IEEE P802.11
Wireless LANs

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|  TGbi Minutes Electronic Plenary Session 12-16 July 2021 |
| Date: 2021-07-22 |
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Abstract

This document contains the minutes for the IEEE 802.11bi task group meeting that took place during the IEEE 802 Electronic Plenary Session 12-16 July 2021.

Note: Highlighted text are action items.

Q – proceeds a question

A - proceeds an answer

C - proceeds a comment

Yellow highlight - action point

**Chair: Carol Ansley, Cox Communications**

**Secretary: Amelia Andersdotter, self**

**Vice-chairs: Jerome Henri, Cisco; Stephen McCann, Huawei**

**Technical editor: Po-Kai Huang, Intel**

**1st slot. Wednesday 14 July 2021, 11:15 ET.**

Chair calls meeting to order at 11:17 ET.

Agenda slide deck: 11-21-0946r1:

1. Reminder to do attendance. Reminder of registration for July 802 Electronic Plenary Session.
2. The chair mentioned the call for essential patents
	1. No one responded to the call for essential patents
3. The chair covered the IEEE copyright and participation rules.
	1. Comment on the new guidelines on requirement for participants to present a "formal objection" if inappropriate topics are discussed. Chair will look into changing introductory slides on participation rules until the next meeting slot on Thursday 15 July 2021.
4. **Discussion of agenda 11-21-0946r1**
	1. DCN 993r0 is ready to be presented any time.
	2. Schedule conflict for TGbe and TGbi on the Thursday 15 July 2021 meeting slot. Main discussion topic on agenda is otherwise brainstorming session.
		1. Proposal to take decision at the end of this meeting, when we have a better overview of how much meeting time we need.
		2. No objection to postponing decision to end of meeting.
	3. Unanimous approval of the agenda.
5. **Brainstorming discussion (11-21/1126r0).**
	1. Overview of 802E as it relates to IEEE 802.11 and TGbi.
		1. Discussion about personally identifiable information and personally correlatable information.
		2. Personally correlatable information in probe requests could be captured and help infer whether a person has an old device. This information could then be shared with a store attendant who might approach the person with the device to attempt to sell them a new device.
	2. Device identifiers and parameters.
		1. It makes no sense for the task group to even consider higher layer or associated items because it is not the IEEE 802.11 that makes decisions on these things.
		2. Q: is the discussion restricted to association? Or does it also cover pre-association? MAC-addresses are currently required for some services, but this may not continue to be the case in future - so is this a restriction we are imposing on ourselves?
		3. It will be very difficult if we tied the standard to any particular legal regime for identifiers (reference to TGBH discussions). IEEE 802.11 standards should be made secure and useful for end-users and implementers. Standard is there for interoperability and provides a certain number of tools and characteristics, and implementors, device vendors or end-users will be legally obliged to comply with local laws or regulations. We cannot fix that in IEEE 802 for any jurisdiction.
		4. Q: Pre-association work is most relevant since post-association is likely to be identified anyway, surely?
		5. A: Post-association is also relevant since information is left behind in the AP, or there could be identifier leaks during association.
		6. On storage there are few limits in the current text of the standard, except relating to PMK storage and some other specific cases. BSS Max Idle came from 802.11ah or 802.11ac and is also part of WiFi6 certification.
		7. Limiting information storage may be relevant, but recommending limitation on information storage risks being redundant given existing 802E recommendations.
		8. There are plenty of things we can do in open networks, consider active or passive attacks, and also consider the places in the standard where we reference IETF standards.
	3. Parameters and resetting.
		1. Aperiodic or random resets were already pointed out in .11aq.
	4. Persistence and storage
	5. Observation
		1. Rogue AP concept, where an AP tries to acquire information about STA in, for example, a BSS without being authorized to do so, is familiar. Not clear that we have examples of rogue STA doing this.
		2. There is some work in the IETF right now around formulating the following threat taxonomy: in the middle, in the rough, on the side. Being in the rough would be STA or AP that is able to see a lot of things or inject traffic or frames. An unassociated STA would be "on the side" and could also be a threat. This could be useful in this discussion.
6. Planning of 15 July 2021 Thursday.
	1. Will continue discussion on interrelation between 802E and TGbi.
	2. Thursday slot is not being released.
7. **Recess at 13:12.**

**2nd slot. Thursday 15 July 2021, 09:00 ET.**

Chair calls meeting to order at 09:03 ET.

Agenda slide deck: **11-21-0946r2:**

1. Reminder to do attendance. Reminder of registration for July 802 Electronic Plenary Session.
2. The chair mentioned the call for essential patents
	1. No one responded to the call for essential patents
3. The chair covered the IEEE copyright and participation rules.
	1. No comments or questions
4. **Discussion of agenda 11-21-0946r2**
	1. Unanimous approval of the agenda.
5. **Brainstorming discussion (11-21/1126r1).**
	1. Amendment Structure Discussion (slide #9)
		1. Chair: do we want to add a informative annex to an 802.11bi draft, along the lines of 802E.
		2. C: I think that the 802E recommendations are possibly beyond the scope of 802.11. Perhaps it’s a good discussion to have, but I’m not sure we want to do all the 802E recommendations.
		3. C: I would like to add that going through the whole of the 802.11 baseline considering privacy issues is not practical. I think the recommendations from 802E apply to new standards and technology.
		4. C: I think we should focus on the 802.11 PHY and MAC first.
		5. Chair: Perhaps we need to define some core uses first and then come back to the 802E issues. Providing a framework for future standards may also be useful.
		6. C: I think we should be finding gaps in 802.11 that do not support privacy and then work on solutions for these.
		7. C: I agree that reviewing the 5000 pages of the 802.11 specification is not the correct thing to do.
		8. Chair: That is the end of the brainstorming discussion.
6. **Use cases (11-21/0993r0).**
	1. A submission for the Friday (16th July 2021) meeting was brought forward to this meeting without any objection of an agenda change.
	2. It presents use cases where a MAC address change may effect privacy, which is probably not a TGbh use case.
	3. C: I agree that this is not a TGbh use case. However, it may be more applicable to the IETF CAPPORT group.
	4. C: I also agree about this, but I think it is also a layer 2 issue.
	5. C: No, I don’t think it effects layer 2. A hotel doesn’t really use layer 2, as it uses a higher layer solution.
	6. C: Yes, but I think TGbi can also address this issue.
	7. Q: What is the privacy risk with this use case? Is it just rotating the MAC address?
	8. A: Yes, it is.
	9. C: I think 11aq solved this issue and is already within the 802.11-2020 baseline. However, it may affect HTTP cookie solutions. Therefore it is possible to implement this type of solution using the existing 802.11-2020 baseline. I’d prefer not to do anything in TGbi and if anything it is more in scope of TGbh.
	10. Chair: Perhaps the 11aq solution does not address all the possible use cases? There is a possible burden on someone who wishes to keep their location private.
	11. C: 11aq allows a STA to change its MAC address every time it associates.
7. Planning of 16 July 2021 Friday.
	1. There are several presentations for tomorrow.
8. **Recess at 09:42 ET**

**3rd slot. Friday 16 July 2021, 11:15 ET.**

Chair calls meeting to order at 11:16 ET.

Agenda slide deck: **11-21-0946r3:**

1. Reminder to do attendance. Reminder of registration for July 802 Electronic Plenary Session.
2. The chair mentioned the call for essential patents
	1. No one responded to the call for essential patents
3. The chair covered the IEEE copyright and participation rules.
	1. No comments or questions
4. **Discussion of agenda 11-21-0946r2**
	1. Unanimous approval of the agenda.
5. **Motion #3:** Move to approve minutes from May Interim Session contained in document 11-21/898r1 and teleconference minutes contained in 11-21/899r0, 11-21/1013r0 and 11-21/1120r0.

Moved: Stephen McCann

Seconded: Amelia Andersdotter

No discussion on the motion.

Approved by unanimous consent.

1. **Upcoming teleconferences**

To avoid scheduling conflicts, continue with Thursdays 9AM EDT.

July 29, August 12, August 26, September 9

1. **Use cases: Element fingerprinting (11-21/1060), Po-Kai Huang, Intel**
	1. Q: Can we even provide privacy on unprotected frames?
	2. A: There are multiple ways privacy could be enhanced on an unprotected frame.
	3. C: Agree that fingerprinting problem is severe. We could add response breaks to problem framing. Re-association, probe requests and response frames are completely unprotected today. We have protection schemes for beacons already, not for probes. Maybe a robust parameter query using encryption for when you want to figure out if the AP or STA have changed.
	4. A: I could see removing specific examples from the use-case slide so that we don't stop the discussion just because it's not yet an exhaustive list of unprotected management frames.
	5. A: Sounds like a good approach. I wanted to have the list expanded to ensure that we have good discussion on all the topics. The topics are slightly different.
	6. Q: Previously I've seen studies that show you can use this information to see if someone uses a device from this vendor or that. But could you also uniquely identify people?
	7. A: There are certain things
	8. Q: Are you referrig to a general concept of management frame here or the one in the .11 spec?
	9. A: This is definitely specific to the .11 spec.
	10. C: In general we should reduce unencrypted elements transmitted over the air. We should have this as a guiding principle.
	11. Chair: Let's have a quick straw-poll on whether we should add this our list of use-cases. Or any objections?
	12. Q: When we say add, do we have a classification on how it's added. Do we then absolutely believe it has to be solved or does adding it only mean we look at it more later? Stacking up on issues now that we're not sure we can solve it all will create more work later on.
	13. A: Issue tracking and use-cases in this stage of our work is meant to identify future work but it's not clear that it will always be worked out.
	14. C: I have no doubt that this is a problem. It is a problem. Whether it can be completely solved is less clear, but there are absolutely improvements to be made. I don't think we need to be too careful with adding issues to our issue-tracking either. I would add this use-case as is.
	15. Straw-poll indicates use-case should be added.
2. **Motion #4:** Approve minutes for teleconference minutes contained in 11-21/890r0

Moved: Stephen McCann

Seconded: Jerome Henry.

No discussion on the motion.

Motion approved by unanimous consent.

1. AOB
	1. No other business.

Chair adjourns the meeting at 12:20 ET.