

Montana Lidar Download Platform

Help Document

The Montana Lidar Download Platform ArcGIS Online web-application was designed to provide access to view and download lidar data throughout Montana.

Using the viewer can:

- Filter based on various items including:
 - Project Status, Age, and Quality Level
 - Projects with Data Currently Available for Download
 - Availability of contours and building footprints
- Preview and Download available Lidar Data
- Search by Address, Save and print maps, Measure distances and areas

This application was developed by the GIS programmers at the Montana State Library



<http://msl.mt.gov>

Introduction to the Montana Lidar Download Platform

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This application was built using Esri's ArcGIS Online platform. ArcGIS Online is a cloud-based environment for storing and managing geographic content. It enables users to create and share maps and explore data through a web browser. The Montana Lidar Download Platform was built from a web map within the web-based ArcGIS Online application.

Once you have navigated to the [Montana Lidar Download Platform](#), your web browser will open using ArcGIS Online to a map of Montana and a display of Lidar Project Area boundaries in the foreground. The currently available lidar is also displayed as a hillshade from the bare earth digital elevation model. As you navigate to projects with lidar data available for download and zoom in, the USGS 24k topo quad boundaries will be displayed.

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Step 1 – Selecting a Basemap

Click on this icon to open the Basemap Gallery

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Filter for completed lidar acquisitions

Filter for in-progress lidar acquisitions

Filter for planned lidar acquisitions

Filter for recent lidar (less than 5 years old)

Filter for projects with downloadable data

Filter for projects that have contours

Filter for projects that have building footprints

Filter for Quality Level 1 lidar

Filter for Quality Level 2 lidar

Basemap Gallery

1990-2003 Montana Air

2011 Montana Air Photos

2017 Montana Air Photos

Imagery Hybrid

Map of Montana

Montana Topo Maps

Terrain with Labels

Topographic

The background map or Basemap is a reference image to help provide geographic context.

The default Basemap is set to the Map of Montana. If you want to change the Basemap click the Basemap Gallery button to open the window.

To change the Background Map choose from one the options available in the Basemap Gallery

Click the x or the Basemap Gallery button to hide the window

Step 2 – Viewing the Data Layers and Legend

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Layer List Legend



Turn on the **Legend** to see how each visible layer is symbolized to represent the features on the map.

Turn on or off the data layers within the **Layer List** by checking the box to the left of the layer name.

Some layers are only visible when you zoom in, and are grayed out in the Layer List if they are not visible at the current extent/scale of your map.

Layers will display in the order shown in the Layer List and may need to be turned off or on to be shown, or they can be moved up/down.

Step 3 – Changing the map extent – Zooming in or out

The screenshot displays the 'Montana Lidar Viewer and Download Platform (DEVELOPMENT)' interface. The top navigation bar includes the 'Lidar for Montana' logo, the title, and the 'Montana State Library' name. On the left, a vertical list of filter toggles is visible, including options for completed, in-progress, and planned acquisitions, as well as filters for recent data, downloadable data, contours, building footprints, and Quality Level 1 and 2 lidar. A search bar with the text 'undefined' and a search icon is located at the top center. Below the search bar are icons for home, full screen, print, and refresh. The main map area shows a geographic view of Montana with various colored overlays representing different data layers. A yellow callout box with a black border points to the '+' and '-' zoom buttons in the top-left corner of the map area. The callout contains the text: 'You can use the roller function on your mouse or the + and - buttons to zoom in or out on the map. As you zoom in additional background layers will be visible.' On the right side, a 'Map Layers' panel is open, listing various layers with checkboxes. The 'Lidar Projects' layer is currently checked and highlighted. Other layers include 'StateMask - World', 'Counties', 'Quads with Downloadable Lidar', 'Parcels', 'NFHL - Flood Hazard Zones', 'Bare Earth Digital Elevation Model (1 meter Lidar)', 'Digital Surface Model (1 meter Lidar)', 'Intensity (1 meter Lidar)', 'Aspect (1 meter Lidar)', 'Slope (1 meter Lidar)', and '1 foot contours (Lidar)'. The bottom of the map shows a scale bar for 60 miles and coordinates: -109.752 48.917 Degrees.

Step 4 – Navigating to an area of interest, searching, and bookmarks

Montana Lidar Viewer and Download Platform (DEVELOPMENT) Montana State Library

Filter for completed lidar acquisitions

Filter for in-progress lidar acquisitions

Filter for planned lidar acquisitions

Filter for recent lidar (less than 5 years old)

Filter for projects with downloadable data

Filter for projects that have contours

Filter for projects that have building footprints

Filter for Quality Level 1 lidar

Filter for Quality Level 2 lidar

Type in an Address in the search window to zoom to that Location

You can navigate to an area of interest by zooming in or using the search tool.

Legend

Lidar Projects

- Completed
- In Progress - Data Processing
- In Progress - Acquiring
- Planned
- Proposed

Click the x or the Legend button to hide the window

Lat/Long coordinates – Click crosshair icon to set coordinates in one position

After Reloading the Map you can go back to your last Map Extent

App State

Click to restore the map extent and layers visibility where you left off.

Step 5 – Tools: Measuring

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Filter for completed lidar acquisitions

Filter for in-progress lidar acquisitions

Filter for planned lidar acquisitions

Filter for recent lidar (less than 5 years old)

Filter for projects with d

Filter for projects that h

Filter for projects that h

Filter for Quality Level 1

Filter for Quality Level 2

Measurement

Acres

- Acres
- Sq Miles
- Sq Kilometers
- Hectares
- Sq Yards
- Sq Feet
- Sq Feet (US)
- Sq Meters

Map Layers

Layers

- StateMask - World
- Counties
- Quads with Downloadable Lidar
- Lidar Projects
- Parcels
- NFHL - Flood Hazard Zones
- Bare Earth Digital Elevation Model (1 meter Lidar)
- Digital Surface Model (1 meter Lidar)
- Intensity (1 meter Lidar)
- Aspect (1 meter Lidar)
- Slope (1 meter Lidar)
- 1 foot contours (Lidar)

To make Area, Distance, and Location Measurements click on the Measurement Tool To open the Tool Window.

Click on the button to choose which type of measurement, area, distance or location.

Use the Dropdown Arrow to Change the Unit of Measure

Then left click in the map to start the measurement, and double click on the map to finish.

Press CTRL to enable snapping

Step 6 – Tools: Swipe

The screenshot displays the 'Montana Lidar Viewer and Download Platform (DEVELOPMENT)' interface. The top navigation bar includes the 'Lidar for Montana' logo, the title, 'Montana State Library', and utility icons. On the left, a filter sidebar contains several toggle options for lidar acquisition status and recency. The central map area shows a grayscale lidar intensity view overlaid on a color aerial photograph. A search bar at the top center contains the text 'undefined'. A toolbar above the map includes icons for zooming, home, and printing. A 'Swipe layer' dropdown menu is open, listing 'Intensity (1 meter Lidar)' and 'NAIP_2017'. A 'Swipe Slider Bar' is visible on the map. On the right, the 'Map Layers' panel lists various map layers, with 'Intensity (1 meter Lidar)' and 'NAIP_2017' checked. A text box on the left provides instructions on how to use the swipe tool.

Click on the Swipe Button to open the Swipe Tool

Choose from the Visible Layers (checked on in the Layer List) available in the Dropdown List by clicking on the down arrow in the tool window.

Use the Swipe Slider Bar to reveal/hide the selected layer

Map Layers

- Parcels
- NFHL - Flood Hazard Zones
- Bare Earth Digital Elevation Model (1 meter Lidar)
- Digital Surface Model (1 meter Lidar)
- Intensity (1 meter Lidar)
- Aspect (1 meter Lidar)
- Slope (1 meter Lidar)
- 1 foot contours (Lidar)
- 2 foot contours (Lidar)
- 1 meter contours (Lidar)
- National Elevation Dataset (10 meter NED)
- NAIP_2017
- NAIP_2015

0.3mi
-113.714 46.750 Degrees

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Step 7 – Tools: Printing

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Filter for completed lidar acquisitions

Filter for in-progress lidar acquisitions

Filter for planned lidar acquisitions

undefined

Print

Map title: Montana Lidar - DSM

Layout: Tabloid ANSI B Landscape

Format: PDF

Advanced Print

Map Layers

Layers

- StateMask - World
- Counties
- Quads with Downloadable Lidar
- Lidar Projects
- Parcels
- NFHL - Flood Hazard Zones
- Bare Earth Digital Elevation Model (1 meter Lidar)
- Digital Surface Model (1 meter Lidar)
- Intensity (1 meter Lidar)
- Aspect (1 meter Lidar)
- Slope (1 meter Lidar)
- 1 foot contours (Lidar)
- 2 foot contours (Lidar)

300ft
-113.703 46.743 Degrees
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Click on the Print tool button to open the tool window.

Enter a Title, Choose your layout, and pick a file format from the Dropdown Arrows.

Click on the Advanced button for additional options: Scale, Size, Print Quality, etc.

Then click the Print button to export your map.

You can save multiple map files. Click on the Map Name text to open file in a new browser window and save it.

Click the Clear prints button to remove the maps from the list.

Step 8 – Identifying Features and Downloading Data

Once you have navigated to an area at the level of detail you are interested in, click within the map to reveal the **Popup Window** that displays selected attributes of the Data Layers.

Only layers that are checked on in the Layer List and visible in the Legend will have a popup window open when you click in the map. Turn on all the layers you wish to view attributes for in the Popup Window.

The top left of the popup window will show how many layers have been opened (3 in this example). If there are several layers visible then click through the left and right arrows on the popup window to view the popup windows for other visible layers.

Click on Links in Popup to Download Data or View Reports

Show/Hide Map Overview



Step 10 – Viewing Layer Attribute Tables

Montana Lidar Viewer and Download Platform (DEVELOPMENT)

To open the Attribute Table(s) for existing Layers click on the drop down arrow at the bottom of the map screen.

Attribute Table Options: Export to CSV and turn on/off Column Headings

Click on Filter by map extent to only show items in table that are visible in the map

Scroll Map Layers and click to View in Attribute Table

Click on the Column Name to Sort the table

Turn on and off Column Headings by checking on/off the boxes

Left Click on the empty gray box next to a record to Select it. Selected records will be highlighted in the table and on the map in cyan. You can use the 'Zoom to' option to focus on the selected polygon.

Primary County	Project Name	Project Description	Collection Status	Square Miles	Collection Dates	QL	Report Link	Lead Org	Notes	Vertical Accu (NVA)
	2019 DNRC Big Horn County QL1			83	August 2019	1	http://ftp.geoinfo.dnrc.mt.gov/BigHornCountyQL1.pdf	MT DNRC		
	2019 DNRC Big Horn County QL2				2019	2	http://ftp.geoinfo.dnrc.mt.gov/BigHornCountyQL2.pdf	MT DNRC		

Step 11 – Filters

Montana Lidar Viewer and Download Platform (DEVELOPMENT) Montana State Library

- Filter for completed lidar acquisitions
- Filter for in-progress lidar acquisitions
- Filter for planned lidar acquisitions
- Filter for recent lidar (less than 5 years old)
- Filter for projects with downloadable data
- Filter for projects that have contours
- Filter for projects that have building footprints
- Filter for Quality Level 1 lidar
- Filter for Quality Level 2 lidar

Click Button Next to Filter to Turn them On/Off . You can Choose Multiple Filters. Selections will display on Map. Click the tab to hide/show the Filter Menu.

Click Button to Reset Filter Selections Or to Create Your Own Filter

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