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DNS EDE option for rate-limited queries
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Abstract

This memo documents EDNS Extended DNS Errors INFO-CODE values for rate-limited and over-quota conditions.

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1. Introduction

DNS nameservers return EDNS Extended DNS Errors options [RFC8914] in query responses to provide extra details about the result of DNS query processing. This memo documents EDNS Extended DNS Errors INFO-CODE values to be returned when rate-limiting is performed, or an over-quota condition is reached.

2. "Rate Limited" EDE INFO-CODE

When DNS queries or transactions are rate-limited, e.g., due to the effect of DNS Response Rate Limiting [RRL] or client IP-address based rate limiting, nameservers may return RCODE=REFUSED or return truncated responses possibly with an empty answer section depending on the implementation. In such responses, nameservers MAY include an EDNS Extended DNS Error option with the INFO-CODE set to "Rate Limited" as provided in Section 6.

3. "Over Quota" EDE INFO-CODE

When DNS queries or transactions cause an over-quota condition such as when the count of DNS UPDATES allowed for a customer have breached a limit, nameservers may return failures. In such responses, nameservers MAY include an EDNS Extended DNS Error option with the INFO-CODE set to "Over Quota" as provided in Section 6.

4. Requirements notation

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

5. Security considerations

There are no security considerations.

6. IANA considerations

IANA has allocated the following code points in the "Extended DNS Error Codes" registry in the "Domain Name System (DNS) Parameters" registry group.

INFO-CODE	Purpose	Reference
31	Rate Limited	See Section 2.
32	Over Quota	See Section 3.

Table 1

7. References

7.1. 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, <<https://www.rfc-editor.org/info/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/info/rfc8174>>.
- [RFC8914] Kumari, W., Hunt, E., Arends, R., Hardaker, W., and D. Lawrence, "Extended DNS Errors", RFC 8914, DOI 10.17487/RFC8914, October 2020, <<https://www.rfc-editor.org/info/rfc8914>>.

7.2. Informative references

- [RRL] Vixie, P. and V. Schryver, "DNS Response Rate Limiting (DNS RRL)", 2012, <<https://ftp.isc.org/isc/pubs/tn/isc-tn-2012-1.txt>>.

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