

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

T.808

Amendment 5
(03/2013)

SERIES T: TERMINALS FOR TELEMATIC SERVICES
Still-image compression – JPEG 2000

Information technology – JPEG 2000 image coding
system: Interactivity tools, APIs and protocols

**Amendment 5: UDP transport and additional
enhancements to JPIP**

Recommendation ITU-T T.808 (2005) – Amendment 5

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**Information technology – JPEG 2000 image coding system:
Interactivity tools, APIs and protocols**

Amendment 5

UDP transport and additional enhancements to JPIP

Summary

Amendment 5 to ITU-T T.808 | ISO/IEC 15444-9 contains a minor enhancement that provides tools and definitions to enable the user datagram protocol (UDP) as transport layer for the JPEG 2000 Interactive Protocol (JPIP). A UDP packaging of messages into chunks is described, and mechanisms for flow control and to detect and recover from package loss are introduced. UDP transport is defined in the new Annex K.

Amendment 5 also includes a minor clarification in the definition of the Placeholder box.

Since Amendment 3 of ITU-T T.801 | ISO/IEC 15444-2 adds the possibility to rotate compositing layers by multiples of 90 degrees and/or to flip them horizontally and vertically, the definition of the view window and context range of ITU-T T.808 | ISO/IEC 15444-9 had to be extended to respect this additional feature.

A further addition allows a JPIP client to identify the request fields that a server is prepared to handle. This new request addresses the need of a client to identify the capabilities of the server beforehand, and thus to adapt and optimize its strategy to retrieve data from the server.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T T.808	2005-01-08	16
1.1	ITU-T T.808 (2005) Amd. 1	2006-05-29	16
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1.3	ITU-T T.808 (2005) Amd. 2	2007-08-29	16
1.4	ITU-T T.808 (2005) Cor. 2	2008-06-13	16
1.5	ITU-T T.808 (2005) Amd. 3	2008-06-13	16
1.6	ITU-T T.808 (2005) Amd. 4	2010-05-22	16
1.7	ITU-T T.808 (2005) Cor. 3	2011-05-14	16
1.8	ITU-T T.808 (2005) Amd. 5	2013-03-16	16

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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**INTERNATIONAL STANDARD
RECOMMENDATION ITU-T**

**Information technology – JPEG 2000 image coding system:
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UDP transport and additional enhancements to JPIP

1) Clause 6.1

Replace the third paragraph in this clause (between Figure 3 and Figure 4) with the following text:

This protocol can be used over several different transports as shown in Figure 4. This Recommendation | International Standard includes informative annexes on the use of the JPIP protocol over HTTP, TCP and UDP, and provides suggestions for other example implementations. The JPIP protocol itself is neutral with respect to underlying transport mechanisms for the client requests and server responses, except in regard to channel requests represented by the New Channel ("cnew") request field (see C.3.3) and the New Channel ("JPIP-cnew") response header (see D.2.3), where transport-specific details shall be communicated. This Recommendation | International Standard defines four specific transports, which are identified by the strings "http", "https", "http-tcp" and "http-udp" in the value string associated with New Channel requests.

2) Clause A.3.6.4

Replace clause A.3.6.4 with the following new clause A.3.6.4:

Wherever header, precinct or tile data bins exist, their codestream ID shall appear in a Placeholder box within an appropriate metadata bin. The only exception to this requirement is for unwrapped JPEG 2000 codestreams, which are not embedded within a JPEG 2000 family file format.

The codestream ID values that appear within the relevant Placeholder box shall conform to any requirements imposed by the containing file format. For example, JPX files formally assign a sequence number to codestreams that are found in Contiguous Codestream boxes or Fragment Table boxes, either at the top level of the file, or within Multiple Codestream boxes. The first codestream in the logical target shall have a codestream ID of 0; the next shall have a codestream ID of 1; and so forth.

Placeholders that reference multiple codestream IDs may be used only where the meaning of those codestreams is well defined by the type of the box that is being replaced. For JPX files, Contiguous Codestream boxes, Fragment Table boxes and Multiple Codestream boxes may be replaced by Placeholder Boxes that specify codestream IDs. Placeholders replacing Contiguous Codestream boxes and Fragment Table boxes may specify only a single codestream ID, while a placeholder replacing a Multiple Codestream box may specify multiple codestream IDs, corresponding to the number of codestreams that are found within the box.

3) Clause B.1

Replace the second paragraph of B.1 with the following:

The purpose of sessions is to reduce the amount of explicit communication required between the client and server. Within a session, the server is expected to remember client capabilities and preferences supplied in previous requests so that this information need not be sent in every request. Even more importantly, the server may keep a log of data it knows the client to have received so that this information need not be re-transmitted in response to future requests. This log is subsequently referred to as the cache model. The cache model would typically be persistent for the duration of a session. Unless explicitly instructed otherwise, the server may assume that the client caches all data it receives within a session, and may model the client's cache, sending only those portions of the compressed image data or metadata which the client does not already have in its cache.