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Amendment 4
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SERIES T: TERMINALS FOR TELEMATIC SERVICES

Procedures for real-time Group 3 facsimile communication over IP networks

Amendment 4

ITU-T Recommendation T.38 – Amendment 4

(Formerly CCITT Recommendation)

ITU-T Recommendation T.38

Procedures for real-time Group 3 facsimile communication over IP networks

AMENDMENT 4

Summary

This amendment comprises the following changes:

a) The T.30 Indicator is mandatory.

b) Annex B is modified to clarify the TCP Start-up.

c) The ASN.1 text in Annex B is removed. A reference to ITU-T H.245 V7 replaces it.

d) ITU-T T.38 version number is 2, and the table introduced in Amendment 3 is updated.

Source

Amendment 4 to ITU-T Recommendation T.38 was prepared by ITU-T Study Group 16 (2001-2004) and approved under the WTSA Resolution 1 procedure on 29 July 2001.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. 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, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

ITU-T Recommendation T.38

Procedures for real-time Group 3 facsimile communication over IP networks

AMENDMENT 4

1) Clause 7.3.1

Amend clause 7.3.1 as follows:

7.3.1 T30_INDICATOR

The T30_INDICATOR TYPE is used by the gateways to indicate the detection of signals such as CED, HDLC preamble flags, and modem modulation training. It is sent by the receiving gateway to the emitting gateway, and by the emitting gateway to the receiving gateway. The use of this message ~~is optional for TCP implementations and~~ mandatory ~~for UDP implementations~~ except in the case where both G3FE devices are identified via DIS/DCS exchange as Internet Aware Fax Devices. A peer may send this message in order to notify its peer about upcoming messages. The T30_INDICATOR TYPE has one of the following values.

2) Table 2

Amend Table 2 as follows:

Table 2/T.38 – IFP packet TYPE field

Type	DATA Type	~~Mandatory / Optional (TCP)~~	Mandatory ~~/ Optional (UDP)~~	Description
T30_INDICATOR	Regular	~~O~~	~~M~~Yes	Carries indication about the presence of a facsimile signal (CED/CNG), preamble flags or modulation indications
T30_ DATA	Field	~~M~~	~~M~~Yes	T.30 HDLC Control and Phase C data (e.g. T.4/T.6 image segment.)

NOTE – If both G3FE devices are identified via DIS/DCS exchange as Internet Aware Fax Devices, T.30_INDICATOR use is optional ~~with UDP~~.

3) Clause B.3.3

Amend this clause as follows:

These capabilities are negotiated using the OLC elements as defined in the T38faxProfile of H.245 V5~~7 with the following T.38 extensions~~.

~~NOTE – A portion of the OLC of H.245 V5 elements are shown below in italics and the T.38 Annex B elements are shown in roman to indicate where these T.38 Annex B elements fit into the H.245 procedure.~~

~~***T38faxProfile ::= SEQUENCE***~~

~~{~~

~~**fillBitRemoval BOOLEAN,**~~

~~**transcodingJBIG BOOLEAN,**~~

~~**transcodingMMR BOOLEAN,**~~

~~**....**~~

~~**version INTEGER (0..255), -- Version 0, the default, refers to T.38 (1998)**~~

~~**t38FaxRateManagement T38FaxRateManagement,**~~

~~**-- The default Data Rate Management is determined by the choice of Data Protocol Capability**~~

~~t38FaxUdpOptions t38FaxUdpOptions OPTIONAL~~
~~-- For UDP, t38UDPRedundancy is the default.~~
~~}~~
~~*DataMode ::= SEQUENCE*~~
~~*{*~~
~~*application CHOICE*~~
~~*{*~~
~~*nonStandard NonStandardParameter,*~~
~~*...*~~
~~*t38fax SEQUENCE*~~
~~*{*~~
~~*t38FaxProtocol DataProtocolCapability,*~~
~~*t38FaxProfile T38FaxProfile*~~
~~*},*~~
~~*genericDataMode GenericCapability*~~
~~*},*~~
~~*bitRate INTEGER (0..4294967295), -- units 100 bit/s*~~
~~*...*~~
~~*}*~~

~~T38FaxRateManagement ::= CHOICE~~
~~{~~
~~localTCF NULL,~~
~~transferredTCF NULL~~
~~...~~
~~}~~

~~T38FaxUdpOptions::= SEQUENCE~~
~~{~~
~~t38FaxMaxBuffer INTEGER OPTIONAL,~~
~~t38FaxMaxDatagram INTEGER OPTIONAL,~~
~~t38FaxUdpEC ::= CHOICE~~
~~{~~
~~t38UDPFEC NULL,~~
~~t38UDPRedundancy NULL,~~
~~...~~
~~}~~
~~}~~

~~*DataMode ::= SEQUENCE*~~
~~*{*~~
~~*application ::= CHOICE*~~
~~*{*~~
~~*nonStandard NonStandardParameter,*~~
~~*t120 DataProtocolCapability,*~~

Two unidirectional reliable or unreliable logical channels (sender to receiver channel and receiver to sender channel), as shown in Figure B.1 or, optionally, one bidirectional reliable channel as shown in Figure B.2 shall be opened for the transfer of T.38 packets. T.38 packets can be transferred using either TCP or UDP. In general, the usage of TCP is more effective when the bandwidth for facsimile communication is limited, or for IAF to IAF transfers since TCP provides flow control. On the other hand, the usage of UDP may be more effective when the bandwidth for facsimile communication is sufficient.

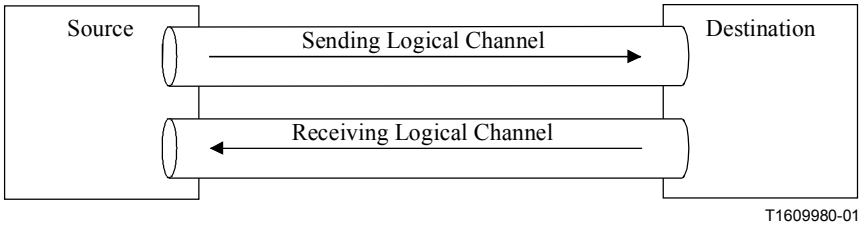

Figure B.1/T.38 – A pair of unidirectional channels

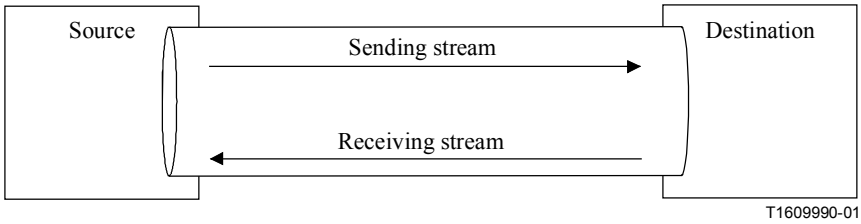

Figure B.2/T.38 – A single of bidirectional channels

The sender terminal specifies a TCP/UDP port in the **OpenLogicalChannel** in the **fastStart** element of *Setup*. The receiver terminal shall provide its TCP (or UDP) port in the **OpenLogicalChannel** of the **fastStart** element as specified by the procedures in 8.1.7/H.323: "Fast connect".

The receiver should open the TCP/UDP port based on the preference of the sender. If the sender terminal has a preference for UDP or TCP, then it shall provide its preference in the **OpenLogicalChannel** with the appropriate port in the **fastStart** sequence. The receiving terminal can select the transport, TCP or UDP, by specifying one of the two in **OpenLogicalChannel** structures in the **fastStart** element of *Connect*.

All Annex B/T.38 implementations shall include a T38facsimile OLC with **udp** and **transferredTCF** set in the **fastStart** structure. Note that all Annex D/H.323 devices also are required to include this structure. In addition, Annex B/T.38 devices shall include an OLC with **tcp** and **localTCF** set. As described in 8.1.7/H.323, the order in which OLCs are included in the **fastStart** element indicates preference on the part of the sender. The receiver only includes the OLCs that it wishes to use in the **fastStart** element of the *Connect*.

NOTE – In the first version of Annex B, it was not possible to use a single bidirectional reliable channel. In order to retain backward compatibility, the endpoint may specify support for bidirectional reliable channels by including the **t38FaxTcpOptions** SEQUENCE and setting the **t38TCPBidirectionalMode** field to TRUE. If the other endpoint does not include the **t38FaxTcpOptions** SEQUENCE, the endpoint shall assume that a single bidirectional reliable channel for T.38 is not supported and shall use either two unidirectional reliable or unreliable channels.

4) Table at the end of clause 5 (Introduction)

Update this table as follows:

The following table shows the relationship between T.38 amendments and the T.38 version number.

T.38 Amendments and Version Numbers

Amendment	Version Number	Content Summary
1	0	Annex B
2	0	Annex D, E, Appendix II,
3	1	TPKT, IAF Support, Amendment to Annex D, E, Appendix V
4	2	TCP Startup, Mandatory T.30 Indicator

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