CLAIMS

What is claimed is:

1. A method for supporting port association, applied to a first communications device, ~~and comprising~~wherein the first communications device comprises User Equipment UE:

receiving a port related information container and association information of a tunnel; and

performing a first operation according to the association information of the tunnel, wherein

the first operation comprises at least one of the following:

determining a port corresponding to a port related information container;

determining the~~a~~ tunnel corresponding to the~~a~~ port related information container;

transmitting signaling related to the tunnel, wherein the signaling related to the tunnel comprises a port related information container; or

transmitting a port related information container to the tunnel~~.~~;

wherein the port related information container comprises information related to a first port;

wherein the association information of the tunnel comprises at least one of the following:

identification information of a port or identification information of the tunnel.

~~2. The method according to claim 1, wherein the performing a first operation comprises:~~

~~receiving the port related information container and association information of the tunnel; and~~

~~performing the first operation according to the association information of the tunnel; wherein~~

~~the port related information container comprises information related to a first port.~~

~~3. The method according to claim 2, wherein the association information of the tunnel comprises at least one of the following:~~

~~identification information of a port or identification information of the tunnel.~~

~~4~~2. The method according to claim ~~3~~1, wherein

the identification information of a port is port identification information of the first port; and

the identification information of the tunnel is identification information of a tunnel corresponding to the first port; or

wherein before the receiving the port related information container and association information of the tunnel, the method further comprises:

transmitting the identification information of the tunnel, wherein

the tunnel is a tunnel corresponding to the first port.

~~5~~3. The method according to claim ~~2~~1, wherein

the port related information container is a first container, wherein

the first container is used to transmit port related information of a port of a first node; and

the first port is a port of the first node.

~~6~~4. A method for supporting port association, applied to a second communications device, wherein the second communications device comprises a first adapter, and the method comprises~~comprising~~:

transmitting a port related information container and association information of a tunnel, wherein

the port related information container comprises information related to a first port~~.~~;

wherein the association information of a tunnel comprises at least one of the following:

identification information of a port or identification information of the tunnel;

wherein the association information of the tunnel is used for performing a first operation, and the first operation comprises at least one of the following:

determining a port corresponding to a port related information container;

determining the tunnel corresponding to the port related information container;

transmitting signaling related to the tunnel, wherein the signaling related to the tunnel comprises a port related information container; or

transmitting a port related information container to the tunnel.

~~7. The method according to claim 6, wherein the association information of a tunnel comprises at least one of the following:~~

~~identification information of a port or identification information of the tunnel.~~

~~8~~5. The method according to claim ~~7~~4, wherein

the identification information of a port is port identification information of the first port; and

the identification information of the tunnel is identification information of a tunnel corresponding to the first port; or

wherein before the transmitting a port related information container and association information of a tunnel, the method further comprises:

receiving identification information of the tunnel, wherein

the tunnel is a tunnel corresponding to the first port.

~~9~~6. The method according to claim ~~6~~4, wherein

the port related information container is a first container, wherein

the first container is used to transmit port related information of a port of a first node; and

the first port is a port of the first node.

~~10~~7. A method for supporting port association, applied to a communications device, wherein the communications device comprises User Equipment UE or a first adapter, and the method comprises~~comprising~~:

causing ~~a first communications device~~the UE to perform a second operation, wherein

the second operation comprises at least one of the following:

determining a port corresponding to a port related information container;

determining a tunnel corresponding to a port related information container;

determining a tunnel n corresponding to a tunnel m; or

determining a tunnel m corresponding to a tunnel n; wherein

the port related information container comprises information related to a first port, and the first port is a port of a second communications device;

wherein the tunnel m is a tunnel between the first communications device and the second communications device, and the tunnel n is a tunnel between the first communications device and a wireless communications network.

~~11~~8. The method according to claim ~~10~~7, wherein the causing the UE~~a first communications device~~ to perform a second operation comprises at least one of the following:

requesting to establish a tunnel m corresponding to a first port;

establishing a tunnel m corresponding to a first port;

saving an association relationship between a first port and a tunnel m;

receiving a port related information container for the first port in a tunnel m or signaling related to a tunnel m; or

transmitting a port related information container for the first port in a tunnel m or signaling related to a tunnel m~~; wherein~~

~~the tunnel m is a tunnel between the first communications device and the second communications device~~.

~~12~~9. The method according to claim ~~11~~8, wherein the causing the UE~~a first communications device~~ to perform a second operation further comprises:

determining at least one of the following based on at least one of the tunnel m related to the port related information container, an association relationship between the tunnel m and the first port, or an association relationship between the tunnel n and the first port:

determining that a port corresponding to the port related information container is the first port;

determining the tunnel n corresponding to the port related information container; or

determining the tunnel n corresponding to the tunnel m;

or,

determining at least one of the following based on at least one of the tunnel n related to the port related information container, an association relationship between the

tunnel m and the first port, or an association relationship between the tunnel n and the first port:

determining that a port corresponding to the port related information container is the first port;

determining the tunnel m corresponding to the port related information container; or

determining the tunnel m corresponding to the tunnel n~~; wherein~~

~~the tunnel n is a tunnel between the first communications device and a wireless communications network~~.

~~13~~10. A method for supporting port association, applied to a third communications device, wherein the third communications device comprises one of Session Management Function 'SMF', Policy Control Function 'PCF', Access Management Function 'AMF', Application Function 'AF', and the method comprises~~and comprising~~:

receiving at least one of a first container or a second container; and

performing a third operation according to the received at least one of the first container or the second container, wherein

the third operation comprises at least one of the following:

~~determining a node related to the first container as a first node;~~

~~determining a node related to the second container as a second node;~~

transmitting the first container to a first node; wherein the first container is different from the second container, the first container is used to transmit port related information of a port of the first node, and the second container is used to transmit port related information of a port of the second node; or

transmitting the second container to a second node; wherein the first container is different from the second container,

the first container is used to transmit port related information of a port of the first node, and the second container is used to transmit port related information of a port of the second node.

11. The method according to claim 10, wherein the first node is a device-side time sensing network translator DS-TT and the second node is a network-side time sensing

network translator NW-TT.

12. The method according to claim 10, wherein the port related information comprises one or more of the following:

request information for port related information, a port identification, service type information, first routing information, information related to priority regeneration, information related to port transmission rate, information related to bandwidth availability parameter, and information related to transmission selection algorithm, port management capabilities, information related to a bridge delay, traffic class table, gate control information, port neighbor discovery configuration.

~~14. A gateway selection method, applied to a fourth communications device and comprising:~~

~~transmitting tunnel establishment request information, wherein~~

~~the tunnel establishment request information comprises virtual local area network VLAN related information.~~

~~15. The method according to claim 14, wherein the VLAN related information comprises at least one of the following:~~

~~a DNN corresponding to a VLAN; or~~

~~VLAN identification information.~~

~~16. A gateway selection method, applied to a fifth communications device and comprising:~~

~~receiving tunnel establishment request information; and~~

~~selecting a gateway according to the tunnel establishment request information; wherein~~

~~the tunnel establishment request information comprises VLAN related information.~~

~~17. The method according to claim 16, wherein the VLAN related information comprises at least one of the following:~~

~~a DNN corresponding to a VLAN; or~~

~~VLAN identification information.~~

~~18. The method according to claim 17, wherein the selecting a gateway according to the tunnel establishment request information comprises:~~

~~selecting, according to the VLAN related information, a gateway that supports the VLAN.~~

~~19~~13. A communications device, comprising a processor, a memory, and a computer program stored in the memory and capable of running on the processor, wherein when the computer program is executed by the processor, steps of the method for supporting port association according to any one of claims 1 to ~~5~~ 3 are implemented, or steps of the method for supporting port association according to any one of claims ~~6~~ 4 to ~~9~~ 6 are implemented, or steps of the method for supporting port association according to any one of claims ~~10~~ 7 to ~~12~~ 9 are implemented, or steps of the method for supporting port association according to any one of claims 10 to 12 ~~claim 13~~ are implemented~~, or steps of the gateway selection method according to claim 14 or 15 are implemented, or steps of the gateway selection method according to any one of claims 16 to 18 are implemented~~.

~~20~~14. A computer-readable storage medium, wherein a computer program is stored in the computer-readable storage medium, and when the computer program is executed by a processor, steps of the method for supporting port association according to any one of claims 1 to ~~5~~ 3 are implemented, or steps of the method for supporting port association according to any one of claims ~~6~~ 4 to ~~9~~ 6 are implemented, or steps of the method for supporting port association according to any one of claims ~~10~~ 7 to ~~12~~ 9 are implemented, or steps of the method for supporting port association according to any one of claims 10 to 12 ~~claim 13~~ are implemented~~, or steps of the gateway selection method according to claim 14 or 15 are implemented, or steps of the gateway selection method according to any one of claims 16 to 18 are implemented~~.