CLAIMS

What is claimed is:

1. A method for determining a security protection mode, comprising:

receiving, by a second communication apparatus, a first security protection information from a first communication apparatus;

determining, by the second communication apparatus, a security protection mode corresponding to the PC5 interface communications mode based on the received first security protection information and a second security protection information; wherein, the PC5 interface is a communication interface between the first communication apparatus and the second communication apparatus;

sending, by the second communication apparatus, the security protection mode corresponding to the PC5 interface communications mode to the first communication apparatus.

2. The method according to claim 1, wherein the first security protection information comprises a first user plane security policy and the second security protection information comprises a second user plane security policy;

wherein the determining a security protection mode corresponding to the PC5 interface communications mode based on the received first security protection information and a second security protection information comprises:

determining that a protection level of security protection mode corresponding to the PC5 interface communications mode is not needed when both a protection level of the first user plane security policy and a protection level of the second user plane security policy are not needed.

3. The method according to claim 1, wherein the first security protection information comprises a first user plane security policy and the second security protection information comprises a second user plane security policy;

wherein the determining a security protection mode corresponding to the PC5 interface communications mode based on the received first security protection information and a second security protection information comprises:

determining that a protection level of security protection mode corresponding to the PC5 interface communications mode is needed when both a protection level of the first user plane security policy and a protection level of the second user plane security policy are needed.

4. The method according to claim 1, wherein the first security protection information comprises a first user plane security policy and the second security protection information comprises a second user plane security policy;

wherein the determining a security protection mode corresponding to the PC5 interface communications mode based on the received first security protection information and a second security protection information comprises:

determining, by the second communication apparatus, a protection level of security protection mode

corresponding to the PC5 interface communications mode based on a security protection capability of the second communication apparatus when both a protection level of the first user plane security policy and a protection level of the second user plane security policy are preferred.

5. The method according to claim 1, wherein the first security protection information comprises a first user plane security policy and the second security protection information comprises a second user plane security policy;

wherein the determining a security protection mode corresponding to the PC5 interface communications mode based on the received first security protection information and a second security protection information comprises:

determining, by the second communication apparatus, a protection level of security protection mode corresponding to the PC5 interface communications mode based on a protection level of the first user plane security policy and a protection level of the second user plane security policy, wherein the protection level of security protection mode corresponding to the PC5 interface communications mode is not lower than the protection level of the first user plane security policy and the second user plane security policy.

6. The method according to any one of claims 1 to 5, wherein the second security protection information is stored in the second communication apparatus, wherein the method further comprises:

receiving, by the second communication apparatus, an application identifier from the first communication apparatus; and

determining, by the second communication apparatus, the second security protection information based on the application identifier.

7. The method according to any one of claims 1 to 5, wherein the second security protection information is stored in the second communication apparatus, wherein the method further comprises:

receiving, by the second communication apparatus, a service identifier from the first communication apparatus; and

determining, by the second communication apparatus, the second security protection information based on the service identifier.

8. A communication apparatus, as a second communication apparatus, wherein the communication apparatus comprises a processor and a memory, the memory is configured to store program instructions, and the processor is configured to execute the program instructions stored in the memory to perform:

receiving a first security protection information from a first communication apparatus;

determining a security protection mode corresponding to the PC5 interface communications mode based on the received first security protection information and a second security protection information; wherein, the PC5 interface is a communication interface between the first communication apparatus and the second communication apparatus;

sending the security protection mode corresponding to the PC5 interface communications mode to the first communication apparatus.

9. The communication apparatus according to claim 8, wherein the first security protection information comprises a first user plane security policy and the second security protection information comprises a second user plane security policy;

wherein the processor is configured to execute the program instructions stored in the memory to further perform: determining that a protection level of security protection mode corresponding to the PC5 interface communications mode is not need when both a protection level of the first user plane security policy and a protection level of the second user plane security policy are not need.

10. The communication apparatus according to claim 8, wherein the first security protection information comprises a first user plane security policy and the second security protection information comprises a second user plane security policy;

wherein the processor is configured to execute the program instructions stored in the memory to further perform: determining that a protection level of security protection mode corresponding to the PC5 interface communications mode is need when both a protection level of the first user plane security policy and a protection level of the second user plane security policy are need.

11. The communication apparatus according to claim 8, wherein the first security protection information comprises a first user plane security policy and the second security protection information comprises a second user plane security policy;

wherein the processor is configured to execute the program instructions stored in the memory to further perform: determining a protection level of security protection mode corresponding to the PC5 interface communications mode based on a security protection capability of the second communication apparatus when both a protection level of the first user plane security policy and a protection level of the second user plane security policy are preferred.

12. The communication apparatus according to claim 8, wherein the first security protection information comprises a first user plane security policy and the second security protection information comprises a second user plane security policy;

wherein the processor is configured to execute the program instructions stored in the memory to further perform: determining a protection level of security protection mode corresponding to the PC5 interface communications mode based on a protection level of the first user plane security policy and a protection level of the second user plane security policy, wherein the protection level of security protection mode corresponding to the PC5 interface communications mode is not lower than the protection level of the first user plane security policy and the second user plane security

policy.

13. The communication apparatus according to any one of claims 8 to 12, wherein the second security protection information is stored in the second communication apparatus, wherein the processor is configured to execute the program instructions stored in the memory to further perform: receiving an application identifier from the first communication apparatus; and determining the second security protection information based on the application identifier.

14. The communication apparatus according to any one of claims 8 to 12, wherein the second security protection information is stored in the second communication apparatus, wherein the processor is configured to execute the program instructions stored in the memory to further perform: receiving a service identifier from the first communication apparatus; and determining the second security protection information based on the service identifier.

15. A computer storage medium, wherein the computer storage medium stores a computer program, and when the computer program is executed by a processor, the processor is caused to perform any one of claims 1 to 7.

~~1. A method for determining a security protection mode, comprising:~~

~~obtaining, by a first terminal device, security protection information in a first communications mode, wherein the security protection information comprises a first security protection mode and/or a first security policy, the first security protection mode corresponds to the first communications mode, and is used to protect data transmitted by the first terminal device in the first communications mode, and the first security policy is a security policy of the first terminal device in the first communications mode; and~~

~~determining, by the first terminal device, a second security protection mode based on the security protection information, wherein the second security protection mode corresponds to a second communications mode, and is used to protect data transmitted by the first terminal device in the second communications mode.~~

~~2. The method according to claim 1, wherein when the security protection information is the first security protection mode, the determining, by the first terminal device, a second security protection mode based on the security protection information comprises:~~

~~determining, by the first terminal device, that the second security protection mode is the same as the first security protection mode; or~~

~~obtaining, by the first terminal device, a second security policy, wherein the second security policy is a security policy of the first terminal device in the second communications mode; and determining, by the first terminal device, the second security protection mode based on the second security policy and the first security protection mode, wherein a protection level of the second security protection mode is not lower than a protection level of the second security policy, and is not lower than a protection level of the first security protection mode.~~

3. The method according to claim 1, wherein when the security protection information is the first security policy, the determining, by the first terminal device, a second security protection mode based on the security protection information comprises:

determining, by the first terminal device, the second security protection mode based on the first security policy; or

obtaining, by the first terminal device, a second security policy, wherein the second security policy is a security policy of the first terminal device in the second communications mode; and determining, by the first terminal device, the second security protection mode based on the second security policy and the first security policy, wherein a protection level of the second security protection mode is not lower than a protection level of the second security policy, and is not lower than a protection level of the first security policy.

4. The method according to any one of claims 1 to 3, wherein after the determining, by the first terminal device, a second security protection mode, the method further comprises:

sending, by the first terminal device, the second security protection mode to a second terminal device, and receiving a fourth security protection mode determined by the second terminal device based on the second security protection mode and a third security protection mode; or

receiving, by the first terminal device, a third security protection mode sent by a second terminal device, and determining a fourth security protection mode based on the second security protection mode and the third security protection mode, wherein

a protection level of the fourth security protection mode is not lower than the protection level of the second security protection mode, and is not lower than a protection level of the third security protection mode, the third security protection mode is used to protect data transmitted by the second terminal device in the second communications mode, and the fourth security protection mode is used to protect data transmitted between the first terminal device and the second terminal device in the second communications mode.

5. The method according to claim 1, wherein the obtaining, by a first terminal device, security protection information in a first communications mode comprises:

obtaining, by the first terminal device, the security protection information in the first communications mode when determining to switch from the first communications mode to the second communications mode.

6. The method according to claim 5, wherein when the second communications mode is a Uu interface communications mode, the determining, by the first terminal device, a second security protection mode based on the security protection information comprises:

sending, by the first terminal device, the security protection information to a network device, and receiving the

second security protection mode from the network device, wherein the second security protection mode is determined by the network device based on the security protection information; or

sending, by the first terminal device, the security protection information to an application server and sending a request message to a network device, and receiving, by the first terminal device, the second security protection mode from the network device, wherein the second security protection mode is determined by the network device based on the security protection information obtained from the application server.

7. The method according to claim 1 or 5, wherein when the second communications mode is a PC5 interface communications mode, the second security protection mode is specifically used to protect data transmitted between the first terminal device and a second terminal device in the second communications mode; and

the determining, by the first terminal device, a second security protection mode based on the security protection information comprises:

when the security protection information comprises the first security protection mode, sending, by the first terminal device, the first security protection mode to the second terminal device, and receiving the second security protection mode from the second terminal device, wherein the second security protection mode is determined by the second terminal device based on the first security protection mode and a third security protection mode, and a protection level of the second security protection mode is not lower than a protection level of the first security protection mode, and is not lower than a protection level of the third security protection mode; or

when the security protection information comprises the first security protection mode, receiving, by the first terminal device, a third security protection mode from the second terminal device, and determining the second security protection mode based on the first security protection mode and the third security protection mode, wherein a protection level of the second security protection mode is not lower than a protection level of the first security protection mode, and is not lower than a protection level of the third security protection mode; or

when the security protection information comprises the first security protection mode and the first security policy, sending, by the first terminal device, the first security protection mode and the first security policy to the second terminal device, and receiving, by the first terminal device, the second security protection mode from the second terminal device, wherein the second security protection mode is determined by the second terminal device based on the first security protection mode, the first security policy, a third security protection mode, and a second security policy; and when the first security protection mode is the same as the third security protection mode, the second security protection mode is the same as the first security protection mode; or when the first security protection mode is different from the third security protection mode, a protection level of the second security protection mode is not lower than a protection level of the first security protection mode and a protection level of the second security

protection mode, and is not lower than a protection level of the first security policy and a protection level of the second security policy; or

when the security protection information comprises the first security protection mode and the first security policy, receiving, by the first terminal device, a third security protection mode and a second security policy from the second terminal device, and determining, by the first terminal device, the second security protection mode based on the first security protection mode, the first security policy, the third security protection mode, and the second security policy, wherein when the first security protection mode is the same as the third security protection mode, the second security protection mode is the same as the first security protection mode; or when the first security protection mode is different from the third security protection mode, a protection level of the second security protection mode is not lower than a protection level of the first security protection mode and a protection level of the second security protection mode, and is not lower than a protection level of the first security policy and a protection level of the second security policy, wherein

the third security protection mode is used to protect data transmitted by the second terminal device in the first communications mode, and the second security policy is a security policy of the second terminal device in the first communications mode.

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

the first security policy comprises a confidentiality protection requirement and/or an integrity protection requirement; and

the first security protection mode and the second security protection mode each comprise a confidentiality protection requirement and/or an integrity protection requirement.

9. An apparatus for determining a security protection mode, wherein the apparatus is applied to a first terminal device and comprises:

a transceiver, configured to receive and send data; and

a processor, configured to perform the following steps through the transceiver:

obtaining security protection information in a first communications mode, wherein the security protection information comprises a first security protection mode and/or a first security policy, the first security protection mode corresponds to the first communications mode, and is used to protect data transmitted by the first terminal device in the first communications mode, and the first security policy is a security policy of the first terminal device in the first communications mode; and

determining a second security protection mode based on the security protection information, wherein the second security protection mode corresponds to a second communications mode, and is used to protect data transmitted by

the first terminal device in the second communications mode.

10. The apparatus according to claim 9, wherein when the security protection information is the first security protection mode, when determining the second security protection mode based on the security protection information, the processor is specifically configured to:

determine that the second security protection mode is the same as the first security protection mode; or

obtain a second security policy, wherein the second security policy is a security policy of the first terminal device in the second communications mode; and determine the second security protection mode based on the second security policy and the first security protection mode, wherein a protection level of the second security protection mode is not lower than a protection level of the second security policy, and is not lower than a protection level of the first security protection mode.

11. The apparatus according to claim 9, wherein when the security protection information is the first security policy, when determining the second security protection mode based on the security protection information, the processor is specifically configured to:

determine the second security protection mode based on the first security policy; or

obtain a second security policy, wherein the second security policy is a security policy of the first terminal device in the second communications mode; and determine the second security protection mode based on the second security policy and the first security policy, wherein a protection level of the second security protection mode is not lower than a protection level of the second security policy, and is not lower than a protection level of the first security policy.

12. The apparatus according to any one of claims 9 to 11, wherein the processor is further configured to:

after determining the second security protection mode, send the second security protection mode to a second terminal device through the transceiver, and receive, through the transceiver, a fourth security protection mode determined by the second terminal device based on the second security protection mode and a third security protection mode; or

after determining the second security protection mode, receive, through the transceiver, a third security protection mode sent by a second terminal device, and determine a fourth security protection mode based on the second security protection mode and the third security protection mode, wherein

a protection level of the fourth security protection mode is not lower than the protection level of the second security protection mode, and is not lower than a protection level of the third security protection mode, the third security protection mode is used to protect data transmitted by the second terminal device in the second communications mode, and the fourth security protection mode is used to protect data transmitted between the first terminal device and the second terminal device in the second communications mode.

13. The apparatus according to claim 9, wherein when obtaining the security protection information in the first communications mode, the processor is specifically configured to:

obtain the security protection information in the first communications mode when determining to switch from the first communications mode to the second communications mode.

14. The apparatus according to claim 13, wherein when the second communications mode is a Uu interface communications mode, when determining the second security protection mode based on the security protection information, the processor is specifically configured to:

send the security protection information to a network device through the transceiver, and receive the second security protection mode from the network device through the transceiver, wherein the second security protection mode is determined by the network device based on the security protection information; or

send the security protection information to an application server and send a request message to a network device through the transceiver, and receive the second security protection mode from the network device through the transceiver, wherein the second security protection mode is determined by the network device based on the security protection information obtained from the application server.

15. The apparatus according to claim 9 or 13, wherein when the second communications mode is a PC5 interface communications mode, the second security protection mode is specifically used to protect data transmitted between the first terminal device and a second terminal device in the second communications mode; and

when determining the second security protection mode based on the security protection information, the processor is specifically configured to:

when the security protection information comprises the first security protection mode, send the first security protection mode to the second terminal device through the transceiver, and receive the second security protection mode from the second terminal device through the transceiver, wherein the second security protection mode is determined by the second terminal device based on the first security protection mode and a third security protection mode, and a protection level of the second security protection mode is not lower than a protection level of the first security protection mode, and is not lower than a protection level of the third security protection mode; or

when the security protection information comprises the first security protection mode, receive a third security protection mode from the second terminal device through the transceiver, and determine the second security protection mode based on the first security protection mode and the third security protection mode, wherein a protection level of the second security protection mode is not lower than a protection level of the first security protection mode, and is not lower than a protection level of the third security protection mode; or

when the security protection information comprises the first security protection mode and the first security policy,

send the first security protection mode and the first security policy to the second terminal device through the transceiver, and receive the second security protection mode from the second terminal device through the transceiver, wherein the second security protection mode is determined by the second terminal device based on the first security protection mode, the first security policy, a third security protection mode, and a second security policy; and when the first security protection mode is the same as the third security protection mode, the second security protection mode is the same as the first security protection mode; or when the first security protection mode is different from the third security protection mode, a protection level of the second security protection mode is not lower than a protection level of the first security protection mode and a protection level of the second security protection mode, and is not lower than a protection level of the first security policy and a protection level of the second security policy; or

when the security protection information comprises the first security protection mode and the first security policy, receive a third security protection mode and a second security policy from the second terminal device through the transceiver, and determine the second security protection mode based on the first security protection mode, the first security policy, the third security protection mode, and the second security policy, wherein when the first security protection mode is the same as the third security protection mode, the second security protection mode is the same as the first security protection mode; or when the first security protection mode is different from the third security protection mode, a protection level of the second security protection mode is not lower than a protection level of the first security protection mode and a protection level of the second security protection mode, and is not lower than a protection level of the first security policy and a protection level of the second security policy, wherein

the third security protection mode is used to protect data transmitted by the second terminal device in the first communications mode, and the second security policy is a security policy of the second terminal device in the first communications mode.

16. The apparatus according to any one of claims 9 to 15, wherein

the first security policy comprises a confidentiality protection requirement and/or an integrity protection requirement; and

the first security protection mode and the second security protection mode each comprise a confidentiality protection requirement and/or an integrity protection requirement.