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The VERBATIM Digest Algorithm for DS records
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Abstract

The VERBATIM DS Digest is defined as a direct copy of the input data without any hashing.

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Internet-Draft

ds-digest-verbatim

September 2020

Table of Contents

1.	Introduction	2
2.	Document work	2
3.	Conventions and Definitions	3
4.	Implementation	3
4.1.	Authoritative server changes	3
4.2.	Validating resolver changes	3
4.3.	Stub resolver changes	3
4.4.	Zone validator changes	3
4.5.	Domain registry changes	3
5.	Security Considerations	3
6.	Implementation Status	4
7.	IANA Considerations	4
8.	Acknowledgements	4
9.	Normative References	4
10.	Informative References	4
Appendix A.	Document history	4
	Author's Address	4

[1.](#) Introduction

The currently defined DS Digest Algorithms take the input data and hash it into a fixed-length form using well defined hashing algorithms (several SHA variants, and one mostly unused GOST algorithm). That hashing operation makes any data inside the (C)DNSKEY record unreachable until that data is retrieved from the child zone. Thus, DS records do not actually convey information; they merely verify information that can be retrieved elsewhere.

A DS record set can only answer the question 'this data that I have here, do you recognise it?'. For several imagined use cases for signed data at the parent, this might not be sufficient.

This document introduces a new Digest Algorithm, proposed name VERBATIM (alternative suggestion: NULL). The VERBATIM Digest Algorithm takes the input data (DNSKEY owner name | DNSKEY RDATA per [section 5.1.4 of \[RFC4034\]](#)) and copies it unmodified into the DS Digest field.

[2.](#) Document work

This document lives on GitHub (<https://github.com/PowerDNS/draft->

[dnsop-ds-digest-verbatim](#)); proposed text and editorial changes are very much welcomed there, but any functional changes should always first be discussed on the IETF DNSOP WG mailing list.

[3.](#) 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.

[4.](#) Implementation

The subsection titles in this section attempt to follow the terminology from [[RFC8499](#)] in as far as it has suitable terms. 'Implementation' is understood to mean both 'code changes' and 'operational changes' here.

[4.1.](#) Authoritative server changes

None, except where related tooling emits DS records to the administrator.

[4.2.](#) Validating resolver changes

Validating resolvers are encouraged to implement the VERBATIM Digest Algorithm.

[4.3.](#) Stub resolver changes

This specification defines no changes to query processing in stub resolvers.

[4.4.](#) Zone validator changes

Zone validators are encouraged to recognise the VERBATIM Digest Algorithm and, where possible, verify it against the child zone's DNSKEY, if it has any for the given algorithm.

[4.5.](#) Domain registry changes

Domain registries are encouraged to allow VERBATIM digests at their user's request. However, a likely outcome is that domain registries will only allow the VERBATIM digest for DNSSEC algorithms whose specifications call for use of the VERBATIM digest.

[5.](#) Security Considerations

FIXME

van Dijk

Expires 29 March 2021

[Page 3]

Internet-Draft

ds-digest-verbatim

September 2020

[6.](#) Implementation Status

[RFC Editor: please remove this section before publication]

[7.](#) IANA Considerations

This document updates the IANA registry "Delegation Signer (DS) Resource Record (RR) Type Digest Algorithms" at <https://www.iana.org/assignments/ds-rr-types/ds-rr-types.xhtml> (<https://www.iana.org/assignments/ds-rr-types/ds-rr-types.xhtml>)

The following entry is added to the registry:

+-----+-----+	
Value	TBD
Description	VERBATIM
Status	OPTIONAL
Reference	RFC TBD2
+-----+-----+	

[8.](#) Acknowledgements

[9.](#) Normative References

- [RFC4034] Arends, R., Austein, R., Larson, M., Massey, D., and S. Rose, "Resource Records for the DNS Security Extensions", [RFC 4034](#), DOI 10.17487/RFC4034, March 2005, <<https://www.rfc-editor.org/info/rfc4034>>.

[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/info/rfc2119>>.

10. Informative References

[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/info/rfc8174>>.

[RFC8499] Hoffman, P., Sullivan, A., and K. Fujiwara, "DNS Terminology", [BCP 219](#), [RFC 8499](#), DOI 10.17487/RFC8499, January 2019, <<https://www.rfc-editor.org/info/rfc8499>>.

Appendix A. Document history

Author's Address

van Dijk

Expires 29 March 2021

[Page 4]

Internet-Draft

ds-digest-verbatim

September 2020

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