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## **Reserving the clear ALPN Protocol ID**

### **Abstract**

HTTP Alternative Services (Alt-Svc) are identified by a tuple of Application-Protocol Layer Negotiation (ALPN) protocol identifier, a host and a port. The wire format for Alt-Svc is defined in ABNF and encodes this tuple or the keyword "clear", which has a special meaning. This memo reserves the ALPN protocol identifier "clear" to reduce the chances of accidental aliasing with the "clear" keyword.

### **Note to Readers**

*RFC EDITOR: please remove this section before publication*

Source code and issues list for this draft can be found at <https://github.com/LPardue/draft-pardue-httpbis-dont-be-clear>.

### **Status of This Memo**

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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## 1. Introduction

HTTP Alternative Services (Alt-Svc) [[ALTSVC](#)] are identified by a tuple of Application-Protocol Layer Negotiation (ALPN) [[ALPN](#)] protocol identifier, a host and a port. The wire format for Alt-Svc is defined in ABNF and encodes this tuple or the keyword "clear", which has a special meaning. This memo reserves the ALPN protocol identifier "clear" to reduce the chances of accidental aliasing with the "clear" keyword.

### 1.1. 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.

## 2. Aliasing and Avoidance

[[ALTSVC](#)] Section 3 defines the Alt-Svc header field using ABNF. It requires a custom parser, which introduces a possibility for custom implementation errors. The Alt-Svc header field value can either be the keyword "clear" - a special value that invalidates cached alternative services, or a list of alt-value, that includes an encoded ALPN protocol identifier [[ALPN](#)]. There is a chance that someone unwittingly defines the ALPN protocol identifier "clear" for genuine purposes but is unaware of the use of protocol identifiers

in Alternative Services. This could trigger Alt-Svc parser errors that might lead to confusion between the keyword with the protocol identifier use. Since the "clear" keyword has special meaning, confusion might lead to detrimental effects.

To prevent unintended aliasing, this document registers the "clear" ALPN protocol identifier. It relates to no actual application-layer protocol, effectively reserving the code point and preventing any unintended aliasing.

### 3. Security Considerations

Broken Alt-Svc header field parsers might confuse a "clear" keyword with a "clear" ALPN protocol identifier. This could invalidate Alternative Service cache state but a conformant client should fall back safely as described in Section 2.4 of [ALTSVC].

### 4. IANA Considerations

#### 4.1. Registration of "clear" Identification String

This document creates a new registration, "clear", in the "Application-Layer Protocol Negotiation (ALPN) Protocol IDs" registry established in [ALPN].

The "clear" string is a reserved value that does not identify any protocol:

**Protocol:** Reserved

**Identification Sequence:** 0x63 0x6C 0x65 0x61 0x72 ("clear")

**Specification:** This document

### 5. Normative References

- [ALPN] Friedl, S., Popov, A., Langley, A., and E. Stephan, "Transport Layer Security (TLS) Application-Layer Protocol Negotiation Extension", RFC 7301, DOI 10.17487/RFC7301, July 2014, <<https://www.rfc-editor.org/rfc/rfc7301>>.
- [ALTSVC] Nottingham, M., McManus, P., and J. Reschke, "HTTP Alternative Services", RFC 7838, DOI 10.17487/RFC7838, April 2016, <<https://www.rfc-editor.org/rfc/rfc7838>>.
- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <<https://www.rfc-editor.org/rfc/rfc2119>>.

**[RFC8174]**

Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <<https://www.rfc-editor.org/rfc/rfc8174>>.

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