MPEG-21

*   , **   , **   , *

*   **
,

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Description of Digital Item using MPEG-21 for Broadcasting

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MPEG-7/21   ,
.   MPEG-21 REL   XrML   ,
MPEG-7   .
UI   MPEG-21 DIDL   ,
.

I.   . II
MPEG-21
III

,
.   IV
.   V
.

,   VCR(Video
Cassette Recorder)
II.
.   ,

MPEG-21
,   ,   Part5 REL
.   .
.
(,
MPEG-2/7/21)   ## 1.
,   ,   ,
,   ,   ,   MPEG(Motion Picture Expert Group)-21   52 (2000
.   5/6)
. MPEG-21   MPEG-1, 2, 4

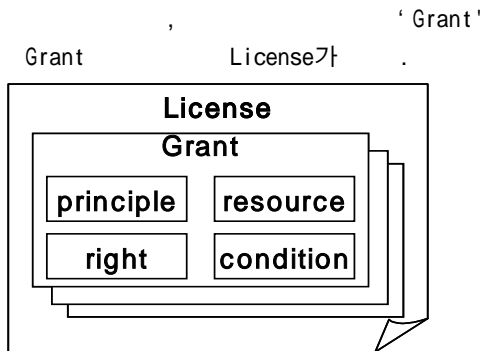|	XrML 2 Core (r)	XrML 2 Standard Extenstion (sx)	MPEG-21 REL (MPEG Extension, mx)	Korea-kookmin Univ. Ext. (kux)
Resources	grant grantGroup Principal digitalResource serviceReference xmlPatternAbstract	emailName dnsName commonName revocable x509SubjectName	diReference	contentResource
Rights	issue revoke possesProperty obtain		play print adapt edit export transfer copy embed extract read modify transform write execute delete enable disable install uninstall	broadcast
Conditions	allConditions validityInterval revocationFreshness existsRight prerequisiteRight	validityTimePeriodic territory fee exerciseLimit seekApproval traceReport trackQury validityTimeMetered validityIntervalFloating	diCriteria diPartOf isMarked mark source destination helper renderer transaction resourceSignedBy requiredAttributeChanges prohibitedAttributeChanges	broadcastDetailsConstraint logoControl

1 .

Identification: DII)   ,

'   .

.

, MPEG-21   (Container)

(Item)

.

.

MPEG-21   Part5 REL(Right Expression Language)
          (Contentguard)   XrML(eXtensible
right Markup Language)   .
XrML   (2)   Right, Principal,
Resource, Condition

III.

.

1.

(Content Provider),   (Metadata
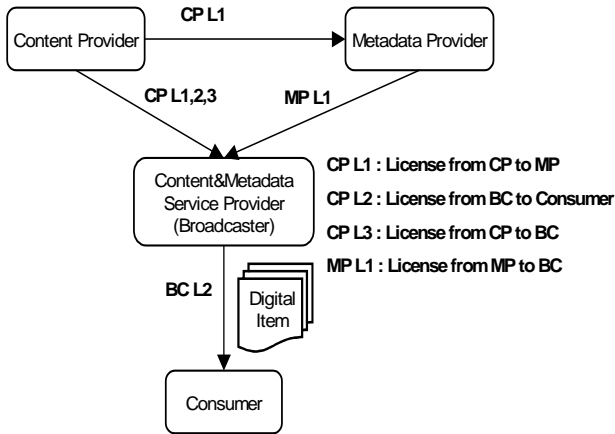Provider),   (Broadcaster),
(Consumer)   '

                                                .   ,

(3)   ,

                                                             '

                          '   Grant'
          Grant   License   .

License
Grant
| principle | resource |
| right | condition |

2 XrML

2   (Digital Item)

(   )

'   .

.   (1)

(/

'   .
,   )   ,

(Identifier)   (Descriptor)   '

(Metadata)   .   (1)   XrML2
          (Digital Item Declaration: DID)   core, XrML2 standard extension, MPEG-21 REL(MPEG
,   (Digital Item   extension)

(kux)

(right)

CP L1

Content Provider → Metadata Provider

CP L1,2,3　　**MP L1**

(Resource)

Content&Metadata
Service Provider
(Broadcaster)

CP L1 : License from CP to MP

CP L2 : License from BC to Consumer

CP L3 : License from CP to BC

MP L1 : License from MP to BC

BC L2　Digital
Item

Consumer

그림 3.

IV.

2

(1)

REL XrML XML

(Grant)

(Grant)

KBS EBS KBS "
" EBS " ", " "
, 720x480 SD(Standard Definition)
MPEG-2 . MPEG-7
MPEG-7 Summarization
DS hierarchical summary .
MPEG-21 Part

STB(Set-Top
-Box)

```
<xsd:element name="broadcast" type= "Broadcast"
        substitutionGroup="r:right"/>
<xsd:complexType name="Broadcast">
  <xsd:complexContent>
    <xsd:extension base="r:right"/>
  </xsd:complexContent>
</xsd:complexType>
```

그림 4. kux (right)

그림 6. STB UI

1.

5

i) (broadcast)

```
<xsd:element name="validityIntervalDurationPattern"
          type="ValidityIntervalDurationPattern"
          substitutionGroup="r:conditionPatternAbstract"/>
<xsd:element name="contentResource"
          type="ContentResource"
          substitutionGroup="r:resource"/>
<xsd:complexType name="ContentResource">
  <xsd:complexContent>
    <xsd:extension base="r:Resource">
      <xsd:sequence minOccurs="0">
        <xsd:element name="Name" type="xsd:string"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

그림 5. kux (resource)

(Description)

(7)

(8)

STB

(HistorySpecial.m
pg)　STB　　　　　　　　　　　　　Summariza
tion　　　　　　　(HistorySpecial.xml)　　　STB
(6)

```
<?xml version="1.0" encoding="euc-kr"?>
<DIDL xmlns="urn:mpeg:mpeg21:2002:01-DIDL-NS"
      xmlns:mpeg7="urn:mpeg:mpeg7:schema:2001"
      xmlns:xsi="http://www.w3.org/2001/
      XMLSchema-instance" xsi:schemaLocation=
      "urn:mpeg:mpeg21:2002:01-DIDL-NS ./Schemas/
      MPEG-21/Mpeg21.xsd">
  <Item>
   <Descriptor>
    <Statement mimeType="text/plain">Digital Item of
      Content Rights from broadcaster to user
    </Statement>
   </Descriptor>
   <Component>
    <Descriptor>
     <Statement mimeType="text/xml">
       <dii:Identifier>urn:mpegRA:mpeg21
         :dii:isrc:US-ZO3-99-32437
       </dii:Identifier>
     </Statement>
    </Descriptor>
    <Resource mimeType="text/xml"
       ref="HistorySpecial_bc3.xml"/>
   </Component>
  </Item>
</DIDL>
```

7

```
<kux:contentResource licensePartId="HistorySpecial">
 <kux:Name>HistorySpecial.mpg</kux:Name>
</kux:contentResource>
<kux:contentResource licensePartId="HistorySpecial_meta">
 <kux:Name>HistorySpecial_MPEG7.xml</kux:Name>
</kux:contentResource>
```

8

V.

MPEG-21

STB

[1] "Information Technology – Multimedia Content
    Description Interface Part 5: Multimedia Descript
    Schemes(MDS)" FDIS, *ISO/IEC JTC1/SC29/WG11 N4242,
    October 2001.*
[2] "Information Technology Framework-Part-2:Digital
    Item Declaration," *ISO/IEC JTC1/SC29/WG11 N8313,*
    October 2002.
[3] "Information Technology Framework-Part-3:Digital
    Item Identifier," *ISO/IEC JTC1/SC29/WG11 N4939,*
    October 2002.
[4] "Information Technology Framework-Part-5:Right
    Expression Language," *ISO/IEC JTC1/SC29/WG11
    N4942,* October 2002.
[5] extensible rights Markup Language 2.0
    Specification, http://www.xrml.org, November 2001.