



08 January 2016 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.

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- 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

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

*** From the Webex login

Agenda

- Administrivia [3min]
- Plugtest [15min]
- Minimal Draft [25min]
- Next steps [15min]
- AOB [2min]

Administrivia

Admin is trivia

- Approval Agenda
- Approval minutes

Plugtest

Admin

- 2-4 February 2016
- Paris, France
- Free event, NDA
- Registration deadline: Friday, Jan 15

Overview Test Cases

- Follows ETSI 6TiSCH plugtests #1 (July 2015, Prague)
- Adds:
 - 6top protocol: draft-wang-6tisch-6top-sublayer
 - 6loRH: draft-ietf-6lo-routing-dispatch-00

Test-Number	Test-ID	Test-Summary	Test-Group
1	TD_6TiSCH_JOIN_01	Check that a 6N can synchronize to the EB sent by the DR and join the network by parsing all IEs in the EB.	BOOT
2	TD_6TiSCH_JOIN_02	Check that a 6N can synchronize to the EB sent by the DR and join the network by parsing all IEs in the EB. Non-default values.	BOOT
3	TD_6TiSCH_RPL_01	Check the value of EB join priority of a child 6N and a parent DR.	RPL
4	TD_6TiSCH_RPL_02	Check the rank of 6N is computed correctly according to draft-ietf-6tisch-minimal-11.	RPL
5	TD_6TiSCH_6P_01	Use the 6top time slot ADD request to add one cell to the schedule. Check the packet format is correct according to draft-ietf-6tisch-6top. Check that a cell is added to the schedule of both nodes if IANA_6TOP_RC_SUCCESS Force a failure by allocating the same cell and check response code. IANA_6TOP_RC_VER_ERR	6P
6	TD_6TiSCH_6P_02	Use the 6top time slot DELETE request to remove one cell to the schedule. Check the packet format is correct according to draft-ietf-6tisch-6top. Check that a cell is removed from the schedule of both nodes if IANA_6TOP_RC_SUCCESS Force a failure by removing the same cell Check response code. IANA_6TOP_RC_VER_ERR	6P
7	TD_6TiSCH_6P_03	Use the 6top time slot COUNT request to query the number of cells in the schedule. Add a cell and issue a COUNT. Check the number of allocated cells has been increased.	6P

List of test cases (1/2) (preliminary)

List of test cases (2/2) (preliminary)

		Check the packet format is correct according to draft-ietf-6tisch-6top.	
8	TD_6TiSCH_6P_04	Use the 6top-time-slot-LIST request to query the list of cells in the schedule. Add a cell and issue a LIST. Check the new cell is returned. Check the packet format is correct according to draft-ietf-6tisch-6top.	6P
9	TD_6TiSCH_6P_05	Use the 6top-CLEAR request to clear the schedule of a node. Add two cells and issue a COUNT, then a CLEAR. Issue a COUNT and check is 0. Check the packet format is correct according to draft-ietf-6tisch-6top.	6P
10	TD_6TiSCH_6P_06	Check the timeout after a 6P request. Not receiving the 6P response.	6P
11	TD_6TiSCH_6P_07	???	6P
12	TD_6LORH_01	Check that the 6LoRH-Critical-RH3 compresses a source routing header and intermediate routers can forward the packet containing it until destination.	6LORH
	TD_6LORH_02	Check that the 6LoRH-RPI compresses a RPL-Information-Option when the destination is outside of the LOWPAN.	6LORH
13	TD_6LORH_03	Check that the 6LoRH-RPI do not compresses a RPL-Information-Option when the destination is in the LOWPAN.	6LORH
14	TD_6LORH_04	TODO	6LORH
15	TD_6LORH_05	TODO	6LORH
16	TD_6LORH_06	TODO	6LORH
17	TD_6LORH_07	TODO	6LORH

Equipment and Tools

- OpenMote + Golden image
- Wireshark dissector

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Questions?
Discussion?

draft-ietf-6tisch-minimal

Proposed Text [1/3]

[Abstract]

This document describes a minimal mode of operation for a 6TiSCH Network, to provide IPv6 connectivity over a Non-Broadcast Multi-Access (NBMA) mesh that is formed of IEEE 802.15.4 Timeslotted Channel Hopping (TSCH) links.

This minimal mode uses a collection of protocols including the 6LoWPAN framework and RPL to enable interoperable IPv6 connectivity over IEEE 802.15.4 TSCH with minimal network configuration and infrastructure.

Proposed Text [2/3]

1. Introduction

A 6TiSCH Network provides IPv6 connectivity over a Non-Broadcast Multi-Access (NBMA) mesh that is formed of IEEE 802.15.4 Timeslotted Channel Hopping (TSCH) links.

The 6TiSCH [I-D.ietf-6tisch-architecture] architecture requires the use of both RPL and the 6LoWPAN adaptation layer framework ([RFC4944], [RFC6282]) as defined over IEEE 802.14.5. 6LoWPAN Neighbor Discovery [RFC6775] (ND) is also required to exchange Compression Contexts, form IPv6 addresses and register them for the purpose of Duplicate Address Detection, Address Resolution and Neighbor Unreachability detection over one TSCH link.

Nodes in a IEEE 802.15.4 TSCH network follow a communication schedule. A network using the simple mode of operation uses a static schedule.

Proposed Text [3/3]

This specification defines operational parameters and procedures for a minimal mode of operation to build a 6TiSCH Network.

The 802.15.4 TSCH mode, the 6LoWPAN framework, RPL [RFC6550], and its Objective Function 0 (OF0) [RFC6552], are used unmodified, but parameters and particular operations of TSCH and RPL are specified to guarantee interoperability between nodes in a 6TiSCH Network.

More advanced work is expected in the future to complement the Minimal Configuration with dynamic operations that can adapt the Schedule to the needs of the traffic in run time.

2. Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [RFC2119].

Next steps

draft-wang-6tisch-6top-sublayer

draft-dujovne-6tisch-6top-sf0

draft-dujovne-6tisch-6top-sf0

D. Dujovne, Ed.

L.A. Grieco

M.R. Palattella

N. Accettura

Status

Goal:

Define the Scheduling Function for the 6top sublayer, called Scheduling Function Zero, SF0.

Background/History:

On the Fly Scheduling (draft-dujovne-6tisch-on-the-fly-06) - recently expired.

Next:

TODO

Preference of parent schedule over the child:

Solution A: Direction bit, to define the cell allocation direction

Solution B: If cells belong to a container, parent suggests candidate cells:

Upstream: Child asks (propose time offsets),
Parent suggests, Child picks

Downstream: Parent asks, Child picks.

Piggyback IE for the initial request with data packet.

Sequence number

Add a sequence number to track transactions, at 6top level

Overhead? (scalability issues)

Container for 6top signaling

Not Chunk, but Bundle:

A parent may have multiple chunks, can pick a cell from any of them

The bundle is associated at L3 with link direction.

Bundle must be identified by 6P ID

(link,direction) -> to be extended on tracks

Avoid concurrency for different bundles

AOB ?

Thank you!