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**CBOR-encoded Form Data**  
**draft-hartke-t2trg-cbor-forms-00**

Abstract

This document describes a media type to encode form data in CBOR format.

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**[1.](#) Introduction**

This document describes a media type to encode form data in CBOR [[RFC7049](#)] format, similar to the well-known "application/x-www-form-urlencoded" [[W3C.REC-html5-20141028](#)] and "multipart/form-data" [[RFC7578](#)] media types. The use of a compact, binary representation format enables the processing of form submissions on systems with very limited memory, processor power, and instruction sets [[RFC7228](#)].

**[1.1.](#) Terminology**

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 [[RFC2119](#)].

**[2.](#) Form Body Syntax**

CoRAL [[I-D.hartke-t2trg-coral](#)] provides a representation format for forms that is suitable for constrained systems. However, it does not provide a syntax for specifying the fields of a form in the form body and leaves this task to other specifications. This section defines such a syntax.

A form body in this syntax consists of one or more form fields. Each form field consists of a field name and a type. The field name is an arbitrary text string. The field type is a text string that matches the ABNF rule "type" from [[I-D.greevenbosch-appsawg-cbor-cddl](#)].

Form fields can be combined with two combinators, ALL and ANY. The ALL combinator indicates that the form submitter MUST submit all the members of the expression. The ANY combinator indicates that the form submitter MUST submit exactly one member of the expression.



Using CDDL notation [[I-D.greevenbosch-appsawg-cbor-cddl](#)], the form body syntax can be expressed as follows:

```
form-body = expr
expr      = all-expr / any-expr / field
all-expr  = [1, +expr]
any-expr  = [2, +expr]
field     = [3, field-name, field-type]
field-name = text
field-type = text
```

Example:

```
[1, [3, "http://xmlns.com/foaf/0.1/firstName", "text"],
     [3, "http://xmlns.com/foaf/0.1/lastName", "text"],
     [3, "http://xmlns.com/foaf/0.1/age", "uint"]]
```

(using the FOAF [[FOAF](#)] vocabulary to indicate the semantics of the individual form fields to an automated agent).

### 3. Form Data Syntax

Form data is serialized as a CBOR table where each entry consists of a form field name and a value. The field name **MUST** be the name of one of the fields defined in the form body. The value **MUST** be a CBOR data item that matches the type specification in the field definition. The media type is "application/form-data+cbor".

Using CDDL notation [[I-D.greevenbosch-appsawg-cbor-cddl](#)], the form data syntax can be expressed as follows:

```
form-data = {*field-name => field-value}
field-name = text
field-value = any
```

Example:

```
{"http://xmlns.com/foaf/0.1/firstName": "Jane",
 "http://xmlns.com/foaf/0.1/lastName": "Doe",
 "http://xmlns.com/foaf/0.1/age": 32}
```

### 4. Security Considerations

TODD.



## 5. IANA Considerations

### 5.1. Media Type

This document registers the media type "application/form-data+cbor" in the "Media Types" registry.

TODO.

### 5.2. CoAP Content-Format

This document registers a content format for the "application/form-data+cbor" media type in the "CoAP Content-Formats" registry.

- o Media Type: application/form-data+cbor
- Encoding: -
- ID: 61
- Reference: [RFCXXXX]

## 6. References

### 6.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), DOI 10.17487/RFC2119, March 1997, <<http://www.rfc-editor.org/info/rfc2119>>.
- [RFC7049] Bormann, C. and P. Hoffman, "Concise Binary Object Representation (CBOR)", [RFC 7049](#), DOI 10.17487/RFC7049, October 2013, <<http://www.rfc-editor.org/info/rfc7049>>.

### 6.2. Informative References

- [FOAF] Brickley, D. and L. Miller, "FOAF Vocabulary Specification 0.99", January 2014, <<http://xmlns.com/foaf/spec/20140114.html>>.
- [I-D.greevenbosch-appsawg-cbor-cddl] Vigano, C. and H. Birkholz, "CBOR data definition language (CDDL): a notational convention to express CBOR data structures", [draft-greevenbosch-appsawg-cbor-cddl-09](#) (work in progress), September 2016.
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- [RFC7228] Bormann, C., Ersue, M., and A. Keranen, "Terminology for Constrained-Node Networks", [RFC 7228](#), DOI 10.17487/RFC7228, May 2014, <<http://www.rfc-editor.org/info/rfc7228>>.
- [RFC7578] Masinter, L., "Returning Values from Forms: multipart/form-data", [RFC 7578](#), DOI 10.17487/RFC7578, July 2015, <<http://www.rfc-editor.org/info/rfc7578>>.
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