

Downloading USGS Digital Line Graph (DLG) Files

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Introduction

The United States Geological Survey (USGS) maintains a digital cultural data base which can provide useful information for Geoscience mapping applications. This Digital Line Graph (DLG) data can be downloaded from the internet at no cost to the user. The procedure for acquiring this data is summarized as follows:

1. Locate the needed data files using 1:100,000 scale USGS quadrangle names.
 2. Download the data using file transfer. protocols (FTP) from internet address = 152.61.128.6 and directory = /pub/data/DLG/100K or use a graphical technique from an internet browser.
 3. Uncompress the data using WinZip, MacGZip, or GNU "gzip" utility.
 4. Load the data files into your ARC/INFO or other Geoscience application using the data import function (depending on the application). DLG to DXF file converters are available from the BLM.
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Example Download (Using a browser to find your data)

The internet location which provides the indices for DLG map data sets is <http://edcwww.cr.usgs.gov/doc/edchome/ndcdb/ndcdb.html>. Go to this URL using your favorite internet browser and select the link titled "1:100,000-Scale Digital Line Graphs (DLG) for FTP via graphics." The browser will display a map image of the United States. If we select NW Wyoming from the United States browser image, a second image ([Figure 1](#)) shows a close-upmap of our area of interest which displays the 1:100,000 scale quadrangle map names.

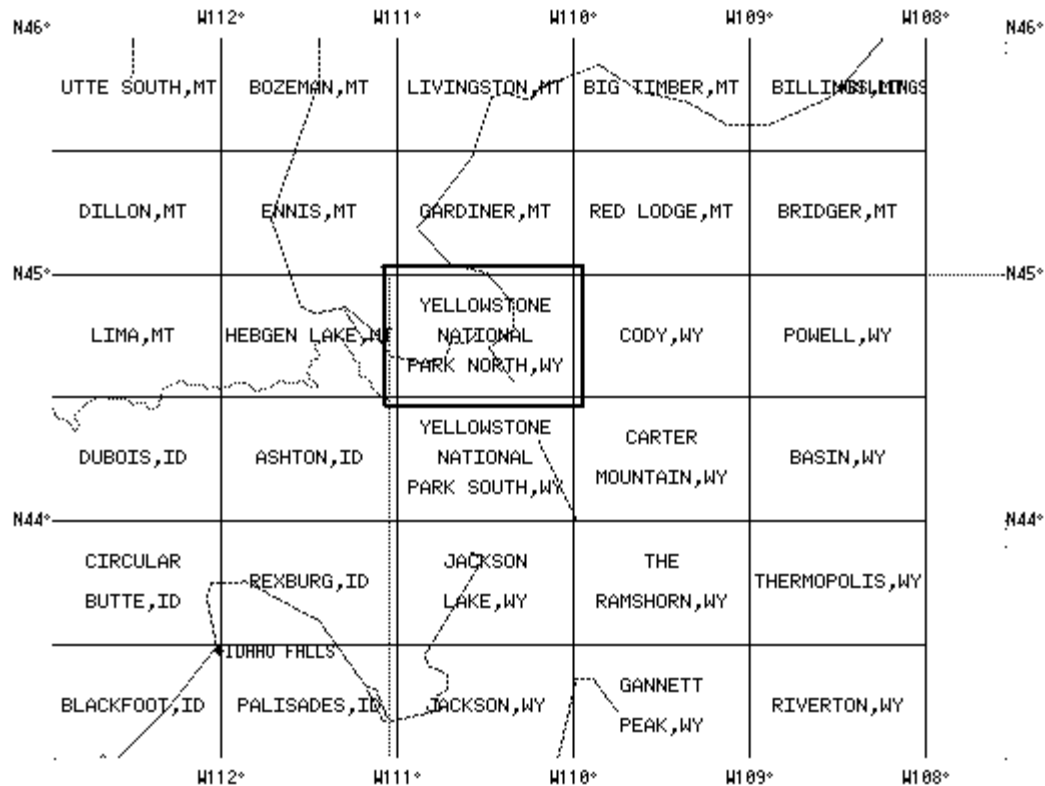


Figure 1. Index of Map Quadrangles for "FTP by Graphics" Data Download

Select the Yellowstone National Park North, WY quadrangle. Double click on the map image graphic and your browser will display two directories, an east half and west half. For our example we will select the east half. You need these quadrangle names to find the correct data directory in the USGS ftp file area (most internet browsers allow ftp file access). This should get you access to the ftp file area with directories ([Table 1](#)) showing five categories of DLG files, boundaries, hypsography, public lands, and transportation.

Table 1. Index of /pub/data/DLG/100K/Y/yellowstone national park north-e WY

Name	Last modified	Directory Contents
boundaries	22-Nov-95 16:18	National park boundaries and military installations.
hydrography	22-Nov-95 16:18	Lakes, rivers, and streams.
hypsography	22-Nov-95 16:18	Elevation contour lines.
public lands	22-Nov-95 16:18	Township and range section lines.

transportation	22-Nov-95 16:18	Pipelines and high voltage transmission lines. Roads and trails. Railroads and interstate freeways.
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Each directory contains four or more files which are coded by their location in the quadrangle. In our example, the files inside the directories start with AS2.cccXX..GZ where ccc is coded to represent the type of digital data and XX is a number from 03, 04, 07, and 08. The other numbers 01, 02, 05, and 06 are located in the Yellowstone National Park North-w WY directory. The complete file series from the west and east halves, AS2.ccc01..GZ to AS2.ccc08..GZ, represent subquadrangles in the 1:100,000 quadrangle. These file start with AS2.ccc01..GZ in the NW corner to AS2.ccc04..GZ in the NE corner and from AS2.ccc05..GZ in the SW corner to AS2.ccc08..GZ in the SE corner of the Yellowstone National Park North, WY quadrangle. Each subquadrangle file is actually data from a 15' USGS quadrangle numbered for convenience. The digital cultural data within each subquadrangle are derived from four 7½' USGS quadrangles or a 15' USGS quadrangle depending on the availability of data. The data set series numbered AS1...GZ to AS4...GZ are four USGS 1:100,000 quadrangles that make up the larger 1° x 2° (1:250,000 scale) quadrangle.

Cultural Data Transfer

In our example, let us select all types of cultural data for AS2.ccc03..GZ, a subquadrangle which is located in the W/2 of the NE/4 of the Yellowstone National Park North, WY quadrangle. The directory names with our data is listed in Table 1. The cultural data files we want along with their file names and contents are listed in Table 2.

Table 2. DLG files available for downloading.

Directory	File Name(s)	Contents
boundaries	as2.bdf03.opt.gz	National park boundaries and military installations.
hydrography	as2.hyf03.opt.gz	Lakes, rivers, and streams.
hypsography	as2.hpf03.opt.gz	Elevation contour lines.
public lands	as2.plf03.opt.gz	Township and range section lines.
transportation	as2.mtf03.opt.gz	Pipelines and high voltage transmission lines.
	as2.rdf03.opt.gz	Roads and trails.

	as2.rrf03.opt.gz	Railroads and interstate freeways.
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Go to each directory and transfer the files listed in Table 2 to your computer. These files contain all of the digital data for the subquadrangle AS2.ccc03.OPT.GZ. The OPT indicates the files are OPTional DLG file format and the GZ indicates that they are compressed using the UNIX GNU "gzip" utility. Of course, if a larger area is needed then we could download the other subquadrangles at this time.

The instructions concerning ftp file access by the USGS mention several methods of obtaining data. Our preceding example illustrates the "Graphics FTP" method. Other methods mentioned by the USGS are as follows:

"During the upcoming year, the EROS Data Center will be providing file transfer protocol (FTP) access to a variety of USGS digital data sets. The following is a list of each data set, a link to data examples , a hyperlink to user guide information, and a list of the methods available for transferring the data using FTP. You can download files by connecting to the data set's anonymous FTP account and selecting files from the existing directory structure (FTP from account), by selecting from a list of states that will guide you to the appropriate files (FTP sorted by state), or by using the graphic option which allows you to select files using an index map (Graphics FTP). Not all FTP options are available for each data set. The user guide provides detailed information about the data set including distribution formats."

There is wealth of information on the USGS servers other than DLG files. The reader is invited to explore other datasets which may be of interest to geoscientists.

Using the Downloaded files

The downloaded files need to be uncompressed before use. This is accomplished by using the UNIX GNU "gzip" utility if you have access to a UNIX computer or by using WinZip which works on a PC computer running Windows95 or Windows NT as an operating system. You can download an evaluation copy of WinZip from <http://www.winzip.com/WinZip/download.html>. Apple computer users can download MacGZip from <http://www.mcad.edu/Guests/EricB/xplat.comp.html#comp.gzip>. After uncompressing the .GZ data, you should end up with the following files:

1. as2.bdf03.opt
2. as2.hyf03.opt
3. as2.hpf03.opt
4. as2.plf03.opt
5. as2.mtf03.opt
6. as2.rdf03.opt

7. as2.rrf03.opt

These files are your "load" data for ARC/INFO or other Geoscience applications. They are USGS 1:24,000 DLG formatted data files. If you have many of these subquadrangle data files, you can combine all of the parts by concatenating the smaller portions into a larger entity. For example, if we had all the quadrangle files downloaded and decompressed, we could use the DOS copy command, ">copy as2.hyf01.opt + as2.hyf02.opt + as2.hyf03.opt + as2.hyf04.opt + as2.hyf05.opt + as2.hyf06.opt + as2.hyf07.opt + as2.hyf08.opt hydrology.opt," to create a single file which will contain all of the digital hydrology data in Yellowstone National Park North, WY quadrangle. Similar operations could be done to combine the other data types listed in Table 2.

Figure 2. Map created from [GeoGraphix®](#) import of USGS DLG culture data showing contours, roads, section lines, lakes and streams created from a portion of the example dataset.

