Graphics

Graphics in HTML are stored in separate files, one file for each graphic. The main HTML document only contains links to the graphics, not the actual images.

Example:

```
<IMG SRC=
"http://www.ietf.cnri.reston.va.us/images/ietflogo.gif"
 ALT="The IETF logo">
<H1>Internet Engineering Task Force</H1>
```

Internet Engineering Task Force

Object versus bitmapped graphics

Object graphics: Describe a picture with commands like “draw a line of width 1 from point 12,44 to point 12,99” or “draw a circle segment ...” or “fill an area with colour ...”.

Bitmapped graphics: Split image into raster points, indicate colour of each raster point. Usually combined with compression to reduce file size.

Formats for object graphics usually also allow bitmapped graphics within the object graphics.

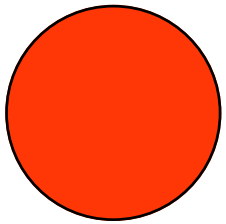
Formats for bitmapped graphics: GIF, JPEG.

Formats for object graphics: Adobe Acrobat, Postscript, PICT.

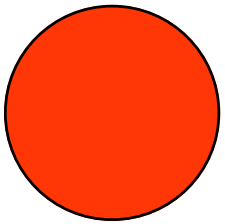
Best supported formats on theWWW is GIF and JPEG, both of which are bitmapped, usually with 72 DPI. This is OK for screeens, but not so good for printing.

Object graphics will automatically get sharper when imaged on screens or printers with high resolution. Bitmapped graphics can never get more sharp than the raster used. Example:

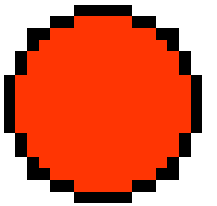
High resolution



Bitmapped 72 DPI



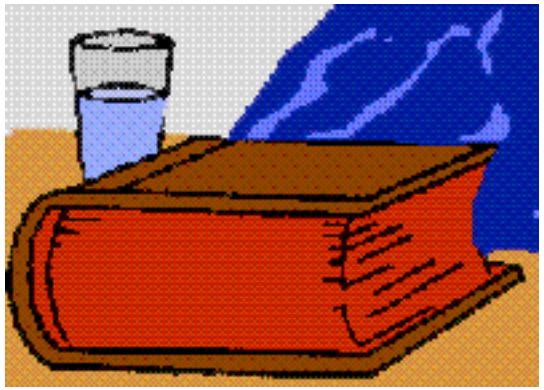
Bitmapped 16 DPI



Dithering (Swedish: Gittring)

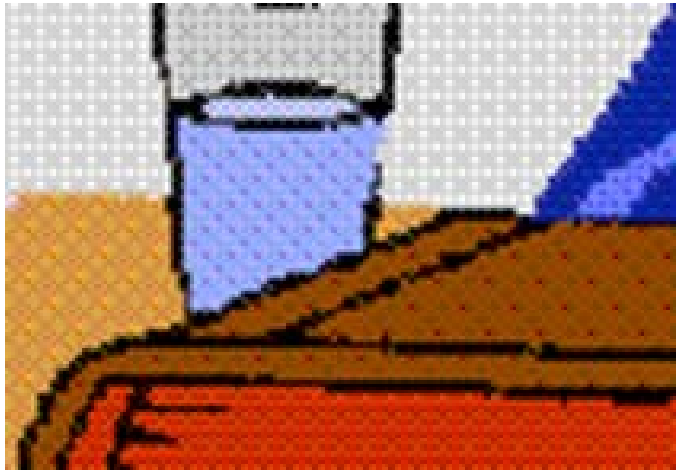
Original picture, 72 DPI, 16 bits colour depths

The same picture as shown on a 256-colour (8 bit colour depths) screen



Part of the picture above 3 x enlarged

Part of the picture above 3 x enlarged

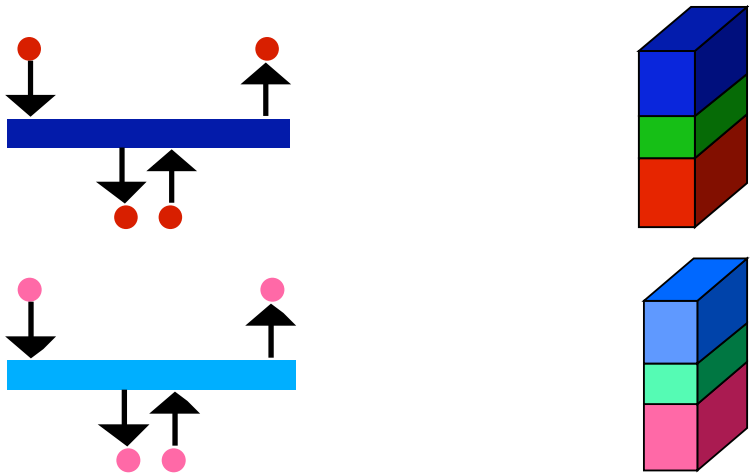
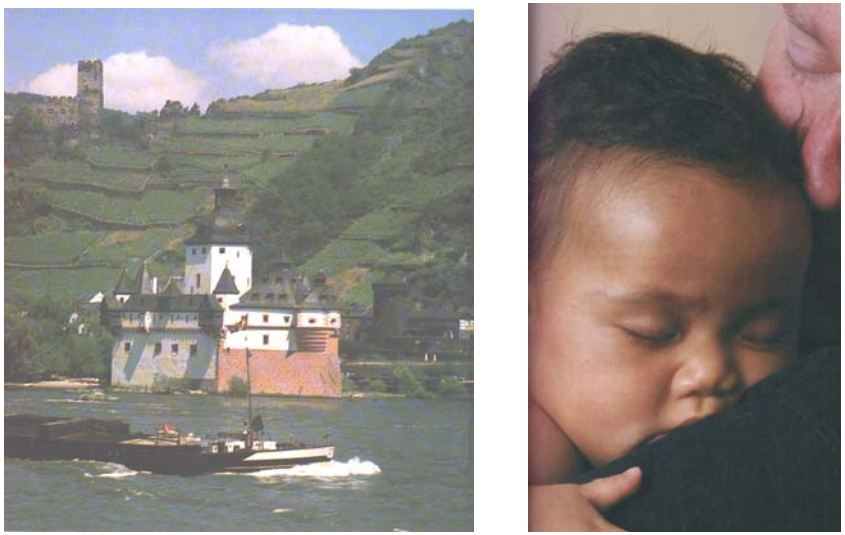


Some image formats used in the WWW:

Name		Description
Graphic Interchange Format	GIF	Bitmapped image with no-loss compression. Requires UNISYS patent to implement.
Joint Photo-graphers Experts Group	JPEG, JPG	Bitmapped image with information-losing compression based on deficiencies in the human eye. Can for photographs, especially color photograph, give much more compression than GIF without difference visible to the human eye.
Portable Document Format	PDF	Used by Adobe Acrobat. Can render full manuscripts including text and pictures. Proprietary format, reader freeware.
Portable Network Graphics	PNG	Proposal for a new format to replace GIF. See URL `http://raptor.csc.flint.umich.edu/~yost/png-docs/intropng.html` for more info.
Postscript	PS	Can render full manuscript including text and pictures. Large file sizes. Proprietary Adobe format, but widely used by non-Adobe products.

For more info see URL `http://www.berkana.com/class2/media.html`

Two kinds of graphics

Properties	Graphics sharp borders, low number of different colours and large fields with the same colour.	Graphics with many different colours, soft transitions between colours.
Examples	Drawings, diagrams	Photographs, paintings
Quality requirements	Sharp borders, even fields, exact colour matching not important	Many colours, exact colour matching often important
Best web encoding	Usually GIF	Usually JPEG
Examples		

The path from original to web-picture

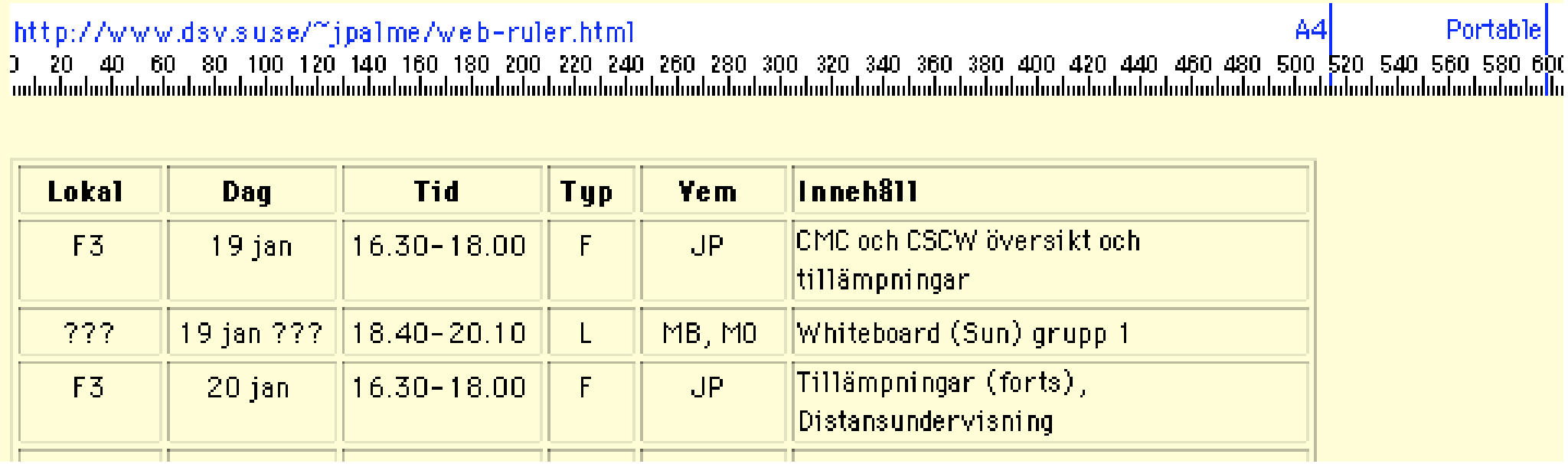
Original	Line drawing	Photo or painting
Common formats:	Illustrator, Freehand or Photoshop	Photoshop, JPEG
Web format:	GIF	JPEG
Conversion to bitmap:	Photoshop, Superpaint, Graphic Converter.	Picture is already in bitmapped format.
Effect of conversion to Web format:	Colour depth reduced to 8 bits or less. Can cause dithering.	Loss of detail, dependent on compression factor.
Also during this conversion:	Bit density usually changed to 72 BPI. Note: Logically always 72 BPI, even if actual screen has higher density.	
Effect when rendering on the screen for a user who has only 256 colours:	Colour may be converted from one to another 256 colour palette. Can cause dithering and sometimes bad distortion.	Colour converted to the palette available on the user screen.

Web pages printable and visible on small screens

Web pages less wide than 514 pixels can be printed on both A4 and US Letter sized paper without loss of information.

Web pages less wide than 600 pixels can be shown on portable computers with 640x480 screen sizes without any need for horizontal scrolling.

At http://www.dsv.su.se/~jpalme/web-ruler.html you can find a ruler, which you can use to test the width of your web pages, as shown by the example below.



Lokal	Dag	Tid	Typ	Vem	Innehåll
F3	19 jan	16.30-18.00	F	JP	CMC och CSCW översikt och tillämpningar
???	19 jan ???	18.40-20.10	L	MB, MO	Whiteboard (Sun) grupp 1
F3	20 jan	16.30-18.00	F	JP	Tillämpningar (forts), Distansundervisning

For more information see http://www.dsv.su.se/~jpalme/web-ruler.html.

Text flowing around pictures

The setting

The Westin Bonadventure hotel was really impressive. Five 30-floor towers, four in the corners, one in the middle, connected by narrow corridors with 12 scenic elevators.

Calendaring and scheduling

The object of this working group is to produce a standard for sending calendar data (meeting times, requests for bookings, time schedules) across the network.

```
<H2>The setting</H2>
<P><IMG SRC="http://www.westin.com/graphics/hotels/LABONleft.jpg"
ALIGN="LEFT"></P>
<P>The Westin Bonadventure hotel
was really impressive. Five 30-floor towers, four in the corners,
one in the middle, connected by narrow corridors with 12 scenic
elevators.</P>
<P><BR clear="all">
<H2>Calendaring and scheduling</H2>
```