IEEE P802.11
Wireless LANs

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| 11be D4.0 CR for CID 19004 and 19169 |
| Date: 2023-06-23 |
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Abstract

This submission proposes resolutions for the following CIDs:

19004, 19169

Revisions:

* Rev 0: Initial version of the document.

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGbe D4.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe D4.0 Draft. (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents). TGbe Editor: Editing instructions preceded by “TGbe Editor” are instructions to the TGbe editor to modify existing material in the TGbe draft. As a result of adopting the changes, the TGbe editor will execute the instructions rather than copy them to the TGbe Draft.***

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| **CID** | **Commenter** | **Clause** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 19169 | Po-Kai Huang | 35.3.5.1 | 507.13 | AP MLD also needs check the MAC address of the associated non-AP MLD to see if the MAC address conflicts with existing one. Without further check, attacker can easily have another setup with conflict affiliated STA MAC address in a link to bring down the link of previous associated non-AP MLD. | Proposed texts in 11-23-1056 is a good candidate to resolve the issues. | Revised – Agree in principle with the commenter. There are 3 cases for checking the affiliated non-AP STA MAC address. We provide corresponding texts to address the 3 cases.*Case 1 (MLD-MLD non-AP STA address conflict): As raised by commenter, a non-AP MLD sending (re)association request has address of an affiliated non-AP STA conflict with the MAC address of a non-AP STA affiliated with an existing association non-AP MLD**Case 2 (MLD-non-MLD non-AP STA address conflict): a non-AP MLD sending (re)association request has MAC address of an affiliated non-AP STA conflict with the MAC address of an associated non-AP STA not affiliated with a non-AP MLD.* *Case 3 (non-MLD- MLD non-AP STA address conflict): a non-AP STA not affiliated with a non-AP MLD sending (re)association request has the same MAC address as a non-AP STA affiliated with an existing association non-AP MLD.* We note that MAC address collision is unlikely to happen unless an attacker specifically mounts an attack that utilize the same address to cause collision of MAC address. As a result, a status code is not really needed to inform the attacker.TGbe editor to make the changes shown in 11-23/1655r0 under all headings that include CID 19169 |
| 19004 | Chaoming Luo | 11.3.6.3 | 381.45 | There may be an attacker non-AP MLD has affiliated non-AP STAs whose MAC address(es) confilict with MAC address(es) of existing associated legacy non-AP STAs. If the AP MLD does not check with those STAs, the attacker non-AP MLD will be successfully associated and the affiliated AP will be associated with two non-AP STAs (one legacy STA and one affiliated STA) which have the same MAC address.Same issue lies in P387L12. | Change item e) as follows:e)Otherwise, if the state for the STA that has any of the MAC addresses of the affiliated STAs of the non-AP MLD or the STA that has the MLD MAC address of the non-AP MLD or the non-AP MLD is State 4 ... | Revised – Agree in principle with the commenter. There are 3 cases for checking the affiliated non-AP STA MAC address. We provide corresponding texts to address the 3 cases.*Case 1 (MLD-MLD non-AP STA address conflict): As raised by commenter, a non-AP MLD sending (re)association request has address of an affiliated non-AP STA conflict with the MAC address of a non-AP STA affiliated with an existing association non-AP MLD**Case 2 (MLD-non-MLD non-AP STA address conflict): a non-AP MLD sending (re)association request has MAC address of an affiliated non-AP STA conflict with the MAC address of an associated non-AP STA not affiliated with a non-AP MLD.* *Case 3 (non-MLD- MLD non-AP STA address conflict): a non-AP STA not affiliated with a non-AP MLD sending (re)association request has the same MAC address as a non-AP STA affiliated with an existing association non-AP MLD.* We note that MAC address collision is unlikely to happen unless an attacker specifically mounts an attack that utilize the same address to cause collision of MAC address. As a result, a status code is not really needed to inform the attacker.TGbe editor to make the changes shown in 11-23/1655r0 under all headings that include CID 19169 |

 **Discussion:**

The commenter raises a question beyond simply checking of MAC address of affiliaterd STAs.

There are 3 cases below.

Case 1 (MLD-MLD non-AP STA address conflict): As raised by commenter, a non-AP MLD sending (re)association request has address of an affiliated non-AP STA conflict with the MAC address of a non-AP STA affiliated with an existing association non-AP MLD

Case 2 (MLD-non-MLD non-AP STA address conflict): a non-AP MLD sending (re)association request has MAC address of an affiliated non-AP STA conflict with the MAC address of an associated non-AP STA not affiliated with a non-AP MLD.

Case 3 (non-MLD- MLD non-AP STA address conflict): a non-AP STA not affiliated with a non-AP MLD sending (re)association request has the same MAC address as a non-AP STA affiliated with an existing association non-AP MLD.

Note that non-MLD-non-MLD case is handled by SA query.

**Proposal:**

*TGbe editor: Modify Clause 35.3.5.1 as follows (track change on):*

* + - 1. **ML (re)setup procedure**

(…existing texts…)

The AP MLD shall not accept a link that is requested for (re)setup if any of the following condition is true:

* The non-AP STA affiliated with the non-AP MLD corresponding to the link does not support all of the rates in the BSSBasicRateSet parameter and all of the membership selectors in the BSSMembershipSelectorSet parameter of the AP affiliated with the AP MLD corresponding to the link in the MLME-START.request primitive.
* The non-AP STA affiliated with the non-AP MLD corresponding to the link does not support all of the MCSs in the Basic HT-MCS Set field of the HT Operation parameter of the AP affiliated with the AP MLD (if present) corresponding to the link in the MLME-START.request primitive.
* The non-AP STA affiliated with the non-AP MLD corresponding to the link does not support all of the <VHT-MCS, NSS> tuples indicated by the Basic VHT-MCS And NSS Set field of the VHT Operation parameter of the AP affiliated with the AP MLD (if present) corresponding to the link in the MLME-START.request primitive.
* The non-AP STA affiliated with the non-AP MLD corresponding to the link does not support all of the <HE-MCS, NSS> tuples indicated by the Basic HE-MCS And NSS Set field of the HE Operation parameter of the AP affiliated with the AP MLD corresponding to the link in the MLME- START.request primitive.
* The non-AP STA affiliated with the non-AP MLD corresponding to the link does not support all of the <EHT-MCS, NSS> tuples indicated by the Basic EHT-MCS And NSS Set field of the EHT Operation parameter of the AP affiliated with the AP MLD corresponding to the link in the MLME- START.request primitive.

The AP MLD should not accept a link that is requested for (re)setup if the non-AP STA affiliated with the non-AP MLD corresponding to the link has the same MAC address as a non-AP STA (that is affiliated with a non-AP MLD or not affiliated with a non-AP MLD) associated with the AP affiliated with the AP MLD corresponding to the link.(#19169)

(…existing texts…)

*TGbe editor: Modify Clause 11.3.6.3 as follows (track change on):*

* + - 1. **AP, AP MLD, or PCP association receipt procedures**

***Insert the following paragraph as the first paragraph of the subclause:***

For a non-AP MLD associated with an AP MLD, if an AP affiliated with the AP MLD receives an Association Request frame without a Basic Multi-Link element from a non-AP STA affiliated with the non- AP MLD, then the AP shall reject the association request with a status code of DENIED\_STA\_AFFILIATED\_WITH\_MLD\_WITH\_EXISTING\_MLD\_ASSOCIATION.

***Change the remaining paragraphs of the subclause as follows:***

The following procedure shall be used by an AP or PCP ~~U~~upon receipt of an Association Request frame from a STA ~~the AP or PCP shall use the following procedure~~ or by an AP MLD after an AP affiliated with the AP MLD receives an Association Request frame with Basic Multi-Link element from a non-AP STA affiliated with a non-AP MLD:

(…existing texts…)

* + - * 1. The SME shall refuse an association request from a STA that does not support all of the rates in the BSSBasicRateSet parameter and all of the membership selectors in the BSSMembershipSelectorSet parameter in the MLME-START.request primitive.
				2. The SME shall refuse an association request from an HT STA that does not support all of the MCSs in the Basic HT-MCS Set field of the HT Operation parameter in the MLME-START.request primitive.
				3. The SME shall refuse an association request from a VHT STA that does not support all of the

<VHT-MCS, NSS> tuples indicated by the Basic VHT-MCS And NSS Set field of the VHT Operation parameter in the MLME-START.request primitive.

* + - * 1. The SME shall refuse an association request from a HE STA that does not support all of the <HE- MCS, NSS> tuples indicated by the Basic HE-MCS And NSS Set field of the HE Operation parameter in the MLME-START.request primitive.

i1) The AP affiliated with an AP MLD should refuse an association request from a non-AP STA that is not affiliated with a non-AP MLD if the MAC address of the non-AP STA is the same as a non-AP STA associated with the AP and affiliated with a non-AP MLD. (#19169)

(…existing texts…)

*TGbe editor: Modify Clause 11.3.6.5 as follows (track change on):*

* + - 1. **AP, AP MLD, or PCP reassociation receipt procedures**

(…existing texts…)

The following procedure shall be used by an AP or PCP u~~U~~pon receipt of a Reassociation Request frame from a STA ~~the AP or PCP shall use the following procedure~~ or by an AP affiliated with an AP MLD upon receipt of a Reassociation Request frame with Basic Multi-Link element from a non-AP STA affiliated with a non-AP MLD:

(…existing texts…)

* + - * 1. The SME shall refuse a reassociation request from a STA that does not support all the rates in the BSSBasicRateSet parameter and all of the membership selectors in the BSSMembershipSelectorSet parameter in the MLME-START.request primitive.
				2. The SME shall refuse a reassociation request from an HT STA that does not support all of the MCSs in the Basic HT-MCS Set field of the HT Operation parameter in the MLME-START.request primitive.
				3. The SME shall refuse a reassociation request from a VHT STA that does not support all of the <VHT-MCS, NSS> tuples indicated by the Basic VHT-MCS And NSS Set field of the VHT Operation parameter in the MLME-START.request primitive.
				4. The SME shall refuse a reassociation request from a HE STA that does not support all of the <HE- MCS, NSS> tuples indicated by the Basic HE-MCS And NSS Set field of the HE Operation parameter in the MLME-START.request primitive.

i1) The AP affiliated with an AP MLD should refuse a reassociation request from a non-AP STA that is not affiliated with a non-AP MLD if the MAC address of the non-AP STA is the same as a non-AP STA associated with the AP and affiliated with a non-AP MLD. (#19169)

(…existing texts…)