

Representing IPv6 Zone Identifiers in Uniform Resource Identifiers

draft-carpenter-6man-rfc6874bis-03

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Motivation

- Literal addresses in URIs are mainly intended for operational and diagnostic use.
- Sometimes, there is a need to take actions that relate to IPv6 link local addresses via a specific interface on the host.
 - A web browser may be the handiest tool for this
 - It may be the only tool for (re)configuring devices
- At least one application (CUPS printing) requires HTTP usage of link local addresses via a specific interface.

We discussed this earlier...



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draft-ietf-6man-uri-zoneid-04

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... which
became
RFC 6874

Fail

- For link-local addresses, RFC 4007 defines a text representation of the Zone Identifier (in practice equal to an interface name):

fe80::abcd%eth0

- Widely supported and used in IPv6-land
- RFC 6874 defined a mapping for the Zone ID in URI syntax.
 - No known current browsers support it.
 - The browser community (WHATWG) decided explicitly not to support RFC 6874.

Problems with RFC6874 (1)

- Modifies the IP-literal branch of the ABNF for URIs (RFC 3986)
 - `http://[fe80::abcd%25eth0]` becomes legal
 - using %25 as separator, i.e. RFC 4007 notation with URI escaping
- This prevents cut and paste (e.g. from ping to URL)
 - Previously proposed because % is an escape character in URIs
 - Seems unnecessary because URI parsers are hand crafted
- Proposal: drop %25 encoding



Problems with RFC6874 (2)

- Requires hosts to delete the Zone ID from outgoing URIs (in the HTTP *Host* header)
 - Violates the normal behaviour of HTTP/1.1 (RFC 7230)
 - At the least, awkward to code
 - Breaks CUPS
- Proposal: delete this requirement

Problems with RFC6874 (3)

- Suggests URL parsers should support the %25 encoding but heuristically accept (for example)

fe80::abcd%eth0

instead of

fe80::abcd%25eth0

- Very tricky to code
- Confusing to users
- Proposal: delete this suggestion

Problems with RFC6874 (4)

- Forgot to update the IRI (Internationalized Resource Identifier) syntax.
- Proposal: add update to RFC3987



Final proposal

- URI/IRI parsers should accept (for example)

`http://[fe80::abcd%eth0]`

- The ZoneID should of course be passed to the socket API
- No other special requirements for browsers

Feedback...

- We contacted a number of senior people in the browser implementation community.
- The message was clear: could implement, but will not implement without strong pressure from users.
- Thus we propose to advance this draft to precisely document the desired browser behavior.
- Note that 6man adoption call ended March 14.