IEEE P802.11
Wireless LANs

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| ARC SC and Joint ARC SC/TGak May 2016 Meeting Minutes  |
| Date: 2016-05-19 |
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Abstract

Minutes of the IEEE 802.11 ARC SC meetings held on 17 and 18 May 2016, at 10:30am and 8:00 am HADT, respectively, and of the joint IEEE 802.11 ARC SC and IEEE 802.11 TGak meeting held on 19 May 2016, at 8 am HADT.

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# Tuesday, May 17th, 10:30 am (HADT)

**Administration:**

**Chair: Mark Hamilton, Ruckus**

**Vice Chair/Secretary Joseph Levy, InterDigital**

**Meeting call to order by Chair 10:35 am, 17 May 2016 –**

**Proposed Agenda slide deck:** [**11-16/0518r1**](https://mentor.ieee.org/802.11/dcn/16/11-16-0518-01-0arc-arc-sc-agenda-may-2016.ppt)**, updated during the meeting to r2 copied here for reference:**

**Tuesday, May 17, AM2**

* **Administrative: Re-affirmation of officer(s)**
* **Update on 802.11 as a component in a (larger) system/5G/IMT-2020**
* **IEEE 1588 mapping to IEEE 802.11** Update, no action expected:
* **IETF/802 coordination:** update on multicast over 802.11
* **802.1AC status update**
* **TGak update**
* **TGaq update**
* **AP/DS/Portal architecture and 802 concepts -** [11-16/0457r1](https://mentor.ieee.org/802.11/dcn/16/11-16-0457-01-0arc-802-11ak-802-1ac-stas-aps-dses-and-convergence-functions.pptx),[11-15/0454r0](https://mentor.ieee.org/802.11/dcn/15/11-15-0454-00-0arc-some-more-ds-architecture-concepts.pptx),
[11-14/1213r1](https://mentor.ieee.org/802.11/dcn/14/11-14-1213-01-0arc-ap-arch-concepts-and-distribution-system-access.pptx) (slides 9-11)

**Wednesday, May 18, AM1**

* **AP/DS/Portal architecture and 802 concepts (continued)**
* **MIB attributes Design Pattern -** [11-15/0355r3](https://mentor.ieee.org/802.11/dcn/15/11-15-0355-03-0arc-mib-truthvalue-usage-patterns.docx), [11-15/0891r0](https://mentor.ieee.org/802.11/dcn/15/11-15-0891-00-0arc-delta-r2r3-of-mib-truthvalue-usage-patterns.docx)
* **“What is an ESS?”**
* **Future sessions / SC activities**

**Joint session with TGak, Thursday, May 19, AM1**

**Administration:**

The Chair reviewed the Administrative information in slides 5-9 in the Agenda document (11-16/0518r1)

**Call for Patents:**

The Chair reviewed the Patent policy and called for potentially essential patents – there was no response to the call.

**Approval of the Agenda:**

A request was made to add an item to Wednesday’s agenda: Drop Eligibility Indicator discussion (Ganesh).

Item was added to the agenda (see 11-16/0518r2).

**Administrative: Minutes:**

Deferred till Wednesday.

**Administrative: Re-affirmation of officer(s)**

The Chair put forward a motion to re-affirm Joseph Levy as SC Vice Chair and Secretary. The motion was moved by Donald Eastlake and seconded by Jon Rosdahl. The motion was approved by unanimous consent and acclamation.

**Update on 802.11 as a component in a (larger) system/5G/IMT-2020**

Joseph Levy reported on the status of 802.11 inputs to the 802 EC 5G SC as discussed in the 802.11 Ad Hoc Meeting on Monday 16 May 2016 in PM3 and the response to the presentation on this topic made in the WNG SC meeting on Tuesday 17 May 2016 in AM1. The will of the group determined by straw poll is that the only 5G option that 802.11 should consider is submitting/supporting an IMT-2020 proposal in conjunction with 3GPP.

Discussion then followed on how 802.11 could work with 3GPP so that 802.11 specifications would be included in the 3GPP IMT-2020 proposal. Three ways to provide submission material to 3GPP were suggested:

1. Industry Connection
2. White Paper
3. Recommended Practice

The IEEE Standards Association (IEEE-SA) Industry Connections (IC) program, would require the generation of an IC Activity Initiation Document (ICAID) – similar to a PAR. The submission and approval of the document would form a group to generate material that could be provided to 3GPP. Also LSs and meeting contacts would be necessary to work with 3GPP.

**IEEE 1588 mapping to IEEE 802.11**

Update, no action expected as all activity seems to be 802.1AS.

**IETF/802 coordination:**

Multicast features – has been over taken by events – the three authors are still working the document, Dorothy Stanley will be sending out a link to the current draft, but the document is not yet ready for official feedback/comment, the earliest likely time for official feedback is in ~6 months. Dorothy will make a presentation in September.

CAPWAP – no updates

Dorothy reported on the presentation of the 802.11/.15 IETF Tutorial – it was well received.

The ITS-related BOF met – but there are no outstanding issues and nothing else to report.

A question was asked of Dorothy regarding the status of DetNet. 802.11 has provided them a statement that 802.11 does not support DetNet as 802.11 does not support the concept of determined delay of transmission. There is an upcoming meeting in Paris for IEEE 802/IETF coordination which will probably discuss this some. Also there will be an 802 level meeting in July, organized by Pat Theiler.

**802.1AC status update**

A new ballot recirculation was completed. But there are still open issues with the draft due to the RAC not yet approving the Ethertype. The ballot was rejected for the second time.

**TGak update**

To update of issues, TGak will be discussing what an ESS is and Richard Roy’s contribution.

**TGaq update**

No outstanding issues.

**AP/DS/Portal architecture and 802 concepts -** [11-16/0457r1](https://mentor.ieee.org/802.11/dcn/16/11-16-0457-01-0arc-802-11ak-802-1ac-stas-aps-dses-and-convergence-functions.pptx),[11-15/0454r0](https://mentor.ieee.org/802.11/dcn/15/11-15-0454-00-0arc-some-more-ds-architecture-concepts.pptx),
[11-14/1213r1](https://mentor.ieee.org/802.11/dcn/14/11-14-1213-01-0arc-ap-arch-concepts-and-distribution-system-access.pptx) (slides 9-11)

11-16/457r1 – was reviewed by the Chair.

There was some discussion:

It was stated that the architecture needs up/down connections to be correct.

As part of this discussion the Chair discussed 11-16/0720r0. There was some discussion on the figures, but no conclusions were agreed.

**The Chair recessed the meeting at 11:58 HADT**

# Wednesday, May 18th, 8:00 am HADT – ARC SC

**Administration:**

**Chair: Mark Hamilton, Ruckus**

**Vice Chair/Secretary Joseph Levy, InterDigital**

Proposed Agenda slide deck: [11-16/0518r2](https://mentor.ieee.org/802.11/dcn/16/11-16-0518-02-0arc-arc-sc-agenda-may-2016.ppt), updated during the meeting to r3, copied here for reference:

Wednesday, May 18, AM1

* **Administrative: Minutes**
* AP/DS/Portal architecture and 802 concepts (continued)
* MIB attributes Design Pattern - [11-15/0355r3](https://mentor.ieee.org/802.11/dcn/15/11-15-0355-03-0arc-mib-truthvalue-usage-patterns.docx), [11-15/0891r0](https://mentor.ieee.org/802.11/dcn/15/11-15-0891-00-0arc-delta-r2r3-of-mib-truthvalue-usage-patterns.docx)
* “What is an ESS?”
* **Future sessions / SC activities**

**Meeting call to order by Chair 8:05 am HADT, 18 May 2016**

**Administrative:**

Agenda reviewed and agreed by unanimous consent.

Minutes for approval:

March Minutes: <https://mentor.ieee.org/802.11/dcn/16/11-16-0498-03-0arc-arc-sc-and-joint-meetings-minutes-march-2016.docx>

Teleconference Minutes:

* + <https://mentor.ieee.org/802.11/dcn/16/11-16-0503-00-0arc-arc-sc-teleconference-meeting-minutes-30-march-2016.docx>
	+ <https://mentor.ieee.org/802.11/dcn/16/11-16-0573-00-0arc-arc-sc-teleconference-meeting-04-may-2016.docx>

The minutes were approved by unanimous consent.

**AP/DS/Portal architecture and 802 concepts (continued)**

Discussion on the drawings – it was agreed that the description of the internal AP MAC point needs to be clarified. Also it was agreed that the annex should be updated to make these concepts clear.

**MIB attributes Design Pattern -** [11-15/0355r3](https://mentor.ieee.org/802.11/dcn/15/11-15-0355-03-0arc-mib-truthvalue-usage-patterns.docx), [11-15/0891r0](https://mentor.ieee.org/802.11/dcn/15/11-15-0891-00-0arc-delta-r2r3-of-mib-truthvalue-usage-patterns.docx)

No new contributions, status provided, and general agreement that this work needs to be completed. This work will probably wait till the next maintenance revision on 802.11 (802.11md).

There was some discussion that Yang models are being worked in 802.1 and 802.3. There was so agreement that Yang models should be looked into as a possible replacement/augmentation of the MIB. It was also generally agreed that it was good that 802.1 and 802.3 are breading the ground in this area and that we should monitor their efforts and then consider how to move forward.

 **“What is an ESS?”**

From slide 22 in 11-16/0518r3:

* Current definition depends on the relationship to LLC
	+ “A set of one or more interconnected basic service sets (BSSs) that appears as a single BSS to the logical link control (LLC) layer at any station (STA) associated with one of those BSSs.”
* That would mean an 802.1 Bridged LAN (for example) creates an ESS. Probably not what we (802.11) meant.
* We probably meant something about transparency of “location of attachment”/”mobility”, from whatever is using the 802.11 MAC (and other entities, necessary to accomplish the service?)
 ESS == demarcation of this transparency??
* Is it:
	+ Transparent to whatever upper layer is above 802.11?
	+ The APs have to have some common/similar configuration settings? (SSID, at least. Probably other facilities (security, etc.) and policies?)

This led to a discussion on ESS transparency: It was stated that above the MAC layer STAs are transparently unaware of which AP they are connected to and everything beyond the Portal or Meshgate is also transparently unaware of which AP the STA is connected to. The APs and DS are aware but do not require the STA or entities beyond the Portal to be aware of which AP a STA is connected to. The discussion then addressed issues related to BSA, BSS, OBSS, and other 802.11 tangentially related descriptions, drift in away from the topic at hand. The discussion then returned to the ESS issue and the question: does the ESS include the DS? Historically it does not include the DS. This raised several questions:

1. Is the purpose of the ESS to demarcate the boundary of where services see the group of APs and STAs as transparently available?
2. What is purpose of this discussion, what are we trying to define?
3. What service are we delivering?
4. What is the purpose of our standard?

These questions were summarized on the updated version of slide 22 in 11-16/0518r3.

**Drop eligibility indicator discussion (Ganesh) 11-16/0713r0 –** not discussed

**Future sessions / SC activities**

* Plan for two individual meeting slots
	+ Usual slot on Wed AM1
	+ Another slot for standalone ARC work (Monday/Tuesday?)
	+ Another slot joint with 802.11ak, 802.1 (Thursday’s slot)
* Individuals interested in ARC work are encouraged to also attend other TGak or TGaq sessions, and monitor 5G/IMT-2020 activities
* No teleconferences
	+ May schedule with 10 days’ notice if discussion warrants

Topics for discussion/contribution:

* ARC SC meets when a specific focused task is requested of the SC for which there is sufficient volunteer interest.
* Continue work on architectural models, and liaison with TGs in development of their architecture as appropriate
* Monitor 5G/IMT-2020 activities of 802
* Design Pattern for “\*Implemented” and “\*Activated” MIB attributes
* Will also follow 802.1/802.11 activities on links, bridging, and MAC Service definition,
* Monitor/report on IETF/802 activities, as needed
* Monitor/report on IEEE 1588 activities, as needed

In addition to the above, it is likely that a discussion on Yang models, will be added to the agenda.

Recessed 10:01 am HADT.

# Thursday, May 19th, 8:00 am (HADT) – Joint ARC SC/TGak

**Administration:**

**ARC SC Chair: Mark Hamilton, Ruckus**

**ARC SC Vice Chair/Secretary Joseph Levy, InterDigital**

**TGak Chair: Donald Eastlake, Huawei**

**TGak Vice Chair: Mark Hamilton, Ruckus**

**Meeting call to order by Chair 8:05 am HADT, 19 May 2016**

**Proposed Agenda slide deck:** [11-16/0513r4](https://mentor.ieee.org/802.11/dcn/16/11-16-0513-04-00ak-may-2016-802-11ak-agenda.pptx) **, updated during the meeting to r5 copied here for reference:**

**Administration:**

The Chair reviewed the Administrative information in slides 8-12 in the Agenda document ([11-16/0513r4](https://mentor.ieee.org/802.11/dcn/16/11-16-0513-04-00ak-may-2016-802-11ak-agenda.pptx))

**Call for Patents:**

The Chair reviewed the Patent policy and called for potentially essential patents – there was no response to the call.

**Approval of the Agenda:**

* **Call 802.11 TGak Joint Meeting with 802.11 ARC SC to Order**
* **IPR and Attendance Recording Reminder**
* **802.11ak status**
* **802.1Qbz, 802.1AC status**
* **1AC waiting for Ethertype, Qbz has completed Sponsor Ballot**
* **Teleconferences discussion**
* **Architecture discussion**

**Administrative:**

Agenda approved by unanimous consent.

**802.11ak status**

* 11-15/556r27 version of comment resolution spread sheet has been uploaded.
* Will try to get a D2.2 out this meeting with resolutions through yesterday and a D2.3 before San Diego.
* Discussion of assigning comment resolution submission presentations to teleconferences.

**802.1Qbz, 802.1AC status**

1AC waiting for Ethertype, Qbz has completed Sponsor Ballot **-** with no new comments. Will be submitted to RevCom??

**Teleconferences discussion**

Moved, to hold 802.11ak Teleconferences, joint with 802.1Qbz if mutually convenient:

* **1 ½** hour teleconferences through the July 2016 802.11 meeting on Monday, June 6th, 13th, and 20th, and July 11th at 10am Eastern US time.
* Approved by unanimous consent.

**Architecture discussion**

Current definition excludes the DS. It is a set of BSSs. (and a BSS is a set of STAs one of which is an AP)

ESS Possibilities:

1. Include the DS for current .11
2. Bridged LAN included for .11ak
3. Classical ESS unchanged, no ESS for 11ak
4. Boundary is the MAC SAP
5. ESS – mobility/topology hiding….
6. Boundary is the hiding horizon
7. Boundary is the ISS – probably not, need connectivity beyond to make things work
8. Boundary is the EISS – probably not, need connectivity beyond to make things work

Motion slide 21 of [11-16/0513r4](https://mentor.ieee.org/802.11/dcn/16/11-16-0513-04-00ak-may-2016-802-11ak-agenda.pptx):

**[26] Moved,** Change the resolution of CID 1133 to the following:

Revise: Change the new inserted text at the end of Clause 4.6 to “In the GLK case, 802.1Q bridges are included in the network topology; therefore the wired LAN MAC address space and IEEE Std 802.11 MAC address space are the same.”

Mover: Joe Levy Seconder: Mark Hamilton

Yes: 5 No: 0 Abstain: 0

[Text as of D2.1: However, in the GLK case the DS is replaced by an IEEE Std 802.1Q bridge or conformant service; therefore the wired LAN MAC address space and IEEE Std 802.11 MAC address space are the same.]

**The Chair adjourned ARC meeting at 10:03 am HADT**

**The Chair recessed TGak at 10:03 am HADT**