

Extended Error
Conclusions and Non-Conclusions
from WGLC #2

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Overview

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- ▶ Conclusions that weren't conclusions

Registry changes

- ▶ Only one issue was easily resolved
- ▶ Registry ranges simplified to:

0	-	49151	First come, first served
49152	-	65280	Private use

DNS UDP overflow

- ▶ Overflow happens all the time (e.g. glue)
- ▶ Normally the *TC bit* signals overflow
 - ▶ Some **important** information was excluded
 - ▶ Hint to resolver hinted to **retry over TCP**

EDE overflow

- ▶ EDE can cause overflow too (*of course*)
 - ▶ But: more important info shouldn't be dropped!
 - ▶ Therefore: EDE options should be dropped first
 - ▶ Set the TC bit?

EDE overflow

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 - ▶ Therefore: EDE options should be dropped first
 - ▶ Set the TC bit?
- ▶ Problems
 - ▶ Setting TC seems extreme
 - ▶ EDE is only supplemental
 - ▶ Retrying over TCP seems extreme
 - ▶ The EDE information may be UDP specific!

A New Idea is Floated

- ▶ Suggestion from Viktor Dukhovni's colleague:
 - ▶ add a new EDNS0 bit
 - ▶ use this **instead** of the TC bit
 - ▶ "non-essential diagnostic information was left out"

Overflow Options

- ▶ ~~Don't specify anything~~
- ▶ Drop EDE first
 - ▶ Set the TC bit?
 - ▶ Don't set the TC bit?
 - ▶ Create a new bit?

Forwarding Handling

- ▶ Multiple LC comments stated:
 - ▶ we need to handle forwarding!
- ▶ Discussions with multiple people lead to some options

Forwarding Options (1/2)

(All options listed for completeness)

1. Mandate: ~~no forwarding~~ of EDE happens
2. Mandate: resolver/forwarders should simply **copy forward**
3. MAY **copy and adjust** the extra-text field
 - ▶ adding additional information
 - ▶ e.g., where it came from.
 - ▶ (unlikely to be popular)

Forwarding Options (2/2)

4. Could add tracing elements to the packet
 - 4.1 Add a single source by the EDE generating entity
 - 4.2 ~~Add multiple sources (e.g. traceroute)~~
 - 4.3 RECOMMEND adding source indication to extra-info
5. ~~Add a new EDE code for supplemental information.~~
 - ▶ another “multiple source” mechanism
 - ▶ IE: this records details of EDEs above it
6. Make the document experimental
 - ▶ deal with it after deployment experience
7. Your idea here!!

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Adding a source field

```

      0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
0: |                                OPTION-CODE                                |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
2: |                                OPTION-LENGTH                               |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
4: | INFO-CODE                                                                |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
6: | SRC_LENGTH                                                                |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
8: / SRC_FIELD (which can be zero length)          *** NEW ***          /
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
10: / EXTRA-TEXT (can be zero length)...          /
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
```

SRC_{FIELD} Options

1. NSID
2. hostname (fqdn)
3. ip address
4. URL (eg from doh)
5. ip:port
6. cert subject name
7. ...

Source Field Options

1. **NSID** (*not reinventing the wheel*)
2. hostname (fqdn)
3. ip address
4. URL (eg from doh)
5. ip:port
6. cert subject name
7. ...

NSID Definition: RFC5001

2.4. Presentation Format

User interfaces **MUST** read and write the contents of the NSID option as a sequence of hexadecimal digits, two digits per payload octet.

The NSID payload is binary data. Any comparison between NSID payloads **MUST** be a comparison of the raw binary data. Copy operations **MUST NOT** assume that the raw NSID payload is null-terminated. Any resemblance between raw NSID payload data and any form of text is purely a convenience, and does not change the underlying nature of the payload data.

See Section 3.3 for discussion.