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J. Reschke
greenbytes
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Hypertext Transfer Protocol (HTTP) Client-Initiated Content-Encoding
draft-reschke-http-cice-02

Abstract

In HTTP, "Content Codings" allow for payload encodings such as for compression or integrity checks. In particular, the "gzip" content coding is widely used for payload data sent in response messages.

Content Codings can be used in request messages as well, however discoverability is not on par with response messages. This document extends the HTTP "Accept-Encoding" header field for use in responses.

Editorial Note (To be removed by RFC Editor before publication)

Distribution of this document is unlimited. Although this is not a work item of the HTTPbis Working Group, comments should be sent to the Hypertext Transfer Protocol (HTTP) mailing list at ietf-http-wg@w3.org [1], which may be joined by sending a message with subject "subscribe" to ietf-http-wg-request@w3.org [2].

Discussions of the HTTPbis Working Group are archived at <http://lists.w3.org/Archives/Public/ietf-http-wg/>.

XML versions and latest edits for this document are available from <http://greenbytes.de/tech/webdav/#draft-reschke-http-cice>.

The changes in this draft are summarized in Appendix A.2.

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1. Introduction

In HTTP, "Content Codings" allow for payload encodings such as for compression or integrity checks ([RFC7231], Section 3.1.2). In particular, the "gzip" content coding is widely used for payload data sent in response messages.

Content Codings can be used in request messages as well, however discoverability is not on par with response messages. This document extends the HTTP "Accept-Encoding" header field ([RFC7231], Section 5.3.4) for use in responses.

2. 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].

This document reuses terminology used in the base HTTP specifications, namely Section 2 of [RFC7230] and Section 3.1.2 of [RFC7231].

3. Extensions to 'Accept-Encoding' Header Field

Section 5.3.4 of [RFC7231] defines "Accept-Encoding" as a request header field only.

This specification extends that definition to allow "Accept-Encoding" as a response header field as well. When present, it indicates what content codings a resource was willing to accept at the time of the response. A field value that only contains "identity" implies that no content codings are supported.

Note that this information is specific to the specific request. The set of supported encodings might be different for other resources on the same server, could also change depending on other aspects of the request (such as the request method), or might change in the future.

Section 6.5.13 of [RFC7231] defines status code 415 (Unsupported Media Type) to apply to both media type and content coding related problems.

Servers that fail a request due to an unsupported content coding SHOULD respond with a 415 status and SHOULD include an "Accept-Encoding" header field in that response, allowing clients to distinguish between content coding related issues and media type related issues. In order to avoid confusion with media type related problems, servers that fail a request with a 415 status for reasons

unrelated to content codings SHOULD NOT include the "Accept-Encoding" header field.

While sending "Accept-Encoding" in a 415 (Unsupported Media Type) response will be the most common use case, it is not restricted to this particular status code. For instance, a server might include it in a 2xx response when a request payload was big enough to justify use of a compression coding, but the client failed to do so.

4. Example

Client submits a POST request using Content-Encoding "compress" ([RFC7231], Section 3.1.2.1):

```
POST /edit/ HTTP/1.1
Host: example.org
Content-Type: application/atom+xml;type=entry
Content-Encoding: compress
```

...compressed payload...

Server rejects request because it only allows the "gzip" content coding:

```
HTTP/1.1 415 Unsupported Media Type
Date: Fri, 09 May 2014 11:43:53 GMT
Accept-Encoding: gzip
Content-Length: 68
Content-Type: text/plain
```

This resource only supports the "gzip" content coding in requests.

...at which point the client can retry the request with the supported "gzip" content coding.

Alternatively, a server that does not support any content codings in requests could answer with:

```
HTTP/1.1 415 Unsupported Media Type
Date: Fri, 09 May 2014 11:43:53 GMT
Accept-Encoding: identity
Content-Length: 61
Content-Type: text/plain
```

This resource does not support content codings in requests.

5. Deployment Considerations

Servers that do not support content codings in requests already are required to fail a request that does use a content coding. Section 6.5.13 of [RFC7231] recommends to use the status code 415 (Unsupported Media Type), so the only change needed is to include the "Accept-Encoding" header field with value "identity" in that response.

Servers that do support some content codings are required to fail requests with unsupported content codings as well. To be compliant with this specification, servers will need to use the status code 415 (Unsupported Media Type) to signal the problem, and will have to include an "Accept-Encoding" header field that enumerates the content codings that are supported. As the set of supported content codings usually is static and small, adding the header field ought to be trivial.

6. Security Considerations

This specification does not introduce any new security considerations beyond those discussed in Section 9 of [RFC7231].

7. IANA Considerations

HTTP header fields are registered within the "Message Headers" registry located at <http://www.iana.org/assignments/message-headers>, as defined by [BCP90].

This document updates the definition of the "Accept-Encoding" header field, so the "Permanent Message Header Field Names" registry shall be updated accordingly:

Header Field Name	Protocol	Status	Reference
Accept-Encoding	http	standard	[RFC7231], Section 5.3.4, extended by Section 3 of this document

8. Acknowledgements

Thanks go to the members of the and HTTPbis Working Group, namely Amos Jeffries, Mark Nottingham, and Ted Hardie.

9. References

9.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.
- [RFC7230] Fielding, R., Ed. and J. Reschke, Ed., "Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing", RFC 7230, June 2014.
- [RFC7231] Fielding, R., Ed. and J. Reschke, Ed., "Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content", RFC 7231, June 2014.

9.2. Informative References

- [BCP90] Klyne, G., Nottingham, M., and J. Mogul, "Registration Procedures for Message Header Fields", BCP 90, RFC 3864, September 2004.

URIs

- [1] <mailto:ietf-http-wg@w3.org>
- [2] <mailto:ietf-http-wg-request@w3.org?subject=subscribe>

Appendix A. Change Log (to be removed by RFC Editor before publication)

A.1. draft-reschke-http-cice-00

Clarified that the information returned in Accept-Encoding is per resource, not per server.

Added some deployment considerations.

Updated HTTP/1.1 references.

A.2. draft-reschke-http-cice-01

Restrict the scope of A-E from "future requests" to "at the time of this request".

Mention use of A-E in responses other than 415.

Recommend not to include A-E in a 415 response unless there was actually a problem related to content coding.

Author's Address

Julian F. Reschke
greenbytes GmbH
Hafenweg 16
Muenster, NW 48155
Germany

EMail: julian.reschke@greenbytes.de
URI: <http://greenbytes.de/tech/webdav/>

