

What is claimed is:

1. A method for peer-to-peer (P2P) communication in a wireless local area network (WLAN), the method comprising:

transmitting, by a hardware processor of a first peer wireless station (STA1), first peer capability information to a second peer wireless station (STA2) using a capability discovery protocol request, wherein the first peer capability information describes the STA1's capability information for a P2P connection between the STA1 and the STA2, and the first peer capability information includes a first netmask associated with the STA1, a first indication of whether dynamic host configuration protocol (DHCP) is used at the STA1, a first internet protocol (IP) address of the STA1, and a first direct link setup (DLS) link mechanism type supported by the STA1;

in response to transmitting the first peer capability information of the STA1, receiving, by the hardware processor of the STA1, second peer capability information of the STA2 using a capability discovery protocol response, wherein the second peer capability information describes the STA2's capability information for the P2P connection between the STA1 and the STA2, the second peer capability information includes a second netmask associated with the STA2, a second indication of whether DHCP is used at the STA2, a second IP address of the STA2 different from the first IP address of the STA1, and a second DLS link mechanism type supported by the STA2, and the second peer capability information contains updated capabilities of the first peer capability information of the STA1; and

establishing, by the hardware processor of the STA1, the P2P connection between the STA1 and the STA2 based on the first peer capability information and the second peer capability information;

wherein the first peer capability information and the second peer capability information are defined as an XML schema, the STA1's capability information and the STA2's capability information are in accordance with an IEEE 802.11 standard, the P2P connection between the STA1 and the STA2 is in accordance with the IEEE 802.11 standard, and the capability discovery protocol request and the capability discovery protocol response are in accordance with the IEEE 802.11 standard.

2. The method of claim 1, wherein the first peer capability information is stored on at least one of: a non-removable memory, a removable memory, or a removable module.

3. The method of claim 1, wherein the second peer capability information is used by the STA1 to discover capabilities of the STA2.

4. The method of claim 1, wherein the first peer capability information comprises a static internet protocol address if a dynamic host configuration protocol-based IP address is not available.

5. The method of claim 1, wherein the STA1 selects a P2P communication mechanism indicating TDLS capability of the STA1 from a plurality of P2P communication mechanisms that the STA1 is capable of using.

6. The method of claim 5, wherein the plurality of P2P communication mechanisms includes at least one of an adhoc link mechanism, a Wi-Fi link mechanism, or a Bluetooth link mechanism.

7. The method of claim 1, wherein the first peer capability information further includes one or more of an IP subnet, a gateway address, a domain name server (DNS) address, or a network address translation (NAT) address.

8. A device for peer-to-peer (P2P) communication in a wireless local area network (WLAN), the device comprising:

a hardware processor configured to:

transmit, from a first peer wireless station (STA1), first peer capability information to a second peer wireless station (STA2) using a capability discovery protocol request, wherein the first peer capability information describes the STA1's capability information for a P2P connection between the STA1 and the STA2, and the first peer capability information includes a first netmask associated with the STA1, a first indication of whether dynamic host configuration protocol (DHCP) is used at the STA1, a first internet protocol (IP) address of the STA1, and a first direct link setup (DLS) link mechanism type supported by the STA1;

in response to transmitting the first peer capability information of the STA1, receive second peer capability information of the STA2 using a capability discovery protocol response, wherein the second peer capability information describes the STA2's capability information for the P2P connection between the STA1 and the STA2, the second peer capability information includes a second netmask associated with the STA2, a second indication of whether DHCP is used at the STA2, a second IP address of the STA2 different from the first IP address of the STA1, and a second DLS link mechanism type supported by the STA2, and the second peer capability information contains updated capabilities of the first peer capability information of the STA1; and

establish the the P2P connection between the STA1 and the STA2 based on the first peer capability information and the second peer capability information;

wherein the first peer capability information and the second peer capability information are defined as an XML schema, the STA1's capability information and the STA2's capability information are in accordance with an IEEE 802.11 standard, the P2P connection between the STA1 and the STA2 is in accordance with the IEEE 802.11 standard, and the capability discovery protocol request and the capability discovery protocol response are in accordance with the IEEE 802.11 standard.

9. The device of claim 8 wherein the first peer capability information is stored on at least one of a non-removable memory, a removable memory, or a removable module.

10. The device of claim 8, wherein the second peer capability information is used by the STA1 to discover the capabilities of the STA2.

11. The device of claim 8, wherein the first peer capability information comprises a static internet protocol address if a dynamic host configuration protocol-based IP address is not available.

12. The device of claim 8, wherein the STA1 selects a P2P communication mechanism indicating TDLS capability of the STA1 from a plurality of P2P communication mechanisms that the STA1 is capable of using.

13. The device of claim 12, wherein the plurality of P2P communication mechanisms includes at least one of an adhoc link mechanism, a Wi-Fi link mechanism, or a Bluetooth link mechanism.

14. The device of claim 8, wherein the first peer capability information further includes one or more of an IP subnet, a gateway address, a domain name server (DNS) address, or a network address translation (NAT) address.