AtomPub Multipart Media Creation
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Abstract

This specification defines how an Atom Publishing Protocol collection should process multipart/related requests and also defines how a service announces that it accepts multipart/related entities.

Editorial Note

To provide feedback on this Internet-Draft, join the Atom Protocol mailing list (http://www.imc.org/atom-protocol/) [1].
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1. Introduction

The Atom Publishing Protocol [RFC5023] defines Media Collections and how to create a Media Resource by POSTing the media to the Media Collection. RFC 5023 does not define handling multipart/related representations nor does it specify how the acceptance of such representations should be advertised in the Service Document. This specification covers both the processing and the Service Document aspects of handling multipart/related content.

1.1. Notational Conventions

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].

1.2. Design Considerations

The primary objective of multipart/related POSTs is to reduce round-trips for creating Media Resources. There will be three round trips in the typical Media Resource creation scenario; POST of the media, GET of the Media Link Entry, and subsequent PUT of the updated Media Link Entry. This specification reduces that to just a single round-trip by allowing the client to package up the media and the associated Media Link Entry into a single multipart/related representation which is POSTed to the Media Collection.

The design of the handling of multipart/related representations was aimed at backward compatibility, that is for non-multipart/related aware clients to fully function. A second aim was to retain and utilize the expressiveness of the current app:accept element in the Service Document. The last aim was to ease the burden on clients by allowing the multipart representation to be constructed in an order that was convenient for the client.

1.3. Applicability

The applicability of multipart/related representations to AtomPub Collections is restricted to just creating new entries in Media collections. It does not specify the creation or use of a resource that supports a GET to return the multipart/related representation nor does it specify the creation or use of a resource that supports a PUT of a multipart/related representation.

2. Terminology

The terms Collection, Media Resource, Media Link Entry, and Service
Document are used as defined in [RFC5023].

3. Multipart Representations

This section covers the constraints on a multipart/related representation sent to a Media Collection. Section 5 covers how a client discovers that a Media Collection accepts multipart/related representations.

This specification defines a format for multipart/related representations sent to a Media Collection. There may be other specifications that define formats for multipart representations, as such this specification will only cover what constitutes a valid representation for this specification. Follow-on multipart/related specifications will have to define a method by which a server can differentiate which specification is in force, which is beyond the scope of this document.

A multipart/related POST to a Media Collection MUST be a valid multipart/related representation as defined by [RFC2387] and MUST contain two body parts. One body part MUST be an Atom Entry with a media type of 'application/atom+xml' or 'application/atom+xml;type=entry'. The other body part MUST be of a media type acceptable to the collection. The object root MUST be the Media Link Entry. The Media Link Entry atom:content element MUST have a 'src' attribute whose value is the URI of the related media contained in the compound object. The 'src' attribute value MUST be a 'cid:' URI as defined by [RFC2392]. The Content-Type: header of the POST request MUST have a value of "application/atom+xml;type=entry" or "application/atom+xml" for its required type parameter.

4. Server Processing

A successful POST of a multipart/related representation to a Media Collection proceeds as any successful Media Resource creation. The non-Atom object is used to create the Media Resource and the Atom Entry object is used to create the Media Link Entry. Media Resource creation proceeds as defined in Section 9.6 of [RFC5023] with a successful creation returning a 201 status code and a Location: header pointing to the newly created Media Link Entry. All other aspects of [RFC5023] MUST be followed for Media Resource creation including Slug: header processing.

While a multipart/related request replaces three round trips in the typical Media Resource creation scenario, AtomPub has no mechanism to report partial success and the handling of a multipart/related
request by the server MUST be atomic; it should either succeed with a 201 Created status code, or return an error status code.

5. Service Document Extension

An AtomPub service announces that it will accept multipart/related POSTs by an extension to the app:accept element. The ‘alternate’ attribute is a spaced separated list of tokens. The only token defined by this specification is "multipart-related". The presence of the "multipart-related" token in the ‘alternate’ attribute indicates that the collection accepts multipart/related POSTs for the value of the app:accept element. The following example indicates a collection that allows the creation of resources with the Ogg Bitstream Format and will also accept them in multipart form.

```xml
<app:accept alternate="multipart-related">application/ogg</app:accept>
```

The ‘multipart’ attribute is foreign markup and will be ignored by clients that do not understand multipart/related uploads. In addition it permits the full range of the app:accept element to be used. The following indicates that the collection accepts any image media type and will also accept them in multipart form.

```xml
<app:accept alternate="multipart-related">image/*</app:accept>
```

The default is collections do not accept multipart/related representations.

The ‘alternate’ attribute allows clients that are unaware of multipart/related to continue to operate as normal since the alternate attribute is foreign markup. The alternative, which was to put a multipart/related media type in the app:accept element loses flexibility since the ‘type’ parameter to the multipart/related media type accepts only media types and not media ranges.

6. Examples

Here is an example service document that contains two media collections. The first collection accepts multipart/related POSTs for video media types only. The second collection accepts multipart/related POSTs for image/jpeg and image/png media types.
<xml version="1.0" encoding='utf-8'>
<service xmlns="http://www.w3.org/2007/app"
         xmlns:atom="http://www.w3.org/2005/Atom">
  <workspace>
    <atom:title>Media Collections</atom:title>
    <collection href="http://example.org/blog/main">
      <atom:title>Mostly Media</atom:title>
      <accept alternate="multipart-related">video/*</accept>
      <accept alternate="" >text/*</accept>
      <accept >audio/*</accept>
    </collection>
    <collection href="http://example.org/blog/pic">
      <atom:title>Pictures Only</atom:title>
      <accept alternate="multipart-related">image/png</accept>
      <accept alternate="multipart-related">image/gif</accept>
    </collection>
  </workspace>
</service>

Here is an example interaction of a client creating a new Media Resource in the Pictures Only media collection using a png image in a multipart/related representation.
POST /blog/pic HTTP/1.1
Host: example.org
Content-Length: nnnn
content-type: multipart/related;
boundary="===============1605871705=="
    type="application/atom+xml"
slug: The Beach
mime-version: 1.0

Media Post
--===============1605871705==
Content-Type: application/atom+xml; charset="utf-8"
MIME-Version: 1.0

<?xml version="1.0"?>
<entry xmlns="http://www.w3.org/2005/Atom">
    <title>The Beach</title>
    <id>urn:uuid:1225c695-cfb8-4ebb-aaaa-80da344efa6a</id>
    <updated>2005-10-07T17:17:08Z</updated>
    <author><name>Daffy</name></author>
    <summary type="text">
        A nice sunset picture over the water.
    </summary>
    <content src="cid:99334422@example.com" type="image/gif" />
</entry>
--===============1605871705==
Content-Type: image/gif
MIME-Version: 1.0
Content-ID: <99334422@example.com>

GIF89a...binary image data...
--===============1605871705=====

If the request was successful the response might look like:
HTTP/1.1 201 Created
Date: Fri, 7 Oct 2005 17:17:11 GMT
Content-Length: nnn
Content-Type: application/atom+xml;type=entry;charset=utf-8
Location: http://example.org/media/edit/the_beach.atom

<?xml version="1.0"?>
<entry xmlns="http://www.w3.org/2005/Atom">
  <title>The Beach</title>
  <id>urn:uuid:1225c695-cfb8-4ebb-aaaa-80da34e6a5aa</id>
  <updated>2005-10-07T17:17:08Z</updated>
  <author><name>Daffy</name></author>
  <summary type="text">
  A nice sunset picture over the water.
  </summary>
  <content type="image/png" src="http://media.example.org/the_beach.png"/>
  <link rel="edit-media" href="http://media.example.org/edit/the_beach.png"/>
  <link rel="edit" href="http://example.org/media/edit/the_beach.atom"/>
</entry>

7. Security Considerations

The security considerations are the same as delineated in [RFC5023].

8. IANA Considerations

No IANA actions are required by this document.

9. Normative References


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