IEEE P802.11
Wireless LANs

|  |
| --- |
| 11bi D0.4 CR for 10.71.2.3 |
| Date: 2024-08-02 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Jerome Henry | Cisco Systems |  |  | jerhenry@cisco.com |
| Domenico Ficara | Cisco Systems |  |  | dficara@cisco.com |
| Ugo Campiglio | Cisco Systems |  |  | ucampigl@cisco.com |
| Javier Contreras | Cisco Systems |  |  | jacontre@cisco.com |

Abstract

This submission proposes resolutions for the following CIDs:

1333, 1334, 1335, 1336, 1019, 1074, 1075, 1171, 1082, 1076, 1337, 1113, 1513, 1338, 1339, 1340, 1064

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 TGbi D0.4 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbi D0.4 Draft. (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents). TGbi Editor: Editing instructions preceded by “TGbi Editor” are instructions to the TGbi editor to modify existing material in the TGbi draft. As a result of adopting the changes, the TGbi editor will execute the instructions rather than copy them to the TGbi Draft.***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 1333 | Mark RISON | 10.71.2.3 | 56.03 | "setting value 1 to the Group EDP Epoch Supported field " is rather weird | As it says in the comment | REVISEDReworded to “setting to 1 the Group EDP Epoch Supported field ”  |
| 1334 | Mark RISON | 10.71.2.3 | 56.08 | "Extended RSN element" -- no such element | As it says in the comment | REVISEDReworded to RSNXE (accepted short form for RSN Extension) |
| 1335 | Mark RISON | 10.71.2.3 | 56.11 | "Group EDP Epoch support is optional for the CPE AP MLD and the CPE non-AP MLD. " -- I don't know which "the" this is referring to, nor whether it's trying to tell me it's mandatory for some other things | Change to "Group EDP Epoch support is optional." Or delete, since that's already the implication of having a capability bit | REVISEDChanged to “Group EDP Epoch support is optional” as the 11bi group opted to make explicit the optional support. |
| *1336* | Mark RISON | 10.71.2.3 | 56.13 | "sending an unicast protected action frame" -- refer to the actual frame, rather than being vague | As it says in the comment | REVISEDProposed a name for the frame (although other comments suggest that other contributors will propose names for all frames in this clause). |
| *1019* | Chaoming Luo | 10.71.2.3 | 56.14 | What is the protected action frame? Is it a specific frame? Then define it. Or is it may be any frame that carries a EGPA element? | Clarify and define the frame. | REVISEDSame as #1336 |
| *1074* | Julien Sevin | 10.71.2.3 | 56.14 | "A CPE AP MLD advertises group EDP epochs by sending an unicast protected action frame". Which unicast protected action frame ? | Please specify the unicast protected action frame which advertises group EDP epochs | REVISEDSame as #1336 |
| 1075 | Julien Sevin | 10.71.2.3 | 56.15 | "A CPE AP MLD advertises group EDP epochs by sending an unicast protected action frame containing an Enhanced Group Privacy Availability element for each relevant group EDP epoch in the BSS." What is the meaning of "relevant" ? | Please clarify the term "relevant" | REVISEDAdded a note that clarifies that this is implementation-dependent. |
| 1171 | Patrice Nezou | 10.71.2.3 | 56.15 | What is a "relevant" group EDP Epoch ? | please clarify | REVISEDSame as #1075 |
| 1082 | Julien Sevin | 10.71.2.3 | 56.16 | Shall CPE AP MLD necessary advertise all the existing group EDP epochs to each non-AP MLD that joins the BSS or at least one ? | Please clarify if all the existing group EDP epochs that joins the BSS shall be advertised to each non-AP MLD | REVISEDAdded clarification, oe or more groups to each STA. This is because there may be many groups, but also because the STA type may be recognized (e.g. IOT) making some groups (the fast rotating ones) non-relevant to the STA. |
| 1076 | Julien Sevin | 10.71.2.3 | 56.17 | "A CPE AP MLD shall advertise group EDP epochs to each non-AP MLD that joins the BSS and may advertise group EDP epochs when significant changes have affected one or more groups." What is the meaning of "significant" ? | Please clarify the term "significant" | REVISEDAdded a note that clarifies that this is implementation-dependent. |
| 1337 | Mark RISON | 10.71.2.3 | 56.19 | "A CPE non-AP MLD may be a member of only one group EDP epoch at a time." -- that's a shall not a may, I strongly suspect | As it says in the comment | REVISEDChanged to shall. |
| 1113 | stephane baron | 10.71.2.1 | 56.20 | sentence duplicated with p54 line 59-61 | supress duplicate | REVISEDLine 59-61 state “At any given time, an AP MLD has at most one EDP epoch assigned to a given associated non-AP MLD. A non-AP MLD has at most one EDP epoch.” This sentence talks about the epoch, i.e. the fact that an AP cannot, and a STA is not expected to be running two parallel epochs at the same time, thus running two paralell sets of parameters that all rotate at the end of the epoch. Line 56.20 states “A CPE non-AP MLD may be a member of only one group EDP epoch at a time”, which refers to the group, not the epoch. However, the confusion comes from the fact that we do not name the group correctly here. Modified to follow the naming convention in 10.71.2.1 (EDP group). This affects more than this sentence, but the whole clause. |
| 1513 | Jarkko Kneckt | 10.71.2.3 | 56.14 | The 802.11bi should explain and give guidance that IoT devices may setup a group epoch with long address anonymization interval to reduce signaling needed for MAC Header anonymization. | Please add clarifications how IoT devices setup group epochs with long anonymization period to save power. | REVISEDAdded some language for IoT and more privacy-sensitive devices. |
| 1338 | Mark RISON | 10.71.2.3 | 56.22 | "A CPE non-AP MLD may request to join a group EDP epoch by sending an EDP epoch setting protected action request frame, containing the group ID that the non-AP MLD wishes to join.The AP MLD responds with an EDP epoch setting protected action response frame, accepting or rejecting the request.A CPE non-AP MLD may leave the group EDP epoch by sending EDP epoch setting protected action request frame. " -- more horror with frame identification. Also missing articles | As it says in the comment | REVISEDInline with similar previous comments in other sentences, Action frame at the end, and capitalized first letters. |
| 1339 | Mark RISON | 10.71.2.3 | 56.34 | "OTA fields of the individually addressed frames" -- which the frames? | Delete "the" | ACCEPTED |
| 1340 | Mark RISON | 10.71.2.3 | 56.38 | "An overview of the group EDP epoch is shown in Figure 10-168 (Over-view of group EDP epoch)." -- it is not clear what the value of this is without explanatory text. Also case horrors in the figure. It's not clear what "OTA\_AID 0 OTA\_IndividualMAC Header\_<n>" refer to, nor how this relates to "Receive with AID and MAC Header 0 and 1", nor why Boundary + dot11EpochTransitionTime does not have an arrow, unlike the - on the other side | As it says in the comment | REVISEDThe elements in the figure are explained in 10.71.2.5, therefore the figure does not make sense in this clause, and should be moved to the end of clause 10.71.2.5 |
| 1064 | Antonio DeLaOlivaDelgado | 10.71.2.3 | 56.43 | In figure 10-168 there is OTA\_AID 0 that never changes, which does not make sense. | Modify to show OTA\_AID 0, 1, 2 | ACCEPTED |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**Discussion:**

CID1333

Revised

A CPE AP MLD advertises group EDP epoch support in the Extended RSN Capabilities field of Beacon and Probe Response frames by setting ~~value 1~~ the Group EDP Epoch Supported field to 1 (#1333).

A CPE non-AP MLD advertises group EDP epoch support in the Extended RSN element of (Re)Association Request frames by setting ~~value~~ the Group EDP Epoch Supported field ~~1~~ to 1 (#1333).

CID1334

Revised

A CPE non-AP MLD advertises group EDP epoch support in (Re)Association Request frames by setting ~~value 1~~ to 1 (#1333) the Group EDP Epoch Supported field of the ~~Extended RSN element~~ RSNXE (#1334).

CID1335

Revised

Group EDP Epoch support is optional ~~for the CPE AP MLD and the CPE non-AP MLD~~ (#1335).

CID1336, 1019, 1074

Revised

A CPE AP MLD advertises group EDP epochs by sending an ~~unicast~~ individually addressed EDP Group Parameters (#1336, 1019, 1074) ~~protected Action(#Ed)~~ frame containing an Enhanced Group Privacy Availability element for each relevant group EDP epoch in the BSS. A CPE AP MLD shall advertise group EDP epochs to each non-AP MLD that joins the BSS and may advertise group EDP epochs when significant changes have affected one or more groups.

CID 1075, 1171

Revised

A CPE AP MLD advertises group EDP epochs by sending an ~~unicast~~ individually addressed EDP Group Parameters (#1336, 1019, 1074) ~~protected Action(#Ed)~~ frame containing an Enhanced Group Privacy Availability element for each ~~relevant~~ supported (#1075, 1171) ~~group~~ EDP epoch group in the BSS. A CPE AP MLD shall advertise group EDP epochs to each non-AP MLD that joins the BSS and may advertise group EDP epochs when significant changes have affected one or more groups.

CID 1082

Revised

A CPE AP MLD advertises group EDP epochs by sending ~~an~~ unicast Enhanced EDP Group Parameters (#1336, 1019, 1074) protected Action(#Ed) frame containing an Enhanced Group Privacy Availability element for each ~~relevant~~ supported (#1075, 1171) ~~group~~ EDP epoch group in the BSS. A CPE AP MLD shall advertise one or more (#1082) group EDP epochs to each non-AP MLD that joins the BSS and may advertise group EDP epochs when significant changes have affected one or more groups.

CID 1076

Revised

A CPE AP MLD advertises group EDP epochs by sending ~~an~~ unicast Enhanced EDP Group Parameters (#1336, 1019, 1074) protected Action(#Ed) frame containing an Enhanced Group Privacy Availability element for each ~~relevant~~ supported (#1075, 1171) ~~group~~ EDP epoch group in the BSS. A CPE AP MLD shall advertise one or more (#1082) group EDP epochs to each non-AP MLD that joins the BSS and may advertise group EDP epochs when ~~significant~~ (#1076) changes have affected one or more groups.

NOTE – When the AP sends an updated Enhanced EDP Group Parameters frame is implementation-dependent and outside the scope of this standard. (#1076).

CID 1337

Revised

A CPE non-AP MLD ~~may~~ shall (#1337) be a member of only one group EDP epoch at a time.

CID 1113

Revised

10.71.2.3 ~~Group~~ EDP Groups ~~Epoch~~ (#1113)

A CPE AP MLD advertises ~~group~~ EDP group ~~epoch~~ (#1113) support in Beacon and Probe Response frames by setting ~~value 1~~ to 1 (#1333) the Group EDP Epoch Supported field of the Extended RSN Capabilities field.

A CPE non-AP MLD advertises ~~group~~ EDP group ~~epoch~~ (#1113) support in (Re)Association Request frames by setting ~~value 1~~ to 1 (#1333) the Group EDP Epoch Supported field of the ~~Extended RSN element~~ RSNXE (#1334).

~~Group~~ EDP group ~~epoch~~ (#1113) support is optional ~~for the CPE AP MLD and the CPE non-AP MLD~~ (#1335).

A CPE AP MLD advertises ~~group~~ EDP groups and their parameters ~~epochs~~ (#1113) by sending ~~an~~ unicast Enhanced EDP Group Parameters (#1336, 1019, 1074) protected Action(#Ed) frame containing an Enhanced Group Privacy Availability element for each ~~relevant~~ supported (#1075, 1171) ~~group~~ EDP ~~epoch~~ (#1113) group in the BSS. A CPE AP MLD shall advertise one or more (#1082) ~~group~~ EDP groups ~~epochs~~ (#1113) to each non-AP MLD that joins the BSS and may advertise ~~group~~ EDP groups and their parameters ~~epochs~~ (#1113) when significant changes have affected one or more groups.

NOTE – the type and magnitude of changes deemed significant enough for an AP to send an updated Enhanced EDP Group Parameters protected Action frame is implementation-dependent and outside the scope of this standard. (#1076).

A CPE non-AP MLD ~~may~~ shall (#1337) be a member of only one EDP group ~~EDP epoch~~ (#1113) at a time.

A CPE non-AP MLD may request to join an ~~group~~ EDP group ~~epoch~~ (#1113) by sending an EDP epoch setting protected action request frame, containing the group ID that the non-AP MLD wishes to join.

The AP MLD responds with an EDP epoch setting protected action response frame, accepting or rejecting the request.

A CPE non-AP MLD may leave the ~~group~~ EDP group ~~epoch~~ (#1113) by sending EDP epoch setting protected action request frame.

If a CPE non-AP MLD is a member of an ~~group~~ EDP group ~~epoch~~ (#1113), the non-AP MLD and the AP MLD shall anonymize the selected OTA fields of the individually addressed frames according to group epoch settings as defined in 10.71.3 (Establishing frame anonymization parameter sets), 10.71.4 (MAC Header anonymization and transmitting functions), 10.71.5 (MAC header anonymization and receiving functions) and 10.71.6 (Frame anonymization and AID). An overview of the group EDP epoch is shown in Figure 10-168 (Overview of group EDP epoch).

CID 1513

Revised

A CPE non-AP MLD may request to join a ~~group~~ EDP group ~~epoch~~ (#1113) by sending an EDP epoch setting protected action request frame, containing the group ID that the non-AP MLD wishes to join. Some CPE non-AP MLDs (for example in IoT devices) may choose a group with longer epochs, to limit parameter changes computation costs, while other CPE non-AP MLDs (for example in personal general devices) may choose a group with short epochs, to increase privacy protection. (#1513)

CID 1338

Revised

A CPE non-AP MLD may request to join a ~~group~~ EDP group ~~epoch~~ (#1113) by sending an EDP Epoch Setting Request protected Action ~~request~~ (#1338) frame, containing the group ID that the non-AP MLD wishes to join. Some CPE non-AP MLDs (for example in IoT devices) may choose a group with longer epochs, to limit parameter changes computation costs, while other CPE non-AP MLDs (for example in personal general devices) may choose a group with short epochs, to increase privacy protection.

The AP MLD responds with an EDP Epoch Setting Response protected Action ~~response~~ (#1338) frame, accepting or rejecting the request.

A CPE non-AP MLD may leave the ~~group~~ EDP group ~~epoch~~ (#1113) by sending an (#1338) EDP Epoch Setting Request protected Action ~~request~~ (#1338) frame.

CID 1339

Revised

If a CPE non-AP MLD is a member of an ~~group~~ EDP group ~~epoch~~ (#1113), the non-AP MLD and the AP MLD shall anonymize ~~the~~ (#1339) selected OTA fields of the individually addressed frames according to group epoch settings as defined in 10.71.3 (Establishing frame anonymization parameter sets), 10.71.4 (MAC Header anonymization and transmitting functions), 10.71.5 (MAC header anonymization and receiving functions) and 10.71.6 (Frame anonymization and AID). An overview of the group EDP epoch is shown in Figure 10-168 (Overview of group EDP epoch).

CID 1340

Revised

If a CPE non-AP MLD is a member of an ~~group~~ EDP group ~~epoch~~ (#1113), the non-AP MLD and the AP MLD shall anonymize ~~the~~ (#1339) selected OTA fields of the individually addressed frames according to group epoch settings as defined in 10.71.3 (Establishing frame anonymization parameter sets), 10.71.4 (MAC Header anonymization and transmitting functions), 10.71.5 (MAC header anonymization and receiving functions) and 10.71.6 (Frame anonymization and AID). ~~An overview of the group EDP epoch is shown in Figure 10-168 (Overview of group EDP epoch~~). (#1340)

CID 1064

Accepted



**Proposal:**

*TGbi editor: Modify Clause 10.71.2.3 as follows (track change on):*

**10.71.2.3 EDP Groups (#1113)**

A CPE AP MLD advertises EDP group (#1113) support in the Extended RSN Capabilities field of (#1333) Beacon and Probe Response frames by setting the Group EDP Epoch Supported field to 1 (#1333).

A CPE non-AP MLD advertises EDP group (#1113) support in the RSNXE (#1334) of (Re)Association Request frames by setting the Group EDP Epoch Supported field to 1 (#1333).

EDP group (#1113) support is optional (#1335).

A CPE AP MLD advertises EDP groups and their parameters (#1113) by sending an individually addressed EDP Group Paramaters (#1336, 1019, 1074) frame containing an Enhanced Group Privacy Availability element for each supported (#1075, 1171) EDP group (#1113) in the BSS. A CPE AP MLD shall advertise one or more (#1082) EDP groups (#1113) to each non-AP MLD that joins the BSS and may advertise EDP groups and their parameters (#1113) when (#1076) changes have affected one or more groups.

NOTE – When the AP sends an updated Enhanced EDP Group Parameters frame is implementation-dependent and outside the scope of this standard. (#1076).

A CPE non-AP MLD shall (#1337) be a member of only one group EDP epoch at a time.

A CPE non-AP MLD may request to join an EDP group (#1113) by sending an EDP Epoch Setting Request protected Action (#1338) frame, containing the group ID that the non-AP MLD wishes to join. Some CPE non-AP MLDs (for example in IoT devices) may choose a group with longer epochs, to limit parameter changes computation costs, while other CPE non-AP MLDs (for example in personal general devices) may choose a group with short epochs, to increase privacy protection. (#1513)

The AP MLD responds with an EDP Epoch Setting Response protected Action (#1338) frame, accepting or rejecting the request.

A CPE non-AP MLD may leave the EDP group (#1113) by sending an EDP Epoch Setting Request Action (#1338) frame.

If a CPE non-AP MLD is a member of an EDP group (#1113), the non-AP MLD and the AP MLD shall anonymize (#1339) selected OTA fields of the individually addressed frames according to group epoch settings as defined in 10.71.3 (Establishing frame anonymization parameter sets), 10.71.4 (MAC Header anonymization and transmitting functions), 10.71.5 (MAC header anonymization and receiving functions) and 10.71.6 (Frame anonymization and AID).

*TGbi editor: Please move (#1340) corrected Figure 10-168 (#1064) and its supporting text to the end of clause 10.71.2.5.*

An overview of the group EDP epoch is shown in Figure 10-168 (Overview of group EDP epoch).

