WHAT IS CLAIMED IS:

1. A method for aligning downlink control information (DCI), performed by a network device, comprising:

aligning a payload of a first DCI with a payload of one of second DCIs according to a classification mode of a size of the first DCI, wherein the first DCI is configured to schedule a multicast-broadcast scheduling (MBS) service, and the second DCI is configured to schedule a service other than the MBS service;

wherein aligning the payload of the first DCI with the payload of one of the second DCIs according to the classification mode of the size of the first DCI comprises:

determining that the classification mode of the size of the first DCI is classifying the first DCI as a DCI scrambled by a radio network temporary identifier (RNTI) other than a cell radio network temporary identifier (C-RNTI), and aligning the payload of the first DCI with a payload of a second DCI scrambled by the RNTI other than the C-RNTI;

wherein aligning the payload of the first DCI with the payload of the second DCI scrambled by the RNTI other than the C-RNTI comprises:

determining a size of a frequency-domain resource allocation (FDRA) field in the first DCI according to a number of resource blocks (RBs) contained in a control resource set (CORESET) # 0, or a number of RBs contained in an initial downlink (DL) bandwidth portion (BWP); and

determining that the payload of the first DCI is different from the payload of the second DCI scrambled by the RNTI other than the C-RNTI, and aligning the payload of the first DCI with the payload of the second DCI scrambled by the RNTI other than the C-RNTI.

2. The method of claim 1, where aligning the payload of the first DCI with the payload of the second DCI scrambled by the RNTI other than the C-RNTI comprises at least one of:

determining that the payload of the first DCI is smaller than the payload of the second DCI scrambled by the RNTI other than the C-RNTI, and adding a padding bit to the first DCI;

determining that the payload of the first DCI is smaller than the payload of the second DCI scrambled by the RNTI other than the C-RNTI, and adding an appended bit after all effective information fields of the first DCI; or

determining that the payload of the first DCI is greater than the payload of the second DCI scrambled by the RNTI other than the C-RNTI, and performing truncation on the first DCI.

3. The method of claim 2, wherein performing the truncation on the first DCI comprises:

performing the truncation on the FDRA field of the first DCI.

4. The method of any of claims 1 to 3, further comprising one of:

determining that the number of RBs contained in the CORESET # 0 is greater than a number of RBs contained in a common frequency resource (CFR), and determining FDRA information according to N highest bits or N lowest bits in the first DCI; or

determining that the number of RBs contained in the initial DL BWP is greater than the number of RBs contained in the CFR, and determining the FDRA information according to the N highest bits or the N lowest bits in the first DCI; wherein, N is a positive integer;

determining that the number of RBs contained in the CORESET # 0 is less than a number of RBs contained in a CFR, and scaling a frequency-domain scheduling granularity of the first DCI; or

determining that the number of RBs contained in the initial DL BWP is less than the number of RBs contained in the CFR, and scaling the frequency-domain scheduling granularity of the first DCI.

5. The method of claim 4, wherein scaling the frequency-domain scheduling granularity of the first DCI comprises one of:

determining a scaling factor according to a ratio of the number of RBs contained in the CFR to the number of RBs contained in the CORESET # 0; or

determining a scaling factor according to a ratio of the number of RBs contained in the CFR to the number of RBs contained in the DL BWP.

6. The method of claim 1, wherein aligning the payload of the first DCI with the payload of one of the second DCIs according to the classification mode of a size of the first DCI comprises:

determining that the classification mode of the size of the first DCI is classifying the first DCI as a DCI scrambled by a C-RNTI, and alignment of the second DCIs is not completed, and aligning the payload of the first DCI with the payload of one of the second DCIs according to a format of the first DCI.

7. The method of claim 6, wherein aligning the payload of the first DCI with the payload of one of the second DCIs according to the format of the first DCI comprises:

determining that the format of the first DCI is format 1_0, and determining a size of a FDRA field in the first DCI according to a number of RBs contained in a CORESET # 0 or a number of RBs contained in an initial DL BWP; and

determining that the payload of the first DCI is different from a payload of a second DCI scrambled by a RNTI other than the C-RNTI, and performing at least one of: adding a padding bit to the first DCI, adding an appended bit after all effective information fields of the first DCI, or performing truncation on a part of the information fields, to align the payload of the first DCI with the payload of the second DCI scrambled by the RNTI other than the C-RNTI.

8. The method of claim 7, further comprising one of:

determining that the number of RBs contained in the CORESET # 0 is greater than a number of RBs contained in a CFR, or that the number of RBs contained in the initial DL BWP is greater than the number of RBs contained in the CFR, and determining FDRA information according to N highest bits or N lowest bits in the first DCI, wherein N is a positive integer; or

determining that the number of RBs contained in the CORESET # 0 is less than the number of RBs contained in the CFR, or that the number of RBs contained in the initial DL BWP is less than the number of RBs contained in the CFR, and scaling a frequency-domain scheduling granularity of the first DCI.

9. The method of claim 8, wherein scaling the frequency-domain scheduling granularity of the first DCI comprises one of:

determining a scaling factor according to a ratio of the number of RBs contained in the CFR to the number of RBs contained in the CORESET # 0; or

determining a scaling factor according to a ratio of the number of RBs contained in the CFR to the number of RBs contained in the DL BWP.

10. The method of any one of claims 6-9, wherein aligning the payload of the first DCI with the payload of one of the second DCIs according to the format of the first DCI comprises one of:

determining that the payload of the first DCI is smaller than the payload of one of the second DCIs, and adding a padding bit to the first DCI;

determining that the payload of the first DCI is smaller than the payload of one of the second DCIs, and adding an appended bit after an information field of the first DCI; or

determining that the payload of the first DCI is greater than the payload of one of the second DCIs, and performing truncation on the first DCI.

11. The method of claim 10, wherein adding the padding bit to the first DCI or adding the appended bit after the information field of the first DCI comprises:

adding the padding bit in a FDRA field of the first DCI; or

wherein performing truncation on the first DCI comprises:

performing truncation on a FDRA field in the first DCI.

12. A method for aligning downlink control information (DCI), performed by a terminal, comprising:

determining a mode for aligning a payload of a first DCI with a payload of one of second DCIs according to a classification mode of a size of the first DCI, wherein the first DCI is configured to schedule a multicast-broadcast scheduling (MBS) service, and the second DCI is configured to schedule a service other than the MBS service;

wherein determining the mode for aligning the payload of the first DCI with the payload of one of the second DCIs according to the classification mode of the size of the first DCI comprises:

determining that the classification mode of the size of the first DCI is classifying the first DCI as a DCI scrambled by a radio network temporary identifier (RNTI) other than a cell radio network temporary identifier (C-RNTI), and determining to align the payload of the first DCI with a payload of a second DCI scrambled by the RNTI other than the C-RNTI;

wherein determining to align the payload of the first DCI with the payload of the second DCI scrambled by the RNTI other than the C-RNTI comprises:

determining a size of a frequency-domain resource allocation (FDRA) field in the first DCI according to a number of resource blocks (RBs) contained in a control resource set (CORESET) # 0, or a number of RBs contained in an initial downlink (DL) bandwidth portion (BWP); and

determining that the payload of the first DCI is different from the payload of the second DCI scrambled by the RNTI other than the C-RNTI, and determining to align the payload of the first DCI with the payload of the second DCI scrambled by the RNTI other than the C-RNTI.

13. The method of claim 12, wherein determining the second DCI aligned with the first DCI according the format of the first DCI comprises one of:

determining that the format of the first DCI is format 1_0, and determining that the second DCI whose payload is aligned with the payload of the first DCI is a second DCI scrambled by the RNTI other than the C-RNTI;

determining that the format of the first DCI is format 1_1 or format 1_2, and a current cell is configured with a second DCI having a same format as the first DCI, and determining

that the second DCI whose payload is aligned with the payload of the first DCI is a second DCI scrambled by the C-RNTI; or

determining that the format of the first DCI is format 1_1 or format 1 2, and the current cell is not configured with a second DCI with a same format as the first DCI, and determining that the second DCI whose payload is aligned with the payload of the first DCI is a specified second DCI, wherein the specified second DCI is a DCI in format 1_1 or format 1_2.

14. The method of claim 12 or 13, further comprising one of:

determining that a number of resource blocks (RBs) contained in a control resource set (CORESET) # 0 is greater than a number of RBs contained in a common frequency resource (CFR), and determining frequency-domain resource allocation (FDRA) information according to N highest bits or N lowest bits in the first DCI;

determining that a number of RBs contained in an initial downlink (DL) bandwidth portion (BWP) is greater than the number of RBs contained in the CFR, determining the FDRA information according to the N highest bits or the N lowest bits in the first DCI; wherein, N is a positive integer;

determining that the number of RBs contained in the CORESET # 0 is less than the number of RBs contained in the CFR, and scaling a frequency-domain scheduling granularity of the first DCI; or

determining that in a case where the number of RBs contained in the initial DL BWP is less than the number of RBs contained in the CFR, and scaling a frequency-domain scheduling granularity of the first DCI.

15. The method of claim 14, wherein scaling the frequency-domain scheduling granularity of the first DCI comprises one of:

determining a scaling factor according to a ratio of the number of RBs contained in the CFR to the number of RBs contained in the CORESET # 0; or

determining a scaling factor according to a ratio of the number of RBs contained in the CFR to the number of RBs contained in the initial DL BWP.

16. A communication device, comprising:

a processor; and

a memory storing a computer program, wherein the processor is configured to perform the method of any one of claims 1-11.

17. A communication device, comprising a processor and a memory storing a computer program, wherein the processor is configured to perform the method of any one of claims

12-15.