

CLAIMS

What is claimed is:

1. A critical basic service set (BSS) parameter management method applicable to multiple links, comprising:

5 generating, by a first access point (AP) in a first access point multi-link device (AP MLD), a first frame, wherein the first frame indicates critical basic service set (BSS) parameter update information respectively corresponding to a plurality of APs in the first AP MLD and critical BSS parameter update information respectively corresponding to a plurality of APs in a second AP MLD, the first frame comprising:

10 a multi-link (ML) element, and
a reduced neighbor report (RNR) element;

sending, by the first AP in the first AP MLD to a first STA of a non-AP MLD, the first frame on a link on which the first AP works;

wherein:

15 the ML element comprises an MLD common information field that carries a critical BSS parameter update count value of the first AP and a link identifier of the first AP,

the RNR element comprises one or more target beacon transmission time (TBTT) information set fields, each of the one or more of fields the TBTT information set includes one or more TBTT information fields, and one TBTT information field of the one or more TBTT information fields
20 corresponds to one neighbor AP;

each of the TBTT information fields comprises:

one critical BSS parameter update count value,

one link identifier field which indicates a specific link, and

one multi-link device (MLD) ID field which indicates a specific AP MLD;

25 the link identifier field in combination with the MLD ID field uniquely identify an AP;

the second AP MLD is an AP MLD to which a nontransmitted AP belongs, and the nontransmitted AP is in a multiple basic service set identifier (BSSID) set comprising the first AP, and in the critical BSS parameter update information respectively corresponding to a plurality of APs in the first AP MLD and in the critical BSS parameter update information respectively
30 corresponding to a plurality of APs in a second AP MLD,

one piece of critical BSS parameter update information corresponding to an AP of the plurality of APs is used to determine whether a critical BSS parameter in a BSS managed by the AP of the plurality of APs is updated, wherein a critical BSS parameter update count value corresponding to one AP of the plurality of APs is used to determine whether a critical BSS parameter in a BSS managed by the one AP of the plurality of APs is updated.

2. A critical BSS parameter management method applicable to multiple links, comprising:

receiving, by a first station (STA) in a first non-access point multi-link device non-AP MLD, a first frame on a link on which the first STA works, wherein the first frame indicates critical BSS parameter update information respectively corresponding to a plurality of APs in a first AP MLD and critical BSS parameter update information respectively corresponding to a plurality of APs in a second AP MLD, the first frame comprising:

a multi-link (ML) element, and

a reduced neighbor report (RNR) element; and

determining, by a first STA in the first non-AP MLD based on the first frame, whether critical BSS parameters of a plurality of BSSs managed by a plurality of APs in an AP MLD associated with the first STA are updated;

wherein:

the ML element comprises an MLD common information field that carries a critical BSS parameter update count value of the first AP and a link identifier of the first AP,

the RNR element comprises one or more target beacon transmission time (TBTT) information set fields; each of the one or more of fields the TBTT information set includes one or more TBTT information fields, and one TBTT information field of the one or more TBTT information fields corresponds to one neighbor AP;

each of the TBTT information fields comprises:

one critical BSS parameter update count value,

one link identifier field which indicates a specific link, and

one multi-link device (MLD) ID field which indicates a specific AP MLD;

the link identifier field in combination with the MLD ID field uniquely identify an AP;

the second AP MLD is an AP MLD to which a nontransmitted AP belongs, and the nontransmitted AP is in a multiple BSSID set comprising the first AP, and in the critical BSS parameter update information respectively corresponding to a plurality of APs in the first AP MLD

and in the critical BSS parameter update information respectively corresponding to a plurality of APs in a second AP MLD,

one piece of critical BSS parameter update information corresponding to an AP of the plurality of APs is used to determine whether a critical BSS parameter in a BSS managed by the AP of the plurality of APs is updated, wherein a critical BSS parameter update count value corresponding to one AP of the plurality of APs is used to determine whether a critical BSS parameter in a BSS managed by the one AP of the plurality of APs is updated.

3. The method according to claim 2, wherein the critical BSS parameter update information comprises a critical BSS parameter update count value, and the first non-AP MLD records a critical BSS parameter update count value received last time corresponding to each link.

4. The method according to claim 2 or 3, wherein the critical BSS parameter update information comprises the critical BSS parameter update count value; and
the method further comprises:

if a critical BSS parameter update count value that corresponds to a second AP in an AP MLD associated with the first non-AP MLD and that is received by the first STA in the first non-AP MLD is different from a critical BSS parameter update count value of the second AP that is received by the first non-AP MLD last time, receiving, by a station associated with the second AP in the first non-AP MLD, a beacon frame of the second AP, wherein the beacon frame carries a latest critical BSS parameter of the second AP.

5. The method according to claim 2 or 3, wherein the critical BSS parameter update information comprises a critical BSS parameter update count value; and
the method further includes:

if a critical BSS parameter update count value that corresponds to a second AP in an AP MLD associated with the first non-AP MLD and that is received by the first STA in the first non-AP MLD is different from a critical BSS parameter update count value of the second AP that is received by the first non-AP MLD last time, obtaining, by a STA in the first non-AP MLD, a latest critical BSS parameter of the second AP by sending a probe request frame.

6. The method according to claim 3, wherein the method further comprises:

if a critical BSS parameter update count value that corresponds to an AP in the first AP MLD and that is indicated by the first frame is different from a critical BSS parameter update count value that corresponds to the AP and that is received by the first non-AP MLD last time, updating, by

the first non-AP MLD, a locally stored critical BSS parameter update count value that corresponds to the AP to the critical BSS parameter update count value that corresponds to the AP and that is indicated by the first frame.

5 7. The method according to claim 1 or 3, wherein the critical BSS parameter update count value is increased by 1 when one parameter of critical BSS parameters changes.

8. The method according to any one of claims 1 to 7, wherein a value of a short service set identifier (SSID) field of an AP in the RNR element is obtained based on an SSID of an MLD comprising the AP.

10 9. The method according to any one of claims 1 to 7, wherein the first frame is any one of a beacon frame, a probe response frame, and an association response frame.

10. The method according to claim 1, wherein an association response frame sent by an AP in the first AP MLD carries current critical BSS parameter update count values of a plurality of APs.

15 11. The method according to any one of claims 1 to 10, wherein the method further comprises: generating, by the first AP in the first AP MLD, a second frame, wherein the second frame indicates specific critical BSS parameters of a plurality of APs in the first AP MLD and specific critical BSS parameters of a plurality of APs in the second AP MLD; and

 sending, by the first AP in the first AP MLD, the second frame on the link on which the first AP works.

20 12. The method according to any one of claims 2 to 10, wherein the method further comprises: receiving, by the first STA, a second frame on a link on which the first STA works, wherein the second frame indicates specific critical BSS parameters of a plurality of APs in the first AP MLD and specific critical BSS parameters of a plurality of APs in the second AP MLD; and

25 parsing, by the first STA, the second frame to obtain specific critical BSS parameters of a plurality of APs in an AP MLD associated with the non-AP MLD.

13. The method according to claim 11 or 15, wherein one specific critical BSS parameter of one AP in the second frame comprises one or more of the following: an inclusion of a channel switch announcement element, an inclusion of an extended channel switch announcement element, an inclusion of a wide bandwidth channel switch element, and an inclusion of a channel switch
30 wrapper element.

14. The method according to any one of claims 11 to 13, wherein the one specific critical BSS

parameter of the AP in the second frame further comprises one or more of the following: an inclusion of a quiet element and an inclusion of a quiet channel element.

15. The method according to any one of claims 11 to 14, wherein the specific critical BSS parameter is carried in a multi-link (ML) element.

5 16. A communication apparatus, comprising a processor and a transceiver, wherein the transceiver and the processor are configured to perform the method according to any one of claims 1 to 18.

10 17. A first access point multi-link device (AP MLD), includes a first AP and a second AP, the first AP comprising a processor and a transceiver, wherein the transceiver and the processor are configured to perform the method according to any one of claims 1, 7 to 11, 13 15.

18. A first non-access point multi-link device (non-AP MLD), includes a first station (STA) and a second STA, the first STA comprising a processor and a transceiver, wherein the transceiver and the processor are configured to perform the method according to any one of claims 2 to 9 and 12 to 15.

15 19. A computer-readable storage medium, wherein the computer-readable storage medium stores instructions, and when the instructions are run on a computer, the computer is enabled by a first access point (AP) in a first access point multi-link device (AP MLD) to perform the method according to any one of claims 1, 7 to 11, 13 15; or the computer is enabled by a first station (STA) in a first non-access point multi-link device (non-AP MLD) to perform the method according to
20 claim 2 to 9 and 12 to 15.

20. A chip or a chip system, comprising an input/output interface and a processing circuit, wherein the input/output interface is configured to receive code instructions and transmit the code instructions to the processing circuit, and the processing circuit is configured to run the code instructions to enable a first access point (AP) in a first access point multi-link device (AP MLD)
25 to perform the method according to any one of claims 1, 7 to 11, 13 15; or to make a first station (STA) in a first non-access point multi-link device (non-AP MLD) to perform the method according to claim 2 to 9 and 12 to 15.