

US Topo Map Users Guide

June 2017. Based on Adobe Reader XI version 11.0.20

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. The previous version of this Users Guide is frozen in its current form, and applies to US Topo maps created before approximately June 2017 and to all HTMC maps. The document you are now reading applies to US Topo maps created after June 2017, and will be maintained into the future.

The previous version of this Users Guide, which applies to US Topo maps created before June 2017 and to all HTMC maps, is linked from <https://nationalmap.gov/ustopo>

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. For more information see the project web page at <https://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. HTMC maps are not discussed in this document. For more information see the previous version of this guide, and the project web page at <https://nationalmap.gov/historical>.

US Topo and HTMC maps can be downloaded at no cost, as described in other parts of this document.

Most of the 2017 software changes will be transparent to most users, but changes to the georeferencing mechanism are an exception. Until June 2017, georeferencing was implemented with software from TerraGo Technologies, Inc. These files could be referred to with TerraGo's trademarked term GeoPDF®. US Topo maps created after June, 2017 use a different implementation of PDF georeferencing, based on the ISO 32000 PDF standard. Both types of US Topo maps can be viewed and printed with Adobe Reader or any comparable PDF viewing software. However, at this time, relatively few geospatial tools for the new geospatial PDF format exist. The TerraGo Toolbar will not operate on the new US Topo files; if the TerraGo Toolbar is installed on your computer, all functions will be grayed out when viewing a new US Topo geospatial PDF. Adobe Reader and Acrobat have a few built-in geospatial functions that work with the new format, which are explained in this document.

Quickstart

Prerequisites

- A computer with a recent operating system. USGS PDF maps can be viewed and printed with appropriate PDF software on any operating system, though the availability of software that supports geospatial functions varies.
- Internet access (to download maps).
- Adobe® Reader®, or comparable PDF viewing software.

Find Maps

- Go to The National Map Download Client, <https://viewer.nationalmap.gov/basic/>
- Select the product type **US Topo**.
- 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 **Edit / Analysis / Geospatial Location Tool** to display coordinates
- Use the **Edit / Analysis / Measuring Tool** to measure distances or areas.
- Expand the table of contents on the left side of the display by clicking the layers icon. Layers allow the user to select specific data types for display. 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

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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 “Non-Windows, Non-Geospatial, and Other Uses,” later in this guide.

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

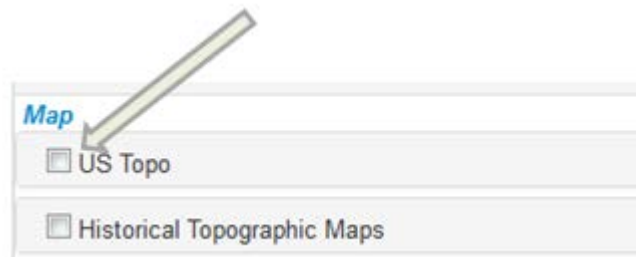
This document was revised in June 2017, and is based on Adobe Reader XI Version 11.0.20. Details of the instructions may vary between software versions. Staying current with software releases is recommended.

Obtaining US Topo 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 <https://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

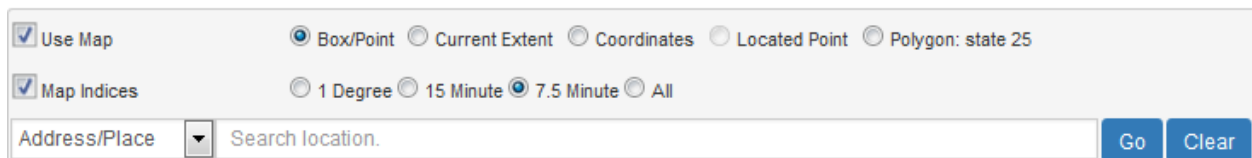
In the product list in the left window, check the box for US Topo. This expands the options for these products and enables product search.



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 (figure below). All US Topo maps are 7.5-minute, the viewer’s default 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 titles¹. This cell grid is a reference layer only; it need not be displayed to search for products.

A screenshot of the National Map Download Client search interface. The 'Use Map' section has a checked checkbox and radio buttons for 'Box/Point', 'Current Extent', 'Coordinates', 'Located Point', and 'Polygon: state 25'. The 'Map Indices' section has a checked checkbox and radio buttons for '1 Degree', '15 Minute', '7.5 Minute', and 'All'. Below these is a search box with a dropdown menu for 'Address/Place' and a 'Search location.' input field, with 'Go' and 'Clear' buttons.


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 others.

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 (https://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

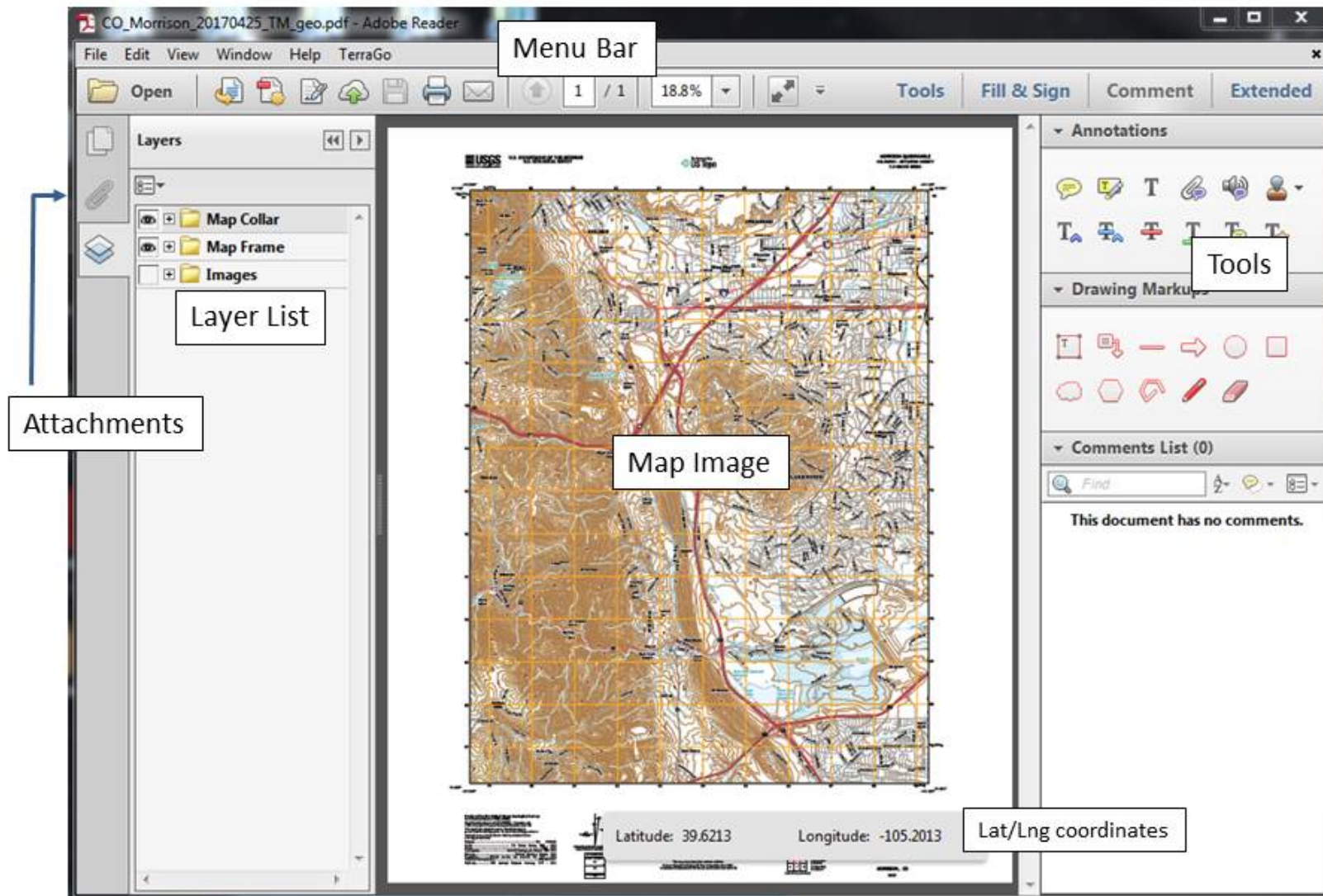
- See <https://training.usgs.gov/TEL/TheNationalMap/TNM-TEL-Index.html> for videos and other training materials for the products and services of *The National Map*. Lesson 4 is a video for the download client.
- US Topo and HTMC maps can be downloaded through other USGS applications not discussed in this document; see the FAQ at <https://www.usgs.gov/faq/categories/9797/3571>. Non-USGS applications that serve these maps, or selected subsets, also exist.
- Bulk delivery is also available; see <https://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).

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



Using the Map

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

Layer List

One behavior change in the new geospatial PDFs is that the layer list is not open by default. Click the layer icon on the left side of the display to open the layer table of contents.

The image to the right shows a normal list of US Topo layers for maps produced in 2014-17. 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

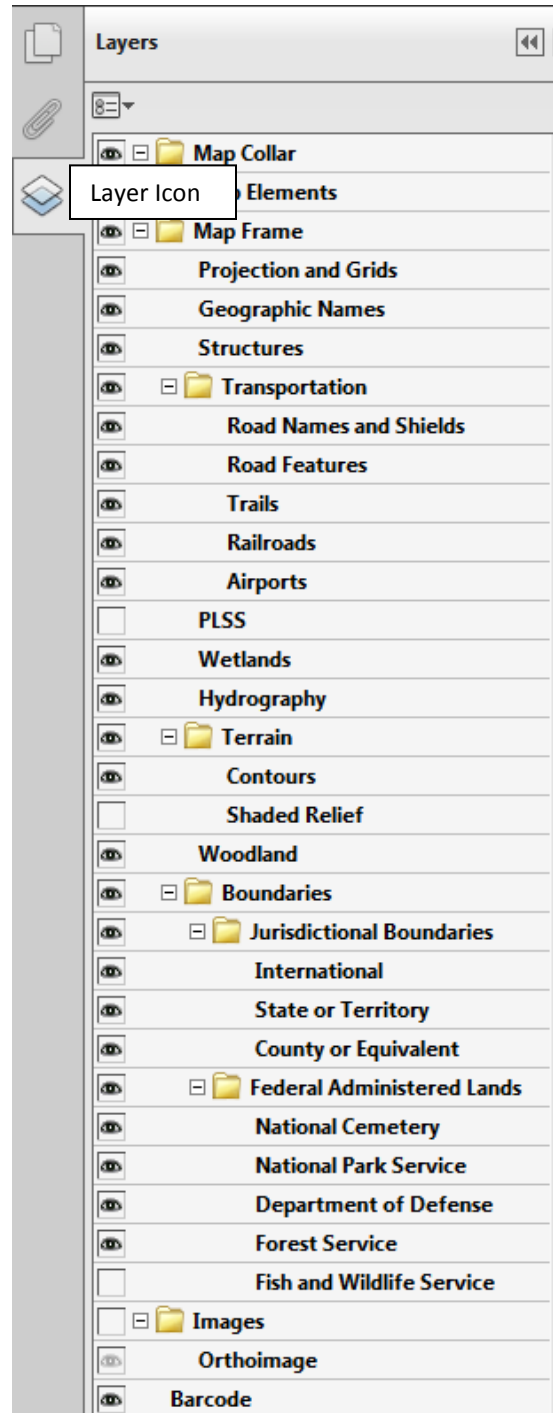
Then select the tools you want to turn on in the toolbar (such as *Marquee Zoom* and *Hand Tool*.) Right-clicking on the map image is another way to select some tools.

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.



Geospatial Functions

As explained in the introduction, US Topo maps created before about June 2017 used TerraGo software for georeferencing. If the TerraGo Toolbar is installed on your system, it will still display in the Reader or Acrobat menus, but will not be functional for the newer US Topo maps; all TerraGo menu items will be grayed out when the loaded document is a new version geospatial PDF.

Although the new maps are not backwardly compatible with the TerraGo Toolbar, the older GeoPDF maps are compatible with the procedures described below, and these methods are believed to work with any US Topo map of any vintage.

Displaying coordinates

For Adobe Reader XI:

- Select Edit / Analysis / Geospatial Location Tool
- Or, use the shortcut keys Alt-e, s, g
- A window appears in the lower right of the map display, showing latitude and longitude in signed decimal degrees.

For Adobe Acrobat Pro XI:

- Select View / Tools / Analyze / Geospatial Location Tool
- Or, from the right side of the menu bar, click Tools / Analyze / Geospatial Location Tool
- Or, use the shortcut keys Alt-v, t, z
- All three methods end at the same place, the tool lists on the right side of the display. Right-click on the Geospatial Location Tool to add an icon to the menu bar.

The coordinate readout will disappear when other tools are selected. Memorizing the shortcut keys, or adding the tool icon to the menu bar (Acrobat Pro only) is recommended if you use coordinates frequently.

Unlike the TerraGo tools, the geospatial tools in Adobe viewers do not allow the user to change coordinate systems. Coordinate readouts for US Topo geospatial PDF maps are always latitude-longitude on NAD83/WGS84.

Measuring distances and areas

If using Adobe Reader XI:

- Select Edit / Analysis / Measuring Tool
- Or, use the shortcut keys Alt-e, s, m
- Two windows appear on the map display, one with options for snapping types and measurement types, one for results.

If using Adobe Acrobat Pro XI:

- Select View / Tools / Analyze / Geospatial Location Tool
- Or, from the right side of the menu bar, click Tools / Analyze / Measuring Tool
- Or, use the shortcut keys Alt-v, t, z
- All three methods end at the same place, the tool lists on the right side of the display. Right-click on the Measuring Tool to add an icon to the menu bar.

The measuring tool windows will disappear when other tools are selected. Memorizing the shortcut keys, or adding the tool icon to the menu bar (Acrobat Pro only) is recommended if you use these tools frequently.

There are three types of measurements: distance between two points, perimeters (multi-point lines), and areas (area of a closed polygon).

The measuring tools also function as a simple type of markup. Lines drawn with the measuring tools can be “burned in” to the PDF. Use **File / Save As** to save a version of the US Topo map that includes the

user-drawn lines. These lines are not part of any US Topo layer, and once saved cannot be turned off, but can be selected and deleted.

Note that the measuring tools also display cursor lat/lng coordinates.

User configuration of geospatial functions

Unlike TerraGo tools, the geospatial tools in Adobe viewers do not allow the user to change coordinate systems. Coordinate readouts are always latitude-longitude on the datum of the product, which for US Topo maps is always NAD83/WGS84.

The Adobe tools do allow changing display units:

- Edit / Preferences / General / Measuring (Geo)
- Coordinate values can be set to display as decimal degrees or D-M-S. Direction can be indicated with arithmetic sign or hemisphere letter (N, S, E, W)
- Several unit options are available for distance and area measurements.

The relatively limited number of geospatial functions is not a characteristic of the US Topo product, but rather of the software currently available to view this new version of geospatial PDF. USGS expects more software for viewing and manipulating these data will become available over time.

Notes on Coordinate Presentation

Coincident with the new production systems and change to geospatial PDF, a few other characteristics of the US Topo product have been changed. None of these changes are major, but the presentation of coordinate system values in the map image is somewhat significant, especially for people who have used USGS maps for many years.

Starting in June, 2017, US Topo map coordinate annotation will be changed in these ways:

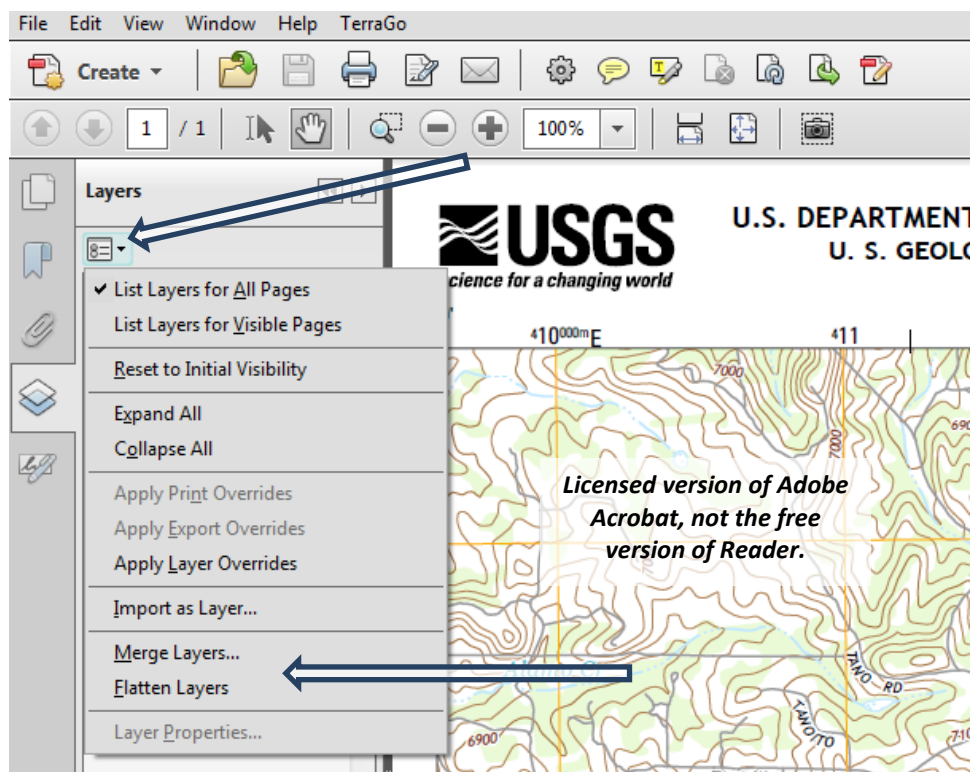
- Lat/lng coordinates are in decimal degrees, not degrees-minutes-seconds. Precision is four decimal places, about 35 ground feet of latitude at 1:24,000 scale. West longitude and south latitude are explicitly signed negative. Positive sign for north latitude and east longitude is implicit; the plus sign is not printed.
- Intermediate tick marks and annotation are not shown.
- State Plane Coordinate System (SPCS) values and positions, traditionally shown on USGS quadrangles with coordinate values at two corners and ticks along all projection lines, are not shown.
- Superscripted secondary digits on U.S. National Grid (USNG) coordinate values (aka UTM and Military Grid Reference System (MGRS)) are not shown. Showing only the principle digits is allowed by the USNG standard, and is the convention used by the U.S. military for MGRS.

The change in lat/lng annotation from D-M-S to decimal degrees breaks with USGS mapping convention dating from the 1880s. In the age of GPS and sophisticated online maps, geographic coordinates have more exposure with non-specialists than in earlier eras, and decimal degrees are today the *de facto* standard format.

Non-Windows, Non-Geospatial, and Other Uses

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

- With any computer or operating system, US Topo 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 Windows emulator Wine.
- 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 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. In 2017 a non-USGS user reported that these problems are related to inefficient (though legal) implementation of sand and gravel symbols (playa and wash features, see the symbol key attached to each US Topo map). This user’s analysis indicated that these problem quads would open, given enough time. Another work around is the Acrobat procedure described in the previous paragraph. We hope to correct this problem in time, but it is not a high priority.
- 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 GeoTIFF². 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 also offers a companion product of vector data, called “Topo Map Vector Data,” intended for advanced GIS users. This is a collection of vector layers, in Esri File Geodatabase (FGDB) and Shapefile formats, 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 <https://viewer.nationalmap.gov/tools/topotemplate/>. These products can be found and downloaded through *The National Map* Download Client, discussed earlier in this manual. Full coverage is available for the 50 states and Puerto Rico, though many Alaska products have only partial content.

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 or other data sources.

GeoTIFF

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 does not produce a 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

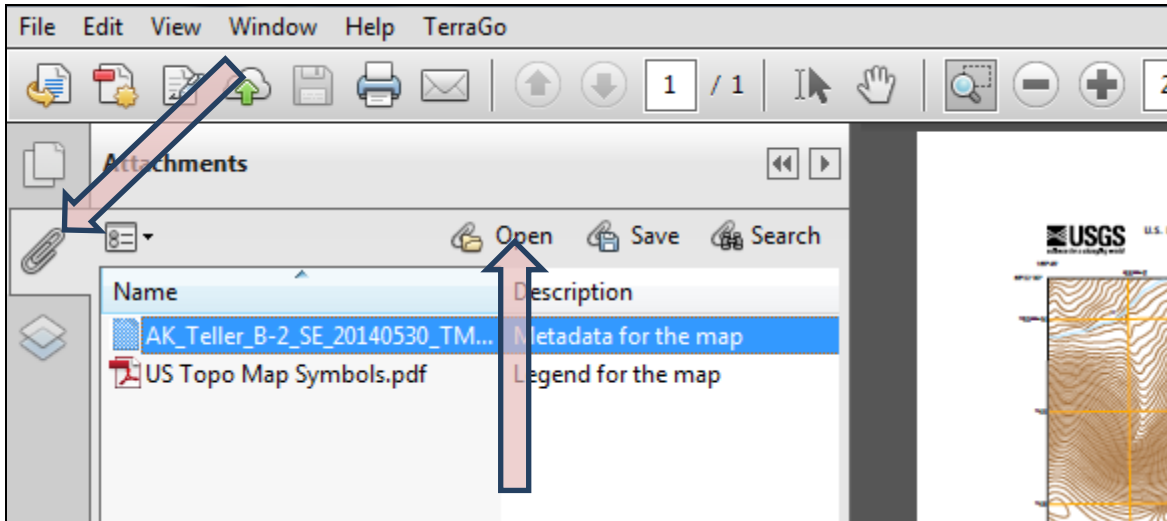
- A USGS FAQ: <https://www.usgs.gov/faq/categories/9797/3704>
- An article aimed at Linux QGIS users: <https://www.staygeo.com/2013/03/convert-geopdf-maps-to-geotiff-with-gdal.html>
- https://wiki.openstreetmap.org/wiki/Convert_GeoPDF_to_GeoTiff

A USGS paper pointed to by the link in bullet 1 describes converting US Topo maps to GeoTIFF using utilities of the Geospatial Data Abstraction Library (GDAL, <http://www.gdal.org/>). Limited testing of GDAL on the new geospatial PDF format has been done, and the library and utilities appear to work with geospatial PDFs exactly the same as they work with GeoPDFs.

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 (<https://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):

US Topo 7.5-minute map for Morrison, CO	
FGDC Metadata Show Definitions Description Spatial Data Structure Data Quality Data Source Metadata	
Description	
Citation	
<p>Title: US Topo 7.5-minute map for Morrison, CO Originators: U.S. Geological Survey Publisher: USGS - National Geospatial Technical Operations Center (NGTOC) Publication place: Rolla, MO and Denver, CO Publication date: 20130808 Data type: map, raster digital data</p>	
Description	
Data Type	
Time Period of Data	
Status	
Key Words	
Data Access Constraints	
Spatial Reference Information	
Horizontal Coordinate System	
Vertical Coordinate System	
Spatial Domain	

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

```

- <!--
  <?xml-stylesheet type="text/xsl" href="http://webhosts.cr.usgs.gov/mod/FGDC_Plus.xsl"?>
  -->
- <metadata>
  - <idinfo>
    - <citation>
      - <citeinfo>
        <origin>U.S. Geological Survey</origin>
        <pubdate>20130808</pubdate>
        <title>US Topo 7.5-minute map for Morrison, CO</title>
        <geoform>map, raster digital data</geoform>
      - <pubinfo>
        <pubplace>Rolla, MO and Denver, CO</pubplace>
      - <publish>
        USGS - National Geospatial Technical Operations Center (NGTOC)
      </publish>
    </pubinfo>
  </citeinfo>
</citation>
  - <descript>
    - <abstract>
      Layered GeoPDF 7.5 Minute Quadrangle Map. Layers of geospatial data include orthoimagery, roads, grids
      features.
    </abstract>
  </descript>
  </idinfo>
</metadata>

```


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.

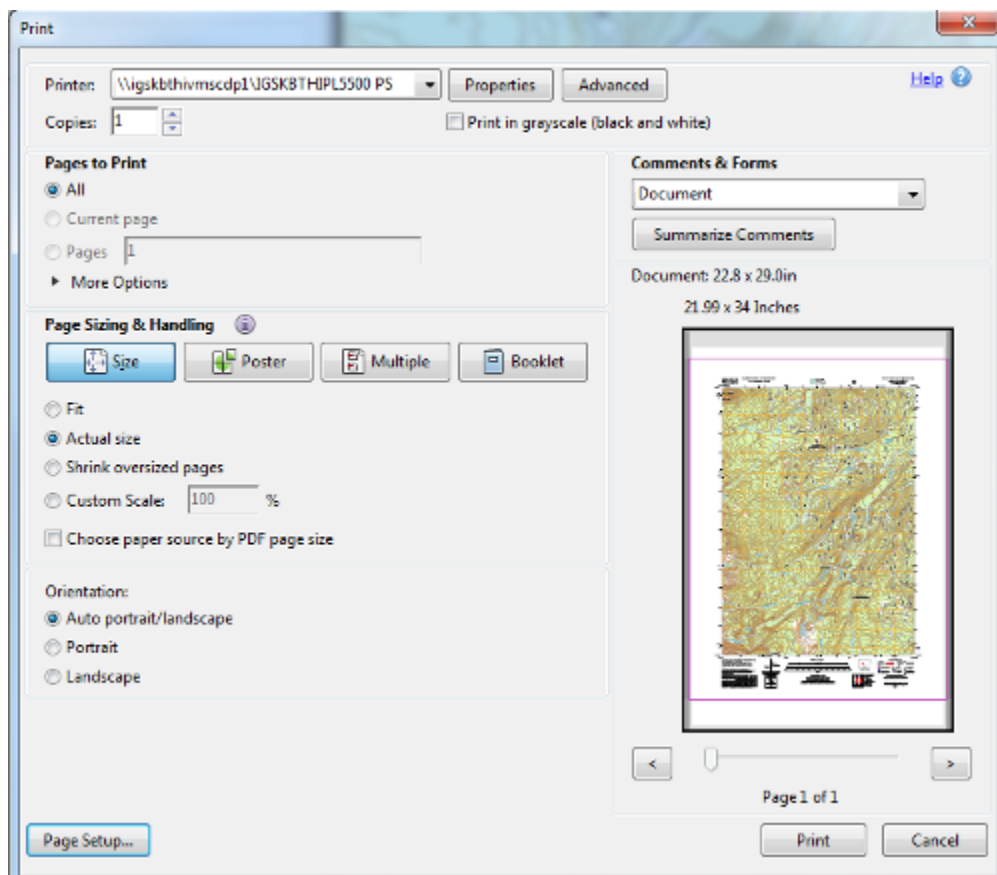
Print the entire map sheet

This option requires a large-format plotter. Most GeoPDF US Topo maps (from before June 2017) are 22.75x29 inches. Maps in Hawaii and Puerto Rico are larger, and some older superseded maps vary in size. The new geospatial PDF maps (after June 2017) are 24x29 inches for all 50 states; Puerto Rico maps will be larger, probably 29x33.5 inches.

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.



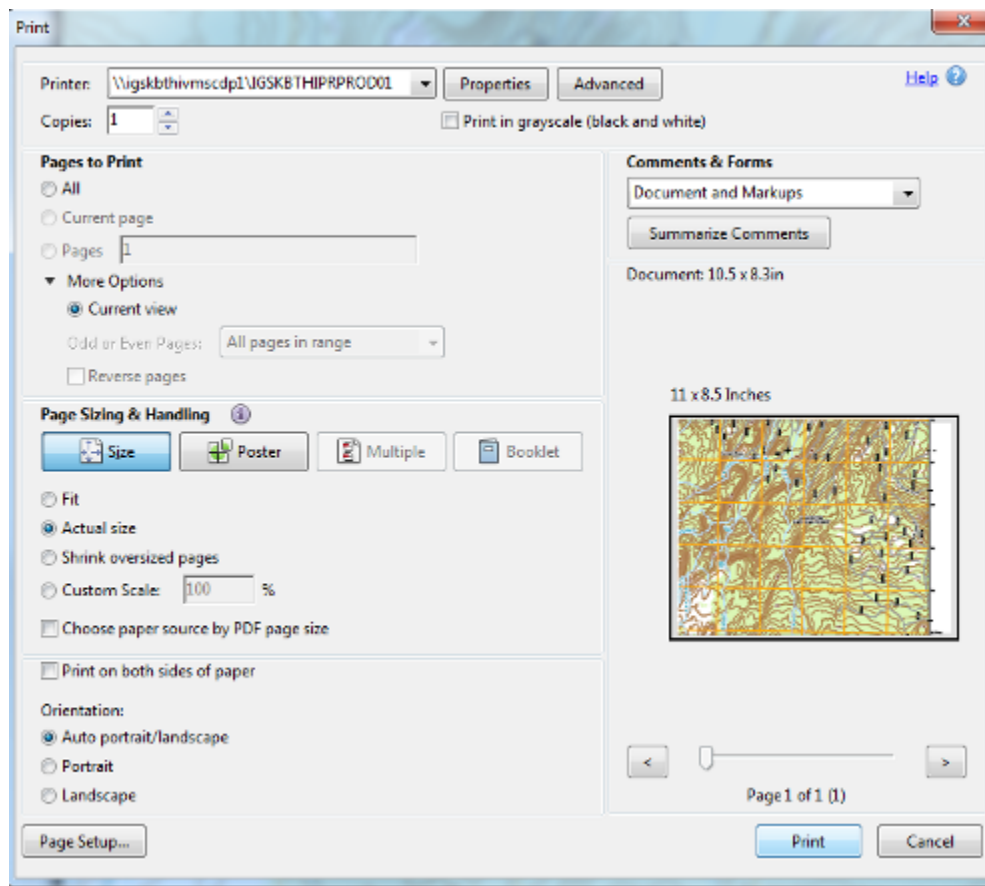
Print page-size pieces of the map

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.

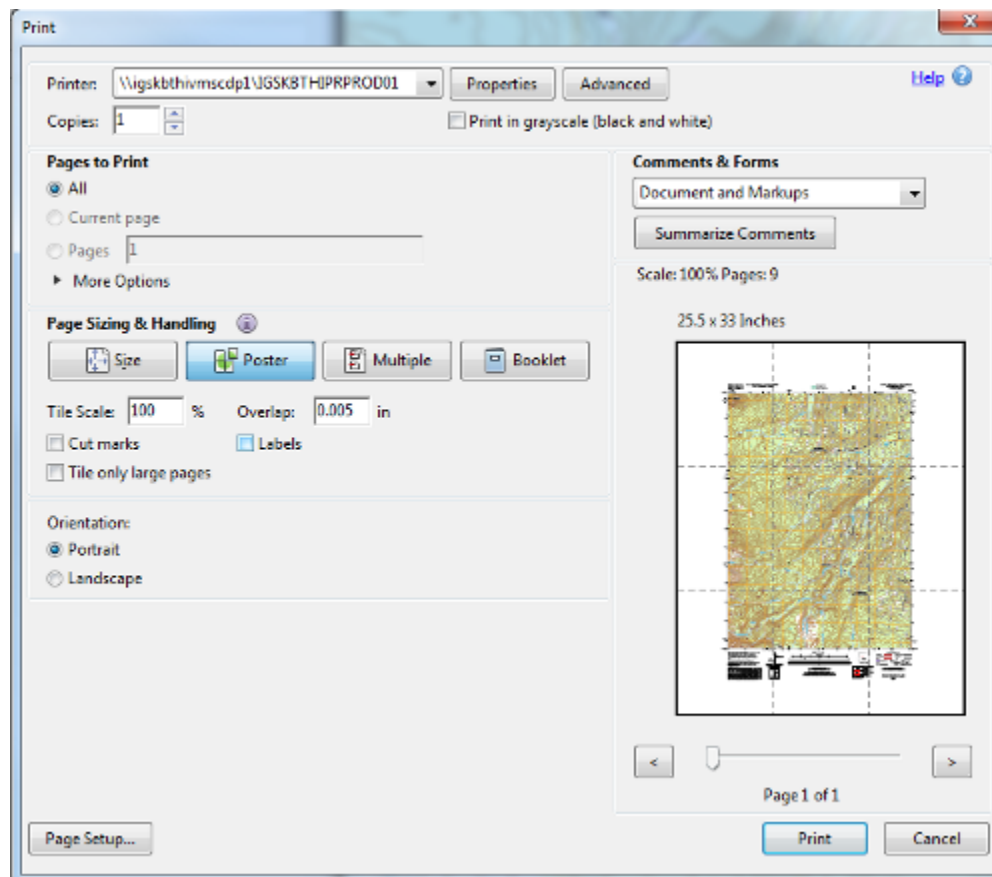


Printing the map in sections on page-size paper

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: <https://nationalmap.gov/ustopo/index.html>

US Topo Frequently Asked Questions (FAQ): <https://www.usgs.gov/fag/categories/9797>

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 information on USGS GIS datasets and services, see

- *The National Map* home page, <https://nationalmap.gov/>, Products and Services link.
- *The National Map* Download Client: <https://viewer.nationalmap.gov/basic/>
- Web map services list: <https://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 address 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: <https://www.usgs.gov/ngpo/>
- *The National Map*: <https://nationalmap.gov/>

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