

HTTP/1.1 305 and 306 Response Codes

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Abstract

The HTTP/1.1 RFC specifies a response code '305 Use Proxy' which is intended to cause a client to retry the request using a specified proxy server. This functionality is important, but underspecified in the current spec. The spec does not specify for how long or which URLs the redirect applies to, or how proxies can deal with or generate similar responses. This draft proposes a specification for both the 305 response and a new response, "306 Switch Proxy".

Summary

1.0 Response Codes

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2.0 Headers

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[1.0](#) Response Codes

1.1 305 Use Proxy

The 305 is generated by an origin server to indicate that the client, or proxy, should use a proxy to access the requested resource.

The request SHOULD be accompanied by a 'Set-proxy' response header indicating what proxy is to be used. The client will parse the 'Set-proxy' header as defined below to decide how long, for what URLs it should use the specified proxy.

If the 305 response is not accompanied by a 'Set-proxy' header, it MUST be accompanied by a 'Location' header. The 'Location' header will specify a URL to the proxy.

If both headers are present in the response, the client SHOULD use the 'Set-proxy' header only.

1.2 306 Switch Proxy

The 306 response is generated by a proxy server to indicate that the client or proxy should use the information in the accompanying 'Set-proxy' header to choose a proxy for subsequent requests.

The 306 response code MUST be accompanied by the 'Set-proxy' response

header. The client or proxy will parse the 'Set-proxy' header to determine which proxy to use, how long to use it, and for which URLs to use it.

1.3 506 Redirection Failed

The 506 response is returned when a redirection fails or is refused by a proxy or client. If the redirection response included a body, then it SHOULD be included in the 506 response.

2.0 Headers

2.1 'Set-proxy' Response Header

The 'Set-proxy' header is defined as:

```
Set-proxy: "Set-proxy" ":" 1(
    action #(parameters)
)

parameters = #( ( "scope" "=" scopePattern ) |
    ( proxyURI "=" URI ) |
    lifetime )

lifetime = ( "seconds" "=" integer )
    | ( "hits" "=" integer )

action = ( "DIRECT"
    | "IPL"
    | "SET" )
    ";"

scopePattern = "*" | "-" | URIpattern
```

An example header:

```
Set-proxy: SET ; proxyURI = "http://proxy.me.com:8080/",
    scope="http://", seconds=5
```

action

The first item, "action" specifies the type or mode of the change. Possible modes are:

DIRECT

Attempt to connect directly, with no proxy

IPL

Initial Program Load, the client or proxy should attempt to revert back to its default or initial proxy setting. This is meant to instruct a client to re-fetch its proxy configuration, or PAC file. When set, the accompanying scope field MUST be "*" A client receiving this response SHOULD prompt the user for confirmation.

If accompanied by a 'proxyURI' parameter, a proxy or client MAY use the value as a URL containing a configuration to retrieve. If a client does so, it MUST prompt the user for confirmation.

SET

Set to parameter "proxyURI". The client should use the URL specified for "proxyURI" as the proxy. If the SET mode is specified, the parameter, "proxyURI", MUST be present.

Scope

Scope refers to a URI prefix pattern that specifies which URIs are subject to this header setting. URIs should be matched against the scope with this rule :

The scope "*" means all requests

The scope "-" means this EXACT URL ONLY

Otherwise, the URL is compared with the scope after it is:

- * truncated to the length of the scope
- * domain names are set in reverse order.

For example:

scope = "http://com.foo.www/services/"

URL "http://www.foo.com/services/express/2day.html"

transformed: "http://com.foo.www/services/express/" (MATCH)

Another example:

scope = "http://com.ups/" URL "http://www.ups.com/" (MATCH)

URL "http://www.fedex.com/" (FAIL)

The lifetime parameter specifies how long the specified proxy should be used. If lifetime is specified as "seconds" then the proxy setting remains in effect for 'integer' seconds. If lifetime is specified in 'hits' then the proxy setting remains in effect for 'integer' transactions.

2.2 Location Header

In the original HTTP/1.1 spec, the 'Location' header was used to indicate the proxy setting. Its use is DEPRECATED by the 'Set-proxy' header in the context of a 305 response. All new implementations MUST send the Set-proxy header. Implementations MAY send the 'Location' header so as to allow backward compatibility.

If the 'Location' header is specified, it should contain a URI of the proxy. If the Set-proxy header is not specified, the client should use this proxy for just one request, and only for the originally requested exact URL.

3.0 Methods

A client or proxy receiving a 305 or 306, should use the OPTIONS method to determine if the server or proxy it is talking to actually is an HTTP/1.1 server supporting 305 and 306 responses.

4.0 Operational Constraints

- * Both the 305 and 306 response codes are HOP by HOP. A proxy server MUST not forward a 305 or 306 response code (unless it generated the 306).
- * A webserver MUST NOT send a 306 response under any circumstances
- * A proxy server MUST NOT generate a 305 response.
- * A client or proxy SHOULD NOT accept a 306 from a proxy that it learned of via a 305 response code.
- * A client or proxy MAY maintain state and allow a lifetime to extend beyond a session or restart.
- * A 'Set-proxy: IPL' SHOULD override any previous 'Set-proxy' header.
- * A 305 or 306 response MAY contain a body containing an explanation of the redirect for clients which do not understand the redirect
- * In the absence of any parameter, the following defaults should be used:

lifetime = this transaction only
scope = this exact URL only

- * When receiving a 305 response, the client or proxy will enforce the following rule with respect to the scope.

The scope specified must be more restrictive than the transformed URL in question.

Example: (in order of restrictiveness)

<http://com.ups.www/services/express/1day.html> (most restrictive)
<http://com.ups.www/> (all requests for only www.ups.com)
<http://com.ups> (all requests for ups.com)
http:// (for all http requests)

* (all requests)

If the scope returned with a 305 response is less restrictive than the requested URL, the client **MUST** prompt the user for confirmation before accepting the new proxy setting.

- * Since HTTP/1.0 proxies may unknowingly forward a 305 or 306 response code that was generated maliciously or in good faith, the client must attempt to ascertain if the proxy with which it is directly communicating is HTTP/1.1 and if it supports the 'Set-proxy' header. To determine this, the client or proxy should use the OPTIONS method to make a request check for this feature.

Security Considerations

Great care should be taken when implementing client side actions based on the 305 or 306. Since older proxies may unknowingly forward either of these responses, clients should be prepared to check the validity.

- * Please read the section 'Operational Constraints'
- * A client or proxy **MUST NOT** accept a 305 response from a proxy.
- * A client or proxy **MUST NOT** accept a 306 response from an origin server.
- * When receiving a 306 response from a proxy, the client **MUST** verify that the proxy supports the 306 response with a METHODS request.

[5.0](#) Notes

Further specification is needed to define exactly how to use METHODS, or another mechanism to determine if set-proxy is supported.

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