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New protocol elements for HTTP Status Code 451  
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## Abstract

This document recommends additional protocol elements to Hypertext Transfer Protocol (HTTP) status code 451 (defined by [RFC7725](#)).

Discussion of this document was conducted on the Human Rights Protocol Considerations Research Group mailing list <https://www.irtf.org/mailman/listinfo/hrpc> [1], briefly on the HTTPBIS Working Group mailing list [ietf-http-wg@w3.org](mailto:ietf-http-wg@w3.org) [2] and on <https://lists.ghserv.net/mailman/listinfo/statuscode451> [3].

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## [1.](#) Introduction

[RFC7725] was standardized by the IETF in February 2016. It defined HTTP status code 451 - to be used when "a server operator has received a legal demand to deny access to a resource or to a set of resources".

This document attempts to outline protocol recommendations that would help make the status code more useful to users.

## [2.](#) New Protocol Elements

### [2.1.](#) Blocking Authority

In addition to the "blocked-by" header specified in [RFC7725], an HTTP response with status code 451 would benefit from including another "Link" HTTP header field [RFC5988] which has a "rel" parameter whose value is "blocking-authority". It's important to distinguish between the implementer of the block, and the authority that mandated the block in the first place. This is because these two organizations might not be the same - a government (the blocking authority) could force an Internet Service Provider (the implementer of the block) to deny access to a certain resource. There is confusion amongst implementors of [RFC7725] about the meaning of the

term "blocked-by", perhaps in part because of the example given in the RFC [[ERRATA ID-5181](#)] - it would be useful to explicitly include space for both, as both provide essential information about the legal block.

## [2.2.](#) Geographical Scope of Block

HTTP status code 451 is increasingly being used to deny access to resources based on geographical IP. The response should contain a provisional header with geographical scope of block. This scope should correspond to comma-separated list of alpha-2 country codes defined in [[ISO.3166-1](#)]. The rationale for keeping the geographical scope to country-level granularity is that most blocks are mandated by national governments [[IMPL REPORT](#)], [[AUTOMATTIC COUNTRY BLOCK LIST](#)]. In addition, as the serving of this status code is voluntary, there is value in not complicating the specification.

## [3.](#) Security Considerations

This document does not add additional security considerations to [[RFC7725](#)].

## [4.](#) IANA Considerations

The Link Relation Type Registry should be updated with the following entry:

- Relation Name: blocking-authority
- Description: Identifies the authority that has issued the block.
- Reference: this document

In addition, IANA should be updated with the following provisional header:

- Header field name: geo-scope-block
- Applicable protocol: http

- Status: provisional
- Specification document(s): this document

## Acknowledgements

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## [6.](#) References

### [6.1.](#) Normative References

[ERRATA\_ID-5181]

Bortzmeyer, S., "[Technical Errata Reported] [RFC7725](#) (5181)", 2017, <<https://www.rfc-editor.org/errata/eid5181>>.

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International Organization for Standardization, "Codes for the representation of names of countries and their subdivisions - Part 1: Country code", ISO Standard 3166-1:1997 , 1997.

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[RFC5988] Nottingham, M., "Web Linking", [RFC 5988](#), DOI 10.17487/RFC5988, October 2010, <<https://www.rfc-editor.org/info/rfc5988>>.

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## [6.2.](#) Informative References

[AUTOMATTIC\_COUNTRY\_BLOCK\_LIST]  
"Automattic - Country Block List", 2018,  
<<https://transparency.automattic.com/country-block-list/>>.

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[IMPL\_REPORT]  
Abraham, S., Canales, MP., Hall, J., Khrustaleva, O., ten Oever, N., Runnegar, C., and S. Sahib, "Implementation Report for HTTP Status Code 451", 2017,  
<<https://tools.ietf.org/html/draft-451-imp-report-00>>.

## [6.3.](#) URIs

[1] <https://www.irtf.org/mailman/listinfo/hrpc>

[2] <mailto:ietf-http-wg@w3.org>

[3] <https://lists.ghserv.net/mailman/listinfo/statuscode451>

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