CLAIMS

1. A method for decoding a segment from a bitstream, the method comprising:

receiving a first packet of a first packet type in the bitstream, the first packet comprising a first set of syntax elements;

decoding an identifier value from one or more syntax elements in the first set of syntax elements of the first packet, the identifier value representing an identifier of the first packet;

decoding a functionality information from a set of syntax elements in the bitstream, wherein the functionality information specifies a functionality;

receiving a second packet of a second packet type in the bitstream, the second packet comprising a second set of syntax elements;

decoding a reference ID value from one or more syntax elements in the second set of syntax elements of the second packet;

receiving a third packet of a third packet type in the bitstream, the third packet comprising a third set of syntax elements, wherein the third set of syntax elements encodes the segment;

determining that the segment is associated with the second packet;

determining that the reference ID value corresponds to the identifier value;

in response to determining that the reference ID value corresponds to the identifier value, selecting the functionality information from the first set of syntax elements;

decoding the segment from the third set of syntax elements; and

applying the functionality to the segment based on the selected functionality information.

2. The method of claim 1, wherein decoding a functionality information from a set of syntax elements in the bitstream comprises decoding the functionality information from the first set of syntax elements in the first packet.

3. The method of claim 1, further comprising receiving a fourth packet of a fourth packet type in the bitstream, wherein the fourth packet comprises a fourth set of syntax elements, and the fourth packet precedes the second packet in decoding order, and wherein decoding a

functionality information from a set of syntax elements in the bitstream comprises decoding the functionality information from the fourth set of syntax elements in the fourth packet.

~~4. The method of claim 3, wherein the fourth packet is contained in the first packet.~~

~~5~~4. The method of any one of claims 1-~~4~~3, wherein at least one of the first packet type, the second packet type and the fourth packet type comprises an SEI message.

~~6. The method of any one of claims 1-5, wherein the first packet is of the same type and subtype as the second packet.~~

~~7~~5. The method of any one of claims 1-~~5~~4, wherein the first packet is of the same type as the second packet and the first packet is of a different subtype than the second packet.

~~8~~6. The method of any one of claims 1-~~7~~5, wherein the segment comprises one or more of a picture, a subpicture, a slice, a tile, and a coding tree unit, CTU.

~~9~~7. The method of any one of claims 1-~~8~~6, further comprising decoding an indicator value from the first set of syntax elements, the indicator value indicating whether both the identifier value and the second set of syntax elements are present in the bitstream.

~~10~~8. The method of any one of claims 1-~~9~~7, wherein determining that the segment is associated with the second packet comprises one or more of:

(i) determining that the segment is in the same Access Unit, AU, or Picture Unit, PU, as the second packet;

(ii) determining that the third packet directly follows the second packet in the bitstream;

(iii) determining that the second packet is the closest preceding packet of the second packet type, wherein the closest preceding packet of the second packet type is the packet having a second packet type that precedes the third packet in decoding order and there is no other packet

having the second packet type that follows the closest preceding packet and precedes the third packet in decoding order;

(iv) determining that the second packet comprises a persistence flag specifying that the second packet is associated to the segment or to the third packet; and

(v) decoding a segment identifier value, representing an identifier of the segment, from one or more syntax elements in the bitstream, decoding a reference segment ID value from one or more syntax elements in the second packet, and determining that the segment identifier value corresponds to the reference segment ID value.

~~11~~9. The method of any one of claims 1-~~10~~8, further comprising decoding an indicator value from the first set of syntax elements, the indicator value indicating whether the functionality information may be applied to the segment without the first packet being referenced by the second packet.

~~12~~10. The method of any one of claims 1-~~11~~9, wherein the functionality information comprises one or more of film grain parameters, luma mapping with chroma scaling, LMCS, parameters, mastering display color volume parameters, content light level parameters, ambient viewing environment parameters, content color volume parameters, sphere rotation parameters, region-wise packing parameters, omni-directional viewport parameters, sample aspect ratio parameters, annotated regions parameters, scalability dimension parameters, multiview acquisition parameters, depth representation parameters, a filter model type, a filter strength, and a model description.

~~13. The method of any one of claims 1-12, wherein the functionality information comprises information specifying a film grain model, the method further comprising:~~

~~decoding a seed value from one or more syntax elements in the second set of syntax elements; and~~

~~using the seed value when applying film grain with the film grain model to the segment associated with the second packet.~~

~~14. The method of any one of claims 3-13, further comprising decoding an SEI payload type value from a syntax element in the first packet, the SEI payload type value indicating the SEI payload type value of the fourth packet.~~

~~15. The method of any one of claims 3-14, wherein at least one syntax element of the fourth set of syntax elements overwrites the functionality information from one or more syntax elements of the set of syntax elements.~~

~~16. The method of any one of claims 1-15, wherein the identifier value is decoded from an extension in the first packet.~~

~~17~~11. A method for encoding a segment to a bitstream, the method comprising:

determining an identifier value for a first packet of a first packet type, the identifier value representing an identifier of the first packet and the first packet comprising a first set of syntax elements in the bitstream;

encoding the identifier value to one or more syntax elements in the first set of syntax elements;

determining a functionality to be applied to a segment, the functionality being specified by a functionality information;

encoding the functionality information to one or more syntax elements of a set of syntax elements in the bitstream;

encoding a reference ID value corresponding to the identifier value to one or more syntax elements in a second set of syntax elements, wherein a second packet of a second packet type comprises the second set of syntax elements in the bitstream; and

encoding the segment to one or more syntax elements in a third set of syntax elements, wherein a third packet of a third packet type comprises the third set of syntax elements in the bitstream, wherein the segment is associated with the second packet.

~~18~~12. The method of claim ~~17~~11, wherein encoding the functionality information to one or more syntax elements of a set of syntax elements in the bitstream comprises encoding the functionality information to the first set of syntax elements in the first packet.

~~19. The method of claim 17, further comprising encoding a fourth packet of a fourth packet type in the bitstream, wherein the fourth packet comprises a fourth set of syntax elements, and the fourth packet precedes the second packet in decoding order, and wherein encoding a functionality information to a set of syntax elements in the bitstream comprises encoding the functionality information to the fourth set of syntax elements in the fourth packet.~~

~~20~~13. The method of any one of claims ~~17~~11-~~19~~12, wherein the segment comprises one or more of a picture, a subpicture, a slice, a tile, and a coding tree unit, CTU.

~~21~~14. The method of any one of claims ~~17~~11-~~20~~13, wherein the segment is associated with the second packet in at least one of the following ways:

(i) the segment is in the same Access Unit, AU, or Picture Unit, PU, as the second packet;

(ii) the third packet comprising the segment directly follows the second packet in the bitstream;

(iii) the second packet is the closest preceding packet of the second packet type, wherein the closest preceding packet of the second packet type is the packet having a second packet type that precedes the third packet comprising the segment in decoding order and there is no other packet having the second packet type that follows the closest preceding packet and precedes the third packet comprising the segment in decoding order;

(iv) the second packet comprises a persistence flag specifying that the second packet is associated to the segment or to the third packet comprising the segment; and

(v) encoding a segment identifier value into the bitstream and encoding a reference segment ID value into the second packet, wherein the segment identifier value corresponds to the reference segment ID value.

~~22~~15. The method of any one of claims ~~17~~11-~~21~~14, wherein the functionality information comprises information specifying a film grain model, and the method further comprises encoding a seed value to one or more syntax elements in the second set of syntax elements.

~~23~~16. A computer program comprising instructions which when executed by processing circuitry of a node, causes the node to perform the method of any one of claims 1-15~~ 16, and 17-2.2.~~

~~24~~17. A carrier containing the computer program of claim ~~23~~16, wherein the carrier is one of an electronic signal, an optical signal, a radio signal, and a computer readable storage medium.

~~25. A decoder, the decoder comprising:~~

~~processing circuitry; and~~

~~a memory, the memory containing instructions executable by the processing circuitry, whereby the decoder is configured to perform the method of any one the claims 1-16.~~

~~26. An encoder, the encoder comprising:~~

~~processing circuitry; and~~

~~a memory, the memory containing instructions executable by the processing circuitry, whereby the encoder is configured to perform the method of any one the claims 17-22.~~

~~27~~18. A decoder configured to decode a segment from a bitstream, the decoder being further configured to perform the method of any one of claims 1-10.~~:~~

~~receive a first packet of a first packet type in the bitstream, the first packet comprising a first set of syntax elements;~~

~~decode an identifier value from one or more syntax elements in the first set of syntax elements of the first packet, the identifier value representing an identifier of the first packet;~~

~~decode a functionality information from a set of syntax elements in the bitstream, wherein the functionality information specifies a functionality;~~

~~receive a second packet of a second packet type in the bitstream, the second packet comprising a second set of syntax elements;~~

~~decode a reference ID value from one or more syntax elements in the second set of syntax elements of the second packet;~~

~~receive a third packet of a third packet type in the bitstream, the third packet comprising a third set of syntax elements, wherein the third set of syntax elements encodes the segment;~~

~~determine that the segment is associated with the second packet;~~

~~determine that the reference ID value corresponds to the identifier value;~~

~~in response to determining that the reference ID value corresponds to the identifier value, select the functionality information from the first set of syntax elements;~~

~~decode the segment from the third set of syntax elements; and~~

~~apply the functionality to the segment based on the selected functionality information.~~

~~28. The decoder of claim 27, wherein the decoder is further configured to perform the method of any one of claims 2-16.~~

~~29~~19. An encoder configured to encode a segment to a bitstream, the encoder ~~being further~~ configured to perform the method of any one of claims 11-15.

~~determine an identifier value for a first packet of a first packet type, the identifier value representing an identifier of the first packet and the first packet comprising a first set of syntax elements in the bitstream;~~

~~encode the identifier value to one or more syntax elements in the first set of syntax elements;~~

~~determine a functionality to be applied to a segment, the functionality being specified by a functionality information;~~

~~encode the functionality information to one or more syntax elements of a set of syntax elements in the bitstream;~~

~~encode a reference ID value corresponding to the identifier value to one or more syntax elements in a second set of syntax elements, wherein a second packet of a second packet type comprises the second set of syntax elements in the bitstream; and~~

~~encode the segment to one or more syntax elements in a third set of syntax elements, wherein a third packet of a third packet type comprises the third set of syntax elements in the bitstream, wherein the segment is associated with the second packet.~~

~~30. The encoder of claim 29, wherein the encoder is further configured to perform the method of any one of claims 18-22.~~