CLAIMS

1. A method comprising:

sending, by a first station to a second station, a discovery request comprising a link identifier indicating a non-access point, AP, multi-link device, MLD, wherein the first station is associated with an AP and the second station is associated with an AP MLD, wherein the AP is affiliated with the AP MLD; and

receiving, by the first station from the second station, a discovery response comprising a multi-link element, MLE, indicating an address of the AP MLD, an address of the AP, or both.

2. The method of claim 1 further comprising:

receiving, by the first station from the AP, a message indicating a MAC address of the second station.

3. The method of claim 1 or 2, wherein the discovery request further comprises a multi-link element, MLE, indicating an address of the AP MLD, an address of the AP, or both, and is sent via the AP and a non-AP station affiliated with the second station.

4. The method of any of claims 1 to 3, further comprising:

sending, by the first station to the second station, a setup request; and

receiving, by the first station from the second station, a setup response.

5. The method of claim 4, wherein the setup request indicates an authentication and key management (AKM) suite for establishing a link between the first station and the second station.

6. The method of claim 5 further comprising:

deriving, by the first station, a key based on the AKM suite; and

sending, by the first station to the second station, a setup confirmation message.

7. The method of any of claims 1 to 6 wherein the first station is preconfigured to send the discovery request comprising the link identifier.

8. The method of any of claims 1 to 7, wherein

the first station has a security association through a first authenticator associated with the AP; and

the second station has a security association through a second authenticator associated with the AP MLD, wherein the first authenticator and the second authenticator have different MAC addresses.

9. A method comprising:

receiving, by a first station from a second station, a discovery request comprising a link identifier indicating a non-access point, AP, multi-link device, MLD, wherein the first station is associated with an AP and the second station is associated with an AP MLD, wherein the AP is affiliated with the AP MLD; and

sending, by the first station to the second station, a discovery response;

wherein the discovery response further comprises a multi-link element, MLE, indicating an address of the AP MLD, an address of the AP, or both.

10. The method of claim 9 further comprising:

receiving, by the first station from the AP, a message indicating a MAC address of the second station.

11. The method of claim 9 or 10 wherein the discovery request further comprises a multi-link element, MLE, indicating an address of the AP MLD, an address of the AP, or both, and is sent via the AP and a non-AP station affiliated with the second station.

12. The method of any of claims 9 to 11 further comprising:

receiving, by the first station from the second station, a setup request indicating an authentication and key management (AKM) suite;

deriving, by the first station, a key based on the AKM suite; and

sending, by the first station to the second station, a setup response indicating the AKM suite.

13. The method of claim 12 further comprising:

receiving, by the first station from the second station, a setup confirmation message indicating the establishment of a link between the first station and the second station.

14. A system comprising a first station and a second station, wherein:

the first station is configured for:

sending, to the second station, a discovery request comprising a link identifier indicating a non-access point, AP, multi-link device, MLD, wherein the first station is associated with an AP and the second station is associated with an AP MLD, wherein the AP is affiliated with the AP MLD; and

receiving, from the second station, a discovery response comprising a multi-link element, MLE, indicating an address of the AP MLD, an address of the AP, or both;

the second station is configured for:

receiving, from the first station, the discovery request; and

sending, to the first station, the discovery response.

15. The system of claim 14, wherein:

the first station is further configured for:

receiving, from the AP, a message indicating a MAC address of the second station;

the second station is further configured for:

receiving from the AP, a message indicating a MAC address of the first station.

16. The system of claim 14 or 15, wherein:

the first station is further configured for:

sending, to the second station, a setup request indicating an authentication and key management (AKM) suite; and

receiving, from the second station, a setup response;

the second station is further configured for:

receiving, from the first station, the setup request;

deriving, a first key based on the AKM suite; and

sending, to the second station, the setup response.

17. The system of claim 16, wherein

the first station is further configured for:

deriving, a second key based on the AKM suite and the setup response; and

sending, to the second station, a setup confirmation message indicating the establishment of a link between the first and the second station; and

the second station is further configured for:

receiving, from the first station, the setup confirmation message.

18. The system of any of claims 14 to 17, wherein

the first station has a security association through a first authenticator associated with the AP; and

the second station has a security association through a second authenticator associated with the AP MLD, wherein the first authenticator and the second authenticator have different MAC addresses.

19. A computer-readable medium storing instructions thereon that when executed by a processor, cause an electronic device to execute the methods of any of claims 1 to 13.