NRCS Geo Portal for ArcGIS

Management Guide

April 27, 2017
Change History

[Note: only a brief summary of changes is listed (new features, upgrade process, etc.). Focus on items that will affect Production.]

<table>
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<th>Application Version</th>
<th>Deployment Date</th>
<th>Summary of Changes that Affect PSO</th>
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<tr>
<td>1</td>
<td>6-June-16</td>
<td>Kevin Knight: Initial version</td>
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<td>2</td>
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<td>Kevin Knight: Revisions from comments</td>
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"... it is fine to use our installation documentation as an input to your own internal documentation [refers to this document]."

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1 Introduction

The NRCS Geo Portal (also referred to as Portal) for ArcGIS facilitates the sharing of GIS maps, applications, and data with other GIS users throughout NRCS. The hosted content is delivered through a website, internal to the USDA firewall, which can be customized to fit the needs of NRCS.

With Portal the NRCS can:

- Create, save, and share web maps
- Create, save, and share web mapping apps
- Create geoprocessing apps in ArcGIS Server and deploy to users of the Portal
- Target information sharing to specific audiences through the use of Groups
- Share map and layer packages for use in ArcGIS Desktop
- Create and share hosted feature services to be consumed by agency web clients such as the Conservation Desktop

The NRCS Portal for ArcGIS production site is deployed behind the USDA firewall at the OCIO, National Information Technology Center (NITC) in Kansas City. Because the NRCS Portal is behind the USDA firewall – it can host layers and services that would not normally be shared through public-facing applications such as ArcGIS Online or public facing web pages.

Security features, such as use of the USDA e-Authentication login and LincPass (PIV) validate access to data and services and enforce assignment of roles. Non-public facing services can be hosted and shared with agency users. Sensitive data and services such as threatened and endangered species (T&E), wetlands determinations, and cultural resources can be made available for internal consumption by agency conservation planning client applications such as Conservation Desktop.

The purpose of this document is to describe the clients, accounts, roles, policies, content, curation, and limitations for the NRCS Portal for ArcGIS. Policy guidance for publishing and accessing Portal content as well as training and support are described.

Policy: Until further notice - content directed to general public users shall be published in the NRCS ArcGIS Online cloud service.


1.1 Common clients of the NRCS Geo Portal for ArcGIS

Portal clients consume Portal maps, layers, scenes, and apps. Some clients also provide a pathway to publishing data as layers and services to Portal.

1.1.1 ArcGIS Earth

ArcGIS Earth provides an interface for immersive 3D visualization that complements the capabilities of the ArcGIS Pro - 3D Scene Viewer - with a focused experience for working with geospatial data on the globe. ArcGIS Earth allows anyone in the NRCS organization to view 3D maps over the Internet or behind a firewall. (See http://doc.arcgis.com/en/arcgis-earth/).

1.1.2 ArcGIS for Desktop

ArcGIS for Desktop includes advanced capabilities to author, edit, and analyze spatial data. Users can sign in to NRCS Portal for ArcGIS from ArcGIS for Desktop and use the maps and layers in the agency portal. ArcMap also provides a pathway to publish data as layers and services on the NRCS Portal. See (https://desktop.arcgis.com/en/arcmap/).
1.1.3 ArcGIS Pro

- ArcGIS Pro is a value added application for enhanced 64-bit geoprocessing and visualization tasks. Users of ArcGIS Pro can create and consume NRCS Portal feature services and web maps. Pro provides the other pathway to Portal content publishing from the ArcGIS Desktop environment. Content created from ArcGIS Pro geoprocessing results can be shared across all of NRCS and can be consumed as a hosted feature service in clients such as CDSI Conservation Desktop. ArcGIS Pro is licensed in conjunction with ArcGIS for Desktop and is available to all NRCS users as part of the ESRI ELA. See (https://pro.arcgis.com/en/pro-app/).

1.1.4 ArcGIS Maps for Office

ArcGIS Maps for Office (formerly Esri Maps for Office) provides mapping capabilities in Microsoft Office through a Microsoft add-in. NRCS users can utilize the add-in with Microsoft Excel™ to create maps in Portal for ArcGIS that show data from Excel spreadsheets. An additional add-in for PowerPoint™ allows you to embed these maps into your presentations. See (http://www.esri.com/software/maps-for-office).

1.1.5 Collector for ArcGIS

Collector for ArcGIS is a field data collection application that is deployed on smartphones and tablets. It runs under Windows 10, Android, and iOS operating systems. The app is designed to rapidly collect and update data in the field, capture photos of relevant features, and share photos and data throughout the geospatial enterprise through Portal. Output from Collector and Portal can be redirected to ArcGIS Desktop Map and Pro applications as well as the web based Operations Dashboard. See (http://www.esri.com/products/collector-for-arcgis).

1.1.6 Explorer for ArcGIS

Explorer for ArcGIS allows anyone in the NRCS organization to find, analyze, and share maps they create in the Portal on their devices. Users can visualize data, search for places and features on their maps, sketch on the maps to highlight important features, share maps with other Explorer users, and tell stories with interactive map presentations. See (https://www.esri.com/software/arcgis/explorer).

1.1.7 Esri Maps for SharePoint

Esri Maps for SharePoint provides mapping capabilities in Microsoft SharePoint through a Map Web Part for SharePoint pages. Users can display content from Portal for ArcGIS in their SharePoint pages. It also includes workflows that allow users to spatially enable and geo-enrich SharePoint lists or external data through Business Connectivity Services (BCS). See (https://www.esri.com/software/maps-for-sharepoint).

1.1.8 Operations Dashboard for ArcGIS

Operations Dashboard creates high level operational views of geospatial data collection and monitoring workflows so that members of an organization can view and assess current status of the work taking place. Suggested uses for Operations Dashboard include tracking the progress of easement monitoring or assignment and completion of Emergency Watershed Protection Damage Survey Reports. Maps and other informational displays, such as sensor telemetry data, add dimensionality to operational status displays. See (https://www.esri.com/products/dashboard).
1.1.9 Survey123 for ArcGIS

Survey 123 for ArcGIS is a forms driven data collection application optimized for use on mobile devices such as smartphones and tablets. The application consists of a design component for designing XLS standard forms and the mobile application component for field data collection. The collection form is published to Portal as a hosted feature service and is consumed by mobile clients. Photos and point feature position coordinates are collected and attached to the form. Survey form elements are included in the published form consumed from the hosted feature service. Forms are checked out of the hosted feature service, populated with point geospatial features, photos, and responses, and then returned to the hosted feature service. Data returned to Portal from a Survey 123 field collection can be viewed within a Portal web map, an individual response, or a table. Some types of responses can be statistically summarized. See [http://www.esri.com/products/survey123](http://www.esri.com/products/survey123)

1.1.10 Conservation Desktop

Conservation Desktop is a client application in development for the Conservation Delivery Streamlining Initiative (CDSI). The web-based conservation planning and contract development tool is designed to consume geodata services formerly housed on service center server architecture.
1.2 Portal for ArcGIS Utility Services

Utility services are the services that power specific functionality in the NRCS Portal. Functions such as printing maps, locating addresses, calculating areas, finding directions, and performing analysis are possible within the Portal. The Portal comes with some default services out of the box but some customization is possible.

1.2.1 Printing

Print services allow users to print or preview published web maps. Users can print maps from the portal map viewer or from a web app made in Web AppBuilder for ArcGIS or with a configurable app template. Web apps created with a template or in Web AppBuilder will use the portal's print service in their print widgets. When you click Print in the portal map viewer, the print service configured with the portal will create printable documents with the layouts available in that print service.

1.2.2 Geometry

Geometry services can be created on other servers or can be configured as a customized ArcGIS Server geometry service.

1.2.3 Portal Utility Services that are included but applications in NRCS are yet To Be Determined

(See http://server.arcgis.com/en/portal/10.4/administer/windows/about-utility-services.htm)

1.2.3.1 These are services that require ArcGIS Online integration and consume AGOL credits. Links to specific descriptions accompany the utilities.

• Routing – Route services allow users to find directions between two or more locations. The Portal’s route utility service is used for the Directions functionality available in web maps.

• Network – a group of services referred to as network utility services. All network utility services are required to enable network analysis tools in the Portal.

• Geocoding – Geocoding services are used to search for and locate addresses and places on a map. The Portal is preconfigured to use the World Geocoding Service hosted on ArcGIS Online – and does consume ArcGIS Online credits.

• Elevation and hydrology – Elevation analysis services allow Portal users to perform various operations for elevation analysis (Profile, Viewshed, Summarize, etc.) as well as hydrology analysis (Watershed and Trace Downstream). Data used in these services is hosted and curated by ESRI.

1.2.3.2 Publishers wishing to incorporate the utility services described in 1.2.3.1 must request authorization from NGCE. The NGCE will ascertain availability of credits and evaluate the application to ensure credits are properly utilized.
2 Geo Portal Accounts and Roles

2.1 Portal Product Owner Role

- The NRCS Portal for ArcGIS Product Owner resides at the National Geospatial Center of Excellence.
- The Portal Product Owner shall be selected and supported by the Director of the NGCE.
- The Product Owner shall perform the following functions:
  - The Product Owner shall set overall Portal use and content policy with guidance from the NGCE business area teams, the Geospatial Business Area Advisory Group (GBAAG), and other agency geospatial stakeholders.
  - Represent the NRCS Portal users and stakeholders to the NRCS CIO, the USDA OCIO, and the NITC. The Product Owner shall also collect, maintain, and report IT investment data related to the use and maintenance of the Portal application.
  - Coordinate the gathering of requirements related to expansion of the Portal capacity and update of the Portal application version.
  - Coordinate maintenance outages, software updates, maintaining system integrity and reliability, and system security.
  - Coordinate training and certification of Administrators, Managers, and Publishers.
  - Receive requests for creation of specialized groups to update items for the purposes of life cycle data management.

2.2 Portal Administrator Accounts and Roles

The Portal Administrator is responsible for configuring, tuning, and maintaining the NRCS Portal for ArcGIS. The NGCE will staff, train, and support all Portal Administrators. The NGCE shall designate a minimum of one Administrator; however, multiple Administrators may be designated to expedite productive use of the NRCS Portal application.

- The administrator is responsible for enforcing permissions and managing rights for the Portal as well as adding or removing Publishers to and from the Portal.
- The Administrator shall manage the overall Portal group policy.
- The Administrator shall be able to view all Portal items including layers, feature services, and other services and advise the NRCS regarding the impacts of Portal updates, server capacity, changes in security, and strategic issues that affect implementation and long term stability of the Portal.
- The Administrator shall, with guidance from the NGCE Portal Product Owner, remove content that is A) Not in compliance with policy, B) Content that does not meet a USDA or NRCS mission requirement, C) Inappropriate content, or D) Content that is better hosted on the NRCS ArcGIS Online (Public facing content).
- The Administrator shall facilitate the use of outside maps, layers, scenes, and apps within the NRCS Portal if compliant with the following information security conditions:
  - The outside content does not contain malicious code.
  - The outside content does not introduce security vulnerabilities.
  - The outside content is relevant and right sized for NRCS business use.
• If information security conditions cannot be met or review cannot decisively determine
the safety of outside content, the Administrator shall require publishers to extract the
data, publish it to the Portal, and submit the resulting layer or service for curation.

□ The Administrator shall assign Manager and Publisher permissions. Administrators shall also
provide support to Managers and Publishers and provide training assistance to the NGCE GIS
Training Team.
□ The Administrator shall review content for curation eligibility. The Administrator shall have the
authority to designate maps, layers, scenes, and apps as ‘Curated’.

2.3 Portal Manager Accounts and Roles

The Portal Manager is an NGCE custom role created and configured by the NGCE Portal
Administrator. Portal Managers are designated by the NGCE Portal Product Owner with the consent
of the NGCE Management Team. The NGCE will select and train Portal Managers from current staff.
Portal Managers are responsible for managing and curating layers, services, maps, and apps prepared
by NGCE publishers. Managers also assist the Portal Administrator(s) with publishing and curation of
content prepared for agency organizations that lack a Publisher. Managers will also provide technical
support to agency Publishers as needed.

Portal Managers shall also assist with preparation of training guides, webinars, and outreach to
agency organizations.

2.4 National Center Publisher Accounts and Roles

This role will be responsible for managing national level datasets, such as the GeoData services. National
Centers shall select individuals to serve in the role of National Center Publisher and Account Manager for
their respective Center and affiliated Technology Teams. The NGCE shall provide training and support to
the National Center Publishers.

A listing of National Centers, National Technology Centers, and National Technology Development
Teams is found at:

National Center Publishers shall:
□ Gather requirements from prospective users for publication of layers, services, maps, and apps to
the Portal.
□ Prepare data for publication to the Portal.
□ Create a content management plan to manage published content. All layers, services, maps, and
apps shall have a content management plan with the following elements:
  • Content publisher.
  • Publication date.
  • Revision date (latest).
  • Review interval. The minimum review interval is annual.
  • Review date (latest).
  • Expiration date.
□ Add appropriate metadata sufficient to meet FGDC, NRCS, and curation requirements.
□ Manage access and use of layers, services, maps, and apps by specific user audiences through the
use of Portal Groups and content sharing.
□ Provide support to the user audience for use of the content.
NGCE will provide publishing and curation of layers, services, maps, and apps in cases where there are no National Center publishers. Publishing and curation assistance to those National Centers will be provided until such time as qualified individuals are able to assume the Publisher role.

2.5 Publisher Accounts and Roles for Soils Regional Offices

Portal content for the twelve Major Land Resource (MLRA) Soil Survey Regional Offices shall be published by the Soils Regional GIS Specialist for each office.

A listing of Soil Survey Regional Offices and personnel are found at:

Soils Regional Publishers shall:

- Gather requirements from prospective users for publication of layers, services, maps, and apps to the Portal.
- Prepare data for publication to the Portal.
- Create a content management plan to manage published content. All layers, services, maps, and apps shall have a content management plan with the following elements:
  - Content publisher.
  - Publication date.
  - Revision date (latest).
  - Review interval. The minimum review interval is annual.
  - Review date (latest).
  - Expiration date.
- Add appropriate metadata sufficient to meet FGDC, NRCS, and curation requirements.
- Manage access and use of layers, services, maps, and apps by specific user audiences through the use of Portal Groups and content sharing.
- Provide support to the user audience for use of the content.
- The NSSC will provide publishing and curation of layers, services, maps, and apps in cases where there are no soils regional office publishers. Publishing and curation assistance to those soils regional offices will be provided until such time as qualified individuals are able to assume the Publisher role. The NGCE will provide assistance to the NSSC when requested.

2.6 Publisher Accounts and Roles for Landscape Conservation Initiatives

The NRCS uses Landscape Conservation Initiatives to accelerate the benefits of voluntary conservation programs, such as cleaner water and air, healthier soil, and enhanced wildlife habitat. NRCS manages Water-Based, Wildlife and Ecosystem-Based, Regional Pollinator, and other landscape-level efforts. Layers, services, maps, and apps residing on the Portal are directed towards supporting the direct implementation of these initiatives by NRCS personnel and are not available to the public.

Public dissemination of information related to landscape conservation initiatives is best accomplished using ArcGIS Online using the Story Maps application.

Examples include:

- The Mississippi River Basin Healthy Watersheds Initiative is a 13 state regional effort to address water quality and nutrient loading resource concerns in the Mississippi River Basin.
- The Lesser-Prairie Chicken Initiative (LPCI) is a 5 state regional effort to address loss and fragmentation of grassland and prairie habitat while enhancing forage for livestock.
Additional information about Landscape Conservation Initiatives can be found at: https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/initiatives/.

Landscape Conservation Initiative Publishers shall:

- Gather requirements from prospective users for publication of layers, services, maps, and apps to the Portal.
- Prepare data for publication to the Portal.
- Create a content management plan to manage published content. All layers, services, maps, and apps shall have a content management plan with the following elements:
  - Content owner.
  - Publication date.
  - Revision date (latest).
  - Review interval. The minimum review interval is annual.
  - Review date (latest).
  - Expiration date.
- Add appropriate metadata sufficient to meet FGDC, NRCS, and curation requirements.
- Manage access and use of layers, services, maps, and apps by specific user audiences through the use of Portal Groups and content sharing.
- Provide support to the user audience for use of the content.
- The Landscape Conservation Initiative Publisher will provide publishing and curation of layers, services, maps, and apps. If there is not a qualified Publisher for an initiative, publishing and curation assistance to initiatives will be provided by NGCE until such time as qualified individuals are able to assume the Publisher role.

2.7 State Publisher Accounts and Roles

State Publishers are responsible for publishing layers, services, maps, and apps to support front line conservation technical assistance provided by Service Centers and support technology transfer by state technical specialists. The content is usually narrow in scope and often does not cross state administrative boundaries. Content may include specialized soil interpretations, distribution of threatened and endangered species within a state, or distribution of state legislatively listed noxious weeds. The State GIS Specialist shall be the technical lead for migration of state and local data from service center servers to the NRCS Portal for ArcGIS.

State Publishers shall:

- Gather requirements from prospective users for publication of layers, services, maps, and apps to the Portal.
- Prepare data for publication to the Portal.
- Create a content management plan to manage published content. All layers, services, maps, and apps shall have a content management plan with the following elements:
  - Content owner.
  - Publication date.
  - Revision date (latest).
  - Review interval. The minimum review interval is annual.
  - Review date (latest).
  - Expiration date.
- Add appropriate metadata sufficient to meet FGDC, NRCS, and curation requirements.
- Manage access and use of layers, services, maps, and apps by specific user audiences through the use of Portal Groups and content sharing.
- Provide support to the user audience for use of the content.
- The State GIS Specialist will serve as lead Publisher and will provide publishing and curation of layers, services, maps, and apps. If there is not a qualified Publisher for a state, publishing and curation assistance to states will be provided by NGCE until such time as a qualified individual is able to assume the Publisher role.

### 2.8 User Accounts and Roles

Users see customized views of the Portal site, use the organization’s layers, services, maps, and apps, and join groups owned by the organization. Users can also create maps and apps, add layers or items to maps, share content, and create groups.

Within NRCS users are individuals from Service Centers, state offices, national centers, soil survey regional offices, or National Headquarters that consume, but do not publish or curate, data and services.

**Policy:**
- Personnel in NRCS at the User level role will login using E-Authenticate credentialing.
- Personnel in NRCS at the User level role shall not:
  - Create maps without first consulting the Publisher for their respective organizational unit. For example, Service Center users must consult with their State GIS Specialist prior to creating a map within the Portal. The State GIS Specialist will review the request for business need and duplication of content.
  - The Publisher for a respective organization shall work with NGCE to develop and propagate training for their user base.
  - Organization publishers will communicate user role level training requirements to the NGCE. The NGCE will develop training tutorials and webinars to satisfy user role training requirements.
- Overall creation and assignment of users to groups will be the responsibility of organization publishers.

### 2.9 Custom Accounts and Roles

- Custom accounts can use maps and apps the same as all other users. However, they can also optionally perform analysis on layers, create content, share maps and apps, join and create groups, edit features in layers, publish hosted web layers, and manage organization resources. The Custom role can receive requests to join groups within the NRCS Portal. The implementation of the Custom role within the NRCS Portal is undetermined.

### 2.10 Management of the Portal

NRCS Portal for ArcGIS curated data and services are managed using authorized administrator, manager, and publisher accounts.

The National Geospatial Center of Excellence (NGCE) has primary responsibility for administration of the NRCS Portal for ArcGIS and for provisioning of authoritative curated national layers, services, maps, and apps.

Administration of the server side is the responsibility of the USDA OCIO NITC.
The NGCE, the NRCS CIO, the USDA OCIO, and the NITC shall coordinate funding, software updates, expansion of capacity, server side performance issues, and security. Portal management and maintenance shall be reviewed by the NGCE Portal Management and Support team, the NRCS CIO, the USDA OCIO, and the NITC. Reviews are to take place annually.

2.11 References
ESRI Portal for ArcGIS website, Use tab, Account dropdown, Roles and Privileges.
3 Geo Portal Content Policy

Life-cycle management of layers, services, maps, and apps residing within the NRCS Portal for ArcGIS shall be accomplished through curation. Curation considers audience requirements, accessibility, content, permissions, life cycle data management, and the organizational structure consuming the content.

3.1 Naming Standard for hosted layers and services

- Layers and services published to the NRCS Portal for ArcGIS shall be named in accordance with the standards developed and published in the Service Center Modernization Initiative (SCMI) document Geospatial Dataset File Naming Standard (Draft), 25 February 2015, SCMI Std GIS 004-04. The document is under review and is considered to be interim guidance. Layer and service content will be reviewed for compliance with the standard.
- Sections 5, 6, 7, 8, 9.2.1, and 10.2 provide relevant guidance.
- The SCMI Std 004-04 shall remain in effect until such time it is either updated or superseded.


3.2 Curated geospatial layers and services

The University of Illinois Graduate School of Library and Information Science defines data curation as “the active and ongoing management of data through its life cycle of interest and usefulness to scholarship, science, and education. Data curation activities enable data discovery and retrieval, maintain data quality, add value to the data, and provide for reuse of data and services over time... and includes authentication, archiving, management, preservation, retrieval, and representation.” (Council on Library and Information Resources; https://www.clir.org/initiatives-partnerships/data-curation).

Curation adds the dimension of stability and integrity to geospatial authoritative layers and services and is an essential component of successful life cycle data management.

Curation of Portal layers, services, maps, and apps takes place when a publisher reviews the content, determines that the content meets curation criteria, and transfers ownership of the content to a curated account. Curation removes layers, services, maps, and apps from Publisher ownership and precludes them from editing and accidental deletion. Publishers shall exercise life cycle data management on curated layers, services, maps, and apps they are responsible for.

Designation and withdrawal of curated layers shall be limited to authorized NRCS Portal Administrators, Managers, and Publishers.

3.3 Curation Criteria

Curated content is a snapshot in time. Many layers, such as land use or land cover, change continuously – and are difficult to maintain on a daily or even weekly basis. Other layers, such as county boundaries, are less dynamic and may change only once in several decades. It is important that data volatility and expiration be considered in the life cycle management process.

Portal content can be considered for curation when the content:

- Meets a core agency geospatial business requirement. For example: Soils layers and services meet the NRCS requirement to inventory resources and provide conservation technical assistance.
- Represents the most authoritative and highest quality data available for the time period in effect.
Has active and ongoing management. Each layer, service, map, or app shall have a named Product Manager. The manager is responsible for maintenance of the content over time and shall periodically review the content for currency and relevance. Periodic review shall take place annually.

- Meets FGDC and NRCS requirements for full metadata compliance.
- Documents the source of the content, the shelf life of the content, and the expiration date of the content.

It is important to note that not all content needs to be considered for curation. Content that meets a temporary requirement, a one-time requirement, or staged to fulfill a larger data request, need not be curated.

3.4 Curated Portal Accounts

Curated content will be published and owned by multiple levels of curated accounts. The NGCE Administrator(s) will create curated accounts and grant authorized NGCE Managers permissions to change ownership to appropriate curated accounts. Authorized Managers will curate content only when it meets the criteria list in Section 3.3.

The following curation workflow and accounts are designed to overcome a Portal restriction at the 10.4 version. Only Administrators and authorized Managers may change ownership from a Portal Publisher to a Portal Curated account. See http://server.arcgis.com/en/portal/10.4/administer/windows/roles.htm.

3.4.1 Curation workflow – specific examples are discussed in subsequent subsections

- A Publisher creates a layer, service, map, or app in the Portal.
- A request is submitted by a Publisher to NGCE for review of a layer, service, map, or app that is being considered for curation.
- The NGCE will review the submitted content for appropriate content, compliance with metadata requirements, groups, and sizing.
- An Administrator or Manager will re-assign ownership of the layer, service, map, or app to an organizationally appropriate curated account.
- Once maps, layers, scenes, and apps are re-assigned to curated accounts they shall no longer be available for editing until such time they are re-assigned back to ownership of the Publisher.
- Curated content shall be reviewed by the original Publishers and NGCE Managers and Administrators at least once a year.
- Publishers shall be able to request re-assignment of curated content to Publisher ownership for content management and update. Once update is complete the content can be re-submitted for curation.
- The National Soil Survey Center (NSSC) Portal Manager shall be responsible for curation of NSSC and Soil Survey Region layers, services, maps, and apps.
- Soil Survey Regional Publishers shall submit requests for curation to the National Soil Survey Center Portal Manager. The NSSC Portal Manager shall remove content from curation and restore it to ownership of the originating Soil Survey Region for review and update.

3.4.2 Curation of National Level Content

National Authoritative Data will be published as map, image or feature service via ArcServer or as hosted feature services through the Portal. The rest end points such as the GeoData web services will be referenced to Portal and will be owned and maintained by the National Administrators or Managers.

Examples of National Level Content include but are not limited to:
NAIP Imagery
National Hydrography Dataset
Soils

The NGCE Administrators and Managers will:

- Accept national level content from national level Publishers.
- Review content for fulfillment of curation criteria (See Section 3.3).
- Transfer ownership to the NRCS_National_Curated account.

Example: The Watershed Boundary layer is owned by the NRCS_National_Curated account. For edits and updates to take place, the layer ownership needs to revert to a National Publisher.

3.4.3 Curation of National Center Content

National Centers and National Technology teams may publish content to the Portal through designated, trained, and supported National Center or Technology Team publishers.

Examples of National Center content include but are not limited to:

- Content created by Publishers at the National Soil Survey Center, the Water and Climate Center, or the Water Management Center.
- Content created by Publishers at any of the three National Technology Support Centers.
- Content created by national technology teams such as:
  - National Grazing Lands Team
  - National Plant Data Team
  - National Wetlands Team
- Teams that are utilizing NGCE services for publishing to Portal will also utilize NGCE services for Portal content curation.

National Center Publishers will:

- Accept content from National Center Publishers.
- Review content for fulfillment of curation criteria (See Section 3.3).
- Submit a request to NGCE for curation.
- The NGCE Administrators and Managers will transfer ownership to the NRCS_(Center Name)_Curated account.

Example: The Snow Survey and SCANs Locations layer is owned by the NRCS_WaterClimateCtr_Curated account. For edits and updates to take place, the layer ownership needs to revert to a Water and Climate Center Publisher.

3.4.4 Curation of Regional and Multi-State Content

National Landscape Conservation Initiatives and Efforts may publish content to the Portal through designated, trained, and supported publishers.
Landscape Conservation Initiative and Effort content includes but is not limited to:

- Content created by Headquarters, National Centers, or Initiative or Effort Program Managers to support Initiatives and Efforts.
- Examples:
  - Mississippi River Basin Healthy Watersheds Initiative
  - Honey Bees and Monarch Butterflies Pollinator Efforts
  - Prairie Pothole Effort

Initiatives and Efforts that are utilizing NGCE services for publishing to Portal will also utilize NGCE services for Portal content curation.

Landscape Initiative and Effort Publishers will:

- Review content for fulfillment of curation criteria (See Section 3.3).
- Submit a request to NGCE for curation.
- The NGCE Administrators and Managers will transfer ownership to the NRCS_(Name of Initiative or Effort)_Curated account.

Example: The Monarch Milkweed Plantings layer is owned by the NRCS_MonarchEffort_Curated account. For edits and updates to take place, the layer ownership needs to revert to the Monarch Effort Publisher.

3.4.5 Regional Soil Survey and National Soil Survey Center Curated Content

Soil Survey Regions may publish content to the Portal through designated, trained, and supported publishers.

Soil Survey Regional content may include:

- Content related to cooperative efforts.
- Project areas for workload planning.
- Modeling projects.
- Geospatial layers supporting the development of Ecological Site Descriptions (ESDs).

Soil Survey Regions that are utilizing NSSC services for publishing to Portal will also utilize NSSC services for Portal content curation.

Soil Survey Regional Publishers will:

- Review content for fulfillment of curation criteria (See Section 3.3).
- Submit a request to NSSC for curation.
- The NSSC Portal Manager will transfer ownership to the NRCS_(Name of Soil Survey Region)_Curated account.

Example: The SSR3_PlantCommunities layer is owned by the NRCS_SSR3_Curated account. For edits and updates to take place, the layer ownership needs to revert to the Soil Survey Regional Publisher.
National Soil Survey Publishers will:

- Review content for fulfillment of curation criteria (See Section 3.3).
- Submit a request to the NSSC Portal Manager for curation.
- The NSSC Portal Manager will transfer ownership to the **NRCS_NatlSoilSurveyCtr_Curated** account.

Example: The NSSC_CarbonStorage layer is owned by the NRCS_NatlSoilSurveyCtr_Curated account. For edits and updates to take place, the layer ownership needs to revert to the Soil Survey Center Publisher.

<table>
<thead>
<tr>
<th>NSSC Carbon Storage Dataset</th>
</tr>
</thead>
<tbody>
<tr>
<td>By NRCS_NatlSoilSurveyCtr_Curated</td>
</tr>
</tbody>
</table>

### 3.4.6 State and Local Curated Content

State and Local content may be published to the Portal through designated, trained, and supported publishers.

State and Local content may include:

- Content related to cooperative conservation efforts.
- Project areas for focused initiatives.
- Specialized layers derived from state and local units of government including state impaired waters, noxious plant distributions, presence of cultural resources, areas for farm bill priority funding, or suitability of multi-county, zones or areas, for implementation of specific practices.
- Geospatial layers supporting the development of Ecological Site Descriptions (ESDs).

State and local content owners that are utilizing NGCE services for publishing to Portal will also utilize NGCE services for Portal content curation.

State and Local Publishers / Curators will:

- Review content for fulfillment of curation criteria (See Section 3.2).
- Submit a request to NGCE for curation.
- The NGCE Administrators and Managers will transfer ownership to the **NRCS_(Name of State or Local Area)_Curated** account.

Example: The Idaho Invasive Plants layer is owned by the NRCS_Idaho_Curated account. For edits and updates to take place, the layer ownership needs to revert to the Idaho NRCS Publisher.

<table>
<thead>
<tr>
<th>Idaho Invasive Plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>By NRCS_Idaho_Curated</td>
</tr>
</tbody>
</table>
3.5 Metadata and Tagging Requirements for Publication and Curation

Metadata describes the digital content hosted by the Portal. It provides meaning to the content and enables the content to be found within the NRCS Portal for ArcGIS. The NRCS Geospatial Line of Business relies on Federal Government standards and internal guidance related to the completion of metadata for layers, services, maps, and apps.

3.5.1 Metadata requirements

- The NGCE shall provide governance and technical support for implementation of metadata standards for Portal content.
- The NGCE Administrators of the Portal shall set Portal metadata style and templates to conform to the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata (CSDGM). Administrator(s) shall also enable metadata import and editing functionality for Publishers.
  - The FGDC has endorsed use of ISO guidelines. However, use of ISO guidelines is endorsed by OMB Circular A-119 Revised.
  - Circular A-119 Revised has been withdrawn. Because complete guidance for ISO is not available – the NRCS shall defer to the next available standard – FGDC-CSDGM.
- All hosted content shall conform to the NRCS minimum metadata requirement. The NRCS minimum content standard is defined in Title 170 – Cartography and Geographic Information Systems, Part 581 – National Geospatial Manual, Subpart F – Metadata Standard.
  - Subpart F provides NRCS geospatial content publishers guidance related to development of metadata.
  - Section 581.66, A, (Pg. 581-F.2) Provides a listing and description of mandatory metadata elements.
- All curated agency owned or national content shall fully conform to the complete FGDC metadata standard as described in Part 581, Subpart F - National Geospatial Manual.
- Publishers shall completely populate all Properties in layers, services, maps, and apps. Refer to 3.5.2 – Metadata Tagging Standards – for guidance regarding content tagging during or after publication to the Portal.
- Publishers shall inspect published layers and services, ensure metadata meets the required standard, and edit from within the Portal prior to release for consumption by clients and client applications.

References:

Portal for ArcGIS: Configure item details, 

FGDC metadata resources are found at: https://www.fgdc.gov/metadata/geospatial-metadata-standards.

3.5.2 Metadata Tagging Standards

Portal for ArcGIS is a content management system hosted on NRCS infrastructure to facilitate the management of geospatial content including web services. The Portal utilizes a system of content tags, or labels, to categorize groups of services that share similar characteristics. The Portal enables users to search for all similar content by a common tag. For example, the tag ‘Ogallala’ can refer to the entire extent of the Ogallala aquifer, a portion of the aquifer located in Oklahoma, or density of well heads within the aquifer in Lamb County, Texas.

- The NGCE shall provide content governance and technical support for implementation of tagging standards for Portal content.
  - Interim guidance shall be provided by the document Standard for Naming and Tagging Web Services (Jan. 2017 draft). Integration into the next SCMI-004-04 revision is intended.
  - Guidance shall remain in place until SCMI-004-04 is updated or superseded.
- Tags are to be supplied during the publication process from local ArcGIS Desktop to the Portal or edited in content properties after publication to the Portal.
- Each content item hosted in the Portal shall have no fewer than four content tags.
- Tags shall be expressed in all lower case.
- The following tags are to be furnished for each Portal content item:
  - Geographic extent – a descriptive term (Examples: Two character state abbreviation for a state name, us48 for Continental US, Missouri River Basin, etc.).
  - Theme name (Examples: clu (Common Land Unit), aquifer, mlra (Major Land Resource Area), plss (Public Land Survey System), or wbdhu100301 (Upper Missouri River Basin)).
  - Type of data (Examples: Metadata, vector, raster, imagery, imagery)
  - Data provider (Examples: NRCS, USGS, FEMA,).

Reference:
3.6 Content Security and Sensitivity Policy

All NRCS Portal for ArcGIS Administrators, Managers, Publishers, and Users shall use best practices regarding security and sensitivity of all Portal content items.

- Under no circumstances should national security classified information be published to the Portal. The Portal, although secured with eAuthentication access controls, does not meet the complete criteria for restricting information to those with a validated ‘need to know’ regarding classified national security information.

- Every item published to the Portal shall be assessed for potential risk for and consequences of disclosure to unauthorized users or clients. The following plain language terms shall be inserted into each item Access and Use Constraints information block to denote the results of the risk assessment.
  - No risk
  - Moderate risk
  - High risk

- Definition of risk assessment terms:
  - No risk – the assessment concludes that accidental or deliberate disclosure does not compromise PII, does not compromise NRCS physical security, business processes, and decisions, and incurs no risk of criminal misuse. Examples of No risk Portal content items include hydrography layers, soils layers, and political boundaries.
  - Moderate risk – the assessment concludes that accidental or deliberate disclosure does not compromise PII and does not compromise NRCS physical security but may compromise business processes and decisions and may lead to criminal misuse. Examples of Moderate risk Portal content items include stewardship lands boundaries and weighting apps for conservation planning.
  - High risk – the assessment concludes that accidental or deliberate disclosure may compromise PII or may compromise NRCS physical security. Compromise is also certain to lead to criminal misuse. Examples of High risk Portal content items include any geospatial item directly linked to land owner PII, the geoposition of NRCS offices, geopositions of PL-566 Small Watershed Dams, and Cultural Resources depicted with a granularity finer than county scale.

- Mandatory best practices to be implemented with No risk Portal content items shall include prevention of accidental deletion and limiting editing, syncing, and updating to those users who have a valid business requirement.

- Mandatory best practices to be implemented with Moderate risk Portal content items shall include limiting the list of users to a specific service center office or team area, prevention of accidental deletion, prevention of syncing to all but authorized users, and disabling of editing capability for all users except those with validated business requirements.

- Mandatory best practices to be implemented with High risk Portal content items shall include limiting users with to only those with a valid business requirement to access data, frequent review of validated users, prevention of accidental deletion, prevention of data export, and disabling edit and update capability to all but a very narrow subset of validated users.
  - Use of ‘invisible’ display of high risk items in the background, resampling or generalizing content items to a much smaller scale (reduced granularity) shall be practiced whenever possible.
  - Syncing of High risk content items shall only be allowed to a narrow group of users with validated business requirements. Since syncing takes place using mobile devices – all
users of High risk content shall encrypt and secure their mobile device in compliance with USDA OCIO regulations. Publishers of High risk content items shall review the requirement to sync those items and the list of users authorized to sync with those items every 60 calendar days from enabling of syncing capability.

- NGCE Administrator(s) and Managers shall review all Portal content items for compliance with risk assessment policy and practices.
4 Geo Portal Sharing and Groups

Sharing content is the number one reason why NRCS has invested in implementation of the Portal for ArcGIS. Sharing content has a number of benefits:

- Content is distributed and managed from one location rather than 2,300 plus service center locations.
- Management, review, and updates to content are much easier when performed on one common layer, service, map, or app.
- Center, state, soils regional, and other publishers can create and share content to specific groups of users.
- Shared content is searchable.
- Having content hosted and shared from the NITC cloud provides increased resilience to disruption of services and outages.

The ability to identify content items and share them to specific individuals or groups provides enhanced security and content integrity. Only authorized users are allowed to access and modify layers, services, maps, and apps.

4.1 Sharing Content Items

The default content sharing setting is that content is only accessible to the originating publisher. Maps, apps, layers, and tools are not available to others and don’t appear in search results. Publishers of content can also edit the sharing settings once content is published. Publishers should open the layer, service, map, app, or tool and click on the SHARE tab (immediately below the thumbnail content image).

- **Everyone**: Sharing with everyone reveals published content to the general public (in a non-governmental implementation). The actual meaning of this setting may imply sharing outside of NRCS but within the USDA backbone. The actual extent of this setting is To Be Determined.
- **Portal for ArcGIS (the NRCS Portal)**: Shares content with any credentialed user of the NRCS Portal for ArcGIS.
- **These groups**: Groups created by a content owner or is a member of are listed in a box immediate below the text “These groups:” Publishers should check the appropriate boxes to share with one to many groups listed.

4.1.1 Share Settings Policy

- Content to be shared shall be set to ‘Portal for ArcGIS’ as the minimal setting.
- Publishers shall provide initial sharing settings when layers and services are published to the Portal from ArcMap or ArcGIS Pro.

4.1.2 Administration of Share Settings

- The NGCE Portal Administrators shall administer all Portal sharing settings.
- The NGCE Portal Administrators shall provide technical support to agency content Publishers regarding Sharing settings.
4.2 Creating and Administering Groups

4.2.1 About Groups

Groups are a collection of items, often related to a specific region, subject, or project, that are created and managed by the group owner. Publishers and Users have privileges to create groups; however, Users shall not create groups without A) Having a business justification, and B) receiving training and guidance from a Publisher. Publishers can decide who can find groups, if others can request to join a group, and who in the group can contribute content. Publishers also have control over items shared to the group and can invite others to join, even if the group doesn't accept membership requests.

Users, Publishers, and Administrators can create groups that allow members to update items that have been shared to the group. Permissions on this level are invaluable to life cycle data management. Updates to an item can include changes to the item details and updates to the actual content. Group members can add layers to a map and save the map with the updated content. Members of a group can also edit hosted feature layers that have been shared to the group with full editing controls - even if the layer is not editable. For example, a hosted feature layer that isn't editable to anyone but the owner can be shared to a group - members of the group can then have full editing control of the layer. Groups of this type can overwrite any restrictions placed on other users.

Policy note: Groups with editing overwrite permissions can only be created by a Portal Administrator.

Policy for Groups:

- Publishers of content shall submit a request to the Portal Product Owner for creation of groups with permissions to overwrite editing restrictions. Created groups will only be used for data update projects and shall be terminated at the completion of projects.
- Groups shall be reviewed annually for relevance. Groups that are no longer relevant shall be deleted.
- Created Groups shall have the following metadata items completed:
  - Name: The Name of the Group shall represent the primary business area that group members represent.
    - Example 1: Oroville Service Center
    - Example 2: North Dakota Biologists
    - Example 3: Wyoming State Office members
    - Example 4: New Mexico Engineers
  - Summary: Provide a brief summary stating the purpose of the group.
  - Description: Provide a more detailed description of the group, group membership rules, and the types of content the group will have access to.
  - Tags: Provide tags that support the description. Tags promote the efficient searching of the Portal.
    - Example 1: NM, Engineers, Surveyors
    - Example 2: Oroville, Service Center, NRCS
  - Status: Select a Status for the Group
    - Private: Users can’t find the group in search and can join by invitation only.
    - Organization: Users within NRCS can search for and find the group. This is the minimal setting if Private is not selected.
    - Public: Users can search for and find the group. The extent of visibility of this setting is not fully known and is TBD for NGCE.
• Users can apply to join group (within the browser version of Portal). For the immediate future, publishers shall set properties to groups as ‘invited only’.
• Contributors: Select a setting to determine whether members can share their own items to the group.
  ▪ Members can share their own items.
  ▪ Only group owner may share items. Members can view and access group owner items.
  Note: This setting can be used to control view and access of authoritative data.

4.2.2 Group Levels

Groups shall be created based on:
  ▪ Type of content.
    • Examples include Elevation, Grazing Lands, Wildlife Species, etc.
  ▪ Agency administrative scope.
    • Service Center, Area Office, State Office.
  ▪ Employee technical discipline or function.
    • Certified Conservation Planners, Planners in Training, Grazing Specialists, Biologists, Earth Team volunteers.
  ▪ Political boundary.
    • Wise County, Jack County, Rains County.
  ▪ Physiographic boundary.
    • Mississippi River Basin, Upper Defau Watershed, Edwards Plateau.
  ▪ Landscape Conservation Initiative.
    • Sage Grouse, Monarch Butterfly, Prairie Chicken.
  ▪ Special Work Flows.
    • Wetlands Determinations, Easement Monitoring, LIDAR ground trothing.

4.2.3 Creation and Administration of Groups

• Publishers shall control the creation and administration of groups within their account domain. Groups shall be created to optimize the sharing of content while respecting the sensitive nature of some content.
• Publishers shall create and administer groups within the administrative and mission scope of their organization unit:
  • National Centers
  • Soil Survey Regional Offices
  • State Offices
• All Publishers shall respect Federal and State law regarding access to sensitive and PII content. Membership in groups accessing sensitive or PII content shall be granted on a Need to Know Basis – to only those requestors with a validated business requirement. Publishers will work with domain stake holders to develop membership rules for access to sensitive and PII content.
• Publishers will review groups and group membership annually and remove members that no longer require access or delete groups that are no longer relevant.
5 Geo Portal Limitations

The NRCS Portal for ArcGIS implementation is not designed to meet all NRCS business requirements for all feature services. It is designed to meet NRCS business requirements for deployment of feature services for state and local data, authoritative data that is larger in scale than national scope, data that addresses specific conservation business areas – such as landscape conservation, and data that transcends political boundaries – but is not national in scope.

- Publishers shall update databases published to the Portal as hosted layers and services when changes are made to the source geodatabase. Source geodatabases shall be updated when Portal database content is updated. See Section 5.1.2.
- Publishers shall not attempt to publish map services, image services, or geo-processing services in the Portal. Publishers shall work with NGCE to host map services, image services, or geo-processing services from ArcGIS Server that can be linked to Portal.
- Publishers shall not import imagery files to the Portal nor publish imagery to the Portal from ArcMap or ArcGIS Pro.
- Import of photos and videos from mobile applications affiliated with the Portal, such as Collector for ArcGIS, are authorized but only under the following conditions:
  - The image compression resolution setting shall not exceed 12 megapixels (MP) for still images. The expected file size per image is less than 5 MB.
  - Video shall not exceed 720p HD at 30 frames per second (fps) and shall not exceed one minute in time duration per video. The expected file size per video is less than 70 MB.
  - Settings that exceed these limits will result in excessive use of storage resources and may result in storage resource instability.
- Direct upload of photo image files for temporary use during contingencies is authorized. Photo images are not to be stored long term on the Portal. Contact NGCE for long term federated server storage of photo images (See [https://server.arcgis.com/en/portal/10.4/use/supported-items.htm](https://server.arcgis.com/en/portal/10.4/use/supported-items.htm) for a list of supported image formats).
- Raster tiled map services shall not be published to or hosted by the NRCS Portal for ArcGIS. Publishers shall work with NGCE to host map services, image services, or geo-processing services from ArcGIS Server that can be linked to Portal.
- Publishers shall assess all potential content items for appropriate sizing and complexity. Sizing and complexity are discussed in Section 5.1.3.
  - Publishers shall not directly import data files exceeding 100 MB into the Portal.
  - ArcMap or ArcGIS Pro shall be used to publish data that exceed 100 MB in size to feature layers and services.
  - Use of Server for ArcGIS with linkage to Portal as a service shall be the default content sharing strategy for items that exceed 250 MB in size. Publishers will contact the NGCE Portal Administrators or Managers regarding hosting of content items that exceed 250 MB in size.
- The NGCE will work with Portal Publishers to educate Portal Users about the scale and display limitations of the current version of the Portal. See the discussion in Section 5.1.4.
- Whenever possible – Portal users shall limit the scope of view, analysis, and mapping to areas that comprise fewer than 1,000 features. See Section 5.1.4. The NGCE will work to increase the number of features viewable.
- The Portal Product Owner shall share all newly discovered Portal bugs and limitations with the NRCS GIS community of Portal Publishers and Users. The distribution method is to be determined.
The Portal and Portal Data Store shall be backed up in accordance with USDA OCIO policy. The Portal Product Owner shall assess and report outages, restorations, and recovery gaps to the Portal User Community. See Section 5.1.5. Publishers should save layers, maps, and apps within the Portal each time a change is made.

- Portal Administrators shall work with ESRI, NITC, and USDA EAS to identify and document bugs and limitations in the current deployed version of the Portal. The Product Owner and Administrators shall work with ESRI and NITC to obtain and install required software patches as needed.

5.1.1 Limitations of Service Types

Publishers are able to add their own data to Portal to create a hosted web service. There are two types of hosted web services that Publishers can add data to: A) Hosted Feature or Layer Services, and B) Tiled Map Services.

Publishers will not be able to directly add data to map services, image services, and geo-processing services. These services will need to be added through an integrated instance with ArcGIS for Server. Publishers, using ArcGIS Pro, may be able to publish directly to ArcGIS Server and link the federated ArcGIS server to Portal. The ability to perform this action at the local publisher level will be investigated by NGCE.

Reference: ArcGIS Server and Portal integration - About using your portal with ArcGIS Server;

References:
Relationships between web services and portal items;
What can you add to Portal (supported items); https://server.arcgis.com/en/portal/10.4/use/supported-items.htm
Add items to Portal – files from computer; https://server.arcgis.com/en/portal/10.4/use/add-items.htm#ESRI_SECTION1_AE3B53E5DB5B4C37B24145BE08119238

5.1.2 Limitations of Database Registration

Hosted feature services are stored in the Portal’s data store. The data is copied to the server that Portal is installed on and there is no linkage between the Portal content and the local workstation source of the content. If changes are made to the original database, it will not be reflected in Portal unless the feature service is overwritten (republished) from the original database. Changes made in the Portal must be exported and updated at the local level.

5.1.3 Limitations of Size/Complexity Limits

Some datasets are too complex or too large to publish as a hosted feature service. The complexity of the feature services is often determined by the number of vertices in the features. If there are too many
vertices per feature (polygon, line), the complexity of the feature service is high. Conversely, if the datasets size on disk is too large, Portal will also fail to publish. This is more apparent in national layers. Statewide data sets up to 1.2 GB with significant complexity have been tested and published to Portal successfully. It is recommended to use ArcMap or ArcGIS Pro to publish the larger items to Portal. Contact NGCE prior to attempting to publish items larger than 250 MB to the Portal.

5.1.4 Limitations of Display/Scale Limits

Hosted feature services in Portal are limited in the amount of features that can be displayed at once. If the layer has over 1000 features and the layer needs to be viewed at a large scale (statewide), the layer will not draw everything; it will stop at 1000 and give a warning message. This applies to hosted features services displayed via web map or in ArcMap. Analyses done in ArcMap with hosted feature services will be limited to 1000 features as well.

**Note:** Portal can still contain over 1000 features, it just does not display more than that at one time.

An assessment has been performed that finds that for many counties, the 1,000 feature display and analysis limit should have minimal impact for conservation planning and many other business areas in NRCS engaged in large scale GIS activities.

Users who wish to view, analyze, or prepare maps of areas larger than 8,000 acres and at smaller scales should contact NGCE for advice regarding ArcGIS Desktop applications and access to ArcGIS Server resources.

5.1.5 Limitations of Backup and Restore

- The Portal data store is periodically backed up at the host server level by NITC. Restoration of data from backups are only performed in response to system level catastrophic failures. All Portal content in the data store would be restored.
- Restoration of individual content items from server backups is not possible.

**Policy:** All publishers shall use best practices regarding item properties for deletion, group access, editing access, and sharing. Failure to utilize best practices that result in loss of content items as a result of accidental deletion or unauthorized edit changes can only be restored by republication of the items from the local ArcGIS Desktop level. Lost content can only be restored by republishing the lost layers back to Portal as hosted feature layers. See **Guidance** for a discussion regarding protection and recovery of dynamic hosted feature layers.


This guidance is particularly relevant for dynamic feature layers that are receiving updates from mobile applications such as Collector™ or Survey 123™.

**Limitation:** Feature layers published locally to Portal as Tile Layers cannot be exported.

5.1.6 Limitations that are not known

Other limitations and bugs may not be known. The NGCE will communicate limitations, bugs, and other issues to the Portal Publisher and User community as they are discovered and documented. The distribution method is to be determined.
6  Geo Portal Hosting, Support, and Training

6.1 Hosting
 Hosting of the Portal for NRCS is performed by the USDA OCIO National Technology Information Center in Kansas City, Kansas. The USDA OCIO NITC shall:

- Perform day to day system administration of the server hosting Portal.
- Perform system analysis and provide support to the NRCS Portal Administrators.
- Provide information system security and reliability for the NRCS Portal.
- Coordinate resolution of issues with the NRCS Portal Product Owner and Administrators.

6.2 Portal Support
 A three tier technical support structure shall be staffed and maintained by the NGCE with support from the Deputy Chief, Soil Survey and Resources Assessment (DSSRA).

6.2.1 Tier 1 Support

6.2.1.1 Use of the ESRI Portal for ArcGIS Online Help Facility
- Administrators, Managers, and Publishers shall utilize the Portal for ArcGIS online help facility as the pre-Tier 1 support instance.
- The help facility is found at: https://server.arcgis.com/en/portal/.
- Help is available for use and administration of the Portal.

6.2.1.2 End User Tier 1 Support
- End Users of the NRCS Portal for ArcGIS shall be supported by their business area Publisher.
- Example 1: A service center user requires assistance for a Portal issue. The end user requests assistance from their respective state Publisher.
- Example 2: A National Center user requires assistance for a Portal issue. The end user requests assistance from their respective National Center Publisher.
- Publishers, if unable to resolve an end user issue, shall elevate the issue to the NGCE for support using the web based service portal powered by Service Now™ (see 6.2.1.4).

6.2.1.3 Publisher Tier 1 Support
- Publishers that are unable to resolve Portal issues shall elevate the issue to the NGCE for support using the web based service portal powered by Service Now™ (see 6.2.1.4).

6.2.1.4 Accessing support using the Service Now service portal.
 The Service Now™ service portal link is: https://nrcsprod.service-now.com/ServiceDesk/.
 Access requires use of the USDA eAuthentication login and password or LincPass PIV. Service Now also has a 24 hour 7 day a week help phone line at 1-970-372-4200.
 A live chat facility is available from 9 AM to 7 PM EST.
 The phone line and chat facility are closed for Federal Holidays.
6.2.1.5 Entering a Tier 1 support request to the Service Now™ service portal

The Service Now™ dashboard will appear when the user accesses the service portal page. Four linked panels appear on the dashboard:

- Ask a Question
- Frequently Asked Questions
- Report An Issue
- Check Issue Status

An area for Announcements and an area for Support Hours appears just below the linked panels. To access the live chat facility click on the “Chat with Support” link found under Support Hours.

Click on the linked “Report An Issue” panel to open a service ticket. The user name will appear in the first field. Provide information in the following fields (provide information even if listed as optional).

- Email – enter additional emails followed by commas to notify recipients of ticket updates.
- Application Affected – if Not Listed is shown in the choice list, click and choose Not Listed.
- Available Application – Click on the search icon (magnifier) and select “Geo Portal” from the list of options.
- Provide a description of the issue. Common issues might include:
  - Error messages generated during publication of services.
  - Inputs and outputs if applicable.
  - Whether the layer is a feature layer or a tile layer.

Note that the Report An Issue page will parse Description field and will search the Knowledge Base and provide best match results.

- Create a screen capture of error messages etc. and upload the image. Multiple attachments may be added. At least four images and documents can be uploaded and attached to the ticket. Files can be removed from the attachment list.

Click the “Submit” button in the lower right corner of the Report An Issue page when finished with ticket data entry.

6.2.2 Tier 2 Support

- The Service Now staff will attempt to respond and resolve the issue. If unable to do so they will route Geo Portal issues to selected members of the NGCE staff.
- The NGCE receiving point of contact shall examine the content of each Service Now Portal issue and redirect it to the appropriate technical person for response if they are unable to respond.
- Issues beyond resolution of NGCE support staff shall be elevated to Tier 3 Support.

6.2.3 Tier 3 Support

- Tier 3 support referrals shall go to:
  - The NITC for server side issues beyond the scope of the Administrators.
• The USDA OCIO Enterprise Application Services (EAS) office, where appropriate, for resolution of issues beyond the experience of the NGCE Administrators, Managers, and other support personnel.
• ESRI Support for application side issues beyond the experience of the Administrators, Managers, and other NGCE support personnel.

6.2.4 A Frequently Asked Questions (FAQ) capability shall be built, maintained, and be made available to agency users by the Service Now™ service portal.

• The FAQs shall be available to all users of the NRCS Portal application.
• Users shall access FAQs through the Service Now service portal.

6.3 Training

6.3.1 Role based training requirements

ESRI role based training shall be made available to NRCS personnel using the Portal to perform agency business. Training shall consist of a blend of introductory videos, webinars, web based instructor led training, and classroom based instructor led training. The NGCE shall establish training requirements and maintain the list of available ESRI training and work with the NRCS National Employee Development Center to integrate and maintain Portal training into agency geospatial technical specialists Individual Development Plans (IDPs).

To obtain training all roles shall:

- Create an ESRI Training login.
- Work with the NGCE GIS training team to determine which training and what sources might be appropriate for an individual’s experience level and funding.

6.3.1.1 Product Owner required training and experience

• Training and experience with project management
• Training and experience with the ESRI GIS product line including Desktop, Web, and Mobile applications.
• Training and experience in Federal Government IT budgeting, planning, investment analysis, and reporting.

6.3.1.2 Administrator role required training

• ESRI training seminars and technical workshops (recordings from User Conferences):
  - Extending access to GIS maps and apps with Portal.
  - Introduction to security for ArcGIS Server and Portal.
  - Introduction to Portal for ArcGIS.
  - Getting the most out of ArcGIS configurable web apps.
• ESRI instructor led coursework that covers:
  - Configuration and licensing of Portal software (to work with NITC).
  - Creation, configuration, and management of user accounts and enterprise authentication.
  - Integrating ArcGIS for Server with Portal through federation.
- Implementing a hosting server.
- Sharing content on the web (i.e., *ArcGIS 4: Sharing Content on the Web*).

**ESRI training seminars, technical workshops, and instructor led classes are version based.** Administrators shall keep up to changes in the Portal environment through frequent attendance at training seminars and technical workshops.

- Administrators shall attend instructor led training each time the Portal undergoes a major version change. Versioning of Instructor led training is intended to facilitate the communication of requirements to NITC, perform monitoring of NITC software updates, and assess impacts to current NRCS workflows.

- New Administrators shall receive six months of additional coaching, job shadowing, and close supervision by the lead Portal Administrator prior to independent performance of any Portal administrative task.

**6.3.1.3 Manager role required training**

- Managers shall, depending on the scope of their assigned tasks, participate in training at the Administrator as well as the Publisher role levels.

- The NGCE Portal for ArcGIS Product Owner shall determine, with the aid of the prospective Manager and the Manager’s supervisor, which coursework will provide the prospective Manager with the necessary tools to carry out their assigned scope of activities. The initial coursework required for the Manager role is the ESRI Instructor led “*ArcGIS 4: Sharing Content on the Web*”.

- Additional coaching and job shadowing shall be added to Manager training. A minimum of six months of coaching, job shadowing, and close supervision by an Administrator shall be performed prior to performance of any solo Portal administrative tasks.

**6.3.1.4 Publisher role required training**

- NRCS National, Center, State, and Soils Regional Portal users who request to be elevated to the Publisher role are required to complete the ESRI Instructor led “*ArcGIS 4: Sharing Content on the Web*” course.

- All State GIS Specialists are required to complete the ESRI Instructor led “*ArcGIS 4: Sharing Content on the Web*” course. State GIS Specialists shall use the training to assume the role of lead Publisher for their state.

- Questions and concerns regarding the required training requirement for Publishers and possible flexibilities based on prior knowledge and experience should be addressed to the National Geospatial IT Innovation Leader at the National Geospatial Center of Excellence.

- Additional training in *ArcGIS Pro: Essential Workflows* is strongly recommended. Versions 1.2 and above of ArcGIS Pro have substantial enhancements that take advantage of the Service Center Agency 64 bit processing architecture for workstations.

- Additional coaching for new Publishers will be provided by NGCE Portal Support as needed.

**6.3.1.5 User role required training**

- Users are encouraged to view existing ESRI training webinar videos to learn more about the use of the Portal and Portal services.

- Local service center and other users who wish to create maps and groups are required to complete the ESRI Instructor led “*ArcGIS 4: Sharing Content on the Web*” course.
• Additional coaching for new Publishers will be provided by NGCE Portal Support as needed.

6.3.2 Sources of training
The following sources of training are acceptable for role based use of the NRCS Portal for ArcGIS:

- Instructor led class room training with supplemental enrichment activities.
  - Supplemental activities illustrate the use of Portal for hosting NRCS layers, services, maps, and apps.
  - For Administrators and Managers: Practice activities will take place on the Test and Development instances of the Portal.
  - For Publishers: The supplemental activities that are built into the half day curriculum of the ArcGIS 4: Sharing Content on the Web instructor led class.
    - Practice activities will take place on the Development version of the Portal.

- Instructor led web training with supplemental enrichment activities.
  - Supplemental activities illustrate the use of Portal for hosting NRCS layers, services, maps, and apps.
  - For Administrators and Managers: Practice activities will take place on the Test and Development instances of the Portal.
  - For Publishers: Supplemental activities will be scheduled prior to granting of Publisher rights after completion of the ArcGIS 4: Sharing Content on the Web class.
    - Practice activities will take place on the Test and Development instances of the Portal.

- Supplemental topical webinars presented by NGCE, National Centers, EBI Team, and selected states.

- One on one coaching with NGCE personnel either A) On site, B) At NGCE, or C) Remote via Skype for Business

6.3.3 Certification of training

- For instruction provided through the NEDC, the NEDC Certificate of Completion shall be accepted as proof of completion.

- For instruction provided by ESRI over the web, the ESRI Certificate of Completion shall be accepted as proof of completion.

- Webinars and other web based instruction.
  - Notify the NRCS Portal Product Owner of completion of training.
  - The NGCE GIS Training Team will verify completion using the ELA Training Administrator tools.

- Supplemental activities and coaching.
  - Notify the NGCE Portal Product Owner of services and maps published to ArcGIS Online.
  - NGCE Portal coaches shall enter their activities and time into a worksheet that documents:
    - Date of coaching session
    - Who received the coaching, who provided the coaching
• What topics were covered during the coaching
The worksheet shall be maintained for the use of the Portal Product Owner, the NGCE Leadership Team, and Supervisory staff.
7 Geo Portal Decision Tree and Workflow

What type of data is being published?

**Raster**

Raster data such as image services will not be published to Portal. NGCE will handle publication of image and raster data to ArcGIS Server and create links to Portal.

**Geo-Processing**

Geo-Processing tools will not be published to Portal. NGCE will publish to ArcGIS Server instead.

**Vector**

Vector data can be published to ArcGIS Server by NGCE or published to Portal by the authorized publishers.

7.1 Vector Publishing Decision factors:

The following are guidelines to assist publishers with making workflow decisions.

7.1.1 Size/complexity of the feature layer.

There is a higher probability of failure to publishing an item to Portal if either of the following conditions are met:

- Greater than 1 GB with high complexity of features (number of vertices)
- Greater than 10 GB with moderate to low complexity of features (number of vertices)

**Note:** These are only guidelines since complexity is hard to determine. The NGCE will monitor the performance of the Portal and provide guidance to Publishers regarding Best Practices for Publication of items.

If publication failure occurs break up the data into manageable portions or send the data to NGCE to publish as a map service.

**Note:** Breaking up the data is not the optimum choice because it requires more maintenance to keep updated. Consider all the alternative options before deciding this process.

7.1.2 Number of features needed to draw at once or analyzed in ArcMap

Due to Portal’s web map limitations, it cannot draw more than 1000 features at one time. If the map scale is low enough, this restriction will be acceptable. However, if the feature service must display all records at any given scale, the data will have to be published as a map service by NGCE.

The 1000 feature limit also prevents ArcMap from running analyses on more than 1000 records at once. Data will need to be published server side by NGCE.

7.1.3 Public Access.

If the feature service needs to be accessible to the general public, then it will have to be published to ArcGIS Online for Organizations (AGOL).
7.2 Geo Portal for ArcGIS Workflow Decision Tree

Data Types

- Vector
- Raster (NGCE*)
- Geo-processer (NGCE*)

Size/Complexity

Less than 10 GB with moderate to low complexity or less than 1.5 GB with high complexity

Greater than 10 GB with moderate to low complexity or greater than 1.5 GB with high complexity (NGCE*)

Draw Scale

Less than 1000 features needing to be drawn or analyzed at once.

Greater than 1000 features needing to be drawn or analyzed at once. (NGCE*)

Public Access

Yes

No

- Publish to Portal
- Publish to AGOL

*Requires NGCE involvement
8 Additional Help Links

Portal for ArcGIS has many helpful and informative webpages that describe what is Portal and how to use it. Use of Chrome browser is recommended.


Life cycle data management – general
https://data.library.virginia.edu/data-management/lifecycle/

Life cycle data management – geospatial

https://www fgdc gov/policyandplanning/a-16/ngda-management-plan