

IETF conneg working group  
Internet draft  
Category: Work-in-progress

Graham Klyne  
Content Technologies  
30 November 1999  
Expires: May 2000

MIME content types in media feature expressions  
<[draft-ietf-conneg-feature-type-02.txt](#)>

#### Status of this memo

This document is an Internet-Draft and is in full conformance with all provisions of [Section 10 of RFC 2026](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/lid-abstracts.txt>

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

#### Copyright Notice

Copyright (C) The Internet Society 1999. All Rights Reserved.

#### 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.

---

Internet draft                      MIME content types in media feature expressions  
[30](#) November 1999

## Table of contents

<a href="#">1.</a>	Introduction .....	<a href="#">2</a>
1.1	Terminology and document conventions	2
1.2	Discussion of this document	3
<a href="#">2.</a>	Motivation and goals .....	<a href="#">4</a>
<a href="#">3.</a>	MIME content type feature tag .....	<a href="#">4</a>
<a href="#">4.</a>	Examples .....	<a href="#">5</a>
4.1	Simple text	5
4.2	Fax image	5
4.3	Voice message	5
4.4	Web browser capabilities	6
<a href="#">5.</a>	IANA considerations .....	<a href="#">6</a>
<a href="#">6.</a>	Security considerations .....	<a href="#">6</a>
<a href="#">7.</a>	Acknowledgements .....	<a href="#">6</a>
<a href="#">8.</a>	References .....	<a href="#">6</a>
<a href="#">9.</a>	Author's address .....	<a href="#">8</a>
<a href="#">Appendix A:</a>	'Type' feature tag registration .....	<a href="#">8</a>
	Full copyright statement .....	<a href="#">10</a>
	Revision history .....	<a href="#">11</a>

## [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.

Klyne

Work-in-progress

[Page 2]

---

Internet draft  
[30](#) November 1999

MIME content types in media feature expressions

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.

---

Internet draft  
[30](#) November 1999

MIME content types in media feature expressions

- [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  
N. Borenstein, First Virtual  
November 1996.
- [8] [RFC 2046](#), "Multipurpose Internet Mail Extensions (MIME)  
Part 2: Media types"  
N. Freed, Innosoft  
N. Borenstein, First Virtual  
November 1996.
- [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.



---

Internet draft                      MIME content types in media feature expressions  
[30](#) November 1999

[9](#). Author's address

Graham Klyne  
Content Technologies Ltd.  
1220 Parkview,  
Arlington Business Park  
Theale  
Reading, RG7 4SA  
United Kingdom.  
Telephone: +44 118 930 1300  
Facsimile: +44 118 930 1301  
E-mail:     GK@ACM.ORG

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:

IETF

#### Full copyright statement

Copyright (C) The Internet Society 1999. All Rights Reserved.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this paragraph are included on all such copies and derivative works. However, this document itself may not be modified in any way, such as by removing the copyright notice or references to the Internet Society or other Internet organizations, except as needed for the purpose of developing Internet standards in which case the procedures for copyrights defined in the Internet Standards process must be followed, or as required to translate it into languages other than English.

The limited permissions granted above are perpetual and will not be revoked by the Internet Society or its successors or assigns.

This document and the information contained herein is provided on an "AS IS" basis and THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

#### Revision history

[[[RFC editor: please reove 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.