Qlog

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Since IETF 115

- Published 1 set of new drafts
  - Small amount of consistency changes, mainly to do with RawInfo type
- Finalized scope
  - Features and frames defined in RFC / IANA by end of 2022
  - See email of 20 December 2022
  - Future extensions can either do custom qlog drafts, or we’ll have bulk (bi-)yearly update documents (if required)
- Requested early SECDIR review of main schema Security and Privacy considerations
- Continued working on many open issues and PRs
Versioning of qlog and additional schema #283

Current:
- 3 documents - main schema, QUIC schema, HTTP/3 and QPACK schema.
- 1 version field - qlog_version

Challenges:
1) Schema are not tightly coupled, expect them to progress independently.
2) We want, and expect, new additional schema documents in the future (e.g., extensions)
3) Just because an endpoint could log an event doesn’t mean it will. Identifying schema is a hint about what might be in a qlog.
Versioning of qlog and additional schema #283

- **Proposal:**
  - PR 284
  - additional_schema
  - An array of schemas based on a unique label
  - Punt unique labelling to the datatracker/RFC editor/SDO
  - Don’t think we need to go full URL

```json
{
    "qlog_version": "0.3",
    "qlog_format": "JSON",
    "additional_schema": [
        "draft-ietf-quic-qlog-quic-events-04",
        "draft-ietf-quic-qlog-quic-h3-events-04"
    ],
    "title": "Nice Name",
    "description": "Nice description",
    "summary": {...},
    "traces": [...]}
```
Naming things #286

Qlog events belong to categories that have names e.g.,

- **connectivity**:server_listening
- **transport**:packet_received
- **security**:key_updated
- **recovery**:congestion_state_updated
- **http**:frame_parsed
- **qpack**:headers_decoded

Some of these category names are overly broad. Also spill into fields themselves

Future schema (e.g. TCP or HTTP/2) might be similar but are different and can’t reuse events we are currently defining
Naming things #286

Proposal:

Rename HTTP to H3 (PR 287)
  http:frame_parsed → h3:frame_parsed

Rename transport to quic
  transport:packet_sent → quic:packet_sent

Leave other names alone

Trivial to do in the spec but this would be a fairly large **breaking change** to implementations!
Multipath support #134

Current plan: add opaque “path_id” top-level field (can be logged for each event)

- Nice and flexible, but is it enough?
- Do we have a clearer view on this with the progressing multipath draft?
A proposal for QPACK events #199  (1/2)

**Goal:** investigate correctness or performance issues

**Current events:** Header block encoded/decoded, state updates, and raw instructions: *too low level*

**Proposal:**

- Events for Higher level conditions
  - Encoder
  - Decoder
  - Connection-level
A proposal for QPACK events #199  (2/2)

Encoder Events:

- Encoded a field section block
- Blocked Insertion
- Avoided Reference
- Blocked Reference
- Encoder Stream FC blocked

Decoder Events:

- Decoded a field section block
- Decoding blocked
- Insert count increment

Connection End Summary:

- Global stats/counters for both encoder and decoder
The problems with clocks #198

Events are time stamped. Values depend on format.

UNIX timestamps are implied but not mandatory. Not everyone wants to/can use UNIX e.g. Windows Epoch, CLOCK_MONOTONIC.

Proposal:

Explicit epoch date in ISO 8601 format

Possibly a special “opaque” tag to indicate scenarios like CLOCK_MONOTONIC.
ECN marking #263

How and where to log ECN marking info

Datagram or QUIC packet events?

Semantic ECN names or bit values (ECN = "Non-ECT" / "ECT(1)" / "ECT(0)" / "CE")

ECN probing is not covered yet. Should it? - tracked on #212