LPWAN WG

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AD: Eric Vyncke
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Note Well

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Definitive information is in the documents listed below and other IETF BCPs. For advice, please talk to WG chairs or ADs:

- BCP 9 (Internet Standards Process)
- BCP 25 (Working Group processes)
- BCP 25 (Anti-Harassment Procedures)
- BCP 54 (Code of Conduct)
- BCP 78 (Copyright)
- BCP 79 (Patents, Participation)

https://www.ietf.org/privacy-policy/ (Privacy Policy)
Reminder:

Minutes are taken *
This meeting might be recorded **
Presence is logged ***

* Please contribute to the minutes at: https://etherpad.ietf.org:9009/p/notes-ietf-interim-2020-lpwan-09-lpwan
** Recordings and Minutes are public and may be subject to discovery in the event of litigation.
*** From the Webex login

Interim, June 2nd, 2020
**Agenda bashing**

- **[16:05] Administrivia**
  - Note-Well, Scribes, Agenda Bashing
  - WG Status, IETF 108
- **[16:10] SCHC over LoRaWAN**
- **[16:35] CoAP static Context**
- **[16:50] AOB**
## Milestones

<table>
<thead>
<tr>
<th>Date</th>
<th>Milestone</th>
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</thead>
<tbody>
<tr>
<td>Jul 2021</td>
<td>Produce a Standards Track document to enable operations, administration and maintenance (OAM) to the LPWAN device, including support for delayed or proxied liveness verification (Ping)</td>
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<tr>
<td>Feb 2021</td>
<td>Produce a Standards Track document to define the generic data models to formalize the compression and fragmentation contexts for LPWANs</td>
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<tr>
<td>Dec 2020</td>
<td>Produce Standard Track documents to apply SCHC IPv6/UDP over the baseline technologies</td>
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<tr>
<td>May 2020</td>
<td>Perform SCHC Maintenance, including enabling SCHC mechanisms for Upper layer Protocols</td>
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## Documents advancement

### Active Internet-Drafts (5 hits)

- **draft-ietf-lpwan-coap-static-context-ctx-14**  
  LPWAN Static Context Header Compression (SCHC) for CoAP  
  - Date: 2020-05-26  
  - Status: I-ESG: AD Followup  
  - IPR: Eric Vyncke  
- **draft-ietf-lpwan-schc-over-lorawan-07**  
  Static Context Header Compression (SCHC) over LoRaWAN  
  - Date: 2020-04-17  
  - Status: I-D Exists  
  - IPR: Eric Vyncke  
- **draft-ietf-lpwan-schc-over-ribiot-02**  
  SCHC over NB-IoT  
  - Date: 2020-05-17  
  - Status: I-D Exists  
  - IPR: Eric Vyncke  
- **draft-ietf-lpwan-schc-over-sigfox-02**  
  SCHC over Sigfox LPWAN  
  - Date: 2020-03-16  
  - Status: I-D Exists  
  - IPR: Eric Vyncke  
- **draft-ietf-lpwan-schc-yang-data-model-02**  
  Data Model for Static Context Header Compression (SCHC)  
  - Date: 2020-02-28  
  - Status: I-D Exists  
  - IPR: Eric Vyncke

### RFCs (2 hits)

- **RFC 8576 (was draft-ietf-lpwan-overview)**  
  Low-Power Wide Area Network (LPWAN) Overview  
  - Date: 2018-05  
  - Status: Informational RFC  
  - IPR: Suresh Krishnan  
  
- **RFC 8724 (was draft-ietf-lpwan-ipv6-static-context-ctx)**  
  SCHC: Generic Framework for Static Context Header Compression and Fragmentation  
  - Date: 2020-04  
  - Status: Proposed Standard RFC  
  - IPR: Suresh Krishnan

### Related Internet-Drafts (3 hits)

- **draft-barchel-lpwan-oam-schc-01**  
  OAM for LPWAN using Static Context Header Compression (SCHC)  
  - Date: 2020-05-09  
  - Status: I-D Exists

- **draft-thubert-lpwan-command-reg-01**  
  Command and Control Registry for SCHC  
  - Date: 2020-03-25  
  - Status: I-D Exists

- **draft-thubert-lpwan-schc-over-ppp-00**  
  SCHC over PPP  
  - Date: 2019-12-05  
  - Status: I-D Exists
IESG reviews (Magnus, June 28th)

- What I am asking for is really only an description of the changed architectural context and the requirements on a solution for the SCHC context establishment mechanism.
  - Discover the peers capability to perform SCHC for COAP or can one opportunistically try?
  - Taking into account that an COAP application can potentially talk to a number of peers, each having different capabilities.
  - Are there need for a redirection/invocation mechanism
  - The actual context exchange mechanism.

- Can we please write a paragraph or two in the suitable section in this document rather a single sentence pointing to an appendix. That appending containing a single bullet that are supposed to be added:

  This section extends the RFC8724 Annex D list.

  - How to establish the End-to-End context initialization using SCHC for CoAP header only.

- Annex D of RFC 8724 list is preface by:

  "This section lists the information that needs to be provided in the LPWAN technology-specific documents."

- That is not really information to be provided, there are procedures that are needed.
IETF 108

• Register an online WG session?
  – [https://www.ietf.org/blog/ietf108-online/](https://www.ietf.org/blog/ietf108-online/)
  – 11AM UTC -> 5 hours (1PM to 6PM CEST)
  – Or continue with interims
  – cutoff Friday June 12th

• Duration?
  – 50 mn / 100 mn

• Fees

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<tr>
<td>One Day Pass</td>
<td>$125</td>
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<tr>
<td>Full Time Student</td>
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</tbody>
</table>
draft-ietf-lpwan-schc-over-lorawan

Editors:
Ivaylo Petrov (ivaylo@ackl.io)
Olivier Gimenez (ogimenez@semtech.com)
Upcoming changes in draft-008
(Presented 19/05/20)

• Add uplink All-1 example with last tile
• Fixed IID example
• Use RFC8376 terminology
• List all bitmap possibilities in SCHC ACK example
• Add payload to downlink All-1
• Fixed some nits
Upcoming changes in draft-008

• Changed “fragmentation session” to “fragmentation datagram”
• Uplink retransmission timer SHALL be set by the application
• Explicitly state:
  • Other frag. param. can be used in addition to defined param. in profile
  • Additional delay to comply with regulation is not mandatory
  • Why all-1 and SCHC Sender-Abort can be distinguished
  • Why All-0 and SCHC ACK REQ can be distinguished in uplink fragmentation
Downlink All-0 vs SCHC ACK REQ

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<tbody>
<tr>
<td>21</td>
<td>0</td>
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</tbody>
</table>

Unable to distinguish an All-0 with 6 bits of payload (or less) equal to 0 from SCHC ACK REQ

1. Ask implementation to ensure that for an All-0: len(payload) > 6 bits
2. Ask implementation to add a byte=0 (0b00000000) after the payload if len(payload)<=6 bits. This byte will be dropped by C/D layer as regular padding

Option 1 is more efficient, but event occurrence is low, so option 2 might be easier for implementation. Any recommendations?

Interim, June 2\textsuperscript{nd}, 2020
Downlink retransmission timer 1/2

Context:
• LoRaWAN class A devices opens a reception window only after a transmission, for few seconds.
• LoRaWAN class B devices opens a reception window after a transmission + regular windows every \([2;128]\) seconds (depending on configuration)
• LoRaWAN class C devices are always in reception mode if not transmitting.

For class B & C we can have a retransmission timer “set depending on the application requirements”; but regarding the class A we cannot as the SCHC gateway will never know when the device will open a reception window.
Downlink retransmission timer 2/2

1. Queue a downlink when the retransmission timer expires. Next time it expires, clear the previous downlink, queue an new one, repeat up to MAX_ACK_REQ or until the inactivity timer expires, then clean the queue.
   - Pro: Respect the usual layer separation architecture
   - Con: Not all LoRaWAN network servers allows to select the element to be deleted in the queue

2. Not use retransmission timer: If the device sends an uplink the SCHC gateway will be able to send a SCHC ACK REQ that the device should receive during its reception window. The state machine can go out of this “waiting for uplink” state thanks to the inactivity timer.
   - Pro: It will work with all network servers, SCHC gateway does not have to manage the queue.
   - Con: The SCHC gateway have to know if the device is a Class A or Class B/C device
draft-ietf-lpwan-coap-static-context-hc-014

Authors:
Ana Minaburo
Laurent Toutain
Ricardo Andreasen

Interim, June 2nd, 2020
Review Inputs

• Magnus Westerlund

  • SCHC is used on the top of security layer, push SCHC implementation into CoAP stacks at the end-points rather than lower layers on top of L2 infrastructure.

  • This change results in several architectural considerations and didn’t exist before for the entity that are going to determine the SCHC capability in the peer as well as the context establishment.
Review Inputs

- Asking a description of the architectural change context and the requirements on a solution for the SCHC context establishment mechanism.
  - Discover the peers capability to perform SCHC for COAP or can one opportunisticly try?
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AOB ?