



25 September 2015 Webex

IPv6 over the TISCH
mode of IEEE 802.15.4e

Chairs:

Pascal Thubert

Thomas Watteyne

Etherpad for minutes:

<http://etherpad.tools.ietf.org:9000/p/6tisch?useMonospaceFont=true>

Note Well

This summary is only meant to point you in the right direction, and doesn't have all the nuances. The IETF's IPR Policy is set forth in BCP 79; please read it carefully.

The brief summary:

- By participating with the IETF, you agree to follow IETF processes.
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- You understand that meetings might be recorded, broadcast, and publicly archived.

For further information, talk to a chair, ask an Area Director, or review the following:

- BCP 9 (on the Internet Standards Process)
- BCP 25 (on the Working Group processes)
- BCP 78 (on the IETF Trust)
- BCP 79 (on Intellectual Property Rights in the IETF)

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/6tisch?useMonospaceFont=true>

** Recordings and Minutes are public and may be subject to discovery in the event of litigation.

*** From the Webex login

Agenda

- Administrivia [5min]
 - Agenda
 - Minutes Last meeting
- Status for draft-ietf-6tisch-minimal [15min]
- Scoping dynamic scheduling work [15min]
 - OTF centralized and distributed
 - CoAP-IE or something else, at IETF vs. IEEE
 - Slot appropriation (LBT?)
 - Chunk support
- New charter bashing [20min]
- AOB [1min]

Administrivia

Admin is trivia

- Approval Agenda
- Approval minutes

IETF 94

- **6TiSCH WG meeting requested**

- Ask: 90 minutes

- **Important dates**

- **2015-10-02 (Friday):** Preliminary agenda published for comment.
- **2015-10-09 (Friday):** Final agenda to be published.
- **2015-10-19 (Monday):** Internet Draft submission cut-off (for all drafts)
- **2015-10-19 (Monday):** Draft Working Group agendas due by UTC

- **6lo PlugTest**

- from 6th to 8th November:
- <http://www.etsi.org/news-events/events/1003-6lo-plugtests>

draft-ietf-6tisch- minimal

Xavi Vilajosana (Ed.)

Kris Pister

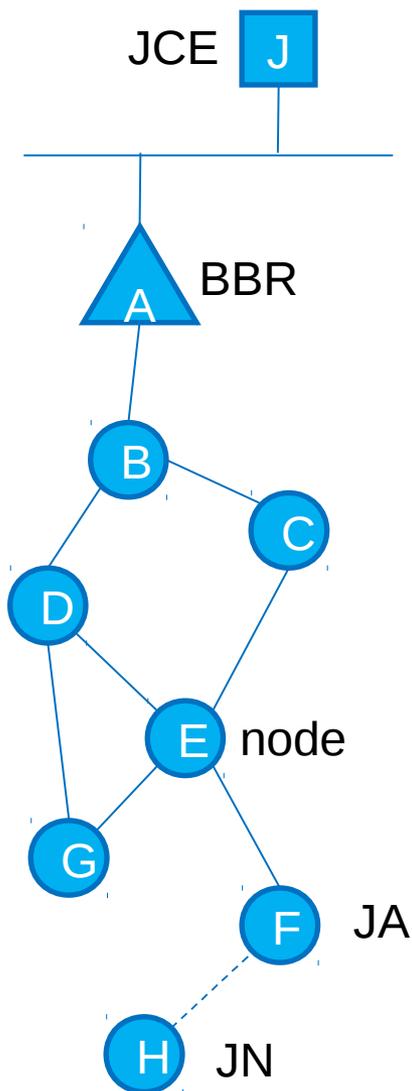
draft-ietf-6tisch-minimal

- <https://tools.ietf.org/html/draft-ietf-6tisch-minimal-12> published 21 Sept
- Let's go through diff at :
<https://tools.ietf.org/rfcdiff?url2=draft-ietf-6tisch-minimal-12.txt>

Scoping dynamic scheduling work

6TiSCH action plan – Sept 2015-February 2016 - DRAFT

from last call



- Joining
 - PSK between node and JCE. One key per node possible.
 - Node announces itself to JCE through JA
 - CoAP packet with payload protected using COSE
 - TODO: COSE must be lean (overhead <10B)
 - Packet goes through JA
 - Replay protection with freshly learned ASN
 - JCE authenticates the node because it can authenticate/decrypt the COSE payload
 - TODO: JCE needs to know ASN window that it can accept?
 - JCE initiates a security session, based on the PSK (end-to-end session between JN <-> JCE)
 - *Option 1*: COSE object with PSK-encrypted session state, includes ASN for replay
 - *Option 2*: Abbreviated DTLS handshake (4-6 packets) using session resumption ticket
 - Note well: “session resumption ticket” is just way of encrypting new key with the PSK in DTLS-compliant way to get rid of extra packets (see discussion with Michael Richardson)
 - Over secure session, JCE installs network-wide L2-key “K2”
 - Simple CoAP resource for JCE to install in node keys
 - TODO: “simplified” 6top interface for security (/k2 resource)
 - TODO: “simplified” CoAP mapping of that interface
- Operation
 - Network starts with draft-minimal
 - TODO: Consolidate/publish minimal draft
 - Compliance with 15.4e-2012 vs -2015
 - Table 2a rewording (→ mail Xavi)
 - RPL: MUST non-storing, SHOULD storing
 - OTF to negotiate schedule between neighbor nodes
 - TODO: think about more efficient solution than CoAP IE? Simple(r) TLV?
 - TODO: discover OTF algorithm used
 - 6top negotiation interface. Soft cell reservation using BW requirements (not specific cells)
 - Determine and consolidate 6top format and IEs (1 for IETF/6TiSCH)

Discussion points

- OTF centralized and distributed
 - 1st step: start working with OTF on track0 (L3)
 - Start with no PCE
- CoAP-IE ?, at IETF vs. IEEE?
 - Go back to extremely simple plain IE
 - 802.15.9 ? f
- Slot appropriation (LBT?)
 - 1st iteration on protocol to negotiate and leave to the device to decide which TS to propose
- Chunk support

Charter Bashing

Current Charter Work Items

The group will:

1. Produce "6TiSCH architecture" to describe the design of 6TiSCH networks. This document will highlight the different architectural blocks and signaling flows, including the operation of the network in the presence of multiple LBRs. **Initially, the document will focus on distributed routing operation over a static TSCH schedule.**
2. Produce an Information Model containing the management requirements of a 6TiSCH node. This includes describing how an entity can manage the TSCH schedule on a 6TiSCH node, and query timeslot information from that node. A data model mapping for an existing protocol (such as Concise Binary Object Representation (CBOR) over the Constrained Application Protocol (CoAP)) will be provided.
3. **Produce "Minimal 6TiSCH Configuration" defining how to build a 6TiSCH network using the Routing Protocol for LLNs (RPL) and a static TSCH schedule. It is expected that RPL and the Objective Function 0 (OF0) will be reused as-is.**

The work will include a best practice configuration for RPL and OF0 operation over the static schedule. Based on that experience the group may produce a requirements draft for OF0 extensions, to be studied in ROLL.

Proposed Charter Update

The group will:

1. Produce "6TiSCH architecture" to describe the design of 6TiSCH networks. This document will highlight the different architectural blocks and signaling flows, including the operation of the network in the presence of multiple LBRs. *The existing document will be augmented to cover dynamic scheduling and applicability of DetNet work.*
2. Produce an Information Model containing the management requirements of a 6TiSCH node. This includes describing how an entity can manage the TSCH schedule on a 6TiSCH node, and query timeslot information from that node. *A data model mapping for an existing protocol (such as Concise Binary Object Representation (CBOR) over the Constrained Application Protocol (CoAP)) will be provided. MAC-layer interactions to negotiate Time Slots between peers will be proposed, to be eventually continued at IEEE.*
3. Produce an "On-the-fly" specification to enable a distributed dynamic scheduling of time slots *for IP traffic*, with the capability for IoT routers to appropriate chunks of the matrix without starving, or interfering with, other 6TiSCH nodes.
4. Produce a specification for a secure 6TiSCH network bootstrap, adapted to the constraints of 6TiSCH nodes and leveraging existing art when possible.

Current non milestone Work Items

The Working Group may maintain a number of running, often-respun documents, that evolve as the technology is refined for work items that do not affect the milestone work items:

- implementers guide: this document will collect clarifying information based on input from implementers, in particular as it becomes available from interoperability events. This guide will contain information about test harnesses used for interoperability testing.

- coexistence guide: this document will provide information on how 6TiSCH can be operated in an environment shared with other protocols that use the same or a similar TSCH MAC, and/or operate on the same frequency band.

- [Text on Interop test ?](#)

The WG will welcome requirements for dynamic timeslot operation, for example for centralized schedule computation.

AOB ?

Thank you!