CLAIMS

1. A method for decoding of a video bitstream implemented by a decoding device, wherein the video bitstream includes data representing a current picture, the method comprising:

obtaining a picture-level syntax element included in a picture header of the current picture by parsing the video bitstream, wherein the picture-level syntax element is used to specify whether an adaptive loop filter (ALF) is enabled for all slices associated with the picture header;

in case that the picture-level syntax element specifies the adaptive loop filter is enabled for the current picture, obtaining a first parameter set identifier included in the picture header, wherein the first parameter set identifier is used to indicate an adaption_parameter_set_id of the i-th ALF adaption parameter set (APS) that a luma component of slices associated with the picture header refers to, and wherein a temporal identifier of an APS network abstraction layer (NAL) unit having aps_params_type equal to ALF_APS and adaption_parameter_set_id equal to the first parameter set identifier is less than or equal to a temporal identifier of the current picture; and

performing the adaptive loop filter on at least one slice of the current picture based on the ALF APS.

2. The method of claim 1, wherein the method further comprises: in case that the picture-level syntax element specifies the adaptive loop filter is enabled for the current picture, obtaining a second parameter set identifier included in the picture header, wherein the second parameter set identifier is used to indicate the adaption_parameter_set_id of an ALF APS that a chroma component of the slices associated with the picture header refers to, and wherein a temporal identifier of the APS NAL unit having aps_params_type equal to ALF_APS and adaption_parameter_set_id equal to the second parameter set identifier is less than or equal to

the temporal identifier of the current picture; and performing adaptive loop filter on the chroma component of at least one slice of the current picture based on the ALF APS.

3. The method of claim 1 or 2, wherein the picture-level syntax element is pic_alf_enable_flag.

4. The method of any one of claims 1 to 3, wherein the first parameter set identifier is pic_alf_aps_id_luma[i].

5. The method of any one of claims 1 to 4, wherein the second parameter set identifier is pic_alf_aps_id_chroma.

6. A method for encoding of a video bitstream implemented by an encoding device, wherein the video bitstream includes data representing a current picture, the method comprising:

determining whether an adaptive loop filter(ALF) is enabled for all slices associated with a picture header;

encoding a picture-level syntax element into a picture header of the current picture, wherein the picture-level syntax element is used to specify whether the adaptive loop filter (ALF) is enabled for all slices associated with the picture header; and

in case that an adaptive loop filter is enabled for the current picture, encoding a first parameter set identifier into the picture header, wherein the first parameter set identifier is used to indicate an adaption_parameter_set_id of the i-th ALF adaption parameter set (APS) that a luma component of slices associated with the picture header refers to, and wherein a temporal identifier of an APS network abstraction layer (NAL) unit having aps_params_type

equal to ALF_APS and adaption_parameter_set_id equal to the first parameter set identifier is set to be less than or equal to a temporal identifier of the current picture.

7. The method of claim 6, wherein the method further comprises: encoding the temporal identifier of the ALF APS and the temporal identifier of the current picture into the video bitstream.

8. The method of claim 6, wherein the method further comprises: in case that the picture-level syntax element specifies the adaptive loop filter is enabled for the current picture, encoding a second parameter set identifier into the picture header, wherein the second parameter set identifier is used to indicate the adaption_parameter_set_id of an ALF APS that a chroma component of the slices associated with the picture header refers to, and wherein a temporal identifier of an APS NAL unit having aps_params_type equal to ALF_APS and adaption_parameter_set_id equal to the second parameter set identifier is set to be less than or equal to the temporal identifier of the current picture.

9. The method of any one of claims 6 to 8, wherein the picture-level syntax element is pic_alf_enable_flag.

10. The method of any one of claims 6 to 9, wherein the first parameter set identifier is pic_alf_aps_id_luma[i].

11. The method of any one of claims 6 to 10, wherein the second parameter set identifier is pic_alf_aps_id_chroma.

12. An encoder comprising processing circuitry for carrying out the method according to any

one of claims 6 to 11.

13. A decoder comprising processing circuitry for carrying out the method according to any one of claims 1 to 5.

14. A computer program product comprising program code for performing the method according to any one of the preceding claims when executed on a computer or a processor.

15. A decoder, comprising:

one or more processors; and

a non-transitory computer-readable storage medium coupled to the processors and storing programming for execution by the processors, wherein the programming, when executed by the processors, configures the decoder to carry out the method according to any one of the claims 1-5.

16. An encoder, comprising:

one or more processors; and

a non-transitory computer-readable storage medium coupled to the processors and storing programming for execution by the processors, wherein the programming, when executed by the processors, configures the encoder to carry out the method according to any one of the claims 6-11.

17. A non-transitory computer-readable medium carrying a program code which, when executed by a computer device, causes the computer device to perform the method of any one of the preceding claims.

18. An encoded bitstream decoded by an image decoding device, the bitstream being generated by dividing a current picture of a video signal or an image signal into a plurality blocks, and comprising a plurality of syntax elements, wherein the plurality of syntax elements comprises a picture-level syntax element included in a picture header of the current picture, wherein the picture-level syntax element is used to specify whether an adaptive loop filter (ALF) is enabled for all slices associated with the picture header; in case that the picture-level syntax element specifies the adaptive loop filter is enabled for all slices associated with the picture header, the bitstream further comprises a first parameter set identifier included in the picture header, wherein the first parameter set identifier is used to indicate an adaption_parameter_set_id of the i-th ALF adaption parameter set (APS) that a luma component of slices associated with the picture header refers to, and wherein a temporal identifier of an APS network abstraction layer (NAL) unit having aps_params_type equal to ALF_APS and adaption_parameter_set_id equal to the first parameter set identifier is set to be less than or equal to a temporal identifier of the current picture.

19. A video data decoding device, comprising:
a non-transitory memory storage, configured to store video data in a form of a bitstream; and
a decoder, configured to perform any of the methods according to any one of the claims 1 to 5.

20. A video data encoding device, comprising:
a non-transitory memory storage, configured to store video data in a form of a bitstream; and
an encoder, configured to perform any of the methods according to any one of the claims 6 to 11.