

IETF 115 ROLL Session

8 November 2022

Chairs: Dominique Barthel, Ines Robles

Secretary: Michael Richardson

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IETF 115 London
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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:

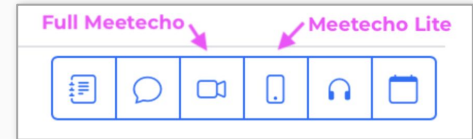
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- [BCP 25](#) (Working Group processes)
- [BCP 25](#) (Anti-Harassment Procedures)
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Resources for IETF 115 London

- Agenda
<https://datatracker.ietf.org/meeting/agenda>
- Meetecho and other information:
<https://www.ietf.org/how/meetings/115/preparation>
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- **Remote Participation**

- Meetecho: <https://www.conf.meetecho.com/conference/?group=roll>
- Material: CodiMD: <https://notes.ietf.org/notes-ietf-115-roll>
- Zulip Chat: <https://zulip.ietf.org/#narrow/stream/roll>
- Minute takers: **Please volunteer, thank you :)**
- Datatracker login required to be able to edit the minutes

Agenda

Tuesday, November 8th, 2022

15:00 - 16:00 (UTC) - Tuesday Session III

Time (UTC)	Duration	Draft/Topic	Presenter
15:00 - 15:10	10 min	WG Status	Ines/Dominique
15:10 - 15:25	15 min	more details on documents status: NSA, AODV-RPL, Enrollment-Priority, MOPEX, RNFD	Ines/Dominique
15:25 - 15:40	15 min	draft-ietf-roll-dao-projection	Pascal
15:40- 15:55	15 min	draft-ietf-6lo-multicast-registration	Pascal
15:55 - 16:00	5 min	Open Floor	Everyone

Draft status

Common Ancestor Objective Function and Parent Set DAG Metric Container Extension draft-ietf-roll-nsa-extension-10	AD evaluation, revised I-D needed
Supporting Asymmetric Links in Low Power Networks: AODV-RPL draft-ietf-roll-aodv-rpl-14	New version addressing open issues
Root initiated routing state in RPL draft-ietf-roll-dao-projection-27	WGLC'ed, discussed today
Controlling Secure Network Enrollment in RPL Networks draft-ietf-roll-enrollment-priority-06	Addressing Open Issues
Mode of Operation extension draft-ietf-roll-mopex-04	waiting for attention
RPL Capabilities draft-ietf-roll-capabilities-09	waiting for attention
RNFD: Fast border router crash detection in RPL draft-ietf-roll-rnfd-00	New Work adopted by the WG, review/discussion needed
RPL Storing Root-ACK draft-jadhav-roll-storing-rootack-03	WG adoption to be called

Milestones

Milestones

Date	Milestone
Nov 2023	Initial submission of Fast Border Router Crash Detection in RPL to the IESG
Nov 2023	Recharter WG or close
Nov 2023	Initial submission of a proposal to augment DIS flags and options to the IESG
Nov 2023	Initial submission of a proposal for Source-Route Multicast for RPL to the IESG
Nov 2023	Initial submission of a YANG model for MPL to the IESG
Jun 2023	Initial submission of Capabilities for RPL to the IESG
Nov 2022	Initial submission of Mode of Operation extension for RPL to the IESG
Sep 2022	Initial submission of Controlling Secure Network Enrollment in RPL networks draft to the IESG
May 2022	Initial submission of a root initiated routing state in RPL to the IESG

Done milestones

Date	Milestone
Done	Initial submission to the IESG of mechanism to turn on RFC8138 compression feature within a RPL network
Done	Initial submission of Common Ancestor Objective Functions and Parent Set DAG Metric Container Extension to the IESG
Done	Initial submission of routing for RPL Leaves draft to the IESG
Done	Initial submission of a reactive P2P route discovery mechanism based on AODV-RPL protocol to the IESG
Done	Initial Submission of a proposal with uses cases for RPI, RH3 and IPv6-in-IPv6 encapsulation to the IESG
Done	Initial submission of a solution to the problems due to the use of No-Path DAO Messages to the IESG

more details on documents status

NSA-extension

Common Ancestor Objective Function and Parent Set DAG Metric Container Extension

- AD review March 17th
 - motivation: is this work usable beyond Packet Replication and Elimination?
 - about 40 comments, 20 noted as “major”
- being addressed by the authors
- Revised draft needed before sending to IESG

AODV-RPL

Supporting Asymmetric Links in Low Power Networks - Reactive P2P route discovery for hop-by-hop and source routing

- Introduces AODV-RPL DIO Options:
 - AODV-RPL RREQ (Route Request) Option
 - Present in DIO Messages from OrigNode toward TargNode
 - AODV-RPL RREP (Route Reply) Option
 - Present in DIO Messages from TargNode toward OrigNode
 - AODV-RPL Target (ART) Option
 - Present in RREQ DIO and RREP DIO messages
- Introduces a new multicast address with link-local scope: all-AODV-RPL-nodes
- MOP = 4
 - Does not collide with P2P-RPL (RFC6997)
 - They will operate as different RPL Instances

https://mailarchive.ietf.org/arch/msg/roll/dX4hMiwl4biCqF_97MwcnxvqEg4/

6.3.3. RPLInstanceID Pairing

Since the RPLInstanceID is assigned locally (i.e., there is no coordination between routers in the assignment of RPLInstanceID), the tuple (OrigNode, TargNode, RPLInstanceID) is needed to uniquely identify a discovered route. It is possible that multiple route discoveries with dissimilar Objective Functions are initiated simultaneously. Thus between the same pair of OrigNode and TargNode, there can be multiple AODV-RPL route discovery instances. So that OrigNode and Targnode can avoid any mismatch, they MUST pair the RREQ-Instance and the RREP-Instance in the same route discovery by using the RPLInstanceID.

AODV-RPL

- New version 15 published on Sept. 30th
 - Address ticket 1 (<https://github.com/roll-wg/aodv-rpl/issues/1>)
 - John Scudder discuss: comments to improve readability
 - Address ticket 2 (<https://github.com/roll-wg/aodv-rpl/issues/2>)
 - Ben Kaduk discuss: comments to improve the protocol
 - Address ticket 3?
(<https://github.com/roll-wg/aodv-rpl/issues/3>)
 - Pascal review.
 - Last comments on ML in July
 - Review by Konrad, Last comments on ML in Oct
- Next Step: Last Call when all issues closed

Enrollment-priority

Controlling Secure Network Enrollment in RPL Networks

Ticket	Description
4	Enrollment priority option name
5	Explain how new option values are related to DODAGVersionNumber
7	-05 Section 3.1, questions
10	Should priority have more than 1 bit: join disabled/enabled?
11	What EB and priority, if any should a node with no feasible parent emit?
12	should root explicitly reset trickle timer?
13	add explicit lollipop counter into enrollment priority option

- Work to be resumed when resource available

MOPEX

Mode of Operation extension

- RPL instance operates in one among multiple possible modes
- We are running out of mode code points
- This draft extends the Mode of Operation field

- Ticket #8: Do-not-join-instance flag in RPL ext control option

Currently, the MOPex draft extends the RPL control options with certain flags to handle cases where the control option is not understood by the node: J-flag: Join only as 6LN - C-flag: copy option as-is even if not understood - I-flag: Ignore message altogether.

We could have an option for the node to not join the network at all (not even as 6LN) if a control option is not understood.

- Discussion in ML

RNFD

Fast border router crash detection in RPL -
having nodes collaboratively monitoring the status of the root.

- Protocol features:
 - Proposed as extension of RPL
 - Introduces RNFD Option
 - Carried in DIOs and DISs
 - Roles: Acceptor and Sentinel
 - Conflict-Free Replicated Counter (CFRC)
- Presented at last interim meetings:
<https://notes.ietf.org/s/notes-ietf-interim-2022-roll-01-roll>
- version -01 published Oct. 12th

RNFD

Fast border router crash detection in RPL - having nodes collaboratively monitoring the status of the root.

ML Discussion Points:

<https://mailarchive.ietf.org/arch/msg/roll/h6UsXpjAYFFdDHADHZ8phDgAoj28/>

1. What happens when Sentinels (the root's one-hop neighbors that monitor its state) don't hear each other? Does the algorithm still detect the crash of the root?
 2. What if most of the direct links to the root fail but the root is in fact alive?
 3. Is rebuilding the DODAG in such a case desirable?
 4. Why can't Sentinels ask the root whether it is dead?
 5. The threshold that describes how large the majority is is configured into the nodes. It is not conveyed as part of the protocol operation. Should it?
 6. What is the effect of the parameter being different on different sentinels/acceptors?
- Discussion to be continued on ML
 - Reviews/comments needed.