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(SCMI)

Manual for
Managing Geospatial Datasets
In
Service Centers

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Manual for Managing Geospatial Datasets in Service Centers

Introduction

In a March 16, 1998 memorandum by the Secretary of Agriculture, the agencies of Natural Resources Conservation Service (NRCS), Farm Service Agency (FSA), and Rural Development (RD) co-located offices, modernized business processes, and partnered to achieve a “one-stop service.” The United States Department of Agriculture (USDA) county level field offices, referred to as Service Centers, provide access to all three of the agencies’ customer’s daily business needs in one location. One of the major components of the Service Center Modernization Initiative (SCMI) involved the implementation of a Geographic Information System (GIS) across all of the partner agencies’ Service Center offices. A Service Center Geodata Management Team has been [chartered](#) with the overall responsibility for implementing and maintaining an infrastructure for the management of geospatial data resources for these partner agencies.

<p>The individuals who contributed to the development of this revised manual are:</p> <p style="text-align: center;">Geodata Management Team – Geodata Manual Revision Committee:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 25%;">Banette Kritzky</td> <td style="width: 25%;">Randy Wiggins</td> <td style="width: 25%;">Mike Hart</td> <td style="width: 25%;">Heather Grady</td> </tr> <tr> <td>Randy Frosh</td> <td>Todd Anderson</td> <td>Dan Culli</td> <td>Jill Schuler</td> </tr> <tr> <td>Alison Lenz</td> <td>Stephanie Brown</td> <td></td> <td></td> </tr> </table> <p>This document also reflects the work of people not cited, as large parts of this document were pulled from other standards. Please refer to the Appendix for a list of the standards used.</p>				Banette Kritzky	Randy Wiggins	Mike Hart	Heather Grady	Randy Frosh	Todd Anderson	Dan Culli	Jill Schuler	Alison Lenz	Stephanie Brown		
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Figure 1 — Working Group List

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TABLE OF CONTENTS

INTRODUCTION	2
Figure 1 — Working Group List	2
1.0 OVERVIEW	5
1.1 PAST	5
1.2 PRESENT	6
1.2.1 ArcSDE	6
1.2.1.1 FSA	7
1.2.1.2 NRCS	7
1.2.1.3 RD	7
1.3 FUTURE	8
1.3.1 ArcGIS 9.2	9
1.3.2 Future Tools	9
2.0 WHY PROCEDURES ARE NEEDED FOR GEOSPATIAL DATA	10
2.1 PURPOSE FOR STANDARD FOLDERS AND NAMES	11
3.0 GEOSPATIAL DATA MODEL	12
3.1 GEOSPATIAL DATASET COLLECTION	12
3.2 GEOSPATIAL DATASET CATEGORY	12
Figure 3.2 – Geospatial Dataset Category	12
3.3 GEOSPATIAL DATASET	13
4.0 GEOSPATIAL DATASET NAMING GUIDELINES	14
Figure 4.0 – File Naming	14
4.1 STANDARD CHARACTERS	15
4.2 NAME LENGTH	15
4.3 AREA OF INTEREST	16
4.4 LOCAL DATA	16
4.5 CODES / ABBREVIATIONS FOR STANDARD NAMING CONVENTIONS	16
5.0 GEOSPATIAL DATA STORAGE	19
5.1 GEOSPATIAL DATA DIRECTORY STRUCTURE	19
5.2 LOCAL DATA	19
5.3 “PROJECT_DATA” DIRECTORY	20
5.4 MERGING DATASETS INTO MULTI-COUNTY DATA LAYERS	21
5.5 GEODATA FOLDER STRUCTURE	21
Table 1	21
5.5.1. Deprecated datasets	31
Table 2— Deprecated Tele Atlas Datasets	31

5.6	CURRENT WEB SERVICES	32
5.6.1	ArcIMS Services at ITC (Fort Collins, CO)	33
5.6.2	ArcIMS Services at NCGC (Forth Worth, TX)	34
5.6.3	ArcIMS Services at APFO	34
6.0	ADMINISTRATION OF THE GEODATA FOLDERS.....	35
6.1	THE PERMISSIONS MATRIX	35
	Revised Permissions Matrix – “Restricted“Geodata Folders	38
6.2	ROLES AND RESPONSIBILITIES FOR GEOSPATIAL DATA MANAGEMENT	43
6.2.1	State Geodata Administrator (SGA)	43
6.2.2	Local Geodata Administrators (LGA).....	44
6.2.3	National Data Stewards.....	44
	Figure 6.2.3 – National Geospatial Data Stewards.....	46
6.2.4	National Geospatial Data Centers	46
7.0	METADATA	47
7.1	METADATA – WHAT IS METADATA?	47
7.2	WHAT METADATA IS REQUIRED?	47
	Figure 7.1 — Minimum Metadata for Geospatial Datasets*	47
7.3	WHERE TO STORE THE METADATA?	48
7.4	WHO CREATES THE METADATA, AND WHEN IS IT CREATED?	48
7.5	HOW TO STORE METADATA.....	48
7.6	DESCRIPTION OF THE CORE METADATA ELEMENTS FOR GEOSPATIAL DATASETS	49
	Table 7.6 —Description of Metadata Fields.....	50
7.7	EXAMPLE OF METADATA ELEMENTS	51
	Figure 7.7 — Minimum Metadata for Geospatial Datasets.....	51
8.0	SYMBOLOLOGY	52
8.1	PURPOSE	52
8.2	STYLE SHEETS – NRCS AGENCY SPECIFIC.....	52
8.3	.LYR FILES.....	53
APPENDIX A – FREQUENTLY ASKED QUESTIONS		54
APPENDIX B – ACRONYMS AND GIS TERMINOLOGY		55
APPENDIX C – SUBSCRIBING TO THE GEODATA_ADMIN LISTSERV		56
APPENDIX D – BIBLIOGRAPHY		57

Manual for Managing Geospatial Datasets in Service Centers

1.0 Overview

The Service Center Agencies, along with our partners, have established an enterprise geospatial system. This system certified under the Common Computing Environment (CCE), consists of hardware (i.e., personal computers, network servers, etc.); software (i.e., GIS and GPS software, digital camera software, and out of the box and custom designed software); and peripheral devices (i.e., Global Positioning Systems (GPS), mobile data collection devices, plotters, printers, and digital cameras). The geospatial data created or acquired for this system is also a part of the overall system architecture.

To better support Service Center Agency program management, geospatial data management in the Service Centers has become a standard process under the guidelines presented in this manual. A wide range of geospatial data are used to support agency programs. It has taken a high level of organization, training, and support in each state to bring all users of GIS technology to a point where geodata is used correctly, decision making is sound, and the management of Geodata is not overly burdensome.

This manual is a living document and provides the procedures and standards that will be used to maintain the geospatial data. Users can expect modifications on a regular basis as additional procedures and standards are added to this manual as the technology changes.

1.1 Past

The USDA Service Center concept is a cornerstone of the agency reorganization effort undertaken subsequent to the Department of Agriculture Reorganization Act of 1994. By consolidating the individual agency field offices into service centers, the USDA reduced the total number of offices, and at the same time provided taxpayers with more efficient service at a reduced cost.

One of the key components of the Service Center Modernization Initiative (SCMI) implementation effort was the CCE project. This project established a consistent, common, and compatible information technology solution to allow the sharing of data and equipment among the agencies that make up each service center office. The following identifies the policies that occurred in the past to bring us to this point:

- Under the standard guidelines, management roles and responsibilities were defined for the national, state, and local levels. People at each level in the agency organizations were asked to take on new functions and responsibilities, requiring a high level of interagency coordination.
- Geodata stored separately in the Service Centers was consolidated into a standard set of folders. A directory hierarchy of location and names for individual folders and files were prioritized. Global Groups and permissions were established on each of these folders and files to ensure that data could be shared and protected as appropriate.
- Methods for downloading data from the FSA and NRCS National Data Centers in Salt Lake City, Utah and Fort Worth, Texas, respectively, became more automated.
- Greater emphasis was placed on preparing data for movement between computers and between offices. Management recognized and stressed the importance of adhering to the guidelines to ensure consistency for easy data sharing.
- There has been an increased emphasis on the need for metadata which is descriptive information about a file or “data about data.” Metadata allows better understanding of the characteristics and details of the data - its geographic projection, scale, units, origin and quality.

- GIS software was introduced and staff was trained to efficiently load, maintain, and distribute the software as needed. Environmental Systems Research Institute's (ESRI) GIS software of ArcView 3.x originally kicked off USDA's geospatial adventure. This software infrastructure is constantly upgraded as technology changes.

1.2 Present

This document is designed as a resource for the Service Center staff. It is a compendium of various guides and other helpful information that a Geodata user would access on a day-to-day basis. It provides current policy and standards for all Geodata.

- Currently, the foundation of this document is based on creation of folders and storing shapefiles within those folders for use in a GIS.
- All Agencies have completed or are in the process of migrating from ArcView 3x to ArcGIS 9.1.
- Every State Office is in the process of installing ArcSDE and Microsoft SQL Server software on a dedicated GIS Server
- Creating a better digital communication network between Agencies at all levels of offices.

1.2.1 ArcSDE

ArcSDE is the selected Agency data management tool – it is an engine (software program) that works with a relational database management system (RDBMS). Among other things, it translates the user's (client's) geospatial requests into SQL (standard query language) statements that the relational database can understand. From ESRI's website:

“ArcSDE is an advanced data server, providing a gateway for storing, managing, and accessing spatial data in any of several leading RDBMSs from any ArcGIS application. It is a key component in managing a shared, multiuser [geodatabase](#) – allowing simultaneous editing and viewing by many users. When you need a large geodatabase that can be edited and viewed simultaneously by many users, ArcSDE adds the necessary capabilities to ArcGIS.”

ArcSDE will be deployed at the state and county level agency offices and will alter how our Geodata is stored, named, and accessed. ArcSDE ensures higher standards of data integrity and security and allows for simultaneous multi-user editing if needed.

Deployment of ArcSDE will not occur at the same time for all agencies due to agency policies that require or restrict a simultaneous move to the ArcSDE environment. Consequently, the following subsections provide agency specific information as to how each agency is using or preparing to use ArcSDE.

Keeping in the mind the above paragraph, this version of the manual will remain somewhat transitional as USDA uses and moves towards SDE databases. **For now, the folder and file directory tree location and naming conventions WILL NOT CHANGE as they were established for shapefiles.** As ArcSDE acquires more users and uses, changes to roles, responsibilities, naming and folder conventions will be documented in future updates of this manual.

1.2.1.1 FSA

FSA began deployment of ArcSDE 8.3 to all county level Service Centers in early 2005 and has since moved to ArcSDE 9.1. Currently, most FSA Service Centers maintain, edit and update the official certified copy of the Common Land Unit (CLU) in ArcSDE 9.1. The same format is also true for the current CRP table and Wetland point layer. In addition, other current and future geospatial databases such as crop acreage reporting data will be stored in a relational database management system (RDBMS) that is managed by the ArcSDE engine. The move to ArcSDE not only ensures higher standards of data integrity and security, but allows for simultaneous multi-user editing on the CLU layer if needed.

Though the CLU is currently split up in individual databases at the service center level, storage in ArcSDE/SQL allows for the future possibility of a centralized enterprise CLU database spanning the country. Integration with additional data tables such as FSA's web based Farm and Tract dataset, along with the creation of a CLU web mapping service to further expand the capabilities of GIS in FSA, are future possibilities.

In the ArcSDE format, the official CLU is no longer stored within the "f:/geodata" directory structure. However, shapefile backups for both FSA and NRCS will remain within the directory structure. The move to ArcSDE does not affect the permissions matrix as database permissions are set separately from the "f:/ geodata" directory. However, the permissions groups that have write access to the "f:/ geodata/common_land_unit/fsa_clu" folder will often be made up of the same individuals who have permission to CLU editing in ArcSDE.

1.2.1.2 NRCS

Geospatial data can be accessed through the State Office GIS Server (SOGS). The SOGS is configured to hold three instances of relational databases with each using ArcSDE 9.x. The first instance is the CLU instance owned and managed by FSA. The second instance is the Geospatial Data Warehouse (GDW) instance containing the geospatial data available from the NRCS Geodata Gateway. The third instance is the STLOCAL instance which will hold the geospatial data unique to each state and managed by NRCS.

Using ArcSDE 9.x creates opportunities to manage the data available to each state in Microsoft SQL server. A toolbar will be available called SDE State Data Tool, created by the National Cartography and Geospatial Center (NCGC) to help find data within ArcSDE 9.x in a list similar to the Geodata File Naming Standard. This tool is currently being developed, and information will be provided to the State Geodata Administrators when it is completed.

1.2.1.3 RD

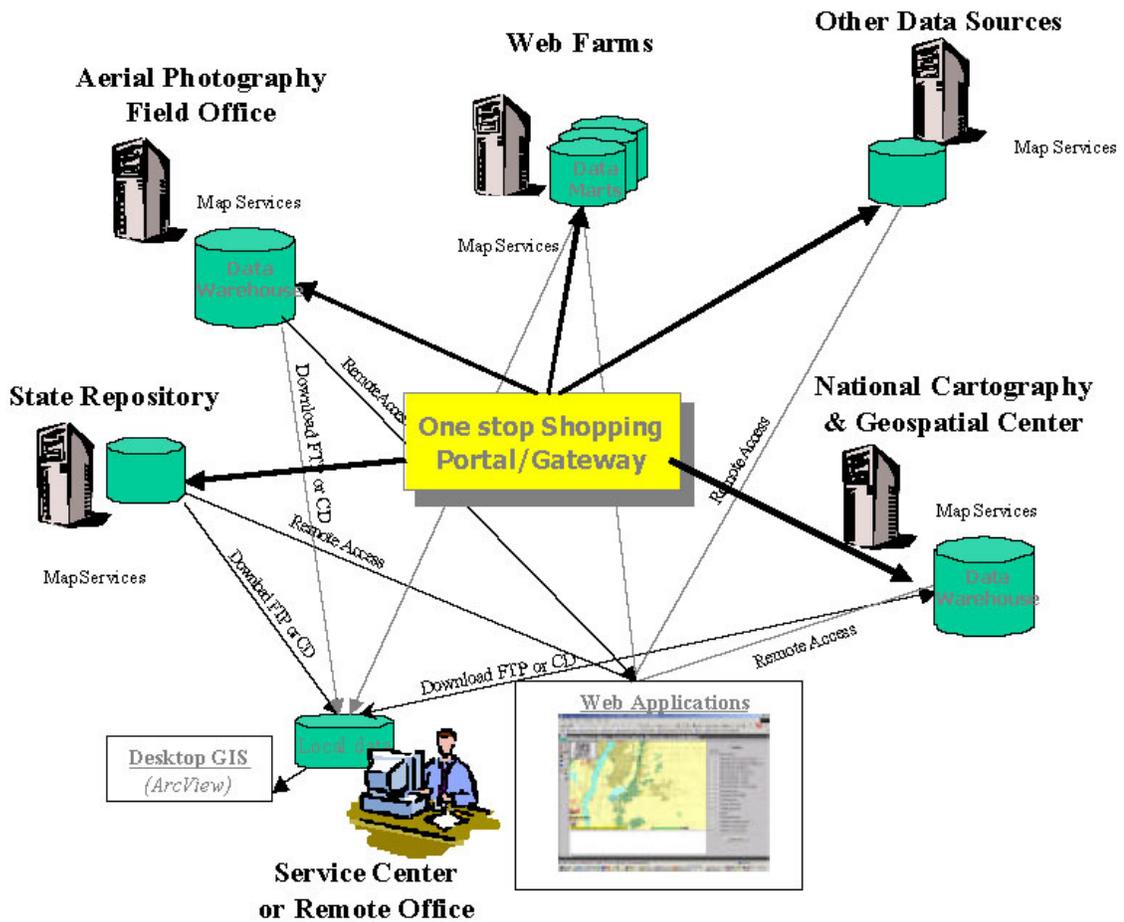
Rural Development's strategy for geospatial technology is to use centralized concepts and methodologies for deployment and usage of geospatial data. Therefore, RD geospatial data will be centralized instead of distributed. The geospatial data will reside on a RD Geospatial Data Warehouse (GDW) within the ITS Web Farm, in addition to the RD Tabular Data Warehouse (TDW) that will also reside in the Web Farm. The co-location of the GDW and the TDW allows RD to integrate data from both warehouses. RD will use this integrated environment as an opportunity to generate program specific geospatial layers for map display.

Rural Development employees can also access non-restricted geospatial data hosted on the State Office Geodata servers. To obtain read-only access to the non-restricted datasets Rural Development users must be assigned to the gg<stcity>users group within their state. The existing service center staff global group will be used to establish this service center users group. State IT staffs will work with the SGAs to assign group membership.

1.3 Future

Because GIS technology is constantly changing, USDA will continue to update policy and practices. This will include not only changes in the GIS software used, but in the naming conventions and folder structure of the geospatial datasets currently being used.

USDA has identified the goal, over the next several years, for the SCA's to migrate to a centralized data architecture in which no or very little data are in service centers. Geospatial data will be stored on centralized servers and made available to both SCA employees and the public through web feature and map services. SCA employees and customers will consume these data through web applications and or client applications that use these web services. SCA employees increasingly will access these data in computers using wireless LAN's and WAN's. Many of these computers will also be mobile (wireless) computers. ArcSDE will be replaced by equivalent middleware embedded in ArcGIS.



1.3.1 ArcGIS 9.2

ArcGIS 9.2 client software has recently been certified by the Interoperability (IO) Lab. Rollout to NRCS and RD is expected by fall / winter of 2007.

At this time, FSA will NOT be deploying ArcGIS 9.2. Current customized applications are in ArcGIS 9.1, and the base platform for future applications has not yet been decided.

1.3.2 Future Tools

The Geodata Management Team (GDMT) is considering development of a suite of tools that will assist geodata administrators to better manage data and provision field GIS users. One of the planned applications included in this suite will be known as the Geodata Provisioning Tool.

Maintaining and managing geospatial data for our Service Center customers has been one of the longest running and most labor intensive activities associated with the implementation of geospatial technologies into the everyday business of a Service Center. The general requirements of a Geodata Administrator's tool are intended to take advantage of the newly acquired State Office Server configuration and make managing geospatial data on the Server Center servers less time consuming and more consistent for the State Geodata Administrators. The new tool should provide clipping, data updating, a report utility, and a NAIP imagery utility. Other tools will help assemble and dissolve a theme of individual tiles into a state-wide seamless coverage from available USDA data warehouse/data mart data bases.

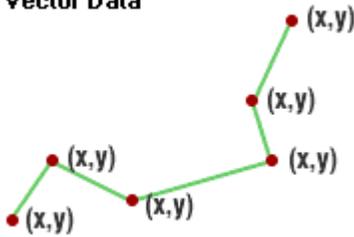
Currently, NRCS personnel in several states have created their own geodata management tools. Some of the features of these tools may be folded into new provisioning applications.

Any suggestions to or for provisioning tools can be made to the [Agency Points of Contacts](#) listed at the end of this manual.

2.0 Why Procedures are Needed for Geospatial Data

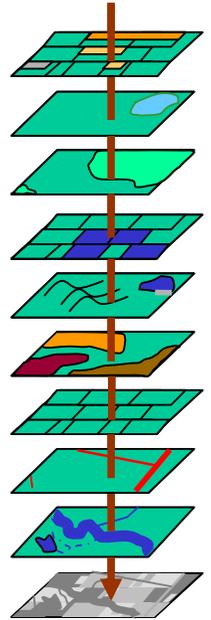
The scope of *geospatial data* includes many data types and sources, with each type having its own unique characteristics. Geospatial data is generally categorized into two data types: vector and raster. Vector data is a coordinate-based data model that represents geographic features as points, lines, and polygons. Raster data is also a coordinate-based spatial data model that defines space as an array of equally sized cells arranged in rows and columns, and composed of single or multiple bands. However, the number of different datasets and categories of datasets which fall under these two data types is essentially infinite.

Vector Data



digital model (raster)

A	A	A	A	0	0	0	0
A	A	A	A	A	0	0	0
A	A	A	A	0	B	0	0
A	A	A	A	0	0	0	0
A	A	A	0	0	0	C	C
0	0	0	0	0	C	0	0
C	C	C	C	C	0	0	0
0	0	0	0	0	0	0	0



Each dataset also includes essential attribute data that can be computer generated or manually input by the user. The attribute data is part of the vector or raster file and needed for the spatial component to function properly. Metadata is the third piece of a data set and is required by Executive Order 12906. Metadata information must be documented, up-to-date, and associated with geospatial data.

Other products created as a result of geodata are map symbology, digitally enhanced photographs, and printed or published maps.

Geospatial data has several characteristics that make it difficult to manage:

- The content of a file is often seemingly random strings of numbers that are difficult for inexperienced users to read and decipher directly. As a result, it is difficult to determine what the content of a particular file represents without additional identifying information.
- Data files are often very large, making their storage and movement from machine to machine challenging.
- A large number of files are often accumulated. These files must be stored and preserved, and found quickly when working with a customer.
- The user must make a determination as to whether new data will be managed as a separate dataset, or be merged into an existing larger dataset, such as a county-wide theme.
- It takes a concerted effort to ensure that metadata, the information that describes each of the geospatial datasets, is kept current and accurate. Without accurate metadata, the value of spatial data quickly declines.
- Geospatial data is difficult and expensive to collect, producing a constant challenge for the user to acquire and maintain current data.
- There are a variety of sources for geospatial data. The geodata managers and users must know the sources, and maintain the linkages to use those sources.
- Geospatial data is sometimes shared with neighboring county, state or other federal offices. It is important that the data are well documented, uniquely named, and stored in a standard convention.
- The increased data and access security being provided under the Common Computing Environment requires standardization in how and where data is stored.

2.1 Purpose for Standard Folders and Names

GIS is being used in everyday business to solve problems. Data organization is becoming a critical problem because GIS usage in Service Centers creates a large number of individual datasets and maps – some very small, some very large. In addition, 22 common geospatial datasets are managed and distributed from USDA national geospatial data warehouses.

As a result, a standard storage and naming structure for these data are essential, especially for:

- The sharing and consistency of data. Movement of data between computers within an office or between offices as people change locations, and the ability to share data among agencies, makes it essential that file names are unique across the organization
- The implementation of automated refreshing of common datasets from national or state sources.
- The fielding of national applications that rely on the consistent placement of data within the folder structure.
- The sharing of data among agencies.
- The distribution of utilities and tools to make the maintenance of files and folders easier.
- Facilitating the backup of data.
- Facilitating the versioning of data.

Following these guidelines ensures nationwide geodata storage that is consistent for all USDA Service Center Agencies. This eases the geodata management issues at all organizational levels.

3.0 Geospatial Data Model

In the geodata structure, a hierarchical classification will be used to categorize geospatial data. At a detailed level this represents a model that can be used to identify and describe geospatial data in a consistent way. The geospatial data model concept is used as the basis for the directory structure in this document.

3.1 Geospatial Dataset Collection

The top level of the geospatial data model is referred to as a *geospatial dataset collection*, which is a catalog and physical repository of *geospatial datasets*. For example, a USDA data mart that serves geospatial data to only one Service Center or a USDA national data warehouse that serves geospatial data to all Service Centers are considered *geospatial dataset collections*. A stand alone document, the [Standard for Geospatial Data \[A1 of APPENDIX C\]](#) fully describes geospatial dataset collections, contains further background information, and is partially included here for the reader's convenience

This standard is based on the lessons learned during the initial fielding of geospatial datasets, and replaces the initial directory and naming conventions. In addition to creating a flatter directory structure, each dataset name within each geospatial dataset category provides a consistent naming convention that offers a standard method of dataset identification including name, data type and location. The directory structure and naming conventions follow in the subsequent sections.

The entire *geospatial dataset collection* at the top level of the directory is located on a designated drive and named "geodata." There shall be only **one** Geodata occurrence in any given Service Center on the shared network server. An example of the physical path to a road dataset using this standard is provided below:

F:\geodata\transportation\roads24k_1_mn.shp

3.2 Geospatial Dataset Category

The next level in the geospatial data model is a *geospatial dataset category*, which is a logical group or division of a *geospatial dataset collection*. A *geospatial dataset category* is analogous to a computer directory or folder. There can be multiple occurrences of *geospatial dataset categories* under the *geospatial dataset collection* (Geodata) level. A *geospatial dataset category* may include at least one *geospatial dataset* complete with all feature data including geometry, attributes, labels and symbology; as well as its associated metadata. However, an empty directory can exist as a 'place holder' for future data. Additionally, *geospatial dataset categories* are allowed to have subdirectories (or **subcategories**) as in the case of the climate **example provided below**.

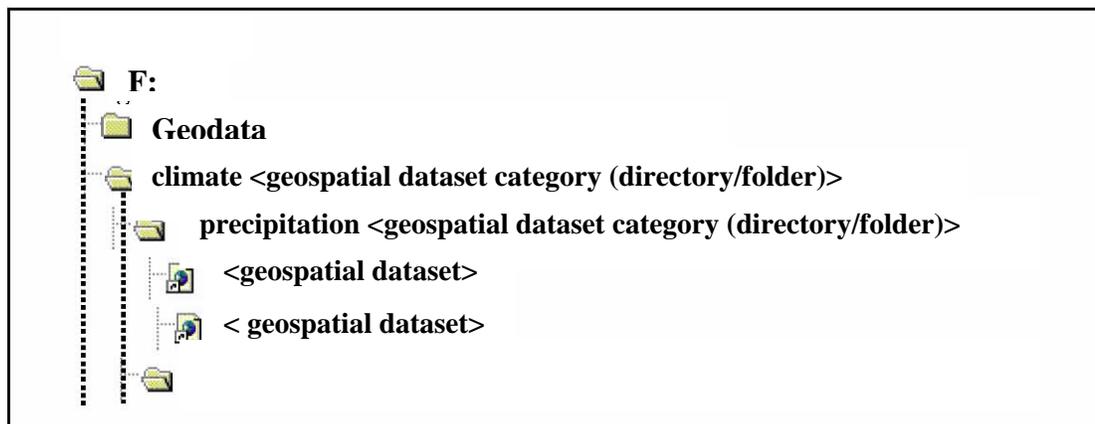


Figure 3.2 – Geospatial Dataset Category

3.3 Geospatial Dataset

A *geospatial dataset* is a group of similar (geospatial data that has the same spatial reference system) spatial phenomena in a *geospatial dataset category* and is related to one metadata set. A *geospatial dataset* is often referred to as a **feature class**, shapefile, layer, theme, or coverage. For example, the *geospatial dataset category* “hydrography” could contain several *geospatial datasets* such as hydro (line), water bodies (polygon), and / or gauges (points).

Geospatial datasets are defined as either local or national depending on where the standards are established.

Local Data	Data for which the standards governing its collection, naming, and documentation are set locally, (i.e. below the national level). However, nationally-defined data can be collected locally; but it is not called “local” data because the standards for its collection were set above the state level. County tax assessor data is an example of a local data type.
National Data	Data for which the standards for its collection, naming, and documentation have been set at a national level by an agency or jointly by several agencies, or according to the standards of an external agency or organization. National data (1) has international, national, USDA, or agency-wide application, (2) contains information that is used/shared directly in making national program decisions, or (3) is used/shared in multiple agencies, offices, states, or other internal/external organizations. USDA SSURGO soils data is an example of a national data type.

In the Service Center, data are either Common, Shared or Unique depending on the type of data, and can be either local or national:

Common data	Data jointly owned, used, and managed by the Service Center partners. Examples of common data include the base geospatial themes, such as Orthoimagery data.
Shared data	Data owned and managed by a specific Service Center partner, and shared by other partners (i.e., one agency maintains the data, while the other partner agencies access and use the data.) Common Land Unit (CLU) data is an example of the shared data type as it is owned and managed by FSA but shared with NRCS.
Unique data	Data owned and managed by a specific Service Center partner but not shared. The data is usually specific to a particular program administered by only one agency. Disaster events\fsa_facilities is an example of a subfolder that contains unique data that is only accessed by a small number of FSA employees

4.0 Geospatial Dataset Naming Guidelines

Naming standards apply to all nationally distributed datasets. **It is recommended that file naming similar to the standards in this document be used for state-defined and locally defined datasets.** (A stand alone document, the [Standard for Geospatial Dataset File Naming \[A2 of APPENDIX C\]](#) contains further background information, and is partially included here for the reader's convenience.)

Names are designed to be **unique** within the entire geodata directory. They maintain their uniqueness even if the category or directory names are eliminated from the structure. Moving files between computers, and between offices, makes unique file names a necessity. Non-unique file names could result in the loss of data when a file is unintentionally overwritten during the moving of data. So, following the example from the previous section, the *geospatial dataset category* "hydrography" could contain a *geospatial dataset* called "hydro_1_ms035.shp." The following more fully explains what each of these characters mean.

The standard file names must convey as much information as possible concerning:

- dataset theme
- type of features in the dataset (point, line, polygon)
- spatial location or extent of the dataset
- a file type extension (as applicable)

As a result, the dataset name contains

- a shortened phrase of what the data is about, used to represent the business name of the dataset
- *feature type designation: p = point, l = line, a = area, etc.
- location or extent information such as a Federal Information Processing Standard (FIPS) code (state and county), State Soil Survey Area ID (STSSAID) number, or 2-digit state abbreviation.
- an extension

*Future geodata files will likely NOT include a feature type designation in the name as the ArcGIS icons already indicate feature type. Additionally, SDE may provide opportunities to update our naming conventions.

An example of a current naming convention is provided below:

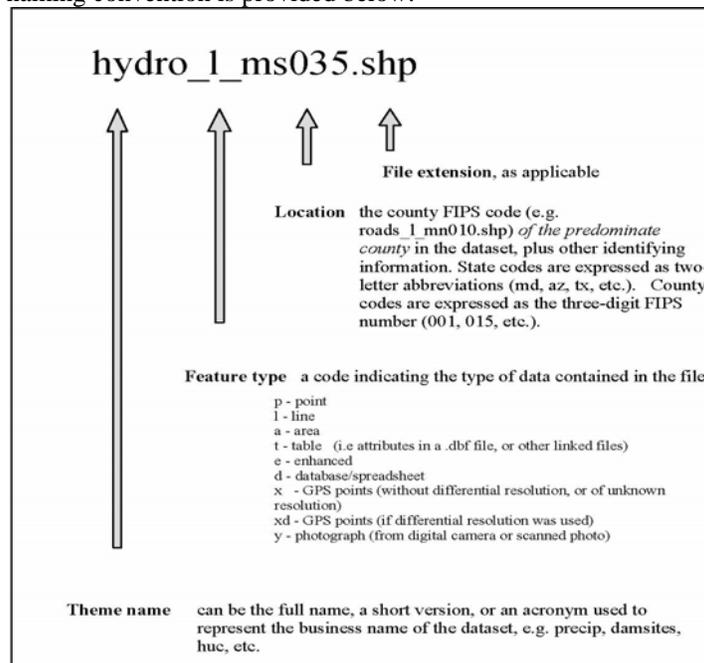


Figure 4.0 – File Naming

4.1 Standard Characters

Because producers and consumers of geospatial data may use computers with different operating systems, (e.g., Windows, UNIX) several restrictions must be imposed on naming files to ensure all systems can access the data.

The allowable standard characters identified in this manual are based on the least common denominator for operating systems and software. This approach will not impede any potential migration of *geospatial datasets* to a new platform or new software environment as technology and software enhancements are realized in the future.

Because of the combination of all these restrictions, the **only** characters allowed in a standard file or directory/folder name are those in the following figure:

- Lower case letters a-z OR upper case letters A - Z
- The numerals 0-9
- The underscore “_” character
- The dash “-“ character, but only when designating mosaic tiling (x-x). **Otherwise the dash is not allowed.**
- The first character in the name shall be a **letter** (a-z).
- **NO spaces in geospatial dataset names, NOR in folders names**

Figure 4.1 — Allowable Characters in File Names

These restrictions also apply to *geospatial dataset category* or directory/folder naming. These standards are very restrictive and shall not change unless the GIS platform changes with further definition from the Common Computing Environment (CCE) Team.

4.2 Name Length

The total length of the dataset filename **MUST** not exceed 30 characters. This limit has been identified during Compact Disc Read Only Memory (CD-ROM) production at National Cartography and Geospatial Center (NCGC). The only CD-ROM writing format that is universally readable throughout Natural Resources Conservation Service (NRCS) is the International Standards Organization (ISO) 9660, Level 2, Mode 1 format. Exceeding this 30character maximum for filenames becomes a problem when datasets are sent via CD-ROM to multiple computer platforms.

No attempt is made to adhere to the so-called 8.3 (8 characters for the name, 3 characters for the extension) format required by older DOS operating systems (maximum of eight character name with a maximum of a three character suffix). This causes problems for Microsoft Access because it cannot import or link to .dbf files (such as those in a shapefile set) whose names are longer than 8.3 until they are renamed with an 8.3 compliant name. (Note: Access requires 8.3 for imported and exported dbf files even though it will handle the longer names.)

There is a 13 character maximum for coverages in ARC/INFO® Workstation. This was exceeded in this standard since it is designed to organize shapefiles and would prove to be easier to use in the Service Centers because it will lessen the need for cryptic names unfamiliar to many Service Center users. However, conversion of data either to or from coverages will require different names and additional processing.

4.3 Area of Interest

As mentioned previously the spatial location or extent is encoded into the name. In the current scheme most data sets will be clipped or tiled to the county boundary unless the map is a state or national layer. This clipped extent shall be appended to the theme name and feature type as a FIPS code or STSSAID number (e.g., roads24k_1_ca048.shp).

Tiling of digital geospatial data significantly impacts overall data management and system performance. In general, it is preferred that tiling is seamless, or transparent, to the user.

Clipping map extents at the county boundary is not always optimal for users if they, for instance, wish to look at a farm or an area (e.g., watershed) that crosses a county boundary. Users prefer to be able to zoom to some arbitrary area of interest and remain unaware of the underlying database structure or tiling scheme. As we migrate to SDE and web mapping services, this will be a more user friendly process.

As a result, at this time, clipping the map data to the county boundary is the best available option for delivery and maintenance of map data. This standard's encoded file naming scheme and directory structure ensures that maps of like datasets in adjacent counties will appear next to each other in a pick list to facilitate user selection of maps.

In some cases, such as Digital Raster Graphics (DRG) and Digital Ortho Quadrangles (DOQ), an image catalog serves as an index map to 7.5-minute quad tiles for a county. This index is used to display images and conceals the underlying tiling scheme and image filenames from the user.

4.4 Local Data

Any locally acquired data should be named in accordance with this standard and follow all naming convention guidelines listed throughout this Section 4.

4.5 Codes / Abbreviations for Standard Naming Conventions

Codes used in the various dataset names include the following:

- **<>** indicates a substitution notation
- **<f>** is the compression format: **s**-MrSID **w**-ECW **j**-JP2
- **<m>** indicates mosaicked DOQQs (Digital Ortho Quarter Quadrangles) are present and reside in native Universal Transverse Mercator (UTM) zone with one of two imagery usage types: **1**. Acquired on or before the year 2000 and/or all non-NAIP imagery from 2001 to present. **2**. Acquired on or after 2007 as current usage will indicate multispectral (4 bands or more) imagery.
- **<mmm>** is the three-letter abbreviation for the applicable month (e.g., precip<mmm>_a_<st>, precipjun_a_co is the file name for Colorado June precipitation)
- **<n>** is the film type/bandwidth designator: **o**-black and white, **c**-color infrared, **n**-natural color, **m**-multi-spectral
- **<nn>** is the UTM Zone number 01-60
- **<nnnnn>** is a 2-digit latitude and 3 digit longitude for a one degree block

- **<nnnnnqdd>** is a 2-digit latitude, 3 digit longitude, and quadrant (**nw**-north west **ne** – north east **sw**-south west **se**-south east). Applies to 30 minute by 30 minute NED 10 meter block.
- **<nnnnnnn>_<qdd>** is a 2-digit latitude, 3 digit longitude, quadrangle 1-64. **<qdd>** is quarter quadrant. Very similar to the USGS standard for DOQQ and DEM. Applies to NAIP quarter quads.
- **<nnnnnn>** is the NRCS office number in the Office Information Profile.
- **<ppprrr>** is landsat path and row.
- **<qdd>** identifies the quarter quadrant (nw-north west ne – north east sw-south west se-south east, **xx**) within the full quad.
- **<r >** is the resolution designator: **1** = 1 meter, **2** = 2 meter, or **h** = high resolution (better than 1 meter)
- **<st>** is the two character state postal abbreviation (e.g., precip_a_<st>; precip_a_co is the filename for Colorado annual precipitation).
- **<stnnn>** is the 2-character state postal abbreviation and 3-digit County FIPS codes (e.g., drg_<stnnn>, drg_md047 is the filename for Worcester County, Maryland DRG)
- **<stssaid>** is the state soil survey area ID (e.g., soils_l_<stssaid>; soils_l_md047 is the filename for Worcester County, Maryland Soil Survey Geographic Database (SSURGO) Lines)
- **us** indicates a dataset covering the entire United States, its protectorates and territories.
- **us48** indicates the conterminous or contiguous United States
- **<usgs standard>** is the standard naming convention used by the United States Geological Survey (USGS). The USGS naming standard for topographic images (DRGs) is available at http://topomaps.usgs.gov/drg/drg_name.html. The USGS naming standard for digital elevation models and digital orthoimagery is very similar except that 1-64 is used instead of a-h for a row and 1-8 for a column.
- **<v>** is the revision 1, 2, 3, ...
- **<x-x>** is number – Tiles are numbered west to east and north to south. Some counties are so large that a compressed county mosaic will not fit onto a single CD or DVD. These counties may be divided into two or more separate mosaics. **<x-x>** is the mosaic number and total count (i.e., “1-2” = mosaic one of two).
- **<xx>** is the two digit hydrologic unit code (region)
- **<xxxxxxxx>** is the 8-digit hydrologic unit code
- **<yyyy>** is the calendar year.
- **<yyyymm>** is the calendar year and month.
- **<yyyymmdd>** is the date expressed as year, month, day. When entire date is not available, use at least year **<yyyy>**.

The feature-type portion of a file name is one of the following:

- **a** – area
- **d** – database/spreadsheet
- **e** – enhanced
- **l** – line
- **p** – point
- **t** – table
- **x** – GPS points (without differential resolution, or of unknown resolution)
- **xd** – GPS points (if differential resolution was used)
- **y** – photograph (from digital camera or scanned photo)

For the APFO Digital Ortho Quadrangles Mosaic imagery

- **<m>** indicates mosaicked DOQQs (Digital Ortho Quarter Quadrangles) are present and reside in native Universal Transverse Mercator (UTM) zone with one of two imagery usage types: **1.** Acquired on or before the year 2000 and/or all non-NAIP imagery from 2001 to present. **2.** Acquired on or after 2007 as current usage will indicate multispectral (4 bands or more) imagery.
- **x** indicates there is a missing DOQQ in the DOQ
- **z** represents re-projected Digital Ortho Quadrangle (DOQ) into dominant county UTM zone
- **o** for black and white (DOQQ)
- **c** for color infra red (DOQQ – both USGS mosaics and NAIP)
- **n** for natural color (NAIPQQ)

For the Topographic imagery

- **r** – 1:20,000, 7.5' x 7.5' topographic map image
- **o** – 1:24,000, 7.5' x 7.5' topographic map image
- **p** – 1:24,000, 7.5' x 7.5' provisional / orthophoto map image
- **l** – 1:25,000 7.5' x 7.5' topographic map image
- **j** – 1:30,000, 7.5' x 7.5' topographic map image
- **k** – 1:25,000, 7.5' x 15' topographic map image
- **i** – 1:63,360, Alaska topographic map image
- **g** – 1:100,000, 30' x 60' planimetric map image
- **f** – 1:100,000, 30' x 60' topographic map image
- **c** – 1:250,000, 1 x 2 degree topographic map image

5.0 Geospatial Data Storage

A standard folder structure on all field-level computers, and consistent file naming procedures, are essential. Note that this standardization is also critical for upcoming automated processes to update datasets from national data warehouses. As mentioned previously, it is anticipated that some storage conventions may change as we migrate to SDE-based geodata.

5.1 Geospatial Data Directory Structure

The standard *geodata* folder structure will be created on all Service Center servers holding geospatial data (see diagram at right). The Geospatial data will be installed on the shared (F) drive on the network servers in each Service Center. The top-level geospatial data folder is named Geodata. There will be only one shared geodata occurrence in any given Service Center.

5.2 Local Data

Agencies will continually obtain or create geospatial datasets that are not specifically identified in this manual. For example, more detailed color DOQs might be available from a local source. Also, unique local problems may require use of geospatial data that are not typically used by Service Centers. For example, Service Centers in Tennessee use BLM strip mine data. In these instances, it is acceptable for state and local data to be stored in an additional subfolder within one of the 34 original geodata structure subfolders.

In both of these cases, the additional geospatial data could be placed within an existing geodata subfolder. The detailed, color DOQs should be placed in the *ortho_imagery* subfolder and a file naming convention should be developed and approved by the [State Geodata Administrator](#). With the BLM strip mine geodata files, for instance, there are a number of possible subfolders that could be used (e.g., *geology*, *land_use_land_cover*, *land_sites*, etc.). The State Geodata Administrator should be contacted to help make the subfolder selection as well as help develop the file naming convention for files of local or state interest. If the data are placed within an existing subfolder, a filename other than the standard filenames must be used or there is a danger that existing files might be overwritten. Before doing so, however, coordinate with the SGA(s) and affected LGAs to ensure no conflict or hardship exists between other agency data or tools. SGA's should contact their National Office Agency Contacts with any questions.

Also, there may be times when filenames must express a unique scale, projection, date or other source to clearly differentiate the file from the standard, existing files.

For example, you are doing an analysis to determine loss of agricultural land. The study requires several land use layers from various years. Under the subfolder "land_use_land_cover" you could have three layers for your county for the years 1980 through 2000. These files would be named "lulc_a_il001_1980.shp", "lulc_a_il001_1990.shp", "lulc_a_il001_2000.shp."

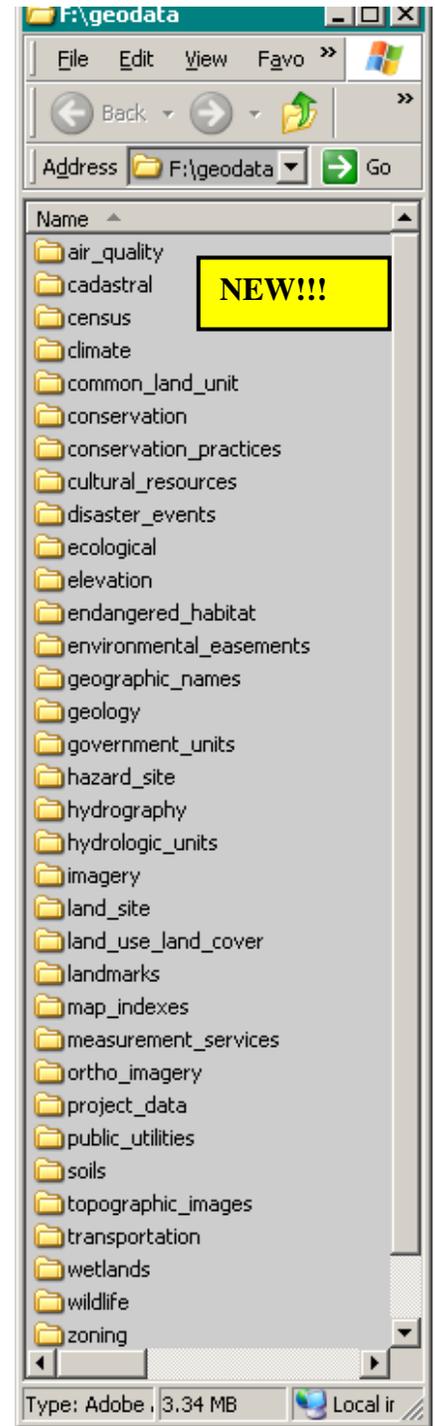


Figure 5.0

New folders will NOT be added to the original 34 folders directly under the f:/geodata tree as this would cause the existing standard geodata directory structure to be disrupted. For example, you CANNOT create the following: F:\geodata\<year>\ortho_imagery; but you could create, F:\geodata\ortho_imagery\<year>.

The f:/geodata's original 34 primary subfolder integrity must be maintained as permission scripts and agency tools are built upon this structure.

As mentioned previously, the [State Geodata Administrator](#) MUST be involved in the creation of any supplemental subfolders and/or file naming processes to ensure that procedures are correctly followed.

NOTE: Locally obtained or created datasets (such as higher resolution DOQ's) cannot be used for official FSA business purposes such as acreage determinations, etc.

A few guidelines are offered to assist in the incorporation of this data in a logical and consistent manner.

- **When no national data exists but there is locally developed data** (such as in the case of Wetland Reserve Program (WRP) easements data), these data along with the Metadata should be placed in the environmental_easements directory or other relevant "geospatial dataset category" directories.
- **When data are created locally as the result of analysis** it should be named according to the standard, and placed under the appropriate *geospatial dataset category* directory if the data would be useful to others at a Service Center. Otherwise, the results should be saved to a personal drive or stored under the agency's f:\geodata\project_data folder (see next section).

Before creating and storing new geospatial dataset always consult your LGA, SGA or agency GIS lead to ensure standards are being followed uniformly national-wide.

5.3 “project_data” directory

An alternative solution for any unique state and local datasets, would be to store them in the f:/geodata/project_data/<agency name> folder. The project_data folders are to be thought of as working directories for each agency and should be managed by each individual agency. Both temporary and permanent data can be placed in these folders. (Examples of temporary data would be clips, merges, or dissolve shapefiles created while working on projects.) As a general rule, subfolders should not be named after employees, but rather after the projects themselves so that data may be easier to locate after employees leave.

While SGAs or State Geodata Teams may develop their own naming conventions for the unique state and local datasets, they should follow the examples provided in this manual. Because of the permissions structure on this folder (restricted to agency specific employees only), this folder may be a choice for holding specially “licensed” datasets.

Agency specific needs have found it necessary to create a new projects folder directly under the “F:/” root folder. It should be noted that there are no permission scripts for this folder, so any data stored here can be accessed by anyone with access to that “f:/” directory. State GIS folks should discuss with their ITS if they want to lock down those folders.

The Geodata Management Team does not endorse this as a national standard for purposes of this manual. However, this Team does recognize that many states have developed this work around. It should also be noted, that care needs to be exercised with regard to projects using CLU or CRP datasets to ensure that these datasets are not being accessed, via projects created on the f:\ drive, by persons without the correct permissions to view this data.

It should also be noted here that many states have made the decision to store the soils' Access databases (“soildb_<st>_YYYY_<stnnn>.mdb”) outside of “f:\geodata” because of write issues (or lack thereof)

when trying to open the .mdb (Microsoft tries to write a temp file when opened). Consequently, one workaround developed is to store these .mdb files in the “f:\FOTG\Section_II” folder.

At this time, FSA employees are not to create any folder structures or store any geospatial datasets outside of the f:\geodata structure unless advised by the Washington, D.C. National Headquarters Office.

5.4 Merging Datasets into Multi-County Data Layers

Merged datasets created to provide a multi-county data layer are named using the data theme file standard name preceded with ‘mosaic_’ and ending with the OIP office id.

Example: If the NRCS Fort Collins, CO office (OIP Office No. 60548) merged two soil surveys (Larimer County Area Soil Survey (CO644) and Weld County Area Soil Survey (CO617)), the resulting file would be named – ‘soil_mosaic_d_co644_co617’.

5.5 Geodata Folder Structure

The table that follows includes a full listing of each geodata folder as well as the naming conventions for the data that resides within that folder. Please note that additional information is provided in the first 2 columns of this Table.

The first column, marked ‘**P**’, contains information as to whether the dataset is considered to be one of the Priority datasets. A ‘**1**’ signifies the dataset is considered a 1st Priority Dataset; a ‘**2**’ signifies the dataset is considered a 2nd Priority Dataset. **Priority 1 datasets must exist** within each service center’s geodata folder; **Priority 2 datasets are highly recommended** as important datasets that should also be included within each service center’s geodata folder. Also included in the Table that follows are some links to websites for the original dataset(s).

The second column, marked ‘**B**’, contains the default determination as to whether or not the directory will be backed up on a regular basis. For directories having a ‘**Y**’ (yes), changed files will be updated on a daily basis with a complete backup of all files weekly. An ‘**N**’ (no) indicates that files in that folder will not be backed up either daily or weekly. GIS data obtained from the National Data Centers, and from the State Office, can be restored easily by either downloading new copies of the data or reloading from the original tape or CD. It is not necessary to continually back up these large datasets stored on the Service Center server. The backup of individual folders can be modified to meet local needs.

The following is a summary of the standard geodata subfolders, the geospatial datasets that are to be stored in each of them, and the datasets’ naming conventions:

Table 1

P	B	Subfolder Name	File Name Prefix	Description
		F:\geodata\		Top folder in the directory structure. The following are subfolders for major theme categories under the primary geodata folder:
2	Y	air_quality	File naming to be determined.	No files delivered to date.
1	N	cadastral http://datagateway.nrcs.usda.gov/	plss_a_<stnnn> plss_l_<stnnn>	Public Land Survey System polygon data Public Land Survey System boundaries (township/range/section) for cartographic display.
1	N	Census http://datagateway.nrcs.usda.gov/	block_group_dm_a_<stnnn> block_groups_a_<stnnn> blocks_a_<stnnn>	Dynamap census block groups. Demographic block data tabulated by census geography from Bureau of Census. Other base map TIGER features such as road, hydro etc are in appropriate theme folders. Demographic block data tabulated by census geography from Bureau of Census.

P	B	Subfolder Name	File Name Prefix	Description	
		http://arcdata.esri.com/data/tiger2000/tiger_download.cfm http://www.census.gov/geography/www/tiger/	census_demographic_a_<st>	Census county demographic statistics by state	
			census_economic_a_<st>	Census county economic statistics by state	
			census_housing_a_<st>	Census county housing statistics by state	
			census_social_a_<st>	Census county social statistics by state	
			tract_dm_a_<stnnn>	Dynamap census tract.	
			tracts_a_<stnnn>	Demographic tract data tabulated by census geography from Bureau of Census.	
2	N	climate\precipitation http://datagateway.nrcs.usda.gov/ http://datagateway.nrcs.usda.gov/statusmaps.aspx http://www.ocs.orst.edu/prism/prism_new.html	precip_a_<st>	'precipitation' is a subfolder of 'climate'. Annual precipitation (sum of 12 monthly maps) for the entire state. <st> is equal to the state two character postal abbreviation	
			precip_l_<st>	Annual precipitation boundaries for cartographic display for the entire state	
			precip<mmm>_a_<st>	Mean (1961-1990) Monthly precipitation data for the entire state. <mmm> is equal to the three-letter abbreviation for the applicable month	
			precip<mmm>_l_<st>	Monthly precipitation boundaries for the entire state. <mmm> is equal to the three-letter abbreviation for the applicable month	
2	N	climate\temperature http://datagateway.nrcs.usda.gov/	tempmin_a_<st>	'temperature ' is a subfolder of 'climate'. Minimum average January temperature.	
			tempmax_a_<st>	Maximum average July temperature.	
			tempave_a_<st>	Average annual temperature.	
1	Y	common_land_unit <i>Status Maps:</i> http://datagateway.nrcs.usda.gov/statusmaps.aspx	clu_copy_a_<stnnn>	Common Land Unit (CLU) Farm Field Boundary NRCS read-only copy of fully attributed certified CLU.	
1	Y	common_land_unit \ fsa_clu	crp_t_<stnnn>	CRP data linked to CLU. The file will be in the form of converted .dbf files.	
			clu_a_<stnnn>	Common Land Unit (CLU) Farm, Tract, Field Ownership Boundary	
			wet_p_<stnnn>	FSA wetland point data	
1	Y	conservation\ Steward: FSA <i>Note: Datasets are available in multiple UTM zones for states in more than one zone.</i>	cpa_a_<st>_utm<nn>	State Conservation Priority Areas.	
			cpa_a_national_utm<nn>	National Conservation Priority Areas.	
			cp<nn>_a_utm<nn>	Conservation Practice eligibility area for a single practice code.	
			pez_a_utm<nn>	Practice Eligibility Zone national coverage compiled of all practices	
			crep_<iden>_a_<st>_utm<nn>	Conservation Reserve Enhancement Program eligibility area coverage.	
			safe_a_<st>_utm<nn>	State Acres for Wildlife Enhancement program eligibility zone.	
			conservation \ fsa_crp	crp_a_<stnnn>	Conservation Reserve Program layer
			conservation \ conservation_planning\	File naming to be determined	This folder contains conservation datasets and related information required for conservation plan development that is shareable between Service Center agencies. The required conservation planning files and related information may be stored in this folder on a temporary basis.
			conservation \ crp_scenarios	File naming and structure to be determined	This is a Conservation Offer Tool scenario development workspace for use by FSA personnel only. This process requires multiple scenarios developed in which only one will be submitted and if accepted, will then become a CRP contract area. The data is then provided to the appropriate technical service provider for conservation

P	B	Subfolder Name	File Name Prefix	Description
				plan development. Information will be provided to Service Center Agencies for Conservation Plan development in the conservation/conservation_planning folder. This is not a CRP layer. This information is highly sensitive and protected by law.
2	Y	conservation_practices	File naming to be determined.	Planned and applied conservation practice data aggregated for the Service Center. No data.
2	Y	cultural_resources	File naming to be determined.	Archeology, state historic sites, Native American settlements and burial grounds, National Park Service National Register of Historic Places, National Historic Landmarks and National Natural Landmarks. A general category and no files delivered to date.
1	Y	disaster_events	<disaster type>_a_<stnnn> _<identifier>	Describes the area (or points if feature type is a 'p') affected by a natural disaster, with a unique name or identifier for the event. Disaster type describes whether the event was a flood, storm, etc. The unique event identifier is a date, unless some other identifying code is assigned, such as a version number. State and county can be included depending on the scope of the disaster area.
1	Y	disaster_events \fsa_ facilities	ffsf_p_<stnnn>_<yyyymmdd>.shp	Point locations within the county of Food, Feed, Seed and Fertilizer Facilities.
2	Y	ecological	File naming to be determined.	No files delivered to date.
2	N	elevation	contour_1_<stnnn>	1:24,000 USGS hypsography line data
			contour10_1_<usgsStandard>	10 foot contour lines (without 50, 250 foot)
			contour50_1_<nnnnnqd>	50 foot contour lines (without 250 foot)
			contour250_1_<nnnnnqd>	250 foot contour lines
			ngs_p_<stnnn>	Point location and description of National Geodetic Survey Monuments
			ned10m_<nnnnnqd>	1:24,000 USGS National Elevation Dataset (NED) merged into a one-degree seamless raster format with elevations portrayed in decimeters.
			ned30m_<nnnnn>	1:24,000 USGS National Elevation Dataset (NED) 30 meter merged into a one-degree seamless raster format with elevations portrayed in decimeters.
			n<usgs standard> (IFSAR type) Example: n32w100h8cor.tif	7.5 minute geotiff quads of X-band Interferometric Synthetic Aperture Radar (IFSAR) high-resolution digital elevation maps. Names follow the usgs standard except that the first character is 'n' for north or 's' for south hemisphere prior to the latitude and the fourth letter is 'w' for west or 'e' for east longitude. The IFSAR type is cor, dsm, dtm or ori
			nez30m_<nnnnn>	Reprojected 1:24,000 USGS National Elevation Dataset (NED) 30 meter from adjacent UTM zone merged into one-degree block
			nedshd10m_<nnnnnqd>	1:24,000 USGS National Elevation Dataset (NED) 10 meter merged into a 30 minute by 30 minute seamless shaded relief TIFF format.
			nedshd30m_<nnnnn>	1:24,000 USGS National Elevation Dataset (NED) 30 meter merged into a one-degree seamless shaded relief TIFF format.
			nezshd30m_<nnnnn>	Reprojected 1:24,000 USGS National Elevation Dataset (NED) 30 meter from adjacent UTM zone merged into a one-degree seamless shaded relief TIFF format.
			nedmeta10m_<nnnnnqd>	1:24,000 USGS National Elevation Dataset (NED) 10 meter metadata shape files for the individual quadrangles that compose the ned.
		<p>NOTE: These 8 datasets are no longer served from the NRCS Geodata Gateway.</p> <p>But as there may be a need to create and store these data, the following naming conventions should continue to be used.</p>		

P	B	Subfolder Name	File Name Prefix	Description
			nedmeta30m_<nnnnn>	1:24,000 USGS National Elevation Dataset (NED) 30 meter metadata shape files for the individual quadrangles that compose the ned.
			nezmeta30m_<nnnnn>	Reprojected 1:24,000 USGS National Elevation Dataset (NED) 30 meter metadata shape files from adjacent UTM zone for the individual quadrangles that compose the ned.
			<usgs standard>	USGS Digital Elevation Model (DEM) ASCII file. USGS standard lat/long name with a "d" leading character. File extension is .dem
2	Y	endangered_habitat	File naming to be determined.	No files delivered to date. State endangered plant/habitat data.
2	Y	environmental_easements	wrp_a_<st>	Aggregation of Wetland Reserve Program (WRP) easements for State Service Centers. Data developed locally.
			wrp_a_<stnnn>	Aggregation of WRP easements for a specific Service Center area. No files delivered to date. Data developed locally
2	Y	environmental_easements \ fsa	flpce_a_<stnnn>	Farm Loan Program Inventory Property (Conservation) Easements. Data developed locally.
			flpct_a_<stnnn>	Farm Loan Program Conservation Transfers. Data developed locally.
			dfn_a_<stnnn>	Debt for Nature easements. Data developed locally.
2	N	geographic_names	gnispop_p_<stnnn>	Geographic Names Information Systems point data from GNIS cultural and topographic populated places file
		http://datagateway.nrcs.usda.gov/	gnisnonpop_p_<stnnn>	Geographic Names Information Systems point data from GNIS cultural and topographic non-populated places
2	Y	geology	File naming to be determined.	No files delivered to date. State data.
1	N	government_units	blm_a_<stnnn>	Bureau of Land Management Polygon Data
		http://datagateway.nrcs.usda.gov/	city_p_<stnnn>	Geographic Names Information Systems point data from GNIS populated places file
		http://arcdata.esri.com/data/tiger2000/tiger_download.cfm	congdist_<nnn>_a_<st>	Full US Congressional districts 104 – 107 from Census TIGER data. <nnn> is the congress number e.g. 106
		http://www.census.gov/geography/www/tiger/	cnty24k_a_<st>	1:24,000 county boundary polygon data
			cnty100k_a_<stnnn>	1:100,000 county boundary polygon from Census TIGER data
			cnty100k_l_<stnnn>	1:100,000 county boundaries for cartographic display from Census TIGER data.
		Status Maps:	county_dm_a_<stnnn>	Dynamap county boundaries
		http://datagateway.nrcs.usda.gov/statusmaps.aspx	med_dm_a_<stnnn>	Dynamap minor civil divisions
			ntlforests_a_<stnnn>	National Forests Polygon data
			ntlforests_l_<stnnn>	National Forests Line boundaries for cartographic display
			ntlparks_a_<stnnn>	National Park Polygon data
			ntlparks_l_<stnnn>	National Park Line boundaries for cartographic display
			place_dm_a_<st>	Dynamap places– city boundaries
			postal_dm_a_<st>	Dynamap postal boundaries – zip codes
			postal_dm_p_<st>	Dynamap postal inventory

P	B	Subfolder Name	File Name Prefix	Description
			rcd_a_us	Full US Resource Conservation & Development Areas polygon data
			state_a_us	Full US state polygons
			state_l_us	Full US state boundaries for cartographic display
			state_dm_a_<st>	Dynamap state boundaries
			swcd_a_us	Full US Soil and Water Conservation District polygon data
			tribal_a_<stnnn>	Native American Indian Lands
			urban_a_<st>	1:100,000 urban area polygons from Census TIGER data
2	Y	hazard_site	File naming to be determined.	No files delivered to date
1	N	hydrography http://datagateway.nrcs.usda.gov/ <i>Status Maps:</i> http://datagateway.nrcs.usda.gov/statusmaps.aspx <i>or</i> http://nhd.usgs.gov/data.html	damsites_p_<stnnn> fema3_a_<stnnn> hydro100k_l_<stnnn> nhd24kst_l_<xxxxxxx> nhd24kar_a_<xxxxxxx> nhd24kwb_a_<xxxxxxx> ssara_p_<stnnn> watbod_a_<stnnn> water_dm_a_<stnnn> water_major_dm_a_<st> water_dm_l_<stnnn>	National Inventory of Dams point data Federal Emergency Management Agency (FEMA) polygon data 1:100,000 Census TIGER line data for hydrology 1:24,000 USGS/EPA National Hydrography Dataset streams line data by 8 digit sub basin 1:24,000 USGS/EPA National Hydrography Dataset polygon area reach data by 8 digit sub basin 1:24,000 USGS/EPA National Hydrography Dataset polygon water body data by 8 digit sub basin Sole source aquifer recharge areas 1:100,000 Census TIGER area features for water bodies Dynamap water areas Dynamap major water areas Dynamap water lines
2	Y	hydrologic_units http://datagateway.nrcs.usda.gov/statusmaps.aspx http://www.ftw.nrcs.usda.gov/huc_data.html http://water.usgs.gov/GIS/huc.html	huc250k_a_us wbdu8_a_<xx> wbdu8_l_<xx> wbdu12_a_<xxxxxxx> wbdu12_l_<xxxxxxx>	1:250,000 8-digit hydrologic unit data for U.S. 1:24,000 8-digit hydrologic unit polygon data at the 1 st , 2 nd , 3 rd , and 4 th level by region (huc2) 1:24,000 8-digit hydrologic unit line data at the 1 st , 2 nd , 3 rd , and 4 th level by region (huc2) 1:24,000 12-digit polygon data at the 4 th , 5 th and 6 th level by sub-basin (huc8) 1:24,000 12-digit line data at the at the 4 th , 5 th and 6 th level by sub-basin (huc8)
1	N	imagery	landsat_<stnnn>_<ppprrr>_<yyyymmdd>	Other imagery files such as satellite or non-standard imagery. <ppprrr> is path and row.
1	N	imagery \ compliance_fsa <i>Note:</i> Beginning with the 2007 NAIP, only 2-meter imagery goes here. The 1-meter imagery goes directly to the "ortho_imagery" folder upon receipt of files.	<a><nnnnnnn>_<qd>_<r>_<yyyymmdd> naip_<x-x>_<r>_<n>_<f>_<stnnn>_<yyyy>_<v>	USDA National Agriculture Imagery Program two meter (<r>=2) quarter quads in GeoTIFF format (.tif). <a> is leading character set to 'n' for natural color. <nnnnnnn>, is two numbers for latitude, three numbers for longitude and two numbers for the 01 to 64 quadrangle number in the one degree block. <qd> is quarter quadrant. <yyyymmdd> is image date. USDA National Agricultural Imagery Program compressed county mosaic (CCM), two meter (<r>=2). Some counties are so large that a CCM will not fit onto a single CD or DVD. These counties may be divided into two or more CD's or DVD's. The naming convention of <x-x> reflects the mosaic number and total count of CD's or DVD's (i.e., "1-2" = mosaic one of two). Two meter imagery is placed in this folder upon delivery for use in FSA compliance programs.

P	B	Subfolder Name	File Name Prefix	Description
			naip_<x-x>_<r><n>_<f>_<stnnn>_<yyyy>_<v>.shp	This vector shapefile contains polygons delineating the boundary between DOQQ imagery in the creation of a Compressed County Mosaic (CCM). This dataset can be used as an index showing the DOQQ's and their particular acquisition dates for each CCM. It is provided by the vendor along with the raster imagery and specifically references each individual year for the county mosaic and not the whole county in general.
			slides_<stnnn>_<fffee>_<yyyy>mm>	Scanned 35mm or digital slides. <fffee> is the flight and exposure number. Example: slides_va013_048009_200207.tif
			slides_<stnnn>_t<nn>_r<nn>_s<nn>_<yyyy>mm>	Scanned 35mm or digital slides. t<nn> is township, r<nn> is range, s<nn> is section. Example: slides_mn013_t34_r26_s15_200207.tif
		Imagery and Ortho Imagery Naming Convention Codes: <ul style="list-style-type: none"> • m indicates mosaicked DOQQs (Digital Ortho Quarter Quadrangles) are present and reside in native Universal Transverse Mercator (UTM) zone with one of two imagery usage types: 1. Acquired on or before the year 2000 and/or all non-NAIP imagery from 2001 to present. 2. Acquired on or after 2007 as current usage will indicate multispectral (4 bands or more) imagery. • x indicates there is a missing DOQQ in the DOQ • z represents re-projected Digital Ortho Quadrangle (DOQ) into dominant county UTM zone • o for black and white (DOQQ) • c for color infra red (DOQQ) • n for natural color (NAIPQQ) • d for DEM 		
2	Y	land_site	aboveground_storage_p_<stnnn>	County coverage of the location points of aboveground storage facilities. Any kind of storage or particular types of storage
			housing_p_<stnnn>	Location points for instances of housing developments and/or foreclosures, within a county
			lagoon_p_<stnnn>	Location points for lagoons and similar areas in a county
			livestock_facility_p_<stnnn>	Location points of feedlots, poultry facilities, etc. within a county
			stackyd_a_<stnnn>	Polygons of stackyards for hay/silage storage in a county
			storage_p_<stnnn>	Location points for grain bins and similar facilities in a county
			underground_storage_p_<stnnn>	County coverage of the location points of underground storage facilities
			well_p_<stnnn>	Point data for locating well heads within a county
1	Y	land_use_land_cover	cdl_awifs_r_<st>_<yyyy>	NASS cropland data layer classified image from either the awifs or tm platform.
			cdl_tm_r_<st>_<yyyy>	NASS cropland data layer analysis areas raw image from either the awifs or tm platform.
			cdlinfo_awifs_j_<st>_<yyyy>	NASS cropland data layer analysis areas raw image from either the awifs or tm platform.
			cdlinfo_tm_j_<st>_<yyyy>	NASS cropland data layer analysis areas raw image from either the awifs or tm platform.
			lulc_a_<stnnn>	Polygon data of the USGS Land Use Land Cover
			nonveg_a_<stnnn>	1:24,000 USGS non-vegetative polygon data (sand area, beach, gravel beach, etc.)
			nlcd_<st>_utm<nn>	30 meter USGS/EPA National Land Cover Dataset raster data. The dataset is available in multiple UTM zones for states in more than one zone
			surfcvr_a_<stnnn>	1:24,000 USGS surface cover polygon data (woods, brush, orchard, etc.)
			strata_a_<st>	NASS area sampling frame aggregate breakdown of land use
			File naming to be determined.	Vegetation distribution, etc.

P	B	Subfolder Name	File Name Prefix	Description
1	Y	land_use_land_cover \ fsa_compliance	comp_a_<yyyy>_<stnnn>	Annual compliance data created by FSA's compliance application.
			landuse_a_<yyyy>_<stnnn>	Commodity (acreage) reporting data created by the FSA Land Use pilot application.
2	N	landmarks	airport_dm_a_<st>	Dynamap airports
			institution_dm_p_<stnnn>	Dynamap institutions
			landmark_dm_a_<stnnn>	Dynamap area landmarks
			park_dm_a_<stnnn>	Dynamap parks
			recarea_dm_p_<stnnn>	Dynamap recreation areas
			retail_dm_p_<stnnn>	Dynamap retail locations
			transterm_dm_p_<st>	Dynamap transportation terminals
2	Y	map_indexes http://datagateway.nrcs.usda.gov/ <i>Status Map:</i> http://datagateway.nrcs.usda.gov/statusmaps.aspx	napp_p_<stnnn>	National Aerial Photography Program (NAPP) point data
			quads12k_a_<stnnn>	1:12,000 quarter quad polygon data
			quads20k_a_<stnnn>	1:20,000 7.5x7.5 quad polygons
			quads24k_a_<stnnn>	1:24,000 7.5x7.5 quad polygons
			quads25k_a_<stnnn>	1:25,000 7.5x7.5 and 7.5x15 quad polygons
			quads63k_a_<stnnn>	1:63,360 15x15 quad polygons
			quads100k_a_<st>	1:100,000 30x60 quad polygons
			quads30m_a_<st>	30 minute NED quad polygons for ned10m
			quads1deg_a_<st>	One degree NED quad polygons for ned30m
			quads250k_a_<st>	1:250,000 one degree by two degree quad polygons
1	Y	measurement_services	meas_service_a_<stnnn>_<yyyy>	All area measurement service datasets.
1	N	ortho_imagery http://datagateway.nrcs.usda.gov/ <i>Status Map:</i> http://datagateway.nrcs.usda.gov/statusmaps.aspx Note: While only 1-meter imagery is currently used as the "ortho" imagery, we could have higher resolution imagery in the future. Examples: 1-ft, 2-ft, 1/2 meter, etc.	highres<x-x>_<f>_<stnnn>	NRCS or NCGC county ortho mosaic from high resolution (less than one meter) imagery of mixed film type. <x-x> is number-total tiles in county mosaic. File extension of .sid depicts a MrSID image, while file extension of .ecw depicts an ERMapper image.
			highres<x-x>_<n>_<f>_<stnnn>_<yyyy>	NRCS or NCGC county ortho mosaic from high resolution imagery (less than one meter). <x-x> is number-total tiles in county mosaic. File extension of .sid depicts a MrSID image, while file extension of .ecw depicts an ERMapper image.
			highres_p<x-x>_<n>_<f>_<stnnn>_<yyyy>	high resolution proprietary imagery (less than one meter). <x-x> is number-total tiles in county mosaic. File extension of .sid depicts a MrSID image.
			ortho_<x-x>_<r>_<n>_<f>_<stnnn>_<yyyy>_<v>	USDA National Agricultural Imagery Program compressed county mosaic (CCM), one meter (<r>=1). Some counties are so large that a CCM will not fit onto a single CD or DVD. These counties may be divided into two or more CD's or DVD's. The naming convention of <x-x> reflects the mosaic number and total count of CD's or DVD's (i.e., "1-2" = mosaic one of two). One meter imagery is placed in this folder upon delivery for use in FSA as official base imagery used in CLU maintenance activities. <u>Note:</u> Beginning with the 2007 NAIP, the initial 1-meter NAIP goes here as soon as it is available. It is no longer placed in the compliance_fsa subfolder first and then moved to ortho_imagery folder after full inspection.

P	B	Subfolder Name	File Name Prefix	Description
			ortho_<x-x>_<r><n>_<f>_<stnnn>_<yyyy>_<v>.shp	This vector shapefile contains polygons delineating the boundary between DOQQ imagery in the creation of a Compressed County Mosaic (CCM). This dataset can be used as an index showing the DOQQ's and their particular acquisition dates for each CCM. It is provided by the vendor along with the raster imagery and specifically references each individual year for the county mosaic and not the whole county in general.
			ortho_e<x-x>_<f>_<stnnn>	APFO MrSID county ortho mosaic of enhanced MDOQ. <x-x> is number-total tiles in county mosaic. File extension of MrSID image is .sid.
			ortho<x-x>_<f>_<stnnn>	NCGC or NRCS county ortho mosaic of DOQQ. <x-x> is the number of total tiles in county mosaic. File extension of .sid depicts a MrSID image, while file extension of .ecw depicts an ERMapper image.
			ortho_<st>_<f>_<nnnnnn>	NRCS field office multi-county service area (defined in Office Information Profile database as the NRCS OIP office ID) ortho mosaic. File extension of MrSID image is .sid.
			<a><nnnnnn>_<qd>_<yyyymmdd>	USGS DOQQ –Raster format (.bil, .bsq, .bip). <a> is leading character either 'o' for black and white or 'c' for color infra red. <nnnnnn>, two numbers for latitude, three numbers for longitude and two numbers for the 01 to 64 quadrangle number in the one degree block. <qd> is quarter quadrant. <yyyymmdd> is image date.
			<a><nnnnnn>_<yyyymmdd>	APFO DOQ .tif image. <a><nnnnnn> is leading character, two numbers for latitude, three numbers for longitude and two numbers for the 01 to 64 quadrangle number in the one degree block. <yyyymmdd> date is optional. Leading character <a> can be: m – all DOQQs present and reside in native UTM zone x – there is a missing DOQQ in the DOQ z – re-projected DOQ into dominant county UTM zone.
			<a><nnnnnn>_<qd>_<r>_<yyyymmdd>	USDA National Agriculture Imagery Program one meter (<r>=1) quarter quads in GeoTIFF format (.tif). <a> is leading character set to 'n' for natural color. <nnnnnn>, is two numbers for latitude, three numbers for longitude and two numbers for the 01 to 64 quadrangle number in the one degree block. <qd> is quarter quadrant. <yyyymmdd> is image date.
			<a><nnnnn> <-A#>	ADS40 Hurricane 7.5' quad MrSid mosaic. Note name is inconsistent with standard upper case and dashes. <a> K_ R_ W_ Katrina, Rita, Wilma <nnnnn> two numbers for latitude, three numbers for longitude; <-A#> upper case A-H row and # 1-8 column in one degree
		<p>Imagery and Ortho Imagery Naming Convention Codes:</p> <ul style="list-style-type: none"> • m indicates mosaicked DOQQs (Digital Ortho Quarter Quadrangles) are present and reside in native Universal Transverse Mercator (UTM) zone with one of two imagery usage types: 1. Acquired on or before the year 2000 and/or all non-NAIP imagery from 2001 to present. 2. Acquired on or after 2007 as current usage will indicate multispectral (4 bands or more) imagery. • x indicates there is a missing DOQQ in the DOQ • z represents re-projected Digital Ortho Quadrangle (DOQ) into dominant county UTM zone • o for black and white (DOQQ) • c for color infra red (DOQQ) • n for natural color (NAIPQQ) • d for DEM 		

P	B	Subfolder Name	File Name Prefix	Description
1	Y	project_data \	Agency Choice (e.g., state specific "Licensed" type data)	Subfolders for agency-specific data that do not fit under the major geodata theme subfolders. Subfolders for each agency or organization may be created <u>as needed</u> .
		project_data \ fsa	Agency Choice	
		project_data \ nrcs	Agency Choice	
		project_data \ rd	chattel_p_ <stnnn>	Known location points for customer-owned, moveable property, in a county. Multiple assets may be linked to a point
			chattel_y_ <stnnn> <sequence_number>	Photographs associated with the customer chattel points file. If multiple photos, they can be distinguished with a sequence number, or other identifying information.
		project_data \ rcd	Agency Choice	Resource Conservation District
		project_data \ swed	Agency Choice	Soil and Water Conservation District
2	N	public_utilities	File naming to be determined.	No files delivered to date.
1	N	soils http://soildatamart.nrcs.usda.gov/ http://datagateway.nrcs.usda.gov/ <i>Status Map:</i> http://soildatamart.nrcs.usda.gov/StatusMap.aspx	crpdata_d_ <stssaid>	NOT A MAP-Excel spreadsheet with 1990 frozen soils data used for Conservation Reserve Program (CRP) eligibility determinations. <stssaid> State Soil Survey Area ID number (e.g., crpdata_d_ca048.xls)
			cra_a_ <st>	Full US Polygon data of Common Resource Areas (CRA) inside, crossing or touching a state.
			cra_a_us	Full US Polygon data of Common Resource Areas (CRA)
			mlra_a_us	Full US Polygon data of Major Land Resource Areas (MLRA)
			ssa_a_ <stssaid>	Polygon data limit of Soil Survey Area (SSA)
		soils \ gsmsoil	gsmsoilmu_a_mn	General soils dataset (new download from Gateway (replaces the old Statsgo dataset).
		soils \ soil_ <stssaid> \ tabular	soil_d_ <stssaid>	Suggested name for a SSURGO template database when the database contains only one survey area.
		soils \ soil_ <stssaid> \ spatial	soilsa_a_ <stssaid>	Soil survey area boundary polygons
			soilmu_a_ <stssaid>	Soil map unit boundary polygons
			soilmu_l_ <stssaid>	Soil line map units
			soilmu_p_ <stssaid>	Soil point map units
			soilsf_l_ <stssaid>	Soil line spot features
			soilsf_p_ <stssaid>	Soil point spot features
			Soilsf_t_ <stssaid>	Soil spot features description
		soils \ soil_ <nnnnnn> \ tabular	soilmosaic_d_ <nnnnnn>	Merged attribute data for more than one soil survey area to support service center area of service. <nnnnnn> is the OIP office ID, not OIP site ID
		soils \ soil_ <nnnnnn> \ spatial	soilmosaic_a_ <nnnnnn>	Merged soil survey area boundary polygons for more than one soil survey area to support service center area of service. <nnnnnn > is the NRCS OIP office ID not OIP site ID
			soilmosaicmu_a_ <nnnnnn>	Merged soil map unit boundary polygons for more than one soil survey area to support service center area of service. <nnnnnn > is the NRCS OIP office ID not OIP site ID
			soilmosaicmu_l_ <nnnnnn>	Merged line map units for more than one soil survey area to support service center area of service. <nnnnnn > is the NRCS OIP office ID not OIP site ID
			soilmosaicmu_p_ <nnnnnn>	Merged point map units for more than one soil survey area to support service center area of service. <nnnnnn > is the NRCS OIP Office ID not OIP site ID
			soilmosaicf_l_ <nnnnnn>	Merged line spot features for more than one soil survey area to support service center area of service. <nnnnnn > is the NRCS OIP Office ID not OIP site ID

P	B	Subfolder Name	File Name Prefix	Description
			soilmosaicf_p_<nnnnnn>	Merged point spot features for more than one soil survey area to support service center area of service. <nnnnnn > is the NRCS OIP Office ID not OIP site ID
			soilmosaicf_t_<nnnnnn>	Merged spot feature descriptions for more than one soil survey area to support service center area of services. <nnnnnn> is the NRCS OIP Office ID not OIP site ID.
1	N	topographic_images http://datagateway.nrcs.usda.gov/ <i>Status Map:</i> http://datagateway.nrcs.usda.gov/statusmaps.aspx	drg_<stnnn>	County mosaic MrSID of 1:20K, 1:24K, 1:25K Digital Raster Graphs without map collar. File extension of MrSID image is .sid.
			drg_<st><nnnnnn>	NRCS field office multi-county service area (defined in Office Information Profile database as the NRCS Office ID) DRG mosaic. File extension of MrSID image is .sid.
			<usgs standard>_<yyyy>	Enhanced DRG image with map collar removed. Map content date <yyyy> is optional for more than one set.
			Topographic Naming Convention codes: r – 1:20,000, 7.5' x 7.5' topographic map image o – 1:24,000, 7.5' x 7.5' topographic map image p – 1:24,000, 7.5' x 7.5' provisional / orthophoto map image l – 1:25,000 7.5' x 7.5' topographic map image j – 1:30,000, 7.5' x 7.5' topographic map image k – 1:25,000, 7.5' x 15' topographic map image i – 1:63,360, Alaska topographic map image g – 1:100,000, 30' x 60' planimetric map image f – 1:100,000, 30' x 60' topographic map image c – 1:250,000, 1 x 2 degree topographic map image	
2	N	transportation http://datagateway.nrcs.usda.gov/ http://www.census.gov/geography/www/tiger/	highway_dm_1_<stnnn>	Dynamap highways
			misctrans100k_1_<stnnn>	1:100,000 Census TIGER line data for pipelines, power transmission lines, etc.
			railroad_dm_1_<stnnn>	Dynamap railways
			railroads100k_1_<stnnn>	1:100,000 Census TIGER line data for railroad layer
			roads100k_1_<stnnn>	1:100,000 Census TIGER roads line data
			street_dm_1_<stnnn>	Dynamap streets
2	Y	wetlands http://wetlandsfws.er.usgs.gov/NWI/download.html <i>Status Map:</i> http://www.fws.gov/nwi/statusRegions.htm	nwi_a_<stnnn>	Polygon data of the National Wetland Inventory (NWI) Fish and Wildlife Service (FWS)
			nwilfetr_1_<stnnn>	Linear Features line data of the NWI
			nwi_1_<stnnn>	Outlines of the NWI polygon data for cartographic display
			nwi_p_<stnnn>	Point data of the NW I
			wetland_1_<stnnn>	Boundaries of natural or constructed wetlands, by county.
2	Y	wildlife	File naming to be determined.	No files delivered to date.
2	Y	zoning	File naming to be determined.	No files delivered to date.

If additional geospatial data are available from state, data center or other sources, obtain these data sets, re-project them into UTM zone NAD83 (if necessary), and name them according to the standard naming conventions. Note: UTM zone NAD83 refers to the Universal Transverse Mercator Projection with the 1983 North American Datum. The specific zone will vary across the country.

As needed, the following subfolders can be added as an additional layer of subfolders under each of the major *geodata* theme folders:

Y	gps_data	<subject>_xd_<stnnn>_<yyyymmdd>	A file of GPS points downloaded from a GPS instrument. The data in this file is kept in its original GPS-specific format. The subject describes what the data represents, i.e. "Grain Bins". If this GPS data is imported into a GIS system, the resulting file would have a different feature type, i.e. 'p' if it is saved as a point data GIS file.
Y	photographs	<identifier>_y_<yyyymmdd>_<sequence number>	<Identifier> = the basic content of the photo, i.e. "Grain Bins on Smith Farm." Date indicates when the photo was taken. If multiple pictures were taken, a sequence number (i.e. 1, 2, 3) can be added to give each photo a unique name.
Y	year	<identifier>_<yyyy>	To identify data from different years.

5.6.3 Deprecated datasets

Datasets in this section have been deprecated (or phased out). They are obsolete and have been updated by new constructs, and should be replaced. This section exists to show the names of the deprecated datasets. Effective April 16, 2007, Tele Atlas was replaced by Tele Atlas DynaMap.

Table 2— Deprecated Tele Atlas Datasets

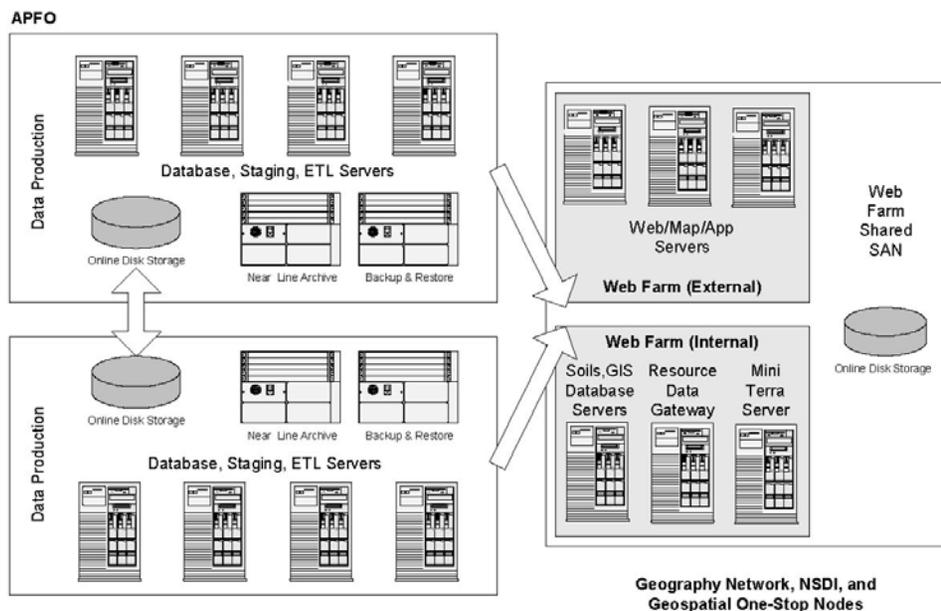
Subfolder Name	File Name Prefix	Description	Replaced by DynaMap
census	block_group_taoa2_a_<stnnn>	Tele Atlas other named areas 2 – census block groups.	Block_group_dm_a_<stnnn>
	block_taoa3_a_<stnnn>	Tele Atlas other named areas 3 – census blocks.	Tract_dm_a_<stnnn>
	tract_taoa1_a_<stnnn>	Tele Atlas other named areas 1 – census tract.	No Equivalent
	urban_taoa4_a_<stnnn>	Tele Atlas other named areas 4 – census urban.	No Equivalent
geographic_names	poi_tapi_p_<stnnn>	Tele Atlas points of interest	airport_dm_a_<st> institution_dm_p_<stnnn> landmark_dm_a_<stnnn> park_dm_a_<stnnn> recarea_dm_p_<stnnn> retail_dm_p_<stnnn> transterm_dm_p_<st> (partial) in landmarks
	settlement_tasm_p_<st>	Tele Atlas settlement centers	postal_inv_dm_p_<st> (approximate) in landmarks
	government_units	city_taa_p_a_<st>	Tele Atlas administrative places – city boundaries
government_units	community_taa9_a_<stnnn>	Tele Atlas administrative areas 9 – minor and county civil divisions	mcd_dm_a_<stnnn>
	county_taa8_a_<stnnn>	Tele Atlas administrative areas 8 – county boundaries	county_dm_a_<st>
	state_taa1_a_<st>	Tele Atlas administrative areas 1 – state boundaries	state_dm_a_<st>
	zipcode_tapd_a_<st>	Tele Atlas postal districts – zip codes	postal_dm_a_<st>
	zip_p_us	Full US zip code centroids (points). GIS Implementation Team to identify data source	postal_inv_dm_p_<st>
	hydrography	hydro_tawl_l_<stnnn>	Tele Atlas water lines
land_use_land_cover	landuse_talu_a_<stnnn>	Tele Atlas land use	park_dm_a_<stnnn> (partial)
transportation	railroad_tarr_l_<stnnn>	Tele Atlas railways	railroad_dm_l_<stnnn>
	road_tanw_l_<stnnn>	Tele Atlas network roads	street_dm_l_<stnnn>
	road_tagc_l_<stnnn>	Tele Atlas geocode road network	street_dm_l_<stnnn>

5.6 Current Web Services

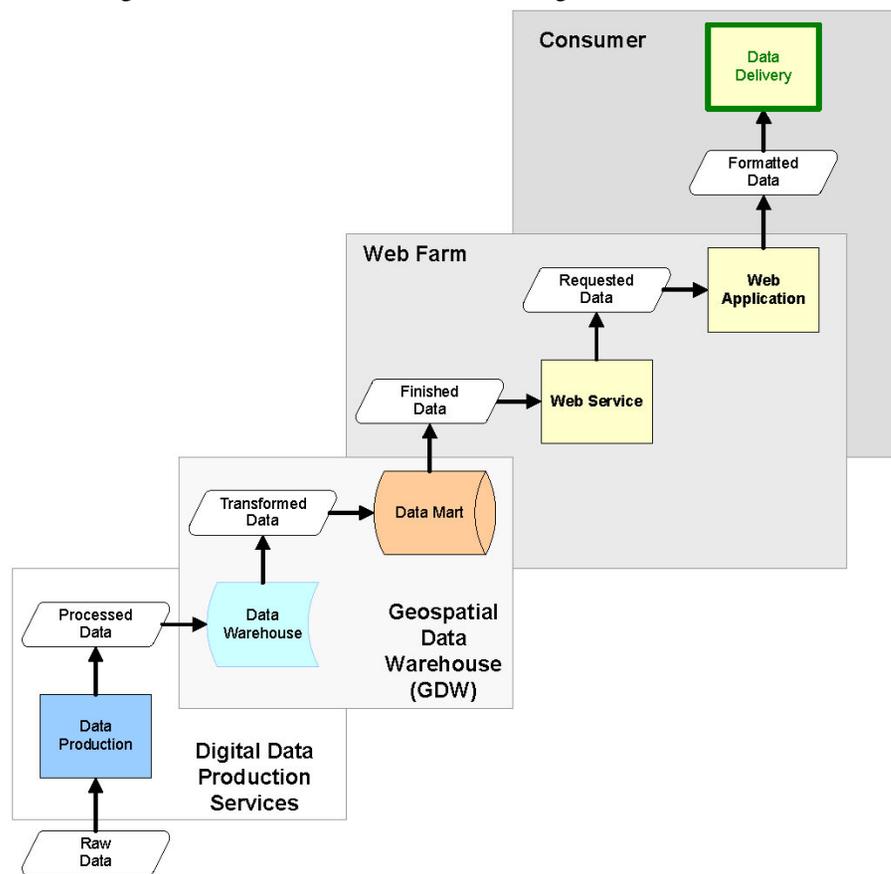
The need for geospatial data warehouses stems from the programmatic developments that necessitate integrated program delivery and the advances in technology to enable on-line access and delivery of USDA services. Consumers are the users of the data that reside in the data marts. They are made up of USDA employees at the data centers and the Field Service Centers, as well as contractors, 3rd party stakeholders, and public users. Depending on the service(s) used, the data may be accessed in several different ways: it may be packaged and delivered as an FTP download or on a CD, it may consist of a live feed through a Web application, it may be initiated by a data center employee as a batch request, or it may be directly accessed by internal production and/or development employees.

ArcIMS Map Services are commonly accessed through the ArcGIS desktop by establishing a connection to an Internet Server (ArcGIS8) or to a GIS Server (ArcGIS9). Access by an application can be accomplished by an ArcXML request.

GDW Architecture



Advantage: Don't need to download the data; can just access it "live" from the web farm.
Disadvantage: Cannot access data if "live" website goes down.



Source: Both images are from the paper, *OD-GOS Server Architecture*, dated September, 2004. For more information, look at: <http://www.its.nrcs.usda.gov/scdm/docs/OD-GOSServerArchitecture.pdf>; and <http://www.its.nrcs.usda.gov/scdm/docs/OD-ImplementationofGeospatialDataWarehousesII.pdf>

5.6.1 ArcIMS Services at ITC (Fort Collins, CO)

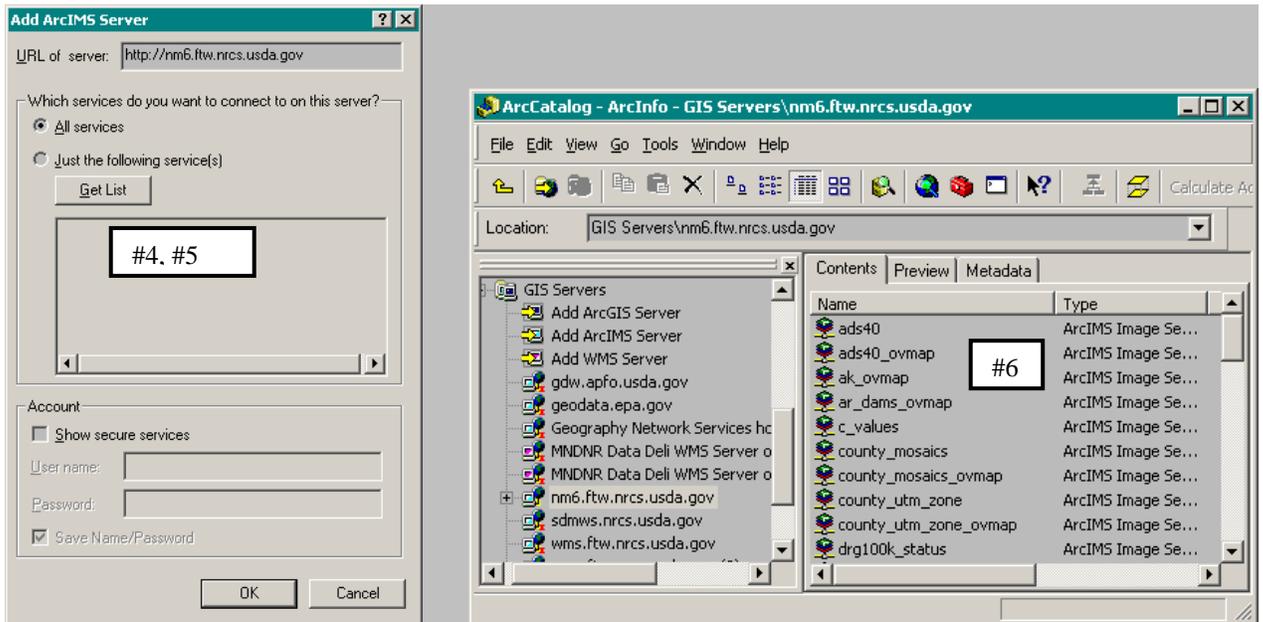
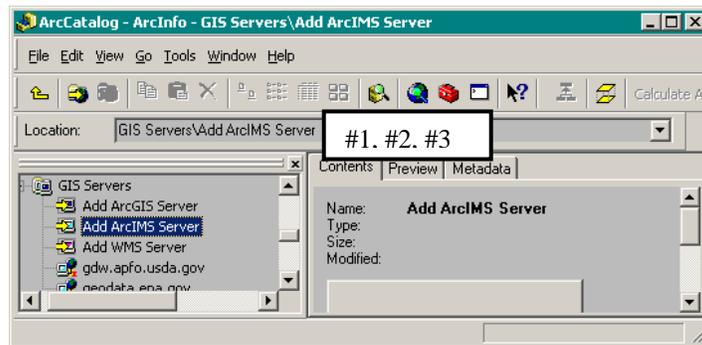
Currently available ArcIMS services include map services for soils (SSURGO) and Common Resource Areas.

The following Hostname is a link to Internet Mapping Services provided by Fort Collins:

Hostname: <http://sdmws.nrcs.usda.gov>

The following directions show you how to access the data available at **any** Hostname:

1. Open ArcCatalog,
2. Click on GIS Servers,
3. Double-click on Add ArcIMS Server,
4. A new “Add ArcIMS Server” dialog will open; Type in the Hostname address
5. Click OK.
6. A list of available datasets will be provided



The ITC ArcIMS map services are accessible via the public internet; however they are not intentionally publicized widely beyond the USDA.

5.6.2 ArcIMS Services at NCGC (Forth Worth, TX)

Currently, only ArcIMS map services are implemented at NCGC. To access, follow the same instructions as shown above in 5.6.1.

The following two (2) Hostnames are links to Internet Mapping Services provided by NCGC.

Hostname: [\\nm6.ftw.nrcs.usda.gov](http://nm6.ftw.nrcs.usda.gov)

Hostname: [\\wms.ftw.nrcs.usda.gov](http://wms.ftw.nrcs.usda.gov)

5.6.3 ArcIMS Services at APFO

All APFO hosted ArcIMS map services are accessed via a single URL which must be added to the list of available Internet Servers in ArcGIS desktop. To access, follow the same instructions as shown above in 5.6.1.

Hostname: [\\gdw.apfo.usda.gov](http://gdw.apfo.usda.gov)

APFO also hosts the following ArcIMS based “websites.”

To access, just click on the link provided below and your web browser will open.

Web Site URL: <http://gdw.apfo.usda.gov/naip/viewer>

Web Site URL: <http://gdw.apfo.usda.gov/mdoq/viewer>

Web Site URL: <http://gdw.apfo.usda.gov/hurricane/viewer>

Web Site URL: <http://gdw.apfo.usda.gov/nri/psustatus>

6.0 Administration of the Geodata folders

There are specific Permission Groups interacting with the geodata folders on the Service Center network servers. Each group will have a specific set of permissions for reading and/or writing files, and creating/deleting specific subfolders. The level of access assigned to some groups may vary from subfolder to subfolder. Groups will, in many cases, have members from multiple agencies.

State IT staffs will work with the SGAs, if one exists, to assign group membership.

- ITS is aware that each new service center employee gets added to that employee's service center user group (see Group 6 below).
- Any requests to put an employee in any other group(s) must be sent to the State Geodata Administrator (or State GIS Specialist if there is no SGA) of that employee's agency for final approval.

6.1 The Permissions Matrix

The following series of global groups will be assigned appropriate permissions to the geodata subfolders:

1. State Geodata Administrator (gg<st>sga)

USDA employees assigned to this group will have access to all geospatial data for the state, excluding any "sensitive" data identified in the Permissions Matrix, on the network servers at the Service Centers and State Office. This group will have and permissions to read, write, change, and delete folders, subfolders, or individual files by making global changes or changes to individual elements within them. SGAs can create folders and subfolders as necessary.

2. Local Geodata Administrator (gg<stcity>lga)

USDA employees assigned to this group will have access to all the geospatial data at the Service Center, excluding any "sensitive" data identified in the Permissions Matrix (see end of this section). This group will have permissions to read, write, change, and delete folders, subfolders, or individual files by making global changes or changes to individual elements within them. LGAs can create folders and subfolders as necessary within that Service Center. Employees may not be assigned to this group until training has been provided by the SGA, and/or additional FSA, NRCS or RD state office staff, on geodata management and administration. In some cases, the tri-agency State Office staff may assign members to this group, without training, if they determine that the individuals have the proper experience.

3. FSA – Local Geodata Editors (gg<stcity>fsalge)

FSA employees assigned to this group will have access to all FSA specific geospatial data at the Service Center and permissions to read, write, change, delete and replicate all FSA administered folders except restricted folders. The group may, but is not required to, include the same employees as those in groups 4 and 5. Specifically, this group should include employees responsible for creating, updating and maintaining geospatial layers other than the CLU. Typically these datasets are created by custom applications and the use of GPS. Examples are, but not limited to, datasets as a result of measurement services, compliance reporting, acreage reporting, Farm Loan easement development, grain bin monitoring, CRP/conservation monitoring, or disaster events monitoring

4. FSA – Local CLU Data Editors (gg<stcity>fsaclu)

FSA employees assigned to this group will have access to geospatial and customer/business CLU data at the Service Center with permissions to read, write, change, delete and replicate CLU specific data files. The persons assigned to this group should be the employees responsible for maintaining the CLU data. At a minimum, the CLU Data Manager and one backup should be assigned to the group; the number of FSA employees assigned reflects the workload of CLU updates in the Service Center. See 8-CM, paragraph 33 for more information on CLU Service Center Manager.

5. FSA- Disaster Events/FSA Facilities Access and Edit (gg<stcity>fsade)

FSA employees assigned to this highly restricted group will have access to view and edit geospatial point locations and associated attribute data related to FSA Food, Feed, Seed, and Fertilizer Facilities. Two FSA employees per county should be assigned to this group, having sufficient GIS skills to create and maintain this point feature dataset.

6. Service Center Users (gg<stcity>users)

USDA employees assigned to this group will have read-only access to all non-restricted folders. The existing service center staff global group will be used to establish this service center users group.

7. FSA Staff Users Group (gg<stcity>fsa)

FSA employees assigned to this group will have FSA agency only read access to specific folders (e.g., measurement services) and sub-folders that are restricted to access by other agencies, but will have full access to project_data\fsa subfolders. The existing FSA staff global group will be used to set up FSA only access to specific folders.

8. NRCS Staff Users Group (gg<stcity>nrcs)

USDA employees assigned to this group will have NRCS agency only read access to specific folders and sub-folders that are restricted to access by other agencies. This group will have full access to project_data\nrcs, project_data\rnd and project_data\swcd subfolders. The existing NRCS staff global group will be used to set up NRCS only access to specific folders.

9. RD Staff Users Group (gg<stcity>rd)

USDA employees assigned to this group will have RD agency only read access to specific folders and sub-folders that are restricted to access by other agencies. This group will have full access to project_data\rd subfolders. The existing RD staff global group will be used to set up RD only access to specific folders.

10. SWCD Staff Users Group (gg<stcity>cd)

NRCS' SWCD partners assigned to this group will have SWCD agency only read access to specific folders and sub-folders that are restricted to access by other agencies. This group will have full access to project_data\swcd subfolders. The existing SWCD staff global group will be used to set up SWCD only access to specific folders.

11. State Administrator Group (ggadmstate-<st>)

The existing State Administrators global group will be used to set Full access permissions for the majority of the geodata folders. This group will have full access/permissions to all folders, subfolders, and files in the f:/geodata structure in order to perform backup and restore functions to the system.

NEW: The following four (4) groups are new state global groups. The purpose for these groups is to allow Read Only access to the f:\geodata folder in ALL county geodata folders in a particular state. The following are 2 examples where these groups could be utilized:

- Example 1: a particular NRCS specialist's territory covers two-thirds of a state, but also needs access to surrounding county data. Placing this employee in Group 13 would allow that employee access to all county geodata folders, without having to create special permissions as that employee moves from county to county; and yet protects access from any restricted folders according to the Permissions Matrix (next page). This process eliminates workload on ITS, plus speeds up work process for the employee.
- Example 2: a Minnesota soils scientist needs data within a full MLRA boundary and, consequently, needs access to data across state boundaries. This employee could be added to Group 13 in Wisconsin, Illinois, or other state within that MLRA boundary (for same reasons as stated above).

Both of these examples eliminates workload on ITS, plus speeds up work process for the employee.

Any requests to put an employee in any of the following groups must be sent to the State Geodata Administrator (or State GIS Specialist if there is no SGA) of that employee's agency, who will then work with State ITS to fulfill the request.

12. FSA State User Group (gg<st>sgu-fsa)

FSA employees assigned to this group will include those FSA employees whose workload crosses county boundaries within a state, allowing access to all non-restricted folders, and Read Only access to the restricted folders, as outlined in the "Permissions Matrix".

13. NRCS State User Group (gg<st>sgu-nrcs)

USDA employees assigned to this group will include those NRCS employees whose workload crosses county boundaries within a state, allowing access to all non-restricted folders, and Read Only access to the restricted folders, as outlined in the "Permissions Matrix".

14. RD State User Group (gg<st>sgu-rd)

USDA employees assigned to this group will include those RD employees whose workload crosses county boundaries within a state, allowing access to all non-restricted folders, and Read Only access to the restricted folders, as outlined in the "Permissions Matrix".

15. RCD State User Group (gg<st>sgu-rcd)

USDA employees assigned to this group will include those RC&D employees whose workload crosses county boundaries within a state, allowing access to all non-restricted folders, and Read Only access to the restricted folders, as outlined in the "Permissions Matrix".

Revised Permissions Matrix – “Restricted” Geodata Folders

Except for the subfolders identified in the following matrix, all other geodata subfolders will have Read Only access for all Service Center Users, and Full access for the State and Local Geodata Administrators, as well as the State Administrators.

Permissions on “Restricted” folders are described in the following Matrix.

Subfolder Name	Examples of Files in the Subfolder	Groups with Access to the folder F = Full; R = Read Only	
f:\geodata		gg-<st>-sga - F gg-<stcity>-lga - F ggadmstate-<st> - F gg-<stcity>-fsalge - R gg-<stcity>-fsaclu - R gg-<stcity>-fsade - R gg-<stcity>-users - R gg-<stcity>-fsa - R gg-<stcity>-nracs - R gg-<stcity>-rd - R gg-<stcity>-cd - R gg-<st>-sgu-fsa - R gg-<st>-sgu-nracs - R gg-<st>-sgu-rd - R gg-<st>-sgu-rdc - R	Group 1 Group 2 Group 11 Group 3 Group 4 Group 5 Group 6 Group 7 Group 8 Group 9 Group 10 Group 12 Group 13 Group 14 Group 15
\common_land_unit \ fsa_clu	clu, crp, wet	gg-<stcity>-fsaclu - F ggadmstate-<st> - F gg-<st>-sga - R gg-<stcity>-lga - R gg-<stcity>-fsalge - R gg-<stcity>-fsade - R gg-<stcity>-users - R gg-<stcity>-fsa - R gg-<stcity>-nracs - R gg-<stcity>-rd - R gg-<stcity>-cd - R gg-<st>-sgu-fsa - R gg-<st>-sgu-nracs - R gg-<st>-sgu-rd - R gg-<st>-sgu-rdc - R	Group 4 Group 11 Group 1 Group 2 Group 3 Group 5 Group 6 Group 7 Group 8 Group 9 Group 10 Group 12 Group 13 Group 14 Group 15

Subfolder Name	Examples of Files in the Subfolder	Groups with Access to the folder F = Full; R = Read Only	
\conservation	cpa, cp, pez, crep, safe	gg-<st>-sga - F gg-<stcity>-lga - F gg-<stcity>-fsaclu - F ggadmstate-<st> - F gg-<stcity>-fsalge - R gg-<stcity>-fsade - R gg-<stcity>-users - R gg-<stcity>-fsa - R gg-<stcity>-nrns - R gg-<stcity>-rd - R gg-<stcity>-cd - R gg-<st>-sgu-fsa - R gg-<st>-sgu-nrns - R gg-<st>-sgu-rd - R gg-<st>-sgu-rd - R	Group 1 Group 2 Group 4 Group 11 Group 3 Group 5 Group 6 Group 7 Group 8 Group 9 Group 10 Group 12 Group 13 Group 14 Group 15
\conservation \ fsa_crp	crp_a_<stnnn>	gg-<stcity>-fsalge - F gg-<stcity>-fsaclu - F ggadmstate-<st> - F gg-<st>-sga - R gg-<stcity>-lga - R gg-<stcity>-fsa - R gg-<stcity>-nrns - R	Group 3 Group 4 Group 11 Group 1 Group 2 Group 7 Group 8
\conservation \ crp_scenarios	File naming and structure to be determined	gg-<stcity>-fsalge - F gg-<stcity>-fsa - F ggadmstate-<st> - F gg-<st>-sga - R gg-<st>-sgu-fsa - R	Group 3 Group 7 Group 11 Group 1 Group 12
\conservation \ conservation_planning	File naming and structure to be determined	ggadmstate-<st> - F gg-<stcity>-fsalge - F gg-<stcity>-fsaclu - F gg-<st>-sga - F gg-<stcity>-lga - F gg-<stcity>-fsade - R gg-<stcity>-users - R gg-<stcity>-fsa - R gg-<stcity>-nrns - R gg-<stcity>-rd - R gg-<stcity>-cd - R gg-<st>-sgu-fsa - R gg-<st>-sgu-nrns - R gg-<st>-sgu-rd - R gg-<st>-sgu-rd - R	Group 11 Group 3 Group 4 Group 1 Group 2 Group 5 Group 6 Group 7 Group 8 Group 9 Group 10 Group 12 Group 13 Group 14 Group 15

Subfolder Name	Examples of Files in the Subfolder	Groups with Access to the folder F = Full; R = Read Only	
\disaster_events	disaster_type	gg-<st>-sga - F gg-<stcity>-lga - F gg-<stcity>-fsalge - F gg-<stcity>-fsade - F ggadmstate-<st> - F gg-<stcity>-users - R gg-<stcity>-fsa - R gg-<stcity>-nracs - R gg-<stcity>-rd - R gg-<stcity>-cd - R gg-<st>-sgu-fsa - R gg-<st>-sgu-nracs - R gg-<st>-sgu-rd - R gg-<st>-sgu-rdc - R	Group 1 Group 2 Group 3 Group 5 Group 11 Group 6 Group 7 Group 8 Group 9 Group 10 Group 12 Group 13 Group 14 Group 15
\disaster_events \ fsa_facilities	ffsf	gg-<stcity>-fsade - F ggadmstate-<st> - F	Group 5 Group 11
\environmental_easements \ fsa	flpce, flpct, dfn	gg-<st>-sga - F gg-<stcity>-lga - F gg-<stcity>-fsalge - F ggadmstate-<st> - F gg-<stcity>-fsaclu - R gg-<stcity>-fsade - R gg-<stcity>-users - R gg-<stcity>-fsa - R gg-<stcity>-nracs - R gg-<stcity>-rd - R gg-<stcity>-cd - R gg-<st>-sgu-fsa - R gg-<st>-sgu-nracs - R gg-<st>-sgu-rd - R gg-<st>-sgu-rdc - R	Group 1 Group 2 Group 3 Group 11 Group 4 Group 5 Group 6 Group 7 Group 8 Group 9 Group 10 Group 12 Group 13 Group 14 Group 15
\imagery	landsat	gg-<st>-sga - F gg-<stcity>-lga - F gg-<stcity>-fsalge - F ggadmstate-<st> - F gg-<stcity>-fsaclu - R gg-<stcity>-fsade - R gg-<stcity>-users - R gg-<stcity>-fsa - R gg-<stcity>-nracs - R gg-<stcity>-rd - R gg-<stcity>-cd - R gg-<st>-sgu-fsa - R gg-<st>-sgu-nracs - R gg-<st>-sgu-rd - R gg-<st>-sgu-rdc - R	Group 1 Group 2 Group 3 Group 11 Group 4 Group 5 Group 6 Group 7 Group 8 Group 9 Group 10 Group 12 Group 13 Group 14 Group 15

Subfolder Name	Examples of Files in the Subfolder	Groups with Access to the folder F = Full; R = Read Only	
\imagery \ compliance_fsa	current year compliance imagery	gg-<st>-sga - F gg-<stcity>-lga - F gg-<stcity>-fsalge - F ggadmstate-<st> - F gg-<stcity>-fsaclu - R gg-<stcity>-fsade - R gg-<stcity>-users - R gg-<stcity>-fsa - R gg-<stcity>-nracs - R gg-<stcity>-rd - R gg-<stcity>-cd - R gg-<st>-sgu-fsa - R gg-<st>-sgu-nracs - R gg-<st>-sgu-rd - R gg-<st>-sgu-rd - R	Group 1 Group 2 Group 3 Group 11 Group 4 Group 5 Group 6 Group 7 Group 8 Group 9 Group 10 Group 12 Group 13 Group 14 Group 15
\land_site	above ground_storage, housing, lagoon, livestock_facility, stockyd, storage, underground_storage, well	gg-<st>-sga - F gg-<stcity>-lga - F gg-<stcity>-fsalge - F ggadmstate-<st> - F gg-<stcity>-users - R gg-<stcity>-fsa - R gg-<stcity>-nracs - R gg-<stcity>-rd - R gg-<stcity>-cd - R gg-<st>-sgu-fsa - R gg-<st>-sgu-nracs - R gg-<st>-sgu-rd - R gg-<st>-sgu-rd - R	Group 1 Group 2 Group 3 Group 11 Group 6 Group 7 Group 8 Group 9 Group 10 Group 12 Group 13 Group 14 Group 15
\land_use_land_cover\fsa_compliance	current year compliance, land_use files	gg-<stcity>-fsalge - F ggadmstate-<st> - F gg-<st>-sga - R gg-<stcity>-lga - R gg-<stcity>-fsaclu - R gg-<stcity>-fsade - R gg-<stcity>-users - R gg-<stcity>-fsa - R gg-<stcity>-nracs - R gg-<stcity>-rd - R gg-<stcity>-cd - R gg-<st>-sgu-fsa - R gg-<st>-sgu-nracs - R gg-<st>-sgu-rd - R gg-<st>-sgu-rd - R	Group 3 Group 11 Group 1 Group 2 Group 4 Group 5 Group 6 Group 7 Group 8 Group 9 Group 10 Group 12 Group 13 Group 14 Group 15
\measurement_services	meas_service	gg-<stcity>-fsalge - F ggadmstate-<st> - F gg-<stcity>-fsa - F gg-<st>-sga - R gg-<stcity>-lga - R	Group 3 Group 11 Group 7 Group 1 Group 2

Subfolder Name	Examples of Files in the Subfolder	Groups with Access to the folder F = Full; R = Read Only	
\project_data \ fsa		gg-<st>-sga - F gg-<stcity>-fsalge - F gg-<stcity>-fsaclu - F gg-<stcity>-fsade - F gg-<stcity>-fsa - F ggadmstate-<st> - F gg-<st>-sgu-fsa - F	Group 1 Group 3 Group 4 Group 5 Group 7 Group 11 Group 12
\project_data \ nrcs		gg-<st>-sga - F gg-<stcity>-nrcs - F ggadmstate-<st> - F gg-<st>-sgu-nrcs - F	Group 1 Group 8 Group 11 Group 13
\project_data \ rd		gg-<st>-sga - F gg-<stcity>-rd - F ggadmstate-<st> - F gg-<st>-sgu-rd - F	Group 1 Group 9 Group 11 Group 14
\project_data \ rcd		gg-<st>-sga - F gg-<stcity>-nrcs - F ggadmstate-<st> - F gg-<st>-sgu-nrcs - F gg-<st>-sgu-rcd - F	Group 1 Group 8 Group 11 Group 13 Group 15
\project_data \ swcd		gg-<st>-sga - F gg-<stcity>-nrcs - F gg-<stcity>-cd - F ggadmstate-<st> - F gg-<st>-sgu-nrcs - F	Group 1 Group 8 Group 10 Group 11 Group 13

Figure 6.1 – Permissions Matrix

6.2 Roles and Responsibilities for Geospatial Data Management

The shared *f:\geodata* folder on the Service Center server will be used by a number of people to perform a number of services and functions in the Service Center, including:

- Sharing information with co-workers and partner agencies.
- Providing a staging area for downloading nationally-developed and state-developed geospatial data, and making the data accessible to all GIS users.
- Providing a place to store spatial data that is to be backed-up on a regular basis. Backup processes will focus on data that is locally updated.
- Sharing data with outside agencies, including Conservation Districts, state and local governments, other USDA agencies, etc.

The administrative tasks to maintain the user groups and permissions will fall on the IT staff and State Geodata Administrators in each state. The following is a list of geodata administration duties assigned to a number of specific global groups.

6.2.1 State Geodata Administrator (SGA)

Each state shall designate at least one employee from FSA, NRCS or RD, to assume the responsibilities of the State Geodata Administrator; or form a team, one member from each agency, to share the SGA responsibilities. SGA(s) will manage the shared geodata folder, subfolders, and associated geospatial datasets for all agencies and partner organizations within the state. In some states, State Geodata Teams are formed to share the SGA responsibilities and expedite geodata management issues between the co-located state agencies.

The State Geodata Administrator(s) serves as the point of contact for CCE management policies and recommendations regarding geospatial data. Additionally, one or more backup administrators may be assigned from the same, or a different, agency. The backup administrators will help the identified State Geodata Administrator manage geospatial data in a manner that is consistent with CCE geospatial data policies and recommendations. The State Geodata Administrator(s) works with the IT staff and the State GIS Team to:

- Insure the geodata standard is implemented in all service centers within their state.
- Administer the transfer of geospatial datasets and metadata from national and state sources to the appropriate Service Centers.
- Monitor and maintain quality control for data and metadata used in state and local offices. Includes monitoring adherence to technical standards and policies.
- Provide training on the management and usage of geospatial datasets to local data administrators and stewards.
- Coordinate with National Geospatial Data Centers, and other national, state and local agencies and organizations, and National Application Development Centers to facilitate the acquisition and transfer of data.
- Maintain data tracking that will contain a listing of all of the GIS data themes present at each Service Center that are National, Common and Shared, including the currency of the data.
- Maintain the state-level geospatial datasets.
- Lead the State GIS Team that includes representative from NRCS, FSA and RD and from partner organizations if appropriate.
- Insure open communication to all State Agencies of changes, updates, and requests to the management of the geodata folder.

A listing of State Geodata Administrators can be found at:

<http://www.gis.sc.egov.usda.gov/contact/index.html>

6.2.2 Local Geodata Administrators (LGA)

Each Service Center may designate Local Geodata Administrators, in the same manner as the SGAs, with authority and permissions to maintain the content and data integrity of files and folders under the shared geodata directory. This function may be performed in the Service Center or remotely. Establishment of a LGA or LGA Team, requires the cooperative agreement from the Service Centers' agency leads. The Local Geodata Administrator:

- Has the ability to add, update, and delete folders and files under the F:\geodata folder, except for sensitive data as outlined in the Permissions Matrix in Section 6.1.
- Monitors the currency of local data files, and in coordination with the State Geodata Administrator, can refresh national or state-developed datasets as appropriate.
- Insures an open communication to all Service Center Agencies of changes, updates, and requests to the management of the geodata folder.

6.2.3 National Data Stewards

The National Data Steward is a business-area expert who is assigned responsibility by the National Executive Sponsor for the content of the data and database. The Data Steward establishes definitions and domains for data elements; sets the procedures for collecting and certifying data and metadata; and manages the overall storage, maintenance, and distribution of the data and metadata. Certain data steward responsibilities may be re-delegated to state and local data stewards who are responsible for portions or copies of a data set.

The National Data Steward(s) will:

- Act as the designated authority and point of contact for all business-area decisions concerning the data.
- Establish and maintain business rules and consistent definitions for data elements, including data quality and certification standards.
- Establish standards to ensure the validity, accuracy, and completeness of the physical data and supporting metadata, to include:
 - A process for the creation, storage and dissemination of data sets and associated metadata.
 - A process and monitoring system to certify that the data meets quality standards.
- Provide for the security of the data assets, to include:
 - Coordinate with agency security officers.
 - Recommend availability, security and access authority for the data.
 - Identify security requirements under the Freedom of Information Act, and for data that must be protected under the Privacy Act.

The following is a complete listing of national geospatial data stewards.

Subfolder Name	Examples of Files in the Subfolder	National Data Steward	Agency
F:\geodata			
air_quality		Michele Laur	NRCS
cadastral	plss	Steve Nechero	NRCS
census		Dennis Crow	RD
climate\precipitation	precip	Jim Marron	NRCS
climate\temperature		Jim Marron	NRCS
common_land_unit\fsa_clu	clu, crp, wet	Sandy Bryant	FSA
conservation		Stephanie Brown	FSA
conservation_practices		Mitch Flanigan	NRCS
cultural_resources		Sara Bridges	NRCS
disaster_events	disaster_type	Steve Peterson	FSA
disaster_events\fsa_facilities	ffl, ffsfl	Steve Peterson	FSA
ecological		Marc Safley	NRCS
elevation	contour, ngs, ned, nez, nedshd, nezshd	Steve Nechero	NRCS
endangered_habitat		Marc Safley	NRCS
environmental_easements	wrp	Bruce Julian	NRCS
environmental_easements\fsa	flpce, flpct, dfn	James Fortner	FSA
geographic_names	gnis	Steve Nechero	NRCS
geology		Steve Nechero	NRCS
government_units	blm, boundary, congdist, cities, cnty, manfetr, rcd, state,	Steve Nechero	NRCS
hazard_site		Dennis Crow	RD
hydrography	damsites, femaq3, hydro, ntlhydro, ssara, watbod	* Steve Nechero	NRCS
hydrologic_units	huc, wbd	* Steve Nechero	NRCS
imagery	landsat	Jim Heald	FSA
imagery\compliance_fsa	comp, slides	Eloise Taylor	FSA
land_site	aboveground_storage, housing, lagoon,	James Fortner	FSA
land_use_land_cover	lulc, nonveg, nlcd, surfcvr	Steve Nechero	NRCS
land_use_land_cover\fsa_compliance	crl, land_use	Eloise Taylor	FSA
landmarks		Steve Nechero	NRCS
map_indexes	napp, quads	Kent Williams	FSA
measurement_services	meas_service	Eloise Taylor	FSA

Subfolder Name	Examples of Files in the Subfolder	National Data Steward	Agency
ortho_imagery	ortho	Shirley Hall	FSA
public_utilities		Mark Plank	RD
soils	crpdata, mlra, soil, soilmosaic	Jim Fortner	NRCS
topographic_images	drg	Steve Nechero	NRCS
transportation	miscrans, railroads, roads	Dennis Crow	RD
wetlands	nwi, nwilfetr, wetland	* Steve Nechero	NRCS
wildlife		* Steve Nechero	NRCS
zoning		Dennis Crow	RD

* Temporary until a new Steward is found.

Figure 6.2.3 – National Geospatial Data Stewards

6.2.4 National Geospatial Data Centers

The National Cartographic Center (NCGC) in Fort Worth and the Aerial Photography Field Office (APFO) in Salt Lake City are national repositories for geospatial data and metadata used by the partner agencies. The Data Centers:

- Coordinate the distribution of geodata products with the State Geodata Administrators, and State GIS Teams where applicable,
- Acquire, integrate, maintain, and archive agency geospatial data,
- Provide quality assurance for geospatial data and metadata,
- Disseminate data to States, Service Centers, and other customers, and
- Provide for the sustainability of national data resources.
- Provide data to the public via web services or purchase.

7.0 Metadata

A stand alone document, the [Standard for Geospatial Data Set Metadata](#) [A3 of APPENDIX C] contains further background information, and is partially included here for the reader's convenience.

7.1 Metadata – What is Metadata?

The name of the file may give you a clue as to what it contains but *metadata* provides the additional descriptive information about a file that would otherwise be lost to elapsed time, and an aging memory.

Metadata is simply descriptive information about a data file, i.e. data about data.

When GPS points are collected and stored, or a new file is created using a GIS tool, a few facts need to be documented to remind you, or to tell others, information about that stored file. Metadata includes such facts as what the file contains, what coordinate system was used, what is the accuracy, who to contact for more information, and identifiers, such as bounding coordinates and keywords.

 METADATA 

You can do it
now...or you can do
it later.

Later is harder.

7.2 What Metadata is Required?

All geospatial metadata in the federal government is currently guided by the standards of the Federal Geographic Data Committee (FGDC). The FGDC committee has published a metadata standard (available at www.fgdc.gov) describing hundreds of metadata facts that can be recorded for each geospatial dataset. The full standard FGDC metadata is quite lengthy and time-consuming to enter and maintain. The Service Center agencies have decided that a smaller subset of the FGDC metadata elements will be required for locally developed datasets that will not be shared outside of the service center.

Twenty-two (22) of the core metadata elements will be mandatory. The remainder are optional, but should be entered if there is a demonstrated need and the information is available. The following Figure lists the mandatory metadata that will be captured for all locally developed geospatial files:

<u>Minimum Core Metadata for Geospatial Datasets</u>	
Originator	Contact_Person
Title	Contact_Organization
Purpose	Address
Progress	City
Postal_Code	State
Time_Period_of_Content	West_Bounding_Coordinate
Source_Scale_Denominator	East_Bounding_Coordinate
Map_Projection	North_Bounding_Coordinate
Horizontal_Datum_Name	South_Bounding_Coordinate
Planar_Distance_Units	
Source_Information	
Process_Description	
Entity_Attribute_Overview	

Figure 7.1 — Minimum Metadata for Geospatial Datasets*

*Each element in Figure 7.1 is defined in [Section 7.7](#) of this document. Use the standard name listed for each metadata element when adding new metadata.

7.3 Where to Store the Metadata?

Metadata is stored in a separate file from the actual geospatial data.

The metadata file is given a name similar to the geospatial file that it describes, and the pair of files (i.e. the geospatial file and the metadata file) will be stored together in the same folder. Geospatial metadata for geodatabases are stored in database tables.

7.4 Who Creates the Metadata, and When is it Created?

The person who first creates the geospatial file is charged with also establishing the related metadata file. The person who updates the geospatial file is also responsible for updating the metadata after each round of changes.

It is important to prepare the metadata as soon as a geospatial file has been saved, especially for shared files. Also, it is much easier to capture the metadata while the information is fresh, rather than try to reconstruct it later.

7.5 How to Store Metadata

The core metadata can be collected and stored as a text file, in a database/spreadsheet, in a file generated by ESRI ArcCatalog, or by using the USDA Metadata Tool (which works with both ArcMap and ArcCatalog). Metadata files generated by ArcCatalog and the USDA Metadata Tool will have the same name as the data file, but with an “xml” extension. Metadata can be exported into more readable txt or html formats. Wherever possible, a metadata file will be given a name similar to the geospatial file that it describes, and the pair of files (i.e. the geospatial file and the metadata file) will be stored together in the same folder.

The Service Center Geospatial Data Management Team (GDMT) began developing a geospatial metadata standard in 1999. The standard establishes the minimum mandatory metadata elements that must be collected for all geospatial datasets created or distributed by the service center agencies. The document defines two levels of metadata required for geospatial metadata.

First, the Federal Geographic Data Committee (FGDC) full compliance metadata are required for all national geospatial datasets, primarily those datasets created by the service center agencies to support national programs.

Second, a paired-down version of the metadata, referred to as Service Center Initiative (SCI) minimum compliance metadata, is required for locally derived datasets and to support the aggregation of county and state datasets into national layers.

A number of tools are available for creating and maintaining FGDC full compliance metadata. The agencies have used text editors and word processing software for several years. The GIS enterprise licensing agreement with the Environmental Systems Research Institute (ESRI) provides ArcCatalog for this purpose.

The Geospatial Metadata Team, sponsored by the GDMT, worked with ESRI to develop the USDA Metadata Tool for creating SCI minimum compliance metadata. This tool, along with PowerPoint slides, is available for downloading from the following website:

<http://www.gis.sc.egov.usda.gov/software/arccgis/metadata-tool.html>

Just by executing the tool, in ArcMap or ArcCatalog, and answering a few short questions, a metadata file is created and stored with the shapefile or geodatabase. The file that is created contains the above-listed 22 core data elements in an FGDC-compliant XML format.

7.6 Description of the Core Metadata Elements for Geospatial Datasets

Metadata Element Name	Definition	Domain value/example
Originator	The name of an organization or individual that developed the data set.	Textual entry, should include the names of editors or compilers if information is available. Examples include: "USDA NRCS", "USDA APFO", "USDA FS" or "John Smith NCRS"
Title	The name by which the data set is known.	For example, "Common Land Unit of Taylor, Texas".
Purpose	A summary of the intentions under which the data set was developed.	Example: "This data set depicts information about features on or near the surface of the Earth depicting information about the distribution of the theme across the landscape. It can be used for general planning purposes in GIS analysis."
Progress	The current status of the data set.	"Complete", "In Work", "Planned"
Time_Period_of_Content	The year (and optionally month, or month and day).	The date should conform to the following format: YYYY for year only, YYYYMMDD if month and day information is available. An example for June 10, 1999 is 19990610 or simply 1999 if only year information is available.
Source_Scale_Denominator	The denominator of the representative fraction on a map.	For example, on a 1:24,000-scale map, the source scale denominator is 24000.
Map_Projection	A value representing a UTM zone number or a State Plane zone. This metadata element is used in the simplified core metadata described in section 5 of this document. A full set of metadata would, instead, record the values in the separate data elements listed below.	UTM or State Plane zone number value. Usage is according to the predominate usage in the particular state. UTM Zones: Values for the northern hemisphere fall within $1 \leq \text{UTM zone} \leq 60$. Values for the southern hemisphere fall within $-60 \leq \text{UTM zone} \leq -1$. SPCS Zones: Use the four-digit numeric codes for the SPCS zone based on the North American Datum (NAD) of 1927 or NAD 1983 depending on applicability.
Horizontal_Datum_Name	The identification given to the reference system used for defining the coordinates of points.	Select either "North American Datum of 1927" or "North American Datum of 1983".
Planar_Distance_Units	Units of measure used for distances.	Examples include: "meters", "international feet", "survey feet"

Metadata Element Name	Definition	Domain value/example
Contact_Person	The name of the individual to whom the contact type applies. In many cases this may be the data steward.	For example: "John Smith"
Contact_Organization	The name of the organization to which the contact applies.	Examples include: "USDA NRCS", "USDA APFO", "USDA FS"
Address	An address line for the address.	For example: 100 S. Main St.
City	The city of the address	For example: Kansas City
State	The state or province of the address.	For example: MO
Postal_Code	The ZIP or other postal code of the address.	For example: 20002
West_Bounding_Coordinate	Western-most coordinate of the limit of coverage expressed in longitude (decimal degrees).	-180.0 <= West Bounding Coordinate <= 180.0
East_Bounding_Coordinate	Eastern-most coordinate of the limit of coverage expressed in longitude (decimal degrees).	-180.0 <= East Bounding Coordinate <= 180.0
North_Bounding_Coordinate	Northern-most coordinate of the limit of coverage expressed latitude (decimal degrees).	-90.0 <= North Bounding Coordinate <= 90.0; North Bounding Coordinate >= South Bounding Coordinate.
South_Bounding_Coordinate	Southern-most coordinate of the limit of coverage expressed in latitude (decimal degrees).	-90.0 <= South Bounding Coordinate <= 90.0; South Bounding Coordinate <= North Bounding Coordinate
Source_Information	List of sources and a short discussion of the information contributed by each.	Sources used to develop the geospatial dataset.
Process_Description	An explanation of the event and related parameters or tolerances.	Processing steps used to develop the geospatial dataset.
Entity_Attribute_Overview	Detailed summary of the information contained in a data set.	Textual description of attributes. For example: taxclass (taxonomic classification) - stores the taxonomic classification for soils in the database.

Table 7.6 —Description of Metadata Fields

7.7 Example of Metadata Elements

Listed below is an example of a Metadata document using the 22 minimum metadata elements that **must be recorded for each locally developed** geospatial data file in a service center.

Example: Metadata Minimum Elements for SSURGO in Polk County, Iowa

Originator: U.S. Department of Agriculture, Natural Resources Conservation Service

Title: Soil Survey Geographic (SSURGO) database for Polk County, Iowa

Purpose: SSURGO depicts information about the kinds and distribution of soils on the landscape. The soil map and data used in the SSURGO product were prepared by soil scientists as part of the National Cooperative Soil Survey.

Progress: Complete

Time Period of Content: 1998

Source_Scale_Denominator: 12000

Map_Projection: UTM_Zone_Number: 15

Horizontal_Datum_Name: North American Datum of 1983

Planar_Distance_Units: Meters

Contact Person: John Doe

Contact_Organization: U.S. Department of Agriculture,
Natural Resources Conservation Service

Address: 210 Walnut Street, Suite 693
City: Des Moines
State_or_Province: Iowa
Postal_Code: 50309-2180

West_Bounding_Coordinate: -93.8750
East_Bounding_Coordinate: -93.3125
North_Bounding_Coordinate: 41.8750
South_Bounding_Coordinate: 41.4375

Source Information: Sources used to develop the geospatial dataset.
Process Information: Processing steps used to develop the geospatial dataset.
Entity Attribute Overview: Textual description of attributes.

Figure 7.7 — Minimum Metadata for Geospatial Datasets

8.0 Symbology

A stand alone document, the *Standard for Geospatial Symbology* [[A5 of APPENDIX C](#)] contains further background information, but is partially included here for the reader's convenience.

8.1 Purpose

Adherence to standard symbology is necessary to ensure that maps and digital displays of all geospatial data sets are, at a minimum, produced with consistent cartographic symbolization. The standard documents the cartographic feature symbolization that shall be used for all *geospatial datasets* (a group of similar spatial phenomena) in use for the USDA Service Centers.

Consistent symbolization is necessary for users within and outside of the service center. In addition, nationally fielded applications will be developed that rely on a nationally consistent set of symbolization. Applications that are built locally for a USDA Service Center or for data that is acquired locally shall also adhere to this standard.

8.2 Style Sheets – (NRCS Agency Specific)

Style sheets provide a means to provide consistent and standard symbols. The NRCS style sheets are stored on the ESRI ArcScripts website (<http://arcscrips.esri.com/details.asp?dbid=12520>) but can also be accessed via the SCA GIS website at:

<http://www.gis.sc.egov.usda.gov/software/arcgis/extensions.html>

The NRCS Symbol Palettes include line and marker symbols for Soil and Natural Resource mapping including the specific symbols for the SSURGO data. There are three separate Palettes, NRCS Planning, NRCS SSURGO and NRCS Adhoc. This converts the symbols from the original NRCS Symbol Extension that was developed for ArcView 3.x to the ArcGIS environment. All line and marker symbols can be customized (size and color) as the user needs.

Files should be extracted to /arcgis/arcexe81/bin/styles. The new palettes will show up on the Symbol Selector dialog box when they have been selected from the "More Symbols" drop down list.

You will need the NRCS TrueType fonts if they are not on your system currently. They are included in the zip file. Place the three files in the Windows/Font directory. This will make the symbols display properly.

Creating new marker symbols, line styles and fill styles in ArcMap is done with the Symbology Property Editor. This is accessed from the ArcMap Style Manager (Tools->Styles->Style Manager). This provides access to any fonts on your system to create new symbology.

8.3 .lyr files

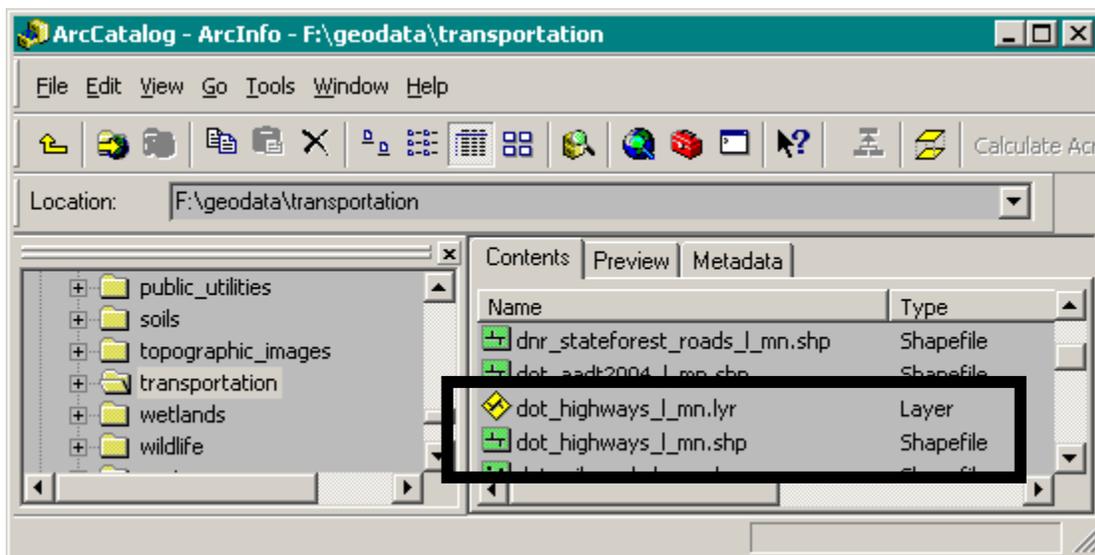
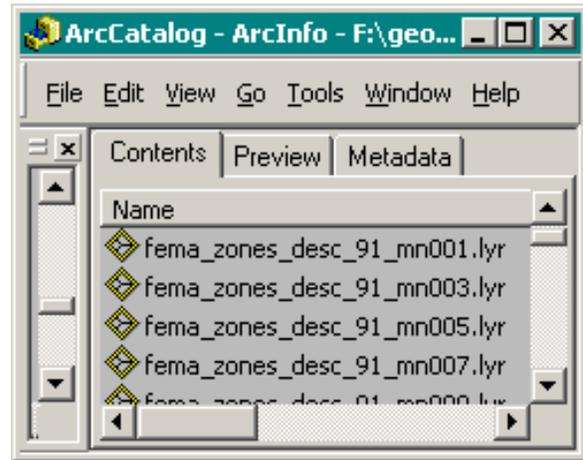
The .lyr file is simply cartographic symbology which references the original dataset so a user does not have to set the symbology each time the dataset is brought into a project.

From the ESRI Help catalog...Layer files reference geographic data stored on disk. They can reference most data sources supported in ArcCatalog, such as feature classes, CAD datasets, CAD drawing datasets, coverage datasets, shapefile datasets, raster datasets and bands, TIN datasets, and so on. Think of them as a cartographic view of your geographic data. They are separate files on disk and have a .lyr extension.

One of the principle reasons for making and using layers is performing attribute or locational selections. By making a layer in memory first, you can perform selections on the layer without affecting the original data source.

- **Storing / Naming Conventions:** lyr files will be stored in the same folder as the original dataset it is describing, and follow the same naming conventions as set forth by this manual.

In the example provided below, the “f:\geodata\transportation” folder contains a local Department of Transportation highway shapefile. This shapefile dataset was symbolized and saved to a .lyr file using the same naming convention as the original dataset. The only difference is the 3 letter extension showing the new symbology is stored as a .lyr file.



NOTES:

1. If you make a change to the actual dataset, this will be reflected when the .lyr file is opened next time. If the .lyr file is already open, the user can refresh the data frame and the change will be reflected in the .lyr file. Also, when sharing .lyr files (moving, copying, emailing), you MUST include the original dataset.
2. Because the geodata folder is Write protected, any .lyr files created cannot be written or copied within this folder structure unless performed by a SGA, LGA, or other person with write permissions to the particular geodata folder.
3. It is recommended that if a state is using multiple versions of the ArcGIS software, identify the version used to create the .lyr file by adding the version number at the end of the naming convention (e.g., dot_l_highways_mn_83.lyr - when created using ArcGIS version 8.3).

APPENDIX A – Frequently Asked Questions

Who should I contact if I have questions concerning this document and the outlined procedures?

- The first person to contact should be your agency’s Local Geodata Administrator (LGA). The LGA would then contact the Geodata Administrator (SGA) for further assistance.
- If questions and/or concerns cannot be addressed by your SGA, have your SGA contact an agency representative in the Agency Point of Contacts for Geodata Provisioning listed below.

What should I do if I want to suggest a change to the geodata structure or a naming convention?

- A new form called the Change Request Form can be used to suggest changes to the geodata structure. To obtain a copy of this form and instructions on how to fill it out, email either your local State Geodata Administrator or your Agency Point of Contact (see list below) with your request.

Who are the Agency Points of Contacts for Geodata Provisioning?

- FSA:** Todd Anderson
todd.anderson@wdc.usda.gov
- Stephanie Brown
stephanie.brown@wdc.usda.gov
- NRCS:** Steve Nechero
steve.nechero@ftw.nrcs.usda.gov
- Marisa Capriotti
Marisa.capriotti@wdc.usda.gov
- RD:** Dennis Crow
dennis.crow@usda.gov

APPENDIX B – Acronyms and GIS Terminology

BPR	Business Process Reengineering	MrSID	Multi-resolution Seamless Image Database
CCE	Common Computing Environment	NAD	North American Datum
CD-ROM	Compact Disc Read Only Memory	NAIP	National Agriculture Imagery Program
CLU	Common Land Unit	NAPP	National Aerial Photography Program
CRA	Common Resource Areas	NASIS	National Soil Information System
DLU	District Land Unit	NASS	National Agricultural Statistics Service
DMF	Digital Map Finishing	NCGC	National Cartography and Geospatial Center
DOQ	Digital Ortho Quadrangle	NHD	National Hydrography Dataset
DOQQ	Digital Ortho Quarter Quadrangle	NRCS	Natural Resources Conservation Service
DRG	Digital Raster Graphs	NWI	National Wetland Inventory
EPA	Environmental Protection Agency	OIP	Office Information Profile
FEMA	Federal Emergency Management Agency	RD	Rural Development
FIPS	Federal Information Processing Standard	SSA	Soil Survey Area
FSA	Farm Service Agency	SCMI	Service Center Modernization Initiative
FWS	Fish and Wildlife Service	SSURGO	Soil Survey Geographic Database
GDW	Geospatial Data Warehouse	STSSAID	State Soil Survey Area ID
GIS	Geographic Information System	TIF	Tagged Image File
GDMT	Geodata Management Team (USDA)	US	United States
GNIS	Geographic Names Information System	USDA	United States Department of Agriculture
GPS	Global Positioning System	USGS	United States Geological Survey
IFSAR	InterFerometric Synthetic Aperture Radar	UTM	Universal Transverse Mercator
ISO	International Standards Organization	WBD	Water Boundary Data
MDOQ	Mosaic Digital Ortho Quadrangles	WRP	Wetland Reserve Program
MLRA	Major Land Resource Areas		

GIS Terminology

Many websites and books exist for definitions of the GIS terminology. A few examples are provided here:

- <http://support.esri.com/index.cfm?fa=knowledgebase.gisDictionary.gateway>
- <http://www.gis.com/whatisgis/glossaries.html>

There are also a number of books that can be purchased. Just browse online at either ESRI's Bookstore, or various booksellers like Amazon.com, Barnes and Noble, etc., and search for "gis terminology."

APPENDIX C – Subscribing to the GEOData ADMIN ListServ

All State Geodata Administrators as well as State GIS Specialists are requested to subscribe to this List Serve. This list, however, is open to anyone who would like to or has a need to be included in geodata update information.

By subscribing to this ListServe, members will receive periodic emails containing information related to changes, updates, etc., to various geodata related issues. To subscribe to the geodata_admin list, send an email to:

listproc@nrcs.usda.gov

In the body of the email put the following information, exactly as shown here replacing **firstname lastname** with your **firstname** and **lastname**.

SUBSCRIBE GEODATA_ADMIN firstname lastname

For example, if your name is John Smith, you would enter the following to subscribe to the list:

SUBSCRIBE GEODATA_ADMIN John Smith

(Do not include signature blocks or any other text in the body of the email, or in the subject line.)

Then just send the email.

Posting to the GEOData ADMIN ListServ

If you want to post messages to the GEODATA_ADMIN list, you should direct your email to the following email address:

geodata_admin@lists.nrcs.usda.gov

If you have any problems with your subscription or posting to the list server, contact Jill Schuler at 970-295-5531 or email her at jill.schuler@ftc.usda.gov.

APPENDIX D – Bibliography

This document is based on three Service Center Modernization Initiative (SCMI) Standards:

- [A1] SCMI Std 007, Standard for Geospatial Data
<http://www.itc.nrcs.usda.gov/scdm/docs/SPG-GeospatialDataStandard.pdf>
- [A2] SCMI Std 005, Standard for Geospatial Dataset File Naming
<http://www.itc.nrcs.usda.gov/scdm/docs/SPG-GeospatialDatasetFileNaming.pdf>
- [A3] SCMI Std 003, Standard for Geospatial Dataset File Metadata
<http://www.itc.nrcs.usda.gov/scdm/docs/SPG-GeospatialDatasetFileMetadata.pdf>

Information was extracted directly from the above standards and reflects the work of a number of people not sited in this document. These source documents can be found at the SCMI Data Team web site hosted at <http://www.itc.nrcs.usda.gov/scdm/> under the category “Service Center Geodata Management.”

Additional information regarding the Federal Geographic Data Committee metadata standards can be found on the committee’s website (www.fgdc.gov).

- [A4] SCMI Std 003, Policy for Geospatial Metadata
<http://www.itc.nrcs.usda.gov/scdm/docs/SPG-GeospatialMetadata1.pdf>
- [A5] Standard for Geospatial Symbology
<http://www.itc.nrcs.usda.gov/scdm/docs/SPG-GeospatialSymbology.pdf>

When the above standards are superseded by an approved revision, the revision shall apply.

However, this document is considered the authoritative document for managing geospatial data at the state and county Service Center Agency level.