

Digital Raster Graph (DRG) FILES

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DEFINITION -- A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey (USGS) topographic map. The scanned image has up to 13 colors and includes all map border information. The image inside the map neatline is georeferenced to the surface of the earth. The DRG is named for the topographic quadrangle from which it is derived.

FEATURES:

The Features shown on DRGs are:

- Contours and elevations in meters
- Highways, roads and other manmade structures
- Water features
- Woodland areas
- Geographic names

USES:

Although a standard DRG is an effective mapping tool, its full potential for digital production is realized when it is used as a backdrop onto which other digital data can be overlaid. Such “hybrid” products include combined DRGs and digital orthophoto quadrangles (DOQs) for revising and collecting digital data, DRGs and digital elevation models (DEMs) for creating shaded-relief DRGs, and combinations of DRG, DOQ, and DLG data.

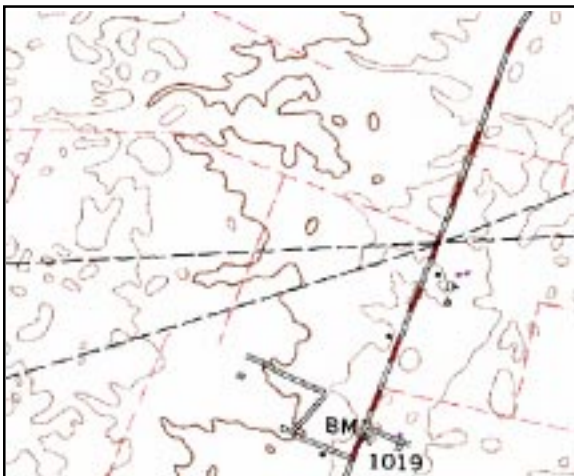
MAP SCALES:

The USGS is producing DRGs of their standard paper USGS topographic map series at 7.5' x 7.5' (1:24,000 scale), 60' x 30' (1:100,000 scale) and 2° x 2° (1:250,000 scale).

1:24,000-scale maps are relatively detailed, generally covering an area of a few square miles. There are 793 1:24,000 scale DRGs covering the state of Ohio. Maps at 1:250,000 scale are less detailed but cover the same area as 128 7.5-minute maps.

COORDINATE SYSTEMS:

The digital image is georeferenced to the true ground coordinates of the 2.5-minute grid ticks and projected to the Universal Transverse Mercator (UTM) for projection



DRG showing elevation and roads in Madison County, Ohio

consistency with USGS DOQs and DLGs. The datum of the source materials is generally preserved in the DRG, however, in some cases, the DRG will differ in some way from the information on the paper map. The correct information is found in the metadata files, but see http://mcmweb.er.usgs.gov/drg/err_rep.html for an explanation of some errors which have been found in DRG metadata.

A USGS publication, Transverse Mercator Projections and U.S. Geological Survey Digital Products, July, 1997, by Larry Moore of the Mid-Continent Mapping Center, discusses coordinate systems and projections. This publication is available at <http://mcmweb.er.usgs.gov/drg/mercproj/index.html>. See also the glossary at <http://edcwww.cr.usgs.gov/glis/hyper/glossary/> for an explanation of the datum concept and terms.

CURRENT FORMATS:

GeoTIFF- DRGs are basically Tagged Image Format (TIF) files, in which the upper left pixel is designated as (0,0), with the X axis increasing to the right, and the Y axis increasing down. The DRG files include the image file with TIF extension, the world file, with extension TFW, and the metadata file, with extension FGD. GeoTIFF differs from regular TIF format in it's georeferencing, made possible when the software is able to read the world file.

Naming conventions for files are as follows. For example in Ohio, the Springfield, OH DRG name is f39083e1.TIF, where:

f = 30' by 60', 1:100,000-scale Topographic
 Quadrangle
39 = Degrees Latitude
083 = Degrees Longitude
e1 = Location of map within a larger map
 delineation
TIF = Tagged Image File Format

These conventions for all map scales are found at http://mcmweb.er.usgs.gov/drg/drg_name.html#hdr 8.

AVAILABILITY:

The status of DEGAavailability is found at <http://mapping.usgs.gov/www/products/status.html>.

Ohio DRGs are made available for free in GeoTiff format through the OGRIP/GIS Support Center <http://www.state.oh.us/das/dcs/gis/drg/>, <ftp://ftp.geodata.gis.state.oh.us/geodata/drg/>. To locate other free sources of DRGs for other states visit: http://mcmweb.er.usgs.gov/drg/free_drg.html.

DRGs are available through the USGS web site <http://earthexplorer.usgs.gov> for \$1.00 each plus a \$30.00 base charge for ftp or \$45.00 base charge plus shipping & handling for CD-ROM or 8 mm tape. It is also available in DVD for \$60.00.

PROCESSING THE FILES FOR USE IN GIS:

DRGs with the appropriate world file are ready to use in GIS software. When it is necessary to overlay adjacent maps, the white border of each map must be removed or rendered transparent. This can be accomplished by software manipulation or by manipulating the data. Instructions for doing this are found at: <http://mcmweb.er.usgs.gov/drg/mercproj/index.html>.

SOFTWARE:

GeoTIFF 1.0 is supported by ArcView v. 3.x, Spatial Analyst v. 1.1, ArcInfo v. 7.1 and Erdas Imagine v. 9.

GeoTIFF files can also be read by a Windows 95/NT program freeware program called DLGV32. This program, and other free view-

ers, are available for download from: http://mcmcweb.er.usgs.gov/sdts/public_domain.html.

REFERENCES:

<http://mcmcweb.er.usgs.gov/drg/>
<http://www.state.oh.us/das/dcs/gis/drg/>
http://mcmcweb.er.usgs.gov/drg/free_drg.html
<http://earthexplorer.usgs.gov>

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