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CoRE Target Attributes Registry

Abstract

The Constrained RESTful Environments (CoRE) specifications apply Web technologies to constrained environments. One important such technology is Web Linking (RFC 8288), which CoRE specifications use as the basis for a number of discovery protocols, such as the Link Format (RFC 6690) in CoAP's Resource Discovery Protocol (Section 7.2 of RFC7252) and the Resource Directory (RD, RFC 9176).

Web Links can have target attributes, the names of which are not generally coordinated by the Web Linking specification (Section 2.2 of RFC 8288). This document introduces an IANA registry for coordinating names of target attributes when used in CoRE. It updates the RD Parameters IANA Registry created by RFC 9176 to coordinate with this registry.

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-core-target-attr/.

Discussion of this document takes place on the core Working Group mailing list (mailto:core@ietf.org), which is archived at https://mailarchive.ietf.org/arch/browse/core/. Subscribe at https://www.ietf.org/mailman/listinfo/core/.

Source for this draft and an issue tracker can be found at https://github.com/core-wg/core-target-attr.

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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This Internet-Draft will expire on 13 April 2024.

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1. Introduction

The Constrained RESTful Environments (CoRE) specifications apply Web technologies to constrained environments. One important such technology is Web Linking [RFC8288], which CoRE specifications use as the basis for a number of discovery protocols, such as the Link Format [RFC6690] in CoAP's Resource Discovery Protocol (Section 7.2 of [RFC7252]) and the Resource Directory [RFC9176].

Web Links can have target attributes. The original Web Linking specification (Section 3 of [RFC5988]) did not attempt to coordinate names of target attributes except for providing common target

attributes for use in the Link HTTP header. The current revision of that specification clarifies (Section 2.2 of [RFC8288]):

> This specification does not attempt to coordinate the name of target attributes, their cardinality, or use. Those creating and maintaining serialisations **SHOULD** coordinate their target attributes to avoid conflicts in semantics or syntax and **MAY** define their own registries of target attributes.

This document introduces an IANA registry for coordinating names of target attributes when used in CoRE, with specific instructions for the Designated Expert for this registry (Section 2.1). It updates the RD Parameters IANA Registry created by [RFC9176] to coordinate with this registry.

With a registry now available, registration of target attributes is strongly encouraged. The incentive is that an unregistered attribute name might be registered with a different meaning at any time.

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 BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

2. IANA Considerations

This specification creates a new Target Attributes registry in the "Constrained RESTful Environments (CoRE) Parameters" registry group [IANA.core-parameters], with the policy "Expert Review" (Section 4.5 of [BCP26]).

2.1. Instructions for the Designated Expert

The expert is requested to guide the registrant towards reasonably short target attribute names where the shortness will help conserve resources in constrained systems, but also to be frugal in the allocation of very short names, keeping them in reserve for applications that are likely to enjoy wide use and can make good use of their shortness.

The expert is also instructed to direct the registrant to provide a specification (Section 4.6 of [BCP26]), but can make exceptions, for instance when a specification is not available at the time of registration but is likely forthcoming.

Any questions or issues that might interest a wider audience might be raised by the expert on the core-parameters@ietf.org mailing list

for a time-limited discussion. This might include security considerations, or opportunities for orchestration, e.g., when different names with similar intent are being or could be registered.

If the expert becomes aware of target attributes that are deployed and in use, they may also initiate a registration on their own if they deem such a registration can avert potential future collisions.

2.2. Structure of Entries

Each entry in the registry must include:

Attribute Name:
a lower case ASCII [STD80] string that starts with a letter and can contain digits and hyphen-minus characters afterward ([a-z][-a-z0-9]*). (Note that [RFC8288] requires target attribute names to be interpreted in a case-insensitive way; the restriction to lower case here ensures that they are registered in a predictable form).

Brief description:
a brief description

Change Controller:
see Section 2.3 of [BCP26]

Reference:
a reference document that provides a description of the target attribute, including the semantics for when the target attribute appears more than once in a link.

2.3. Initial Entries

Initial entries in this registry are listed in Table 1.

Attribute Name	Brief description	Change Controller	Reference
href	reserved (not useful as target attribute name)	IETF	[RFC6690]
anchor	reserved (not useful as target attribute name)	IETF	[RFC6690]
rel	reserved (not useful as target attribute name)	IETF	[RFC6690]
rev	reserved (not useful as target attribute name)	IETF	[RFC6690]
hreflang	(Web Linking)	IETF	[RFC8288]
media	(Web Linking)	IETF	[RFC8288]

Attribute Name	Brief description	Change Controller	Reference
title	(Web Linking)	IETF	[RFC8288]
type	(Web Linking)	IETF	[RFC8288]
rt	resource type	IETF	Section 3.1 of [RFC6690]
if	interface description	IETF	Section 3.2 of [RFC6690]
sz	maximum size estimate	IETF	Section 3.3 of [RFC6690]
ct	Content-Format hint	IETF	Section 7.2.1 of [RFC7252]
obs	observable resource	IETF	Section 6 of [RFC7641]
hct	HTTP-CoAP URI mapping template	IETF	Section 5.5 of [RFC8075]
osc	hint: resource only accessible using OSCORE	IETF	Section 9 of [RFC8613]
ep	Endpoint Name (with rt="core.rd-ep")	IETF	Section 9.3 of [RFC9176]
d	Sector (with rt="core.rd-ep")	IETF	Section 9.3 of [RFC9176]
base	Registration Base URI (with rt="core.rd-ep")	IETF	Section 9.3 of [RFC9176]
et	Endpoint Type (with rt="core.rd-ep")	IETF	Section 9.3 of [RFC9176]

Table 1: Initial Entries in the Target Attributes Registry

A number of names are reserved as they are used for parameters in links other than target attributes. A further set of target attributes is predefined in [RFC8288] and is imported into this registry.

Section 9.3 of [RFC9176] created the "RD Parameters" IANA registry. This document requests IANA to add the following note to that registry:

> Note: In accordance with [this document], all entries with the "A" flag set, including new ones, **MUST** also be registered in the "Target Attributes" registry [IANA.core-parameters].

3. Security considerations

The security considerations of [RFC8288] apply, as do those of the discovery specifications [RFC6690], [RFC7252], and [RFC9176].

4. References

4.1. Normative References

[BCP26] Cotton, M., Leiba, B., and T. Narten, "Guidelines for Writing an IANA Considerations Section in RFCs", BCP 26, RFC 8126, DOI 10.17487/RFC8126, June 2017, <https://www.rfc-editor.org/rfc/rfc8126>.

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[STD80] Cerf, V., "ASCII format for network interchange", STD 80, RFC 20, DOI 10.17487/RFC0020, October 1969, <https://www.rfc-editor.org/rfc/rfc20>.

4.2. Informative References

[RFC5988] Nottingham, M., "Web Linking", RFC 5988, DOI 10.17487/RFC5988, October 2010, <https://www.rfc-editor.org/rfc/rfc5988>.

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[RFC8075] Castellani, A., Loreto, S., Rahman, A., Fossati, T., and E. Dijk, "Guidelines for Mapping Implementations: HTTP to the Constrained Application Protocol (CoAP)", RFC 8075,

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[RFC8613] Selander, G., Mattsson, J., Palombini, F., and L. Seitz, "Object Security for Constrained RESTful Environments (OSCORE)", RFC 8613, DOI 10.17487/RFC8613, July 2019, <https://www.rfc-editor.org/rfc/rfc8613>.

[RFC9176] Amsüss, C., Ed., Shelby, Z., Koster, M., Bormann, C., and P. van der Stok, "Constrained RESTful Environments (CoRE) Resource Directory", RFC 9176, DOI 10.17487/RFC9176, April 2022, <https://www.rfc-editor.org/rfc/rfc9176>.

Acknowledgements

The CoRE WG had been discussing setting up a registry for target attributes since the final touches were made on [RFC6690]. The update of the Web Linking specification to [RFC8288] provided the formal setting, but it took until Jaime Jiménez provided the set of initial registrations to generate a first version of this specification. The current version addresses additional input and working group last call comments by Esko Dijk, Marco Tiloca, Thomas Fossati, and Mohamed Boucadair, as well as area director review comments from Rob Wilton.

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