CLAIMS

1. A method of processing video data, comprising:

performing a conversion between a video including one or more layers and a bitstream of the video according to a rule,

wherein the rule specifies a sub-bitstream extraction process by which network abstraction layer (NAL) units are removed from an input bitstream to the sub-bitstream extraction process to generate an output sub-bitstream, and

wherein the rule further specifies that when a list of NAL unit header layer identifier values in an output layer set (OLS) with a target OLS index does not include all values of NAL unit header layer identifiers in all video coding layer (VCL) NAL units in the input bitstream, and when the output sub-bitstream contains a first supplemental enhancement information (SEI) NAL unit that contains a particular scalable nesting SEI message, a new SEI NAL unit is generated, and scalable-nested SEI messages are extracted from the particular scalable nesting SEI message and included in the new SEI NAL unit.

2. The method of claim 1, wherein the particular scalable nesting SEI message is a scalable nesting SEI message with a first flag equal to a first value and a second flag equal to a second value that applies to the OLS with the target OLS index,

wherein the first flag equal to the first value indicates that the scalable nesting SEI message applies to specific output layer sets (OLSs), and

wherein the second flag equal to the second value indicates that the scalable nesting SEI message applies to all subpictures.

3. The method of claim 1 or 2, wherein the scalable-nested SEI messages are included in the new SEI NAL unit as non-scalable-nested SEI messages.

4. The method of any one of claims 1-3, wherein the new SEI NAL unit is included in a picture unit (PU) containing the first SEI NAL unit.

5. The method of claim 4, wherein the new SEI NAL unit is included immediately after the first SEI NAL unit.

6. The method of any one of claims 1-5, wherein the first SEI NAL unit is removed from the output sub-bitstream after the scalable-nested SEI messages being included in the new SEI NAL unit.

7. The method of any one of claims 1-6, wherein the conversion includes encoding the video into the bitstream.

8. The method of any one of claims 1-6, wherein the conversion includes decoding the video from the bitstream.

9. An apparatus for processing video data comprising a processor and a non-transitory memory with instructions thereon, wherein the instructions upon execution by the processor, cause the processor to:

perform a conversion between a video including one or more layers and a bitstream of the video according to a rule,

wherein the rule specifies a sub-bitstream extraction process by which network abstraction layer (NAL) units are removed from an input bitstream to the sub-bitstream extraction process to generate an output sub-bitstream, and

wherein the rule further specifies that when a list of NAL unit header layer identifier values in an output layer set (OLS) with a target OLS index does not include all values of NAL unit header layer identifiers in all video coding layer (VCL) NAL units in the input bitstream, and when the output sub-bitstream contains a first supplemental enhancement information (SEI) NAL unit that contains a particular scalable nesting SEI message, a new SEI NAL unit is generated, and scalable-nested SEI messages are extracted from the particular scalable nesting SEI message and included in the new SEI NAL unit.

10. The apparatus of claim 9, wherein the particular scalable nesting SEI message is a scalable nesting SEI message with a first flag equal to a first value and a second flag equal to a second value that applies to the OLS with the target OLS index,

wherein the first flag equal to the first value indicates that the scalable nesting SEI message applies to specific output layer sets (OLSs), and

wherein the second flag equal to the second value indicates that the scalable nesting SEI message applies to all subpictures.

11. The apparatus of claim 9 or 10, wherein the scalable-nested SEI messages are included in the new SEI NAL unit as non-scalable-nested SEI messages.

12. The apparatus of any one of claims 9-11, wherein the new SEI NAL unit is included in a picture unit (PU) containing the first SEI NAL unit, wherein the new SEI NAL unit is included immediately after the first SEI NAL unit, and wherein the first SEI NAL unit is removed from the output sub-bitstream after the scalable-nested SEI messages being included in the new SEI NAL unit.

13. A non-transitory computer-readable storage medium storing instructions that cause a processor to:

perform a conversion between a video including one or more layers and a bitstream of the video according to a rule,

wherein the rule specifies a sub-bitstream extraction process by which network abstraction layer (NAL) units are removed from an input bitstream to the sub-bitstream extraction process to generate an output sub-bitstream, and

wherein the rule further specifies that when a list of NAL unit header layer identifier values in an output layer set (OLS) with a target OLS index does not include all values of NAL unit header layer identifiers in all video coding layer (VCL) NAL units in the input bitstream, and when the output sub-bitstream contains a first supplemental enhancement information (SEI) NAL unit that contains a particular scalable nesting SEI message, a new SEI NAL unit is generated, and scalable-nested SEI messages are extracted from the particular scalable nesting SEI message and included in the new SEI NAL unit.

14. The non-transitory computer-readable storage medium of claim 13, wherein the particular scalable nesting SEI message is a scalable nesting SEI message with a first flag equal to a first value and a second flag equal to a second value that applies to the OLS with the target OLS index,

wherein the first flag equal to the first value indicates that the scalable nesting SEI message applies to specific output layer sets (OLSs), and

wherein the second flag equal to the second value indicates that the scalable nesting SEI message applies to all subpictures.

15. The non-transitory computer-readable storage medium of claim 13 or 14, wherein the scalable-nested SEI messages are included in the new SEI NAL unit as non-scalable-nested SEI messages.

16. The non-transitory computer-readable storage medium of any one of claims 13-15, wherein the new SEI NAL unit is included in a picture unit (PU) containing the first SEI NAL unit, wherein the new SEI NAL unit is included immediately after the first SEI NAL unit, and wherein the first SEI NAL unit is removed from the output sub-bitstream after the scalable-nested SEI messages being included in the new SEI NAL unit.

17. A non-transitory computer-readable recording medium storing a bitstream of a video which is generated by a method performed by a video processing apparatus, wherein the method comprises:

generating the bitstream of the video including one or more layers according to a rule,

wherein the rule specifies a sub-bitstream extraction process by which network abstraction layer (NAL) units are removed from an input bitstream to the sub-bitstream extraction process to generate an output sub-bitstream, and

wherein the rule further specifies that when a list of NAL unit header layer identifier values in an output layer set (OLS) with a target OLS index does not include all values of NAL unit header layer identifiers in all video coding layer (VCL) NAL units in the input bitstream, and when the output sub-bitstream contains a first supplemental enhancement information (SEI)

NAL unit that contains a particular scalable nesting SEI message, a new SEI NAL unit is generated, and scalable-nested SEI messages are extracted from the particular scalable nesting SEI message and included in the new SEI NAL unit.

18. The non-transitory computer-readable recording medium of claim 17, wherein the particular scalable nesting SEI message is a scalable nesting SEI message with a first flag equal to a first value and a second flag equal to a second value that applies to the OLS with the target OLS index,

wherein the first flag equal to the first value indicates that the scalable nesting SEI message applies to specific output layer sets (OLSs), and

wherein the second flag equal to the second value indicates that the scalable nesting SEI message applies to all subpictures.

19. The non-transitory computer-readable recording medium of claim 17 or 18, wherein the scalable-nested SEI messages are included in the new SEI NAL unit as non-scalable-nested SEI messages.

20. The non-transitory computer-readable recording medium of any one of claims 17-19, wherein the new SEI NAL unit is included in a picture unit (PU) containing the first SEI NAL unit, wherein the new SEI NAL unit is included immediately after the first SEI NAL unit, and wherein the first SEI NAL unit is removed from the output sub-bitstream after the scalable-nested SEI messages being included in the new SEI NAL unit.