WHAT IS CLAIMED IS:

1. A method for a connection failure detection, performed by a user equipment (UE), the method comprising:

performing the connection failure detection for a small data transmission (SDT) process.

2. The method according to claim 1, wherein performing the connection failure detection for the ~~small data transmission~~ SDT process comprises:

performing the connection failure detection for the SDT process according to a failure detection configuration obtained.

3. The method according to claim 2, wherein the failure detection configuration comprises:

the failure detection configuration received from a network side; and/or

the failure detection configuration specified in a protocol.

4. The method according to claim 3, wherein the failure detection configuration received from the network side comprises:

the failure detection configuration received from the network side and carried in a system message; and/or

the failure detection configuration received from the network side and carried in a connection release message.

5. The method according to any one of claims 1 to 4, wherein performing the connection failure detection for the ~~small data transmission~~ SDT process comprises:

performing the connection failure detection for the SDT process, in response to detecting a trigger event.

6. The method according to claim 5, wherein the trigger event comprises at least one of:

starting the SDT process;

the UE sending uplink data for the first time in the SDT process; or

the UE receiving an acknowledgment indication from a network side, wherein the acknowledgment indication is an indication sent by the network side after receiving the uplink data sent for the first time in the SDT process.

~~7. The method according to claim 6, wherein sending the uplink data for the first time in the SDT process comprises at least one of:~~

~~the UE sending the uplink data for the first time via a random access message 3 of a four-step random access;~~

~~the UE sending the uplink data for the first time via a random access message A of a two-step random access; or~~

~~the UE sending the uplink data for the first time on a configure grant CG physical uplink shared channel PUSCH resource.~~

~~8. The method according to claim 6, wherein the UE receiving the acknowledgment indication from the network side comprises:~~

~~receiving a contention resolution identifier of a four-step random access message 4 from the~~

~~network side;~~

~~receiving a contention resolution identifier of a two-step random access message B from the network side; or~~

~~receiving a successful indication of data transmission on a CG-PUSCH resource from the network side.~~

~~9~~7. The method according to any one of claims 1 to ~~8~~6, further comprising:

stopping the connection failure detection for the SDT process, in response to a stop event being detected.

~~10~~8. The method according to claim ~~9~~7, wherein the stop event being detected comprises:

a connection state of the UE being changed; and/or

the UE receiving connection-associated specific indication information from the network side.

~~11~~9. The method according to claim ~~10~~8, wherein the connection state of the UE being changed comprises at least one of:

the connection state of the UE being changed from an inactive state to an idle state;

the connection state of the UE being changed from an inactive state to a connected state; or

the connection state of the UE being changed from an idle state to a connected state.

~~12~~10. The method according to claim ~~10~~8, wherein the UE receiving the connection-associated specific indication information from the network side comprises at least one of:

the UE receiving a connection release message from the network side;

the UE receiving a connection recovery message from the network side;

the UE receiving a connection rejection message from the network side; or

the UE receiving a connection establishment message from the network side.

~~13~~11. The method according to claim 2, wherein the failure detection configuration comprises at least one of:

timer information, indicating a timer associated with the connection failure detection;

counter information, indicating a counter associated with the connection failure detection; or

signal indication information, for indicating a signal for performing the connection failure detection.

~~14. The method according to claim 13, wherein the timer comprises at least one of:~~

~~a physical layer out-of-sync timer, configured to time a physical layer out-of-synchronization; or~~

~~a beam failure detection timer, configured to time a beam failure detection.~~

~~15. The method according to claim 13, wherein the counter comprises at least one of:~~

~~an out-of-sync counter, configured to count physical layer out-of-sync indications;~~

~~a synchronization counter, configured to count physical layer synchronization indications;~~

~~a beam failure counter, configured to count beam failures;~~

a media access control MAC layer random access counter, configured to count random access times of an MAC layer; or

a radio link control RLC layer transmission counter, configured to count transmission times of an RLC layer.

16. The method according to any one of claims 13 to 15, wherein the signal indication information is configured to indicate at least one of:

a signal of a physical layer out-of-sync detection in the connection failure detection; or

a signal of a beam failure detection in the connection failure detection.

17. The method according to any one of claims 13 to 16, wherein the signal indicated by the signal indication information comprises at least one of:

a downlink signal associated with a physical downlink random access channel PRACH resource of a four-step random access;

a downlink signal associated with a physical downlink control channel PDCCH for dispatching a contention resolution identifier of a four-step random access;

a downlink signal associated with a PDCCH channel for dispatching a data transmission, after successfully receiving a contention resolution identifier of a random access message 4 of a four-step random access;

a downlink signal associated with a random access message A of a two-step random access;

a downlink signal associated with a PDCCH for dispatching data, after receiving a contention resolution identifier of a random access message B of a two-step random access;

a downlink signal associated with a CG PUSCH resource;

a downlink signal associated with a PDCCH that sends a transmission success indication; wherein the transmission success indication is configured to indicate a successful data transmission on a CG PUSCH;

a downlink signal associated with a PDCCH for dispatching a data transmission, after receiving the transmission success indication;

a downlink signal sent by a cell where the UE is located;

a downlink signal sent by a BWP where the UE is located;

a downlink signal of a cell detectable by the UE; or

a downlink signal detectable by a BWP where the UE is located.

18. The method according to any one of claims 1 to 17, further comprising:

reacquiring a connection in response to determining a connection failure based on a result of the failure detection; or

entering an idle state in response to determining a connection failure based on a result of the failure detection.

19. The method according to any one of claims 1 to 17, further comprising:

performing beam recovery, in response to determining based on a result of the failure detection that a cause of the connection failure is a beam failure.

20. The method according to claim 19, wherein performing the beam recovery comprises:

performing the beam recovery according to a beam recovery configuration.

21. The method according to claim 20, further comprising at least one of:

receiving the beam recovery configuration carried in a system message;

receiving the beam recovery configuration carried in a connection release message; or

determining the beam recovery configuration based on a protocol.

22. The method according to claim 20 or 21, wherein the beam recovery configuration comprises at least one of:

beam recovery counter information, indicating a counter for counting a number of times of beam recovery;

beam recovery timer information, indicating a timer for timing a beam recovery duration;

a priority configuration, for indicating a priority of a random access corresponding to the beam recovery, wherein random access configurations for beam recovery corresponding to different priorities are different;

a resource configuration, indicating a resource used for the beam recovery; or

a threshold configuration, indicating a threshold value used for the beam recovery.

23. The method according to claim 22, wherein the resource configuration indicates that a contention-based random access request resource of a cell or a BWP where the SDT process occurs is used for the beam recovery.

24. The method according to claim 22, wherein the threshold configuration indicates that a threshold value for selecting a random access request resource is reused as the threshold value for the beam recovery.

25. The method according to any one of claims 20 to 24, further comprising:

receiving feedback information on the beam recovery from the network side, wherein the feedback information indicates a result of the beam recovery.

26. The method according to claim 25, wherein receiving the feedback information on the beam recovery from the network side comprises:

receiving the feedback information on a resource in a subsequent data sending phase of the SDT process; and/or

receiving the feedback information carried in a message sent by the network side in a random access.

27. The method according to claim 26, wherein receiving the feedback information on the resource in the subsequent data sending phase of the SDT process comprises:

receiving the feedback information on a PDCCH resource for dispatching a data transmission in the subsequent data sending phase of the SDT process.

28. The method according to claim 26, wherein receiving the feedback information carried in the message sent by the network side in the random access comprises at least one of:

receiving the feedback information carried in a random access message 2 sent by the network side in a four-step random access;

receiving the feedback information carried in a random access message 4 sent by the

~~network side in a four-step random access; or~~

~~receiving the feedback information carried in a random access message B sent by the network side in a four-step random access.~~

~~29. The method according to any one of claims 20 to 28, further comprising:~~

~~reacquiring a connection in response to a failed beam recovery; or~~

~~entering an idle state in response to a failed beam recovery.~~

~~30. The method according to any one of claims 18 to 29, wherein reacquiring the connection comprises at least one of:~~

~~triggering a connection establishment based on a non-access stratum NAS message;~~

~~triggering a connection establishment based on a connection establishment request message;~~

~~triggering a connection recovery based on a connection recovery request message; or~~

~~triggering a connection re-establishment based on a connection re-establishment request message.~~

~~31. The method according to any one of claims 1 to 30, further comprising: reporting a result of the connection failure detection.~~

~~32. The method according to claim 31, wherein the result of the connection failure detection comprises at least one of:~~

~~a connection failure type indication, indicating a type of a connection failure;~~

~~an SDT process indication, configured to indicate that the connection failure is detected in the SDT process;~~

~~an SDT phase indication, configured to indicate an SDT phase when the connection failure occurs, wherein the SDT phase comprises: an initial data sending phase and/or a subsequent data sending phase in the SDT process;~~

~~an SDT process type indication, configured to indicate a type of the SDT process; or~~

~~a service indication, configured to indicate a service that triggers the SDT process.~~

~~33. The method according to claim 32, wherein the service indication comprises at least one of:~~

~~a radio bearer RB identifier of the service;~~

~~a service flow identifier of the service;~~

~~a session identifier of the service; or~~

~~a logical channel identifier of the service.~~

~~34~~12. An information processing method, performed by a base station, the method comprising:

sending a failure detection configuration, wherein the failure detection configuration is configured for a UE to perform a connection failure detection for an SDT process.

~~35~~13. The method according to claim ~~34~~12, wherein sending the failure detection configuration comprises:

sending a system message carrying the failure detection configuration; and/or

sending a connection release message carrying the failure detection configuration.

~~36~~14. The method according to claim ~~34~~12 or ~~35~~13, further comprising:

sending connection-associated specific indication information; wherein the specific indication information is configured to trigger the UE to stop the connection failure detection for the SDT process.

~~37~~15. The method according to claim ~~36~~14, wherein the specific indication information comprises at least one of:

a connection release message;

a connection recovery message;

a connection rejection message; or

a connection establishment message.

~~38~~16. The method according to any one of claims ~~34~~12 to ~~37~~15, wherein the failure detection configuration comprises at least one of:

timer information, indicating a timer associated with the connection failure detection;

counter information, indicating a counter associated with the connection failure detection; or

signal indication information, for indicating a signal for performing the connection failure detection.

~~39. The method according to claim 38, wherein the timer comprises at least one of:~~

~~a physical layer out-of-sync timer, configured to time a physical layer out-of-synchronization; or~~

~~a beam failure detection timer, configured to time a beam failure detection.~~

~~40. The method according to claim 38, wherein the counter comprises at least one of:~~

~~an out-of-sync counter, configured to count physical layer out-of-sync indications;~~

~~a synchronization counter, configured to count physical layer synchronization indications;~~

~~a beam failure counter, configured to count beam failures;~~

~~a media access control MAC layer random access counter, configured to count random access times of an MAC layer; or~~

~~a radio link control RLC layer transmission counter, configured to count transmission times of an RLC layer.~~

~~41. The method according to any one of claims 38 to 40, wherein the signal indication information is configured to indicate at least one of:~~

~~a signal of a physical layer out-of-sync detection in the connection failure detection; or~~

~~a signal of a beam failure detection in the connection failure detection.~~

~~42. The method according to any one of claims 38 to 41, wherein the signal indicated by the signal indication information comprises at least one of:~~

~~a downlink signal associated with a physical downlink random access channel PRACH resource of a four-step random access;~~

~~a downlink signal associated with a physical downlink control channel PDCCH for dispatching a contention resolution identifier of a four-step random access;~~

a downlink signal associated with a PDCCH channel for dispatching a data transmission, after successfully receiving a contention resolution identifier of a random access message 4 of a four-step random access;

a downlink signal associated with a random access message A of a two-step random access;

a downlink signal associated with a PDCCH for dispatching data, after receiving a contention resolution identifier of a random access message B of a two-step random access;

a downlink signal associated with a CG PUSCH resource;

a downlink signal associated with a PDCCH that sends a transmission success indication; wherein the transmission success indication is configured to indicate a successful data transmission on a CG PUSCH;

a downlink signal associated with a PDCCH for dispatching a data transmission, after receiving the transmission success indication;

a downlink signal sent by a cell where the UE is located;

a downlink signal sent by a BWP where the UE is located;

a downlink signal of a cell detectable by the UE; or

a downlink signal detectable by a BWP where the UE is located.

43. The method according to any one of claims 34 to 42, further comprising:

sending a beam recovery configuration, wherein the beam recovery configuration is configured for the UE to perform beam recovery when it is detected in the SDT process that a cause of a connection failure is a beam failure.

44. The method according to claim 43, wherein sending the beam recovery configuration comprises at least one of:

sending a system message carrying the beam recovery configuration; or

sending a connection release message carrying the beam recovery configuration.

45. The method according to claim 43 or 44, wherein the beam recovery configuration comprises at least one of:

beam recovery counter information, indicating a counter for counting a number of times of beam recovery;

beam recovery timer information, indicating a timer for timing a beam recovery duration;

a priority configuration, for indicating a priority of a random access corresponding to the beam recovery, wherein random access configurations for beam recovery corresponding to different priorities are different;

a resource configuration, indicating a resource used for the beam recovery; or

a threshold configuration, indicating a threshold value used for the beam recovery.

46. The method according to claim 45, wherein the resource configuration indicates that a contention-based random access request resource of a cell or a BWP where the SDT process occurs is used for the beam recovery.

47. The method according to claim 45, wherein the threshold configuration indicates that a threshold value for selecting a random access request resource is reused as the threshold value

~~for the beam recovery.~~

~~48. The method according to any one of claims 43 to 47, further comprising:~~

~~sending feedback information on the beam recovery according to a result of the beam recovery from the UE.~~

~~49. The method according to claim 48, wherein sending the feedback information on the beam recovery comprises:~~

~~sending the feedback information on a resource in a subsequent data sending phase of the SDT process; and/or~~

~~sending a message carrying the feedback information in a random access.~~

~~50. The method according to claim 49, wherein sending the feedback information on the resource in the subsequent data sending phase of the SDT process comprises:~~

~~sending the feedback information on a PDCCH resource for dispatching a data transmission in the subsequent data sending phase of the SDT process.~~

~~51. The method according to claim 49, wherein sending the message carrying the feedback information in the random access comprises at least one of:~~

~~sending a random access message 2 carrying the feedback information in a four-step random access at a network side;~~

~~sending a random access message 4 carrying the feedback information in a four-step random access; or~~

~~sending a random access message B carrying the feedback information in a four-step random access.~~

~~52. The method according to any one of claims 34 to 51, further comprising: receiving a result of the connection failure detection.~~

~~53. The method according to claim 52, wherein the result of the connection failure detection comprises at least one of:~~

~~a connection failure type indication, indicating a type of a connection failure;~~

~~an SDT process indication, configured to indicate that the connection failure is detected in the SDT process;~~

~~an SDT phase indication, configured to indicate an SDT phase when the connection failure occurs, wherein the SDT phase comprises: an initial data sending phase and/or a subsequent data sending phase in the SDT process;~~

~~an SDT process type indication, configured to indicate a type of the SDT process; or~~

~~a service indication, configured to indicate a service that triggers the SDT process.~~

~~54. The method according to claim 53, wherein the service indication comprises at least one of:~~

~~a radio bearer RB identifier of the service;~~

~~a service flow identifier of the service;~~

~~a session identifier of the service; or~~

~~a logical channel identifier of the service.~~

~~55~~17. An apparatus for a connection failure detection, performed by a user equipment (UE), the apparatus comprising:

a detection module, configured to perform the connection failure detection for a small data transmission (SDT) process.

~~56. The apparatus according to claim 55, wherein the detection module is configured to perform the connection failure detection for the SDT process according to a failure detection configuration obtained.~~

~~57. The apparatus according to claim 56, wherein the failure detection configuration comprises:~~

~~the failure detection configuration received from a network side; and/or~~

~~the failure detection configuration specified in a protocol.~~

~~58. The apparatus according to claim 57, wherein the failure detection configuration received from the network side comprises:~~

~~the failure detection configuration received from the network side and carried in a system message; and/or~~

~~the failure detection configuration received from the network side and carried in a connection release message.~~

~~59. The apparatus according to any one of claims 55 to 58, wherein the acquisition module is configured to perform the connection failure detection for the SDT process in response to detecting a trigger event.~~

~~60. The apparatus according to claim 59, wherein the trigger event comprises at least one of:~~

~~starting the SDT process;~~

~~the UE sending uplink data for the first time in the SDT process; or~~

~~the UE receiving an acknowledgment indication from a network side, wherein the acknowledgment indication is an indication sent by the network side after receiving the uplink data sent for the first time in the SDT process.~~

~~61. The apparatus according to claim 60, wherein sending the uplink data for the first time in the SDT process comprises at least one of:~~

~~the UE sending the uplink data for the first time via a random access message 3 of a four-step random access;~~

~~the UE sending the uplink data for the first time via a random access message A of a two-step random access; or~~

~~the UE sending the uplink data for the first time on a configure grant CG physical uplink shared channel PUSCH resource.~~

~~62. The apparatus according to claim 60, wherein the acquisition module is configured to perform at least one of:~~

~~receive a contention resolution identifier of a four-step random access message 4 from the network side;~~

receive a contention resolution identifier of a two-step random access message B from the network side; or

receive a successful indication of data transmission on a CG PUSCH resource from the network side.

63. The apparatus according to any one of claims 55 to 62, further comprising:

a stop module, configured to stop the connection failure detection for the SDT process in response to a stop event being detected.

64. The apparatus according to claim 63, wherein the stop event being detected comprises:

a connection state of the UE being changed; and/or

the UE receiving connection-associated specific indication information from the network side.

65. The apparatus according to claim 64, wherein the connection state of the UE being changed comprises at least one of:

the connection state of the UE being changed from an inactive state to an idle state;

the connection state of the UE being changed from an inactive state to a connected state; or

the connection state of the UE being changed from an idle state to a connected state.

66. The apparatus according to claim 63, wherein the acquisition module is configured to perform at least one of:

the UE receiving a connection release message from the network side;

the UE receiving a connection recovery message from the network side;

the UE receiving a connection rejection message from the network side; or

the UE receiving a connection establishment message from the network side.

67. The apparatus according to claim 56, wherein the failure detection configuration comprises at least one of:

timer information, indicating a timer associated with the connection failure detection;

counter information, indicating a counter associated with the connection failure detection; or

signal indication information, for indicating a signal for performing the connection failure detection.

68. The apparatus according to claim 67, wherein the timer comprises at least one of:

a physical layer out-of-sync timer, configured to time a physical layer out-of-synchronization; or

a beam failure detection timer, configured to time a beam failure detection.

69. The apparatus according to claim 67, wherein the counter comprises at least one of:

an out-of-sync counter, configured to count physical layer out-of-sync indications;

a synchronization counter, configured to count physical layer synchronization indications;

a beam failure counter, configured to count beam failures;

a media access control MAC layer random access counter, configured to count random access times of an MAC layer; or

a radio link control RLC layer transmission counter, configured to count transmission times of an RLC layer.

70. The apparatus according to any one of claims 67 to 69, wherein the signal indication information is configured to indicate at least one of:

a signal of a physical layer out-of-sync detection in the connection failure detection; or

a signal of a beam failure detection in the connection failure detection.

71. The apparatus according to any one of claims 67 to 70, wherein the signal indicated by the signal indication information comprises at least one of:

a downlink signal associated with a physical downlink random access channel PRACH resource of a four-step random access;

a downlink signal associated with a physical downlink control channel PDCCH for dispatching a contention resolution identifier of a four-step random access;

a downlink signal associated with a PDCCH channel for dispatching a data transmission, after successfully receiving a contention resolution identifier of a random access message 4 of a four-step random access;

a downlink signal associated with a random access message A of a two-step random access;

a downlink signal associated with a PDCCH for dispatching data, after receiving a contention resolution identifier of a random access message B of a two-step random access;

a downlink signal associated with a CG PUSCH resource;

a downlink signal associated with a PDCCH that sends a transmission success indication; wherein the transmission success indication is configured to indicate a successful data transmission on a CG PUSCH;

a downlink signal associated with a PDCCH for dispatching a data transmission, after receiving the transmission success indication;

a downlink signal sent by a cell where the UE is located;

a downlink signal sent by a BWP where the UE is located;

a downlink signal of a cell detectable by the UE; or

a downlink signal detectable by a BWP where the UE is located.

72. The apparatus according to any one of claims 55 to 71, further comprising:

a connection module, configured to reacquire a connection in response to determining a connection failure based on a result of the failure detection; or

a state handover module, configured to enter an idle state in response to determining the connection failure based on the result of the failure detection.

73. The apparatus according to any one of claims 55 to 72, further comprising:

a recovery module, configured to perform beam recovery, in response to determining based on a result of the failure detection that a cause of the connection failure is a beam failure.

74. The apparatus according to claim 73, wherein the recovery module is configured to perform the beam recovery according to a beam recovery configuration.

75. The apparatus according to claim 74, further comprising a beam recovery configuration

module configured to perform at least one of:

receiving the beam recovery configuration carried in a system message;

receiving the beam recovery configuration carried in a connection release message; or

determining the beam recovery configuration based on a protocol.

76. The apparatus according to claim 74 or 75, wherein the beam recovery configuration comprises at least one of:

beam recovery counter information, indicating a counter for counting a number of times of beam recovery;

beam recovery timer information, indicating a timer for timing a beam recovery duration;

a priority configuration, for indicating a priority of a random access corresponding to the beam recovery, wherein random access configurations for beam recovery corresponding to different priorities are different;

a resource configuration, indicating a resource used for the beam recovery; or

a threshold configuration, indicating a threshold value used for the beam recovery.

77. The apparatus according to claim 76, wherein the resource configuration indicates that a contention-based random access request resource of a cell or a BWP where the SDT process occurs is used for the beam recovery.

78. The apparatus according to claim 77, wherein the threshold configuration indicates that a threshold value for selecting a random access request resource is reused as the threshold value for the beam recovery.

79. The apparatus according to any one of claims 75 to 78, further comprising a feedback module configured to receive feedback information on the beam recovery from the network side, wherein the feedback information indicates a result of the beam recovery.

80. The apparatus according to claim 79, wherein the feedback module is configured to:

receive the feedback information on a resource in a subsequent data sending phase of the SDT process; and/or

receive the feedback information carried in a message sent by the network side in a random access.

81. The apparatus according to claim 80, wherein the feedback module is configured to receive the feedback information on a PDCCH resource for dispatching a data transmission in the subsequent data sending phase of the SDT process.

82. The apparatus according to claim 80, wherein the feedback module is configured to perform at least one of:

receiving the feedback information carried in a random access message 2 sent by the network side in a four-step random access;

receiving the feedback information carried in a random access message 4 sent by the network side in a four-step random access; or

receiving the feedback information carried in a random access message B sent by the network side in a four-step random access.

~~83. The apparatus according to any one of claims 73 to 82, further comprising:~~

~~a connection module, configured to reacquire a connection in response to a failed beam recovery; or~~

~~a state handover module, configured to enter an idle state in response to a failed beam recovery.~~

~~84. The apparatus according to any one of claims 72 to 83, wherein the connection module is configured to perform at least one of:~~

~~triggering a connection establishment based on a non-access stratum NAS message;~~

~~triggering a connection establishment based on a connection establishment request message;~~

~~triggering a connection recovery based on a connection recovery request message; or~~

~~triggering a connection re-establishment based on a connection re-establishment request message.~~

~~85. The apparatus according to any one of claims 55 to 84, further comprising a reporting module configured to report a result of the connection failure detection.~~

~~86. The apparatus according to claim 85, wherein the result of the connection failure detection comprises at least one of:~~

~~a connection failure type indication, indicating a type of a connection failure;~~

~~an SDT process indication, configured to indicate that the connection failure is detected in the SDT process;~~

~~an SDT phase indication, configured to indicate an SDT phase when the connection failure occurs, wherein the SDT phase comprises: an initial data sending phase and/or a subsequent data sending phase in the SDT process;~~

~~an SDT process type indication, configured to indicate a type of the SDT process;~~

~~a service indication, configured to indicate a service that triggers the SDT process.~~

~~87. The apparatus according to claim 86, wherein the service indication comprises at least one of:~~

~~a radio bearer RB identifier of the service;~~

~~a service flow identifier of the service;~~

~~a session identifier of the service; or~~

~~a logical channel identifier of the service.~~

~~88~~18. An information processing apparatus, comprising:

a sending module, configured to send a failure detection configuration, wherein the failure detection configuration is configured for a UE to perform a connection failure detection for an SDT process.

~~89. The apparatus according to claim 88, wherein the sending module is configured to:~~

~~send a system message carrying the failure detection configuration; and/or~~

~~send a connection release message carrying the failure detection configuration.~~

~~90. The apparatus according to claim 88 or 89, wherein the sending module is configured to send connection-associated specific indication information; wherein the specific indication~~

information is configured to trigger the UE to stop the connection failure detection for the SDT process.

91. The apparatus according to claim 90, wherein the specific indication information comprises at least one of:

a connection release message;

a connection recovery message;

a connection rejection message; or

a connection establishment message.

92. The apparatus according to any one of claims 88 to 91, wherein the failure detection configuration comprises at least one of:

timer information, indicating a timer associated with the connection failure detection;

counter information, indicating a counter associated with the connection failure detection; or

signal indication information, for indicating a signal for performing the connection failure detection.

93. The apparatus according to claim 92, wherein the timer comprises at least one of:

a physical layer out-of-sync timer, configured to time a physical layer out-of-synchronization; or

a beam failure detection timer, configured to time a beam failure detection.

94. The apparatus according to claim 92, wherein the counter comprises at least one of:

an out-of-sync counter, configured to count physical layer out-of-sync indications;

a synchronization counter, configured to count physical layer synchronization indications;

a beam failure counter, configured to count beam failures;

a media access control MAC layer random access counter, configured to count random access times of an MAC layer; or

a radio link control RLC layer transmission counter, configured to count transmission times of an RLC layer.

95. The apparatus according to any one of claims 92 to 94, wherein the signal indication information is configured to indicate at least one of:

a signal of a physical layer out-of-sync detection in the connection failure detection; or

a signal of a beam failure detection in the connection failure detection.

96. The apparatus according to any one of claims 92 to 95, wherein the signal indicated by the signal indication information comprises at least one of:

a downlink signal associated with a physical downlink random access channel PRACH resource of a four-step random access;

a downlink signal associated with a physical downlink control channel PDCCH for dispatching a contention resolution identifier of a four-step random access;

a downlink signal associated with a PDCCH channel for dispatching a data transmission, after successfully receiving a contention resolution identifier of a random access message 4 of a

four-step random access;

a downlink signal associated with a random access message A of a two-step random access;

a downlink signal associated with a PDCCH for dispatching data, after receiving a contention resolution identifier of a random access message B of a two-step random access;

a downlink signal associated with a CG-PUSCH resource;

a downlink signal associated with a PDCCH that sends a transmission success indication; wherein the transmission success indication is configured to indicate a successful data transmission on a CG-PUSCH;

a downlink signal associated with a PDCCH for dispatching a data transmission, after receiving the transmission success indication;

a downlink signal sent by a cell where the UE is located;

a downlink signal sent by a BWP where the UE is located;

a downlink signal of a cell detectable by the UE; or

a downlink signal detectable by a BWP where the UE is located.

97. The apparatus according to any one of claims 88 to 96, wherein the sending module is further configured to send a beam recovery configuration, wherein the beam recovery configuration is configured for the UE to perform beam recovery when it is detected in the SDT process that a cause of a connection failure is a beam failure.

98. The apparatus according to claim 97, wherein the sending module is configured to perform at least one of:

sending a system message carrying the beam recovery configuration; or

sending a connection release message carrying the beam recovery configuration.

99. The apparatus according to claim 97 or 98, wherein the beam recovery configuration comprises at least one of:

beam recovery counter information, indicating a counter for counting a number of times of beam recovery;

beam recovery timer information, indicating a timer for timing a beam recovery duration;

a priority configuration, for indicating a priority of a random access corresponding to the beam recovery, wherein random access configurations for beam recovery corresponding to different priorities are different;

a resource configuration, indicating a resource used for the beam recovery; or

a threshold configuration, indicating a threshold value used for the beam recovery.

100. The apparatus according to claim 99, wherein the resource configuration indicates that a contention-based random access request resource of a cell or a BWP where the SDT process occurs is used for the beam recovery.

101. The apparatus according to claim 100, wherein the threshold configuration indicates that a threshold value for selecting a random access request resource is reused as the threshold value for the beam recovery.

102. The apparatus according to any one of claims 88 to 101, wherein the sending module is

~~configured to send feedback information on the beam recovery according to a result of the beam recovery from the UE.~~

~~103. The apparatus according to claim 102, wherein the sending module is configured to:~~

~~send the feedback information on a resource in a subsequent data sending phase of the SDT process; and/or~~

~~send a message carrying the feedback information in a random access.~~

~~104. The apparatus according to claim 103, wherein the sending module is further configured to: send the feedback information on a PDCCH resource for dispatching a data transmission in the subsequent data sending phase of the SDT process.~~

~~105. The apparatus according to claim 102, wherein the sending module is configured to perform at least one of:~~

~~send a random access message 2 carrying the feedback information in a four-step random access at a network side;~~

~~send a random access message 4 carrying the feedback information in a four-step random access; or~~

~~send a random access message B carrying the feedback information in a four-step random access.~~

~~106. The apparatus according to any one of claims 88 to 105, further comprising a receiving module configured to receive a result of the connection failure detection.~~

~~107. The apparatus according to claim 106, wherein the result of the connection failure detection comprises at least one of:~~

~~a connection failure type indication, indicating a type of a connection failure;~~

~~an SDT process indication, configured to indicate that the connection failure is detected in the SDT process;~~

~~an SDT phase indication, configured to indicate an SDT phase when the connection failure occurs, wherein the SDT phase comprises: an initial data sending phase and/or a subsequent data sending phase in the SDT process;~~

~~an SDT process type indication, configured to indicate a type of the SDT process; or~~

~~a service indication, configured to indicate a service that triggers the SDT process.~~

~~108. The apparatus according to claim 107, wherein the service indication comprises at least one of:~~

~~a radio bearer RB identifier of the service;~~

~~a service flow identifier of the service;~~

~~a session identifier of the service; or~~

~~a logical channel identifier of the service.~~

~~109~~19. A communication device, comprising:

a processor,

a transceiver, and

a memory storing a program executable by the processor, ~~and~~

~~an executable program stored on the memory and runnable by the processor,~~ wherein the processor is configured to perform~~executes~~ the method according to any one of claims 1 to ~~33~~ 11 or the method according to any one of claims ~~34~~ 12 to 16~~54 when running the executable program~~.

~~110~~20. A non-transitory computer-readable~~computer~~ storage medium having stored therein an executable program that, after executed by a processor, causes the method according to any one of claims 1 to ~~33~~ 11 or the method according to any one of claims ~~34~~ 12 to ~~54~~ 16 to be implemented.