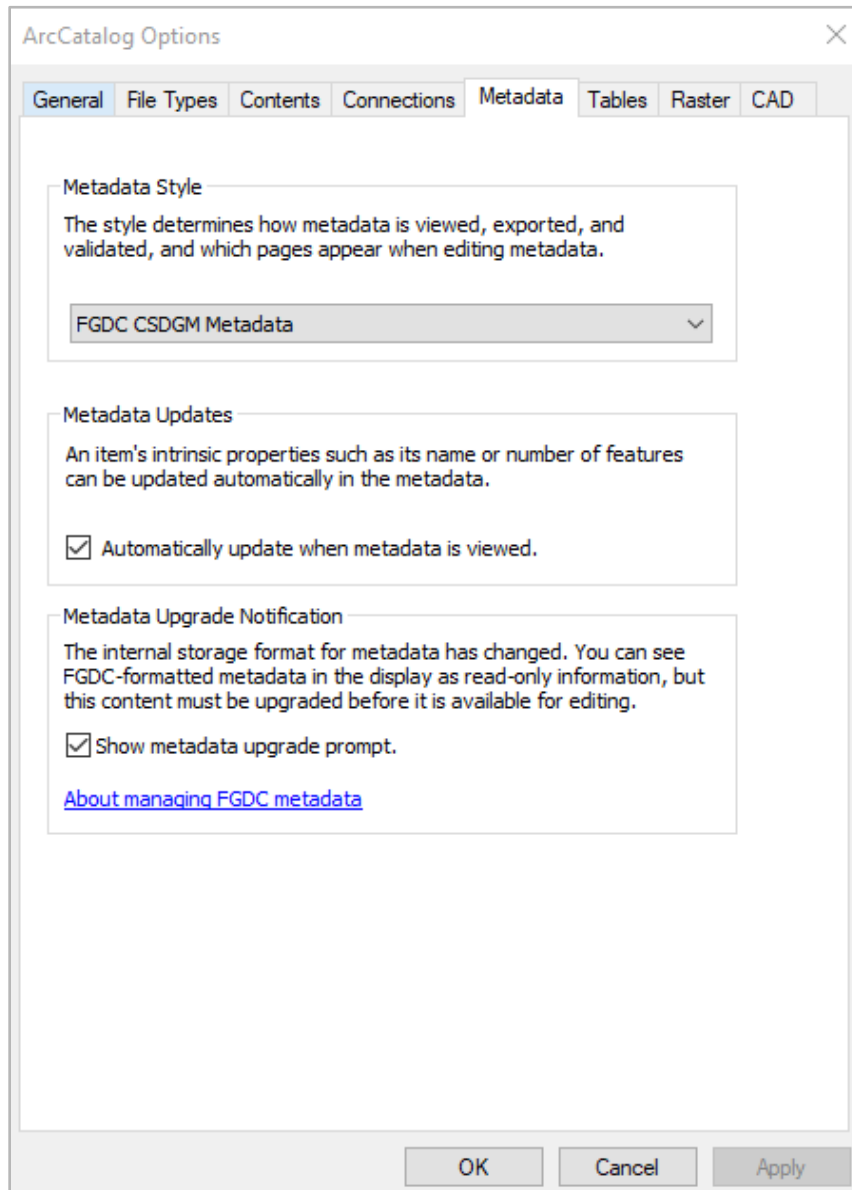
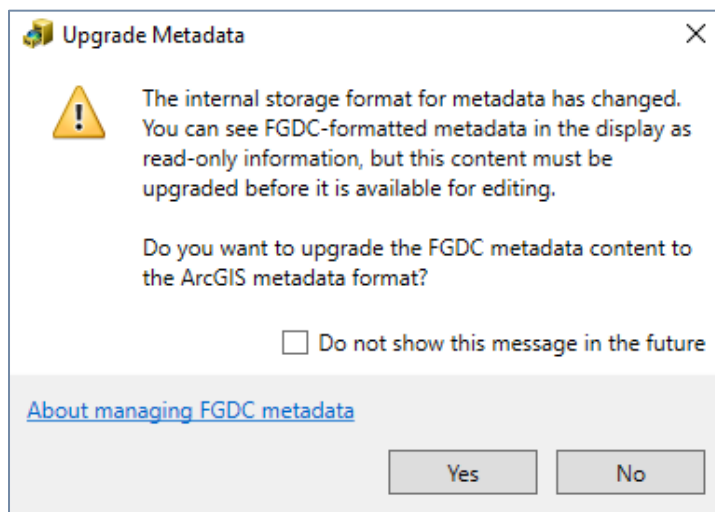


Figure 45: Changing Metadata Style in ArcCatalog

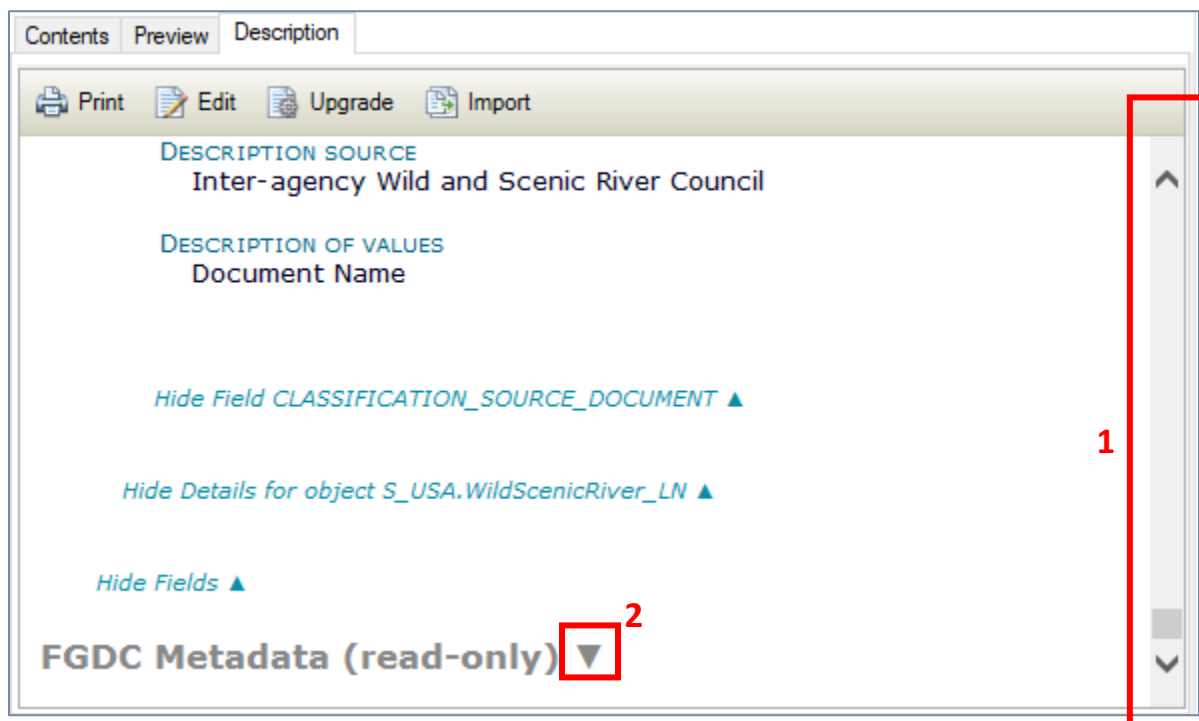
Screenshot of the **Metadata** tab of the **ArcCatalog Options** window in ArcCatalog. The metadata style can be changed in the dropdown on this tab.

Depending on ArcCatalog's settings and the format of the metadata file you are attempting to view, you may be presented with the 'Upgrade Metadata' popup as pictured below:



For the purpose of viewing metadata, it is recommended that you click 'No' in this popup and complete the following procedure:

1. scroll to the bottom of the **Description** tab in ArcCatalog
2. click the arrow next to the gray heading text 'FGDC Metadata (read-only)' to expand its contents.



Below is an example of what the contents of the 'FGDC Metadata (read-only)' look like:

FGDC Metadata (read-only) ►

Identification ►


CITATION
CITATION INFORMATION
ORIGINATOR
ORIGINATOR
ORIGINATOR
ORIGINATOR
ORIGINATOR
ORIGINATOR
PUBLICATION DATE 2016-03-02
TITLE
National Wild and Scenic River Lines (Feature Layer)
GEOSPATIAL DATA PRESENTATION FORM map
ONLINE LINKAGE
https://apps.fs.usda.gov/arcx/rest/services/EDW/EDW_WildScenicRiverSegments_01/MapServer/0

DESCRIPTION
ABSTRACT
This polyline feature class depicts the river corridors of each Wild and Scenic River designated by Congress or the Secretary of the Interior for the United States and Puerto Rico. This GIS data layer was created from a multi-agency effort by the US Forest Service, National Park Service, Bureau of Land Management, and the US Fish and Wildlife Service. The spatial data were referenced to the latest High Resolution National Hydrological Data Layer (NHD 1:24,000 Scale or better), published by United States Geological Survey (USGS). Metadata
PURPOSE
National Wild and Scenic River Lines
TIME PERIOD OF CONTENT
TIME PERIOD INFORMATION
SINGLE DATE/TIME
CALENDAR DATE 2016-03-02
CURRENTNESS REFERENCE
publication date
STATUS
PROGRESS Complete
MAINTENANCE AND UPDATE FREQUENCY As needed

SPATIAL DOMAIN
BOUNDING COORDINATES
WEST BOUNDING COORDINATE -163.299951
EAST BOUNDING COORDINATE -65.748577
NORTH BOUNDING COORDINATE 69.055061
SOUTH BOUNDING COORDINATE 18.233282

KEYWORDS
TUMES

5.4 Reading Metadata in ArcMap

To view metadata in ArcMap, open the **Catalog** window , navigate to the dataset for which you'd like to see the metadata (e.g. XML file, feature class, shapefile), right click and select **Item Description...**

Like what was explained about viewing metadata in **ArcCatalog** above, you may elect to view metadata using different *styles* in ArcMap. To do so, in ArcMap, click **Customize > ArcMap Options**, then click the **Metadata** tab (<https://desktop.arcgis.com/en/arcmap/latest/manage-data/metadata/choosing-a-metadata-style.htm>).

5.5 Reading Metadata on ArcGIS Online

To view metadata in ArcGIS Online, you will need to locate the option **View item details**. The exact location of this option may shift based on which page you are on within ArcGIS Online (e.g. Living Atlas, My Content, Groups). A screenshot of the location of this option on the **Living Atlas** page is shown in Figure 5.

Figure 46: Finding the Item Details in ArcGIS Online

(Image on right) On the **Living Atlas** page of ArcGIS Online, to locate the metadata, click the '...' button and select **View item details**.

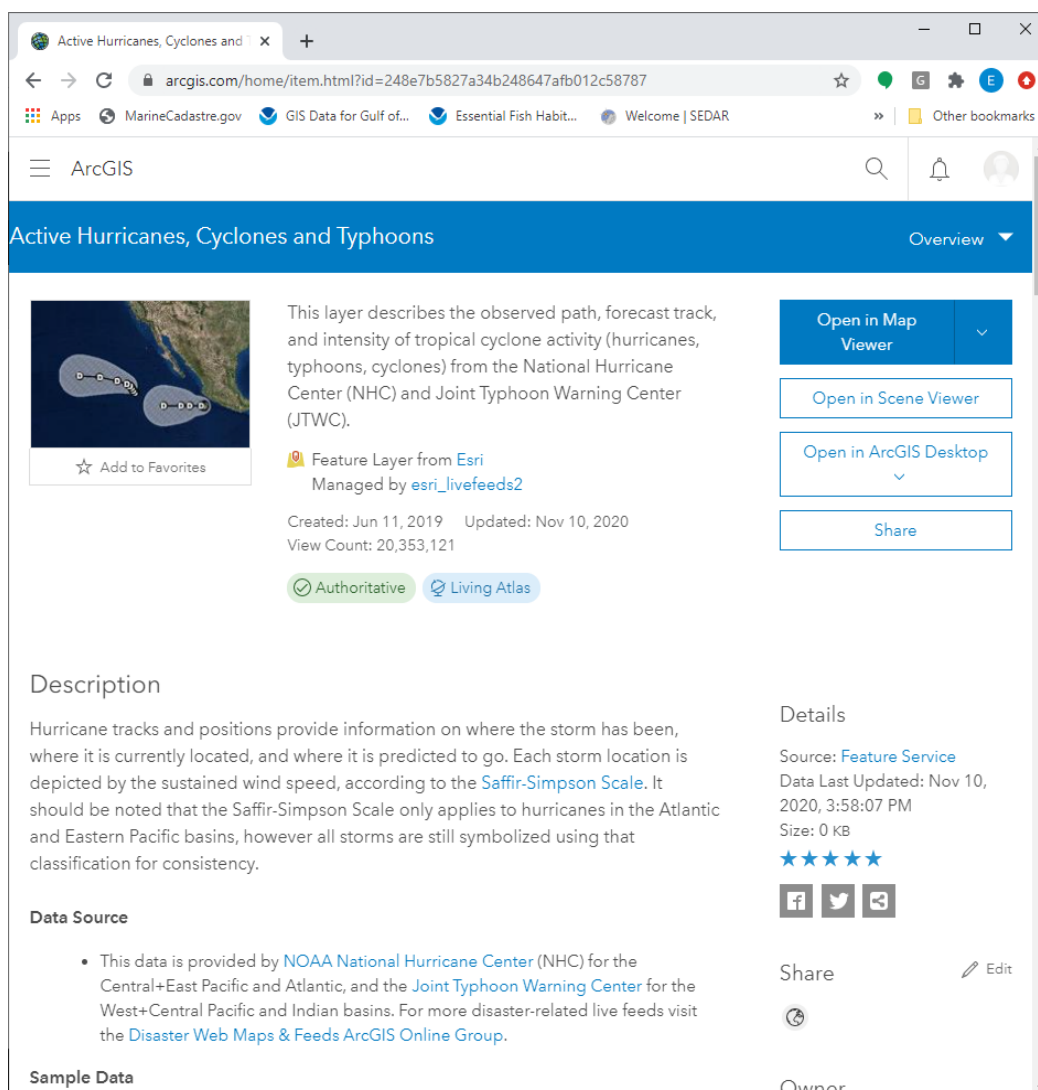
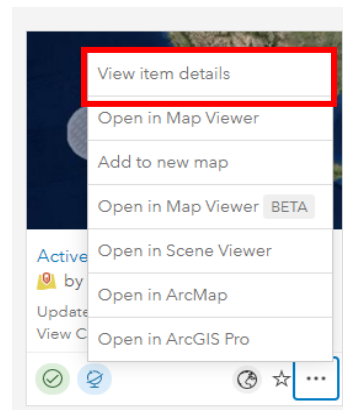


Figure 47: Viewing the Item Details Page on ArcGIS Online

The **Item Details** page of any given layer will look like this screenshot. Scroll down this page to view all the metadata associated with an item.

6 COMMONLY REFERENCED EDW METADATA TEMPLATE SECTIONS

The intent of this section is to help users find commonly sought-after information in metadata which is formatted like the EDW Metadata Template (Appendix A). The EDW Metadata Template itself contains content prompts within tags and can therefore be used as a quick reference, however, this section of the user manual expands on that information with lengthier descriptions and examples from EDW datasets with screenshots. The EDW Metadata Template is based on the **CSDGM** standard created by the FGDC. Further information on this standard can be found here: <https://www.fgdc.gov/metadata/csdgm-standard>.

Many software packages can be used to view metadata, though each may display and format information differently. Screenshots in the following sections will show examples of metadata viewed using the following software packages: ArcGIS software (ArcCatalog or ArcMap) and Notepad++. It is assumed that the reader has access to one or both of these programs. (Notepad++ can be downloaded for free here: <https://notepad-plus-plus.org/downloads/>.)

A secondary goal of this section is to provide brief descriptions of commonly sought-after information in metadata formatted using the ISO standard. These descriptions are included in case the reader is viewing a dataset formatted using this standard. Since the ISO standard may be updated in the future (unlike the **CSDGM** standard), details on locating commonly sought-after information in metadata in this section are purposefully kept brief. It is also the case that at the time of writing of this document, the EDW program has not yet adopted the ISO standard for its metadata. To gain full appreciation of how information is stored in metadata formatted using the ISO standard, it is recommended that the reader review the applicable standard(s): <https://www.iso.org/ics/35.240.70/x/>.

It is also important to note here that throughout the following user manual sections, the term 'tag' will be used when referring to the location of information in ISO formatted metadata. This may be in contrast to the more specific terms such as 'element', 'attribute', 'packages', or 'namespaces' that are used in the ISO standard itself. This is intentional to minimize the length of this document. Therefore, 'tag' in the sections below refers to items held in '<>' and '</>' symbols when viewed in Notepad++.

Lastly, the sections below explain how to view **CSDGM** and **ISO** formatted metadata. **ESRI ArcGIS** formatted metadata can be viewed in ArcGIS software in the **Description** tab. It will resemble the screenshots with blue headers in the screenshots below.

A Note on Referencing Metadata in ArcGIS Online (AGOL)

The location of commonly sought-after information in the metadata in AGOL is not specifically referenced in the sections that follow, however, AGOL metadata typically loosely resembles the **Description** tab in ArcGIS due to the fact that the main body of information on the 'View Item Details' page is separated into sections with headers (See section 4.1.4 for instructions on how to navigate to this page in AGOL.) Viewers of metadata in AGOL should also pay attention to the information at the top of the page (above the **Description** header), the information on the right of the page, and the comments.

World Boundaries and Places

This reference map presents country, state/province, and county or equivalent boundaries and place-names for the world for overlaying on dark basemaps.

Tile Layer from Esri
Managed by esri

Created: Dec 17, 2009 Updated: Aug 13, 2020 View Count: 20,756,450

☆ Add to Favorites

✓ Authoritative

📍 Living Atlas

Description

This layer presents country boundaries; first-order (State/Province) internal administrative boundaries and names for most countries. The map was developed by Esri using administrative and city data from Esri; Garmin basemap layers for the world; HERE data for North America, Europe, Australia, New Zealand, South America and Central America, India, most of the Middle East and Asia, and Africa. Data for select areas of Africa and Pacific Island nations from ~1:288k to ~1:4k (~1:1k in select areas) was sourced from OpenStreetMap contributors. Specific country list and documentation of Esri's process for including OSM data is [available to view](#).

Select data for the World Boundaries and Places Map is provided by the GIS community. You can contribute your data to this service and have it served by Esri. For details on the users who contributed data for this map via the [Community Maps Program](#), view the list of [Contributors for the World Boundaries and Places Map](#).

This map is designed for use with maps with darker backgrounds, such as the [World Imagery](#) service. An alternate version of this service is also available, the [World Boundaries and Places Alternate service](#), which is designed for overlaying on basemaps with lighter backgrounds, such as the [World Shaded Relief](#) service.

Layers

[World Boundaries and Places](#)

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[View Summary](#) | [View Terms of Use](#)

Alignment of boundaries is a presentation of the features provided by our data vendors and does not imply endorsement by Esri or any governing authority.

Export: This layer is not intended to be used to export tiles for offline. If you would like to export imagery for offline use in ArcGIS applications, you may use the [World Boundaries and Places \(for Export\)](#) layer, which is intended for this purpose.

Comments (11)

Sort by: New

Leave a comment.

Details

Source: [Map Service](#)
Size: 1 KB
★ ★ ★ ★ ☆ 3,966,700,363,159,18 (14)

[f](#) [t](#) [s](#)

Share [Edit](#)

Owner

Esri

Managed by:

esri

Tags

[world](#), [boundaries](#), [places](#), [country](#), [state](#), [province](#), [county](#), [administrative areas](#), [place names](#), [maps](#), [overlay](#), [reference](#), [us](#), [usa](#), [usa](#), [usa](#), [states](#), [boundary](#), [outlines](#), [outline](#), [counties](#), [provinces](#), [countries](#), [basemap](#), [esri_basemap](#), [general availability](#)

Credits (Attribution)

Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS User Community

URL [View](#)

<https://services.arcgisonline.com/ArcGIS>

Figure 48: Example of Metadata in ArcGIS Online (AGOL)

The above is an example of metadata as viewed on the 'View Item Details' page on AGOL. Viewers should pay attention to the information at the top of the page (1), main body (2), and right side of the page (3). Unlike any other method of viewing metadata mentioned in this user manual, the 'View Item Details' page in AGOL has a 'Comments' section (4). If any are present, the comments may contain valuable information from data users related to missing data and/or errors that the data provider has yet to resolve.

6.1 Abstract and Summary Information

Summary information about the dataset can be found in the following tags in the EDW Metadata Template:

abstract: A brief narrative summary of the data set.

purpose: A summary of the intentions with which the data set was developed.

supplinf: Other descriptive information about the dataset (optional).

These tags are nested in the tags **metadata > idinfo > descript**.

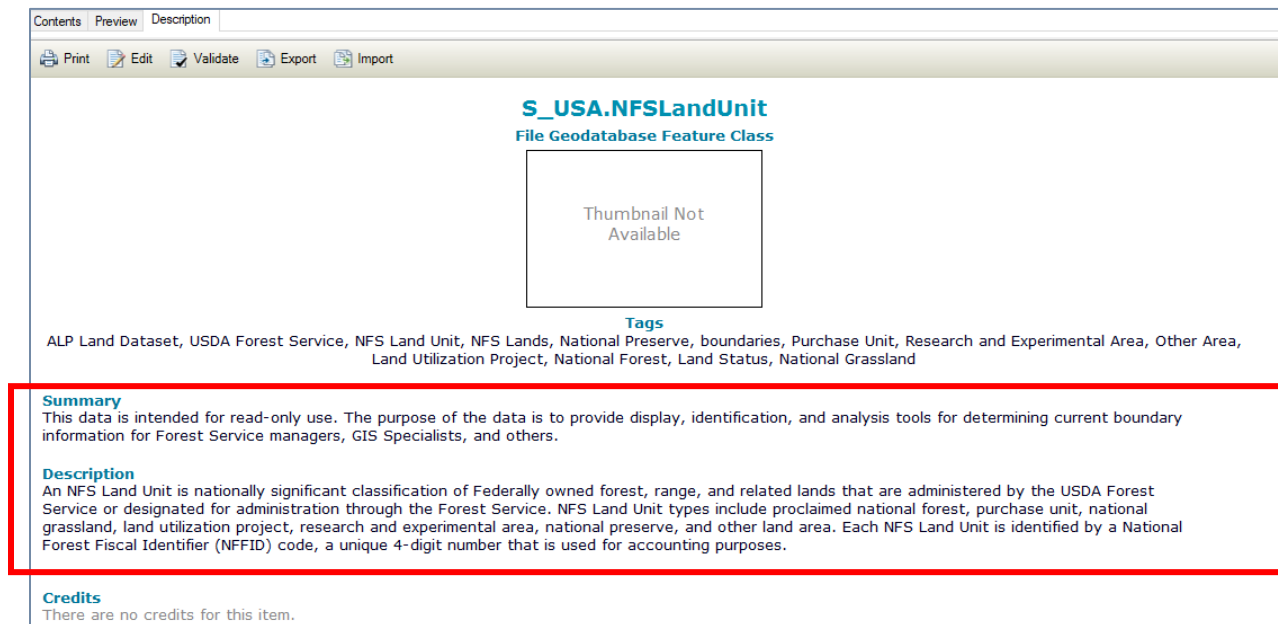


Figure 49: Sample Metadata Abstract and Summary Information in ArcGIS

The **Description** tab will show abstract and summary information as pictured above. It is important to note that ArcGIS will display the **abstract** tag information under the **Description** heading and the **purpose** tag information under the **Summary** header. This sample EDW dataset is the National Forest System Land Units dataset ('S_USA.NFSLandUnit.gdb' file geodatabase, 'NFSLandUnit' feature class). This example dataset does not have any information in the **supplinf** tag.

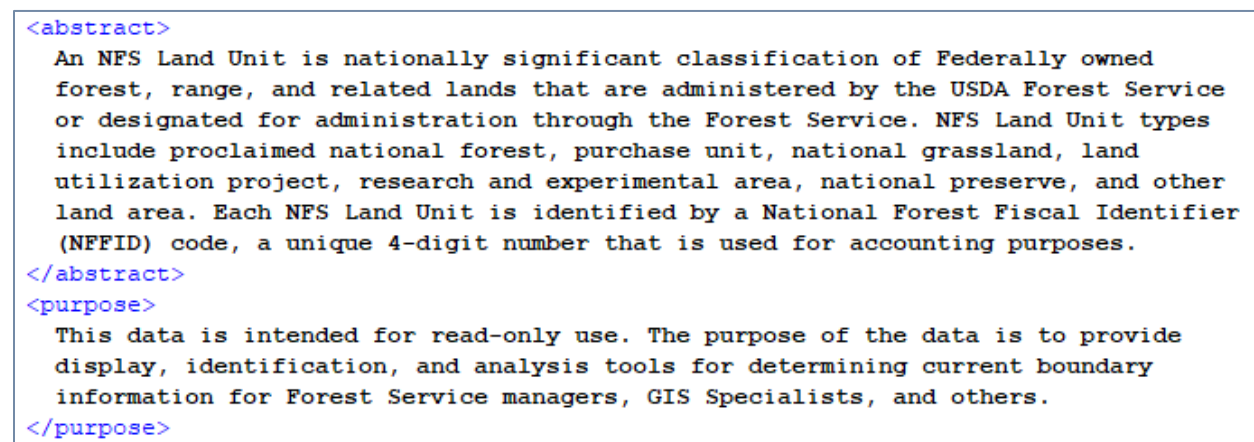


Figure 50: Sample Metadata Abstract and Summary Information in Notepad++

This sample comes from the same dataset as pictured in Figure 8. Notice that Notepad++ will display the tag names in blue text and the tag content in black text.

For ISO formatted metadata, abstract and summary information are found in the **abstract**, **purpose**, and **supplementalInformation** tags.

```
<abstract>
  <gco:CharacterString>A boundary depicting an area that has been designated
  as a National Wilderness in the National Wilderness Preservation System.
  </gco:CharacterString>
</abstract>
<purpose>
  <gco:CharacterString>This data is intended for read-only use. Wilderness is
  a commonly used base layer used in a wide range of Forest Service business
  functions as well as those of other entities.</gco:CharacterString>
</purpose>
```

Figure 51: Sample Metadata Abstract and Summary Information in ISO Format in Notepad++

This sample comes from the National Wilderness Areas dataset ('S_USA.Wilderness.gdb' file geodatabase, 'Wilderness' feature class). Notice that when viewed in Notepad++, metadata formatted using the ISO standard may appear to contain tags with prefixes such as 'gco:' (which stands for 'Geographic Common extensible markup language') like the one pictured above. These items are known as namespaces and for the purpose of locating and viewing metadata content in this user manual, can be largely ignored. More information on namespaces can be found in the ISO standards: <https://www.iso.org/ics/35.240.70/x/>.

6.2 Contact Information

Contact information for the dataset includes the identity of and means to communicate with person(s) and/or organization(s) associated with the dataset. This information can be found in the following tags in the EDW Metadata Template:

cntorg: Contact Organization – the name of the organization to which the contact type applies

cntper: Contact Person – the name of the individual to which the contact type applies

addrtype: Address Type – the information provided by the address.

address: an address, not including the items listed separately below.

city: city of the address.

state: the state or province of the address.

postal: Postal Code – the ZIP or other postal code of the address.

country: the country of the address.

cntvoice: Contact Voice Telephone – the telephone number by which individuals can speak to the organization or individual

cntemail: Contact Electronic Mail Address – the address of the electronic mailbox of the organization or individual.

hours: Hours of Service – time period when individuals can speak to the organization or individual.

cntinst: Contact Instructions – supplemental instructions on how or when to contact the individual or organization.

All these tags are nested in the tags **metadata > metainfo > metc > cntinfo**. The **cntorg** and **cntper** tags are further nested in the **cntorgp** tag and the **addrtype**, **address**, **city**, **state**, **postal**, and **country** tags are further nested in the **cntaddr** tag.

Metadata Reference ►

METADATA DATE 2017-01-16

METADATA CONTACT

CONTACT INFORMATION

CONTACT ORGANIZATION PRIMARY

CONTACT ORGANIZATION USFS Chief Information Office, Enterprise Data Warehouse

CONTACT ADDRESS

ADDRESS TYPE physical

CITY Washington

STATE OR PROVINCE DC

POSTAL CODE 20250

CONTACT VOICE TELEPHONE Please send an e-mail to the address below.

CONTACT ELECTRONIC MAIL ADDRESS data@fs.fed.us

METADATA STANDARD NAME FGDC Content Standard for Digital Geospatial Metadata

METADATA STANDARD VERSION FGDC-STD-001-1998

METADATA TIME CONVENTION local time

[Hide Metadata Reference ▲](#)

Figure 52: Sample Contact Information in the Metadata in ArcGIS

This example comes from the 'National Wild and Scenic River Lines' dataset ('National_Wild_and_Scenic_River_Lines__Feature_Layer.shp' shapefile). The metadata for this shapefile was not formatted as ArcGIS metadata and did not show up automatically in the upper portion of the **Description** tab. In cases like these, the user should scroll to the bottom of the **Description** tab and expand the gray header that reads 'FGDC Metadata (read-only)' to find this information (reference section 4.1.2 for more details).

```
<metainfo>
  <metd>20170116</metd>
  <metc>
    <cntinfo>
      <cntorgp>
        <cntorg>USFS Chief Information Office, Enterprise Data Warehouse</cntorg>
      </cntorgp>
      <cntaddr>
        <addrtype>physical</addrtype>
        <city>Washington</city>
        <state>DC</state>
        <postal>20250</postal>
      </cntaddr>
      <cntvoice>Please send an e-mail to the address below.</cntvoice>
      <cntemail>data@fs.fed.us</cntemail>
    </cntinfo>
  </metc>
  <metstdn>FGDC Content Standard for Digital Geospatial Metadata</metstdn>
  <metstdv>FGDC-STD-001-1998</metstdv>
  <mettc>local time</mettc>
</metainfo>
```

Figure 53: Sample Contact Information in the Metadata in Notepad++

The figure above shows the same information as shown in Figure 11 but as viewed in Notepad++.

In the case that the reader is viewing an older set of metadata where the format does not align with the EDW Metadata Template, it is useful to explain here that there are a few other sections of the **CSGDM** metadata standard where contact information may be held. Each of these other locations has a different purpose.

1. **idinfo > ptcontac** (general contact information)
 - idinfo = Identification Information – basic information about the data set.
 - ptcontac = Point of Contact – contact information for an individual or organization that is knowledgeable about the dataset.
2. **dataqual > lineage > procstep > proccont** (contact information for a party knowledgeable about a particular processing step)
 - dataqual = Data Quality Information – a general assessment of the quality of the data set.
 - lineage = Lineage -- information about the events, parameters, and source data which constructed the data set, and information about the responsible parties.
 - procstep = Process Step – information about a single event.
 - proccont = Process Contact -- the party responsible for the processing step information.
3. **distinfo > distrib** (information about the party responsible for data distribution)
 - distinfo = Distribution Information -- information about the distributor of and options for obtaining the data set.
 - distrib = Distributor -- the party from whom the data set may be obtained.
4. **distinfo > stdorder > digform > digtopt > onlinopt > computer** (instructions for establishing communications with the distribution computer)
 - distinfo = Distribution Information -- information about the distributor of and options for obtaining the data set.
 - stdorder = Standard Order Process -- the common ways in which the data set may be obtained or received, and related instructions and fee information
 - digform = Digital Form -- the description of options for obtaining the data set on computer-compatible media.
 - digtopt = Digital Transfer Option -- the means and media by which a data set is obtained from the distributor
 - onlinopt = Online Option -- information required to directly obtain the data set electronically.
 - computer = Computer Contact Information -- instructions for establishing communications with the distribution computer.

For ISO formatted metadata, look for contact information in the **CI_ResponsibleParty** tag:

```
<contact>
  <CI_ResponsibleParty>
    <organisationName>
      <gco:CharacterString>USFS Chief Information Office, Enterprise Data Warehouse
    </gco:CharacterString>
    </organisationName>
    <contactInfo>
      <CI_Contact>
        <phone>
          <CI_Telephone>
            <voice>
              <gco:CharacterString>Please send an e-mail to the address below.</gco:CharacterString>
            </voice>
          </CI_Telephone>
        </phone>
        <address>
          <CI_Address>
            <city>
              <gco:CharacterString>Washington</gco:CharacterString>
            </city>
            <administrativeArea>
              <gco:CharacterString>DC</gco:CharacterString>
            </administrativeArea>
            <postalCode>
              <gco:CharacterString>20250</gco:CharacterString>
            </postalCode>
            <electronicMailAddress>
              <gco:CharacterString>data@fs.fed.us</gco:CharacterString>
            </electronicMailAddress>
          </CI_Address>
        </address>
      </CI_Contact>
    </contactInfo>
    <role>
      <CI_RoleCode codeList=
        "http://www.isoto211.org/2005/resources/Codelist/gmxCodeLists.xml#CI_RoleCode" codeListValue=
        "pointOfContact" codeSpace="ISOTC211/19115">pointOfContact</CI_RoleCode>
    </role>
  </CI_ResponsibleParty>
</contact>
```

Figure 54: Sample Contact Information in ISO Formatted Metadata in Notepad++

This example comes from 'National Forest System Land Units' dataset ('S_USA.NFSLandUnit.gdb' file geodatabase, 'NFSLandUnit' feature class).

6.3 Lineage and Process Steps

The **lineage** tag in the EDW Metadata Template holds information about the events, parameters, and source data which constructed the dataset, and information about the responsible parties. This includes information about each source in the **srcinfo** tag and processing steps in the **procstep** tag. The **srcinfo** tag is compound and contains the following tags (indented here to indicate their hierarchy):

srccite: Source Citation -- reference information for a source data set.

citeinfo: Citation Information -- reference information for a source data set.

origin: Source Citation Originator -- the name of an organization or individual that developed the source data set. If the name of editors or compilers are provided, the name must be followed by "(ed.)" or "(comp.)" respectively.

pubdate: Source Citation Publication Date – the date when the source data set is published or otherwise made available for release.

title: Source Citation Title – the name by which the source data set is known.

geoform: Source Citation Geospatial Data Presentation Form – the mode in which the source geospatial data are represented (e.g. “atlas”, “spreadsheet”, “remote sensing image”, “raster digital data”, or free text).

typesrc: Type of Source Media – medium of the source data set (e.g. “disc”, “paper”, “online”, “CD-ROM”, or free text)

srctime: Source Time Period of Content – time period(s) for which the source data set corresponds to the ground.

timeinfo: Time Period Information – information about the date and time of an event.

rngdates: Range of Dates/Times – means of encoding a range of dates and times.

begdate: Beginning Date – the first year (and optionally month, or month and day) of the event.

enddate: Ending Date – the last year (and optionally month, or month and day) of the event.

srccurr: Source Currentness Reference – the basis on which the source time period of content information is determined.

srccitea: Source Citation Abbreviation – short-form alias for the source citation.

srccontr: Source Contribution – brief statement identifying the information contributed by the source to the data set.

The **procstep** tag is compound as well, but contains just a couple of tags:

procdesc: Process Description – an explanation of the event and related parameters or tolerances.

procdte: Process date – the date when the event was completed.

The information in the **procstep** tag may provide an overview of the processing that was performed to create the dataset, or it may be broken down further into a series of steps. In some cases, this may be quite an extensive list of steps. Settings in the ArcGIS software can be enabled to add an entry to the metadata each time a geoprocessing tool is run on a dataset (some examples of geoprocessing tools are ‘Clip’, ‘Buffer’, and ‘Union’).

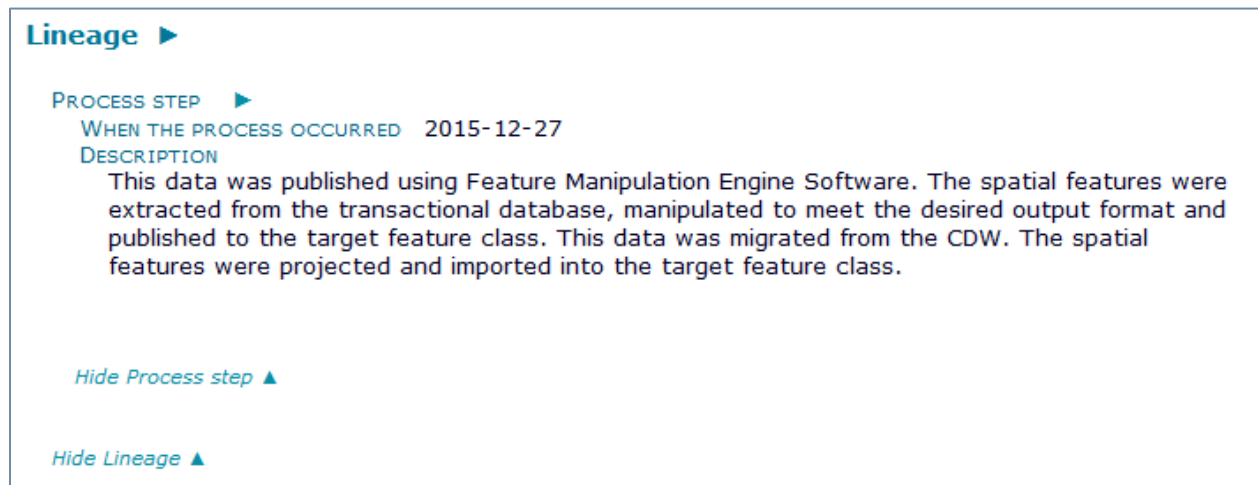


Figure 55: Sample Process Step Information in Metadata in ArcGIS

This example comes from the ‘National Wilderness Areas’ dataset (‘S_USA.Wilderness.gdb’ file geodatabase, ‘Wilderness’ feature class). This dataset has a single ‘Process Step’ entry. Notice that in this example, the **lineage** tag contains information on processing steps, but nothing related to the Source Citation (**srccite** tag). This may be the case for some datasets.

```

<lineage>
  <procstep>
    <procdesc>This data was published using Feature Manipulation Engine
    Software. The spatial features were extracted from the
    transactional database, manipulated to meet the desired output
    format and published to the target feature class. This data was
    migrated from the CDW. The spatial features were projected and
    imported into the target feature class.</procdesc>
    <procdate>20160302</procdate>
  </procstep>
</lineage>

```

Figure 56: Sample Process Step Information in Metadata in Notepad++

This example comes from the 'National Wild and Scenic River Lines (Feature Layer)' dataset ('National_Wild_and_Scenic_River_Lines__Feature_Layer.shp' shapefile).

When viewing metadata formatted using the ISO standard, you may also search for a **lineage** tag to find information on the events and source data used to construct the dataset. This includes processing steps in the **LI_ProcessStep** tag and **LI_Source** tag for information on the sources used in the development of the dataset.

```

<lineage>
  <LI_Lineage>
    <processStep>
      <LI_ProcessStep>
        <description>
          <gco:CharacterString>This data was published using Feature Manipulation Engine Software.
          The spatial features were extracted from the transactional database, manipulated to meet
          the desired output format and published to the target feature class. This data was migrated
          from the CDW. The spatial features were projected and imported into the target feature
          class.</gco:CharacterString>
        </description>
        <dateTime>
          <gco:DateTime>2015-12-27T00:00:00</gco:DateTime>
        </dateTime>
      </LI_ProcessStep>
    </processStep>
  </LI_Lineage>
</lineage>

```

Figure 57: Sample Lineage Information in ISO Formatted Metadata in Notepad++

This example comes from the 'National Wilderness Areas' dataset ('S_USA.Wilderness.gdb' file geodatabase, 'Wilderness' feature class).

6.4 Coordinate System

Information on the coordinate system of the dataset can be found in the **geodetic** tag in the EDW Metadata Template which is nested in **spref > horizsys**. Several tags are nested in the **geodetic** tag:

- horizdn**: Horizontal Datum Name -- the identification given to the reference system used for defining the coordinates of points.
- ellips**: Ellipsoid Name -- identification given to established representations of the Earth's shape.
- semiaxis**: Semi-major Axis -- radius of the equatorial axis of the ellipsoid.
- denflat**: Denominator of Flattening Ratio -- the denominator of the ratio of the difference between the equatorial and polar radii of the ellipsoid when the numerator is set to 1.

Like other tags in the EDW Metadata Template, information will only be available in the **geodetic** tag if it has been filled in. However, regardless of the contents- or presence- of this tag in the metadata, information on a dataset's coordinate system is automatically populated upon its import to ArcGIS software. You can find this automatically generated information under the **Spatial Reference** header in the **Description** tab.

Spatial Reference ▶

ARCGIS COORDINATE SYSTEM
 * TYPE Geographic
 * GEOGRAPHIC COORDINATE REFERENCE GCS_North_American_1983
 * COORDINATE REFERENCE DETAILS
 GEOGRAPHIC COORDINATE SYSTEM
 WELL-KNOWN IDENTIFIER 4269
 X ORIGIN -400
 Y ORIGIN -400
 XY SCALE 99999999.999999985
 Z ORIGIN -100000
 Z SCALE 10000
 M ORIGIN -100000
 M SCALE 10000
 XY TOLERANCE 8.9900000000000004e-008
 Z TOLERANCE 0.001
 M TOLERANCE 0.001
 HIGH PRECISION true
 LEFT LONGITUDE -180
 LATEST WELL-KNOWN IDENTIFIER 4269
 WELL-KNOWN TEXT GEOGCS["GCS_North_American_1983",DATUM
 ["D_North_American_1983",SPHEROID["GRS_1980",6378137.0,298.257222101]],PRIMEM
 ["Greenwich",0.0],UNIT["Degree",0.0174532925199433],AUTHORITY["EPSG",4269]]

 REFERENCE SYSTEM IDENTIFIER
 * VALUE 4269
 * CODESPACE EPSG
 * VERSION 6.12(3.0.1)

Hide Spatial Reference ▲

Figure 58: Sample Coordinate System Information in Metadata in ArcGIS

This is an example of the automatically generated coordinate system information that ArcGIS software will create upon a dataset's import. This example comes from the 'National Wilderness Areas' dataset ('S_USA.Wilderness.gdb' file geodatabase, 'Wilderness' feature class).

If you are viewing ISO formatted metadata, look for the **referenceSystemInfo** tag:

```
<referenceSystemInfo>
  <MD_ReferenceSystem>
    <referenceSystemIdentifier>
      <RS_Identifier>
        <code>
          <gco:CharacterString>4269</gco:CharacterString>
        </code>
        <codeSpace>
          <gco:CharacterString>EPSG</gco:CharacterString>
        </codeSpace>
        <version>
          <gco:CharacterString>6.12 (3.0.1)</gco:CharacterString>
        </version>
      </RS_Identifier>
    </referenceSystemIdentifier>
  </MD_ReferenceSystem>
</referenceSystemInfo>
```

Figure 59: Sample Coordinate System Information in ISO Formatted Metadata in Notepad++

This example comes from the 'National Wilderness Areas' dataset ('S_USA.Wilderness.gdb' file geodatabase, 'Wilderness' feature class).

6.5 Extent

Information on the spatial extent of a dataset can be found in the **bounding** tag in the EDW Metadata Template which is nested in the **metadata > idinfo > spdom** tags. The **bounding** tag contains four tags that indicate the bounding coordinates of the dataset:

- westbc:** West Bounding Coordinate -- western-most coordinate of the limit of coverage expressed in longitude.
- eastbc:** East Bounding Coordinate -- eastern-most coordinate of the limit of coverage expressed in longitude.
- northbc:** North Bounding Coordinate -- northern-most coordinate of the limit of coverage expressed in latitude.
- southbc:** South Bounding Coordinate -- southern-most coordinate of the limit of coverage expressed in latitude.

```
SPATIAL DOMAIN
BOUNDING COORDINATES
WEST BOUNDING COORDINATE  -163.299951
EAST BOUNDING COORDINATE  -65.748577
NORTH BOUNDING COORDINATE  69.055061
SOUTH BOUNDING COORDINATE  18.233282
```

Figure 60: Sample Extent Information Metadata in ArcCatalog

Example bounding coordinates as displayed in the **Description** tab in ArcCatalog.

```

<spdom>
  <bounding>
    <westbc>-163.299951</westbc>
    <eastbc>-65.748577</eastbc>
    <northbc>69.055061</northbc>
    <southbc>18.233282</southbc>
  </bounding>
</spdom>

```

Figure 61: Sample Extent Information Metadata in Notepad++

Example is from the same dataset as Figure 19.

If you are viewing ISO formatted metadata, look for the **geographicElement** tag in the **extent > EX_Extent** tags:

```

<extent>
  <EX_Extent>
    <geographicElement>
      <EX_GeographicBoundingBox>
        <westBoundLongitude>
          <gco:Decimal>-150.007671</gco:Decimal>
        </westBoundLongitude>
        <eastBoundLongitude>
          <gco:Decimal>-64.734329</gco:Decimal>
        </eastBoundLongitude>
        <southBoundLatitude>
          <gco:Decimal>17.738983</gco:Decimal>
        </southBoundLatitude>
        <northBoundLatitude>
          <gco:Decimal>61.51899</gco:Decimal>
        </northBoundLatitude>
      </EX_GeographicBoundingBox>
    </geographicElement>
  </EX_Extent>
</extent>

```

Figure 62: Sample Extent Information in ISO Formatted Metadata in Notepad++

In ISO formatted metadata, you will find bounding coordinates for the dataset listed out similarly to the EDW Metadata Template format, though with slightly different tag names. In ISO data, you may also see an **extentTypeCode** tag which is an indication of whether the bounding polygon encompasses an area covered by the data or an area where data is not present (not pictured above).

6.6 Accuracy

The EDW Metadata Template contains information on the dataset's horizontal and vertical accuracy as well as attribute accuracy. To find this information, look for the following tags:

- attraccr:** Attribute Accuracy Report -- an explanation of the accuracy of the identification of the entities and assignments of values in the data set and a description of the tests used.
- horizpar:** Horizontal Positional Accuracy Report -- an explanation of the accuracy of the horizontal coordinate measurements and a description of the tests used.
- vertacc:** Vertical Positional Accuracy Report -- an explanation of the accuracy of the vertical coordinate measurements and a description of the tests used.

The tags listed above are nested in the **metadata > dataqual** tags. The **horizpar** and **vertacc** tags are further nested in the **posacc** tag.

Data Quality ▶

ATTRIBUTE ACCURACY**ATTRIBUTE ACCURACY REPORT**

The Regional Land Status personnel are responsible for their local data stewardship and maintenance. The overall collection nationwide consists of 100% attribute accuracy based on currentness and completeness.

LOGICAL CONSISTENCY REPORT

Topology was created using ESRI Arc/Info software and checked for gaps, slivers, intersect errors and invalid dangling nodes. Data was confirmed complete. Standard collection procedures included edgematching between township coverage tiles. Any errors were corrected using USDA Forest Service standards and guidelines for Quality Control (QC). Region datasets followed the Washington Office standards and processes. The data was collected following FGDC standards. Quality control measures taken: this feature class is populated by an automated translation process from the source feature class that is edited and maintained by the data stewards. Only stewards with the proper role grants can edit the data. The application used for editing has built in controls to only allow valid geometry and domains to control attribute integrity.

COMPLETENESS REPORT

This theme is current to date of publication. Other themes may not contain current information.

POSITIONAL ACCURACY**HORIZONTAL POSITIONAL ACCURACY****HORIZONTAL POSITIONAL ACCURACY REPORT**

Generally the source information used to record spatial locations are from: 1) on-screen digitizing with a georeferenced topographic or image background; or 2) GPS field collected positions.

LINEAGE**PROCESS STEP****PROCESS DESCRIPTION**

This data was published using Feature Manipulation Engine Software. The spatial features were extracted from the transactional database, manipulated to meet the desired output format and published to the target feature class.

PROCESS DATE 2016-01-01

Hide Data Quality ▲

Figure 63: Sample Accuracy Information Metadata in ArcCatalog

Example accuracy information as displayed in the **Description** tab in ArcCatalog. This example comes from the 'Mineral Rights' feature layer ('Mineral_Rights__Feature_Layer.shp'). This dataset's metadata does not have any information on vertical accuracy.

```

<dataqual>
  <attracc>
    <attraccr>The Regional Land Status personnel are responsible for their
      local data stewardship and maintenance. The overall collection
      nationwide consists of 100% attribute accuracy based on currentness and
      completeness.</attraccr>
    </attracc>
    <logic>Topology was created using ESRI Arc/Info software and checked for
      gaps, slivers, intersect errors and invalid dangling nodes. Data was
      confirmed complete. Standard collection procedures included edgematching
      between township coverage tiles. Any errors were corrected using USDA
      Forest Service standards and guidelines for Quality Control (QC). Region
      datasets followed the Washington Office standards and processes. The data
      was collected following FGDC standards. Quality control measures taken:
      this feature class is populated by an automated translation process from
      the source feature class that is edited and maintained by the data
      stewards. Only stewards with the proper role grants can edit the data. The
      application used for editing has built in controls to only allow valid
      geometry and domains to control attribute integrity.</logic>
    <complete>This theme is current to date of publication. Other themes may
      not contain current information.</complete>
    <posacc>
      <horizpa>
        <horizpar>Generally the source information used to record spatial
          locations are from: 1) on-screen digitizing with a georeferenced
          topographic or image background; or 2) GPS field collected
          positions.</horizpar>
      </horizpa>
    </posacc>
    <lineage>
      <procstep>
        <procdesc>This data was published using Feature Manipulation Engine
          Software. The spatial features were extracted from the
          transactional database, manipulated to meet the desired output
          format and published to the target feature class.</procdesc>
        <procdates>20160101</procdates>
      </procstep>
    </lineage>
  </dataqual>

```

Figure 64: Sample Accuracy Information Metadata in Notepad++

The same information as in Figure 22 but displayed in Notepad++.

If you are viewing ISO formatted metadata, look for the **report** tag, which may contain the following tags:

- DQ_CompletenessCommission
- DQ_CompletenessOmission
- DQ_ConceptualConsistency
- DQ_DomainConsistency
- DQ_FormatConsistency
- DQ_TopologicalConsistency
- DQ_AbsoluteExternalPositionalAccuracy
- DQ_GriddedDataPositionalAccuracy
- DQ_RelativeInternalPositionalAccuracy
- DQ_ThematicClassificationCorrectness
- DQ_NonQuantitativeAttributeAccuracy
- DQ_QuantitativeAttributeAccuracy
- DQ_AccuracyOfATimeMeasurement
- DQ_TemporalConsistency

```

<report>
  <DQ_DomainConsistency>
    <evaluationMethodDescription>
      <gco:CharacterString>Quality control measures taken: this feature class
        is populated by an automated translation process from the source
        feature class that is edited and maintained by the data stewards. Only
        stewards with the proper role grants can edit the data. The application
        used for editing has built in controls to only allow valid geometry and
        domains to control attribute integrity.</gco:CharacterString>
    </evaluationMethodDescription>
    <result gco:nilReason="missing" />
  </DQ_DomainConsistency>
</report>
<report>
  <DQ_ConceptualConsistency>
    <measureDescription>
      <gco:CharacterString>Quality control measures taken: this feature class
        is populated by an automated translation process from the source
        feature class that is edited and maintained by the data stewards. Only
        stewards with the proper role grants can edit the data. The application
        used for editing has built in controls to only allow valid geometry and
        domains to control attribute integrity.</gco:CharacterString>
    </measureDescription>
    <result gco:nilReason="missing" />
  </DQ_ConceptualConsistency>
</report>
<report>
  <DQ_CompletenessOmission>
    <measureDescription>
      <gco:CharacterString>This theme is current to date of publication.
    </gco:CharacterString>
    </measureDescription>
    <result gco:nilReason="missing" />
  </DQ_CompletenessOmission>
</report>
<report>
  <DQ_AbsoluteExternalPositionalAccuracy>
    <measureDescription>
      <gco:CharacterString>Generally the source information used to record
        spatial locations are from: 1) on-screen digitizing with a
        georeferenced topographic or image background; or 2) GPS field
        collected positions.</gco:CharacterString>
    </measureDescription>
    <result gco:nilReason="missing" />
  </DQ_AbsoluteExternalPositionalAccuracy>
</report>

```

Figure 65: Sample Accuracy Information in ISO Formatted Metadata in Notepad++

In ISO formatted metadata, you will find accuracy information within the **report** tag. There may be several **report** tags, as in the example above. This example comes from the National Forest System Land Units' dataset ('S_USA.NFSLandUnit.gdb' file geodatabase, 'NFSLandUnit' feature class).

6.7 Currency

Information on the currency of a dataset are found in the **timeperd** tag in the EDW Metadata Template. The following tags of interest are nested in that tag:

caldate: Calendar Date -- the year (and optionally month, or month and day).

current: Currentness Reference -- the basis on which the time period of content information is determined.

The **caldate** tag is nested in the **timeinfo > sngdate** tags.

TIME PERIOD OF CONTENT
TIME PERIOD INFORMATION
SINGLE DATE/TIME
CALENDAR DATE 2016-01-01
CURRENTNESS REFERENCE
publication date

Figure 66: Sample Currency Information Metadata in ArcCatalog

Example data currency information as displayed in the **Description** tab in ArcCatalog.

```
<timeperd>
  <timeinfo>
    <sngdate>
      <caldate>20160101</caldate>
    </sngdate>
  </timeinfo>
  <current>publication date</current>
</timeperd>
```

Figure 67: Sample Currency Information Metadata in Notepad++

Example data currency information as displayed in Notepad++.

If you are viewing ISO formatted metadata, look for the **EX_TemporalExtent** tag (in the **extent** tag):

```
<extent>
  <EX_Extent>
    <description>
      <gco:CharacterString>Publication Date</gco:CharacterString>
    </description>
    <temporalElement>
      <EX_TemporalExtent>
        <extent>
          <gml:TimeInstant gml:id="ID0EZEAE">
            <gml:timePosition>2015-12-27</gml:timePosition>
          </gml:TimeInstant>
        </extent>
      </EX_TemporalExtent>
    </temporalElement>
  </EX_Extent>
</extent>
```

Figure 68: Sample Currency Information in ISO Formatted Metadata in Notepad++

In ISO formatted metadata, you will find data currency information within the **report** tag. There may be several **extent** tags in a single metadata file (see section 4.2.4 for another example).

6.8 Refresh Rate

The refresh rate, or update frequency, of a dataset is found in the **status** tag of the EDW Metadata Template. The following two tags are nested in this tag:

progress: Progress -- the state of the data set.

update: Maintenance and Update Frequency -- the frequency with which changes and additions are made to the data set after the initial data set is completed.

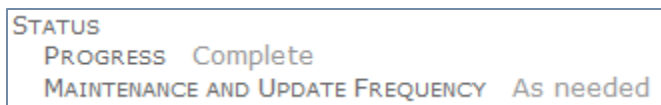


Figure 69: Sample Refresh Rate Information Metadata in ArcCatalog

Example data refresh rate information as displayed in the **Description** tab in ArcCatalog.

```
<status>
  <progress>Complete</progress>
  <update>As needed</update>
</status>
```

Figure 70: Sample Refresh Rate Information Metadata in Notepad++

Example data refresh rate information as displayed in Notepad++.

For ISO, look for the **resourceMaintenance** tag:

```
<resourceMaintenance>
  <MD_MaintenanceInformation>
    <maintenanceAndUpdateFrequency>
      <MD_MaintenanceFrequencyCode codeList=
        "http://www.iso211.org/2005/resources/Codelist/gmxCodeLists.xml#MD_Main
        tenanceFrequencyCode" codeListValue="weekly" codeSpace="ISOTC211/19115">
        weekly</MD_MaintenanceFrequencyCode>
    </maintenanceAndUpdateFrequency>
  </MD_MaintenanceInformation>
</resourceMaintenance>
```

Figure 71: Sample Refresh Rate Information in ISO Formatted Metadata in Notepad++

In ISO formatted metadata, look for refresh rate information in the **resourceMaintenance** tag. In the example above, a code was used to fill in this information (**MD_MaintenanceFrequencyCode**). You may see codes such as this in ISO formatted metadata.

6.9 Attribute Values

Several tags within the **eainfo** (Entity and Attribute Information) > **detailed** tags in the EDW Metadata Template describe attribute values for the dataset. Of particular interested are:

attrlabl: Attribute Label -- the name of the attribute.

attrdef: Attribute Definition -- the description of the attribute.

attrdefs: Attribute Definition Source -- the authority of the definition.

These tags are nested within the **attr** tag and it is very likely for there to be more than one **attr** entry in a metadata file.

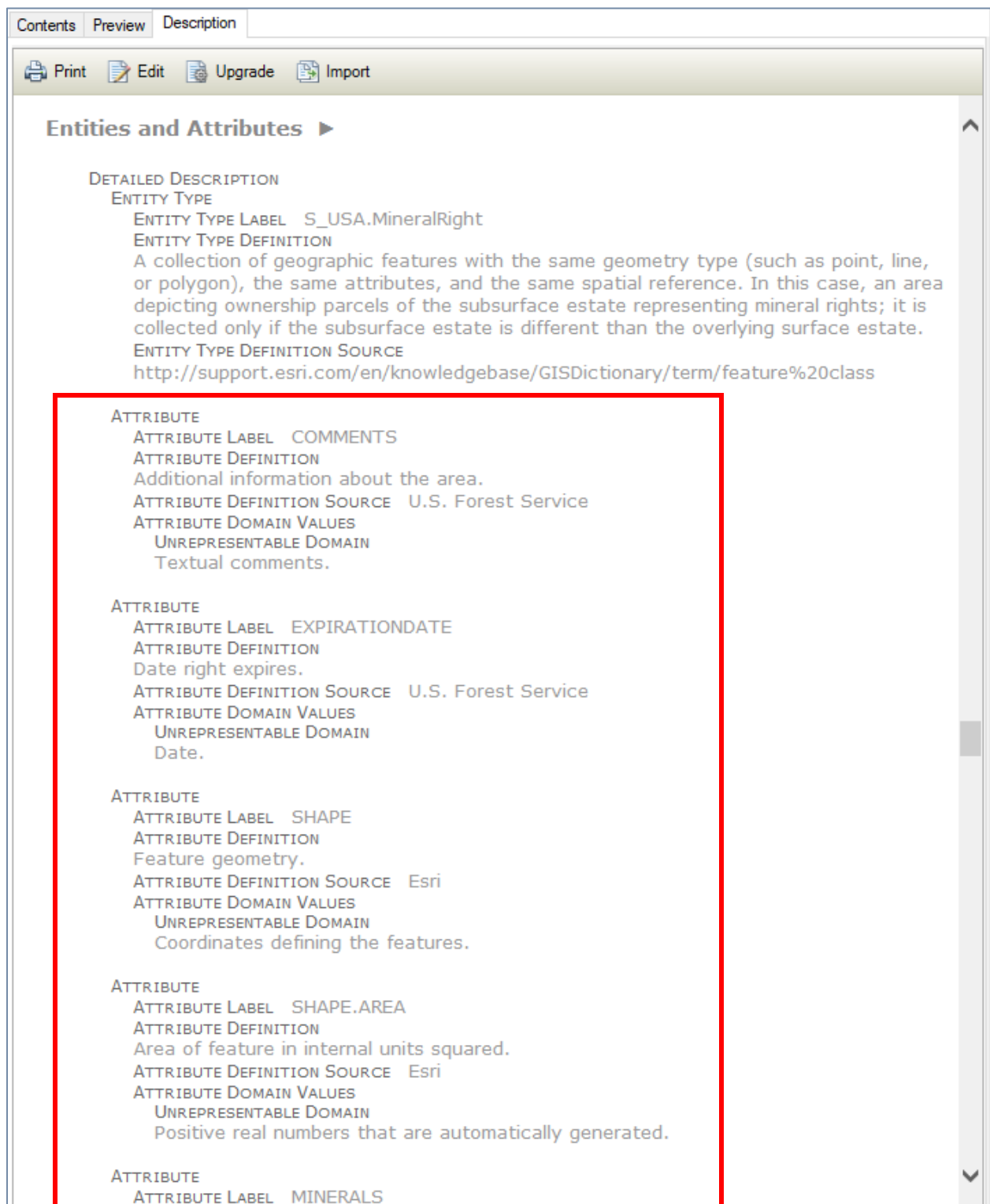


Figure 72: Sample Attribute Values Information Metadata in ArcCatalog

Example attribute values information as displayed in the **Description** tab in ArcCatalog. Notice in this dataset that there are many 'Attribute' entries- one for each attribute in the dataset.

```

<eainfo>
  <detailed>
    <enttyp>
      <enttyp1>S_USA.MineralRight</enttyp1>
      <enttypd>A collection of geographic features with the same geometry
        type (such as point, line, or polygon), the same attributes, and
        the same spatial reference. In this case, an area depicting
        ownership parcels of the subsurface estate representing mineral
        rights; it is collected only if the subsurface estate is different
        than the overlying surface estate.</enttypd>
      <enttypds>
        http://support.esri.com/en/knowledgebase/GISDictionary/term/feature%2
        0class</enttypds>
    </enttyp>
    <attr>
      <attrlabl>COMMENTS</attrlabl>
      <attrdef>Additional information about the area.</attrdef>
      <attrdefs>U.S. Forest Service</attrdefs>
      <attrdomv>
        <udom>Textual comments.</udom>
      </attrdomv>
    </attr>
    <attr>
      <attrlabl>EXPIRATIONDATE</attrlabl>
      <attrdef>Date right expires.</attrdef>
      <attrdefs>U.S. Forest Service</attrdefs>
      <attrdomv>
        <udom>Date.</udom>
      </attrdomv>
    </attr>
    <attr>
      <attrlabl>SHAPE</attrlabl>
      <attrdef>Feature geometry.</attrdef>
      <attrdefs>Esri</attrdefs>
      <attrdomv>
        <udom>Coordinates defining the features.</udom>
      </attrdomv>
    </attr>
  </detailed>
</eainfo>

```

Figure 73: Sample Attribute Value Information Metadata in Notepad++

Example attribute value information as displayed in Notepad++. This is the same dataset as in Figure 31.

Additional information about attribute values may be gleaned from the contents of the **overview** tag which is also nested within **eainfo**. The **overview** tag contains the following:

eaover: Entity and Attribute Overview -- detailed summary of the information contained in a data set.

eadetcit: Entity and Attribute Detail Citation -- reference to the complete description of the entity types, attributes, and attribute values for the data set.

For ISO, look for the **FC_FeatureCatalog** tag (if it exists) and the tags nested within. Regardless of the presence of these tags, if viewed using ArcGIS, information about the dataset attribute fields will be displayed under the **Fields** header in the **Description** tab.

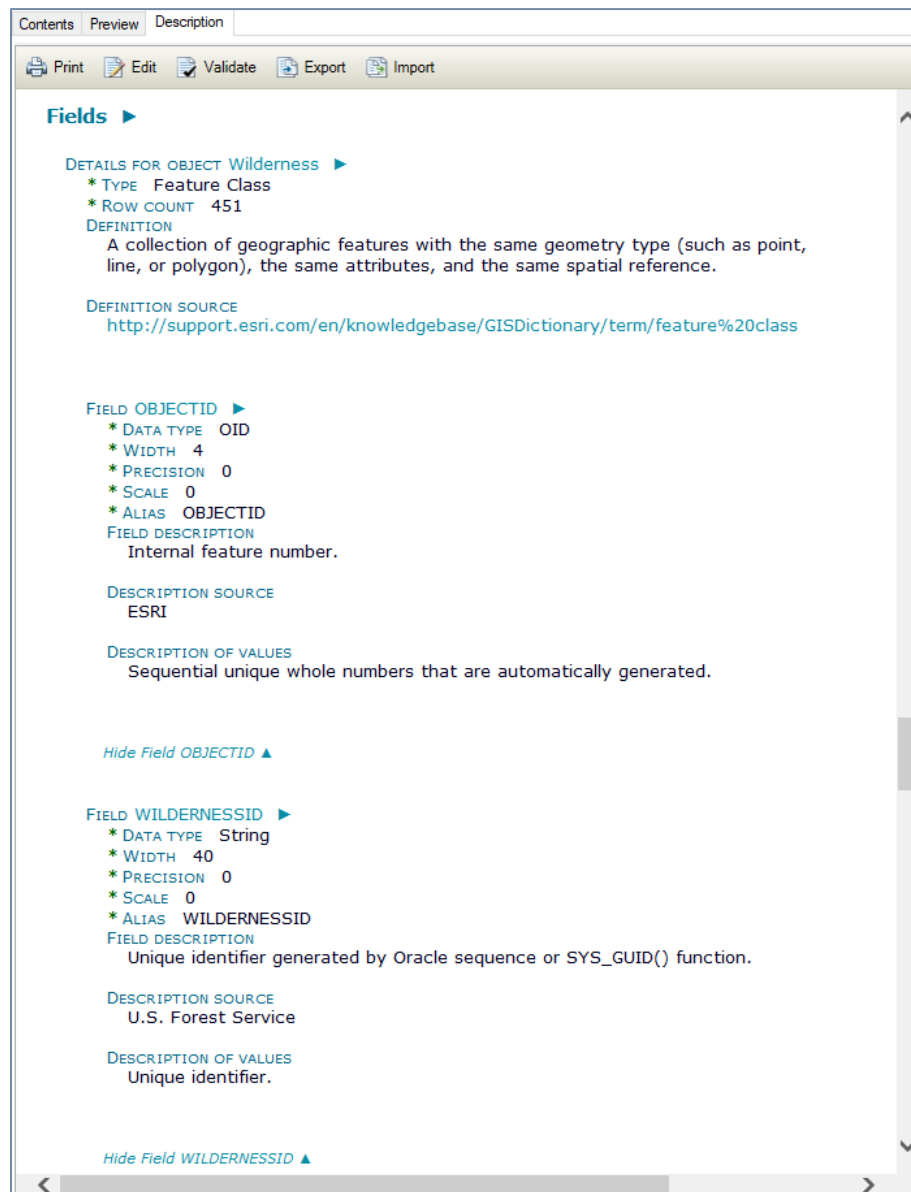


Figure 74: Sample Attribute Value Information in ISO Formatted Metadata in ArcGIS

Regardless of whether the ISO metadata itself contains information on a dataset's attribution, ArcGIS will display information such as this in the upper portion of the **Description** tab. Look for the **Fields** header. This sample comes from the 'National Wilderness Areas' dataset ('S_USA.Wilderness.gdb' file geodatabase, 'Wilderness' feature class).

6.10 Accepted Domain Values for Attribution

Several tags within the **eainfo** (Entity and Attribute Information) > **detailed** tags in the EDW Metadata Template describe accepted domain values for attributes in the dataset. Of particular interest are (and indented here to indicate their hierarchy):

attrdomv: Attribute Domain Values -- the valid values that can be assigned for an attribute.

udom: Unrepresentable Domain -- description of the values and reasons why they cannot be represented.

edom: Enumerated Domain -- the members of an established set of valid values.

edomv: Enumerated Domain Value -- the name or label of a member of the set.

edomvd: Enumerated Domain Value Definition -- the description of the value.

edomvds: Enumerated Domain Value Definition Source -- the authority of the definition.

LIST OF VALUES			
VALUE	Partner WSR		
DESCRIPTION	Partner WSR		
ENUMERATED DOMAIN VALUE DEFINITION SOURCE	U.S. Forest Service		
VALUE	Partnership and State Administered		
DESCRIPTION	Partnership and State Administered		
ENUMERATED DOMAIN VALUE DEFINITION SOURCE	U.S. Forest Service		
VALUE	State Administered		
DESCRIPTION	State Administered		
ENUMERATED DOMAIN VALUE DEFINITION SOURCE	U.S. Forest Service		

Figure 75: Sample Accepted Domain Values for Attribution in Metadata in ArcCatalog (top)

Example accepted domain values for attribution as displayed in the top portion of the **Description** tab in ArcCatalog.

ATTRIBUTE DOMAIN VALUES			
ENUMERATED DOMAIN			
ENUMERATED DOMAIN VALUE	Partner WSR		
ENUMERATED DOMAIN VALUE DEFINITION	Partner WSR		
ENUMERATED DOMAIN VALUE DEFINITION SOURCE	U.S. Forest Service		
ATTRIBUTE DOMAIN VALUES			
ENUMERATED DOMAIN			
ENUMERATED DOMAIN VALUE	Partnership and State Administered		
ENUMERATED DOMAIN VALUE DEFINITION	Partnership and State Administered		
ENUMERATED DOMAIN VALUE DEFINITION SOURCE	U.S. Forest Service		
ATTRIBUTE DOMAIN VALUES			
ENUMERATED DOMAIN			
ENUMERATED DOMAIN VALUE	State Administered		
ENUMERATED DOMAIN VALUE DEFINITION	State Administered		
ENUMERATED DOMAIN VALUE DEFINITION SOURCE	U.S. Forest Service		

Figure 76: Sample Accepted Domain Values for Attribution in Metadata in ArcCatalog (bottom)

Example accepted domain values for attribution as displayed in the bottom portion of the **Description** tab in ArcCatalog (the bottom portion here refers to below the gray 'FGDC Metadata (read-only)' header).


```

<attrdomv>
  <edom>
    <edomv>Partner WSR</edomv>
    <edomvd>Partner WSR</edomvd>
    <edomvds>U.S. Forest Service</edomvds>
  </edom>
</attrdomv>
<attrdomv>
  <edom>
    <edomv>Partnership and State Administered</edomv>
    <edomvd>Partnership and State Administered</edomvd>
    <edomvds>U.S. Forest Service</edomvds>
  </edom>
</attrdomv>
<attrdomv>
  <edom>
    <edomv>State Administered</edomv>
    <edomvd>State Administered</edomvd>
    <edomvds>U.S. Forest Service</edomvds>
  </edom>
</attrdomv>

```

Figure 77: Sample Accepted Domain Values for Attribution in Metadata in Notepad++
 Example accepted domain values for attribution as displayed in Notepad++.

Additional information about attribute values may be gleaned from the contents of the **overview** tag which is also nested within **eainfo**. The **overview** tag contains the following:

- eaover:** Entity and Attribute Overview -- detailed summary of the information contained in a data set.
- eadetcit:** Entity and Attribute Detail Citation -- reference to the complete description of the entity types, attributes, and attribute values for the data set.

For ISO, look for the **FC_FeatureCatalog** tag and the tags nested within. Regardless of the presence of these tags, if viewed using ArcGIS, information about any domains for the dataset attribute fields will be displayed under the **Fields** header in the **Description** tab.



Figure 78: Sample Accepted Domain Values for Attribution in ISO Formatted Metadata in ArcGIS

Regardless of whether the ISO metadata itself contains information on a dataset's attribution, ArcGIS will display information such as this in the upper portion of the **Description** tab. Look for the **Fields** header. This sample comes from the 'National Wilderness Areas' dataset ('S_USA.Wilderness.gdb' file geodatabase, 'Wilderness' feature class).

APPENDIX A: EDW METADATA TEMPLATE

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE metadata SYSTEM "http://fgdc.gov/metadata/fgdc-std-001-1998.dtd">
<metadata>
  <idinfo>
    <citation>
      <citeinfo>
        <origin><!--(Default) USDA Forest Service--></origin>
        <pubdate><!--Date published--></pubdate>
        <title><!--Name of dataset (ok to use spaces)--></title>
        <geoform><!--vector, raster, or table --></geoform>
        <onlink><!--For PUBLIC datasets use http://data.fs.usda.gov/geodata/edw/datasets.php. For INTERNAL
data sets in the dashboard, use
https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=da0bbc54ab834beaae20c2b5b35d28bc. Any
other URL relevant to the dataset can also be used here. Tag can be repeated.--></onlink>
      </citeinfo>
    </citation>
    <descript>
      <abstract><!--A brief narrative summary of the data set--></abstract>
      <purpose><!--A summary of the intentions with which the data set was developed.--></purpose>
      <supplinf><!--Other descriptive information about the dataset (Optional)--></supplinf>
    </descript>
    <timeperd>
      <timeinfo>
        <sngdate>
          <caldate><!--Time period: The year that the data itself represents. For example, if it was digitized from
base imagery, this would be the year the imagery was taken. Otherwise, if it is data collected in the field then it
would be the range of dates that the data was collected. If using a range of dates, the tags would need to be
changed from <sngdate> to <rngdates>.--></caldate>
        </sngdate>
      </timeinfo>
      <current><!--Currentness reference of the time period (above). Common examples include:
'Ground Condition' (if dataset was created using aerial photography as a reference),
```



'Recorded' (if the data was officially recorded as an observation in the field),

'Publication Date' (if the dataset was created from a source like a historical USGS Topo map)--></current>

</timeperd>

<status>

<progress><!--Complete, In work, or Planned--></progress>

<update><!--None planned, As needed, Weekly, Monthly, Annually--></update>

</status>

<spdom>

<bounding>

<!--autopopulated by esri-->

<westbc/>

<eastbc/>

<northbc/>

<southbc/>

</bounding>

</spdom>

<keywords>

<theme>

<themekt><!--(Default) ISO 19115 Topic Categories--></themekt>

<themekey><!--Use keywords from https://geo-ide.noaa.gov/wiki/index.php?title=ISO_Topic_Categories---></themekey>

</theme>

</keywords>

<acconst><!--(Default) Access Constraints:

'None' (if data set is accessible to the public as well as internal Forest Service users);

'Internal Only' (if data set accessible to Forest Service users with an Active Directory account);

'Restricted' (if data set accessible to a specified set of Forest Service users due to data sensitivity)-->

</acconst>

<useconst><!--(Default) The USDA Forest Service makes no warranty, expressed or implied, including the warranties of merchantability and fitness for a particular purpose, nor assumes any legal liability or responsibility for the accuracy, reliability, completeness or utility of these geospatial data, or for the improper or incorrect use of these geospatial data.

These geospatial data and related maps or graphics are not legal documents and are not intended to be used as such. The data and maps may not be used to determine title, ownership, legal descriptions or boundaries, legal jurisdiction, or restrictions that may be in place on either public or private land. Natural hazards may or may not be depicted on the data and maps, and users should exercise due caution. The data are dynamic and may change over time. The user is responsible to verify the limitations of the geospatial data and to use the data accordingly.--></useconst>

<ptcontac>

<cntinfo>

<cntorgp>

<cntorg><!--(Default) USFS Chief Information Office, Enterprise Data Warehouse--></cntorg>

</cntorgp>

<cntaddr>

<addrtype><!--(Default) physical--></addrtype>

<city><!--(Default) Washington--></city>

<state><!--(Default) DC--></state>

<postal><!--(Default) 20250--></postal>

<country><!--(Default) US--></country>

</cntaddr>

<cntvoice><!--(Default) Please send an e-mail to the address below.--></cntvoice>

<cntemail><!--(Default) SM.FS.data@usda.gov--></cntemail>

</cntinfo>

</ptcontac>

<datacred><!--Recognition of those who contributed to the data set (optional)--></datacred>

<native><!--(Default) Version 6.2 (Build 9200) ; Esri ArcGIS 10.5.1.7333--></native>

</idinfo>

<dataqual>

<logic><!--Quality checks on the data or measures of accuracy--></logic>

<complete><!--(Default) Data is complete as of publication.--></complete>

<posacc>

<horizpa>

<horizpar><!--Explanation of horizontal accuracy. Example: Generally the source information used to record spatial locations are from: 1) on-screen digitizing with a georeferenced topographic or image background; or 2) GPS field collected positions. Horizontal accuracy is variable.--></horizpar>

</horizpa>

</posacc>

<lineage>

<procstep>

<procdesc><!--Description of how the data set was produced or derived from the original source--></procdesc>

<procdte><!--The date that this happened.--></procdte>

</procstep>

</lineage>

</dataqual>

<spdoinfo>

<!--This section auto populated by esri upon import-->

<direct></direct>

<ptvctinf>

<sdtsterm>

<sdtstype/>

<ptvctcnt/>

</sdtsterm>

</ptvctinf>

</spdoinfo>

<spref>

<!--This section auto populated by esri upon import-->

<horizsys>

<geograph>

<latres/>

<longres/>

<geogunit/>

</geograph>

<geodetic>


```

    <horizdn/>

    <ellips/>

    <semiaxis/>

    <denflat/>

  </geodetic>

</horizsys>

</spref>

<eainfo>
  <detailed>
    <enttyp>
      <enttypi><!--autopopulated filename--></enttypi>
      <enttypd><!--(Default) Feature class: A collection of geographic features with the same geometry
        type (such as point, line, or polygon), the same attributes, and the same
        spatial reference.--></enttypd>
      <enttypds><!--(Default) ESRI GIS Dictionary--></enttypds>
    </enttyp>
    <attr>
      <!--This section is needed for every attribute field-->
      <attrlabl><!--Field name--></attrlabl>
      <attrdef><!--Definition--></attrdef>
      <attrdefs><!--Source of the definition (e.g. U.S. Forest Service)--></attrdefs>
      <attrdomv>
        <!--List of possible values and their definitions-->
        <edom>
          <!--edom is used when there is a specific list of domain values. Repeat for every possible value.
          If there is a link to a list of values then use the <codesetd> tag instead.
          If the value could be any text or number then use the <uodom> tag instead.
          If the values fall within a specific range of numbers then use the <rdom> tag instead.-->
          <edomv><!--Value--></edomv>
          <edomvd><!--Definition--></edomvd>
          <edomvds><!--Source of definition (e.g. USFS)--></edomvds>

```

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    </edom>
  </attrdomv>
</attr>
</detailed>
</eainfo>
<distinfo>
  <distrib>
    <cntinfo>
      <cntorgp>
        <cntorg><!--(Default) USFS Chief Information Office, Enterprise Data Warehouse--></cntorg>
      </cntorgp>
      <cntaddr>
        <addrtype><!--(Default) physical--></addrtype>
        <city><!--(Default) Washington--></city>
        <state><!--(Default) DC--></state>
        <postal><!--(Default) 20250--></postal>
      </cntaddr>
      <cntvoice><!--(Default) Please send an e-mail to the address below.--></cntvoice>
      <cntemail><!--(Default) SM.FS.data@usda.gov--></cntemail>
    </cntinfo>
  </distrib>
  <distliab><!--(Default) The U.S. Forest Service makes no warranty, express or implied, nor assumes any
    liability or responsibility for the accuracy, reliability, completeness, or utility of
    these geospatial data or for the improper or incorrect use of those data. The data are
    dynamic and may change over time. The user is responsible for verifying the limitations
    of the geospatial data and for using the data accordingly.--></distliab>
</distinfo>
<metainfo>
  <metd><!--Date that this metadata XML was last updated--></metd>
  <metc>
    <cntinfo>

```

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<cntorgp>
  <cntorg><!--(Default) USFS Chief Information Office, Enterprise Data Warehouse--></cntorg>
</cntorgp>
<cntaddr>
  <addrtype><!--(Default) physical--></addrtype>
  <city><!--(Default) Washington--></city>
  <state><!--(Default) DC--></state>
  <postal><!--(Default) 20250--></postal>
</cntaddr>
<cntvoice><!--(Default) Please send an e-mail to the address below.--></cntvoice>
<cntemail><!--(Default) SM.FS.data@usda.gov--></cntemail>
</cntinfo>
</metc>
<metstdn><!--(Default) FGDC Content Standard for Digital Geospatial Metadata--></metstdn>
<metstdv><!--(Default) FGDC-STD-001-1998--></metstdv>
</metainfo>
</metadata>

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