QLOG

The **DUNE: PART TWO** Update

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Since IETF 118

- Published 3 new drafts
  - Removed QPACK
  - transport:datagrams_sent → transport:**udp_**datagrams_sent
  - Editorial updates
  - Lots of clarifications / RFC alignment
  - Groundwork for extensibility (today)

- Big thanks to Hugo Landau
  - OpenSSL QUIC/qlog implementer

Since IETF 118: Merged (Multi)path/Migration support!

Simple but extensible approach:

```
{time: 12456, path: “my_first_path”, name: “quic:packet_sent”, data: {...}}
```

```
PathAssigned = {
    path_id: text

    ? path_remote: PathEndpointInfo
    ? path_local:  PathEndpointInfo
}

PathEndpointInfo = {
    ? ip: IPAddress
    ? port: uint16

    ? connection_ids: [+ ConnectionID]
}
```

Feedback/experience
still welcome!

Extensibility: which events are you using exactly #415

Taking inspiration from RFC8285:

```
QlogFile = {
   ...
   “additional_event_schemas”: [
     “urn:ietf:params:qlog:http3”,
     “urn:ietf:params:qlog:quic#transport”,
     “urn:ietf:params:qlog:quic#connectivity”,

     “https://atreides.com/~paul/032024/dune_name_system.html”
   ]
   ...
}
```

New documents register URNs with IANA with urn:ietf:params:qlog prefix

? Should absence of #category modifiers indicate all categories are used?

Extensibility: properly add **new** types #417

Without proper extensibility:

```
MaxDataFrame = {
  frame_type: "max_data"
  maximum: uint64
}

PacketSent = {
  frames: [* MaxDataFrame / StreamFrame / ...]
  ...
}
```

Too rigid: impossible to add new frame types

Extensibility: properly add **new** types [#417]

Using CDDL “type sockets”:

```
MaxDataFrame = {
  frame_type: "max_data"
  maximum: uint64
}

PacketSent = {
  frames: [* $QuicFrame]
  ...
}

$QuicFrame /= MaxDataFrame
```

Later extension, separate document:

```
$QuicFrame /= AckFrequencyFrame
```

Extensibility: extend **existing** things #417

What we had BEFORE:

```
QUICParametersSet = {
  ? ack_delay_exponent: uint16
  ? max_ack_delay: uint16
  ...

  ; to support later defined parameters
  * text => any
}
```

Too flexible: impossible to really type-check

Extensibility: extend **existing** things #417

Using CDDL “group sockets”:

```
QUICParametersSet = {
  ? ack_delay_exponent: uint16
  ? max_ack_delay: uint16
  ...

  ; to support later defined parameters
  * $$quic-parametersset-extension
}
```

Separate document for Ack Frequency Extension:

```
$$quic-parametersset-extension //= (
    ? min_ack_delay: uint64
)
```

Focus: Extensibility for main RFC extension points

Mostly IANA-registered extensions (with some additions):

- Packets
  - $$packetheader-extension, $PacketType
- Frames
  - $QuicFrame, $H3Frame, $H3Datagram
- Transport Parameters, Settings
  - $$quic-parametersset-extension, $$h3-parameters-extension
- Stream types
  - $H3StreamType
- Error codes
  - $TransportError, $ApplicationError
- Protocol identifiers
  - $ProtocolType

Good time to **try and exercise** these (Multipath + Media-over-QUIC: we're looking at you ;)

How to communicate fin, stream_reset, stop_sending #396

Signals not always *immediately* communicated to application layer

E.g., only bubbled up when there's a read from QUIC layer

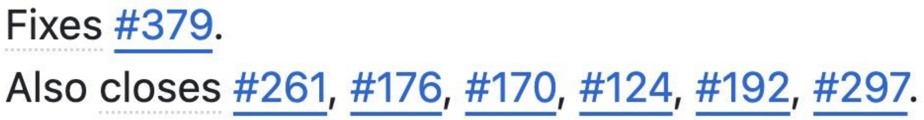
```
QUICStreamDataMoved = {
    ? stream_id: uint64
    ? offset: uint64
    ? length: uint64

    ? from: Layer
    ? to: Layer

    ? additional_info: [+ text]
}
Examples: "fin_set", "stream_reset", "stop_sending"
```

Look at other events for more details

Moving towards WGLC by end of year

No open major design issues!

Should be below 30 issues and 10 PRs soon



Fixes #379.
Also closes #261, #176, #170, #124, #192, #297.

How to help:

- Comprehensive document reviews
- Exercise extension points
- Create a qlog issue today!