

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

16:00> Opening, agenda bashing (Chairs) [2min]

- Note-Well, Blue Sheets, Scribes, Agenda Bashing
- Approval minutes from last meeting

16:02> LPWAN Overview Presentation and Discussion (Stephen Farrel) [5min]

- <https://datatracker.ietf.org/doc/draft-ietf-lpwan-overview/>

16:07> Static Context Header Compression for IPv6 and UDP (Ana, Laurent, Carles) [40min]

- <https://datatracker.ietf.org/doc/draft-ietf-lpwan-ipv6-static-context-hc/>

16:47> LPWAN Static Context Header Compression (SCHC) for CoAP (Laurent) [10min]

- <https://datatracker.ietf.org/doc/draft-ietf-lpwan-coap-static-context-hc/>

16:57> AOB [QS]

Status

WG formed October 14th

- 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
- Ana: Post to the mailing list with the terms that we want confirmed
- Overview and SCHC/IP: post refresher

Upcoming IETF in Prague

- Meeting? Hope so!
- 2H?

LPWAN Overview

Editor: Stephen Farrell
(many contributors)

Wi-Sun Contribution

- Status?
 - Inputs from Bob and Paul
- From Stephen:
 - Text from WI-SUN received
 - Next revision to be done and submitted by Friday (May, 12th)
 - As close as possible for WGLC
 - Minor changes may be necessary though

LPWAN SCHC Compression

draft-ietf-lpwan-ipv6-static-context-hc-03

Authors:

Ana Minaburo <ana@ackl.io>

Laurent Toutain <laurent.toutain@imt-atlantique.fr>

Carles Gomez <carlesgo@entel.upc.edu>

Compression Part:

- Updates from last meeting:
 - Vocabulary modifications:
 - Things or End-System (ES) => Device (DEV) waiting consensus ML
 - LPWAN Application Server (LA) => Application (APP)
 - Network Gateway (NG) => (NGW)
 - LPWAN Compressor (LC) => SCHC C/D
 - Changing CDF to CDA
 - As the MO is a function, the idea to make another function for C/D is confusing, so the C/DA will be an action after the MO function application.
 - To be clear: Field 1, field 2, etc are the Field ID

LPWAN SCHC Fragmentation

draft-ietf-lpwan-ipv6-static-context-hc-03

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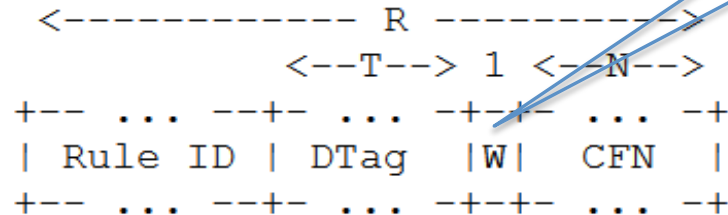
Carles Gomez <carlesgo@entel.upc.edu>

Status

- Updates since the last interim (26th April)
- Included in draft-ietf-lpwan-ipv6-static-context-hc-03
 - Along with most of the updates presented in the last interim
- Thanks for the feedback!

Frag header (Window mode)

- W bit
 - Same value for fragments of the same window (first, W=1)
 - Complemented for the next window
 - Avoid ambiguity in certain conditions



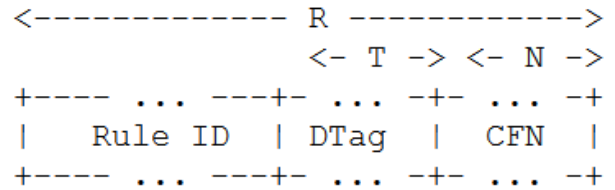
Added

W bit: examples

Sender	Receiver	Sender	Receiver
-----W=1, CFN=6----->		-----W=1, CFN=6----->	
-----W=1, CFN=5----->		-----W=1, CFN=5----->	
-----W=1, CFN=4----->		-----W=1, CFN=4--X-->	
-----W=1, CFN=3----->		-----W=1, CFN=3----->	
-----W=1, CFN=2----->		-----W=1, CFN=2--X-->	
-----W=1, CFN=1----->		-----W=1, CFN=1----->	
-----W=1, CFN=0----->		-----W=1, CFN=0----->	
<-----ACK----- no bitmap		<-----ACK----- bitmap:11010111	
-----W=0, CFN=6----->		-----W=1, CFN=4----->	
-----W=0, CFN=5----->		-----W=1, CFN=2----->	
-----W=0, CFN=4----->		<-----ACK----- no bitmap	
-----W=0, CFN=7-----> MIC checked =>		-----W=0, CFN=6----->	
<-----ACK----- no bitmap		-----W=0, CFN=5----->	
(End)		-----W=0, CFN=4--X-->	
		-----W=0, CFN=7-----> MIC checked	
		<-----ACK----- bitmap:11010001	
		-----W=0, CFN=4-----> MIC checked =>	
		<-----ACK----- no bitmap	
		(End)	

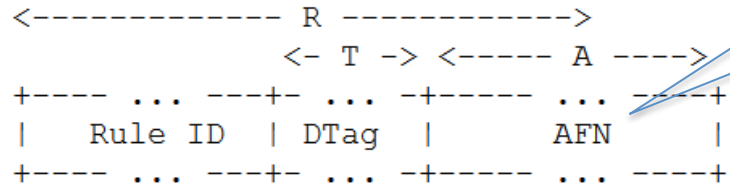
Frag header for retries (Packet mode)

- First transmission attempt



- Absolute Fragment Number
- Starts from 0, seq. increasing
- Size A may be greater than N

- Retransmitted fragment



Retries (Packet mode): example

- Avoid ambiguity about resent frags in Packet modes

```

Sender                                     Receiver
(AFN=0)  |-----CFN=6----->|
(AFN=1)  |-----CFN=5----->|
(AFN=2)  |-----CFN=4---X---->|
(AFN=3)  |-----CFN=3----->|
(AFN=4)  |-----CFN=2---X---->|
(AFN=5)  |-----CFN=1----->|
(AFN=6)  |-----CFN=0----->|
(AFN=7)  |-----CFN=6----->|
(AFN=8)  |-----CFN=5----->|
(AFN=9)  |-----CFN=4---X---->|
          |-----CFN=7----->|MIC checked
          |<-----ACK-----|bitmap:1101011110100001
          |-----AFN=2----->|
          |-----AFN=4----->|
          |-----AFN=9----->|MIC checked =>
          |<-----ACK-----|no bitmap
(End)

```

Other updates

- Downlink fragment transmission
 - Receiver MAY perform an uplink transmission ASAP after reception of a downlink fragment (not the last one)
 - L2 ACK or upper layer triggered data unit transmission
- Timer names added
 - ‘ACK on Error Timer’
 - ‘ACK Always Timer’

Thanks!

Comments?

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Carles Gomez <carlesgo@entel.upc.edu>

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.

AOB ?