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Bootstrapping WebSockets with HTTP/3
draft-ietf-httpbis-h3-websockets-03

Abstract

The mechanism for running the WebSocket Protocol over a single stream of an HTTP/2 connection is equally applicable to HTTP/3, but the HTTP version-specific details need to be specified. This document describes how the mechanism is adapted for HTTP/3.

About This Document

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

Status information for this document may be found at <https://datatracker.ietf.org/doc/draft-ietf-httpbis-h3-websockets/>.

Discussion of this document takes place on the HTTP Working Group mailing list (mailto:ietf-http-wg@w3.org), which is archived at <https://lists.w3.org/Archives/Public/ietf-http-wg/>. Working Group information can be found at <https://httpwg.org/>.

Source for this draft and an issue tracker can be found at <https://github.com/httpwg/http-extensions/labels/h3-websockets>.

Status of This Memo

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[1.](#) Introduction

"Bootstrapping WebSockets with HTTP/2" [[RFC8441](#)] defines an extension to HTTP/2 [[HTTP2](#)] which is also useful in HTTP/3 [[HTTP3](#)]. This extension makes use of an HTTP/2 setting. [Appendix A.3](#) of [[HTTP3](#)] gives some guidance on what changes (if any) are appropriate when porting settings from HTTP/2 to HTTP/3.

[2.](#) Conventions and Definitions

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.

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[3.](#) Websockets Upgrade over HTTP/3

[RFC8441] defines a mechanism for running the WebSocket Protocol [RFC6455] over a single stream of an HTTP/2 connection. It defines an Extended CONNECT method which specifies a new ":protocol" pseudo-header field and new semantics for the ":path" and ":authority" pseudo-header fields. It also defines a new HTTP/2 setting sent by a server to allow the client to use Extended CONNECT.

The semantics of the pseudo-header fields and setting are identical to those in HTTP/2 as defined [RFC8441]. [Appendix A.3](#) of [HTTP3] requires that HTTP/3 settings be registered separately for HTTP/3. The SETTINGS_ENABLE_CONNECT_PROTOCOL value is 0x08 (decimal 8), as in HTTP/2.

If a server advertises support for Extended CONNECT but receives an Extended CONNECT request with a ":protocol" value that is unknown or is not supported, the server SHOULD respond to the request with a 501 (Not Implemented) status code (Section 15.6.2 of [HTTP]). A server MAY provide more information via a Problem Details response [RFC7807].

The HTTP/3 stream closure is also analogous to the TCP connection closure of [RFC6455]. Orderly TCP-level closures are represented as a FIN bit on the stream (Section 4.2 of [HTTP3]). RST exceptions are represented with a stream error (Section 8 of [HTTP3]) of type H3_REQUEST_CANCELLED (Section 8.1 of [HTTP3]).

[4.](#) Security Considerations

This document introduces no new security considerations beyond those discussed in [RFC8441].

[5.](#) IANA Considerations

This document registers a new setting in the "HTTP/3 Settings"

registry (Section 11.2.2 of [[HTTP3](#)]).

Value: 0x08

Setting Name: SETTINGS_ENABLE_CONNECT_PROTOCOL

Default: 0

Status: permanent

Specification: This Document

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Notes:

[6](#). Normative References

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