

International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

J.204

(06/2008)

SERIES J: CABLE NETWORKS AND TRANSMISSION
OF TELEVISION, SOUND PROGRAMME AND OTHER
MULTIMEDIA SIGNALS

Application for Interactive Digital Television

Metrics gathering specification

Recommendation ITU-T J.204

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Summary

Recommendation ITU-T J.204 defines a data format and transmission protocol for the collection of service delivery metrics on customer premises equipment, such as digital cable set top boxes

Source

Recommendation ITU-T J.204 was approved on 13 June 2008 by ITU-T Study Group 9 (2005-2008) under Recommendation ITU-T A.8 procedure.

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Recommendation ITU-T J.204

Metrics gathering specification

1 Scope

This Recommendation defines a data format and transmission protocol for the collection of service delivery metrics on customer premises equipment, such as digital cable set top boxes. Metrics are records generated by relevant service delivery events, such as a service selection event. Each metrics record includes a timestamp of the event. This technology provides a means to accurately and efficiently collect metrics for the purpose of measuring service delivery.

NOTE – The structure and content of this Recommendation have been organized for ease of use by those familiar with the original source material; as such, the usual style of ITU-T Recommendations has not been applied.

1.1 Introduction and Purpose

The purpose of this Recommendation is to specify metrics collection and transmission mechanisms and interfaces on receiver platforms. The data formats and transmission protocols may also be adopted by proprietary systems.

For the purposes of this Recommendation, the term "metrics" refers to specific data, defined herein, that is generated by a receiver and transmitted to a cable headend.

Metrics, as defined in this Recommendation, are intended to complement other measurement systems that may be employed by cable operators.

2 References

2.1 Normative References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ATIS] Usage Data Management For Packet-Based Services – Service-Neutral Protocol Specification For Billing Applications, ATIS-0300075.1.2006, August 2006.
<https://www.atis.org/docstore/product.aspx?id=22606>
- [IPDR/SP] IPDR/SP Protocol Specification Version 2.2, August 25, 2006.
<http://www.ipdr.org/public/DocumentMap/SP2.2.pdf>
- [IPDR/XDR] IPDR/XDR File Encoding Format, Version 3.5.1, November 2004.
<http://www.ipdr.org/public/DocumentMap/XDR3.5.1.pdf>

2.2 Informative References

- [OCAP 1.1] OpenCable Applications Platform, Profile 1.1, OC-SP-OCAP1.1-I01-061229, December 29, 2006, Cable Television Laboratories, Inc.
<http://www.opencable.com/downloads/specs/OC-SP-OCAP1.1-I01-061229.pdf>
- [ETV] Enhanced TV Binary Interchange Format, OC-SP-ETV-BIF1.0-I04-070921, September 21, 2007, Cable Television Laboratories, Inc.
<http://www.cablelabs.com/specifications/OC-SP-ETV-BIF1.0-I04-070921.pdf>

3 Terms and Definitions

This Recommendation defines the following terms:

3.1 authorized collector: An Event Tracking API-compliant server that implements the receiving side of the IPDR Streaming Protocol, and which has been authorized to participate in the overall Collection System.

3.2 data message: A message transmitted between an IPDR Exporter and Collector across the Streaming Protocol, containing a common Streaming Protocol header and an optional payload consisting of control and Data Records.

3.3 data record: The binary encoding of an IPDR record.

3.4 Internet Protocol Detail Record (IPDR): The fundamental unit of data transferred between an Exporter and a Collector. It is defined by a Template and contains Fields.

3.5 IPDR-Type: A constraint on the value and format of an individual Field within a Data Record; e.g., dateTime.

3.6 Internet Protocol Detail Record/Streaming Protocol (IPDR/SP): The protocol used to transfer Data Messages and Data Records between Exporter and Collectors.

3.7 IPDR/SP collector functionality: An implementation on the data-receiving side of the IPDR/SP. It enables the reception and collection of Data Records from IPDR/SP Exporters. It is typically part of an OSS/BSS, or a mediation system.

3.8 IPDR/SP exporter functionality: An implementation on the data-producing side of the IPDR/SP. It enables formatting and sending of Data Records to an interested consumer system, e.g., at a cable headend using the IPDR/SP.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations:

CPE Customer Premises Equipment

IPDR Internet Protocol Detail Record

IPDR/SP Internet Protocol Detail Record Streaming Protocol

5 Overview

5.1 General Context

Metrics are a set of well-defined data that are reported to a cable network by a receiver, for the purpose of measuring certain aspects of cable service delivery. This Recommendation specifies a data model and transmission protocol. Platforms that support this Recommendation are expected to define the semantics for the data points that are syntactically defined herein.

The means for metrics collection on the receiver is composed of a log, which contains log records. A log and log records are created and stored in a format determined by an implementer. Log records are created by the receiver in response to well-defined events, such as operations performed by a receiver on behalf of applications, or generated directly by applications. A log and its log records are transmitted from the receiver in a well-known format, under control of logic implemented by the network operator.

There are three logical metrics components: a so-called "metrics engine" implemented within a receiver; one or more privileged applications that configure and manage the metrics engine, collectively called the "metrics controller"; and any other "metrics logging" applications that interface with the metrics engine to generate application-specific log records.

This Recommendation defines requirements for a metrics engine and the interface between a metrics engine and a cable headend. Metrics data is considered private to the cable network. Functions such as storage, aggregation, and reporting are the responsibility of a network operator. This interface provides a well-known data format and protocol to ensure that metrics are comparable across cable networks.

The metrics engine is a component of the system software that includes the operating system and middleware, such as OCAP that communicates with the controller and logging applications as well as the cable headend (see Transmission Protocol clause below). The middleware (e.g., OCAP), is a logical software layer between the operating system and the applications that abstracts the functionality of the hardware and other functions and provides an interoperable application programming interface layer.

The controller application informs the metrics engine which metrics data are of interest

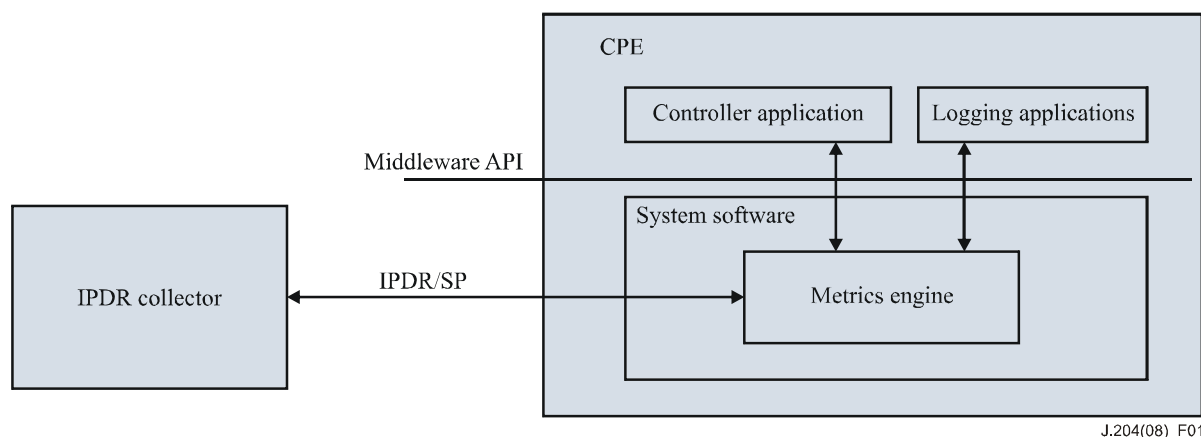


Figure 1 – Logical Model of Metrics System

Interfaces between metrics controller and logging applications and the metric engine are currently not defined within this Recommendation. We expect to include definition of a Java API for this purpose in a subsequent revision to this Recommendation.

The metrics engine incorporates IPDR/SP Exporter functionality. A cable headend that supports metrics implements IPDR/SP Collector functionality. See <https://www.atis.org/docstore/product.aspx?id=22606>

[IPDR/SP] for details.

6 Metrics Requirements

This clause defines requirements for metrics and the interface between a metrics engine and a cable headend.

6.1 Transmission Protocol

IPDR/SP is the protocol for transmitting metrics data to a cable headend. It is an American National Standard ATIS-0300075.1.2006 [ATIS]. The IPDR/SP utilizes a light-weight, session-oriented, real-time streaming protocol to quickly and reliably deliver metrics data, a.k.a. IPDRs, from an "Exporter" to a "Collector" (typically a type of mediation system). Receivers that support this