CLAIMS

1. A method of processing a file including video data, the method comprising: processing a manifest file including one or more syntax elements at an adaptation set level syntax structure that specify attributes of one or more representations of a corresponding adaptation set, the one or more representations including fisheye video data; determining, based on the one or more syntax elements, the attributes of the one or more representations including the fisheye video data, wherein the attributes of the one or more representations including the fisheye video data include an indication of monoscopic fisheye video data or an indication of stereoscopic fisheye video data, an indication of whether images of the stereoscopic fisheye video data are in a left view or a right view, an indication of a number of circular images of the fisheye video data, an indication of a horizontal coordinate of a center of a particular circular image of the fisheye video data, and an indication of a vertical coordinate of a center of the particular circular image of the fisheye video data; and retrieving, based on the determination, at least a portion of a segment of one of the representations including the fisheye video data, the segment comprising an independently retrievable media file.

2. The method of claim 1, wherein the one or more syntax elements include a fisheye video information (FVI) descriptor.

3. The method of claim 2, wherein the FVI descriptor includes a view_dimension_idc syntax element, wherein a value of 0 for the view_dimension_idc syntax element indicates the fisheye video data is stereoscopic fisheye video data, and wherein a value of 1 for the view_dimension_idc syntax element indicates the fisheye video data is monoscopic fisheye video data.

4. The method of claim 3, wherein a value of 2 for the view_dimension_idc syntax element indicates the fisheye video data is neither monoscopic fisheye video data nor stereoscopic fisheye video data.

5. The method of claim 2, wherein the one or more representations including the fisheye video data include stereoscopic fisheye video data, and wherein the FVI descriptor further includes one

or more flags indicating whether images of the stereoscopic fisheye video data are in a left view or a right view.

6. The method of claim 5, wherein the one or more flags include a left_view_idc flag, wherein a value of 1 for the left_view_idc flag indicates a particular one of the images is in the left view, and wherein a value of 0 for the left_view_idc flag indicates a particular one of the images is in the right view.

7. The method of claim 5, further comprising: determining, based on the one or more flags of the syntax structure, whether images of the stereoscopic fisheye video data are in the left view or the right view; and outputting, based on the determination, the stereoscopic fisheye video data for rendering.

8. An apparatus configured to process a file including video data, the apparatus comprising: a memory configured to store a manifest file; and one or more processors in communication with the memory, the one or more processors configured to: process the manifest file including one or more syntax elements in an adaptation set level syntax structure that specify attributes of one or more representations of a corresponding adaptation set, the one or more representations including fisheye video data, determine, based on the one or more syntax elements, the attributes of the one or more representations including the fisheye video data, wherein the attributes of the one or more representations including the fisheye video data include an indication of monoscopic fisheye video data or an indication of stereoscopic fisheye video data, an indication of whether images of the stereoscopic fisheye video data are in a left view or a right view, an indication of a number of circular images of the fisheye video data, an indication of a horizontal coordinate of a center of a particular circular image of the fisheye video data, and an indication of a vertical coordinate of a center of the particular circular image of the fisheye video data, and retrieve, based on the determination, at least a portion of a segment of the one of the representations including the fisheye video data, the segment comprising an independently retrievable media file.

9. The apparatus of claim 8, wherein the one or more syntax elements include a fisheye video information (FVI) descriptor.

10. The apparatus of claim 9, wherein the FVI descriptor includes a view_dimension_idc syntax element, wherein a value of 0 for the view_dimension_idc syntax element indicates the fisheye video data is stereoscopic fisheye video data, and wherein a value of 1 for the view_dimension_idc syntax element indicates the fisheye video data is monoscopic fisheye video data.

11. The apparatus of claim 10, wherein a value of 2 for the view_dimension_idc syntax element indicates the fisheye video data is neither monoscopic fisheye video data nor stereoscopic fisheye video data.

12. The apparatus of claim 9, wherein the one or more representations including the fisheye video data include stereoscopic fisheye video data, and wherein the FVI descriptor further includes one or more flags indicating whether images of the stereoscopic fisheye video data are in a left view or a right view.

13. The apparatus of claim 12, wherein the one or more flags include a left_view_idc flag, wherein a value of 1 for the left view_idc_flag indicates a particular one of the images is in the left view, and wherein a value of 0 for the left_view_idc flag indicates a particular one of the images is in the right view.

14. The apparatus of claim 12, wherein the one more processors are further configured to: determine, based on the one or more flags of the syntax structure, whether images of the stereoscopic fisheye video data are in the left view or the right view; and output, based on the determination, the stereoscopic fisheye video data for rendering.

15. An apparatus configured to process a file including video data, the apparatus comprising: means for processing a manifest file including one or more syntax elements in an adaptation set level syntax structure that specify attributes of one or more representations of a corresponding adaptation set, the one or more representations including fisheye video data; means for determining, based on the one or more syntax elements, the attributes of the one or more representations including the fisheye video data, wherein the attributes of the one or more representations including the fisheye video data include an indication of monoscopic fisheye

video data or an indication of stereoscopic fisheye video data, an indication of whether images of the stereoscopic fisheye video data are in a left view or a right view, an indication of a number of circular images of the fisheye video data, an indication of a horizontal coordinate of a center of a particular circular image of the fisheye video data, and an indication of a vertical coordinate of a center of the particular circular image of the fisheye video data; and means for retrieving, based on the determination, at least a portion of a segment of the one of the representations including the fisheye video data, the segment comprising an independently retrievable media file.

16. A non-transitory computer-readable storage medium storing instructions that, when executed, cause one or more processors to: process a manifest file including one or more syntax elements in an adaptation set level syntax structure that specify attributes of one or more representations of a corresponding adaptation set, the one or more representations including fisheye video data; determine, based on the one or more syntax elements, the attributes of the one or more representations including the fisheye video data, wherein the attributes of the one or more representations including the fisheye video data include an indication of monoscopic fisheye video data or an indication of stereoscopic fisheye video data, an indication of whether images of the stereoscopic fisheye video data are in a left view or a right view, an indication of a number of circular images of the fisheye video data, an indication of a horizontal coordinate of a center of a particular circular image of the fisheye video data, and an indication of a vertical coordinate of a center of the particular circular image of the fisheye video data; and retrieve, based on the determination, at least a portion of a segment of the one of the representations including the fisheye video data, the segment comprising an independently retrievable media file.

17. A method of generating a file including video data, the method comprising: receiving fisheye video data; generating a manifest file including one or more syntax elements in an adaptation set level syntax structure that specify attributes of one or more representations including the fisheye video data, wherein the attributes of the one or more representations including the fisheye video data include an indication of monoscopic fisheye video data or an indication of stereoscopic fisheye video data, an indication of whether images of the stereoscopic fisheye video data are in a left view or a right view, an indication of a number of circular images of the fisheye video data, an indication of a horizontal coordinate of a center of a particular circular image of the fisheye video data, and an indication of a vertical coordinate of a center of the particular circular image

of the fisheye video data; and outputting the manifest file.

18. The method of claim 17, wherein the one or more syntax elements include a fisheye video information (FVI) descriptor.

19. The method of claim 18, wherein the FVI descriptor includes a view_dimension_idc syntax element, wherein a value of 0 for the view_dimension_idc syntax element indicates the fisheye video data is stereoscopic fisheye video data, and wherein a value of 1 for the view_dimension_idc syntax element indicates the fisheye video data is monoscopic fisheye video data.

20. The method of claim 19, wherein a value of 2 for the view_dimension_idc syntax element indicates the fisheye video data is neither monoscopic fisheye video data nor stereoscopic fisheye video data.

21. The method of claim 18, wherein the one or more representations including the fisheye video data include stereoscopic fisheye video data, and wherein the FVI descriptor further includes one or more flags indicating whether images of the stereoscopic fisheye video data are in a left view or a right view.

22. The method of claim 21, wherein the one or more flags include a left_view_idc flag, wherein a value of 1 for the left view_idc_flag indicates a particular one of the images is in the left view, and wherein a value of 0 for the left_view_idc flag indicates a particular one of the images is in the right view.

23. An apparatus configured to generate a file including video data, the apparatus comprising: a memory configured to store a manifest file; and one or more processors in communication with the memory, the one or more processors configured to: receive fisheye video data; generate the manifest file including one or more syntax elements in an adaptation set level syntax structure that specify attributes of one or more representations including the fisheye video data, wherein the attributes of the one or more representations including the fisheye video data include an indication of monoscopic fisheye video data or an indication of stereoscopic fisheye video data,

an indication of whether images of the stereoscopic fisheye video data are in a left view or a right view, an indication of a number of circular images of the fisheye video data, an indication of a horizontal coordinate of a center of a particular circular image of the fisheye video data, and an indication of a vertical coordinate of a center of the particular circular image of the fisheye video data; and output the manifest file.

24. The apparatus of claim 23, wherein the one or more syntax elements include a fisheye video information (FVI) descriptor.

25. The apparatus of claim 24, wherein the FVI descriptor includes a view_dimension_idc syntax element, wherein a value of 0 for the view_dimension_idc syntax element indicates the fisheye video data is stereoscopic fisheye video data, and wherein a value of 1 for the view_dimension_idc syntax element indicates the fisheye video data is monoscopic fisheye video data.

26. The apparatus of claim 25, wherein a value of 2 for the view_dimension_idc syntax element indicates the fisheye video data is neither monoscopic fisheye video data nor stereoscopic fisheye video data.

27. The apparatus of claim 24, wherein the one or more representations including the fisheye video data include stereoscopic fisheye video data, and wherein the FVI descriptor further includes one or more flags indicating whether images of the stereoscopic fisheye video data are in a left view or a right view.

28. The apparatus of claim 27, wherein the one or more flags include a left_view_idc flag, wherein a value of 1 for the left_view_idc_flag indicates a particular one of the images is in the left view, and wherein a value of 0 for the left_view_idc flag indicates a particular one of the images is in the right view.

29. An apparatus configured to generate a file including video data, the apparatus comprising: means for receiving fisheye video data; means for generating a manifest file including one or more syntax elements in an adaptation set level syntax structure that specify attributes of one or

more representations including the fisheye video data, wherein the attributes of the one or more representations including the fisheye video data include an indication of monoscopic fisheye video data or an indication of stereoscopic fisheye video data, an indication of whether images of the stereoscopic fisheye video data are in a left view or a right view, an indication of a number of circular images of the fisheye video data, an indication of a horizontal coordinate of a center of a particular circular image of the fisheye video data, and an indication of a vertical coordinate of a center of the particular circular image of the fisheye video data; and means for outputting the manifest file.

30. A non-transitory computer-readable storage medium storing instructions that, when executed, cause one or more processors to: receive fisheye video data; generate a manifest file including one or more syntax elements in an adaptation set level syntax structure that specify attributes of one or more representations including the fisheye video data, wherein the attributes of the one or more representations including the fisheye video data include an indication of monoscopic fisheye video data or an indication of stereoscopic fisheye video data, an indication of whether images of the stereoscopic fisheye video data are in a left view or a right view, an indication of a number of circular images of the fisheye video data, an indication of a horizontal coordinate of a center of a particular circular image of the fisheye video data, and an indication of a vertical coordinate of a center of the particular circular image of the fisheye video data; and output the manifest file.