

Network Working Group
Internet-Draft
Intended status: Standards Track
Expires: July 27, 2008

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January 24, 2008

Discovery of CONVERT parameters
draft-melnikov-lemonade-convert-discovery-00.txt

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Abstract

This is a companion document to the Lemonade CONVERT ([draft-ietf-lemonade-convert-XX.txt](#)) extension. It summarizes various proposals for CONVERT MIME type and conversion parameter discovery.

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1. Requirements notation

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

In examples, "C:" and "S:" indicate lines sent by the client and server respectively. If a single "C:" or "S:" label applies to multiple lines, then the line breaks between those lines are for editorial clarity only and are not part of the actual protocol exchange. The five characters [...] means that something has been elided.

[[anchor2: Editorial comments and questions are marked like this.]]

2. Discovery of available conversions and controlling default conversions

2.1. Client preferences regarding default conversions: MEDIACAPS Command

Arguments: list of supported MIME types and corresponding conversion parameters

Responses: none

Result: OK - MEDIACAPS command completed
BAD - unrecognized syntax of an argument

The client list MIME types and corresponding conversion parameters in the order of preference, starting with the most preferred MIME media type(s).

Servers MUST ignore conversion parameters and MIME types that they don't recognize.

If a MEDIACAPS command was issued on a connection and the client has requested to perform the default conversion (see [section 5](#) for more details), the server MUST use one of the MIME types specified by the client in this command as the target MIME type. The server SHOULD use the first MIME type from the ordered list that it supports.

Example:

```
C: A01 MEDIACAPS ("TEXT" "HTML") ("TEXT" "PLAIN" "FORMAT" ("FLOWED"
"FIXED")) ("TEXT" "*" "CHARSET" ("UTF-8" "US-ASCII")) ("IMAGE"
("JPEG" "PNG" "GIF") "PIX-X" "240" "PIX-Y" "320")
```


[[anchor5: The FORMAT conversion parameter is not registered with IANA]]

With such command the client is saying (each parenthesized list converted to a sentence): "I do text/html. I will also do text/plain, preferably with format=flowed, but I can handle format=fixed too. For all text media types I do, I can handle a charset of either UTF-8 or US-ASCII. I can handle image/jpeg, image/png, and, least preferred, image/gif, and my ideal resolution is 240x320."

ABNF for this command is as follows:

```
mediacaps-cmd = "MEDIACAPS" 1*(SP mediacap)

mediacap = "(" media-type SP media-subtype
           *( SP media-param SP media-param-values ) ")"

media-type = astring

media-subtype = DQUOTE "*" DQUOTE /
               astring /
               "(" astring *( SP astring ) ")"
;; "*" means all subtypes for the media-type specified
;; in the command.
;; Otherwise, either the specific subtype or a list of them.

media-param = astring

media-param-values = astring / "(" astring *(SP astring) ")"
;; Either a single acceptable value or a list of
;; acceptable values.
```

2.2. Discovery of available conversions

[[anchor7: Note that only one of the proposals specified in subsections of this section will be standardized.]]

2.2.1. GETMETADATA

[[anchor9: Proposal # 1]]

To determine which conversions are supported, server annotations are used. For each MIME format (<type>/<subtype> [\[MIME-IMT\]](#)) that can be converted, an annotation with the name "/convert/<type>/<subtype>/types" SHOULD exist. The "value.shared" attribute of this annotation contains a semicolon separated list of type/subtype output formats.

The selection of available conversions MAY be adjustable by the

server administrator, and MAY be sensitive to the current user. The selection of available conversions MAY also depend on information about the client obtained through a different mechanism outside the scope of CONVERT (e.g. dynamically through device description mechanisms or when the device was associated to the account).

For each source MIME type that the client is interested in, it SHOULD determine which target conversions are supported by reading the "value.shared" attribute.

In addition to the subtype-specific annotations, a special "wildcard" annotation named `"/convert/<type>/@/types"` MAY be used to reference any subtype of `<type>` media type. A client that doesn't find an `"/convert/<type>/<subtype>/types"` annotation SHOULD check the value of the `"/convert/<type>/@/types"` annotation.

Note that names of server annotations are case-sensitive (see [\[METADATA\]](#)). In order to guaranty interoperability, clients and servers MUST use the lowercased version of `<type>` and `<subtype>` when constructing an annotation name described above.

Example: Discover all image conversions

```
C: a GETMETADATA "/convert/image/@/types" value.shared
S: * METADATA "/convert/image/@/types"
    (value.shared "image/jpeg;image/png;image/gif")
S: a OK GETMETADATA complete
```

The above example shows that the server supports one kind of input image transcoding, from image/jpeg to three different outputs: JPEG, PNG, and GIF.

For a given conversion, optional transcoding parameters MAY be present. These are mapped into the "value.shared" attribute in the `"/convert/<srctype>/<srcsubtype>/<desttype>/<destsubtype>/params"` annotation. A client wishing to use a conversion parameter SHOULD check if the server will accept it by reading the "value.shared" attribute.

Example: Discover optional parameters for image/jpeg -> image/gif.

```
C: a GETMETADATA /convert/image/jpeg/image/gif/params
    "value.shared"
S: * METADATA /convert/image/jpeg/image/gif/params
    ("value.shared" "pix-x;pix-y")
S: a OK GETMETADATA complete
```

The above example shows that to convert from image/jpeg to image/gif,

the transcoding supports the following types of optional parameters: pix-x (width), pix-y (height).

As with conversion types, some "wildcarding" is permitted. Thus if the same parameters are allowed for all conversions to image/gif, then the server can store the one metadata value "/convert/@/@/image/gif/parameters".

A client MAY use these values to check whether or not a desired conversion is possible, or it might, for example, present the parameters as a GUI preferences pane for the user to customize.

If the client is going to check which conversion parameters are available, it MUST read the "value.shared" attribute from the following annotations in the following order:

```
"/convert/<srctype>/<srcsubtype>/<desttype>/<destsubtype>/params"  
"/convert/<srctype>/@/<desttype>/<destsubtype>/params"  
"/convert/@/@/<desttype>/<destsubtype>/params"
```

The client MUST use the "value.shared" attribute value from the first existing annotation in the list specified above.

2.2.2. CONVERSIONS command

[[anchor11: Proposal # 2]]

Arguments: source MIME type
target MIME type

Responses: untagged responses: CONVERSION

Result: OK - CONVERSIONS command completed
BAD - unrecognized syntax of an argument,
unexpected extra argument, missing argument, etc.

The first parameter to the CONVERSIONS command is a source MIME type, the second parameter is the target MIME type. Both parameters are partially (e.g. "text/*") or completely ("*") wildcardable.

Conversions matching the source/target pair and their associated conversion parameters are returned in untagged CONVERSIONS responses. If source/target doesn't match any conversion supported by the server, no CONVERSIONS response is returned.

Examples:

For conversion info from GIF to JPEG (no untagged CONVERT would be

returned if no conversion was possible):

```
C: a CONVERSIONS "image/gif" "image/jpeg"
S: * CONVERSION "image/gif" "image/jpeg" ("width" "height"
    "depth" "interlaced")
S: a OK CONVERSIONS completed
```

For conversion info from GIF to anything:

```
C: b CONVERSIONS "image/gif" *
S: * CONVERSION "image/gif" "image/jpeg" ("width" "height"
    "depth" "interlaced")
S: * CONVERSION "image/gif" "image/png" (...)
    [...]
S: b OK CONVERSIONS completed
```

For conversion of anything to JPEG:

```
C: c CONVERSIONS * "image/jpeg"
S: * CONVERSION "image/gif" "image/jpeg" ("width" "height"
    "depth" "interlaced")
S: * CONVERSION "image/png" "image/jpeg" (...)
    [...]
S: c OK CONVERSIONS completed
```

For conversions from all image formats to all text formats (maybe via OCR?):

```
C: d CONVERSIONS "image/*" "text/*"
S: d OK CONVERSIONS completed
```

[[anchor12: ABNF is missing for this proposal.]]

3. IANA Considerations

TBD if needed.

4. Security Considerations

[[anchor15: TBD]]

5. Acknowledgments

Authors would also like to thank Dave Cridland for the MEDIACAPS command proposal and Dan Karp for the CONVERSIONS command proposal.

6. Normative References

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Acknowledgment

Funding for the RFC Editor function is provided by the IETF Administrative Support Activity (IASA).

