Minutes IEEE P802.11  
Wireless LANs

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| 802.11 bh Plenary Meeting Minutes, March 2021 | | | | |
| Date: 2021-03 -11 | | | | |
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Abstract

This document contains the minutes of the IEEE 802.11 bh telecom meeting 9 March 2021 at 13.30 hrs EDT, and March 11 2021 at 13.30 hr ET

Note: Highlighted text are action items.

Q- proceeds a question asked at the meeting

A- proceeds an answer given by the presenter

C- proceeds a comment

Rev 1 – reduce the “Yes” vote count on both the liaison motions, by 1 count.  There was 1 non-voter who voted (and voted Yes)

**Meeting March 9, 2021 13.30 to 15.30 hr ET**

**Chair: Mark Hamilton**

**Acting Secretary: Graham Smith**

**1. The teleconference was called to order by Chair 13:30 hrs. EDT,**

Graham Smith (SRT) volunteered to be acting secretary.

Agenda slide deck 11/21/0286r2

1. **Policies and procedures were presented by the chair. (Slides 5 to 15)**

There were no Patent declarations.

Copyright policy slides were presented (Slides 11 and 12)

1. **Agenda March 9 13.30 -15-30 ET:**
   * Attendance, noises/recording, meeting protocol
   * Policies, duty to inform, participation rules
   * Organization topics:
     + March Plenary meetings: Tuesday, 13:30-15:30; Thursday 13:30-15:30
     + Approve March 1 teleconference minutes
     + Leadership positions – Chair; Vice Chair(s); Secretary; Editor
       - Close and review nominations
     + PAR: [https://development.standards.ieee.org/myproject-web/public/view.html#pardetail/8770](https://development.standards.ieee.org/myproject-web/public/view.html)
     + CSD: [11-20/1117r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1117-05-0rcm-rcm-sg-proposed-rcm-csd-draft.docx)
     + P802.11bh IEEE SA website: <https://standards.ieee.org/project/802_11bh.html>
   * Work organization
   * Background/input material
   * Contributions

The Chair reviewed the agenda.

The proposed agenda was approved without objection.

1. **Approve Minutes**

Any comments? None

Motion Approve the minutes of

Teleconference minutes:

March 1: <https://mentor.ieee.org/802.11/dcn/21/11-21-0355-00-00bh-802-11bh-telecon-minutes-march-1-2021.docx>

Moved: Carol Ansley Seconded: Stuart Kerry Result: No objection

1. **Leadership positions**

Chair announced candidates:

Vice Chairs: Stephen Orr, Peter Yee

Secretary: Graham Smith

Editor: None

Nominations are now closed. To be confirmed next meeting.

**ASIDE Study Group Minutes will be approved in 11bi.**

1. **TGbh PAR Scope**

* PAR: [https://development.standards.ieee.org/myproject-web/public/view.html#pardetail/8770](https://development.standards.ieee.org/myproject-web/public/view.html)
* CSD: [11-20/1117r5](https://mentor.ieee.org/802.11/dcn/20/11-20-1117-05-0rcm-rcm-sg-proposed-rcm-csd-draft.docx)

Chair discussed slide 19, “TGbh PAR Scope” and went through it. Certain methods for existing services may now not be possible or are effected. We do not want to do anything that affects User privacy. Also drew attention to 11bi Privacy.

There is a need to:

* Ensure that IEEE Std 802.11 provisions that refer to a STA MAC address remain valid when that MAC address is random or changes.
* Design mechanisms that enable an optimal user experience when the MAC address of a STA in an ESS is randomized or changes. These mechanisms should not decrease user privacy.

(8.1 Additional Explanatory Notes **:** 5.2.b: The IEEE Std 802.11TM-2020 requirements regarding changing a MAC address will be maintained. A non-AP STA MAC address shall not change during an ESS connection.)

Chair’s intention is to try to keep focused on this scope.

C – Lack of “non-AP” in front of STA. Confirm we are only talking about non-AP STAs.

Chair – need to check but concept is valid and need to be clear not addressing AP changing MAC address. Pretty sure that APs MAC address cannot change during life of a BSS.

C – Note is non-binding, everything in note is pre-association. Can we confirm that?

Chair – think that is valid statement and not in our scope to change behavior in current spec. We should not change this rule, but figure out what it means. Group should discuss as known some devices change address on a time basis and we need to understand what that means.

C – Is open for discussion?

Chair – Clear we must preserve existing services.

C – AP cannot randomize its address, otherwise a new BSS.

Chair – nothing in spec that precludes an AP from using a randomized address. But must start a new BSS if it changes. Is there really a problem here that we should address? Don’t think so.

C – Non-AP STA is right framework

C – Not talking about MAC address changes during association?

Chair - might need further discussion. We have rules can’t change address during association, but we have other rules across longer sessions.

C – Post association address change, I do not read the PAR as excluding this. Review at IEEE-SA NesCom was that there should be no overlap with other projects. If group feels uncomfortable with extending scope, should understand that it can change the PAR. Could address post association address changes.

Yes, we can make a PAR amendment if so desired.

C – AP privacy. Could be interpreted as AP privacy, and that is good. A smart phone mobile AP constantly connected to a device, e.g. watch, is a possible use case.

C – PAR amendment is a Modified PAR. There is an obligation for those in letter ballots, to make sure comments are within the approved PAR. Also a “note” is an informal statement. TGbh is narrowly focused and ‘privacy’ is in 11bi. Need to be disciplined to maintain topics for each TG. TGbh needs to be narrow so as to complete quickly. Hence the scope statement was so agreed to. Do not spend energy on trying to expand the PAR.

C – TGbh must be distinct from what gets done in TGbi.

Chair – “Fix issues” is the main thrust of TGbh. Get the set of issues in front of the group before we work on solutions. This is different to other TGs. TGbh and TGbi Chairs have agreed to work closely together.

C – Only dealing with ESS, not IBSS, TDLS?

Chair – PAR clearly says ESS.

C – May need joint calls TGbh and TGbi. But if not to do with RCM addresses then it is TGbi.

Chair – TGbh is concerned only as RCM impacts existing services. Not new privacy issues that need solving. That is TGbi.

1. **TGbh (Proposal) Work Organization**

Slide 20. Chair’s high level approach.

Chair - Contribution driven…please bring even if simply a couple of slides outlining or identifying a point. Can then agree if in scope.

* Gather requirements (start with RCM/ARC materials, add to it)
  + Identify specific features/operations/services of 802.11 that are impacted by randomized and/or changing MAC addresses
  + “Real world” use case(s) for each would be helpful, to understand the impact and what/who is impacted
* Proposals for specification amendments to address/mitigate the impact
  + High-level/general overview of a solution is helpful, to start
  + Specific text proposals needed

Chair’s intention is to work on an issue by issue basis.

1. **TGbh Background Documents**

Slide 21 of 21/0286r3

List of input background material. The TIG report for example has summary of materials that went into RCM.

Looking to TG to pull information out of the documents to focus the TG.

1. **Issues Tracking**

Chair introduced Document 21/0332 as a start and includes Use Cases from the TIG.

Intention is to use this document as a tracking document.

Group should reconsider the Use cases not just copy over.

Chair then walked through this document

Terminology (not in 802.11) – New definitions for Randomized MAC address, Changing MAC address, Rapidly changing MAC address.

Discussion on details about terms ‘randomized’ vs. ‘changing’ and also ‘permanent randomized’ MAC and ‘local administered’ MAC.

C – Do not want to conflict with OUIs which companies pay for. Randomizing is a problem anyway. Implementers must be careful how they generate MAC addresses.

Chair- feel that how to generate a random address is in not our scope. Need to stick to what is broken.

C – 802.1cq (?) provides signaling on how a device selects its randomized address.

C – Duplicate MAC addresses may want to discuss. i.e. keep services running if this happens.

Chair – Careful, only identify issues that occur when devices do things within the Standards.

C – Also seen simple choice to not use the allocated permanent MAC address, but selects one and does not change it.

C - Many STAs use same address when returning to same ESS.

C - Could be interpreted as a permanent identifier for that ESS or service.

C – Addresses being used for ‘inappropriate use’

Further discussion ensued on similar track of selection or construction or definition of the “random” address.

**Out of time**

**Meeting Recessed at 15.30 ET.**

**Meeting March 11, 13.30 – 15.30 ET**

**The teleconference was called to order by Chair 13:30 hrs. EDT,**

Graham Smith (SRT) volunteered to be acting secretary.

Agenda slide deck 11/21/0286r4

1. **Policies and procedures were presented by the chair. (Slides 5 to 15)**

There were no Patent declarations.

Copyright policy slides were presented (Slides 11 and 12)

1. **Agenda March 11 13.30 -15-30 ET:**
   * Attendance, noises/recording, meeting protocol
   * Policies, duty to inform, participation rules
   * Organization topics:
     + Leadership positions – Vice Chair(s); Secretary; Editor
   * Contributions
     + Liaison to Wi-Fi Alliance: [11-21/0425r1](https://mentor.ieee.org/802.11/dcn/21/11-21-0425-01-00bh-draft-ls-from-802-11-to-wfa-on-use-cases.docx)
     + Issues Tracking: [11-21/0332r1](https://mentor.ieee.org/802.11/dcn/21/11-21-0332-01-00bh-issues-tracking.docx)
   * Next Steps:
     + Timeline estimate
     + May plan
     + Teleconferences

Agenda adopted without objection.

1. **Leadership Positions**

Motion ***Move to elect Stephen Orr and Peter Yee as Vice Chairs***

Moved: Stephen McCann Seconded: Dan Harkins

No Discussion Result: 34/0/0 (50 on call)

Motion ***Move to confirm Graham Smith as Secretary***

Moved: Joseph Levy Seconded: Jon Rosdahl

No Discussion Result: Unanimous

There are no nominations for editor. Chair noted that some time before an editor is required.

1. **Contributions**

**Liaison to Wi-Fi Alliance**

Chair presented : [11-21/0425r1](https://mentor.ieee.org/802.11/dcn/21/11-21-0425-01-00bh-draft-ls-from-802-11-to-wfa-on-use-cases.docx)

Effectively a notice to the WFA that TGbh is working on this topic and requesting any input on use cases and requirements and underlying technical issues.

Q – Assume WFA is interested in TGbi as well, should the letter be combined?

A – Don’t want to confuse as looking for quick information on RCM.

Q – Should we send similar requests to other groups?

A – Good question. Already had liaisons with WBA and have their input. If they had updates, that would be good. Could contact once we had some progress. Does not hurt to reach out more often, but open on this.

Q – Combining would make each group aware of each other.

A – Not sure necessary now, but could review later.

C – Think we should send letter to WBA anyway as simply good practice. Are there any other groups? Can’t think of any but welcome ideas.

Lot’s of discussion related to typos, editing, wordsmithing and font sizes. Changes were made and r2 generated.

Motion ***Move to request 802.11 WG forward 11-21/0425r2 to Wi-Fi Alliance as a liaison requesting for input on RCM***.

Moved: Joseph Levy Seconded: Jouni Malinen

No Discussion Result: 31/0/4 (71 on call)

Chair started working on editing the letter addressed to WBA.

C – Just tell them we are starting work

A – We did reply with details.

Q – Just ask if any updates?

A - That sounds better.

Chair worked on the liaison letter, on screen, with inputs from attendees.

Document uploaded as 11-21/0449r0

Motion ***Move to request 802.11 WG forward 11-21/0449r0 to Wireless Broadband Alliance as a liaison requesting input on RCM***.

Moved: Manish Kumar Seconded: Jouni Malinen

No Discussion Result: 31/0/3 (68 on call)

**Issues Tracking document 11-21/0332r1**

Chair introduced, again, the Tracking Document which is proposed as a document to be used to capture background, Use Cases, Issues and Solutions.

At last discussion, we got stuck on the terminology Section 2 on “Randomized” and “Changing”. Suggest eliminating the concept of permanent or not.

Q – Is randomized MAC really the problem. It was the transient nature that was the problem. Could ship a device with a random address and just keep it.

C – Issue is a changing address, hence should concentrate on that. Randomization is another issue.

C – Issue is changing address on association.

A – No issue if we use the allocated, purchased MAC address.

C – It is all to avoid the tracking of that device. One approach is to randomize a changing address, and address must not be identifiable parameter.

C – Already happening, AP does not know the MAC address of Station. May be better or worse ways to select an address, but that mechanism is not in our area

C – The two concepts of randomized and changing get intertwined. Maybe device’s concern is not the tracking, but does not want to yield its allocated MAC for some reason (e.g. billing, parental control). Maybe too obscure.

C – Tying change to time may be the problem, and not a primary driver.

C – Put terminology to one side for now, look at use cases etc. then return once we understand the issues.

Chair – Any objections to that approach? None.

Chair moved to Section 3 – Use Cases

Grabbed cases from the TIG document. Suggest members look off line and pull Use cases which are deemed the important ones – clean them up etc. Also look for new ones?

Discussion ensued:

C – Some Use cases are for associated devices and others for unassociated devices. Should we look at both?

A – driven by issues, although some issues will have solutions that may lie outside 802.11 scope

C – Pre-association with band steering was previously discussed, if the client keeps changing address, that causes a problem

C – Think 2 separate cases, pre and associated. After association completely different area to pre-association. Could consider Use Cases separately.

A – Do not jump to how do we solve it. Find the interesting Use cases, then figure out the possible solutions. Similarly, in Section 4, pulled Issues out of the TIG and some of these are pre and after association. Even after association you are still sharing information with somebody.

Chair – We assume device is changing its addresses, then we assess what are the impacts of it doing that.

C – In 802.11-2020 Spec some areas may assume the MAC address is constant.

C – Would consider separating pre and after association Use Cases as major consideration.

C – Useful if Use cases spelled out how dependent they are on an unchanging MAC address.

C – Address changes are on client side, is it for sniffer or AP? Maybe differences. Trust issues?

C – May need to solve the problem of the network knowing who I am.

C – Passive scanning is very secure but active scanning mechanisms provide information.

C – Steering is common in enterprise networks.

C – Need to assume STAs will use randomized MAC address for whatever they think and we need be focused on that. Use cases that assume that address changes between states, and what implications occur. Do not get into cases of why the MAC addresses change. If a function relied on a fixed address, we need to look at it.

1. **Timeline**

Chair introduced Slide 26 and went through the proposed, aggressive, timescales.

Motion **Move to adopt the following timeline for TGbh.**

PAR approved Feb 2021

First TG meeting Mar 2021

D0.1 Nov 2021

Initial Letter Ballot (D1.0) Mar 2022

Recirculation LB (D2.0) Jul 2022

Initial SA Ballot (D3.0) Nov 2022

Final 802.11 WG approval Mar 2023

802 EC approval May 2023

RevCom and SASB approval May 2023

Moved: Manish Kumar Seconded: Carol Ansley

No Discussion Result: Unanimous

Q – Should we be numbering the Motions?

A – will number once we get text.

1. **May Interim Session Plan**

Slide 27

**Meeting Slots**

Avoid conflicts with TGbi, REVme, ARC, TGbe

No decision

1. **TGbh Teleconferences**

Teleconferences through May

Avoid conflicts with TGbi, REVme, ARC, TGbe

Q - Any thoughts on evening slots?

A - Nullifies EU input, prefer not.

C - Alternating experience has not been good.

C – 15.00 or 16.00?

**Out of Time.**

**Meeting Adjoined at 3.30 hr ET**

**Attendance from IMAT:**