



metadata as an XMP packet. The XMP packet contains the data needed for calculating the clock offset value. The data is placed in the UUID box at the end of the file.

```

65 74 61 00 00 00 00 00 00 00 21 68 64 6C 72 00 00 00 00 00 00 00 6D eta.....!hdlr.....m
64 69 72 61 70 70 6C 00 00 00 00 00 00 00 00 00 00 00 00 2B 69 6C 73 74 dirappl.....+ilst
00 00 00 23 A9 74 6F 6F 00 00 00 1B 64 61 74 61 00 00 00 01 00 00 00 00 ...#.too....data.....
4C 61 76 66 35 34 2E 32 30 2E 34 00 00 05 27 75 75 69 64 BE 7A CF CB 97 Lavf54.20.4...'uuid.z...
A9 42 E8 9C 71 99 94 91 E3 AF AC 3C 3F 78 70 61 63 6B 65 74 20 62 65 67 .B..q.....<?xpacket beg
69 6E 3D 27 EF BB BF 27 20 69 64 3D 27 57 35 4D 30 4D 70 43 65 68 69 48 in='...' id='W5M0MpCehiH
7A 72 65 53 7A 4E 54 63 7A 6B 63 39 64 27 3F 3E 0A 3C 78 3A 78 6D 70 6D zreSzNTczkc9d'?>.<x:xmpm
65 74 61 20 78 6D 6C 6E 73 3A 78 3D 27 61 64 6F 62 65 3A 6E 73 3A 6D 65 eta xmlns:x='adobe:ns:me
74 61 2F 27 20 78 3A 78 6D 70 74 6B 3D 27 49 6D 61 67 65 3A 3A 45 78 69 ta/' x:xmptk='Image:Exi
66 54 6F 6F 6C 20 31 30 2E 32 36 27 3E 0A 3C 72 64 66 3A 52 44 46 20 78 fTool 10.26'>.<rdf:RDF x
6D 6C 6E 73 3A 72 64 66 3D 27 68 74 74 70 3A 2F 2F 77 77 77 2E 77 33 2E mlns:rdf='http://www.w3.
6F 72 67 2F 31 39 39 39 2F 30 32 2F 32 32 2D 72 64 66 2D 73 79 6E 74 61 org/1999/02/22-rdf-synta
78 2D 6E 73 23 27 3E 0A 3C 72 64 66 3A 44 65 73 63 72 69 70 74 69 6F 6E x-ns#'.<rdf:Description
20 72 64 66 3A 61 62 6F 75 74 3D 22 22 0A 78 6D 6C 6E 73 3A 64 63 3D 22 rdf:about="" xmlns:dc="
68 74 74 70 3A 2F 2F 70 75 72 6C 2E 6F 72 67 2F 64 63 2F 65 6C 65 6D 65 http://purl.org/dc/eleme
6E 74 73 2F 31 2E 31 2F 22 3E 0A 3C 64 63 3A 74 69 74 6C 65 3E 43 6C 6F nts/1.1/".<dc:title>Clo
63 6B 4F 66 66 73 65 74 3C 2F 64 63 3A 74 69 74 6C 65 3E 0A 3C 2F 72 64 ckOffset</dc:title>.</rd
66 3A 44 65 73 63 72 69 70 74 69 6F 6E 3E 0A 3C 72 64 66 3A 44 65 73 63 f:Description>.<rdf:Desc
72 69 70 74 69 6F 6E 20 72 64 66 3A 61 62 6F 75 74 3D 22 22 0A 78 6D 6C ription rdf:about="" xml
6E 73 3A 63 6C 6F 73 65 74 3D 22 68 74 74 70 3A 2F 2F 77 77 77 2E 6E 69 ns:closet="http://www.ni
73 74 2E 67 6F 76 2F 32 30 31 36 2F 43 6C 6F 63 68 4F 66 66 73 65 74 22 st.gov/2016/ClockOffset"
0A 78 6D 6C 6E 73 3A 74 69 6D 65 76 61 6C 3D 22 68 74 74 70 3A 2F 2F 77 .xmlns:timeval="http://w
77 77 2E 6E 69 73 74 2E 67 6F 76 2F 32 30 31 36 2F 54 69 6D 65 56 61 6C ww.nist.gov/2016/TimeVal
75 65 73 65 74 22 3E 0A 3C 63 6C 6F 73 65 74 3A 45 78 70 6F 72 74 53 79 ueset">.<closet:ExportSy
73 74 65 6D 54 69 6D 65 3E 0A 3C 74 69 6D 65 73 65 74 76 61 6C 3A 45 78 stemTime>.<timesetval:Ex
70 6F 72 74 53 79 73 74 65 6D 54 69 6D 65 4D 6F 64 65 53 6F 75 72 63 65 portSystemTimeModeSource
43 6F 64 65 3E 30 36 3C 2F 74 69 6D 65 76 61 6C 3A 45 78 70 6F 72 74 53 Code>06</timeval:ExportS
79 73 74 65 6D 54 69 6D 65 4D 6F 64 65 53 6F 75 72 63 65 43 6F 64 65 3E ystemTimeModeSourceCode>

```

Figure 2 - Hex View of XMP Packet Containing Clock Offset Data Elements

Playability

The sample file was included in the Video Player Software Study described in [NISTIR 8172](#). This proof of concept demonstrated that a standard metadata approach would not impact the playability of the MP4 file. The metadata defined in the profile adds refined evidentiary information to videos recorded by video surveillance systems.