IEEE P802.11
Wireless LANs

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| ARC SC and Joint ARC SC/TGak and Joint ARC SC/TGaq September 2016 Meeting Minutes  |
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Abstract

Minutes of the IEEE 802.11 ARC SC meetings held on 13 and 14 September 2016, at 10:30am and 8:00am CET, respectively. The minutes for the joint IEEE 802.11 ARC SC and IEEE 802.11 TGak meeting held on 15 September 2016, at 8:00am CET and 13:30 CET are referenced in this document, below.

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# Tuesday, September 13, 10:30 CET

**Administration:**

**Chair: Mark Hamilton, Ruckus**

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

**Meeting call to order by Chair 10:34 CET, 13 September 2016**

**Proposed Agenda slide deck:** [11-16/1078r1](https://mentor.ieee.org/802.11/dcn/16/11-16-1078-01-0arc-arc-sc-agenda-september-2016.pptx) **, here for reference:**

**Tuesday, September 13, AM2**

* **Administrative: Minutes**
	+ **Update on 802.11 in 5G (“JOE” SC)**
	+ **IEEE 1588 mapping to IEEE 802.11**
	+ **IETF/802 coordination**
	+ **802.1AC status update; TGak update; TGaq update**
	+ **“What is an ESS?”**
	+ **AP/DS/Portal architecture and 802 concepts -** [**11-16/0720r0**](https://mentor.ieee.org/802.11/dcn/16/11-16-0720-00-0arc-stacked-architecture-discussion.pptx)**,** [**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, September 14, AM1**

* + **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)
	+ **Update on YANG/NETCONF modeling discussions**
	+ **Future sessions / SC activities**

**Joint session with TGak, Thursday, September 15, AM1**

**Joint session with TGaq, Thursday, September 15, PM1**

**Administration:**

The Chair reviewed the Administrative information in slides 5-9 in the Agenda document

**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:**

Approved by unanimous consent.

**Administrative: Minutes:**

Approved by unanimous consent.

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

The Vice Chair gave an oral overview of activities in the 802.11 AANI SC, 802.1 OmniRAN Ad Hoc, and 802 EC.

* AANI SC is working on completing a liaison to 3GPP RAN TSG and 3GPP SA TSG. The liaison will to request that RAN and SA consider improvement of WLAN integration/aggregation in the 3GPP network, to support IMT-2020 use cases and to request RAN and SA suggest ways in which RAN, SA, and 802.11 can work towards the goal of improved WLAN integration/aggregation. The AANI SC meeting are Tuesday EV, Thursday AM2. There will be liaison status provided at the 802.11 midweek plenary and the plan is to have the liaison approved at the 802.11 closing plenary.
* OmniRAN will be holding a brainstorming session on Wednesday PM2, the intent is to focus the scope of the work/next steps for “IEEE ‘5G’ Specification”. The discussion will consider the possibility of establishing one or more SA Industrial Connections projects.
* The 802 EC ‘5G’/IMT-2020 SC completed their work and disbanded in July. The report of the SC to the 802 EC, proposed the AANI SC and OmniRAN Ad Hoc pursue the two activities described above. The 802 EC is currently following these activities and has been discussion sending a liaison to the 3GPP PCG (the 3GPP group responsible for the overall management of the 3GPP project).

**IEEE 1588 mapping to IEEE 802.11**

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

**IETF/802 coordination:**

No report from the IETF meeting was given, deferred to Wednesday.

**802.1AC status update**

802.1 is sending 802.1AC to RevComm. There is an informative annex containing supporting 802.11ak, will become normative once 802.11ak is more advanced.

**TGak update**

Resolving comments for Ballot 218, moving along. If you used a 2 node mesh you could use it an 802.1AC link now. 802.11ak is more about the infrastructure links.

Chair – there are some architecture concepts that we have had to generate for 802.11ak, and this work has raised some issues with the way we view the 802.11 architecture.

**TGaq update**

TGaq has some potential architecture issues which will be discussed on Thursday PM1. Potential architecture issues that were discussed in previous meetings: what is an ANQ server and where is it in the architecture and also where a proxy would sit in the architecture. This discussion and resolution is necessary as the group has bypassed the issue to move to sponsor ballot.

**“What is an ESS?”**

If we revise the ESS definition it would be for REVmd

The chair reviewed the ESS discussion to date (slide 18, 19)

Discussion (the following comments were made and recorded to the best of my ability):

1. I view the ESS is a single 802.1 bridged LAN and discussion on Mobility and security blur things.
2. I’ve seen people claiming they have trans-continental ESSs the SSIDs could be the same or different. We shouldn’t try to control how the network should be connected. I think portal is a terrible. I think we should look a practical cases.
3. An ESS implies.
4. I have always been frustrated by the lack of definition/specification of the DS. Then we had .11F – 802.11.1 – which were both a failure. So the question is what are the services provided. So my question is what are the services provided by the ESS?
5. I know of one case where token ring is used to connect an ESS.
6. The AP has lots of knowledge – how we can use this knowledge to provide services.
7. Well it could work if only the AP encapsulated and put over 802.3. 802.11 provides an abstract concept. It is not clear ]
8. The physical area that was serviced was a BSS. Originally bridging was not even conceived for a network –
9. This begs the question is it time to update the view.
10. It is an abstract concept, no one was talking on how to move packets between ESSs.
11. We have learned and cleaned up mistakes. We should try to make the interface clear.
12. To get to the bridged LAN – the ESS is access to a non-physical port access to the bridged LAN.
13. I asked for the service on the ESS, alternatively we could as if there is a state we could refer to.
14. Interesting that you didn’t bring of SSID in your list.
15. The WFA has extended HESS and we should look at what they have done. I think we have made this decision naively at the time
16. The ESS is what? A service, capability?
17. What would happen if we got rid of the ESS?
18. Well we rely on the ESS – so changing it could cause a problem for legacy devices.
19. If you pander to my desire to move away from the abstract – and ESS is the APs with the same SSIDs and connect to the same bridged LAN.
20. Just because things are not configured properly so that this doesn’t work doesn’t break the concept.
21. You can have what every configuration whether the SSID matches or not does not matter to me – I’d like to get rid of SSID completely. We need a new identifier which would indicate that if I reassociate to this AP all will continue to work. Once AP could provide access to different bridged LANs.
22. I agree with establishing a new ID so that we will know where we can reassociate without losing services.
23. Where do 802.21 fit in this?
24. I think the 802.21 is old and does not apply.
25. 802.11R has the mobility thing – so we have this for fast.
26. An ESS is a bridged LAN concept, and mobility is something separate
27. Mobility outside the bridge LAN doesn’t really matter.
28. What is the harm of removing the HSSID
29. This has the concept transparency.
30. Does an AP have multiple BSS IDs,
31. Could an AP be offering multiple VLANs at any given time?
32. How many point does AP have from a Bridging function view? We have an AP belonging to multiple ESSs
33. I’ve tried to let them define the. The set of AP that talk to each other define the VLAN.
34. My view we have to define the boundary. I hear a proposal that the clients are defining the boundary
35. I want to know where I roam on my network and maintain connectivity. This is a STA point of view.- Passpoint is beyond a simple SSID
36. Advertising a constant number to let you know you’re where you could roam seems unrealistic to me.
37. What properties to believe we are getting from the layer above us. We could lose all these good properties.
38. The once concept coming out of this is that a STA can move around without having to reconfigure the upper layer services.
39. I think we should find a means of maintaining the same IP address.

Moving on to slide 20 – ESS concept definitions.

Many opinions on bullet 1 – but no agreement. Some views that it should only be APs, and some that it is BSSs.

**The Chair recessed the meeting at 12:33 pm CET**

# Wednesday, September 14th, 8:00 CET

Call to order 8:09 CET

**Administration:**

**Chair: Mark Hamilton, Ruckus**

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

**Proposed Agenda slide deck:** 11-16/1078r1, updated during the meeting to r2, copied here for reference:

**Wednesday, July 27, AM1**

* **AP/DS/Portal architecture and 802 concepts -** [**11-16/0720r0**](https://mentor.ieee.org/802.11/dcn/16/11-16-0720-00-0arc-stacked-architecture-discussion.pptx)**,** [**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)**
* **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)
* **Drop Eligibility Indicator discussion (Ganesh)** ([11-16/0713r0](https://mentor.ieee.org/802.11/dcn/16/11-16-0713-00-0arc-drop-eligibility-indicator-discussion.pptx))
* **Future sessions / SC activities**
	+ **Future topic: Should we, and if so, how, add YANG models to 802.11?**

**Administrative:**

Agenda reviewed and agreed by unanimous consent.

**AP/DS/Portal architecture and 802 concepts -** [**11-16/0720r0**](https://mentor.ieee.org/802.11/dcn/16/11-16-0720-00-0arc-stacked-architecture-discussion.pptx)**,** [**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) –**

**The Chair presented** [**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)**:
Starting at slide 21 – this is too big a mess. The problem is described on slides 22, 23; conclusion 24; 25, 26, 27, 28, 29 provide definitions; 30 baggy pants; 31, 32 Revmc definitions; reviewed 34, 35, 36, 37, 38, 39, 40, 41; conclusions in 42, 43; impact 44; 45, 46.**

**The Chair presented** [**11-16/0720r0**](https://mentor.ieee.org/802.11/dcn/16/11-16-0720-00-0arc-stacked-architecture-discussion.pptx)**: (basically the X.210 view)**The discussion led to the following points:

* Slide 5: The “Actual” protocol flow is really the (N-1) layer’s logical protocol flow. Clarify terms here. Look at X.210 for hints
* Clarify that the stuff up to Slide 5 is from X.210, and applies to layers, but we (IEEE 802) are extending the concept to apply to sublayers, and even entities within a sublayer.
* Simplify Slide 8
* Update slide 9, per discussion
* Slide 10 needs more explanation. Also, consider an up-down view of slide 10.

**The Chair presented** [**11-15/0454r0**](https://mentor.ieee.org/802.11/dcn/15/11-15-0454-00-0arc-some-more-ds-architecture-concepts.pptx) **(which is basically an incomplete thought)**Slide 3 was discussed and determined it needs to be updated as the portal should look much more like an AP and should have a DSAF. Some discussion of if an AP has a MAC-SAP. The MAC SAP is between the MAC layer and the logical link sublayer (see 802 O and A for the correct name for the entity above the MAC).

Slide 11: There is still some (thin) green box on the AP, to ‘tickle’ the bridged LAN into doing the rest of the work. Consider showing/discussing a ‘distributed portal’ diagram, too.  Like slide 11, but different.

**MIB attributes Design Pattern**

Chair – We need to get back to this work, now that Rev md is on the horizon. Please look at and review 11-16/355r3 and generate inputs/contributions on this topic.

**Update on Yang/NETCONF Modelling discussions**

Chair – We need to do work here now, as Rev md will be starting soon and if we are going to recommend using Yang/NETCONF modelling in md we need to let everyone know early in the process.

**Future Sessions / SC activities**

* 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
* Design Pattern for “\*Implemented” and “\*Activated” MIB attributes – Impacts of YANG/NETCONF decision?
* Consider YANG/NETCONF
* Will also follow 802.1/802.11 activities on links, bridging, and MAC Service definition – “What is an ESS?”, for example
* Monitor/report on 5G/IMT-2020 activities in “JOE” SC
* Monitor/report on IETF/802 activities, as needed
* Monitor/report on IEEE 1588 activities, as needed

Recessed 10:08 am CET.

# Thursday, September 15th, 8:00 CET – 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

Acting Secretary: Mark Hamilton, Ruckus

**Please see** [**11-16/1250**](https://mentor.ieee.org/802.11/dcn/16/11-16-1250-05-00ak-802-11ak-sept-2016-minutes.doc) **for the minutes.**

The Chair recessed ARC meeting at 10:00 am CET

The Chair recessed TGak at 10:00 am CET

# Thursday, September 15th, 13:00 CET – Joint ARC SC/TGak

**Administration:**

TGaq Chair: Stephen MCCANN (BlackBerry)

ARC SC Chair: Mark HAMILTON (Ruckus)

TGaq Vice-Chair: Yunsong YANG (Huawei)

ARC SC Vice-Chair: Joseph LEVY (InterDigital)

TGaq Technical Editor: Lee ARMSTRONG (US DoT) – not present during the meeting.

**Please see** [**11-16/1290**](https://mentor.ieee.org/802.11/dcn/16/11-16-1290-00-00aq-joint-tgaq-arc-sc-september-2016-meeting-minutes.doc) **for the minutes.**

The Chair adjourned ACR at 15:26 CET.

The Chair recessed TGaq at 15:26 CET.