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The Geohash HTTP Client Hint
draft-pauly-httpbis-geohash-hint-00

Abstract

This document defines an HTTP Client Hint for sharing a client's rough location using the Geohash format.

Discussion Venues

This note is to be removed before publishing as an RFC.

Source for this draft and an issue tracker can be found at <https://github.com/tfpaully/privacy-proxy>.

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[1.](#) Introduction

HTTP Client Hints [[RFC8942](#)] defines a convention for HTTP headers to communicate optional information from clients to servers as hints. This can be done conditionally based on if a server claims supports for a particular hint.

This document defines a client hint that can be used to send a location that the client wants to use for influencing server behavior. It uses the Geohash algorithm [[GEOHASH](#)] to encode latitude and longitude coordinates into an alphanumeric token that can be truncated to provide a less specific location.

This header is intended to be used to provide rough geolocation hints to servers in situations where the server cannot directly ascertain the location of the client. For example, a client that is accessing a server through a proxy or a VPN might provide a rough hint to a server when looking up information that may vary depending on location.

This document also defines a how forward proxies can use proxy status fields to inform clients about the result of their Geohash hints.

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[1.1.](#) Requirements

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [BCP 14](#) [[RFC2119](#)] [[RFC8174](#)] when, and only when, they appear in all capitals, as shown here.

[2.](#) Geohash Header

The "Sec-CH-Geohash" is an Item Structured Header [[RFC8941](#)]. Its value MUST be a String, and MUST have at least 1 character and no more than 12 characters. The ABNF is:

```
Sec-CH-Geohash = sf-string
```

The string itself is an encoded Geohash, which uses the 32 different characters from the "Geohash alphabet" [[GEOHASH](#)].

The following example shows an encoding of the coordinates 57.64911,10.40744:

```
Sec-CH-Geohash: "u4pruydqqvj"
```

Servers that can provide different content based on Geohash hints SHOULD include the headers in their "Accept-CH" list.

```
Accept-CH: Sec-CH-Geohash
```

Servers also SHOULD indicate for any cacheable content if the Geohash hint will influence the cached content, using the "Vary" header.

```
Vary: Sec-CH-Geohash
```

[3.](#) Server Behavior

Upon receiving a Geohash Client Hint, a server can use the information to influence its behavior in various ways.

The server can use the Geohash to determine the content of HTTP responses, as a replacement for inferring location from client IP addresses.

If the server is acting as a forward proxy, such as a CONNECT proxy, it can use the Geohash to determine an appropriate geo-mapped IP address to use for outbound connections, or a client subnet to present in the EDNS0 Client Subnet extension for DNS queries [[RFC6891](#)] [[RFC7871](#)].

[3.1.](#) Proxy Behavior

If a proxy receiving the Geohash hint cannot respect the location indicated by the hint, it SHOULD include a Proxy-Status header [[I-D.ietf-httpbis-proxy-status](#)] in its response, with the "details" parameter containing the string "invalid geohash".

Proxy-Status: ExampleProxy; details="invalid geohash"

[4.](#) Security Considerations

The use of the Geohash Client Hint MUST use the Sec- header prefix as recommended in [[RFC8942](#)].

Client location can be used to fingerprint and tracker users, so clients MUST have a default policy around when to allow use of the Geohash Client Hint, as well as a default length of Geohash. Shorter, truncated Geohashes provide less specific locality.

Servers MUST NOT use Geohash Client Hints for making security or access-control decisions, as the value can be spoofed by a client. The hint is intended only for use in optimizing behavior.

[5.](#) IANA Considerations

[5.1.](#) HTTP Headers

This document registers the "Sec-CH-Geohash" header in the "Permanent Message Header Field Names" registry

<<https://www.iana.org/assignments/message-headers>>.

Header Field Name	Protocol	Status	Reference
Sec-CH-Geohash	http	exp	This document

6. References

6.1. Normative References

[I-D.ietf-httpbis-proxy-status]

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