IEEE P802.11
Wireless LANs

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| TGaq Minutes – November 2017 Session |
| Date: 2017-11-10 |
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Abstract

Minutes for TGaq during the IEEE 802.11 November 2017 Plenary meeting in Orlando, FL, U.S.A., including 4 sessions: Tue AM2, Wed AM1, Thur AM1, and Thur AM2.

Meeting: TGaq

Place: Orlando, FL, U.S.A.

Officers:

* Chair: Stephen MCCANN (BlackBerry)
* Vice-Chair: Yunsong YANG (Huawei)
* Technical Editor: Lee ARMSTRONG (US DoT)

**Tuesday November 7th, 2017**

# TGaq 10:30-12:30 (AM2) local time

1. Called to order at 10:31 local time by Stephen McCann.
2. Attendance: 20.
3. Establish secretary for the week
* Yunsong Yang (Huawei) volunteers to take the minutes for the week.
1. Approval of agenda (11-17-1542r1 on the server and shown on the screen)
* Added Editorial comments.
* The revised agenda (r2) is approved unanimously.
1. Review patent policy and guidelines
	* No items identified.
2. Editor’s report:
	* The Technical Editor is not in the meeting this week.
	* Feedback from Editor’s meeting: re-order of aj, ak, aq.
	* Needs to modify certain clause numbers.
3. Comment resolution
	* Analysis of 6th re-circulation sponsor ballot (Editorial comments)
		+ CIDs 12002, 12006, 12007: All pointing out the same typo. All accepted and marked as ready for motion.
		+ CID 12001: Accepted. Marked as ready for motion.
		+ CID 12011: Revised. Delete the text between L22 and L36. (Same as CID 12001). Marked as ready for motion.
		+ CID 12003: Accepted. No change required. Marked as ready for motion.
	* Recap of sponsor ballots since the September 2017 face to face meeting
		+ The Chair summarizes the current status as impasse (on some mandatory coordination comments from IEEE RAC and individual comments) in the past few rounds.
	* Brief intro to IEEE 802 and IEEE 802c
		+ Read highlighted text from 802c, clause 8.4.1.
		+ Stephen shows a proposed text to replace the fifth paragraph under clause 12.2.10 in 11aq D13.0, basically replacing “according to” with “in the locally administered address space as defined in”.
		+ Read CID 12008.
		+ Shown dot11LocallyAdministeredMACConfig MIB variable in 11aq D13.0, C.3.
		+ Dorothy Stanley (HPE, WG 2nd VC) comments that aq is intended to use the locally administered MAC address. The goal is to allow both aq and 802c. Both are valid.
		+ Dan Harkins (HPE) comments that the vendor-specific plan (value 2) is same as value 0.
		+ Pat Thaler (Broadcom, member of RAC, past Chair of 802c): like to see something compatible with SLAP. Also like to see that local administer can administrate the local space. The MIB variable doesn’t do that if the device roams around many networks. Understood that in pre-association, the wish is to use a bigger address space.
		+ Stephen: 11aq is about pre-association discovery. The document is silent on what happens afterwards. 11aq also provides a way to discover what services the local administer provides (needs to define the service instance elsewhere).
		+ Pat: Then, you can use a few bits to advise the local address plan.
		+ Adrian Stephens (Intel, WG Chair): There is a chicken-and-egg problem. In order to discover the local address plan, the STA needs to transmit first.
		+ Bob Grow (Chair of RAC): The argument that this amendment is about pre-association discovery is not valid. The ballot package includes the base standard. When merged into base standard, the context of being only for pre-association is lost. If we remain ambiguous, that is insufficient, because the implication is that a random MAC address may be used for post-association. We have different alternatives that could be compromised position, which may or may not be acceptable to individual RAC members.
		+ Stephen: we could have a sub-clause (in 11aq document) to consider the address for post-association.
		+ Bob: Personally believe that RAC could be satisfied if the 46-bit randomized MAC address is not carried over forward (to post-association).
		+ Stephen: On one hand, you want a statement about post-association. On the other hand, we have an amendment for pre-association.
		+ Bob: scope issue is mentioned in the first round of RAC comment.
		+ Roger Marks (EthAirNet, member of RAC): 802 before 802c says local address space is subject to local administer. If an AP receives a message from the STA with a source address of 46-bit randomized MAC address, the AP cannot administer the local space properly. Concerned that the second paragraph under 12.2.10:
			1. may cause address collision with the LAN
			2. is out of the scope of the PAR.
		+ Concerned that the comments in the database have not been addressed to the satisfaction of the commenter.
		+ Stephen: we can make some correction on that statement to address the concerns.
		+ Dan: Limiting MAC address randomization to 44 bits is not good. The comment resolution describes the case of a sport stadium where 46 bits are needed for MAC address randomization to reduce collision probability.
		+ Mike Montemurro (BlackBerry): When a device joins a network, the local address plan can be made known through provisioning.
		+ Adrian: questions the phrase of “establishing a connection” in clause 12.2.10, second paragraph. Asks TGaq members if that means post-association. Answer is yes. Suggests a straw poll to see if the group agree that 11aq amendment should not describe the use of MAC address assignment from association and onwards.
		+ Dan: the reason for the second paragraph is that the STA may establish a pre-authentication state with an AP using a random MAC address. Later, if the STA needs to associate with that AP fast, the STA needs to use the random MAC address previously used when establishing that state. Also comments that using global MAC address for post-association will compromise the MAC privacy.
		+ The Chair shows the following SP text on the screen:

SP: Do you think that the P802.11aq draft should not mention any aspect of MAC address assignment during association and post-association?

Discussion:

* + - Roger: concerned that the last random MAC address will be used for post-association. One solution can be that the STA reverses to its original MAC address when becoming associated.
		- Bob: One fundamental thing is the local admin wants affirmative control of the local address assignment. The SP, as it is written, doesn’t address the concerns. It isn’t restricting for the post-association. So, probably will vote No on it as is.
		- Stephen: we can run a second SP to ask if we need some explicit description for post-association.
		- Bob: My fundamental concern is what the text will say when merged into the base standard.
		- Mike: The intent of the dot11LocallyAdministeredMACConfig MIB variable is to provide a way to configure an 802.11 STA so that it can conform to the local address space set by the local admin.
		- Dorothy: local admin wants the control over the behaviors of devices. That is exactly what the MIB is intended for. The MIB information can be configured on the device. A device connecting to a network needs to be under the active management of the network today. The device needs to go through enrollment process to get certain parameters downloaded to the device. The MIB variable can be downloaded during the enrollment. The enrollment is provided by the local admin.
		- Dan suggests changing the question from “should not” to “should”.
		- Pat suggests changing “any aspect” to “at least some aspect”, “and” to “or”.
		- The question is modified according to these suggestions.
		- Adrian suggests counting the votes twice, one among all attendees, and the other among 802.11 voting members.

SP: Do you think that the P802.11aq draft should mention at least some aspect of MAC address assignment during association or post-association?

Result among all attendees: Y/N/A = 9/3/4.

Result among 802.11 voting members: Y/N/A = 7/2/4.

* + - These results are recorded in TGaq motion deck document 11-15-417r38.
		- Pat: about the chicken-and-egg, not concerned with the address used in pre-association frames as they don’t go anywhere in the network. It is OK to not have something quite robust for preventing collision. More concerned with the collision with the things are already associated. There are rules for choosing address for post-association and must be followed. Association comes first. Learning the local address plan comes second.
		- Dorothy: The MIB variable can be configured in the enrollment process in compliance with the local admin policy. It is an out of band process. No devices get on a network without doing that.
		- Pat: Can we do that openly without having to go to the enrollment, like in a public network?
		- Dorothy: today, even that, the device will connect to a portal first, like in this hotel. That portal can configure the device.
		- Mike: provisioning or enrollment steps are typically addressed elsewhere, like in WFA, PassPoint.
		- Roger: Concerned with not only post-association addressing, but also pre-association addressing. The address space is shared by the devices and access points, which have different requirements. The requirement of privacy is usually not shared by the access points. However, authenticating the access point may be a requirement. IETF defines cryptographic addressing scheme for authentication purpose. If the random MAC address takes the whole space, then you cannot tell if the address is a cryptographic address for authentication purpose or not.
		- Yunsong Yang (Huawei) comments that, in clause 12.2.10, second paragraph, second sentence, when the STA establishes a pre-authentication state with the AP using a random MAC address, the current text is ambiguous on if there is any restriction on how to select that random MAC address. Believes that since the STA may use that random MAC address later for post-association, the STA should select that random MAC address in compliance with the MIB variable as well (but the text is ambiguous on that right now).
		- Roger: comments on “A non-AP STA” in clause 12.2.10, first paragraph, second sentence, is too broad and can be interpreted that every STA must do MAC privacy enhancement.
		- Mike: Believes that the first sentence and the title of the clause set the condition. We should not read the second sentence out of the context.
		- Pat: The condition applied in the previous sentence does not always apply to the next sentence. You can say the STA with that condition equal to true or when MAC privacy enhancement is enabled.
		- Stephen: Styles between different working groups may be different.
		- Dan: If we remove every context in 802.11 and repeating the condition in every sentence, 802.11 standard will not be 3000 pages.
		- Jon Rosdahl (Qualcomm, WG 1st VC): We have got through REVmc and md by keeping thing in context. Once we define something at the beginning of a paragraph, the rest of the paragraph is built upon it.
		- Roger suggests replacing “A non-AP STA” with “Such a non-AP STA”.
		- Jon suggests adding “on a non-AP STA” after “enabled” in the first sentence.
		- The Chair stops the discussion as the group is out of time.
1. Comment resolution
2. Recessed at 12:32 local time.

**Wednesday November 8th, 2017**

# TGaq 8:00-10:00 (AM1) local time

1. Called to order at 8:01 local time by Stephen McCann.
2. Attendance: 10.
3. Review patent policy and guidelines
	* No items identified.
4. Approval of agenda (11-17-1542r2 is on the server and r2 is shown on the screen)
* Corrected the revision number of 11-17-1561.
* The updated agenda (r3) is approved unanimously.
1. Meeting minutes approval
	* TGaq September 2017 F2F meeting minutes (<https://mentor.ieee.org/802.11/dcn/17/11-17-1480-00-00aq-tgaq-meeting-minutes-september-2017-session.docx> )
		+ No comment or question
	* TGaq October to November 2017 teleconference minutes (<https://mentor.ieee.org/802.11/dcn/17/11-17-1548-01-00aq-tgaq-october-to-november-2017-teleconference-minutes.doc> )
		+ No comment or question on the minutes.
	* Both minutes are approved unanimously.
2. Amendment Order
	* Changed to aj, ak, aq.
	* What it means for TGaq (RevCom March 2018)
		+ ANA numbers stay the same.
		+ WG approval of Waiver Request can wait until March 2018 meeting.
3. Presentation to IEEE 802.1
	* 11-17-1561r1.
		+ Member to review.
4. Comment Resolution
	* Analysis of re-circulation Sponsor Ballot
	* Presentation of 11-17-1672r0
		+ CID 12008
			- Yunsong: The commenter’s proposed change is to use the MIB.
			- Mike: for pre-association, the STA doesn’t use the MIB. The MIB is needed when the STA decides to associate.
			- Mike: provisioning mechanisms (such as PassPoint) resolve the chicken-and-egg issue.
			- Graham Smith (SRT Wireless) suggests that we use the description of the three SLAP values in clause 12.2.20.
			- Mike opposes that.
			- Yunsong suggest splits the fifth paragraph under 12.2.10 into two, one for the condition as described in the first paragraph, the other for the condition as described in the second paragraph.
			- Mike suggests moving the sentence in the fifth paragraph into the first paragraph, after the second sentence, as an alternative. This approach is agreed.
			- Yunsong suggests deleting “to construct…” so that the sentence begins with “The STA shall select…”
			- Amelia suggests changing “select” to “construct”.
			- Final resolution: Revised. Delete the cited paragraph. Change the first paragraph by adding the previously worked out sentence after the second sentence. Add a new editor instruction "Replace the sentence at 9.2.4.3.2 with the following text:

"Each Address field contains a 48-bit address as defined in Clause 8 of IEEE Std 802-2014 and IEEE Std 802c-2017.""

* + - * No objection to accepting this resolution.
		- CID 12004:
			* Yunsong comments that the default of value “0” basically disables the MAC privacy. If a local admin forgets changing the default value to something else, all STAs will be prevented from using MAC privacy in this network.
			* Mike: prefer to make value 1 default.
			* Adrian: don’t like that value “0” being “disable”.
			* Mark Hamilton (Brocade): not satisfied (as the commenter of CID 12004) with the default value being “0”.
			* Graham: I have no problem to set the default value to value 1.
			* Dorothy: SLAP is optional. Why do we default to something that is optional?
			* Mark: The intention is to drive 802.11 towards the right direction.
			* The group decides to take a SP.

SP: Do you support SLAP or Vendor-specific plan being the default?

Result:

SLAP being the default: 6

Vendor-specific plan being the default: 4.

Abstain: 1.

* + - * Jon explains that he voted abstain because SLAP didn’t define how to generate the random MAC address.
			* Mark: SLAP says that if you do random MAC address, use the AAI quadrant.
			* Mark reads out the second paragraph under clause 8.4.4.3 in 802c.
			* Resolution: Revised. Change the Description of the variable to

"This is a control variable. It is written by an external management entity or the SME. Changes take effect as soon as practical in the implementation. This attribute identifies an addressing plan to use when associating with the BSS.

0: local addresses comply with the Structured Local Address Plan (SLAP) as defined in IEEE Std 802c-2017

1: local addresses are constructed according to a vendor-specific local address plan."

* + - * No objection to accepting this resolution.
		- CID 12009: Change Rejected to Revised.
			* In the deposition field, add the reason why randomizing the MAC address is important to 11aq, add references to EU privacy cases copied from a response to the previous re-circulation SB comment, add a summary of changes having been made to comply with 802c, and copy the editing instructions from CID 12008.
			* Stopped here due to out of time. Will come back this CID.
1. Recessed at 10:00 local time.

**Thursday November 9th, 2017**

# TGaq 8:00-10:00 (AM1) local time

1. Called to order at 8:00 local time by Stephen McCann.
2. Attendance: 11.
3. Review patent policy and guidelines
	* No items identified.
4. Approval of agenda (11-17/1542r3 is on the server and r4 is shown on the screen)
* The agenda (r4) is approved unanimously.
1. Re-circulation Sponsor Ballot Comment Resolution
	* Continuation of presentation of doc. 11-17-1672r0
		+ CIDs 12001, 12002, 12003, 12006, 12007, and 12011 will be removed from the document as they have been resolved on Tuesday.
		+ CID 12009: Keep the resolution as Revised. Add, at the end of the deposition field, “Note to editor: these editing instructions are replicated from CID 12008.”
		+ CID 12005: Revised. Change the second paragraph of 12.2.10 to:

"If such a non-AP STA starts any transaction that establishes state bound to a MAC address and might elect to establish an association or establish transaction state with a discovered BSS, it shall check the value of dot11LocallyAdministeredMACConfig and shall configure its MAC address according to the rules of the local address space prior to the start of the transaction. State created with an AP using a prior MAC address, for instance RSN pre-authentication state or FT state established over-the-DS, is bound to the MAC address used when that state was created. Prior to establishing an association to the AP, the non-AP STA shall change its MAC address to the MAC address used when the state was created."

* + - CID 12010: Revised. Change

"MAC privacy enhancements are enabled when dot11MACPrivacyActivated is set to true. A non-AP STA shall periodically change its MAC address to a random value while not associated to a BSS."

to

"MAC privacy enhancements are enabled on a non-AP STA when dot11MACPrivacyActivated is set to true. The STA shall periodically change its MAC address to a random value while not associated to a BSS."

Note that the BRC has carefully reviewed the revised draft amendment and determined that all specified behavior is dependent on either support for pre-association discovery or the value of dot11MACPrivacyActivated.

* + - CID 12012: Rejected. The commentor does not provide specific changes in sufficient detail to modify the draft.

The BRC agrees that this draft specifies the use of MAC addresses for post-association use, for example see P66L57 in D13.0. The BRC believes this is essential to maintain the privacy properties established pre-association and therefore is reasonable in this draft. The approval rate at the last ballot was 97%, indicating that the ballot group consensus supports this position.

* + - CID 12013: Rejected. The commentor does not provide specific changes in sufficient detail to modify the draft.

In the pre-association state, an 802.11 STA transmits management and control frames that contain MAC addresses. These addresses are specified by IEEE Std 802 and therefore IEEE Std 802 is relevant to an 802.11 STA operating in the pre-association state regardless of whether its supports the features defined in P802.11aq.

In order to operate a LAN for the purposes of exchanging data, it is also necessary to perform discovery and to establish state such as encryption keys before forwarding data on the LAN. This is all in scope of IEEE 802.11.

* + - CID 12014: Rejected. The commentor does not provide specific changes in sufficient detail to modify the draft.

The BRC believes that its analysis in the referenced comment response is correct. STAs operating in an un-associated state are not synchronized in time and can initiate discovery procedures simultaneously.

* + - CID 12015: Rejected. The commentor does not provide specific changes in sufficient detail to modify the draft.

P802.11aq has been modified (see D14.0 clause 12.2.10) to specify that a STA in the un-associated state (with dot11MACPrivacyActivated is set to true) selects a local address according to IEEE 802-2014 and IEEE 802c-2017. When the STA selects a AP (BSS) for association, the STA checks the value for dot11LocallyAdministeredMACConfig and sets its MAC address according to the MAC address policy set by the local network administrator for that BSS. Therefore, a STA with MAC privacy enabled selects a random address compliant with IEEE 802c-2017 while in the unassociated state and uses the local network administrator policy for MAC address assignment, for a BSS once it associates to that BSS.

* + The revised document is uploaded as r1. However, it is found out that a wrong copy was uploaded to mentor as r1. The correct copy is uploaded as r2.

Motion #110: Move to approve comment resolutions contained in the document <https://mentor.ieee.org/802.11/dcn/17/11-17-1672-02-00aq-proposed-comment-resolutions-for-6th-recirc-sb.xlsx> and document <https://mentor.ieee.org/802.11/dcn/17/11-17-1620-01-00aq-comments-from-6th-recirculation-sb-on-tgaq-d13-0.xlsx> tab “2017-11-07-AM2” and instruct the editor to incorporate all the changes into the next update of the TGaq Draft.

Moved: Mike Montemurro

Seconded: Yunsong Yang

Result: Y/N/A = 8/0/0. Motion passes.

1. Recessed at 10:05 local time.

**Thursday November 9th, 2017**

# TGaq 10:30-12:30 (AM2) local time

1. Called to order at 10:32 local time by Stephen McCann.
2. Attendance: 13.
3. Review patent policy and guidelines
	* No items identified.
4. Approval of agenda (11-17/1542r4 is on the server and r5 is shown on the screen)
	* The agenda (r5) is approved unanimously.
5. Timeline update
	* Changed Final WG/EC Approval to January 2018, and RevCom/Standards Board Approval to March 2018.

Motion #111: Having approved all the comment resolutions for the comments received in the 6th Sponsor Re-circulation Ballot on P802.11aq D13.0 contained in:

<https://mentor.ieee.org/802.11/dcn/17/11-17-1620-02-00aq-comments-from-6th-recirculation-sb-on-tgaq-d13-0.xlsx>

instruct the editor to prepare Draft 14.0 incorporating these resolutions and

approve a 10 day Sponsor Recirculation Ballot asking the question “Should P802.11aq D14.0 be forwarded to RevCom?”

Moved: Mike Lynch

Seconded: Mark Hamilton

Result: Y/N/A = 5/0/1. Motion passes.

1. Preparation for January 2018 Interim meeting
	* Room/Slot Allocation – 4 slots, room for 25.
2. Teleconference(s)
	* December 4th and 15th, 2017, and January 5th, 2018; 2-hr each.
3. Presentation of 11-17-1704r1
	* Stephen McCann presents the document and explains the reason for doing this.
	* Graham points out some RAC comments in a later re-circ SB are related to RAC comments in an earlier re-circ SB, and suggests showing the relationship between these RAC comments.
	* In the subsequent slides of detailed analysis of RAC comments, there is a question on if using “” on the summarized comments is accurate.
		+ Change each slide title by adding the word “summary” and remove the “” from the bullets summarizing each comment.
		+ Summary of CID 12009 in the final slide is added.
		+ Editorial changes to other comment summaries are made to maintain the accuracy.
	* The revised document is saved as r2 (not uploaded yet).

Discussion on the use of the waiver request document and request to EC for conditional approval

* + The group discussed the situations where the waiver request might be needed and not needed.
	+ The group also debated if to request the conditional approval for forwarding the draft to RevCom this week. There might be a risk not meeting the March 2018 RevCom final approval timeline if the EC approval must be obtained in their F2F meeting and is not obtained this week.
	+ The group decides to run a SP as follows:

SP: Should 802.11 WG request conditional approval for forwarding the draft to RevCom and approval of the waiver request by the EC?

Result: Y/N/A = 9/0/3.

* + The group proceeds to finalize the waiver request doc. 11-17-1704r2.
		- Some format changes.
		- Add a bullet of note in 3 slides.
		- The Chair asks if there are any objections to extending the meeting by 5 minutes.
			* None.
		- The final document is uploaded as 11-17-1704r2.

Motion #112: Move to approve the waiver request document: 11-17-1704r2 as part of the P802.11aq submission to RevCom for conditional approval of P802.11aq D14.0 and allow the 802.11aq chair editorial license.

Moved: Graham Smith

Second: Mike Lynch

Result: Y/N/A = 10/0/1. Motion passes.

The TGaq motion deck document is updated to r39 with the result.

1. AOB: none.
2. Meeting adjourned at 12:36 pm local time with no objection.