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...

... which became RFC 6874

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

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Fail

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

  \[
  \text{fe80:}:\text{abcd}\%\text{eth0}
  \]

- 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)
  \texttt{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.