US Topo Map and Historical Topographic Map Users Guide

May 2016. Based on Adobe Reader XI version 11.0.15 and TerraGo Toolbar version 6.8.05186

June 2017 note: In 2017, US Topo production systems were redesigned. This system change has few impacts on the design and appearance of US Topo maps, but does affect the geospatial characteristics. This version of the Users Guide is frozen in its current form, and applies to US Topo maps created before approximately June 2017 and to all HTMC maps. US Topo maps published after June 2017 have a new version of this guide, which is posted at https://nationalmap.gov/ustopo

This guide explains how to access and use two types of USGS digital topographic maps: US Topo maps and USGS historical topographic maps.

US Topo maps are the current generation of USGS topographic maps. The first of these maps were published in 2009. They are modeled on the legacy 7.5-minute series of the mid-20th century, but unlike traditional topographic maps they are mass produced from GIS databases, and are published as PDF documents instead of as paper maps. US Topo maps include base data from *The National Map* and other sources, including roads, hydrography, contours, boundaries, woodland cover, structures, geographic names, an aerial photo image, Federal land boundaries, and shaded relief. More information about this series is available on at *http://nationalmap.gov/ustopo*.

The **Historical Topographic Map Collection (HTMC)** includes all editions and all scales of USGS standard topographic quadrangle maps originally published as paper maps in the period 1884-2006. Paper copies of these maps have been scanned and published as PDF documents. The best-known USGS topographic map series is the 7.5-minute series, published primarily at 1:24,000 scale in the period 1947-1992; images of these maps are now part of the HTMC. More information on the HTMC is available at *http://nationalmap.gov/historical*.

US Topo and HTMC maps are available on the Web at no cost, in PDF format with geospatial extensions (GeoPDF®). Free tools allow users to read coordinates, measure distances and angles between points, measure areas, track positions using a GPS device, display coordinates in various map projections and datums, turn layers on and off (US Topo maps only), zoom in and out, and print the map image.

This guide applies to both US Topo and HTMC PDF maps, though there are some differences between the two series. US Topo maps are layered PDFs with both vector and raster data, while HTMC maps are a single-layer raster file. US Topo maps are all georeferenced to the UTM coordinate system on the NAD83 datum, while HTMC maps are georeferenced to the spatial reference system of the original published map. For the most part, only advanced users will notice these differences. Navigation and other tools generally work identically for all GeoPDF maps.

HTMC maps only are also available in GeoTIFF and several other formats; these formats and the tools needed to use them are not discussed in this document.

Quickstart

Prerequisites

- A computer with a recent operating system. More software capable of using PDF geospatial extensions is available for Windows, but USGS PDF maps can be viewed and printed with appropriate software on any operating system.
- Internet access (to download maps).
- Adobe® Reader®, or comparable PDF viewing software.
- For full geospatial functionality, the [TerraGo Toolbar](#)® by TerraGo Technologies is recommended. This toolbar is available only for Windows. Users who won't use geospatial functions, but want only to display or print a map image, do not need this toolbar.

Find Maps

- Go to The National Map Download Client, http://viewer.nationalmap.gov/basic/
- Select a product type, such as **US Topo** or **Historical Topographic Maps.**
- Pan and zoom to your area of interest*.*
- Define a point or area on the map.
- Click the **Find Products** button.

Download Maps

- Right-click on the product **download** link and select **Save Link As...**
- Double-click on the saved file to display the map.

Using the Map

- Use the Adobe menus and tools to zoom and pan.
- Use the TerraGo GeoPDF Toolbar to display coordinates or measure distances or areas.
- Use the TerraGo GeoMark Toolbar menus and tools to add geospatial markup and import other geospatial data.
- US Topo maps only: The layer table of contents on the left side of the display allows data layers to be turned on and off. Expand or collapse folders by clicking on the '+' and '-' icons. Turn layers or groups of layers on and off by clicking the "eye" icon check boxes.

Printing

- From the Adobe Reader/Acrobat menu bar select "File" then select "Print" to launch print dialog.

Users Guide – Detailed Instructions

Contents

Prerequisites

Internet access is required to download maps; broadband access is highly recommended.

This guide is written primarily for Microsoft® operating systems; examples are from Windows 7, though other Windows versions will be similar. Mac OS®, Linux, and graphic art (non-geospatial) users should refer to the section "Using Maps Without the TerraGo Toolbar or in Other Software," later in this guide. Software that will correctly display and print these PDF documents exists for Mac OS, but we know of none that has full geospatial functionality comparable to the TerraGo Toolbar™ for Windows.

Adobe® Reader® or comparable PDF viewing software is required. Reader may be downloaded for free at *http://get.adobe.com/reader/*. Adobe Acrobat® may be used in lieu of Adobe Reader.

TerraGo Toolbar™, a free plug-in for Windows versions of Adobe Reader and Acrobat, is required for full geospatial functionality, but is **not** required to view or print a US Topo map. The toolbar can be downloaded at *http://www.terragotech.com/products/terrago-toolbar*.

Adobe Reader or Acrobat must be installed prior to installing the TerraGo Toolbar. For information about viewing and using map files without TerraGo Toolbar, see the section "Using Maps Without the TerraGo Toolbar or in Other Software," later in this guide.

HTMC maps only are also available in GeoTIFF and several other formats; these formats and the tools needed to use them are not discussed in this document.

This document was revised in May 2016, and is based on these software versions: Adobe Reader XI Version 11.0.15 , and TerraGo Toolbar version 6.8.05186. Details of the instructions may vary between software versions. Staying current with software releases is recommended.

Obtaining US Topo and HTMC Maps

Maps can be downloaded free of charge from several USGS Web sites (see *More Information* below). The primary search and download application for products of the National Geospatial Program is **The National Map Download Client** at http://viewer.nationalmap.gov/basic/ Following is a tutorial of selected features for finding and retrieving US Topo and HTMC maps with this application.
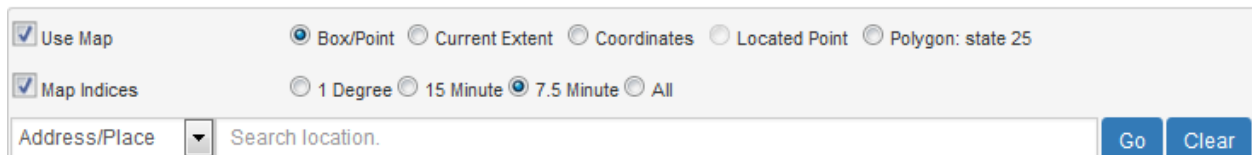
Select Product Types

In the product list in the left window, check the box for US Topo, or Historical Topographic Maps, or both. This expands the options for these products and enables product search.
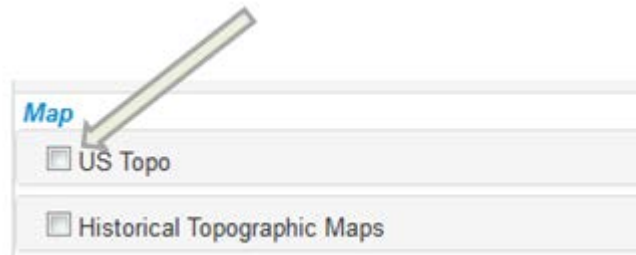
Find an Area of Interest

Pan and zoom to your area of interest, or use the search box as described below. Zoom with the + and – icons in the upper left of the map window. Pan by clicking and dragging the map. Shift-click-drag also can be used to pan and zoom in one step.

Standard map cell grids can be turned on by clicking the "Map Indices" box and selecting the appropriate grid size. The application will zoom in if necessary to prevent an overly dense grid display. Cell names will appear at appropriate zoom levels. Cell names are usually – but not always – the same as map titles[1]. This grid is a reference layer only; it need not be displayed to search for products.

The *search location* box will accept these input types:
- A street address or zip code. Example: 200 E Colfax Ave, Denver, CO
- A populated place name. Example: Salida, CO
- A geographic feature name. Example: Rosalie Peak, CO
- Longitude/latitude coordinate pair. Must be in decimal degrees, comma-separated, longitude first, west negative. Example: -105.606,39.556. The notation 105.606W,39.556N also works.

State name may be necessary for place searches because place names are not necessarily unique across states. Omission of state, or other ambiguities in the search string, may locate an area other than the one desired. Natural feature names are occasionally not unique within states; look for more than one instance in the auto-complete drop down list, and if one does not go to the correct area, try the other.

---

[1] A map takes the name of its associated cell at the time the map is published. Cell names can change, but the title of a published map is permanent.

Select a Point or Area

Define a point by selecting the *Draw Point* icon   and placing it on the map. Product searches will return products that **contain** this point.

Define an area by selecting the *Draw Rectangle* icon and clicking and dragging on the map. Product searches will return products whose footprints **intersect** this box.

Only one point or area can be defined at a time. Defining a new point or area deletes the current one.

Clicking the *Clear AOI* (trash can) icon also clears the current point or area.

Find Products

With at least one product type selected (e.g., US Topo), and a point or area defined, click the **Find Products** button:
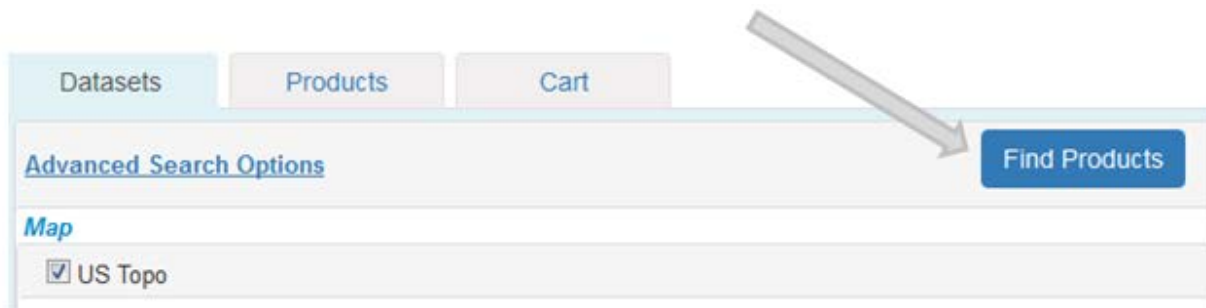
The application changes focus to the *Products* tab, and displays lists of all products found. Several options are offered for each product instance, including display the footprint, display more information, zoom to, and download.

The behavior of the download link depends on which browser you use, and how it is configured to treat PDF files. Typical default behavior is to display the PDF in a new browser tab. To download and save the file instead, right-click on the download link and select *save link as*. At this writing, default file names are database ID numbers, which are guaranteed to be unique (within this system) but are not descriptive. This may change in the future to name the files with descriptive strings.

Other Search and Download Features
The download client includes other features that are beyond the scope of this short tutorial. Refer to the online help and other documentation of *The National Map* for details. Important features include:
- Product searches can be done over pre-defined polygons, including states, counties, and watersheds.
- Products can be put in a shopping cart to help manage download lists.
- Product lists and shopping cart lists can be exported to CSV (delimited text) files.
- The CSV files can be used as input to a separate download manager program (http://viewer.nationalmap.gov/apps/download_manager/). This is basically a batch download feature.
- Other background base maps, including image maps, can be displayed in place of the default contour base map.
- US Topo and HTMC products have links to relevant pages at the USGS Map Store for ordering paper plots.

More Information

- See http://training.usgs.gov/TEL/TheNationalMap/TNM-TEL-Index.html for videos and other training materials for the products and services of *The National Map*. Lesson 4 is a video for the download client.
- US Topo and HTMC maps can be downloaded through other USGS applications not discussed in this document; see the FAQ at http://www.usgs.gov/faq/categories/9797/3571. The TopoView application is of particular note for users who want to browse historical maps only. Non-USGS applications that serve these maps, or selected subsets, also exist.

- Bulk delivery is also available; see http://www.usgs.gov/faq/categories/9797/3572.

- Initial US Topo coverage of the conterminous 48 states was completed in 2012, and the second coverage was completed in 2015. Except for a few restricted military areas, every map cell in the conterminous 48 states has at least two US Topo maps (one of which is "current"). Hawaii and Puerto Rico also have coverage. Alaska was started in 2012, but will require several more years to complete. To see the dates of US Topo latest coverage, click the "Show Availability" and "Availability Legend" links in the download client datasets list.
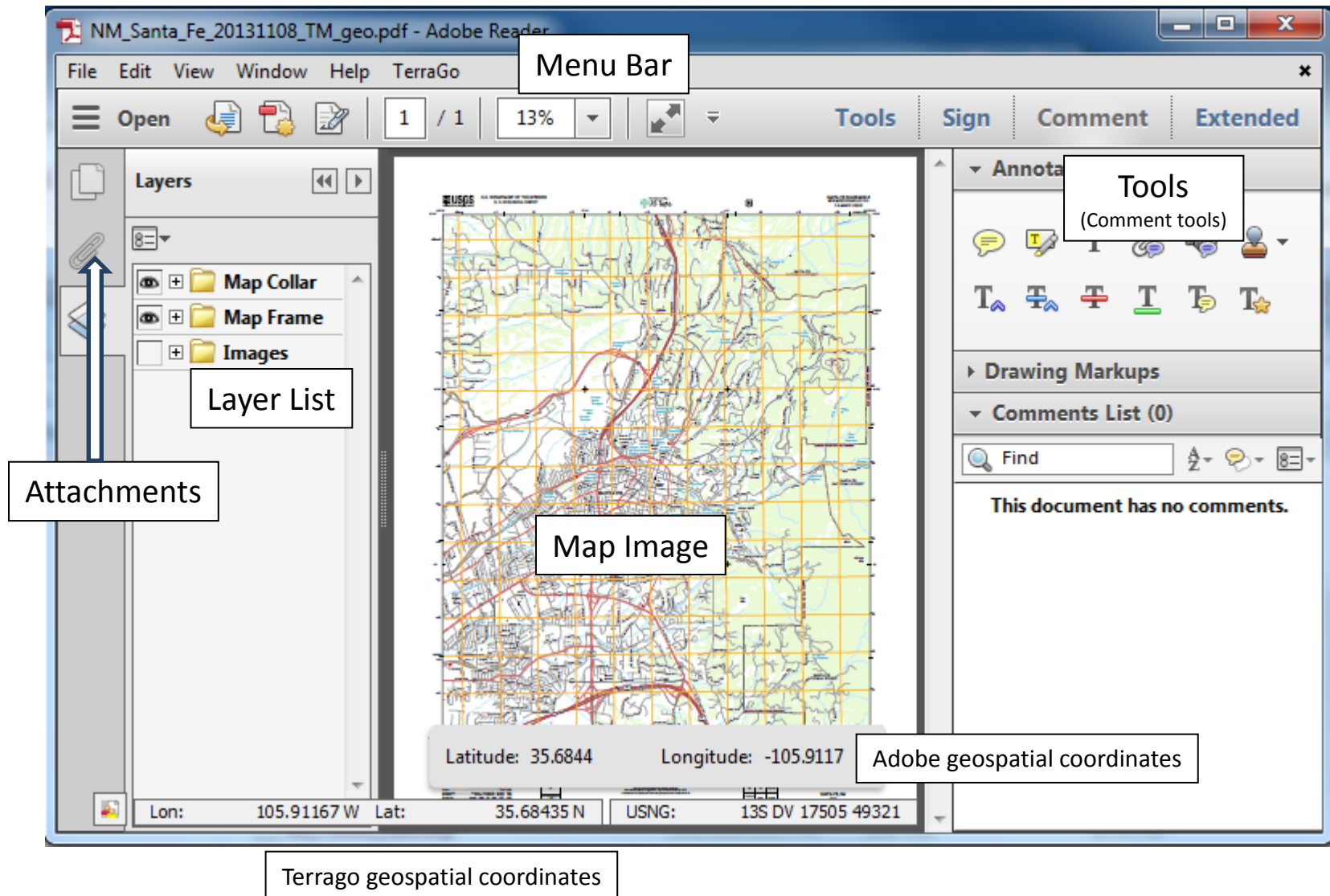
Open the Map

After downloading a PDF map, find the file on your hard drive. Double click on the file name to open the file. The map will open in whatever software your computer configuration associates with the PDF format, probably Adobe Reader or Adobe Acrobat. If your default PDF viewer is some other application, you may need to start Reader and open the US Topo file from within the application (File / Open).

If the TerraGo Toolbar hasn't already been installed, you may be offered an opportunity to download and install at this time. This download is free and installation is only required once. These tools supplement Adobe Reader capabilities by providing added geospatial capabilities.

The figure on the next page is a summary screenshot of Adobe Reader with a US Topo map displayed and the major pieces of the viewer annotated.

Adobe Reader XI, with US Topo Map displayed

NM_Santa_Fe_20131108_TM_geo.pdf - Adobe Reader

File   Edit   View   Window   Help   TerraGo

Menu Bar

Open   1 / 1   13%

Tools   Sign   Comment   Extended

Layers

Map Collar
Map Frame
Images

Layer List

Attachments

Annota...

Tools
(Comment tools)

Drawing Markups

Comments List (0)

Find

This document has no comments.

Map Image

Latitude: 35.6844   Longitude: -105.9117

Adobe geospatial coordinates

Lon: 105.91167 W   Lat: 35.68435 N   USNG: 13S DV 17505 49321

Terrago geospatial coordinates

Using the Map

Refer to the figure on the previous page, and the layer list to the right.

Layer List (US Topo maps only)

The image to the right shows the standard list of US Topo layers for maps produced in 2014-16. The exact layer list will vary with the US Topo vintage and location.

- Click on the "eye" icon to turn a layer off or on in the map image.
- Click on the '+' icon to expand the list of layers, or '-' icon to collapse the list.

It may take a few seconds for the map image to refresh when the layer selection is changed.

Show More Tools

To turn on Adobe tools, go to

View / Show-Hide / Toolbar Items / Select&Zoom

Then select the tools you want to turn on in the toolbar (such as *Marquee Zoom* and *Hand Tool*.) Right-clicking on the map image is another way to select tools.

Zoom and Pan

There are several options to zoom and pan. The tools may be turned on/off individually or collectively by choosing View / ShowHide / Toolbar Items / Select & Zoom /

Options for zooming/panning include:

- Click on the '+' and '-' icons in the Adobe toolbar (not to be confused with similar icons in the layer list).
- Enter or choose a percent in the window to the right of the '+' icon in the Adobe toolbar.
- Using the Marquee Zoom tool, click and drag to create a zoom rectangle over the desired area.
- Using the Continuous Zoom tool, move the cursor up/down (or the scroll wheel on mouse) to zoom in/out.
- Using the Loupe tool, click an area of the map you want to see in more detail and use the slider to change zoom levels.
- Hold the Ctrl key with either the plus or minus sign keys (Ctrl+ or Ctrl-).
- Use the page resize tools to display actual size, fit screen, and fit width.
- Use the Hand tool to pan around the map. The up/down/left/right arrow keys may also be used to pan. You may not pan if the map display shows the entire map page.
- Using the Pan & Zoom Window tool, drag the box handles to change the magnification and drag the box to pan across the image.
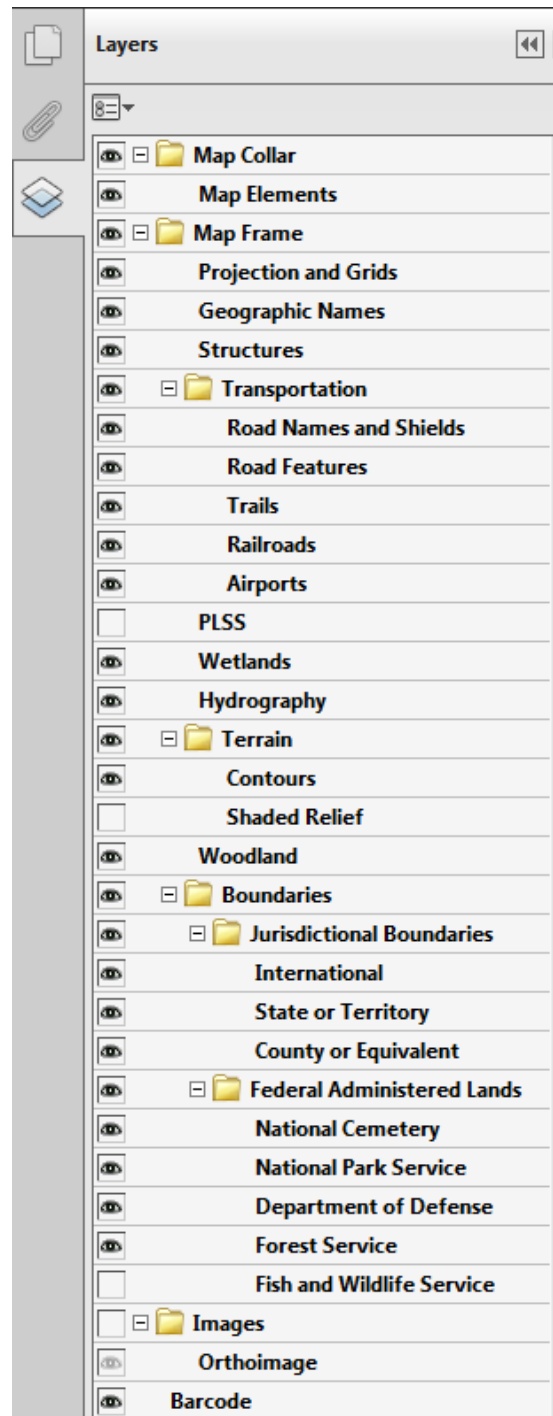
TerraGo Toolbar

Reminder: this toolbar is available only for Windows.

The TerraGo Toolbar includes two sets of tools, TerraGo GeoPDF and TerraGo GeoMark. If using Adobe Reader you can display the tools two different ways:

- From the menu bar: TerraGo / GeoPDF Toolbar (or GeoMark Toolbar)
- From the Extended pane on the right: TerraGo GeoPDF (or TerraGo GeoMark)

Adobe introduced a new security feature called "Protected Mode" in Reader X. Protected Mode may interfere with some advanced functions of the TerraGo Toolbar; refer to the TerraGo Toolbar release notes for more information:
http://www.terragotech.com/software/release_notes/terrago_toolbar_release_notes.pdf.

For more information on Reader's protected mode, see Adobe documentation at
http://helpx.adobe.com/pdf/adobe_reader_reference.pdf.

TerraGo GeoPDF

The following TerraGo Toolbar tools provide GIS-like functions to display coordinates, change coordinate systems, change display formats, measure distances and areas, and connect the US Topo to Google maps and GPS devices.

GeoTool – Lock/unlock coordinates, Google^{TM} Map It, and launches other GeoPDF tools.

GeoLocator – Show and find coordinates, change coordinate systems, and modify coordinate formats.

Identify – Exposes attributes of PDF objects. Such attributes are not implemented in US Topo or HTMC maps, so this tool is not relevant to this document.

GeoMeasure – Measure distance or area. Contains two measurement tools: Measure Length and Measure Area, use the drop down to select between the two:

Measure Length

Measure Area

GeoTrack – Displays the current position of an attached GPS device. Contains two tracking tools, use the drop down to select between the two:

Start GPS Track

Hide/Show Flag

TerraGo GeoMark

GeoMark (TerraGo / GeoMark Toolbar or Extended / TerraGo GeoMark) is TerraGo's spatial data extension of PDF markup. GeoMark allows notes and geometric objects (lines, polygons, etc) to be added to a GeoPDF, and allows these objects to be exported to GIS files. Spatial files such as GPX, Shape, and KML can also be imported. Most US Topo maps since 2012, and nearly all HTMC maps, are GeoMark-enabled, so users can add and export GeoMark objects using the free Adobe Reader and the Terrago Toolbar. Exact behavior of the GeoMark tools varies between versions of Adobe Reader and the TerraGo Toolbar, and in older versions of these software tools the GeoMark functions may not operate on US Topo maps.

View GeoPDF File Properties

The TerraGo Toolbar allows users to view GeoPDF file properties, such as when the file was created, what version of the TerraGo Toolbar is compatible, and whether it is a true GeoPDF file. Properties can be viewed for the entire document or a specific map frame. To view GeoPDF file properties, go to TerraGo / GeoPDF File Properties.
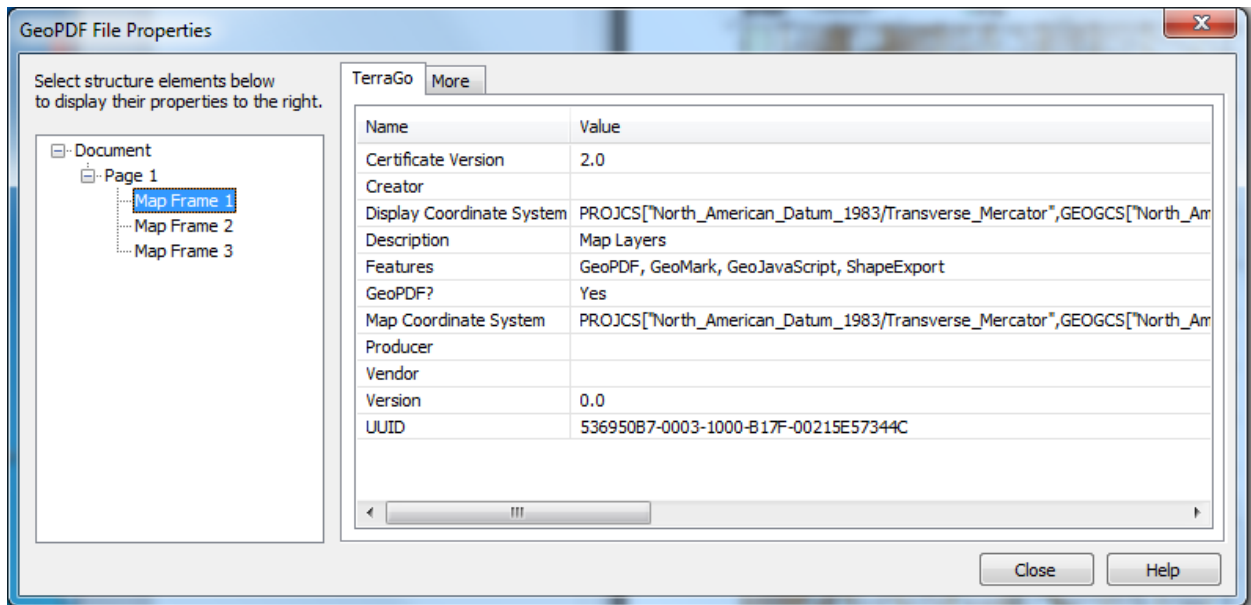
Multiple map frames are a side effect of production processes and commercial software behavior. One frame (usually Map Frame 1, with the description "Map Layers") contains almost all the map content. The other frames are inset diagrams in the map collar. The number and ordering of these frames is not consistent throughout the product series. This has no noticeable effect in Reader or Acrobat, but in some circumstances other software can be confused by the presence of multiple frames. The USGS hopes to eventually improve this design and have only one frame in the file.

11

Modifying TerraGo Preferences

Users can customize TerraGo Toolbar behavior. To modify the preferences go to
Edit / Preferences / TerraGo
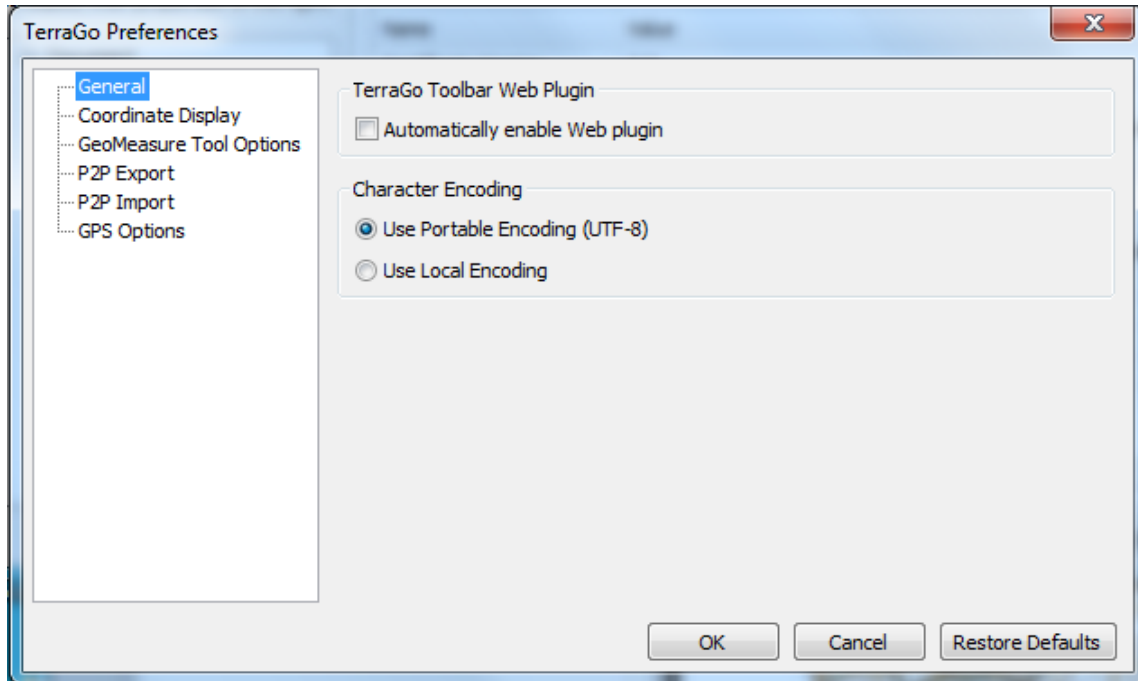
This panel provides options for coordinate display format, various GPS device options, how the GeoMeasure tool displays length and area measurements, and for specifying peer-to-peer export/import preferences used in collaboration.

For more information about TerraGo Toolbar capabilities, see these TerraGo resources:
- Toolbar FAQs: http://www.terragotech.com/support/faqs
- Training videos: http://www.terragotech.com/learn-more/videos
- TerraGo Technologies Tech Support: http://www.terragotech.com/resources/tech-support

# Using Maps Without the TerraGo Toolbar or in Other Software

This section discusses US Topo viewing and other use options for non-Windows computers, users who choose not to use the TerraGo Toolbar, non-geospatial graphic art users, and for a few cases of advanced GIS uses. This discussion is probably not complete; there is almost certainly other relevant software available we do not know about.

- With any computer or operating system, US Topo and HTMC maps can be viewed and printed using any PDF viewing software that correctly implements the PDF standard – including PDF layers, which some viewers do not implement. Acrobat Reader is available for Windows and Mac OS X, but is not the only PDF viewer that meets these criteria.

- We do not know of any free or open source viewers for Linux that meet the above criteria. Windows versions of Adobe Reader and the Foxit®PDF viewer, both of which implement layers, can be run under the Widows emulator Wine. The TerraGo Toolbar does not work under Wine.

- Beginning with version 9, Adobe Reader has some built-in, non-TerraGo geospatial functions. In Reader versions X or XI for both Windows and Mac, got to Edit / Analysis

  The Adobe tools are not as extensive as the TerraGo tools, but do provide the basic functions of reading coordinates and measuring distances and areas. The options for changing display units and coordinate systems are also more limited; see Edit / Preferences / General / Measuring (Geo)

  At this writing, all US Topo and HTMC maps are believed to be compatible with the Adobe geospatial tools.

- Graphic art programs such as Adobe Photoshop or GIMP (Gnu Image Manipulation Program) can usually load US Topo maps, but do not preserve georeferencing, may rasterize the vector layers without giving the user control over resolution, and may not be able to select layers. For graphic art applications we recommend using a licensed version of Acrobat to process the map to an unlayered, ungeoreferenced PDF document or raster image that includes only user-selected content. The Acrobat Merge Layers and Flatten Layers features (figure below) are especially useful for creating a

Licensed version of Adobe Acrobat, not the free version of Reader.

13
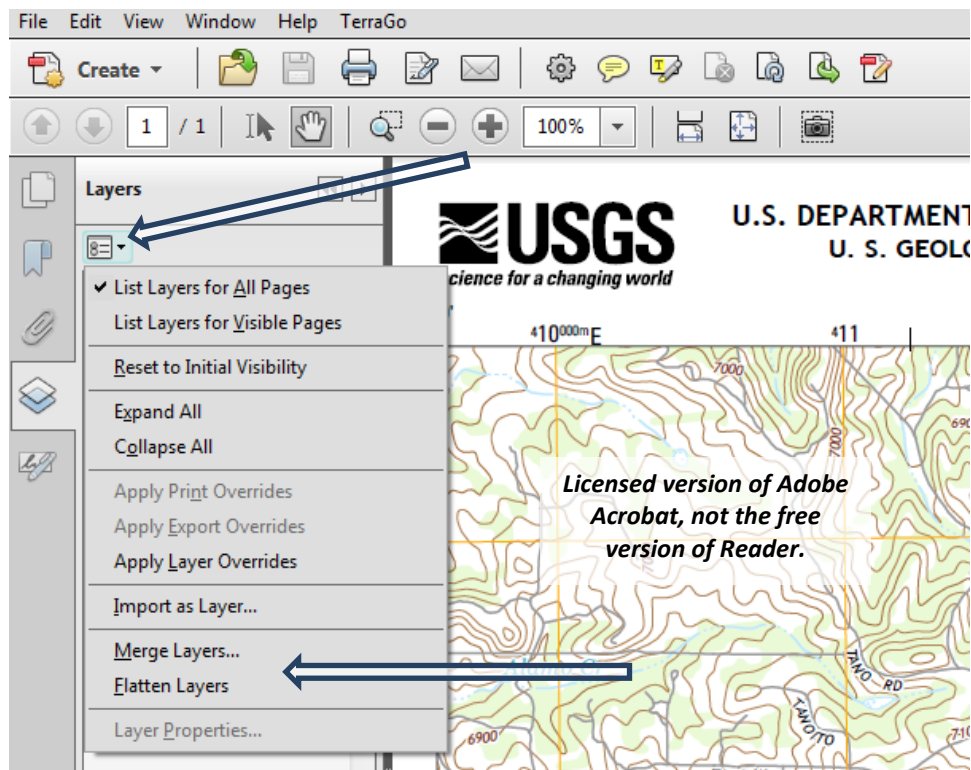
PDF map that can be read by a wider variety of software. Acrobat has many other file conversion options that may serve specific purposes.

- Occasional problems have been reported with opening some US Topo files in Illustrator and Photoshop, particularly Mac versions. The USGS geospatial program does not use these products, and we have not been successful in diagnosing the problem. We recommend the Acrobat work around described in the previous paragraph.

- For HTMC maps only: GIS and graphic art users will probably prefer the GeoTIFF versions. US Topo maps are not distributed in GeoTIFF format by USGS, though there are ways to convert US Topo maps or selected layers to TIFF or GeoTIFF. See the next section for information.

- An option for using US Topo maps in other software is to convert the map or selected layers to TIFF or some other common raster format. For non-spatial applications, the Adobe Acrobat procedures described above work well (File / Save as Other / Image). The major GIS vendors have not yet implemented geospatial PDF import, so reformatting the map is often the most straight forward way to load a US Topo into a GIS. For spatial applications it is necessary to preserve the georeferencing, so the best option for the target format is GeoTIFF[2]. See the next section for more information.

- Geospatial PDF software is available for both Apple and Android mobile devices. However, we don't know of any that has layer selection capabilities. All mobile software we know of that can read a US Topo will rasterize all layers of the PDF into a single image plane. Until more powerful software is available, a workaround is to convert selected layers to GeoTIFF (previous bullet)[3].

- The USGS is working on a companion product of vector data, currently called "Topo Map Vector Data," intended for advanced GIS users. This is a collection of vector layers, in Esri File Geodatabase (FGDB) format, covering a 7.5-minute cell, with content that approximates a US Topo map. An associated style template allows ArcGIS users to create a symbolized quad map from the vector data. The style template is Esri-specific because this product is designed to meet particular requirements of USGS geologists and other earth scientists. For more information, see http://viewer.nationalmap.gov/tools/topotemplate/. These products can be found and downloaded through *The National Map* Download Client, discussed earlier in this manual. At this writing (May, 2016) products are available for about 17,000 cells (of 54,000) in the conterminous 48 states, plus a small number of samples in Alaska. We hope for full coverage by late 2016 or early 2017.

---

[2] Though USGS recognizes the demand for loading US Topo maps into geographic information systems, this is not a procedure we recommend. US Topo maps are fundamentally an output of, not an input to, GIS, and are intended to be a map product to serve non-GIS users. We recommend that GIS users look at datasets and services designed for GIS, rather than reverse-engineering US Topo maps. See the "Additional Information" section of this document for references. See also the last bullet in this section about Topo Map Vector Data.

[3] The previous footnote may also apply here. Mobile users should consider Web map services for obtaining USGS map data. When connected to the Internet this is often a superior solution. Some mobile applications provide the capability to locally store seamless tiles from USGS map services.

GeoTIFF

In 2015 the National Geologic Map Database (NGMDB) project mass-converted the GeoPDF HTMC maps GeoTIFF. These versions (and several other formats) can be downloaded through the TopoView application at http://ngmdb.usgs.gov/maps/Topoview/

HTMC maps convert easily to GeoTIFF format because they contain only one raster image plane. US Topo maps are more difficult to package as GeoTIFF because of the multiple layers, especially the fact that there are too many layers to put in a single image display without losing readability.

It is possible to convert US Topo maps, or selected layers or layer combinations, to GeoTIFF. Because specific applications usually require customized content, the USGS currently has no plans to develop a standard GeoTIFF version of US Topo maps, so this reformat must be done by individual users or third-party organizations. For more information on GeoPDF to GeoTIFF conversion, see

- o A USGS FAQ: http://www.usgs.gov/faq/categories/9797/3704

- o An article aimed at Linux QGIS users: http://www.staygeo.com/2013/03/convert-geopdf-maps-to-geotiff-with-gdal.html

- o http://wiki.openstreetmap.org/wiki/Convert_GeoPDF_to_GeoTiff

Metadata

Each US Topo file has an attached file of metadata that describes data sources and production processes. This file complies with the Federal Geographic Data Committee's (FGDC) Content Standard for Digital Geospatial Metadata (http://www.fgdc.gov/metadata/geospatial-metadata-standards). The physical format is XML.

To access the metadata file from Acrobat Reader, click on the paperclip icon, then select a file from the list that appears.
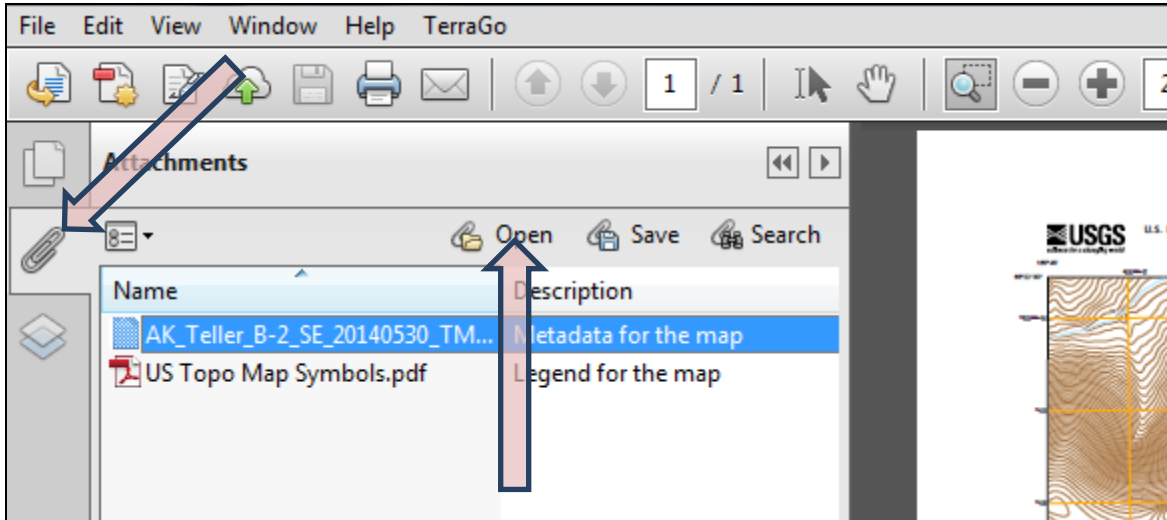
The metadata file can be opened, or detached and saved to local storage. The file will be opened with whatever application your computer configuration associates with the .xml file type, typically a web browser.

XML is plain text, but can be difficult to interpret if you are not familiar with the syntax. The second line of the metadata file is a reference to a style sheet that defines formatting for the metadata, but is commented out:

 <!--<?xml-stylesheet type="text/xsl" href="http://webhosts.cr.usgs.gov/mod/FGDC_Plus.xsl"?>-->

This is commented because a reference to an online style sheet can be a security vulnerability, and not all applications allow a file containing such a reference to be opened. For example, the Firefox® browser will not open files containing a remote style sheet reference. If the files you are viewing are real USGS files, there is no actual security vulnerability. To apply the style sheet and view a formatted version of the metadata, save the .xml file to local storage and edit it with a text editor (e.g., Notepad or vi) to remove the comment characters:

<?xml-stylesheet type="text/xsl" href="http://webhosts.cr.usgs.gov/mod/FGDC_Plus.xsl"?>

With the comments removed, open the metadata file in Internet Explorer®, which permits style sheet references. Warnings and "disabled content" messages may be displayed. If you are confident of the origin of the file you are opening, these can all be accepted.

As shown in the above image, current US Topo files have a second attachment, a PDF document that contains the map symbol key. This will be present in any US Topo created later than May 2013.

Uncommenting the style sheet displays the metadata file like this (screenshot from Internet Explorer):

With the style sheet commented out, the XML text displays like this (screenshot from Firefox):

Printing

This section describes three print scenarios. Reader and Acrobat will print just those layers that are turned on in the display, a useful feature for printing customized maps.

The following instructions and screen displays are of typical examples, but the details may vary with software versions and specific print driver software. Your system may present different menus or options.

Print the entire map sheet

This option requires a large-format plotter. Most US Topo maps are 22.75x29 inches, though maps in southern Texas, southern Florida, and Puerto Rico are larger. To print the entire map at 1:24,000-scale

1. Open the print dialog box and select a large-format plotter.
2. Select the "Page Setup" (or in some cases "Properties") button. Define the paper page size and desired page orientation. ANSI D is an appropriate size for most US Topo maps. Select "OK" to return to the print dialog box.
3. In the "Pages to Print" section select the "All" button.
4. In the "Page Sizing and Handling" section select "Actual Size" to print at map scale. "Fit" will shrink or enlarge the map to fit the paper size, which changes the scale of the plot.

The print dialog box should look similar to the image below.
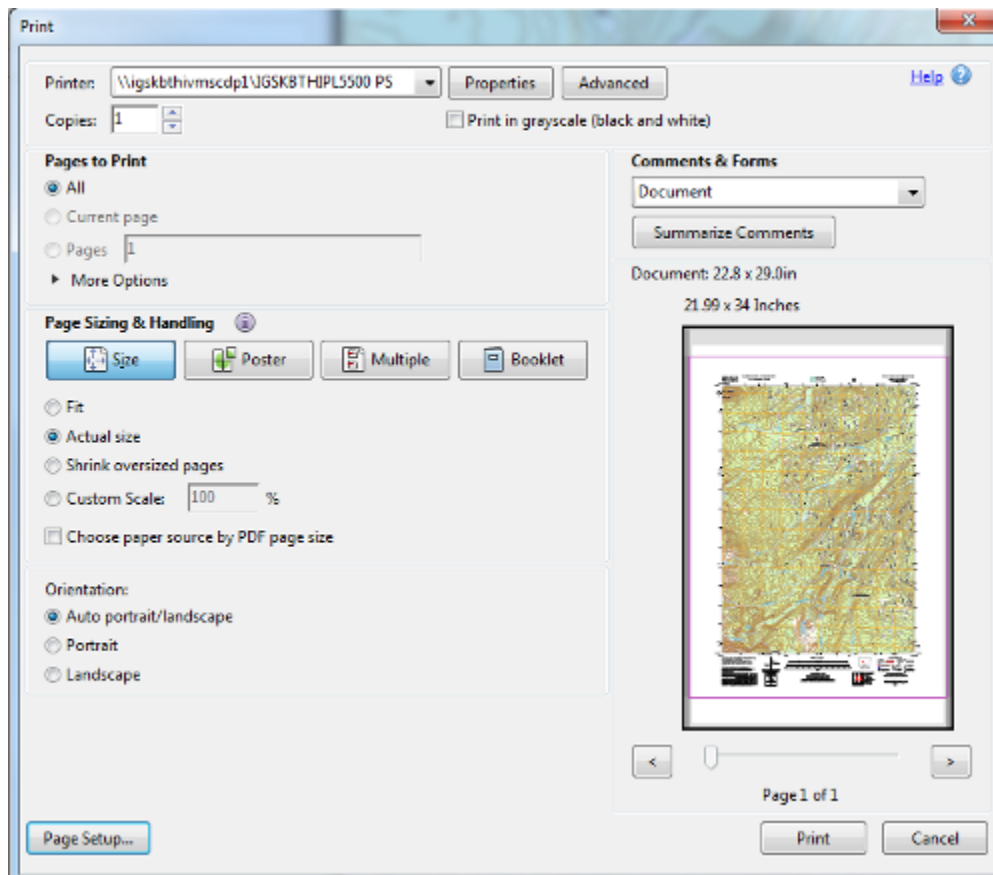
Print page-size pieces of the map

If you do not have access to a large-format plotter, or for other reasons want to print a portion of the map on a smaller piece of paper, position the map fragment to print in the Adobe Reader window. To print at map scale (1:24,000), set magnification in Adobe Reader to 100%.

1. Open the print dialog box and select a printer.
2. Select the "Page Setup" (or in some cases "Properties") button. Define the paper page size and desired page orientation. Select "OK" to return to the print dialog box.
3. Expand the "More Options" section under "Pages to Print" and select the "Current view" button.
4. Select "Actual Size" to print to scale. Selecting "Fit" will shrink or enlarge the map to fill the paper in at least one of the dimensions, and therefore will change the scale of the printed map.
5. Check the preview image to verify the area to be printed.

Positioning and scaling the map fragment to get what you want on the plot may require some trial and error, particularly if a specific extent is more important than exact scale.

The print dialog box should look similar to the image below.
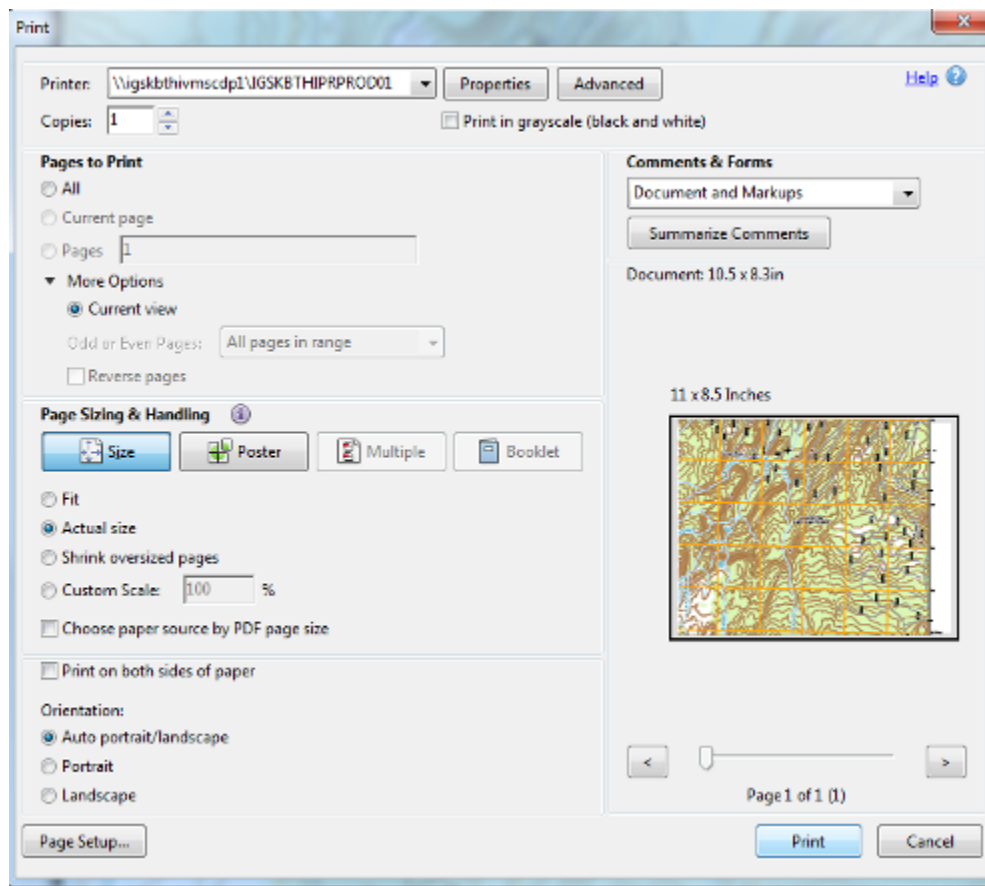
Printing the map in sections on page-size paper

This option will print the entire map in pieces, typically on nine sheets of 8.5x11 paper, though other paper sizes can be used.

1. Open the print dialog box and select a printer.
2. Select the "Page Setup" (or in some cases "Properties") button. Define the paper page size and desired page orientation. Select "OK" to return to the print dialog box.
3. In the Pages to Print section select the "All" button.
4. In the "Page Sizing & Handling" section of the print dialog box:
   a. Select "Poster."
   b. Set the "Tile Scale" to 100% to print at map scale (1:24,000). Smaller percentage values will print at smaller map scale on fewer pieces of paper. For example, 70% will print most US Topo maps on four 8.5x11 sheets of paper (if overlap is small), at about 1:34,300 scale.
   c. Set desired "Overlap." Overlap specifies the minimum amount of duplicated information printed on each tile for ease in assembly. The "Overlap" option uses the unit of measure specified for the document. The value should be greater than the minimum nonprinting margins for the printer. You can specify up to one-half the size of the shortest side of the document page to overlap. For example, tiles for a page that measures 11x17 inches (279.4x431.8mm) can overlap up to 5.5 inches (139.7mm).

The print dialog box should look similar to the image below.
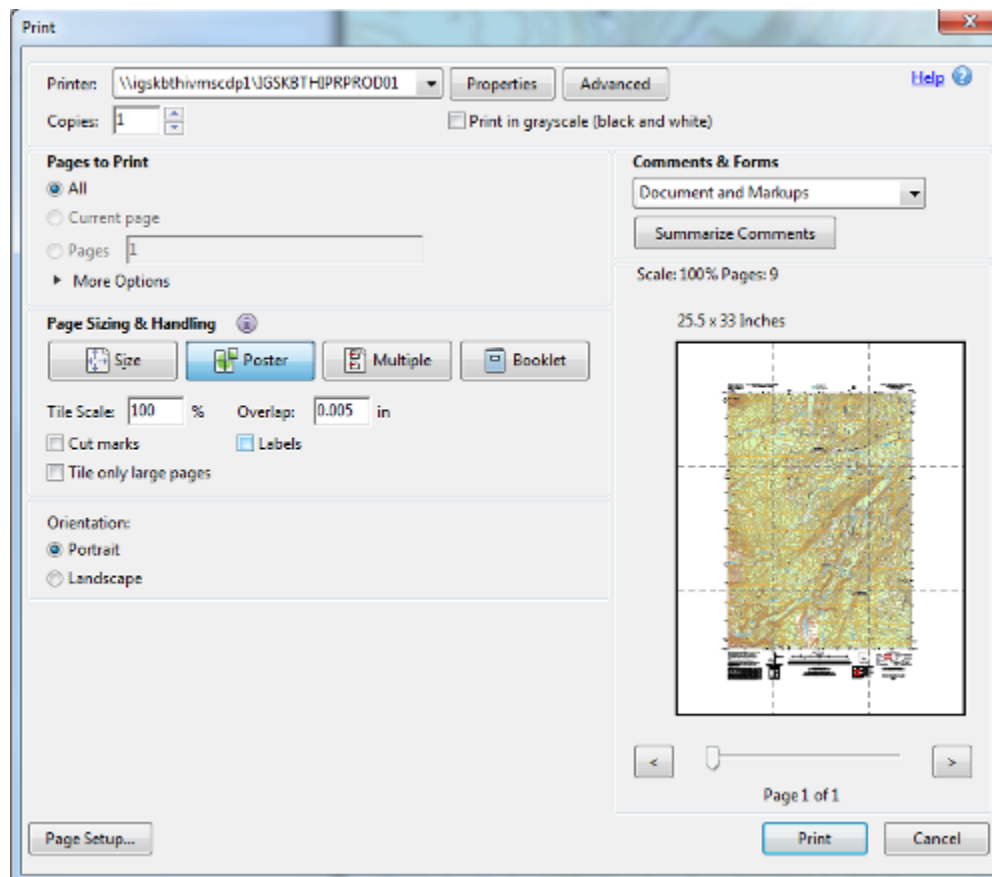
Additional Information

US Topo project home page: http://nationalmap.gov/ustopo/index.html

US Topo Frequently Asked Questions (FAQ): http://www.usgs.gov/faq/categories/9797

HTMC project home page: http://nationalmap.gov/historical/index.html

HTMC FAQs: http://www.usgs.gov/faq/categories/9796

FAQs and project pages address more advanced topics such as mapped features and program and policy matters that are outside the scope of this Users Guide.

For references to USGS GIS datasets and services, see

- *The National Map* home page, http://nationalmap.gov/ , Products and Services link.
- *The National Map* Download Client: http://viewer.nationalmap.gov/basic/
- Web map services list: http://viewer.nationalmap.gov/services/

The USGS values your interest in our digital topographic maps. Comments, corrections, and suggestions for this document can be sent to tnm_help@usgs.gov. This box can also be used for general comments and questions, or click the Contact Us link on the US Topo home page or the HTMC home page.

The US Topo and HTMC projects are part of the USGS National Geospatial Program. For general information see these web pages:

- National Geospatial Program: http://www.usgs.gov/ngpo/
- *The National Map*: http://nationalmap.gov/

Disclaimer and Trademark Notices

Any use of trade, product, or firm names in this publication is for descriptive purposes only and does not imply endorsement by the U.S. Government.

GeoPDF® is a registered trademark of TerraGo Technologies, Inc.

TerraGo Toolbar® is a registered trademark of TerraGo Technologies, Inc.

Adobe®, Acrobat®, and Reader® are registered trademarks of Adobe Systems Incorporated.

Microsoft®, Internet Explorer®, and Windows® are registered trademarks of Microsoft Corporation.

Google™ is a trademark of Google, Inc.

Apple®, Mac®, and Mac OS® are registered trademark of Apple, Inc.

Foxit® is a registered trademark of Foxit Software Incorporated.

Firefox® is a registered trademark of the Mozilla Foundation.