CLAIMS

What is claimed is:

1. A method for recovering permission to use a transmission opportunity, comprising:

sending, by a first device, a single-user trigger frame to a second device, wherein the single-user trigger frame indicates that a time resource is allocated by the first device from an obtained transmission opportunity (TXOP) to the second device;

receiving, by the first device, a quality of service (QoS) data frame from the second device, wherein the QoS data frame carries first indication information, wherein the first indication information indicates that the second device has stopped using the time resource, wherein an A-control field in the QoS data frame comprises the first indication information; and

recovering, by the first device, a permission to use the TXOP based on the QoS data frame.

2. The method according to claim 1, wherein the time resource is used for a transmission of an uplink single-user physical layer protocol data unit (PPDU) or used for point-to-point (P2P) communication, and the single-user trigger frame comprises a first field and a second field, wherein the first field indicates a remaining time resource of the TXOP, and the second field indicates the time resource allocated to the second device.

3. The method according to claim 1, wherein the QoS data frame further carries second indication information, wherein the second indication information indicates whether the second device further needs a time resource for data transmission.

4. The method according to claim 1, wherein

a control identifier of the A-control field is a value indicating that the A-control field is a command and status (CAS) control field; and

the first indication information is carried in a reverse grant (RDG) subfield in the CAS control field.

5. A method for recovering permission to use a transmission opportunity, comprising:

receiving, by a second device, a single-user trigger frame from a first device, wherein the single-user trigger frame indicates that a time resource is allocated by the first device from an obtained transmission opportunity (TXOP) to the second device;

determining, by the second device, a quality of service (QoS) data frame, wherein the QoS data frame carries first indication information, wherein the first indication information indicates that the second device has stopped using the time resource, wherein an A-control field in the QoS data frame comprises the first indication information; and

sending, by the second device, the QoS data frame to the first device.

6. The method according to claim 5, wherein the time resource is used for a transmission of an uplink single-user physical layer protocol data unit PPDU or used for point-to-point P2P communication, and the single-user trigger frame comprises a first field and a second field, wherein the first field indicates a remaining time resource of the TXOP, and the second field indicates the time resource allocated to the second device.

7. The method according to claim 5, wherein the QoS data frame further carries second indication information, wherein the second indication information indicates whether the second device further needs a time resource for data frame transmission.

8. The method according to claim 5, wherein

a control identifier of the A-control field is a value indicating that the A-control field is a command and status CAS control field; and

the first indication information is carried in a reverse grant RDG subfield in the CAS control field.

9. The method according to any one of claims 5 to 8, wherein

if an end moment of the QoS data frame is later than an end moment of the time resource, and a start moment of the QoS data frame is earlier than the end moment of the time resource, the second device is allowed to send the QoS data frame to the first device.

10. An apparatus for recovering permission to use a transmission opportunity, wherein the apparatus is a first device and comprises:

a transceiver unit, configured to send a single-user trigger frame to a second device, and the single-user trigger frame indicates that a time resource is allocated by the first device from an obtained transmission opportunity (TXOP) to the second device; and to receive a quality of service (QoS) data frame from a second device, wherein the QoS data frame carries first indication information, wherein the first indication information indicates that the second device has stopped using a first time resource, wherein an A-control field in the QoS data frame comprises the first indication information; and

a processing unit, configured to recover a permission to use the TXOP based on the QoS data frame.

11. An apparatus for recovering permission to use a transmission opportunity, wherein the apparatus is a second device and comprises:

a transceiver unit, configured to receive a single-user trigger frame from a first device, wherein the single-user trigger frame indicates that a time resource is allocated by the first device from an obtained transmission opportunity (TXOP) to the second device; and

a processing unit, configured to determine a quality of service (QoS) data frame, wherein the QoS data frame carries first indication information, wherein the first indication information indicates that the second device has stopped using a first time resource, wherein an A-control field in the QoS data frame comprises the first indication information;

wherein the transceiver unit is further configured to send the QoS data frame to the first device.

12. A communication apparatus, comprising a processor and a memory, wherein

the memory is configured to store computer instructions; and

the processor is configured to execute the computer instructions stored in the memory, to enable the apparatus to perform the method according to any one of claims 1 to 9.

13. A computer-readable storage medium, wherein the computer-readable storage medium stores program instructions, and when the program instructions are run on a computer, the computer is enabled to perform the method according to any one of claims 1 to 9.

14. A computer program product comprising program instructions, wherein when the program instructions run on a computer, the computer is enabled to perform the method according to any one of claims 1 to 9.

15. A communication system, comprising:

a first device, configured to perform the method in any one of claims 1 to 4; and

a second device, configured to perform the method in any one of claims 5 to 9.