INTERNET-DRAFT   Larry Masinter
draft-ietf-conneg-media-features-05.txt   Koen Holtman
                                                     Andy Mutz
                                                      Dan Wing
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Media Features for Display, Print, and Fax

Status of this memo

Abstract

This specification defines some common media features for
describing image resolution, size, color, and image representation
methods that are common to web browsing, printing, and facsimile
applications. These features are registered for use within the
framework of [REG].

1. Introduction

This work was originally motivated by the requirements from web
browsers to send the browser's display characteristics to the web
server to allow the server to choose an appropriate representation.

This specification defines some common media features [REG] by
which a recipient may inform a sender as to the characteristics of
its message handling. The sender may then provide the variant of
the message that is most suitable for the recipient.

Different variants would typically be higher or lower resolution
images (for example) as appropriate. In the case of a sending to a
printer, the result would be higher quality output. In the case of

a small screen device (cellphone, portable digital assistant), the
result would be faster transmission.

Media features may be used in many different protocol situations.
Those defined in this specification can indicate the display or
printer dimensions, resolution, color capability. The physical
dimensions of a display may be inferred from the display size and
display resolution. In the case of paper output, the paper size may
be expressed as a token from a list of standard paper sizes. These
are presented formally in the Notation section.

2. Media Feature Registrations

This section defines several media features, using the form
specified in [REG].

2.1 Image Size

- Media Feature tag name(s):

  pix-x
  pix-y

- ASN.1 identifier associated with this feature tag:

  New assignments by IANA

- Summary of the media features indicated by this feature tag:

  These features indicate the display size of the recipient for
  display or print, measured in pixels; they indicate horizontal
  (pix-x) and vertical (pix-y) dimensions.

- Values appropriate for use with this feature tag:

  Signed Integer

- The feature tag is intended primarily for use in the following
  applications, protocols, services, or negotiation mechanisms:

  Display and print applications where different media choices will
  be made depending on the size of the recipient device. For
  example, a web application for use on a 240x480 display might use
  different HTML pages than one intended for use on a 1024x768
  display.

2.2 Resolution

- Media Feature tag name:

  dpi

- ASN.1 identifier associated with this feature tag:

  New assignments by IANA

- Summary of the media features indicated by this feature tag:

  This feature indicates the resolution that the recipient can display or print without loss, measured in pixels per inch. Typically resolution capability is represented as dots-per-inch rather than in SI units [SI]. Values for dpi may be expressed as a rational to accomodate resolution of SI-based devices; for example dpi=19558/100 can be used to represent a resolution of 77 dots per centimeter.

- Values appropriate for use with this feature tag:

  Rational

- The feature tag is intended primarily for use in the following applications, protocols, services, or negotiation mechanisms:

  Printing and fax applications typically choose representations of a transmitted document depending on the resolution of the recipient rather than pixel size.

- Examples of typical use:

  Choosing a version of a printable document to send to a printer.

- Considerations particular to use in individual applications, protocols, services, or negotiation mechanisms:

  Software applications are typically unaware of the resolution of the display. Note that there exist devices with different resolution in different directions, i.e., individual pixels are not square. However, this feature only encompasses the uniform resolution.

2.3 **Registration of 'ua-media'**

- Media Feature tag name(s):

  ua-media

 - ASN.1 identifier associated with this feature tag:

  New assignments by IANA

- Summary of the media features indicated by this feature tag:

  This feature indicates the recipients device media, indicated with an simple token.

- Values appropriate for use with this feature tag:

    Token with an equality relationship. Values include:

    screen   A refreshable display
    screen-paged   a refreshable display which cannot scroll
    stationery   Separately cut sheets of an opaque material
    transparency   Separately cut sheets of a transparent material
    envelope   Envelopes that can be used for conventional
                    mailing purposes
    envelope-plain Envelopes that are not preprinted and have no
                    windows
    continuous   Continuously connected sheets of an opaque
                    material

  - The feature tag is intended primarily for use in the following
    applications, protocols, services, or negotiation mechanisms:

    Most of the feature values are useful for printing applications,
    or to distinguish printing from display.

  - Examples of typical use:

    This might typically be used for selecting between a rendition
    that is intended to be printed and one that is intended to be
    displayed.

  - Considerations particular to use in individual applications,
    protocols, services, or negotiation mechanisms:

    Other media values were not included because their utility seemed
    relative.

  - Interoperability considerations:

    Interoperability with the Internet Print Protocol means that
    some additional feature values may need to be registered.

2.4 Paper Size

  - Media Feature tag name(s):

    paper-size

  - ASN.1 identifier associated with this feature tag:

    New assignment by IANA

  - Summary of the media features indicated by this feature tag:

    For stationery, it is often useful to have information about the

size of display used. While it is more precise and predictable to
use absolute resolution and pixel sizes, some applications find it
useful to provide paper size in addition to this information. Note
that not all of the paper may have a printable area.

- Values appropriate for use with this feature tag:

  Token with an equality relationship. Typical values include:

    letter   8.5x11.0 inches
    a4   210x297 mm
    b4   250x353 mm
    a3   297x420 mm
    legal   8.5x14 inches

- The feature tag is intended primarily for use in the following
  applications, protocols, services, or negotiation mechanisms:

  This feature tag seems most useful for the printing application.

- Examples of typical use:

  Choosing between a4 and letter size renditions of the same
  printable document.

2.5 Color and greyscale

- Media Feature tag name(s):

  color

- ASN.1 identifier associated with this feature tag:

  New assignments by IANA

- Summary of the media features indicated by this feature tag:

  This feature indicates a gross level of capability to represent
  (or need for) for handling of color, out of a limited set of
  choices.

- Values appropriate for use with this feature tag:

  Token with an equality relationship. Values include:

  binary   black-and-white, or other bi-level capability.

  grey   more than two levels of intensity; for example,
              at least two bits of grey-scale data

  limited   availability of a small number of colors, such as
              might be provided by a highlight printer, pen plotter,

or limited color display. Such capability is useful
for business graphics. At the lowest level of
capability, this implies at least one color other than
black ("highlight color"). At the high end, a small
number (less than 32) colors. No implication is made
that any particular color is available.

mapped   pixel color values are mapped in some specifable way
to a multi-component color space. Sufficient levels of
display are available to represent a continuous tone
photographic image, but the result will be mapped into
a more limited space.

full   ability (or at least willingness) to represent a full
color image and present it. Full continuous tone color
capability.

- The feature tag is intended primarily for use in the following
  applications, protocols, services, or negotiation mechanisms:

  Web applications may choose between color, grey, or binary
  representations. Fax or printing applications might choose
  between color and non-color renditions, for example.

- Examples of typical use:

  Someone preparing a map of directions to a restaurant might
  prepare different maps for each kind of value.

- Intended usage:
  COMMON

[3]. Examples of use of features

The following examples of feature comparison show how these features
can be used to describe various capabilities. The syntax used to
express combinations of features is purely illustrative and not
normative:

pix-x<=1024, pix-y<=768
   might be used for a 1024x768 display.

dpi=300
   might be used for a 300 dpi printer.

paper-size=a4
   indicates the display size is 210x297mm.

[4]. IANA considerations

This document calls for registration of the following feature tags,

as per [REG]: pix-x, pix-y, dpi, ua-media, paper-size, color.
ASN.1 identifiers should be assigned to each of these and replaced
in the body of the registration.

5. Security Considerations

Inaccurate media feature information ascribed to a recipient might
cause a sender to subsequently send content that the recipient is
not actually able to process, thus causing a denial of service.

6. Acknowledgments

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John Lee, Brian Behlendorf, Jeff Mogul, Ted Hardie, and Dan Wing.

7. References

[REG] A. Mutz, T. Hardie. "Feature Tag Registration Procedures",
      draft-ietf-conneg-feature-reg-03.txt, July 1998.

[SI] ISO 1000:1992 "SI units and recommendations for the use of
      their multiples and of certain other units", International
      Organization for Standardization, 1992.

Author's Addresses

   Larry Masinter
   Xerox Palo Alto Research Center
   3333 Coyote Hill Road
   Palo Alto CA 94304
   Fax +1 650 812 4333
   Email: masinter@parc.xerox.com

   Dan Wing
   Cisco Systems, Inc.
   101 Cooper Street
   Santa Cruz, CA 95060 USA
   Phone: +1 831 457 5200
   Fax: +1 831 457 5208
   EMail: dwing@cisco.com

   Andrew H. Mutz
   Hewlett-Packard Company
   1501 Page Mill Road 3U-3
   Palo Alto CA 94304, USA
   Fax +1 650 857 4691
   Email: mutz@hpl.hp.com

   Koen Holtman
   Technische Universiteit Eindhoven
   Postbus 513

Kamer HG 6.57

5600 MB Eindhoven (The Netherlands)

Email: koen@win.tue.nl