

# MPEG-4

## The Design and Development of MPEG-4 Contents Authoring System

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MPEG-4

*Abstract* MPEG-4 describes audiovisual scenes that are composed of several media objects, organized in a hierarchical fashion. And for end users, it brings higher levels of interaction with content, within the limits set by the author. These spatio-temporal arrangements of the objects in the scene are specified using a parametric methodology, BIFS(Binary Format for Scenes). This paper proposes MPEG-4 Contents Authoring System that provides visual configuration of an MPEG-4 scene and its event information. The developed MPEG-4 Contents Authoring System generates streaming MPEG-4 Contents, such as BIFS stream, OD(Object Descriptor) stream automatically.

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Scene) MPEG-4

MPEG-4

BIFS(Binary Format for

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MPEG-4 가  
MPEG-4  
MPEG-4 IBM HotMedia[3] ENST MPEG-4 Tools[4]  
MPEG-4 Flavor[5]  
MPEG-4 MPEG-4  
MPEG-4 MPEG-4 MPEG-Pro[6]  
, MPEG-4  
BIFS  
MPEG-4 MPEG-4  
2 MPEG-4 3 MPEG-4  
가  
4 MPEG-4  
MPEG-4 Studio 가 5

**2. MPEG-4**

MPEG-4 가

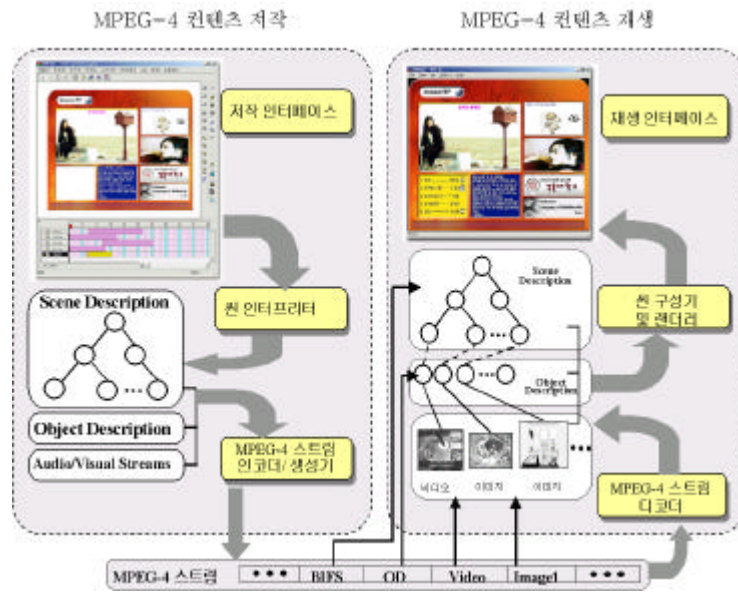
[1-2].

1 MPEG-4  
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BIFS , OD ,

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DMIF(Delivery Multimedia Integration Framework)[7]



1 MPEG-4

1

MPEG-4

MPEG-4

3. MPEG-4

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MPEG-4

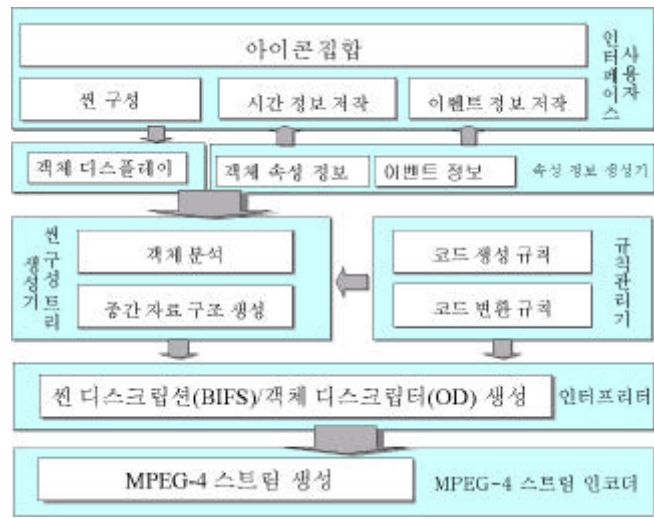
MPEG-4 Studio

3.1

2

MPEG-4

MPEG-4



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MPEG-4

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MPEG-4

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MPEG-4

MPEG-4

MPEG-4

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MPEG-4

MPEG-4

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3.2

MPEG-4

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MPEG-4

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### 3.3

MPEG-4

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OD

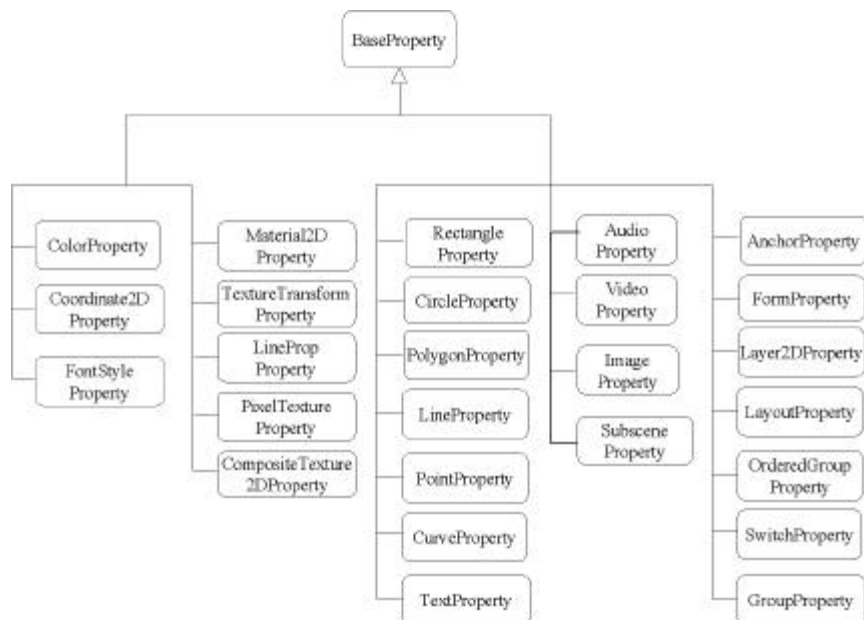
MPEG-4

MPEG-4

3

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가 가





1 가

Rectangle/ Circle/ Polygon	Scale, Color, Translation, Rotation, Filled, LineProperty, Hyperlink
Line/ Curve	Scale, Translation, Rotation, LineProperty, Hyperlink
Text	Translation, Rotation, Hyperlink
Point	Scale, Translation, Color, Hyperlink
Image	Translation, Hyperlink
Video	Translation, Speed, Hyperlink, StartTime, StopTime, Loop
Audio	Speed, StartTime, StopTime, Loop, Length, Pitch, numChan, phaseGroup
SubScene	Translation, Hyperlink
OrderedGroup	Order
Switch	WhichChoice

RIT (Route Information Table)

MPEG-4

RIT = { S\_Node, D\_Node, S\_ID, D\_ID, RT, FT, Value }

S\_Node S\_ID . D\_Node  
D\_ID . RT  
, FT . Value

RIT

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BIFS

Insert Delete, Replace, SceneReplace

. BIFS

### 3.5 MPEG-4

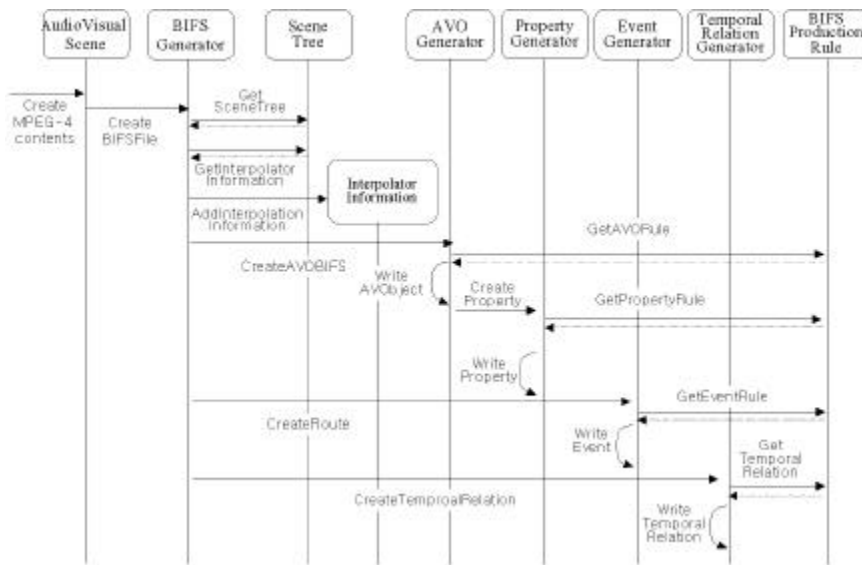
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MPEG-4

MPEG-4

OD

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5 MPEG-4

BIFS

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BIFS OD

MPEG-4

4.

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MPEG-4  
Visual C++

MPEG-4 Studio

98/2000/NT

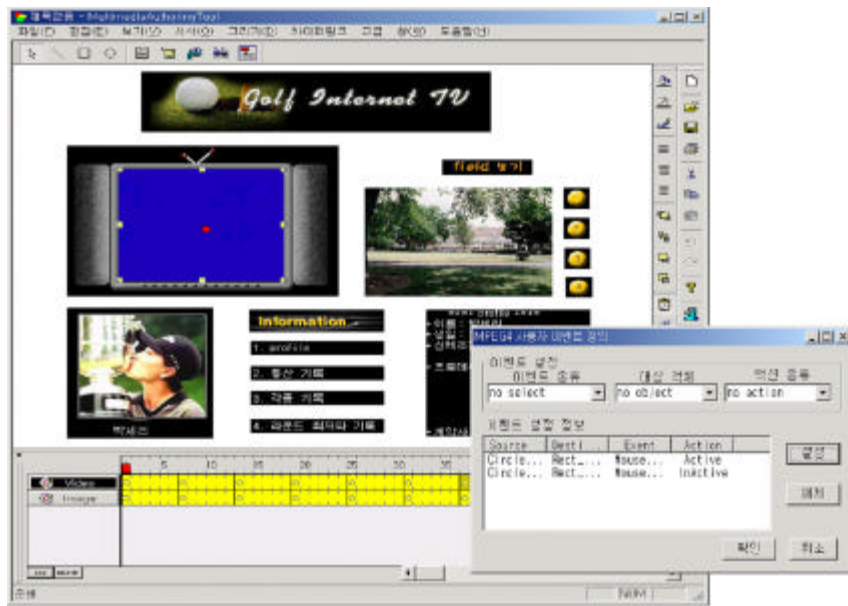
MS

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MPEG-4

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MPEG-4

BIFS

MPEG-4

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```

Group {
  children [
    DEF Transform2D1000 Transform2D {
      translation -9.00 183.00
      scale 1.00 1.00
      rotationAngle 0.00
      children [
        Shape {
          appearance Appearance {
            texture ImageTexture {
              url 1
              repeatS TRUE
              repeatT TRUE
            }
          }
          geometry Bitmap {
          }
        }
      ]
    }
    ...
    DEF Condi1 Conditional {
      buffer {
        REPLACE Switch1006 whichChoice BY 0
      }
    }
    DEF Condi2 Conditional {
      buffer {
        REPLACE Switch1005 whichChoice BY 1
      }
    }
    ...
  ]
}
ROUTE TouchS1007.isActive TO Condi1 activate
ROUTE TouchS1007.isActive TO Condi2 activate
...
UPDATE OD [
  {
    objectDescriptorID 1 muxScript golf_scr
  }
  {
    objectDescriptorID 2 muxScript golf_scr
  }
  ...
]

```

7 MPEG-4

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8 MPEG-4

MPEG-4

MPEG-4

MPEG-4

MPEG-4

MPEG-4

MPEG-4 Studio

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MDS [9]

MPEG-Pro[9]

MPEG-4 Studio

2

2 MPEG-4

항목 \ 시스템	MDS	MPEG-Pro	MPEG-4 Studio
직관적 GUI	O	O	O
시간 관계의 시각적 저작	제한적	O	O
인터플레이터 노드 저작	O	O	O
센서 노드 저작	O	O	O
커맨드 저작	X	X	O
키프레임 애니메이션 저작	X	X	O
시간관계에 의한 그룹 객체 저작	X	X	O

5.

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MPEG-4 MPEG-4  
MPEG-4 .  
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- [1] ISO/IEC FCD 14496-1 Systems, ISO/IEC JTC1/SC29/WG11 N2201, Approved at the 43<sup>rd</sup> Meeting, May. 1998.
- [2] ISO/IEC 14496-1 Systems, ISO/IEC JTC1/SC29/WG11 N2501, Information technology - Coding of audio-visual objects, Dec. 1998.
- [3] <http://www.chips.ibm.com/.mpeg/Tools/HotMedia/index.html>
- [4] <http://www.enst.fr/~dufourd/mpeg-4/index.html#3>
- [5] Alexandros, E., "Flavor: A language for media representation," Proc. of international conference on Multimedia, pp. 1-9, 1997.
- [6] Souhila, B., Jean-Claude D. and Frederic B., "MPEG-Pro, an Authoring System for MPEG-4 with Temporal Constraints and Template Guided Editing," Proc. of IEEE Multimedia and Expo, pp. 175-178, 2000.
- [7] ISO/IEC CD 14496-6, ISO/IEC JTC1/SC29/WG11, Information technology Generic Coding of Moving Pictures and Associated Audio Information Part 6 : Delivery Multimedia Integration Framework, Oct. 1997.
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- [9] <http://www.infowin.org/ACTS/ANALYSIS/CONCERTATION/MULTIMEDIA/REPORTS/mpeg.htm>