

Some Usecases of ITU-T H.751/IEC 62698 (RII)

Masahito KAWAMORI

ITU-T IPTV-Global Standards Initiative

TSR Coordinator

International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

H.751

(03/2013)

SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

IPTV multimedia services and applications for IPTV –
IPTV metadata

**Metadata for rights information interoperability
in IPTV services**

Recommendation ITU-T H.751

15  1865
2015

ITU-T



What is a Rights Information Interoperability (RII) Metadata?

RII metadata is metadata that would help diverse rights information work together to support a healthy ecosystem for digital content. Thanks to its simple structure, it can not only encompass existing basic rights expressions but express license conditions such as shares to rights holders, roles, and mandates.

Descriptive metadata

- Title
- Main Title
- Alternate Title
- Duration
- Derivation
- Performer
- Creators/Composers
- Authors
- Arrangers and Adaptors
- Others Rights Holders
- Publishers and sub-Publishers

Rights Management metadata

- Identifiers
- Classes
- Roles
- Types of rights
- Shares
- Purpose of use
- Territories
- Mandates



Content ID Rights Holder ID License Conditions

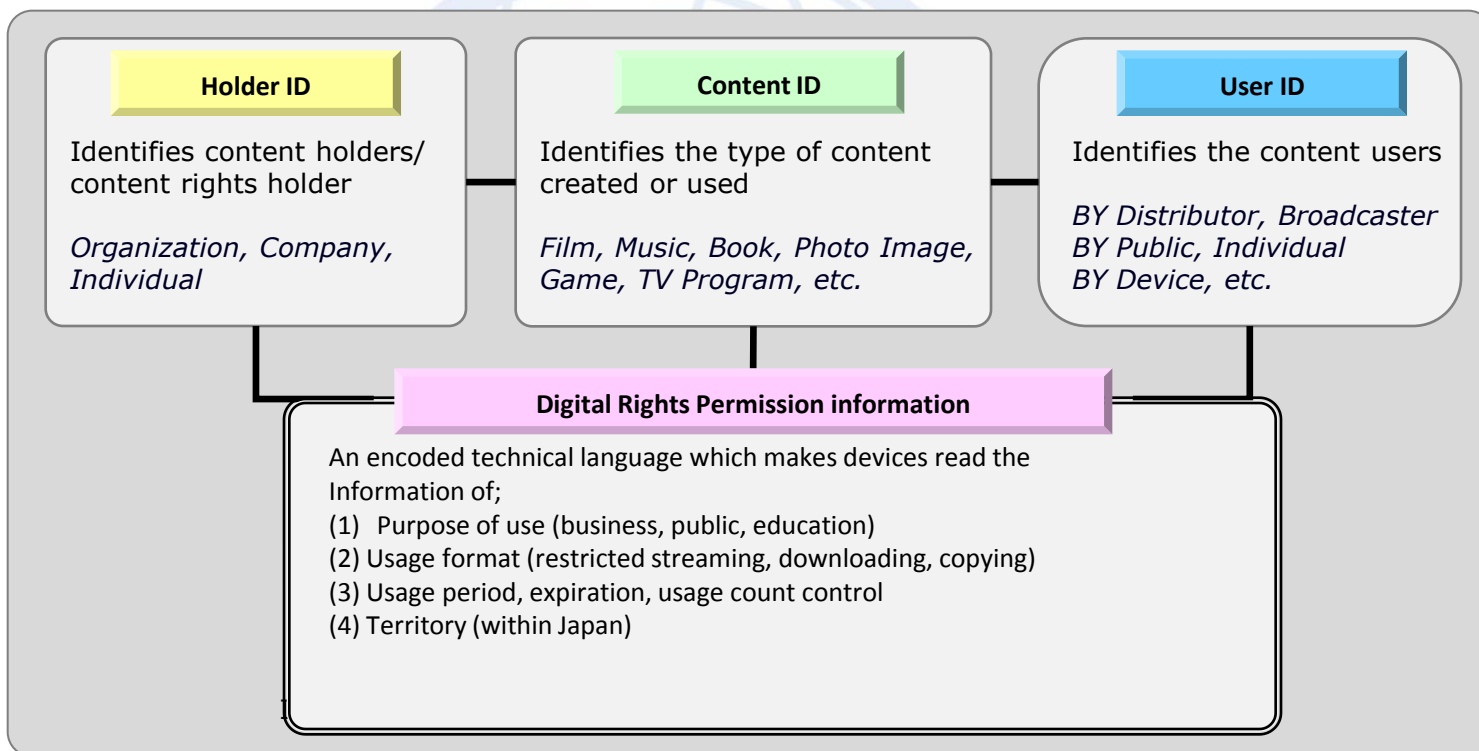
RII rights metadata (ITU-T H.751/IEC62698)

Integrate

A global standard interface of rights management metadata

RII – Formed with 4 sets of information

- RII does not simply specify content by ID numbers, but can encode various usage conditions and information for managing various uses of the content.



Encoding RII Metadata

- RII metadata can be encoded and implemented in various ways
- One way is to use XML format, for easy reading and management
- Another way is to use numeric encoding, which is defined by IEC62227.
- Using the numeric encoding is efficient and economical, especially for embedded systems, such as TV set.
- The numeric encoding of RII has been implemented in several services and standards

Use Cases of Implementation

- Digital Broadcasting
- Music Distribution

Digital Broadcasting

- RII-compliant coding of broadcasting materials, including ad material IDs are now part of the standard for Japanese digital broadcasting.
- The new digital broadcasting service in Japan, ISDB-Tsb (nicknamed “V-Low”), expected to start in 2015, will be based on this new standard.
- It is hoped that this move will trigger the formation of a consensus for the importance of rights information interoperability across various industries, including advertising, commercial broadcasting, magazines, and newspapers.

Overview of ISDB-Tsb

(Integrated Services Digital Broadcasting, Terrestrial Sound Broadcasting)

- High quality digital radio services for analog radio broadcasters
- Multimedia services for analog radio broadcasters
- Alternative distribution channels for content provider including digital signage providers and music content suppliers
- Audience analysis for broadcasters and advertisers

Material information descriptor of ARIB(Association of Radio Industries and Businesses) standard

```

material_information_descriptor () {
  descriptor_tag          8      uimsbf
  descriptor_length      8      uimsbf
  descriptor_number      4      uimsbf
  last_descriptor_number  4      uimsbf
  number_of_material_set 8      uimsbf
  for(i=0; i<N;i++) {
    material_type        8      uimsbf
    material_name_length 8      uimsbf
    for(j=0; j<N1;j++) {
      material_name_char 8      uimsbf
    }

    material_code_type   8      uimsbf
    material_code_length 8      uimsbf
    for(j=0; j<N2;j++) {
      material_code_char 8      uimsbf
    }
    material_period_flag 1      bslbf
    reserved_future_use   7      bslbf
    if(material_period_flag == 1) {
      material_period     24     uimsbf
    }
    material_url_type     8      uimsbf
    material_url_length   8      uimsbf
    for(j=0; j<N3;j++) {
      material_url_char   8      uimsbf
    }
    reserved_future_use_length 8      uimsbf
    for(j=0; j<N4;j++){
      reserved_future_use 8      bslbf
    }
  }
}

```

表 5-16 material_code_type の割り当て

material_code_type	テーブル
0x00	未使用
0x01	IEC 62227
0x02~0x7F	将来使用のためリザーブ
0x80~0xFF	事業者定義

http://www.arib.or.jp/tyosakenkyu/kaku_hoso/hoso_kikaku_number.htm

Prototype demos of RII tagging

CEATEC 2014, 6th-11th Oct



Prototype demos of RII tagging

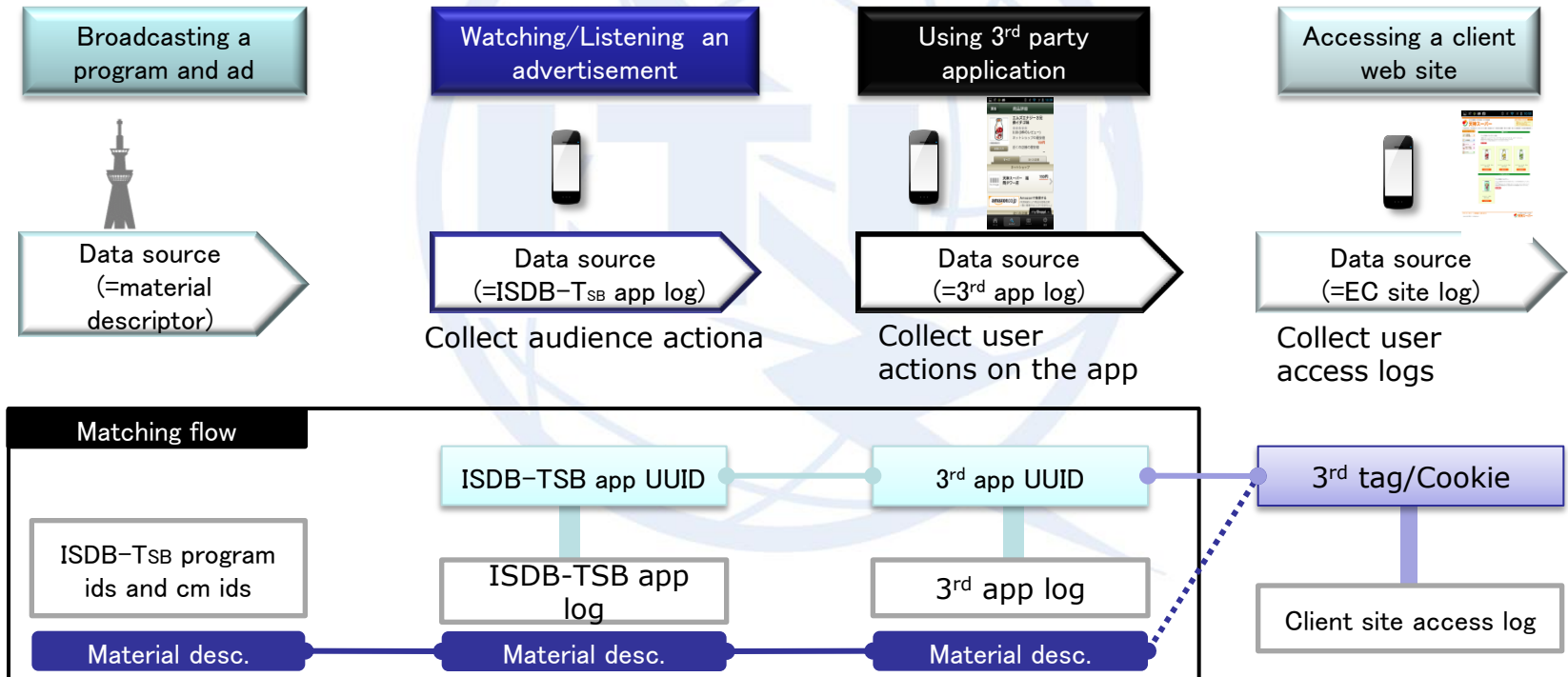
CEATEC 2014, 6th-11th Oct



Tracking flow

Method to measure by actual log data from viewing a program to purchasing a product

- By measuring an actual log, we can track all data such as broadcasting and watching a program, using smartphone application, accessing a client site and purchasing a product.



Digital Music Distribution

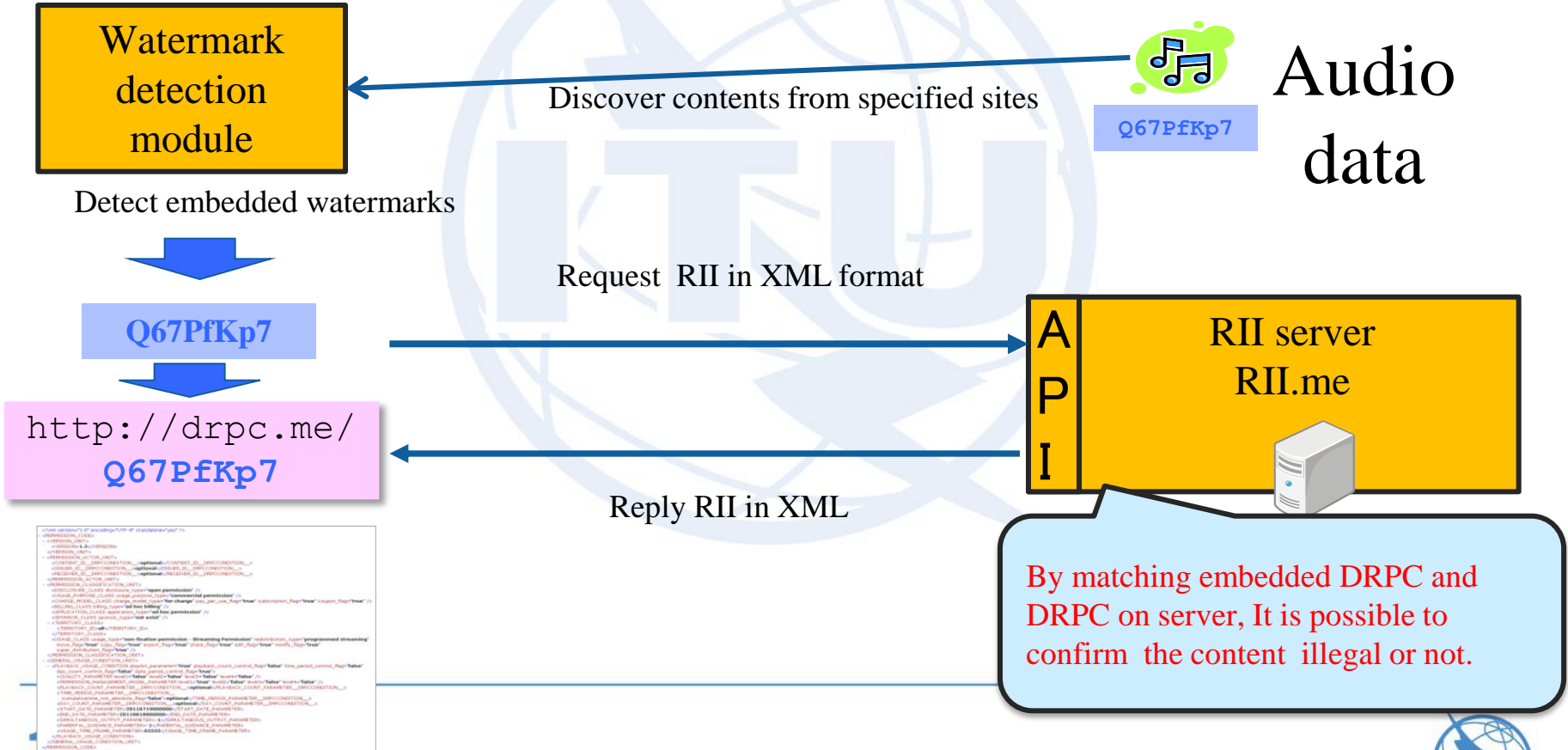
- RII is used for watermarking copyright information in the ultra-high-quality (96kHz/24bit) audio service in Japan
- This service, released by Hivelinx Co., Ltd. in February 2014, sells 414 jazz, blues, and soul numbers performed by first-class musicians in high-quality sound sources owned by members of the Recording Industry Association of Japan (RIAJ) via a USB flash drive
- This service is offered in the cloud environment without Digital Rights Management (DRM).
- RII is in place for assuring legal usage

High-Res Music



Using RII in watermarking

- By watermark detection modules, it is possible to detect RII and confirm its content permission automatically.



```

<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<RII>
  <RII_ID>Q67PfKp7</RII_ID>
  <RII_NAME>Q67PfKp7</RII_NAME>
  <RII_AUTHOR>Q67PfKp7</RII_AUTHOR>
  <RII_CONTENT><img alt="Watermark image" data-bbox="41 738 256 921"/></RII_CONTENT>
  <RII_PERMISSION>All rights reserved</RII_PERMISSION>
  <RII_COPYRIGHT>© 2015 Q67PfKp7</RII_COPYRIGHT>
  <RII_METADATA>
    <RII_METADATA_KEY>RII_ID</RII_METADATA_KEY>
    <RII_METADATA_VALUE>Q67PfKp7</RII_METADATA_VALUE>
  </RII_METADATA>
  <RII_PERMISSION_CODE>1</RII_PERMISSION_CODE>
  <RII_PERMISSION_CODE_NAME>All rights reserved</RII_PERMISSION_CODE_NAME>
  <RII_COPYRIGHT_CODE>1</RII_COPYRIGHT_CODE>
  <RII_COPYRIGHT_CODE_NAME>© 2015 Q67PfKp7</RII_COPYRIGHT_CODE_NAME>
  <RII_METADATA_CODE>1</RII_METADATA_CODE>
  <RII_METADATA_CODE_NAME>RII Metadata</RII_METADATA_CODE_NAME>
  <RII_PERMISSION_CODE_NAME_CODE>1</RII_PERMISSION_CODE_NAME_CODE>
  <RII_PERMISSION_CODE_NAME_CODE_NAME>All rights reserved</RII_PERMISSION_CODE_NAME_CODE_NAME>
  <RII_COPYRIGHT_CODE_NAME_CODE>1</RII_COPYRIGHT_CODE_NAME_CODE>
  <RII_COPYRIGHT_CODE_NAME_CODE_NAME>© 2015 Q67PfKp7</RII_COPYRIGHT_CODE_NAME_CODE_NAME>
  <RII_METADATA_CODE_NAME_CODE>1</RII_METADATA_CODE_NAME_CODE>
  <RII_METADATA_CODE_NAME_CODE_NAME>RII Metadata</RII_METADATA_CODE_NAME_CODE_NAME>
  </RII>
  
```

Example of RII system used on a tagging system

- In USB packages, following permission information is embedded by watermarks.

Content ID	From ID	To ID	Permission condition
------------	---------	-------	----------------------

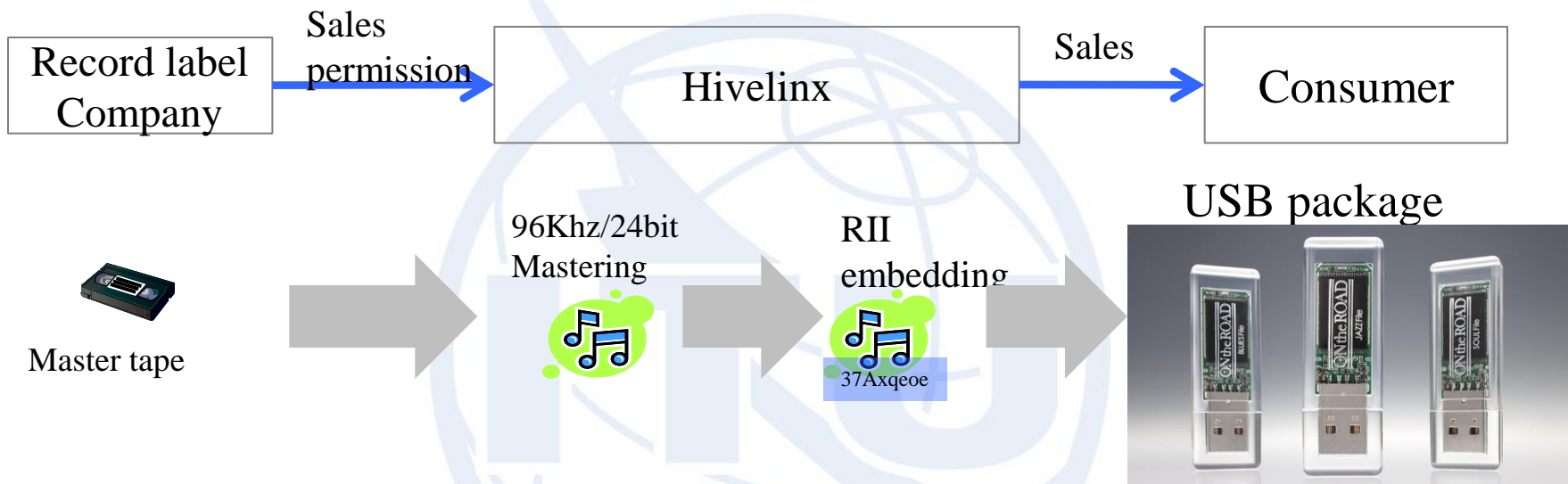


Examples

	What	From whom	To whom	Which conditions
JAZZ	<i>When You Wish Upon A Star</i> SMJP010200000609	Venus record Inc. HJPC010200000007	Hiveline UJPC010200000002	
BLUES	<i>Travelin' Blues</i> SMJP010200001068	P-Vine Inc HJPC010200000006	Hiveline UJPC010200000002	
SOUL	<i>I Can't Believe What You Say</i> SMJP11V500702981	P-Vine Inc HJPC010200000006	Hiveline UJPC010200000002	

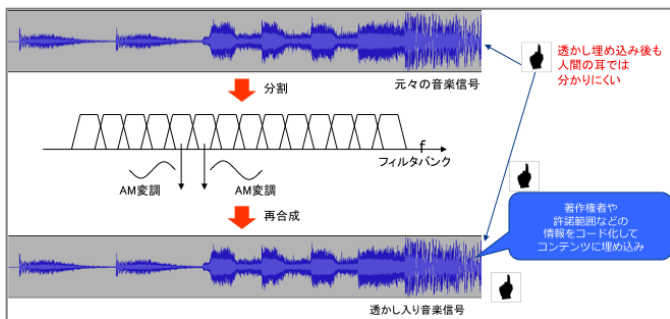
- Permission content
 - High quality
 - USB package
 - Commercial
 - Watermark
 - no DRM
 - Period: 2014/11/1-2014/11/30
 - Move
 - Copy
 - Share
 - Digital output
 - Digital export
 - Edit on timeline

High resolution audio USB packages using RII in its tagging system

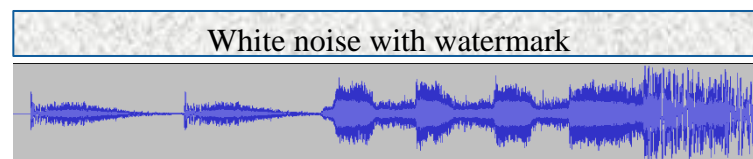


About watermark

I. Previous case (AM modulation)



II. Current case (High res)



The watermark disappears by compressing MP3, but it is no longer High-res audio, so it can be thought as the same sound as ripping from CDs.

-
- Thank you!
 - For more information
 - <http://www.itu.int/ITU-T/gsi/iptv/>
 - <http://www.itu.int/interop>
 - Or contact:
masahito.kawamori@ties.itu.int