

# LPWAN WG

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## Reminder:

Minutes are taken \*

This meeting is recorded \*\*

Presence is logged \*\*\*

- \* Scribe; please contribute online to the minutes at: <http://etherpad.tools.ietf.org:9000/p/lpwan>
- \*\* Recordings and Minutes are public and may be subject to discovery in the event of litigation.
- \*\*\* From the Webex login

# Agenda bashing

- 16:05> Opening, agenda bashing (Chairs) [7min]
- Note-Well, Scribes, Agenda Bashing
  - Approval minutes from last meeting
  - Review last interim todos
  - Terminology
- 16:12> LPWAN Overview Presentation and Discussion (Stephen Farrel) [5min]
- <https://datatracker.ietf.org/doc/draft-ietf-lpwan-overview/>
  - Status on Steve's issues on ML
  - Publication?
- 16:17> Static Context Header Compression for IPv6 and UDP (Ana, Laurent) [10min]
- <https://datatracker.ietf.org/doc/draft-ietf-lpwan-ipv6-static-context-hc/>
- 16:27> LPWAN Static Context Header Compression (SCHC) for CoAP (Laurent) [15min]
- <https://datatracker.ietf.org/doc/draft-ietf-lpwan-coap-static-context-hc/>
- 16:42> Static Context Header Fragmentation (Carles) [15min]
- <https://datatracker.ietf.org/doc/draft-ietf-lpwan-ipv6-static-context-hc/>
- 16:57> AOB [QS]

# Status

WG formed October 14<sup>th</sup>

- Charter item #1 (Informational document)
  - Baseline technology description
- Charter item #2 (Standards track document)
  - Enable the compression and fragmentation of a CoAP/UDP/IPv6 packet over LPWA networks

# Charter - Milestones

## Milestones

**Date**    ⇄    **Milestone**

Jul 2017    Submit CoAP compression mechanism to the IESG for publication as a Proposed Standard

May 2017    Submit IP/UDP compression and fragmentation mechanism to the IESG for publication as a Proposed Standard

Apr 2017    Submit LPWAN specification to the IESG for publication as an Informational Document

**Done**    Adopt CoAP compression mechanism as a WG item

**Done**    Adopt IP/UDP compression and fragmentation mechanism as a WG item

**Done**    Adopt LPWAN specifications as WG item

# Last meeting Action items

- JCZ, DD: Review IP/UDP drafts
- CB, MV: Review CoAP draft
- SF: Send revision, WG to review by May, 30<sup>th</sup>
- CG: CFN/AFN, new ideas around fragmentation

# LPWAN Overview

Editor: Stephen Farrell  
(many contributors)



# Terminology

- Status?
- AAA Server vs Low-Power Backend Server (LBES)
- WG review and good to go?

# SCHC Compression

## [draft-ietf-lpwan-ipv6-static-context-hc-03](#)

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# SCHC Compression

- Diego Review's
  - "SCHC uses a context where header information is kept in order." Is there any other scheme? Is there is another order?
    - Define the way the information is in the context, at least be clear
  - Just for the sake of clarity, from the introduction, I can deduce this draft only concentrates on a protocol and a mechanism. The protocol is SCHC and the mechanism is Fragmentation. The protocol usage is justified by two properties of LPWANs and the mechanism is justified by the lack of support on part of the LPWAN technologies.
    - My conclusion is, we need to rewrite the introduction.
    - SCHC header compression must be used always and the fragmentation part may be used when needed, I'm not agree about one is a protocol and the other mechanisms or vs.

# SCHC Compression

- "A Field Position (FP) indicating if several instances of the field exist in the headers which one is targeted." Expression not clear
  - It is the reference for the header fields
  - Use for CoAP
- "A Target Value (TV) is the value used to make the comparison with the packet header field. The Target Value can be of any type (integer, strings,...). It can be a single value or a more complex structure (array, list,...). It can be considered as a CBOR structure."  
Here I have a conflict on the idea of header field and value, when to know each representation
  - The Rule-ID will be used for these cases
- "equal: a field value in a packet matches with a field value in a rule if they are equal" Is any of those values a TV?
  - No, The SCHC C/D are actions in order to decide which information will be sent

# LPWAN CoAP SCHC

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# CoAP

- No more normative
- Description of CoAP fields compression
  - Work in progress...
- Read it !
- Questions on
  - Block / fragmentation
- Analysis of common exchanges
  - CoMi, LWM2M, IoTivity ?
  - URI-path/Query not flexible: is it a problem?
- Definition of timers:
  - Impact in MID and Token size.

# LPWAN SCHC Fragmentation

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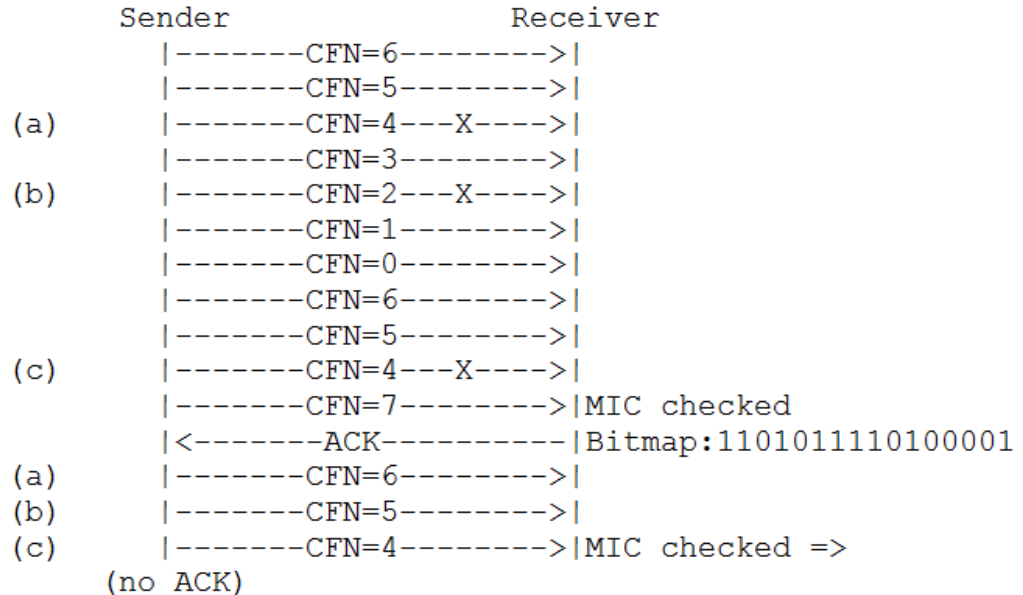
# Status

- Updates since the last interim (10<sup>th</sup> May)
- Available at <https://github.com/lp-wan/ip-compression>
- Thanks for the input/feedback!
  
- Finishing the document...



# Updates

- Packet mode
  - Removed frag header for retries
  - Fragment renumbering



# Packet mode: remarks (I/II)

- Zero ambiguity

- LoRaWAN

- EU/China ( $N \geq 5$ )
- US ( $N \geq 7$ )

- Sigfox

- Uplink ( $N \geq 7$ )
- Downlink ( $N \geq 8$ )

As it is right now

- Negligible ambiguity

- $N \geq 4$  (even 3...)

- With frag renumbering

Not a problem in practice!

# Packet mode: remarks (II/II)

- Max worst-case currently supported IPv6 packet size
  - LoRaWAN
    - $\geq 1280$  bytes (EU/China)
    - $< 800$  bytes (US)
  - Sigfox
    - $< 616$  bytes (both uplink/downlink)

As it is right now

# Possible future work

- Future doc(s)?
- Possible optimizations for Packet mode
  - ACK format
    - Bitmap (current) vs list vs delta-coded list
    - Multi-PDU ACK
  - Use of fountain codes

# Thanks!

# Comments?

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