Representing IPv6 Zone Identifiers in Uniform Resource Identifiers

draft-carpenter-6man-rfc6874bis

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We discussed this just recently...

... which became RFC 6874
Motivation

• Literal addresses in URIs are mainly intended for operational and diagnostic use.

• Sometimes, there is a need to make tests 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 reconfiguring misconfigured devices

• At least one application (CUPS printing) requires HTTP usage of link local addresses via a specific interface.
Fail

- For link-local addresses, RFC 4007 defines a text representation of the Zone Identifier (in practice equal to an interface name):
  \[ \text{fe80::abcd\%eth0} \]
- 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 this explicitly.
Problems with RFC6874 (1)

• Modifies the IP-literal branch of the ABNF for URIs (RFC 3986)
  – \texttt{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)
  – Arguably, required because \% is always an escape character in URIs
  – Arguably, unnecessary if parsers follow ABNF rigidly

• \textbf{Proposal}: no change
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
Feedback requested

- IPv6 community, including operators
- ART Area
- W3C
- Browser implementers, including WHATWG