

EBU - Networks Seminar 2006

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Monitoring and Controlling a transmitter using SNMP

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Thesis:



SNMP is a Standard

Using a **MIB one gets proprietary again!**

Antidote:

TC-MIB

SNMP: Simple Network Management Protocol

MIB: Management Information Base

TC-MIB: Transmitter Control MIB

Argument:



- **SNMP is only a protocol**

- It describes the communication between SNMP-Agent und SNMP-Manager
- Standardised at IETF
- Version: v1, v2c, v3

- **MIB: represents the real useful information**

- The semantics und the syntax is described by the MIB
- Everybody (manufacturer) can define a MIB
- Using private OID-area:
iso(1). org(3). dod(6). internet(1). private(4). enterprises(1).
- example: IRT (19831)

1.3.6.1.4.1.19831



Why Transmitter Control MIB:



Supervision and control of transmitter networks

(consists of complex structures and interdependence)

Reason:

- Developments of digital transmitter networks
- Changed relationship between transmitter network carriers (Germany) 
- Usage of data networks and data protocols for broadcast services
- Usage of IT technologies in the broadcast environment 

Changed relationship

- Two transmitter network carriers (Germany): ARD & TSI
- Common usage of transmitter locations/stations
- Owner of the transmitter location is responsible for maintenance, service, ...
 - employees works permanently on site (not everywhere)
 - access authorisation
- Different manufactures
- Both carriers need supervision access



Network Management – Service Management



Network Management

- Network monitoring (failure of channels, services, network components)
- Primary fault clearance (equivalent network, cut-off)
- Network configuration
- fault clearance initiation
- Information of the service provider

Service/Operation Management

- Fault clearance
- Service
- Maintenance



TC-MIB is:

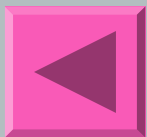


- a Telecontrol interface
- Complement broadcast transmitter
 - Not to replace management tools
- For central control room operator use 
- Primary and basic information



Central control room:

- Supervision of huge number of different equipment (not only transmitters)
- One management station per device/manufacture?!
- Not special trained employees
- Limited authorisation



TC-MIB is **NOT**:



- A replacement for the vendor specific management tools and interfaces
- Service interface/tool
- Maintenance
- Measurement



TC-MIB is not (2)

IF we proposed a MIB with those features, manufactures would **NOT** have implemented the MIB in their products.

Reasons:

- They also would like to sell their own management products
- The features of the management tools are served also for it to be different from the competitors.

Why SNMP:



- Default protocol for network management in IT-structures
- Usage of IP-networks
- Enables reading and writing of management information
- Event handling
- Usage of standard network management tools

SNMP: Simple Network Management Protocol

Start: November 2003



Recommendation and on behalf of the *conference program distribution* (KPV) of the public broadcaster in Germany:

Development of a public Management Information Base (MIB) to use SNMP for broadcast transmitter management

Focus: network management

Define a remote control interface

It is NOT a replacement of the service interface

Working group members:

Broadcast transmitter network operators:

- ARD
- TSI

Manufactures:

- Harris Europe
- Plisch
- Rohde & Schwarz
- Transradio (Telefunken)
- Thales???

How we work:

We transfer the:

Technical Specifications (ARD & TSI) for a remote control interfaces:

- Dedicated interconnection (IEC60864-1)
- Data bus interfaces (IEC60864-2)

To

- SNMP

Transmitter types (DVB-T, DAB, FM)

- Single transmitter

- Dual drive

2 exciter, 1 amplifier

- Active Reserve

1 or 2 exciter, 1 or 2 amplifier

- Passive Reserve

1 Transmitter active, 1 transmitter standby

- N+1 Configuration

N active transmitters, 1 transmitter standby

present: $N \leq 4$ for DVB-T, $N \leq 9$ for FM (no limitation at TC-MIB)

Instruction set:



Befehlssatz MIB für / Instruction set for DVB-T- / DAB-Sender / Tx Rev 1.1 Stand: 01.02.2006

	A	B
1	DVB-T / DAB Einzelsender (SingleTransmitter)	
2		
3	Befehle (Commands)	Meldungen (reports)
4		Identifikation Anlage (Tx_Identification)
5	Vorwahl Eingang (Input_Preselection) <1,2>	
6	Eingangs-Automatik <Ein/Aus>(Input_Automatic) <on/off>	
7		
8		
9	Sender <Ein/Aus>(TransmitterOpMode) <On/Off>	
10		
11		
12		
13		RF Endstufe vorhanden (RF present)
14		

Work-sharing



Working group:

- Definition of all commands and reports

IRT:

- Program / Updating the TC-MIB
- Standardisation

Manufacturers:

- Integrate the TC-MIB in their products

TSI:

- Developing a test tool

Standardisation



IEC PT 62379

Title:

Common Control Interface for digital audio and video products on asynchronous transfer mode (ATM) networks

Originate from BBC R&D:

Control of audio (AES/EBU) over ATM equipment

Members of IEC 62379



- John Grant, Nine Tiles, UK, Chair
- BBC R&D, UK
- Pioneer, Japan
- Calrec, UK
- IABM, UK
- IRT, DE

IEC PT 62379 - structure

Part 1: General

Part 2: Audio

Part 3: Video

Part 4: Control Data (time critical data interface)

Part 5-1: ATM

Part 5-2: IP (for future use)

Part 6-1: Packet Transport Service on asynchronous serial
Link

Part 7: Transmitter

PT 62379 Part 7: Transmitter



Part 7-1: DVB-T

Part 7-2: DAB

Part 7-3: FM/UKW (audio only)

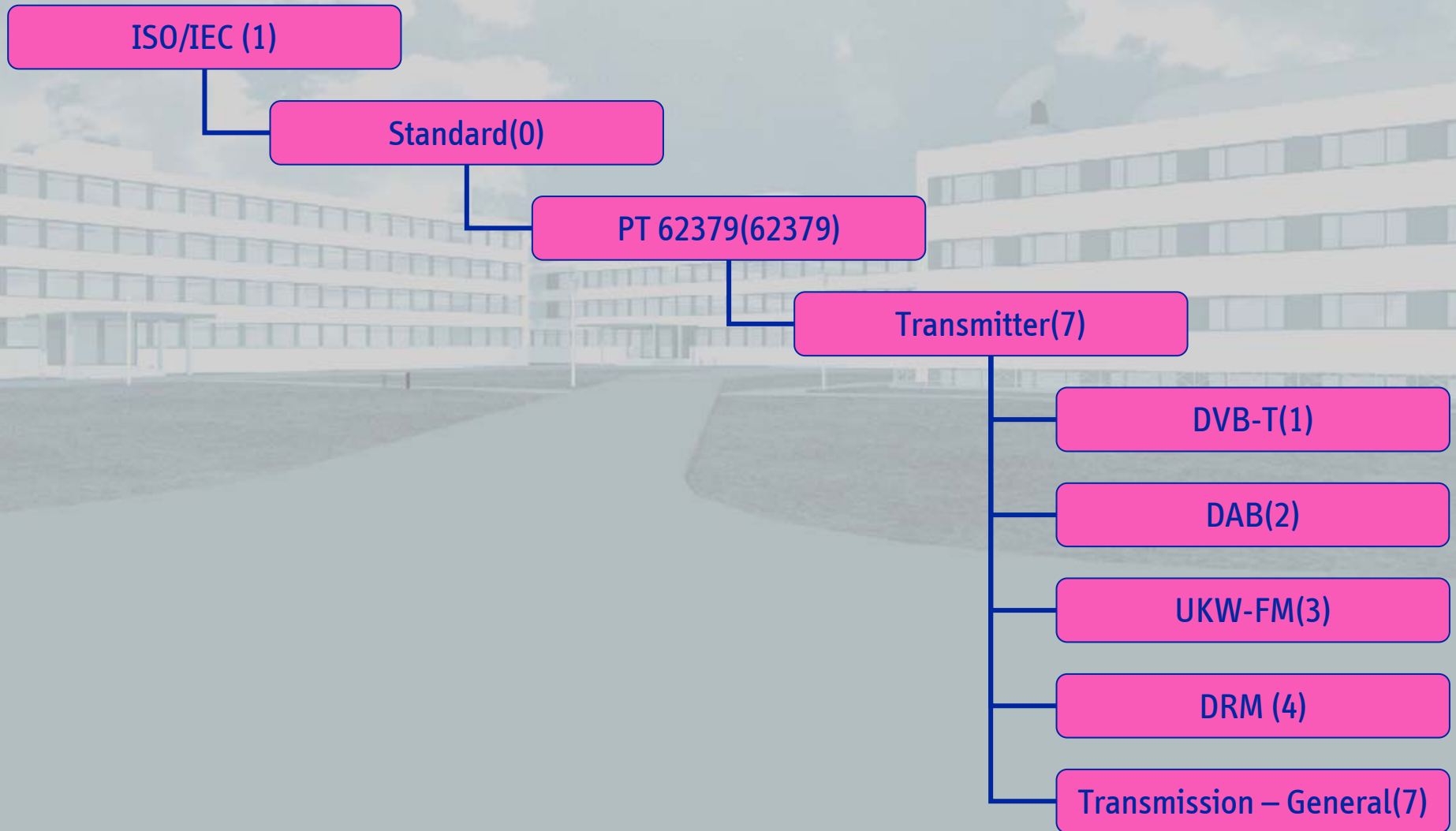
Part 7-4: DRM (DRM-DI)

Part 7-5: (for future use)

Part 7-6: (for future use)

Part 7-7: Transmission - General

TC-MIB: OID-Structure



New developments

- Responsibility at IEC
 - IEC TC 100, TA 4: Digital system interfaces and Protocols
 - IEC TC103: Transmitting equipment for radio communications→ Joint working group
- New structure proposed
 - no agreement yet (hopefully in July)

Conclusion



- TC-MIB enables broadcast network operator to supervise their network with a standardised interface
- Standardisation will hopefully concluded soon

**Thank you
for your attention !**

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