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CoAP Payload-Length Option Extension
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Abstract

This document defines an extension to the Constrained Application Protocol (CoAP) to add one new option: Payload-Length, which is used to indicate the length of the payload of the message.

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[1.](#) Introduction

This specification adds one new option to the Constrained Application Protocol (CoAP): Payload-Length.

[1.1.](#) Motivation

If a CoAP message is transported through UDP, the message length can be obtained from the UDP header. But not all transport mechanisms provide an unambiguous length of the CoAP message. For example, in industry field, there are some data transport protocols, like RS232, RS422, RS485, which don't provide message length indication. For these cases, an indication of the payload length of the message is needed in CoAP message level.

TBD: how about CAN bus protocol, USB 2.0?

With this option, it will be easier for the receiver to extract the payload part from the whole message.

Another benefit to have this option is to check the integrity of the message length.

[1.2.](#) Justification

To indicate the payload length, another alternative is to use encoding method as specified in [section 3.2 of \[RFC7252\]](#), but it is better to use an Option for this.

Reason is that, payload length is an optional feature, and in most of the cases, it is not necessary to be indicated. If we use encoding method, every implementation needs to support this encoding for the

payload, not only for the options. If we use an Option for this, it is optional, and it can be optionally implemented where necessary.

1.3. Terminology

The terms CoAP Server and CoAP Client are used synonymously to Server and Client as specified in the terminology section of [\[RFC7252\]](#).

1.4. Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [\[RFC2119\]](#).

2. Option Definition

Type	C	U	N	R	Name	Format	Length	Default
TBD	-	-	-	-	Payload-Length	uint	0-2 B	(none)

If this option is present, the value of this option is an unsigned integer giving the length of the payload of the message. Note that this integer can be zero for a zero-length payload, which can in turn be represented by a zero-length option value.

The Payload-Length option does not have a default value, so in case of its absence the receiver MUST determine the payload length through other means. This is to keep backward compatibility. If the option is absent, the payload can have any size, and the payload length needs to be determined as it is currently done for UDP.

The minimum payload length is 0, and the maximum payload length is $2^{16}-1=65535$.

In case that the transport layer does not provide message length indication, the Payload-Length option SHOULD be included in the CoAP message. Otherwise, it MAY be included.

This options can be used both in the request and response.

This option MUST NOT occur more than once.

3. Example

In the example below, in the GET request, the payload is empty, so the Payload-Length option has a zero-length option payload. In the response, the payload is "22.3 C", and the Payload-Length is 6.

```

Client  Server
|      |
|      |
|      |
+----->|   Header: GET (T=CON, Code=1, MID=0x7d38)
| GET   |   Token: 0x53
|      |   Uri-Path: "temperature"
|      |   Payload-Length: 0
|      |
|<- - -+|   Header: (T=ACK, Code=0, MID=0x7d38)
|      |
|      |
|<-----+|   Header: 2.05 Content (T=CON, Code=69, MID=0xad7b)
| 2.05  |   Token: 0x53
|      |   Payload: "22.3 C"
|      |   Payload-Length: 6
|      |
|      |
+- - ->|   Header: (T=ACK, Code=0, MID=0xad7b)
|      |
|      |

```

4. IANA Considerations

The IANA is requested to add the following option number entries:

Number	Name	Reference
TBD	Payload-Length	Section 2 of this document

5. Security Considerations

The Payload-Length option defined in this document presents no security considerations beyond those in [Section 10](#) of the base CoAP specification [[RFC7252](#)].

6. Acknowledgements

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7. Normative References

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