

MSDIS Update 2023

TOM VOUGHT

SENIOR GIS SPECIALIST, MSDIS OPERATIONS MANAGER

UNIVERSITY OF MISSOURI DEPARTMENT OF GEOGRAPHY

What is the Missouri Spatial Data Information Service?

Missouri's geospatial data clearinghouse

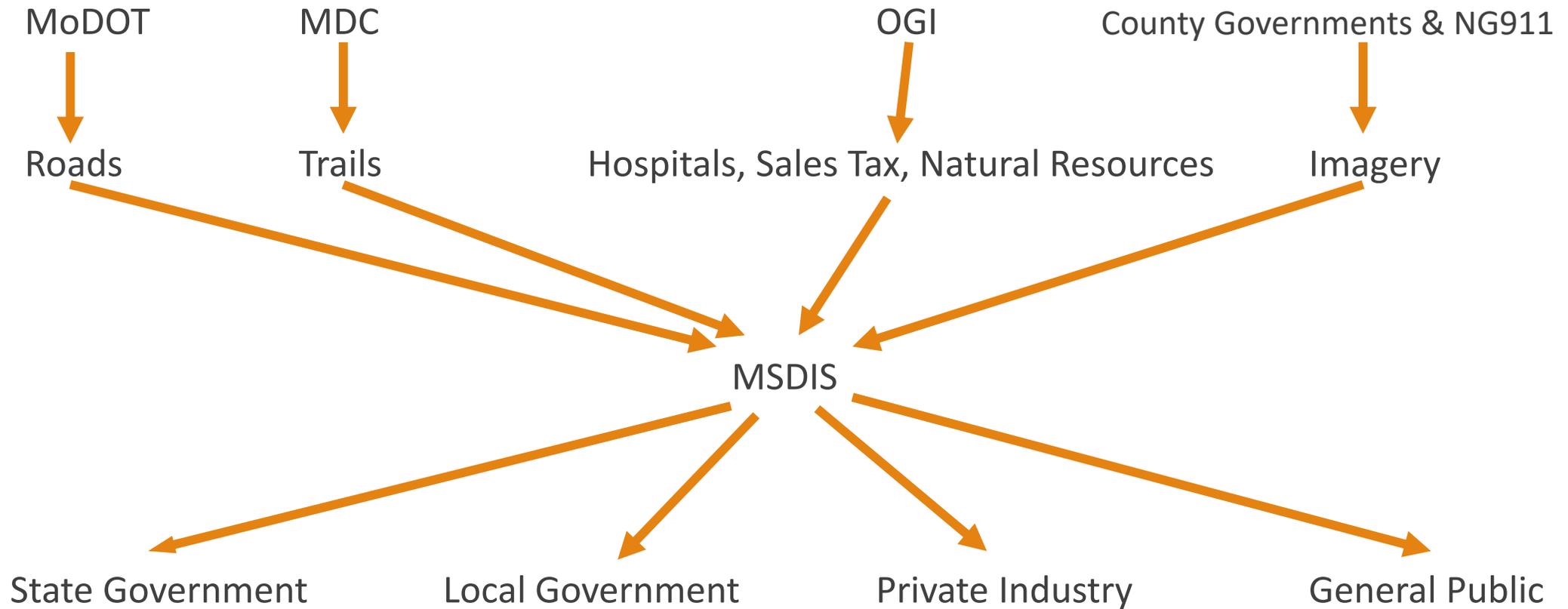
Responsible for the acquisition of GIS data, imagery, and Lidar generated or funded by Missouri state agencies and the distribution of these data as both downloads and REST services

Housed in the University of Missouri Department of Geography

Funded by University of Missouri College of Arts and Sciences

Currently maintains a catalog of ~54 terabytes of data

What is the Missouri Spatial Data Information Service?



What is the Missouri Spatial Data Information Service?

MSDIS creates no new data

At most, we occasionally take aerial photos that someone else paid to collect and merge them together

Sometimes we add to the metadata that you wrote

At the end of the day, though, all of the data we provide were created by YOU and all of the cool things that are done with those data are done by YOU

What is the Missouri Spatial Data Information Service?

By the way, write your metadata

Current MSDIS Architecture

On-Site Storage

MSDIS Imagery Server

MSDIS Data Storage

On-Site Website

MSDIS Mainpage

Off-Site Storage

WashU LiDAR Storage

MSDIS ArcGIS Online Hosted Features

Off-Site Website

MSDIS ArcGIS Online Hub Site

The Missouri Map

Current MSDIS Architecture

Data storage

MSDIS Data

Includes all vector and LiDAR data, plus all imagery data other than 6" statewide imagery projects

MSDIS Statewide Imagery

Includes only 6" statewide imagery projects

ArcGIS Image Server

MSDIS Imagery Server

MSDIS Statewide Imagery Server

External access

All imagery services available via moimagery.missouri.edu

6" resolution statewide imagery services available via state imagery site currently in development

Utilization

All external applications that utilize imager services, including state, local, and private sector GIS applications and workflows

Future MSDIS Architecture with State MOA

Data storage

ArcGIS Image Server

External access

Utilization

MSDIS Data

Includes all vector data plus all imagery data other than 6" statewide imagery projects

MSDIS Imagery Server

All imagery services available via moimagery.missouri.edu

MSDIS Statewide Imagery

Includes only 6" statewide imagery projects

MSDIS Statewide Imagery Server

6" resolution statewide imagery services available via state imagery site currently in development

MSDIS LiDAR

Includes only LiDAR data

MSDIS LiDAR Server

All LiDAR services available via unnamed site

MSDIS Development

Includes temporary files necessary for the creation of externally-facing services

MSDIS Development Server

None

All external applications that utilize imager services, including state, local, and private sector GIS applications and workflows

Current MSDIS Staff

Program Director – Dr Mark Palmer, Professor and Geography Department Chair

Program Manager – Tom Vought

Award Winning Undergraduate Intern – Morgan Hurt

Support Staff Provided by Mizzou Arts & Sciences/Division of IT

Various and Sundry Dogs and Cats

Previous Accomplishments and Victories

Completed the move from physical hardware to cloud-based virtual machines and storage

Retired the MSDIS Geoportal and migrated to ArcGIS Online Hub as primary means of vector data delivery

Established monthly reports on data updates/acquisitions, clearinghouse developments, service outages, and server traffic

Adopted ESRI Story Map format and Interactive Mapping solutions for legacy MSDIS applications

Hosted multiple workshops and training events

Rebuilt and modernized MSDIS website

Started MSDIS Student Intern program

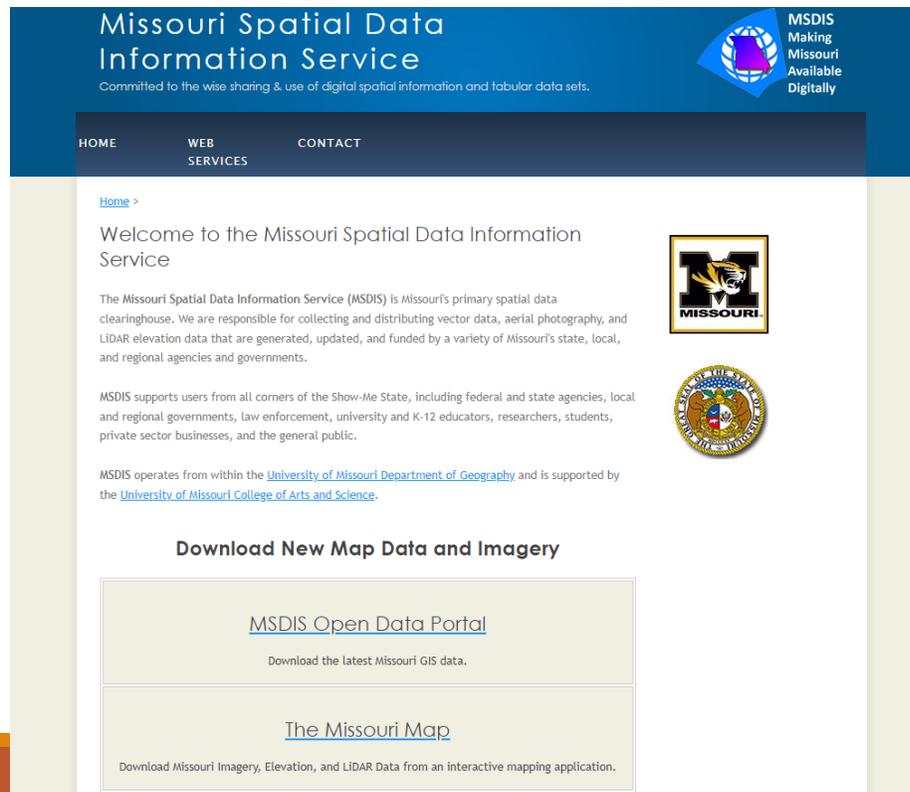
Moved back to Stewart Hall from Mizzou North

Worked with the Mizzou Division of IT to enable secure browsing across all MSDIS platforms

Successfully leveraged MSDIS Zoom account to host MGISAC meetings and 2021 Missouri GIS Conference

Recent Changes – MSDIS Web Presence

Both versions of the MSDIS website – the ArcGIS Online Hub site and the traditional MSDIS Homepage – continue to operate. Due to the growing popularity of the Hub format, though, the majority of content on the MSDIS Homepage has been migrated to Hub or stripped away.



This screenshot shows the traditional MSDIS homepage. The header is blue with the text "Missouri Spatial Data Information Service" and the tagline "Committed to the wise sharing & use of digital spatial information and tabular data sets." A navigation menu includes "HOME", "WEB SERVICES", and "CONTACT". The main content area features a welcome message, a description of the service, and logos for the University of Missouri and the Missouri Department of Geography. A section titled "Download New Map Data and Imagery" contains two links: "MSDIS Open Data Portal" and "The Missouri Map".

Missouri Spatial Data Information Service
Committed to the wise sharing & use of digital spatial information and tabular data sets.

MSDIS Making Missouri Available Digitally

HOME WEB SERVICES CONTACT

[Home >](#)

Welcome to the Missouri Spatial Data Information Service

The Missouri Spatial Data Information Service (MSDIS) is Missouri's primary spatial data clearinghouse. We are responsible for collecting and distributing vector data, aerial photography, and LiDAR elevation data that are generated, updated, and funded by a variety of Missouri's state, local, and regional agencies and governments.

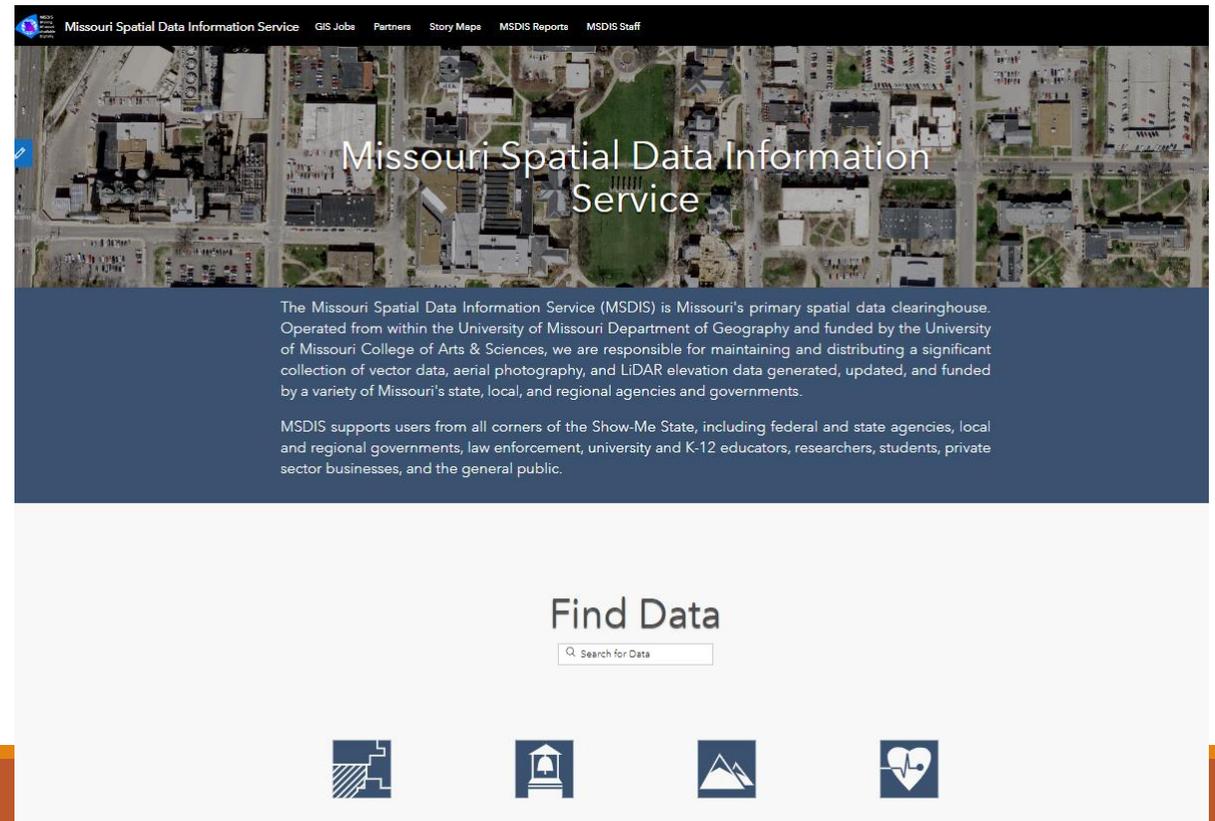
MSDIS supports users from all corners of the Show-Me State, including federal and state agencies, local and regional governments, law enforcement, university and K-12 educators, researchers, students, private sector businesses, and the general public.

MSDIS operates from within the [University of Missouri Department of Geography](#) and is supported by the [University of Missouri College of Arts and Science](#).

Download New Map Data and Imagery

[MSDIS Open Data Portal](#)
Download the latest Missouri GIS data.

[The Missouri Map](#)
Download Missouri Imagery, Elevation, and LiDAR Data from an interactive mapping application.



This screenshot shows the ArcGIS Online Hub version of the MSDIS website. The header is black with the text "Missouri Spatial Data Information Service" and navigation links for "GIS Jobs", "Partners", "Story Maps", "MSDIS Reports", and "MSDIS Staff". The main content area features a large aerial photograph with the text "Missouri Spatial Data Information Service" overlaid. Below the photo is a description of the service and a "Find Data" section with a search bar. The footer contains four icons representing different data types: a grid, a building, a mountain, and a heart with a pulse line.

Missouri Spatial Data Information Service GIS Jobs Partners Story Maps MSDIS Reports MSDIS Staff

Missouri Spatial Data Information Service

The Missouri Spatial Data Information Service (MSDIS) is Missouri's primary spatial data clearinghouse. Operated from within the University of Missouri Department of Geography and funded by the University of Missouri College of Arts & Sciences, we are responsible for maintaining and distributing a significant collection of vector data, aerial photography, and LiDAR elevation data generated, updated, and funded by a variety of Missouri's state, local, and regional agencies and governments.

MSDIS supports users from all corners of the Show-Me State, including federal and state agencies, local and regional governments, law enforcement, university and K-12 educators, researchers, students, private sector businesses, and the general public.

Find Data

Search for Data

Recent Changes – A New Imagery Server

Replacing the Windows 2012 MSDIS Image Server was one of the major unaddressed goals from the last five years.

While the existing Imagery Server worked, it was already showing its age before being slated for forced retirement by the Mizzou Division of IT (DoIT)

Early in 2022, MSDIS and DoIT worked together to set up a brand new Windows 2022 virtual server and the majority of image services from the old Image Server were republished to the new Image Server.

In addition to new (virtual) hardware, this development has also allowed MSDIS to graduate Server 10.4 to 10.8

For most users, the switch over should have gone unnoticed. Server directories and service names were unchanged. Ideally, the only users who have experienced any disruptions from this upgrade were those connected to a handful of services that were retired on account of being very old or very seldomly used.

Recent Changes – Cached Imagery

With a new Image Server came new opportunity. Having never been happy with the performance of some of our imagery services, MSDIS took time to explore the options, benefits, and possible problems of releasing several of our more important image services as cached services.

While the process of building enough cache levels to make the services useful is a significant investment when working with statewide imagery, MSDIS remains very pleased with the significant improvement in responsiveness.

In particular, this advancement has been especially useful for the new, 12-inch resolution imagery.

Moving forward, we will take a long look at the services we offer in order to determine which are deserving of a cached option.

Recent Changes – The End of the Map Server

Having successfully migrated to a new Image Server, MSDIS was then faced with the question of what to do with the Map Server.

Just like the old Image Server, the Map Server was running on rapidly expiring Windows 2012 software and, just like the old Image Server, DoIT informed us early in 2022 that we needed to replace the VM with a Windows 2022 box or prepare for the retirement of the machine.

After much soul searching and some requests for public comment, we decided on a path forward. All the vector data being served out from the Map Server had already been replicated in the MSDIS ArcGIS Online account, so pulling the plug wouldn't really result in any major losses other than the MSDIS website, which could be saved by migrating it to the new MSDIS Image Server.

After completing the migration of the MSDIS website in early December 2022, the MSDIS Map Server was quietly taken offline.

Recent Changes – Statewide Imagery

Around late Summer 2022, MSDIS received the first delivery of the 12-inch resolution statewide imagery project, which covered the majority of Missouri’s southern counties and the Kansas City area.

We immediately began the task of migrating the data to our storage and prepping a service for launch. As you can imagine, though, 12-inch resolution imagery of so much area doesn’t really prep that fast, so this was a significantly longer task than your average imagery release.

After roughly a week of working with imagery tiles, building mosaics, building overviews, and building caches, we released both a dynamic and cached version of the imagery, both of which were deployed to a new “Statewide” subdirectory of the MSDIS Image Server.

Some weeks later, we also received the MARC portion of the initial collection. Those images were also mosaicked together and also deployed to the Statewide subdirectory. Currently, they are offered only as a dynamic cache.

Emerging Goal - LiDAR

Of the image services not republished to the new MSDIS Image Server, the most notable absence are the LiDAR services.

While Missouri LiDAR remain available for download, MSDIS currently only serves out three county-scale LiDAR services.

While we realize that this has been an obstacle for some of our users, there is method to the madness.

- Primarily, some of the older LiDAR services were so stuffed full of disparate projects that they were barely functional.
- Almost as important, many of the LiDAR projects served out via the statewide service(s) were, for want of a better word, ancient. While MSDIS is committed to the sharing of Missouri GIS data, we have never really established any rules for sharing out very old, incomplete data in parallel with newer collections without clearly describing the disparity.
- Finally, the old LiDAR services were guilty of combining data that were never meant to be combined, resulting in a product of questionable legitimacy.

Emerging Goal – LiDAR (cont)

As we move forward, one of our new primary goals is to establish a baseline for LiDAR services.

More LiDAR services will be propped up in the coming months, but we are asking several questions along the way.

- What are the minimum LiDAR collections that need to be stitched together in order to create an up-to-date statewide mosaic?
- Do the services need to be stitched together at all?
- Should there be a cutoff date for LiDAR data being considered “current” or is old data better than no data at all?
- How will we handle newer collections that only partially overlap existing collections?

In other words, we will reestablish LiDAR services at MSDIS, but we want to have a plan in place first.

Emerging Goal – More Statewide Imagery

MSDIS has worked closely with both OGI and the NG911 board to prepare for the next round of statewide imagery. If all goes as planned, the 6-inch resolution flight of northern Missouri counties will be delivered to MSDIS and served out just as the 12-inch resolution summer flight has been.

Additionally, as is traditional with a statewide flight, our plan is to merge the individual collections together in order to create a complete statewide mosaic.

It is important to point out that the expected influx of data from this project (really, these two projects) will be unprecedented. Early estimates indicate that MSDIS will need to expand storage by at least 50% of the current total just to store the raw files.

While we are excited about these new data and seeing how all of you brilliant people put it to use, let there be no doubt that we will be repeatedly asking for your patience while we work on the rollout of services and the inevitable hiccups.

Emerging Goal – More Statewide Imagery

And, just to get it out of the way now, no, I don't know when it will be available.

Emerging Goal – External Funding

Given the resources necessary for managing the oncoming avalanche of high-resolution imagery MSDIS is currently in talks with multiple state entities regarding the possibility of securing additional funding.

If successful, this would provide a huge boost for clearinghouse operations and could help ensure that the new imagery projects utilize superior data storage options and are deployed to a standalone server.

As with all things, managing expectations will be critical – **especially** when funding is involved. MSDIS has operated with a skeleton crew and limited funding for over five years. No amount of funding will enable us to ramp back up to full operational capacity overnight.

Regardless of how long it takes to turn the Titanic around, though, a new line of external funding for imagery operations would be a tremendous win for the clearinghouse.

Contact Info

Tom Vought

Website: <https://www.msdis.missouri.edu>

Email: voughtth@missouri.edu
msdismail@missouri.edu

Phone: 573-882-3233