Documents Scanned in Grayscale Look Like a Photograph of the Original
Viewing Terapixel images Over a Dial-up Internet Connection with Dynamic Transmission of Resolution

Entire Roll of film or Microfiche handled as a Single Scanned Image

Roll and fiche microforms can be considered oversize documents.

With the technology below, an entire roll of microfilm or a microfiche can be digitized for a few cents because the individual images need not be identified. Users find the individual images the same way users find the images now. The database gives the roll or fiche, and the user does a visual search. If the roll film is blipped, the blips can be found by a very simple version of OCR because blips are very easy to recognize.

See [http://www.earthetc.com] then / go to document access / go to microfiche (requires a plugin installation).

Samples to view on the Internet:

Sample of Dynamic Progressive Transmission of Resolution (DPTR) with smooth roaming and zooming over a dialup Internet connection:

There are now two sample scanned grayscale drawing images (and a photo) on the Internet at

http://NavigateLA.LACity.org/samples/start

When you get to the page, click on 'Using HTML' on the third line after 'Engineering Vault Image 2'

This will ask you to install the browser plugin. If you use Internet Explorer, click on Automatic.

82 Gigapixel Image

The 82 Gigapixel image of Southern California (1 meter pixels) roams and zooms using dynamic progressive transmission of resolution as easily as the much smaller 421 megapixel grayscale image labeled geodetic.

Receive System Updates by Email

To receive updates from the Bureau of Engineering, City of Los Angeles, on NavigateLA capabilities, enhancements, and new datasets by email please send an email to [NavSupt@Eng.LACity.org]. Please enter 'Newsletter' as the subject. In the body please enter your email address. At your option, please enter your name, your organization, and your city, state, and country

The Images

After installing the browser plugin, you will see the image.

The images are extremely clear, just like photographs of the originals. It is just like looking at the originals. It is also just like looking at the microfilm on a viewer, except that it can be done over the Internet. You can see scotch tape and paper wrinkles very clearly. You can even read numbers (hand written in pencil) that have been erased.

Unlike most images, these images appear instantly, full size, over the Internet. The images appear instantly, even if you have a dial-up telephone connection to the Internet. This is because of the special viewer, which only send the size of the image (or the part of the image) that you are looking at.

These sample images are grayscale (black and white), but the viewer works fine for color images (for example, very high resolution, scanned paintings in a museum). It even works fine with (and, in fact, was developed for) satellite based multispectral remote sensing images. With multispectral images you can see color, infrared, ultraviolet, radar, and several other electromagnetic bands simultaneously or in Boolean combination.

It is more fun just to look.

But, if you want to know about the technology, please see the long form of this whitepaper: 22048 at [http://www.ArchiveBuilders.com]

Pixels

All pixels in these images are 8 bit, 256 grayscale level, pixels.

Viewer

The display software [www.ERMapper.com] easily handles, displays instantly, and has smooth roaming and zooming for the very irregularly shaped 50,000,000,000 pixel = 50 gigapixel image of the City of Los Angeles over a dial up telephone link to the Internet. It works equally well for terapixel multispectral remote sensing images of the world.

Aperture Card Scanner and Printer

Microbox standard image size and resolution

The Microbox standard image size and resolution includes considerable engineering.

Overscan area: nb (nota bene) the Microbox standard includes an overscan margin area, around the image, in order to include the margin around the image on the microfilm and the tape area on the aperture card. Including the margin area on the film accommodates the metadata sheets, cards, and notes placed on the camera platen during filming. Including the tape area accommodates possibility that the film chip was mounted slightly out of alignment in the microform aperture.

Technical megabytes and marketing megabytes: nb RAM (Random Access Memory) in computers uses technical megabytes which contain 1,048,576 bytes. Disk drives contain marketing megabytes, which contain 1,000,000 (1 million) bytes. Marketing megabytes are used for disk drives because marketing megabytes are smaller than technical megabytes, and therefore more marketing megabytes fit on a disk, causing the disk to appear larger, and making it more marketable. Image sizes are calculated and presented in terms of the number of bytes in the image. Image sizes are therefore given in marketing megabytes. Because computer vendors fear litigation, computer vendors often denominate file sizes in both technical megabytes and marketing megabytes.

Dimension sequence convention (horizontal x vertical, in pixels):

Engineering drawings and maps are usually drawn in a landscape orientation (wider than high)

For image dimension, the first dimension is always horizontal, so for a landscape image, the first dimension is the larger dimension.

For portrait images, the first dimension is the smaller dimension. (If you accidentally specify a display with the smaller dimension given first, you will receive a display that is narrower than it is tall, a portrait display.)

Paper sizes have traditionally been given as portrait, following the fact the most letter size documents are portrait. This creates a conflict when giving paper drawing sizes. Here all sizes use the horizontal size first rule.

Paper original pixel size in inches:
400 dpi (dots per inch) full size E size print (48 by 36 inches)

Paper original pixel size in mm, soft metric: 400 dpi ∼= 15.75 dpmm (dots per mm (millimeter))

Paper original pixel size in mm, hard metric: 400 dpi ∼∼= 15 dpmm (dots per mm (millimeter))

Microform copy pixel size in inches: 12,000 dpi on microfilm on an aperture card at a standard E size reduction of 30X (30 times reduction). (400 dpi x 30X = 12,000 dpi)

Microform copy pixel size in inches: 12,000 dpi ∼= 472.5 dpmm (dots per mm (millimeter))

Microform copy pixel size in mm, soft metric 450 dpmm = .45 dpu (dots per micron) (micron = micrometer)

Microform copy pixel size in mm, hard metric: 500 dpmm = .5 dpu (dots per micron) (micron = micrometer)

Pixels per image: 15,596 pixels x 22,000 pixels = 343,112,000 pixels

Paper pixel size: dpi (dots per inch) squared = dpsi (dots per square inch): 400 dpi x 400 dpi = 160,000 dpsi

Pixel size, soft metric: approximately 15.75 dpmm x 15.75 dpmm = 2.48 dpsmm (dots per square mm, millimeter)

Overscan equivalent paper size in inches and feet: image size = 55 inches x 38.99 inches = 2,144.45 square inches = 14.89 square feet

Overscan equivalent paper size in mm and meters, soft metric: approximately 1397 mm x 990 mm = 1,383,030 sq mm = 1.3835 sM (square meters)

Microfilm pixel size in inches: dpi (dots per inch) squared = dpsi (dots per square inch): 12,000 inches x 12,000 inches = 144,000,000 dpsi

Microfilm pixel size in mm and microns, soft metric: approximately 472.5 dpmm x 472.5 dpmm = 223,256 dpsmm (dots per square mm, millimeter) .223 dpsu (dots per square micron)

Microfilm in inches: image size: over-scanned image area: = 1.83333333 inches x 1.29966667 inches = 2.382722 square inches

Microfilm in mm, soft metric: image size: over-scanned image area: = 46.5667 mm x 33.0115 mm = 60.5211 square mm

Viewer for Microforms and Satellite Photographs

ERMapper: http://www.ERMapper.com] Dialup Internet DPTR display: smooth roaming and zooming for a for 190 Gigapixel image

Microbox: Main page: [http://www.edg.dk/default_uk.asp]

Link to PDF [http://www.edg.dk/mainuk.asp?mikrokort]

PDF [http://www.edg.dk/download/mikrokort/polyscan.pdf]