

CLAIMS

1. A method for determining a state of a terminal device, comprising:

receiving, by a terminal device, configuration information from an access network device, wherein the configuration information is configured to instruct the terminal device to enter an inactive state; and

determining, by the terminal device, whether to enter a power saving mode under the inactive state, wherein a radio frequency module of the terminal device in the power saving mode is off.

2. The method of claim 1, wherein the configuration information is further configured to instruct the terminal device to enter the power saving mode, and

determining, by the terminal device, whether to enter the power saving mode under the inactive state comprises:

entering, by the terminal device, the power saving mode while entering the inactive state according to the configuration information.

3. The method of claim 2, further comprising:

sending, by the terminal device, capability information to the access network device, wherein the capability information is configured to indicate whether the terminal device supports the power saving mode and the configuration information is determined by the access network device according to the capability information.

4. The method of claim 1, wherein determining, by the terminal device, whether to enter the power saving mode under the inactive state comprises:

starting, by the terminal device, a first timer in response to the terminal device entering the inactive state; and

entering, by the terminal device, the power saving mode in response to timeout of the first timer.

5. The method of claim 4, wherein the configuration information is further configured to indicate a time length of the first timer.

6. The method of claim 1, wherein determining, by the terminal device, whether to enter the power saving mode under the inactive state comprises:

after the terminal device receives the configuration information from the access network device, determining, by the terminal device, to enter the power saving mode according to a preset condition;

entering, by the terminal device, the inactive state and the power saving mode; and

sending, by the terminal device, acknowledgement information to the access network device, the acknowledgement information being configured for the access network device to determine that the terminal device is under the inactive state and the power saving mode.

7. The method of claim 1, wherein determining, by the terminal device, whether to enter the power saving mode under the inactive state comprises:

after the terminal device receives the configuration information from the access network device, entering, by the terminal device, the inactive state and determining, by the terminal device, according to the preset condition that the terminal device is capable of entering the power saving mode under the inactive state;

sending, by the terminal device, request information to the access network device, the request information being configured for the terminal device to request for entering the power

saving mode under the inactive state;

receiving, by the terminal device, response information from the access network device according to the request information, the response information being configured to instruct the terminal device whether to enter the power saving mode; and

determining, by the terminal device, whether to enter the power saving mode according to the response information.

8. The method of claim 7, wherein the response information is configured to instruct the terminal device not to enter the power saving mode, and the response information comprises a rejection reason of the access network device.

9. The method of claim 7, wherein the response information is configured to instruct the terminal device to enter the power saving mode according to a second timer, and

determining, by the terminal device, whether to enter the power saving mode according to the response information comprises:

in response to reception of the response information, starting, by the terminal device, the second timer; and

in response to timeout of the second timer, entering, by the terminal device, the power saving mode.

10. The method of claim 9, wherein the response information comprises a time length of the second timer.

11. The method of any one of claims 6-10, wherein the preset condition comprises at least one of following conditions:

determination of the terminal device to support the power saving mode;

the terminal device being a terminal device aiming at power saving;

a service in the terminal device allowing the terminal device to enter the power saving mode;

a mode of a service of the terminal device, where the mode of the service comprises at least one of following parameters: a time interval of arrival of the service at the terminal device, a frequency of arrival of the service at the terminal device, a duration of the service at the terminal device, a data volume of a data packet in the service and the amount of the data packet; and

motion information of the terminal device, the motion information being configured to indicate a motion state and/or a movement rate of the terminal device.

12. The method of any one of claims 1-11, further comprising:

in response to the terminal device entering the power saving mode, starting, by the terminal device, a third timer; and

in response to timeout of the third timer, entering, by the terminal device, a communication mode from the power saving mode, wherein a radio frequency channel of the terminal device in the communication mode is on.

13. The method of claim 12, further comprising:

determining by the terminal device, a time length of the third timer by negotiation between the terminal device and the access network device; or

determining, by the terminal device, a time length of the third timer by negotiation between the terminal device and the core network device.

14. The method of any one of claims 1-11, further comprising:

determining, by the terminal device, to enter a communication mode from the power saving mode according to a paging-area update cycle, wherein a radio frequency channel of the terminal device in the communication mode is on.

15. A method for determining a state of a terminal device, comprising:

determining, by an access network device, whether a terminal device enters a power saving mode under an inactive state, wherein a radio frequency module of the terminal device in the power saving mode is off; and

sending, by the access network device, configuration information to the terminal device, wherein the configuration information is configured to instruct the terminal device to enter the inactive state and instruct whether to enter the power saving mode under the inactive state;

16. The method of claim 15, before determining, by the access network device, whether to allow the terminal device to enter the power saving mode under the inactive state, the method further comprising:

receiving, by the access network device, capability information from the terminal device or a core network device, the capability information being configured to indicate whether the terminal device supports the power saving mode,

wherein determining, by the access network device, whether to allow the terminal device to enter the power saving mode under the inactive state comprises:

in response to the capability information indicating that the terminal device supports the power saving mode, determining, by the access network device, the terminal device to enter the power saving mode under the inactive state, or,

in response to the capability information indicating that the terminal device does not support the power saving mode, determining, by the access network device, the terminal

device not to enter the power saving mode under the inactive state.

17. The method of claim 15, before determining, by the access network device, whether to allow the terminal device to enter the power saving mode under the inactive state, the method further comprising:

receiving, by the access network device, auxiliary information from the core network device, wherein the auxiliary information comprises at least one of:

whether the terminal device presently allows the power saving mode to be entered,

whether a service being processed by the terminal device allows the power saving mode to be entered,

a Quality of Service (QoS) requirement of a service in the power saving mode,

a type of the terminal device; and

a mode of a service and motion information of the terminal device, wherein the mode of the service comprises at least one of following parameters: a time interval of arrival of the service at the terminal device, a frequency of arrival of the service at the terminal device, duration of the service at the terminal device, a data volume of a data packet in the service and the amount of the data packet; and the motion information is configured to indicate a motion state and/or a movement rate of the terminal device,

wherein determining, by the access network device, whether to allow the terminal device to enter the power saving mode under the inactive state comprises:

determining, by the access network device, whether to allow the terminal device to enter the power saving mode under the inactive state according to the auxiliary information.

18. The method of claim 15, wherein the configuration information comprises a time length of a first timer, the first timer is configured to be started in response to the terminal device

entering the inactive state, and in response to timeout of the first timer, the terminal device enters the power saving mode.

19. A terminal device, comprising a processor and a memory, wherein the memory is configured to store a computer program, and the processor is configured to call and run the computer program stored in the memory to execute the method for determining a state of a terminal device according to any one of claims 1-14.

20. An access network device, comprising a processor and a memory, wherein the memory is configured to store a computer program, and the processor is configured to call and run the computer program stored in the memory to execute the method for determining a state of a terminal device according to any one of claims 15-18.