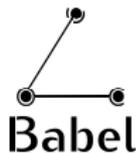


Recent changes to RFC 6126bis

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RFC 6126bis

Draft-ietf-babel-rfc6126bis is the **Standards Track** successor to RFC 6126 (Babel) and RFC 7557 (Babel Extension Mechanism).

A number of clarifications, tightenings and loosening, but **few new features**:

- improved neighbour discovery and link sensing:
 - **unicast Hellos**;
 - **unscheduled Hellos**;
- more extensible packet format:
 - **mandatory sub-TLVs**;
 - **packet trailer (new in -06)**.

Unicast Hellos

In RFC 6126, **all TLVs can be sent over unicast except Hellos**, which must be sent over multicast (or multi-unicast).

RFC 6126bis adds a new kind of Hello, the **unicast Hello**:

- sent over **unicast** to **a single neighbour**;
- all the features of an ordinary (multicast) Hello.

Useful:

- on link layers with **outrageously expensive multicast**;
- to carry a **Hello sub-TLV** in a unicast packet (e.g. timestamp).

Not required by the DTLS extension.

Unscheduled Hellos

In RFC 6126, every Hello **resets** the link-quality **timer**.
Complicated to send a Hello at an arbitrary time.

RFC 6126bis adds an **unscheduled Hello**:

- **doesn't reset any timers**;
- all the other features of an ordinary Hello.

Useful for sending a **Hello sub-TLV** (e.g. timestamp) at an unexpected time.

Mandatory sub-TLVs

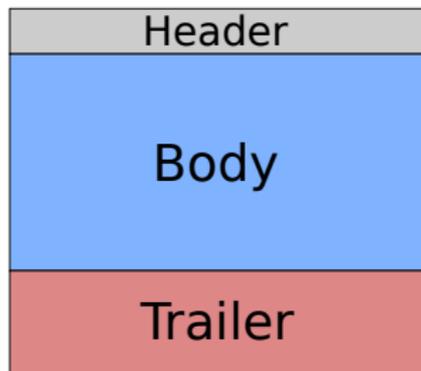
In RFC 6126, a Babel packet is a **sequence of TLVs**.
An unknown TLV is **silently ignored**.

In RFC 7557, a TLV can contain **sub-TLVs**.
An unknown sub-TLV is **silently ignored**.

In RFC 6126bis, there are **mandatory sub-TLVs**.
An unknown mandatory sub-TLV causes
the whole enclosing TLV to be ignored.

This makes the protocol dramatically **easier to extend**
(See draft-ietf-babel-source-specific and
draft-chouasne-babel-tos-specific.)

Packet trailer



A Babel packet has three parts:

- the **packet header**, of fixed size;
- the **packet body**, a sequence of TLVs;
- the **packet trailer**, **silently ignored** in RFC 6126/7557.

In RFC 6126bis, the packet trailer is **a sequence of TLVs** (just like the packet body).

HMAC extension: carries HMACs, cover the **packet body**.

Tradeoff: **implementation** vs. **specification** simplicity.

New in -06: please review.

Compatibility with RFC 6126

Unicast Hellos and mandatory sub-TLVs are **incompatible extensions**. All implementations must learn to parse them before implementations can start sending them.

Current status:

- babeld: **done**;
- BIRD: **done**;
- sbabeld: **done**;
- David's Top Secret Implementation: **done**;
- FRR: **not done**.

Conclusion

RFC 6126bis has **few new features**:

- improved neighbour discovery and link sensing:
 - unicast Hellos;
 - unscheduled Hellos;
- more extensible packet format:
 - mandatory sub-TLVs;
 - packet trailer (**new in -06**).

Some of these features are **incompatible** with RFC 6126, but **a flag day will not be required**.