

# BABEL WG Status

Chairs:

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# Technology

- Babel is a distance-vector routing protocol augmented with mechanisms for loop avoidance and starvation avoidance.
- Designed for simplicity, robustness, and extensibility.
- Has been found to be effective in networks where at least some links have unstable metrics.
- Multiple open-source implementations.
- Successfully deployed in heterogeneous networks, large-scale overlay networks, pure mesh networks, and small unmanaged networks.

# Standards Status

- Initially three Experimental RFCs:
  - RFC 6126 The Babel Routing Protocol
  - RFC 7298 Babel HMAC Cryptographic Authentication
  - RFC 7557 Extension Mechanism for the Babel Routing Protocol
- Now Proposed Standard on the Standards Track:
  - RFC 8965 Applicability of the Babel Routing Protocol
  - **RFC 8966 The Babel Routing Protocol**
  - RFC 8967 MAC Authentication for the Babel Routing Protocol
  - RFC 8968 Babel Routing Protocol over DTLS
  - RFC 9046 Babel Information Model
  - RFC 9079 Source-Specific Routing in the Babel Routing Protocol
- Babel is the mandatory to implement routing protocol in Homenet:
  - RFC 9080 Homenet Profile for the Babel Routing Protocol

# Futures

- Work in Progress
  - YANG Data Model for Babel
    - draft-ietf-babel-yang-model-13 in RFC Editor's queue
  - **IPv4 routes with an IPv6 next hop in the Babel routing protocol**
    - draft-ietf-babel-v4viav6-06 in AD Evaluation
  - **Delay-based Metric for the Babel Routing Protocol**
    - draft-ietf-babel-rtt-extension-00 expired draft to be re-activated
- Additional Optional Topic in Charter
  - Multicast

# Futures

## Work in Progress

- **IPv4 routes with an IPv6 next hop in the Babel routing protocol**
  - Allows building networks that can handle IPv6 and IPv4 with no explicit IPv4 configuration of the routers. Encourages IPv6 adoption since it avoids having two separate configurations, one for IPv4 and one for IPv6.
  - Raises some ICMPv4 questions.
- **Delay-based Metric for the Babel Routing Protocol**
  - RTT (round trip time) based routing with minimal oscillations (no oscillations in production networks, roughly every 10 minutes in the lab with a worst-case network). Essential for overlay networks, and hence deployed in production since 2015 or so.
  - Not understood why it works as well as it does, hence Experimental. Help from dynamic systems stability specialists would be useful.