

Case Study



United States Geological Survey

Government agency uses Document Express to make a century of printed scientific studies and maps accessible to the general public

Business Profile

In its 125 years as the natural science agency of the U.S. Department of the Interior, the U.S. Geological Survey (USGS) has amassed a body of more than 70,000 titles with the USGS as the publisher. The mission of the USGS mandates equal and public access to more than a century of earth-science and biological research using the most efficient and cost-effective means.

Situation

For many years there were only two ways to access USGS reports on geographical, geological and hydrological research: sending away to a distribution center in Denver, CO., which required waiting, or visiting one of a limited number of USGS libraries, which were not geographically convenient to the majority of those who wanted to use them. Over the decades that population of users has increased, as the USGS has expanded its area of study to include biological research and geospatial data.

With the advent of the Internet and the proliferation of personal computers in both the home and the workplace it became both desirable and feasible for the agency to scan its printed materials and distribute them electronically.

Minimizing the Storage Burden

The USGS must store its scanned materials in a raw format to meet the specifications of the National Archives and Records Administration (NARA). But raw files, such as TIFF files, are too large to distribute efficiently over the Internet, which meant that the agency would have to store another file format that would be used for delivery to customers.

“Our eventual goal is to make all of our titles available for viewing online,” says Greg Allord, cartographer with the USGS. “These publications can be tens of pages to many hundreds of pages, and they can be from pamphlet to wall map in size.” In order to reduce the storage burden, compression ratio was a key consideration in the agency’s choice of file format.

Achieving Quick Downloads

The USGS library consists of visual materials—both text and graphics. With a large percentage of the general public still using dial-up Internet access, the USGS needed compression technology to decrease file sizes yet retain accurate visual details. The USGS was chartered with serving the widest possible audience with its scientific inquiries. Today that means access by common Web browsers on low bandwidth without long download times. In compliance with Section 508 of the Rehabilitation Act, government agencies also must ensure that electronic documents they distribute support software that reads text aloud for the visually impaired.

Solution Overview

Company

United States Geological Survey

<http://www.usgs.gov>

Customer Profile

The USGS conducts and publishes scientific research for use by the public and other government agencies.

Industry

Earth and Biological Sciences

Business Situation

The USGS had tens of thousands of printed reports and a mandate to scan them and make them available electronically to other agencies and the public. The goal of the agency was to minimize the storage burden while maximizing download speeds.

Solution Description

The USGS used Document Express Enterprise to convert raw scans to DjVu format at compression ratios of almost 900:1. The resulting files are efficiently stored, quickly downloaded by anyone with a Web browser, and Section 508 compliant.

Technology Link

<http://www.lizardtech.com/solutions/doc>

Solution

The USGS was already familiar with LizardTech's GeoExpress product line, which leverages the MrSID® format to make massive aerial and satellite image datasets more manageable over networks. For handling the nearly one million pages of its library project, which included 30,000-35,000 large format maps, the agency became interested in LizardTech's DjVu format, available in Document Express, because of its even higher compression ratios—typically between 300:1 and 1000:1.

The USGS installed Document Express Enterprise Edition on two dual 1.5Ghz CPUs with 1GB RAM running Windows 2000 Professional to convert raw document scans to DjVu® format with custom batch scripts. These highly compressed DjVu files retain the visual quality of the original scans yet are quickly transferred over networks. LizardTech's free DjVu Browser Plug-in supports Microsoft Active Access (MSAA) for Section 508 compliance.

For those corporate users whose security policies prohibit downloading the free DjVu Browser Plug-in, the USGS uses LizardTech Express Server to create and serve JPEG document images "on the fly," thus delivering the advantages of the DjVu format even without the plug-in. LizardTech worked with the agency to create Express Server style sheets that give these extracted JPEG images page numbers and titles to make them more consistent in look and feel with the DjVu documents.

Benefits

The Widest Possible Audience with the Lowest Storage Cost

Document Express enabled the USGS to deliver color reproductions of its entire basic library in perfect visual quality while achieving compression ratios averaging 200:1—nearly 900:1 for the large maps—reducing storage costs and enabling fast downloads for all computer users, regardless of their browser, device or connection speed.

Section 508 Compliance

Because Document Express supports MSAA, common accessibility software can read not only plug-in menus and dialogs, but also any optical character recognition (OCR) layer included in the creation of a DjVu document.

An Open-Ended Investment

"How do you put a value on 125 years of scientific interpretation?" asks Allord. "The public has made an enormous investment in this material. Having it confined to a limited number of library shelves doesn't serve the public. Document Express extends the value of the initial investment in USGS science well into the future by helping us make USGS data available for all current and future users. It becomes an open-ended investment."

Document Express with DjVu provides an unprecedented reduction in the costs of electronically storing and distributing color and black and white documents, while preserving the visual quality of the original document.

“We needed to ensure scanned reports and maps would download and open quickly when accessed over the Internet. Document Express delivered what we needed.”

Greg Allord, Cartographer
United States Geological Survey

For More Information

For more information about LizardTech products, contact LizardTech at (206) 652-5211. In Europe, call LizardTech UK, at 44 (0) 870 922 0239. Outside the 50 United States, please contact your local LizardTech sales manager. To access purchase information using the World Wide Web, go to: <http://www.lizardtech.com/purchase>.

For more information about LizardTech Document Express, go to: <http://www.lizardtech.com/solutions/doc>

For more information about USGS products and services, visit their Web site at: <http://www.usgs.gov>

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