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MIME content types in media feature expressions
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Abstract

In [RFC 2533](#), "A syntax for describing media feature sets", an expression format is presented for describing media feature capabilities using simple media feature tags.

This memo defines a media feature tag whose value is a MIME content type. This allows the construction of feature expressions that take account of the MIME content type of the corresponding data.

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[1. Introduction](#)

In "A syntax for describing media feature sets" [[1](#)], an expression format is presented for describing media feature capabilities as a combination of simple media feature tags, registered according to "Media Feature Tag Registration Procedure" [[2](#)]. This provides a format for message handling agents to describe the media feature content of messages that they can handle.

This memo defines a media feature tag whose value is a MIME content type. This allows the construction of feature expressions that take account of the MIME content type of the corresponding data.

Note that a content type feature value may contain parameters, but this is discouraged. See [section 3](#) and [appendix A](#) "Summary of the media features indicated" for discussion of this point.

[1.1 Terminology and document conventions](#)

This section defines a number of terms and other document conventions, which are used with specific meaning in this memo.

media feature

 information that indicates facilities assumed to be available for the message content to be properly rendered

or otherwise presented. Media features are not intended to include information that affects message transmission.

feature set

some set of media features described by a media feature assertion, as described in "A syntax for describing media feature sets" [1]. (See that memo for a more formal definition of this term.)

feature set expression

a string that describes some feature set, formulated according to the rules in "A syntax for describing media feature sets" [1] (and possibly extended by other specifications).

This specification uses syntax notation and conventions described in [RFC 2234](#) "Augmented BNF for Syntax Specifications: ABNF" [3].

NOTE: Comments like this provide additional nonessential information about the rationale behind this document. Such information is not needed for building a conformant implementation, but may help those who wish to understand the design in greater depth.

[1.2](#) Discussion of this document

Discussion of this document should take place on the content negotiation and media feature registration mailing list hosted by the Internet Mail Consortium (IMC):

Please send comments regarding this document to:

ietf-medfree@imc.org

To subscribe to this list, send a message with the body 'subscribe' to "ietf-medfree-request@imc.org".

To see what has gone on before you subscribed, please see the mailing list archive at:

<http://www.imc.org/ietf-medfree/>

2. Motivation and goals

The media feature expression syntax [1] and feature tags [2] were designed with a view to providing content media information that augments basic MIME content type information. There are some situations where it is useful to be able include that content type information in a media feature expression:

- o Media feature details may depend upon the content type being used. The media feature combining algebra and syntax [1] cannot apply to content type information unless it appears in the feature expression.

For example, in HTTP 1.1 [4] with Transparent Content Negotiation (TCN) [5] acceptable content types and other media features are indicated in different request headers, with no clear way to indicate that they may be acceptable only in certain combinations.

- o It is sometimes useful for all media capability information to be included in a single expression. For example, DSN and MDN extensions [6] that allow a recipient to indicate media capabilities provide a single field for conveying this information.
- o When media features are used to describe a message content, they may refer to inner parts of a MIME composite; e.g. the component parts of a 'multipart', files in a compressed archive, or encrypted message data.

3. MIME content type feature tag

Feature tag name	Legal values
-----	-----
type	<string> containing any MIME content type value.

Reference: this document, [appendix A](#).

The 'type' feature tag indicates a MIME media content type (i.e. that appears in a 'Content-type:' header in the corresponding MIME-formatted data).

The media type should be given without any parameter values. The intention here is that information that is conveyed in MIME content type parameters is more usefully handled in a media feature expression by separate feature tags.

NOTE: content type parameters in a 'type' value are strongly discouraged, but not prohibited. In deciding whether or not to include a parameter value, implementers should bear in mind the feature set matching rules [\[1\]](#). These would cause 'type' values with and without parameters to be treated as completely distinct values, which may lead to unexpected results.

[4.](#) Examples

[4.1](#) Simple text

```
(& (type="text/plain") (charset=US-ASCII)
  (color=binary) (paper-size=A4) )
```

[4.2](#) Fax image

```
(& (type="image/tiff")
  (color=binary)
  (image-file-structure=TIFF-S)
  (dpi=200)
  (dpi-xratio=[200/100,200/200])
  (paper-size=A4)
  (image-coding=MH) (MRC-mode=0)
  (ua-media=stationery) )
```

[4.3](#) Voice message

```
(& (type="multipart/voice-message")
  (VPIM-version="3.0")
  (audio-codec=[G726-32,GSM-610])
  (audio-file-structure=[None,WAV])
  (ua-terminal=mobile-handset)
  (audio-channels=1) )
```

NOTE: in this case, some media features apply to MIME parts contained within the declared 'multipart/voice-message' content type. The goal here is not so much to mirror the MIME structure as to convey useful information about the (possible) message content.

[4.4](#) Web browser capabilities

```
(& (pix-x<=800) (pix-y<=600)
  (| (& (type="text/html") (charset=iso-8859-1) (color=limited))
    (& (type="text/plain") (charset=US-ASCII) )
    (& (type="image/gif") (color=mapped))
    (& (type="image/jpeg") (color=full) ) ) )
```

This example describes an HTML viewer that can deal with a limited number of color text tags, a gif viewer that supports mapped color, and a jpeg viewer that supports color.

[5](#). IANA considerations

[Appendix A](#) of this document calls for registration of a feature tag in the "IETF tree", as defined in [section 3.1.1](#) of "Media Feature Tag Registration Procedure" [[2](#)] (i.e. these feature tags are subject to the "IETF Consensus" policies described in [RFC 2434](#) [[9](#)]).

An ASN.1 identifier should be assigned for this registered feature tag and replaced in the body of the registration.

[6](#). Security considerations

This memo is not believed to introduce any security considerations that are not already inherent in the use of media feature tags and expressions [[1](#),[2](#)].

[7](#). Acknowledgements

This proposal draws from discussions in the IETF 'conneg' working group. The voice message example is based on some ideas by Glen Parsons.

The author would like to thank the following people who offered comments that led to significant improvements: Ted Hardie, Larry Masinter, Paul Hoffman, Jacob Palme.

[8](#). References

- [1] [RFC 2533](#), "A syntax for describing media feature sets"
Graham Klyne, 5GM/Content Technologies
March 1999.
- [2] [RFC 2506](#), "Media Feature Tag Registration Procedure"
Koen Holtman, TUE
Andrew Mutz, Hewlett-Packard

Ted Hardie, NASA
March 1999.

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- [3] [RFC 2234](#), "Augmented BNF for Syntax Specifications: ABNF"
D. Crocker (editor), Internet Mail Consortium
P. Overell, Demon Internet Ltd.
November 1997.
- [4] [RFC 2068](#), "Hypertext Transfer Protocol -- HTTP/1.1"
R. Fielding, UC Irvine
J. Gettys,
J. Mogul, DEC
H. Frytyk,
T. Berners-Lee, MIT/LCS
January 1997.
- [5] [RFC 2295](#), "Transparent Content Negotiation in HTTP"
Koen Holtman, TUE
Andrew Mutz, Hewlett Packard
March 1998.
- [6] [RFC 2530](#), "Indicating Supported Media Features Using Extensions
to DSN and MDN"
Dan Wing, Cisco Systems
March 1999.
- [7] [RFC 2045](#), "Multipurpose Internet Mail Extensions (MIME)
Part 1: Format of Internet message bodies"
N. Freed, Innosoft
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November 1996.
- [8] [RFC 2046](#), "Multipurpose Internet Mail Extensions (MIME)
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N. Freed, Innosoft
N. Borenstein, First Virtual
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- [9] [RFC 2434](#), "Guidelines for Writing an IANA Considerations Section
in RFCs"
T. Narten, IBM
H. Alvestrand, Maxware
October 1998.
- [10] "Registration of Charset and Languages Media Features Tags"
Paul Hoffman, IMC
Internet draft: <[draft-hoffman-char-lang-media-01.txt](#)>
Work in progress, July 1999.

9. Author's address

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Appendix A: 'Type' feature tag registration

- Media Feature tag name(s):

Type

- ASN.1 identifiers associated with this feature tag:

[[[New assignments by IANA]]]

- Summary of the media features indicated:

This feature tag indicates a MIME content type that a message agent is capable of handling, or contained within some message data.

The content type consists of the MIME media type and subtype, presented using all lower case letters and with any whitespace characters removed.

In exceptional cases, content type parameters may be included, in which case the parameter name is also presented in lower case letters, with all whitespace surrounding the ';' and '=' removed. The parameter value should be presented in some canonical form.

- Values appropriate for use with this feature tag:

String

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

Any application that wishes to convey MIME content type information in a media feature expression.

- Examples of typical use:

```
(type="text/plain")  
(type="text/plain;charset=iso-8859-1")
```

The second example is not a recommended form; the preferred form is to use a 'charset' feature tag, per [\[10\]](#). But note that all spaces around the 'charset' parameter are removed, and the name and value are presented in lower case.

- Related standards or documents:

MIME, [RFC 2045](#) [\[7\]](#)

MIME, [RFC 2046](#) [\[8\]](#)

Registration of Charset and Languages Media Features Tags [\[10\]](#)

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

(N/A)

- Interoperability considerations:

String feature matching is case sensitive, so consistent use of case for content type values and parameters is essential if content type value matching is to be achieved in a fashion consistent with MIME content type matching.

Similarly, white space must be used consistently.

This registration specifies a canonical form to be used for content type values (lower case letters and remove all whitespace). If content type parameters are introduced, all letters and whitespace that are not part of the parameter value are treated similarly. The canonical form for parameter values must be appropriate to the equivalence rules for that value.

- Related feature tags:

(N/A)

- Intended usage:

Common

- Author/Change controller:

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Revision history

[[[RFC editor: please remove this section on publication]]]

- 00a 16-Feb-1999 Initial draft.
- 01a 16-Feb-1999 Added pointers to mailing list for discussion.
- 01b 04-Mar-1999 Various editorial improvements.
- 01c 29-Apr-1999 Improved web browser example.
- 02a 29-Apr-1999 Highlight and forward reference the content-type parameter issue in the introduction.
- 02b 20-Jul-1999 Incorporate review comments. Also cite charset feature type registration work-in-progress.
- 02c 14-Nov-1999 Fix [RFC 2533](#) number in references.
- 02d 30-Nov-1999 Add note about 'charset' feature tag to registration template. Moved copyright notice to end of document text.

